4.0 The 2008 and 2009 Projected Inventories

Part II of EPA's rule to implement the 8-hour NAAQS requires the Washington, DC-MD-VA ozone nonattainment region to achieve a 15 percent reduction between 2002 and 2008 using reductions in either VOC or NOx emissions or with any combination of the two.[1] Also an inventory for the attainment year 2009 is required for the region. The 15% reduction must be calculated from the anthropogenic emissions levels reported in the 2002 base year emissions inventory after those levels have been adjusted for non-creditable emissions reduction occurring between 2002 and 2008. The 2002 Base-Year Inventory is described in Chapter 3. This chapter presents the 2008 and 2009 projection inventories, the estimation of the levels of emissions to be expected in those years before the consideration of emissions controls.

The 2008 and 2009 projected inventories were derived by applying the appropriate growth factors to the 2002 base year emissions inventory. EPA 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.

Round 7.0 Cooperative Forecasts (population, household and employment projections) and Vehicle Miles Traveled (VMT) projections for 2008 and 2009 were used to project area sources emissions. Round 7.0 Cooperative Forecasts were prepared by the Metropolitan Washington Council of Governments (MWCOG) staff and officially adopted by its Board of Directors on October 12, 2005. Vehicle Miles Traveled (VMT) projections were developed by COG Department of Transportation Planning staff as part of the report on 2005 Constrained Long Range Plan (CLRP) & 2006-2011 Transportation Improvement Program (TIP) for the National Capital Region Transportation Planning Board. Projections for onroad emissions were developed using MOBILE6.2 (January 2003) model and the Travel Demand Model ver. 2.1d #50 developed by the National Capitol Region Transportation Planning Board. The travel demand modeling process also used Round 7.0 Cooperative Forecasts.

EPA's nonroad model, NONROAD2005, was used for developing both 2008 and 2009 nonroad inventories. The Economic Growth Analysis System (EGAS) model was used by all three jurisdictions to project growth in point source emissions.

[1] 40 CFR 51.910(a), *Final Rule to Implement the 8-Hour Ozone National Ambient Air Quality Standard-Phase 2; Federal Register. Final Rule To Implement Certain Aspects of the 1990 Amendments Relating to New Source Review and Prevention of Significant Deterioration as They Apply in Carbon Monoxide, Particulate Matter and Ozone NAAQS; Final Rule for Reformulated Gasoline*, Federal Register. Vol.70, No. 228, Nov. 29, 2005, pp.71612-71705.

4.1 Growth Projection Methodology

The following sections describe the methods followed to determine the projected inventories for 2008 and 2009 for point, area, nonroad, and onroad sources.

4.1.1 Growth Projection Methodology for Point Sources: EGAS

The growth in point source emissions is projected using EGAS version 5.0. Point source emissions for 2002 are provided from the state data sources and the model is run with the following options selected: Source Classification Code; the Bureau of Labor Statistics national economic forecast; and the baseline regional economic forecast. Point source emission projections using EGAS for 2008 and 2009 are contained in Appendix C.

4.1.2 Growth Projection Methodology: Area Sources

Base year 2002 area source emissions were calculated using the year 2002 population, household, and employment data. Growth factors for the periods 2002 through 2008 and 2002 through 2009 were derived by dividing Cooperative Round 7.0 population, household, and employment forecasts and Vehicle Miles Traveled (VMT) data provided by COG Department of Transportation Planning for 2008 and 2009 by the year 2002 population, household, employment, and VMT data for the region respectively. Cooperative Round 7.0 Forecasts and VMT data are provided in Appendix D. Projected area source inventories for 2008 and 2009 are also contained in Appendix D. Growth factors used for the 2008 and 2009 projection years are presented in Tables 4-1 and 4-2.

Table 4-1
2002-2008 Growth Factors

Jurisdiction	Employment[1]	Population[1]	Household[1]	VMT[2]
District of Columbia	1.032	1.038	1.041	1.033
Calvert County	1.238	1.126	1.127	1.151
Charles County	1.264	1.127	1.142	1.140
Frederick County	1.259	1.140	1.143	1.146
Montgomery County	1.088	1.084	1.082	1.048
Prince George's County	1.090	1.047	1.067	1.045
City of Alexandria	1.150	1.071	1.086	1.045
Arlington County	1.113	1.068	1.086	1.019
Fairfax County	1.109	1.098	1.101	1.058
Fairfax City	1.052	1.058	1.057	1.058
Falls Church City	1.145	1.109	1.132	1.058

Loudoun County	1.367	1.444	1.447	1.292
Prince William County	1.201	1.263	1.267	1.163
Manassas City	1.055	1.058	1.079	1.163
Manassas Park City	1.383	1.249	1.279	1.163

[1] Growth factors based on COG Round 7.0 Cooperative Forecasts.
[2] Growth factors based on VMT estimates from 2005 CLRP & 2006-2011 TIP provided by COG Department of Transportation Planning.

Table 4-2
2002-2009 Growth Factors

Jurisdiction	Employment[1]	Population[1]	Household[1]	VMT[2]
District of Columbia	1.043	1.049	1.051	1.038
Calvert County	1.266	1.147	1.147	1.161
Charles County	1.291	1.141	1.160	1.159
Frederick County	1.297	1.162	1.165	1.175
Montgomery County	1.106	1.097	1.095	1.057
Prince George's County	1.108	1.052	1.076	1.062
City of Alexandria	1.166	1.083	1.101	1.083
Arlington County	1.137	1.082	1.102	1.023
Fairfax County	1.138	1.117	1.120	1.074
Fairfax City	1.066	1.071	1.067	1.074
Falls Church City	1.094	1.141	1.172	1.074
Loudoun County	1.427	1.515	1.517	1.331
Prince William County	1.235	1.304	1.312	1.189
Manassas City	1.067	1.064	1.089	1.189
Manassas Park City	1.489	1.286	1.322	1.189

[1] Growth factors based on COG Final Round 7.0 Cooperative Forecasts.
[2] Growth factors based on VMT estimates from 2005 CLRP & 2006-2011 TIP provided by COG Department of Transportation Planning.

2008 and 2009 emissions for area sources were calculated by multiplying the 2002 base-year area emissions by the above growth factors for 2008 and 2009 for each jurisdiction. Each area source category was matched to an appropriate growth surrogate based on the

activity used to generate the base-year emission estimates. Surrogates were chosen as follows:

Surface Coating – Depending on whether emission factors were based on employment or population, the surrogate chosen varied with individual sub-categories. For example, the automobile refinishing category was grown using employment, as the emission factor was based on it, but population was chosen for growing traffic markings as its emission factor was based on population.

Commercial/Consumer Solvent Use - Population was chosen as the growth surrogate since 2002 emissions are based on per capita emission factors.

Residential Fuel Combustion - Household was chosen as the growth surrogate.

Industrial/Commercial/Institutional Fuel Combustion - Population was chosen as the growth surrogate except for the commercial/institutional coal combustion category, where no growth was assumed.

Vehicle Fueling (Stage II) and Underground Tank Breathing - All gasoline marketing categories were based on vehicle miles traveled (VMT) data since VMT is an appropriate surrogate for gasoline sales. Emission factors for these categories are based on gasoline sales.

Open Burning - Population was chosen as the growth surrogate as yard wastes, land debris, etc. increase with population.

Structural Fires, Motor Vehicle Fires – Population was chosen as the growth surrogate.

Publicly Owned Treatment Works (POTW) – Households was chosen as the growth surrogate.

Dry Cleaning - Employment was chosen as the surrogate.

Graphic Arts - Population was used to estimate growth since emissions are based on per capita emission factors.

Surface Cleaning - Employment growth was used as the surrogate.

Tank Truck Unloading – Growth in VMT was applied to this category since base-year emissions are calculated using gasoline sales.

Municipal Landfills - Base-year emissions are estimated using data on total refuse deposited. Population was chosen as a surrogate since deposited waste is from the general population rather than industrial facilities.

Asphalt Paving - Population was chosen as the surrogate since base-year emissions are calculated using per capita emission factors.

Bakeries, Breweries - Population was chosen as the surrogate.

Soil/Groundwater Remediation - Zero growth was applied to this category. The number of remediations during the ozone season, used to generate base-year emissions, does not directly correlate to population, households, or employment growth.

Portable Fuel Container Emissions - Emissions for the District of Columbia and Maryland from residential and commercial sectors were grown based on household and employment respectively. Emissions for Virginia were grown using the fuel usage by SCCs associated with the refueling of portable fuel containers. These fuel usage data were derived from the NONROAD2005 model by MACTEC as part of the emissions development efforts for the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) modeling process.

Commercial Cooking - Employment growth was used as the surrogate.

Composting – Zero growth was applied to this category.

Forest Fires, Slash Burning, Prescribed Burning – Zero growth was applied to this category.

Accidental Oil Spills - Zero growth was applied to this category.

Incineration– Zero growth was applied to this category.

Pesticide Application - Zero growth was applied to this category.

Aircraft Refueling Emissions - Emissions from refueling of aircrafts was projected based on employment.

4.1.3 Growth Projection Methodology: Nonroad Sources

The 2008 and 2009 nonroad source inventories were created through the use of EPA's NONROAD2005 model version 2005a (February 8, 2006), except for locomotives, marine diesel vessels, and aircrafts. This model was run with its associated graphic user interface NONROAD2005.1.0 (June 12, 2006), reporting utility version. 2005c (March 21, 2006), and all geographical allocation data files updated until February 1, 2006. The base year 2002 nonroad source inventory was also created using the same model, reporting utility and geographical allocation data files, but with a different graphic user interface version NONROAD2005.0.0 (December 2, 2005).

Nonroad model runs were made for the metropolitan Washington region for average ozone season day. The ozone season extends from May through September. However, the NONROAD2005 model used in these runs did not have the option to run the model for the ozone season period. Instead, it provided an option for a summer season (June – August) run. In order to get average ozone season day emissions, the model was run for

the entire summer season (June-August) while using average ozone season fuel parameters. Then total emissions calculated this way were divided by the total number of days in the summer season (92) to get average ozone season day emissions. Monthly fuel data obtained from the states were averaged for the period May through September to get fuel parameters reflecting the ozone season period. Three different sets of average ozone season fuel parameters were developed each for the District of Columbia, Virginia, and Maryland.

Methodology to prepare inputs for ozone season day runs is provided below.

Temperature

Temperature data were acquired from the National Climatic Data Center (NCDC). Hourly average temperature data were collected for Dulles (IAD) and Reagan National (DCA) stations for the top ten 8-hour maximum ozone days during the period 2002-2004. Then the two hourly datasets were averaged together to get one hourly dataset. Then minimum, maximum, and average temperatures were computed from this hourly temperature dataset.

Fuel inputs

Month specific data for fuel RVP and oxygen weight percent were provided by the state air agencies of Maryland and Virginia. These data were averaged for the period May through September to get ozone season average inputs. The District of Columbia decided to use year and ozone season specific Mobile6 model default values for these parameters. Nonroad model defaults were used for sulfur content in gas, diesel, marine diesel, and CNG/LPG. Model default (Zero %) Stage II controls were assumed for the model runs.

Model inputs (temperature, fuel, and other parameters) for both 2008 and 2009 are listed below for each jurisdiction:

Table 4-3
NONROAD Model - Common Inputs

Parameters	Values
Min. Temperature	69.8
Max. Temperature	92.5
Avg. Temperature	81.4
Gas Sulfur (%)	0.003
Diesel Sulfur (%)	0.0348
Marine Diesel Sulfur (%)	0.0408
CNG/LPG Sulfur (%)	0.003
Oxygen Weight (%)	2.1
Stage II Control (%)	0

Table 4-4: NONROAD Model – State-Specific Inputs

State	RVP
District of Columbia	6.8
Maryland	6.9
Virginia	6.8

Since the nonroad model does not generate emissions for aircraft, APU, locomotives, and commercial diesel marine vessels, these were either projected from the base year emissions using the cooperative forecast 7.0 or acquired from MWAA. Below are the details for projecting emissions for the above mentioned individual nonroad categories.

Aircraft emissions (commercial, military, general aviation, air taxi)
Metropolitan Washington Airports Authority (MWAA) provided all types of airport emissions for Dulles and Reagan National airports, which are documented in *Air Pollution Emission Inventories for Washington Dulles International Airport and Ronald Reagan Washington National Airport for Calendar Years 2002, 2008, 2009*[2] (see Appendix B4 of the base year 2002 inventory document). Since Dulles airport is spread across Fairfax and Loudoun counties, MWAA emission from Dulles airport were divided equally between Fairfax and Loudoun counties. Emissions from Reagan National airport were put into Arlington county.

Military aircraft emissions for Maryland for future years were provided by MDE. No growth was assumed for Virginia military aircraft emissions.

General aviation and air taxi emissions for Maryland were provided by MDE. For Virginia, these emissions were grown from the base year using population as the surrogate.

Auxiliary power unit emissions
These emissions were only available for Dulles (Fairfax & Loudoun) and Reagan National (Arlington) airports and were provided by the MWAA. Details on the development of these emissions are provided in the MWAA airport emissions document referred above.

Ground support equipment emissions
The NONROAD2005 model generated these emissions for Arlington, Loudoun, Manassas city, Fredrick, Montgomery, and Prince Georges' counties. However, emissions for Arlington, Fairfax, and Loudoun counties were taken from the MWAA document referred above. MWAA GSE emissions were generated using the EDMS model, which calculated emissions based on actual aircraft operations and used data from a recent survey performed in February 2004 on GSE fleet, fuel types, and operating times. Nonroad model calculated emissions are based on GSE population only and therefore emissions generated this way were considered less accurate than the one generated by the EDMS model. MWAA also provided emissions from mobile lounges for Dulles airport separately, which were combined with GSE emissions. While MWAA GSE emission from Dulles airport were divided equally between Fairfax and Loudoun counties, those from Reagan National airport were put into Arlington county.

[2] Metropolitan Washington Airports Authority, *Air Pollution Emission Inventories for Washington Dulles International Airport and Ronald Reagan Washington National Airport for Calendar Years 2002, 2008, 2009*, prepared by URS Corporation, Washington, D.C. March 2006.

Commercial Diesel Marine Vessels
Base year emissions from commercial diesel marine vessels were provided by MDE and were grown to future years using employment as the surrogate.

Railroad
Railroad or locomotive emissions were provided by all three states and were grown using employment as the surrogate.

Projected nonroad inventories for 2008 and 2009 are contained in Appendix D.

4.1.4 Growth Projection Methodology: Onroad Sources

The 2008 and 2009 mobile source inventories were created through the use of transportation and emissions modeling techniques. This involved use of the MOBILE6.2.03 emissions factor model and the Version 2.1d #50 Travel Demand Model with 2008 and 2009 planned highway network. Full documentation of the development of the 2008 and 2009 mobile inventories is included in Appendix E. Appropriate population, household, and employment growth are input through the Round 7.0 Cooperative Forecasting techniques.

4.1.5 Biogenic Emission Projections

2002 base year emissions were estimated by EPA using BEIS3.12 model. Biogenic emission inventories for 2009 are the same as those used for the 2002 base year for Washington, DC-VA-MD ozone nonattainment region. Year specific biogenic inventories for 2009 were not estimated. No 2008 biogenic inventories were prepared as they are not used to determine reasonable further progress.

4.2 Offset Provisions and Point Source Growth

The Act requires that emission growth from major stationary sources in nonattainment areas be offset by reductions that would not otherwise be achieved by other mandated controls. The offset requirement applies to all new major stationary sources and existing major stationary sources that have undergone major modifications. Increases in emissions from existing sources resulting from increases in capacity utilization are not subject to the offset requirement. For the purposes of the offset requirement, major stationary sources include all stationary sources exceeding an applicable size cutoff. The Washington, DC region is designated as moderate nonattainment for the 8-hour ozone standard. Under the current moderate designation, the NSR thresholds are 50 tpy VOC and 100 tpy NOx.

The New Source Review permit regulations in Virginia are structured so that the pertinent requirements such as major source threshold and offset ratio are self-implementing depending upon changes to the nonattainment area classification. The NSR threshold will remain at 25 tpy for both VOC and NOx for Maryland and the District. NSR offset ratio of 1.15 to 1.00 applicable for moderate area was used.

4.3 Actual vs. Allowable Emissions in Development of the 2008 and 2009 Projected Emissions Inventories

For the purposes of calculating 2008 and 2009 projection emissions inventories, EPA guidance specifically outlines the circumstances under which emissions projections are to be based on actual or allowable emissions. For sources or source categories that are subject to a pre-1990 regulation and the state does not anticipate subjecting the source to additional regulation, emissions projections should be based on actual emissions levels. Actual emissions levels should also be used to project for sources or source categories that were unregulated as of 1990. For sources that are expected to be subject to post-1990 regulation, projections should be based on new allowable emissions.

To simplify comparisons between the base-year and the projected year, EPA guidance states that comparison should be made only between like emissions: actual to actual, or allowable to allowable, not actual to allowable. Therefore, all base year and all projection year emissions estimates are based on actual emissions.

The term "actual emissions" means the average rate, in tons per year, at which a source discharged a pollutant during a one year period, which preceded the date or other specified date, and which is representative of normal source operation. Actual emissions are calculated using the source's operating hours, production rates, and types of material processed, stored, or combusted during the selected time period.

"Allowable emissions" are defined as the maximum emissions a source or installation is capable of discharging after consideration of any physical, operations, or emissions limitations required by state regulations or by federally enforceable conditions, which restrict operations and which are included in an applicable air quality permit to construct or permit to operate, secretarial order, plan for compliance, consent agreement, court order, or applicable federal requirement.

4.4 Projection Inventory Results

The 2008 and 2009 VOC and NOx projection-year emission inventory results with no control measures applied summarized by component of the inventory in Tables 4-3 though 4-6 below.

Table 4-5
2008 Projected Uncontrolled VOC Emissions (tons/day)
Washington, DC-MD-VA Ozone Nonattainment Area

Emission Source	Maryland[1]	Virginia	District of Columbia	Total**
Point	5.34	8.40	0.26	14.00
Area	99.57	96.76	17.40	213.73
Non-road	65.27	55.40	8.56	129.23
Mobile	36.56	32.62	7.99	77.17
Total	206.74	193.18	34.21	434.13

[1] Maryland point source emissions include 0.98 tpd of quasi- point source emissions from Andrews AFB.
* Small discrepancies may result due to rounding

Table 4-6
2008 Projected Uncontrolled NOx Emissions (tons/day)
Washington, DC-MD-VA Ozone Nonattainment Area

Emission Source	Maryland[1]	Virginia	District of Columbia	Total**
Point	176.91	56.57	8.12	241.6
Area	7.11	17.58	2.24	26.93
Non-road	36.14	44.25	10.71	91.1
Mobile	92.51	80.10	17.36	189.97
Total	312.67	198.5	38.43	549.6

[1] Maryland point source emissions include 2.21 tpd of quasi- point source emissions from Andrews AFB.
* Small discrepancies may result due to rounding

Table 4-7
2009 Projected Uncontrolled VOC Emissions (tons/day)
Washington, DC-MD-VA Ozone Nonattainment Area

Emission Source	Maryland[1]	Virginia	District of Columbia	Total**
Point	5.33	8.81	0.26	14.40
Area	101.01	98.74	17.57	217.32
Non-road	66.00	56.37	8.58	130.95
Mobile	34.97	31.36	7.52	73.85
Total	207.31	195.28	33.93	436.52

[1] Maryland point source emissions include 0.98 tpd of quasi- point source emissions from Andrews AFB.
* Small discrepancies may result due to rounding

Table 4-8
2009 Projected Uncontrolled NOx Emissions (tons/day)
Washington, DC-MD-VA Ozone Nonattainment Area

Emission Source	Maryland[1]	Virginia	District of Columbia	Total**
Point	176.85	57.40	7.54	241.79
Area	7.17	17.96	2.26	27.39
Non-road	36.66	45.09	10.82	92.57
Mobile	89.74	77.53	16.89	184.16
Total	310.42	197.98	37.51	545.91

[1] Maryland point source emissions include 2.21 tpd of quasi- point source emissions from Andrews AFB.
* Small discrepancies may result due to rounding

4.5 Emission Reductions from Control Measures

Chapter 6 of this SIP describes the control measures that have either already been implemented or will be implemented by 2008 and 2009 that will reduce emissions in the two years. Most control measures are required by federal or state regulations. Local governments and state agencies have voluntarily committed to other measures, as described in Section 6.6. Projected controlled inventories for 2008 and 2009 assume a number of control measures to be in place by these years.

Tables 4-3 through 4-6 present the projected controlled emissions for the 2008 rate-of-progress and 2009 attainment years resulting from implementation of the control measures. Below is a list of the measures implemented by the year 2002 in the Washington region. Chapter 6 presents detailed information on the measures and the projected reductions from each.

Point

Non-CTG VOC RACT to 50 tpy
NOx OTC Phase II Budget Rules (DC only)
Expanded Non-CTG VOC RACT and State Point Source Regulations to 25 tons/yr
NOx SIP Call (MD)

Area

Stage II Vapor Recovery
Phase II Volatility Controls of Refueling Emissions
Reformulated Surface Coatings
Reformulated Consumer Products – National Rule
Reformulated Industrial Cleaning Solvents – National Rule
National Standards for Locomotive Engines
Surface Cleaning/Degreasing for Machinery/Automotive Repair
Landfill Regulations
Seasonal Open Burning Restrictions
Stage I Expansion (Tank Truck Unloading)
Graphic Arts Controls
Auto body Refinishing

Nonroad

1994 EPA Non-Road Diesel Engines Rule
1995 EPA Non-Road Small Gasoline Engines Rule, Phase 1 and Phase 2 (handheld and non handheld)
1996 EPA Emissions standards for spark ignition marine engines
2002 EPA Emissions standards for large spark ignition engines
Reformulated Gasoline (off-road)

Onroad

High-Tech Inspection/Maintenance
Reformulated Gasoline (on-road)
Federal "Tier I" Vehicle Standards and New Car Evaporative Standards
National Low Emission Vehicle Program

Below is a list of the measures with phased-in implementations between 2002 and 2009 in the Washington region. Note that the District's OTC VOC rules on all the applicable area source categories are fully adopted, have been submitted to EPA and they are federally enforceable measures. However, the emission reductions of [xxxx] tpd VOC arising from these measures in the District are not applied to the emissions inventories presented in this RFP/attainment modeling/contingency demonstration of the Washington DC-MD-VA regional SIP. The District of Columbia's measures are expected to provide additional enhancements to the air quality improvement in the region.

Point

Clean Air Interstate Rule (CAIR) (VA and DC)
Maryland Healthy Air Act (MD)

Area

Additional phase-in of reductions from National Locomotives Rule
OTC Mobile Equipment Repair and Refinishing (VA and DC) Rule
OTC AIM Coatings Rule
OTC Solvent Cleaning Rule for VA and DC
OTC Consumer Products Rule - Phase I & II
OTC Portable Fuel Container Rule - Phase I & II
OTC Industrial Adhesives Rule
On-Board Refueling/Vapor Recovery Rule for LD Trucks (2004)

Nonroad

2004 Nonroad Heavy Duty Diesel Rule (negligible benefits by 2009)
Additional phase-in of technology rules implemented by 2002.

Onroad

Heavy-Duty Diesel Engine Rule (2004)
Heavy-Duty Diesel Engine Rule (2007)
Tier 2 Motor Vehicle Emission Standards
I&M Program with Final Cutpoints
Transportation Control Measures
Vehicle Technology, Maintenance, or Fuel-Based Measures

4.6 2008 Controlled Emissions for Reasonable Further Progress

The projection of 2008 controlled emissions is simply the 2008 uncontrolled emissions minus the emission reductions achieved from the federal control measures and the reasonable further progress control measures implemented by states for the 8-hour ozone plan. This information is presented in Table 4-7 and Table 4-8. Controlled point source inventories are contained in Appendix C, controlled area and nonroad source inventories in Appendix D, and controlled mobile source inventories in Appendix E. Maryland point source emissions include quasi- point source (nonroad and onroad mobile) emissions from Andrews Air Force Base, which are described in detail in the 2002 BY emissions inventory document.

Table 4-9
2008 Projected Controlled VOC Emissions (tons/day)
Washington, DC-MD-VA Ozone Nonattainment Area

Emission Source	Maryland[1]	Virginia	District of Columbia	Total[2]
Point	5.34	8.40	0.24	13.98
Area	85.07	84.72	17.40	187.19
Non-road	47.50	37.71	7.06	92.27
Mobile	33.86	29.65	7.47	70.98
Total	171.77	160.48	32.17	364.25

* Small discrepancies may result due to rounding

[1] Maryland point source emissions include 0.98 tpd of quasi- point source emissions from Andrews AFB.

[2] Regional total includes a reduction of 0.17 tpd from Voluntary Measures Bundle.

***The controlled area source emissions for the District do not include reductions from the OTC VOC measures. The District's OTC VOC rules on all the applicable area source categories are fully adopted, have been submitted to EPA and they are federally enforceable measures. However, the emission reductions of [xxxx] tpd VOC arising from these measures in the District are not applied to the emissions inventories presented in this RFP/attainment modeling/contingency demonstration of the Washington DC-MD-VA regional SIP. The District of Columbia's measures are expected to provide additional enhancements to the air quality improvement in the region.

Table 4-10
2008 Projected Controlled NOx Emissions (tons/day)
Washington, DC-MD-VA Ozone Nonattainment Area

Emission Source	Maryland[1]	Virginia	District of Columbia	Total[2]
Point	176.91	49.34	3.11	229.36
Area	7.11	17.58	2.24	26.93
Non-road	30.13	37.65	9.09	76.87
Mobile	77.85	67.20	15.25	160.30
Total	292	171.77	29.69	493.26

* Small discrepancies may result due to rounding

[1] Maryland point source emissions include 2.21 tpd of quasi- point source emissions from Andrews AFB.

[2] Regional total includes a reduction of 0.2 tpd from Voluntary Measures Bundle.

4.7 2009 Controlled Emissions for Attainment

The projection of 2009 controlled emissions is simply the 2009 uncontrolled emissions minus the emission reductions achieved from the federal control measures and the rate-of-progress control measures and other attainment strategies implemented by states for the 8-hour ozone plan. This information is presented in Table 4-9 and Table 4-10. Maryland point source emissions include quasi- point source emissions from Andrews Air Force Base, which are described in detail in the 2002 BY emissions inventory document.

Table 4-11
2009 Projected Controlled VOC Emissions (tons/day)
Washington, DC-MD-VA Ozone Nonattainment Area

Emission Source	Maryland[1]	Virginia	District of Columbia	Total[2]
Point	5.33	8.72	0.24	14.29
Area	82.95	83.79	17.57	184.31
Non-road	45.47	36.18	6.80	88.45
Mobile	31.64	28.15	6.88	66.67
Total	165.39	156.84	31.49	353.55

* Small discrepancies may result due to rounding

[1] Maryland point source emissions include 1.00 tpd of quasi- point source emissions from Andrews AFB.

[2] Regional total includes a reduction of 0.17 tpd from Voluntary Measures Bundle.

***The controlled area source emissions for the District do not include reductions from the OTC VOC measures. The District's OTC VOC rules on all the applicable area source categories are fully adopted, have been submitted to EPA and they are federally enforceable measures. However, the emission reductions of [xxxx] tpd VOC arising from these measures in the District are not applied to the emissions inventories presented in this RFP/attainment modeling/contingency demonstration of the Washington DC-MD-VA regional SIP. The District of Columbia's measures are expected to provide additional enhancements to the air quality improvement in the region.

Table 4-12
2009 Projected Controlled NOx Emissions (tons/day)
Washington, DC-MD-VA Ozone Nonattainment Area

Emission Source	Maryland[1]	Virginia	District of Columbia	Total[2]
Point	72.18	38.42	1.99	112.59
Area	7.17	17.96	2.26	27.39
Non-road	29.28	37.00	8.79	75.07
Mobile	70.94	61.44	14.16	146.54
Total	179.57	154.82	27.2	361.39

[1] Maryland point source emissions include 2.25 tpd of quasi- point source emissions from Andrews AFB.
* Small discrepancies may result due to rounding
[2] Regional total includes a reduction of 0.2 tpd from Voluntary Measures Bundle.