

**Region 3 Plan Summary**  
**Metropolitan Washington, DC Ozone Nonattainment Area**

**Title:** "Plan to Improve Air Quality in the Washington, DC-MD-VA Region, State Implementation Plan, "Severe Area SIP,"" dated August 4, 2003, as revised on February 19, 2004.

**Federal Register Dates:** January 12, 2005, 70 FR 2085 (proposed rule - full approval); May 13, 2005, 70 FR 25688 (final rule- approval).

**EPA Effective date:** June 13, 2005

**State Submittal Dates: District of Columbia**– September 5, 2003, as revised on February 25, 2004

**Maryland**– September 2, 2003, as revised on February 24, 2004

**Virginia**– August 19, 2003, as revised on February 25, 2004

**Affected Areas: District of Columbia**- Entire District

**Maryland**- Calvert, Charles, Frederick, Montgomery, and Prince George's Counties

**Virginia**- Arlington, Fairfax, Loudoun, Prince William, and Stafford Counties; Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park Cities

**Summary of the Plan:** Air quality planning for the Washington, D.C. ozone nonattainment area is done jointly by the District of Columbia, Maryland, Virginia and the Metropolitan Washington Air Quality Committee (MWAQC). The MWAQC is composed of state and local elected officials, state air quality and transportation planning directors and the chair of the National Capital Region Transportation Planning Board.

The District of Columbia, Maryland, and Virginia each submitted a 1-hour ozone attainment demonstration covering the entire Metropolitan Washington, D.C. ozone nonattainment area. This demonstration consisted of: Photochemical grid modeling results for three episodes representing different weather conditions, additional evidence to demonstrate attainment for the nonattainment area, VOC and NOx emission inventories, and identification of control measures needed to attain the 1-hour national ambient air quality standard (NAAQS) for ozone by November 15, 2005.

As a result of the reclassification of the Washington area to severe nonattainment, the District of Columbia, Maryland and Virginia had to develop a plan to show a further 18% reduction in base line emissions from November 15, 1999, through November 15, 2005; this 18% reduction is broken into two 9% increments - the first between 1999 and 2002, and the second between 2002 and 2005. This document summarizes the plan designed to achieve the 9% reduction increments between 1999 and 2002 and between 2002 and 2005, and also summarizes the

measures included in the attainment demonstration.

| <b>Comparison of Attainment Demonstration Allowable Emissions Levels and Post-1996 ROP Plan Target Levels for 2002 and 2005</b> |                                 |            |
|---|---------------------------------|------------|
|   | <b>Emissions - tons per day</b> |            |
| <b>Plan Element</b>   | <b>NO<sub>x</sub></b>           | <b>VOC</b> |
| Modeled Attainment Demonstration Levels   | 538.                            | 360.       |
| Post-1996 Plan Target Levels for 2002   | 626.3                           | 347.7      |
| Post-1996 Plan Target Levels for 2005   | 539.0                           | 339.3      |

| <b>Comparison of Attainment Demonstration Allowable Emissions Levels and Projected Emissions Levels Achieved by the Plan</b> |                                 |            |
|--|---------------------------------|------------|
|  | <b>Emissions - tons per day</b> |            |
| <b>Plan Element</b>  | <b>NO<sub>x</sub></b>           | <b>VOC</b> |
| Non-Attainment Area Modeling Allowable   | 360.                            | 538.       |
| Projected 2005 Emissions Levels Achieved by the Plan   | 356.7                           | 491.4      |

**Emissions Reductions:** The nonattainment area-wide plan apportions among the three jurisdictions the amount of creditable emission reductions that each jurisdiction must achieve in order for the entire nonattainment area to achieve as a region a 9% ROP reduction in VOC or NO<sub>x</sub> emissions net of growth. Each jurisdiction's Post-1996 plan identifies the amount of creditable emission reductions that each jurisdiction must achieve for the nonattainment area-wide plan to get 9% ROP accounting for any growth in emissions from 1990 to the 2002 or 2005 milestone year. The amount of creditable emission reductions needed for the entire nonattainment area to fulfill the 9% ROP requirement for the 2002 milestone year is the sum of 9% of the adjusted base year NO<sub>x</sub> emissions inventory for the region, and the amount of reductions needed to offset growth in NO<sub>x</sub> emissions from 1990 to 2002.

For the 2005 milestone year, the amount of creditable emission reductions needed for the entire nonattainment area to fulfill the 9% ROP requirement is the sum of 9% of the adjusted base year NO<sub>x</sub> emissions inventory for the region, and the amount of reductions needed to offset growth in NO<sub>x</sub> emissions from 1990 to 2005.

The nonattainment area-wide sum of emission reductions required for the region was

apportioned among the three jurisdictions. As shown in this summary document, the sum of the individual State commitments contained in the plan equals the required amount of creditable emission reductions calculated in the plan for the entire nonattainment area. Maryland, Virginia and the District each committed to achieving the NOx and VOC reductions as summarized below.

**Transportation Conformity Budgets:** The Post-1996 plan and attainment demonstration establishes VOC and NOx budgets for the entire Metropolitan Washington, DC ozone nonattainment area that are applicable for determinations for 2002 and 2005. The Post-1996 plan and attainment demonstration adopt and establish the following transportation conformity budgets for the entire Metropolitan Washington, DC ozone nonattainment area:

| <b>Transportation Conformity Budgets:</b> |                                   |                                   |
|---|-----------------------------------|-----------------------------------|
| <b>Plan</b>                               | <b>VOC budget in Tons Per Day</b> | <b>NOx Budget in Tons Per Day</b> |
| Post-1996 plan for 2002                   | 125.2                             | 290.3                             |
| Post-1996 plan for 2005                   | 97.4                              | 234.7                             |
| 2005 Attainment Demonstration             | 97.4                              | 234.7                             |

**Summary of Control Measures:**

**District of Columbia Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| Control Measure                                    | Type of Measure      | Adopted | Implemented                                       | Approval/Promulgation Citation            | Reduction by 2002 in tons/day |            | Reduction by 2005 in tons/day |            |
|--|----------------------|---------|---|---|-------------------------------|------------|-------------------------------|------------|
|  |                      |         |   |   | VOC                           | NOx        | VOC                           | NOx        |
| <b>On-Road and Non-Road Mobile Source Controls</b> |                      |         |   |   | <b>VOC</b>                    | <b>NOx</b> | <b>VOC</b>                    | <b>NOx</b> |
| Enhanced Inspection & Maintenance                  | state                | yes     | 1999  | Approved June 11, 1999, 64 FR 31498       | 6.0                           | 3.9        | 7.9                           | 7.0        |
| Federal Motor Vehicle Control program (Tier 1 & 2) | federal              |         | Tier 1 - MY <sup>2</sup> 1994<br>Tier 2 - MY 2004 | federal rule (40 CFR 86)                  |                               |            |                               |            |
| Reformulated Gasoline (Phase 1 & 2) <sup>1</sup>   | Federal/state option |         | Phase 1 - January 1995<br>Phase 2 - January 2000  | 40 CFR 80 subpart D                       |                               |            |                               |            |
| NLEV   | state option         |         | MY 1999   | SIP approved - 65 FR 44981, July 20, 2000 |                               |            |                               |            |
| Heavy duty diesel engines                          | federal              |         | MY 2004   | 62 FR 54693, October 21, 1997             |                               |            |                               |            |

<sup>1</sup> Reduction benefits are beyond those achieved by federal Phase 2 Reid Vapor Pressure requirements that took effect in 1992.

<sup>2</sup> Model Year (MY)

**District of Columbia Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| <b>Control Measure</b>                                 | <b>Type of Measure</b> | <b>Adopted</b> | <b>Implemented</b>                                   | <b>Approval/Promulgation Citation</b>                    | <b>Reduction by 2002 in tons/day</b> |        | <b>Reduction by 2005 in tons/day</b> |        |
|--|------------------------|----------------|--|--|--------------------------------------|--------|--------------------------------------|--------|
| Transportation Control Measures (TCM)- see table below | state                  | yes            | 1996 through end of year 2004                        | 70 FR 25688, May 13, 2005                                | 0.0059                               | 0.0048 | 0.0041                               | 0.0062 |
| Federal Non-road Heavy Duty diesel engine standards    | federal                | yes            | beginning MY 1996                                    | federal rule (40 CFR 8, 59 FR 31335, June 17, 1994)      |                                      | 0.8    |                                      | 1.1    |
| Federal Small Gasoline Engine standards                | federal                | yes            | beginning MY 1996                                    | federal rule (40 CFR 90, 60 FR 34598, July 3, 1995)      | 1.1                                  |        | 1.3                                  |        |
| Federal Spark Ignition Marine Engines                  | federal                | yes            | beginning model year 1999                            | federal rule 61 FR 52088, October 4, 1996                | 0.1                                  |        | 0.3                                  |        |
| Rail Road Locomotive Controls                          | federal                | yes            | Tier 1 - 2002<br>Tier 2 - 2005                       | federal rule (40 CFR 92)                                 |                                      | 0.1    |                                      | 0.1    |
| Reformulated Gasoline (Phase 1 & 2) non-road engines   | state opt-in           | yes            | Phase 1 - January 1995<br><br>Phase 2 - January 2000 | Approved Opt-in to federal program (40 CFR 80 subpart D) | 0.2                                  |        | 0.2                                  |        |

**District of Columbia Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| <b>Control Measure</b>                                  | <b>Type of Measure</b> | <b>Adopted</b> | <b>Implemented</b> | <b>Approval/Promulgation Citation</b>                               | <b>Reduction by 2002 in tons/day</b> |     | <b>Reduction by 2005 in tons/day</b> |     |
|---|------------------------|----------------|--------------------|---|--------------------------------------|-----|--------------------------------------|-----|
| <b>Stationary Point and Area Source Controls</b>        |                        |                |                    |   |                                      |     |                                      |     |
| NOx RACT  | state                  | yes            | May 1995           | SIP Approved 65 FR 81369 (December 26, 2000).                       |                                      | 2.0 |                                      | 2.0 |
| Additional NOx Control Beyond RACT: OTC NOx MOU Phase 2 | state                  | yes            | May 1, 2001        | 65 FR 80783, (December 22, 2000)                                    |                                      | 1.0 |                                      |     |
| NOx SIP Call  | state                  | yes            | May 1, 2003        | 66 FR 55099, November 1, 2001                                       |                                      |     |                                      | 2.1 |
| Non-CTG RACT  | state                  | yes            | May 31, 1995       | SIP approved - 64 FR 57777, October 27, 1999                        | 0.32                                 |     | 0.34                                 |     |
| Architectural & industrial maintenance coatings         | federal                | yes            | September 1999     | federal rule (40 CFR 59 subpart D, 63 FR 48848, September 11, 1998) | 1.7                                  |     | 1.7                                  |     |
| Consumer & commercial products                          | federal                | yes            | December 11, 1998  | 40 CFR 59 subpart C, 63 FR 48819, September 11, 1998                | 0.5                                  |     | 0.5                                  |     |

**District of Columbia Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| <b>Control Measure</b>                        | <b>Type of Measure</b> | <b>Adopted</b> | <b>Implemented</b> | <b>Approval/Promulgation Citation</b>                | <b>Reduction by 2002 in tons/day</b> |            | <b>Reduction by 2005 in tons/day</b> |             |
|---|------------------------|----------------|--------------------|--|--------------------------------------|------------|--------------------------------------|-------------|
| Autobody refinishing                          | federal                | yes            | January 11, 1999   | 40 CFR 59 subpart B, 63 FR 48806, September 11, 1998 | 0.5                                  |            | 0.5                                  |             |
| Graphic Arts Controls (Lithographic Printing) | state                  | yes            | May 1, 1999        | SIP approved 64 FR 57777, October 27, 1999           | 0.6                                  |            | 0.6                                  |             |
| State Portable Fuel Containers Rule           | state                  | yes            | January 1, 2005    | 69 FR 77903, December 29, 2004                       |                                      |            |                                      | 0.2         |
| Surface Cleaning/degreasing                   | state                  | yes            | May 1, 1999        | 64 FR 57777, October 27, 1999                        |                                      |            |                                      |             |
| State OTC AIM Rule                            | state                  | yes            | January 1, 2005    | 70 FR 24959, May 12, 2005                            |                                      |            |                                      | 1.1         |
| <b>Total Creditable Emissions Reductions</b>  |                        |                |                    |  | <b>11.0</b>                          | <b>7.8</b> | <b>14.3</b>                          | <b>12.3</b> |

**State of Maryland Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| Control Measure                                    | Type of Measure      | Adopted | Implemented                                       | Approval/Promulgation Citation | Reduction by 2002 in tons/day |            | Reduction by 2005 in tons/day |            |
|--|----------------------|---------|---|--------------------------------|-------------------------------|------------|-------------------------------|------------|
|  |                      |         |   |                                | VOC                           | NOx        | VOC                           | NOx        |
| <b>On-Road and Non-Road Mobile Source Controls</b> |                      |         |   |                                | <b>VOC</b>                    | <b>NOx</b> | <b>VOC</b>                    | <b>NOx</b> |
| Enhanced Inspection & Maintenance                  | state                | yes     | 1999  | 64 FR 58340, October 29, 1999  | 25.8                          | 20.9       | 36.8                          | 40.0       |
| Federal Motor Vehicle Control program (Tier 1 & 2) | federal              |         | Tier 1 - MY <sup>4</sup> 1994<br>Tier 2 - MY 2004 | federal rule (40 CFR 86)       |                               |            |                               |            |
| Reformulated Gasoline (Phase 1 & 2) <sup>3</sup>   | Federal/state opt-in |         | Phase 1 - January 1995<br>Phase 2 - January 2000  | 40 CFR 80 subpart D            |                               |            |                               |            |
| NLEV   | state opt-in         |         | MY 1999   | 64 FR 72564, December 28, 1999 |                               |            |                               |            |
| Heavy duty diesel engines                          | federal              |         | MY 2004   | 62 FR 54693, October 21, 1997  |                               |            |                               |            |

<sup>3</sup> Reduction benefits are beyond those achieved by federal Phase 2 Reid Vapor Pressure requirements that took effect in 1992.

<sup>4</sup> Model Year (MY)



**State of Maryland Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| Control Measure  | Type of Measure | Adopted | Implemented                    | Approval/Promulgation Citation            | Reduction by 2002 in tons/day |      | Reduction by 2005 in tons/day |      |
|--|-----------------|---------|--------------------------------|---|-------------------------------|------|-------------------------------|------|
|  |                 |         |                                |   |                               |      |                               |      |
| Transportation Control Measures (TCM)- see table below | state           | yes     | July 1993                      | 70 FR 25688, May 13, 2005                 | 0.09                          | 0.18 | 0.08                          | 0.18 |
| Federal Non-road Heavy Duty diesel engine standards    | federal         | yes     | beginning MY 1996              | federal rule (40 CFR 89 subpart A)        |                               | 8.0  |                               | 11.8 |
| Federal Small Gasoline Engine standards                | federal         | yes     | beginning MY 1996              | federal rule (40 CFR 90 subpart A)        | 10.8                          |      | 12.8                          |      |
| Federal Spark Ignition Marine Engines                  | federal         | yes     | beginning model year 1999      | federal rule 61 FR 52088, October 4, 1996 | 0.1                           |      | 0.2                           |      |
| Rail Road Locomotive Controls                          | federal         | yes     | Tier 1 - 2002<br>Tier 2 - 2005 | federal rule (40 CFR 92)                  |                               | 1.3  |                               | 1.3  |
| Federal Large Spark Ignition Engine Rule               | federal         | yes     | beginning with model year 2004 | 67 FR 6824, 1 November 8, 2002            |                               |      | 0.3                           | 0.2  |

**State of Maryland Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| <b>Control Measure</b>                                  | <b>Type of Measure</b> | <b>Adopted</b> | <b>Implemented</b>                               | <b>Approval/Promulgation Citation</b>                      | <b>Reduction by 2002 in tons/day</b> |       | <b>Reduction by 2005 in tons/day</b> |       |
|---|------------------------|----------------|--|--|--------------------------------------|-------|--------------------------------------|-------|
| Reformulated Gasoline (Phase 1 & 2) non-road engines    | state opt-in           | yes            | Phase 1 - January 1995<br>Phase 2 - January 2000 | Approved Opt-in to federal program (40 CFR 80 subpart D)   | 1.2                                  |       | 1.2                                  |       |
| <b>Stationary Source Controls</b>                       |                        |                |  |  |                                      |       |                                      |       |
| NOx RACT  | state                  | yes            | May 1995   | 66 FR 1866 (February 8, 2001).                             |                                      |       |                                      | 67.9  |
| Additional NOx Control Beyond RACT: OTC NOx MOU Phase 2 | state                  | yes            | May 1, 2000                                      | 65 FR 78416, December 15, 2000                             |                                      | 172.6 |                                      | 227.8 |
| NOx SIP Call  | state                  | yes            | May 1, 2003                                      | January 10, 2001 (66 FR 1866)                              |                                      |       |                                      |       |
| Non-CTG RACT to 50 tpy -                                | state                  | yes            | yes  | SIP-approved 10/15/97 (62 FR 53544); 6/17/99 (64 FR 32415) | 0.29                                 |       | 0.31                                 |       |

**State of Maryland Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| <b>Control Measure</b>  | <b>Type of Measure</b> | <b>Adopted</b> | <b>Implemented</b>          | <b>Approval/Promulgation Citation</b>   | <b>Reduction by 2002 in tons/day</b> |  | <b>Reduction by 2005 in tons/day</b> |  |
|---|------------------------|----------------|-----------------------------|---|--------------------------------------|--|--------------------------------------|--|
| Expanded State Point Source Regulations to 25 tons/year                   | state                  | yes            | yes                         | SIP-approved 9/2/97 (62 FR 46199); 10/15/97 (62 FR 53544); 12/22/98 (63 FR 70667); 3/22/99 (64 FR 57989); 6/17/99 (64 FR 32415) | 1.7                                  |  | 1.8                                  |  |
| Stage II Vapor Recovery &<br><br>On-board Refueling Vapor Recovery (ORVR) | state<br><br>federal   | yes<br><br>yes | January 1993<br><br>MY 1998 | SIP approved 6/9/94 59 FR 29730<br><br>Promulgated at 40 CFR 86   | 8.1 <sup>5</sup>                     |  | 8.0                                  |  |
| Stage I Vapor Recovery Enhancement  | state                  | yes            | April 26, 1993              | SIP approved January 6, 1995, 60 FR 2018.   | 0.9                                  |  | 1.0                                  |  |
| Architectural & industrial maintenance coatings                           | federal                | yes            | September 1999              | federal rule (40 CFR 59 subpart D, 63 FR 48848, September 11, 1998)   | 8.5                                  |  | 8.9                                  |  |

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<sup>5</sup> State only provided aggregate reduction benefits for both programs.

**State of Maryland Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| <b>Control Measure</b>  | <b>Type of Measure</b> | <b>Adopted</b> | <b>Implemented</b> | <b>Approval/Promulgation Citation</b>                               | <b>Reduction by 2002 in tons/day</b> |     | <b>Reduction by 2005 in tons/day</b> |     |
|---|------------------------|----------------|--------------------|---|--------------------------------------|-----|--------------------------------------|-----|
| Consumer & commercial products                                  | federal                | yes            | December 11, 1998  | Federal rule (40 CFR 59 subpart C, 63 FR 48819, September 11, 1998) | 1.8                                  |     | 1.9                                  |     |
| Autobody refinishing  | state                  | yes            | July 1, 1995       | SIP approved August 4, 1997 [62 FR 41853]                           | 5.7                                  |     | 6.0                                  |     |
| Graphic Arts Controls (Lithographic Printing)                   | state                  | yes            | January 1, 1992    | September 2, 1997 [62 FR 46199]                                     | 1.6                                  |     | 1.6                                  |     |
| Open Burning Ban  | state                  | yes            | May 1995           | January 31, 1997, 62 FR 8380.                                       | 4.4                                  | 0.9 | 4.4                                  | 0.9 |
| State Portable Fuel Containers Rule                             | state                  | yes            | January 1, 2004    | 69 FR 38848, June 29, 2004  | 0.9                                  |     | 1.7                                  |     |
| State OTC Solvent Cleaning Rule (“Surface Cleaning/degreasing”) | state                  | yes            | June 5, 1995       | 62 FR 41853, August 4, 1997   | 2.5                                  |     | 2.6                                  |     |
| State OTC AIM Rule  | state                  | yes            | January 1, 2005    | 70 FR 24979, May 12, 2005   | 0                                    |     | 6.2                                  |     |

**State of Maryland Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| <b>Control Measure</b>                         | <b>Type of Measure</b> | <b>Adopted</b> | <b>Implemented</b>                          | <b>Approval/Promulgation Citation</b> | <b>Reduction by 2002 in tons/day</b> |              | <b>Reduction by 2005 in tons/day</b> |              |
|--|------------------------|----------------|---|---------------------------------------|--------------------------------------|--------------|--------------------------------------|--------------|
| Non-regulatory measures:                       |                        |                |   |                                       |                                      |              |                                      |              |
| Gas Can Replacement Program                    | state                  | yes            | January 2004<br>December 2004<br>April 2005 | 70 FR 24987, May 12, 2005             |                                      |              | 0.00088<br>0.0027                    |              |
| Low-VOC Paints Program                         |                        |                | December 2003<br>May 2005                   |                                       |                                      |              | 0.00231<br>0.155<br>0.002            |              |
| Montgomery County Regional Wind Power Purchase |                        |                | December 2004                               |                                       |                                      |              |                                      | 0.05         |
| <b>Total Creditable Emissions Reductions</b>   |                        |                |   |                                       | <b>85.4</b>                          | <b>211.7</b> | <b>110.3</b>                         | <b>362.4</b> |

**Commonwealth of Virginia Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| Control Measure                                    | Type of Measure      | Adopted | Implemented                                       | Approval Status  | Reduction by 2002 in tons/day |                       | Reduction by 2005 in tons/day |                       |
|--|----------------------|---------|---|--|-------------------------------|-----------------------|-------------------------------|-----------------------|
|  |                      |         |   |  | VOC                           | NO <sub>x</sub>       | VOC                           | NO <sub>x</sub>       |
| <b>On-Road and Non-Road Mobile Source Controls</b> |                      |         |   |  | <b>VOC</b>                    | <b>NO<sub>x</sub></b> | <b>VOC</b>                    | <b>NO<sub>x</sub></b> |
| Enhanced Inspection & Maintenance                  | state                | yes     | 1999  | 64 FR 47670, September 1, 1999                           | 24.2                          | 20.1                  | 35.8                          | 38.8                  |
| Federal Motor Vehicle Control program (Tier 1 & 2) | federal              |         | Tier 1 - MY <sup>7</sup> 1994<br>Tier 2 - MY 2004 | 40 CFR 86  |                               |                       |                               |                       |
| Reformulated Gasoline (Phase 1 & 2) <sup>6</sup>   | Federal/state opt-in |         | Phase 1 - January 1995<br>Phase 2 - January 2000  | Approved Opt-in to federal program (40 CFR 80 subpart D) |                               |                       |                               |                       |
| NLEV   | state opt-in         |         | MY 1999   | 64 FR 72564, December 28, 1999                           |                               |                       |                               |                       |
| Heavy duty diesel                                  | federal              |         | MY 2004 engines                                   | 62 FR 54693, October 21, 1997                            |                               |                       |                               |                       |

<sup>6</sup> Reduction benefits are beyond those achieved by federal Phase 2 Reid Vapor Pressure requirements that took effect in 1992.

<sup>7</sup> Model Year (MY)

**Commonwealth of Virginia Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| <b>Control Measure</b>                                  | <b>Type of Measure</b> | <b>Adopted</b> | <b>Implemented</b>             | <b>Approval Status</b>                    | <b>Reduction by 2002 in tons/day</b> |      | <b>Reduction by 2005 in tons/day</b> |      |
|---|------------------------|----------------|--------------------------------|---|--------------------------------------|------|--------------------------------------|------|
| Transportation Control Measures (TCM) - see table below | state                  | yes            | July 1993                      | 70 FR 25688, May 13, 2005                 | 0.14                                 | 0.32 | 0.12                                 | 0.31 |
| Federal Non-road Gasoline Engine standards              | federal                | yes            | beginning MY 1996              | federal rule (40 CFR 89 subpart A)        | 10.2                                 |      | 12.5                                 |      |
| Federal Non-road Heavy Duty diesel engine standards     | federal                | yes            | beginning MY 1996              | federal rule (40 CFR 90 subpart A)        |                                      | 6.2  |                                      | 9.3  |
| Federal Spark Ignition Marine Engines                   | federal                | yes            | beginning model year 1999      | federal rule 61 FR 52088, October 4, 1996 | 1.0                                  |      | 2.6                                  |      |
| Rail Road Locomotive Controls                           | federal                | yes            | Tier 1 - 2002<br>Tier 2 - 2005 | federal rule (40 CFR 92)                  |                                      | 1.5  |                                      | 1.6  |

**Commonwealth of Virginia Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| <b>Control Measure</b>                               | <b>Type of Measure</b> | <b>Adopted</b> | <b>Implemented</b>                               | <b>Approval Status</b>  | <b>Reduction by 2002 in tons/day</b> |     | <b>Reduction by 2005 in tons/day</b> |      |
|--|------------------------|----------------|--|---|--------------------------------------|-----|--------------------------------------|------|
| Federal Large Spark Ignition Engine Rule             | federal                | yes            | beginning with model year 2004                   | 67 FR 6824,1 November 8, 2002   |                                      |     | 0.3                                  | 0.2  |
| Reformulated Gasoline (Phase 1 & 2) non-road engines | state opt-in           | yes            | Phase 1 - January 1995<br>Phase 2 - January 2000 | Approved Opt-in to federal program (40 CFR 80 subpart D)  | 1.4                                  |     | 1.5                                  |      |
| <b>Stationary Source Controls</b>                    |                        |                |  |   |                                      |     |                                      |      |
| NOx RACT   | state                  | yes            | May 1995   | 66 FR 8 (January 2, 2001).  |                                      | 26. |                                      | 26.  |
| Beyond RACT NOx Requirements on Utilities            | state                  | yes            | final 0.15 lb NOx/mm BTU limits May 2004.        | 65 FR 78100, December 14, 2000  |                                      |     |                                      | 19.3 |
| Non-CTG RACT to 50 tpy -                             | state                  | yes            | yes  | SIP-approved 3/12/97, 62 FR 11334; 1/22/99, 64 FR 3425; 1/ 2/01, 66 FR 8; source shutdowns as of 1/91 | 0.57                                 |     | 0.59                                 |      |



**Commonwealth of Virginia Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| <b>Control Measure</b>   | <b>Type of Measure</b> | <b>Adopted</b> | <b>Implemented</b> | <b>Approval Status</b>                                   | <b>Reduction by 2002 in tons/day</b> |     | <b>Reduction by 2005 in tons/day</b> |     |
|--|------------------------|----------------|--------------------|--|--------------------------------------|-----|--------------------------------------|-----|
| Expanded State Point Source Regulations to 25 tons/year            | state                  | yes            | 1996               | 62 FR 11332, March 12, 1997;<br>66 FR 8, January 2, 2001 | 0.63                                 |     | 0.66                                 |     |
| Stage II Vapor Recovery & On-board Refueling Vapor Recovery (ORVR) | state                  | yes            | January 1993       | SIP approved 59 FR 32353, June 23, 1994                  | 7.1                                  |     | 7.0                                  |     |
|  | federal                | yes            | MY 1998            | Promulgated at 40 CFR 86                                 |                                      |     |                                      |     |
| AIM Surface Coatings   | federal                | yes            | September 1999     | federal rule (40 CFR 59 subpart D)                       | 6.2                                  |     | 6.2                                  |     |
| Consumer & commercial products                                     | federal                | yes            | December 11, 1998  | federal rule (40 CFR 59 subpart C)                       | 1.7                                  |     | 1.8                                  |     |
| Autobody refinishing   | federal                | yes            | January 11, 1999   | federal rule (40 CFR 59 subpart B)                       | 3.1                                  |     | 3.4                                  |     |
| Open Burning Ban   | state                  | yes            | May 1995           | SIP Approved March 12, 1997 (62 FR 11334)                | 3.0                                  | 0.6 | 3.0                                  | 0.6 |

**Commonwealth of Virginia Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| <b>Control Measure</b>                 | <b>Type of Measure</b> | <b>Adopted</b> | <b>Implemented</b>    | <b>Approval Status</b>  | <b>Reduction by 2002 in tons/day</b> |                    | <b>Reduction by 2005 in tons/day</b> |      |
|--|------------------------|----------------|-----------------------|---|--------------------------------------|--------------------|--------------------------------------|------|
| Stage I Vapor Recovery                 | state                  | yes            | yes                   | SIP-Approved<br>(3/31/94, 59 FR 15117;<br>10/19/94, 59 FR 52704)    | 0.6                                  |                    | 0.6                                  |      |
| Graphic Arts                           | state                  | yes            | May 1995              | SIP approved March 12,<br>1997 (62 FR 11334). 40<br>CFR 52.2520c113 | 1.7                                  |                    | 1.8                                  |      |
| Non-regulatory measures:               | state                  | yes            |                       | 70 FR 24987, May 12,<br>2005  |                                      |                    |                                      |      |
| Gas Can Replacement Program            |                        |                | July 2004<br>May 2005 |   |                                      | 0.00198<br>0.00377 |                                      |      |
| Low-VOC Paints Program                 |                        |                | April 2004            |   |                                      | 0.017              |                                      |      |
| Sale of Reformulated Consumer Products |                        |                | January 2005          |   |                                      | 3.00               |                                      |      |
| Auxiliary Power Units on Locomotives   |                        |                | March 2004            |   |                                      | 0.01               |                                      | 0.13 |

**Commonwealth of Virginia Control Measures and Creditable Emissions Reductions  
in the Attainment Demonstration and Post-1996 Rate of Progress Plans  
for the Metropolitan Washington Nonattainment Area**

| Control Measure                              | Type of Measure   | Adopted | Implemented  | Approval Status  | Reduction by 2002 in tons/day |      | Reduction by 2005 in tons/day |      |
|--|-------------------|---------|--|--|-------------------------------|------|-------------------------------|------|
|  |                   |         |  |  |                               |      |                               |      |
| Landfill rules                               | state/<br>Federal | yes     | July 7, 2002 – 30 months after initial report which was due 90 days after January 7, 2000. | 69 FR 77900, December 29, 2004<br><br>Federal rule 64 FR 60703, November 8, 1999, For landfills constructed/reconstructed after May 30, 1991 - 40 CFR Part 60, Subpart WWW applies | 1.1                           |      | 1.3                           |      |
| <b>Total Creditable Emissions Reductions</b> |                   |         |  |  | 62.6                          | 54.7 | 82.2                          | 96.2 |

**Measures Evaluated on an Area-wide Basis and Creditable Emissions Reductions in the 1-Hour Ozone  
Attainment Demonstration and Rate-of-Progress Plans for the Metropolitan Washington Nonattainment Area**

| Control Measure                                    | Type of Measure | Adopted | Implemented | Approval Status | Reduction by 2002 in tons/day |            | Reduction by 2005 in tons/day |            |
|--|-----------------|---------|-------------|-----------------|-------------------------------|------------|-------------------------------|------------|
|  |                 |         |             |                 | VOC                           | NOx        | VOC                           | NOx        |
| <b>On-Road and Non-Road Mobile Source Controls</b> |                 |         |             |                 | <b>VOC</b>                    | <b>NOx</b> | <b>VOC</b>                    | <b>NOx</b> |

**Measures Evaluated on an Area-wide Basis and Creditable Emissions Reductions in the 1-Hour Ozone Attainment Demonstration and Rate-of-Progress Plans for the Metropolitan Washington Nonattainment Area**

| Control Measure  | Type of Measure      | Adopted | Implemented                                      | Approval Status  | Reduction by 2002 in tons/day |        | Reduction by 2005 in tons/day |        |
|--|----------------------|---------|--|--|-------------------------------|--------|-------------------------------|--------|
|  |                      |         |  |  |                               |        |                               |        |
| Area-wide TCMs - WMATA <sup>8</sup> System - see table below | state                | yes     | 2001 through end of year 2004                    | 70 FR 25688, May 13, 2005                                | 0.0706                        | 0.0156 | 0.0674                        | 0.1725 |
| Refueling Benefits from RFG                                  | Federal/state opt-in | yes     | Phase 1 - January 1995<br>Phase 2 - January 2000 | Approved Opt-in to federal program (40 CFR 80 subpart D) | 2.6                           |        | 2.3                           |        |

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<sup>8</sup> Washington Metropolitan Area Transportation Authority (WMATA) TCMs that cannot be assigned to a specific state.

**List of Transportation Control Measures in the Plans:**

The following chart summarizes the list of transportation control measures (TCM) which are adopted as part of the 1999 to 2005 portion of the Post- 1996 rate of progress plans and as part of the attainment demonstration:

| <b>List of Transportation Control Measures</b> |   | <b>Reduction by 2005 in tons/day</b> |               |
|--|---|--------------------------------------|---------------|
| <b>State/ID</b>                                | <b>Description of Measure</b>                             | <b>VOC</b>                           | <b>NOx</b>    |
| <b>Virginia</b>                                |   |                                      |               |
| NV-1   | Park-and-Ride spaces Northern Virginia Districtwide       | 0.028                                | 0.08          |
| NV-2   | Transit Access Improvements                               | 0.016                                | 0.039         |
| NV-3   | Purchase of New Transit Buses                             | 0.025                                | 0.067         |
| NV-4   | Improvements to Pedestrian Facilities                     | 0.001                                | 0.002         |
| NV-5   | Construction of Bus Shelters                              | 0                                    | 0.001         |
| NV-6   | Park-and-Ride spaces Northern Virginia Districtwide       | 0.0325                               | 0.0838        |
| NV-7   | Bicycle Lanes / Trails in Northern Virginia               | 0.0051                               | 0.0053        |
| NV-8   | Bicycle Lockers in Northern Virginia                      | 0.0004                               | 0.0006        |
| NV-9   | Hybrid Vehicle Purchase                                   | 0.0004                               | 0.0009        |
| NV-10  | Bicycle Lane/Trail  | 0.0124                               | 0.0127        |
| NV-11  | Sidewalk Improvements                                     | 0.0007                               | 0.0007        |
| NV-12  | CNG Buses   | 0                                    | 0.0174        |
|  | <b>Total</b>  | <b>0.1215</b>                        | <b>0.3104</b> |
| <b>Maryland</b>                                |   |                                      |               |
| MD-1   | MD Suburban Bus Replacements                              | 0.01                                 | 0.025         |
| MD-2   | Transit Parking Facilities                                | 0.004                                | 0.009         |
| MD-3   | MARC Replacement/Expansion Coaches                        | 0.0360                               | 0.1000        |
| MD-4   | Bicycle Facilities  | 0.008                                | 0.002         |
| MD-5   | Park and Ride Facilities                                  | 0.006                                | 0.019         |
| MD-6   | Grosvenor Metro Garage                                    | 0.006                                | 0.0155        |
| MD-7   | Park & Ride Lots (Recent Additions)                       | 0.0066                               | 0.0171        |
|  | <b>Total</b>  | <b>0.0406</b>                        | <b>0.0876</b> |
| <b>WMATA</b>                                   |   |                                      |               |
| WM-1   | Bicycle Racks on Transit Buses (1458 total racks)         | 0.0074                               | 0.0131        |
| WM-2   | Ultra Low Sulfur Diesel Fuel with CRT filters (886 buses) | 0.06                                 | -             |
| WM-3   | Compressed Natural Gas Buses (164 buses)                  | -                                    | 0.1594        |
|  | <b>Total</b>  | <b>0.0674</b>                        | <b>0.1725</b> |
| <b>District of Columbia</b>                    |   |                                      |               |
| DC-1   | Bicycle Lanes (8 miles)                                   | 0.0035                               | 0.0035        |
| DC-2   | CNG Refuse Haulers (2 vehicles)                           | 0                                    | 0.0022        |
| DC-3   | Bicycle Racks (150 Racks)                                 | 0.0006                               | 0.0005        |
|  | <b>Total</b>  | <b>0.0041</b>                        | <b>0.0062</b> |

**Contingency Measures:**

| <b>Summary of Contingency Measure Needs</b> |                    |
|---|--------------------|
| Base line - 2002 baseline VOC emissions     | 420.5 tons per day |
| 3% of 2002 baseline VOC emissions           | 12.6 tons per day  |

| <b>Contingency Measures and Creditable Emissions Reductions in the 1-Hour Ozone Attainment Demonstration and Rate-of-Progress Plans for the Metropolitan Washington Nonattainment Area</b> |                        |                |                                |                              |
|--|------------------------|----------------|--------------------------------|------------------------------|
|  |                        |                |                                | <b>Reduction in tons/day</b> |
| <b>Control Measure/State</b>   | <b>Type of Measure</b> | <b>Adopted</b> | <b>Approval Status</b>         | <b>VOC</b>                   |
| Portable fuel containers rule - Post 2005 benefits only/VA   | state                  | yes            | 69 FR 31893, June 8, 2004      | 1.7                          |
| Portable fuel containers rule - Post 2005 benefits only/MD   | state                  | yes            | 69 FR 38848, June 29, 2004     | 1.5                          |
| Portable fuel containers rule - Post 2005 benefits only/DC   | state                  | yes            | 69 FR 77903, December 29, 2004 | 0.3                          |
| Solvent cleaning operations/DC   | state                  | yes            | 69 FR 77906, December 29, 2004 | 2.7                          |
| Consumer Products/DC   | state                  | yes            | 69 FR 77642, December 28, 2004 | 1.1                          |
| Consumer Products/MD   | state                  | yes            | 68 FR 68523, December 9, 2003  | 2.9                          |
| Refinishing operations of motor vehicles/VA  | state                  | yes            | 69 FR 35253, June 24, 2004     | 2.0                          |
| Refinishing operations of motor vehicles/DC  | state                  | yes            | 69 FR 76855, December 23, 2004 | 0.6                          |

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