

National Capital Region Transportation Planning Board

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MEMORANDUM

November 3, 2006

To: Transportation Planning Board Technical Committee

From: Michael J. Clifford
Systems Planning Applications Director

Subject: Transportation Measures / Categories: Emissions Benefits and Application in State Air Quality Implementation Plan (SIP)s and Air Quality Conformity Assessments; Draft Mobile Emissions Budgets

I. INTRODUCTION

The purpose of this memo is to discuss and document the use in either SIPs or transportation conformity assessments of emissions benefits associated with transportation measures. This topic was discussed at the October 24, 2006 meeting of the Travel Management Subcommittee, in response to a current planning activity (8-hour ozone SIP) request from MWAQC staff for 2008 and 2009 emissions benefits for TCMs included in the previous 1-hour ozone SIP. Using data developed through this discussion, the memo also identifies draft mobile emissions budgets for the 8-hour ozone SIP.

Traditionally, we have classified transportation measures with emissions benefits as either transportation emissions reduction measures (TERM)s which are used in transportation conformity assessments, or as transportation control measures which are used in SIPs. TCMs are legally enforceable once they are included in a SIP (see Attachment A for the transportation conformity rule definition of a TCM); TERMS represent commitments as applied in conformity determinations, but may be updated through the transportation planning and programming process. Note that Attachment A excludes vehicle technology / fuel / maintenance-based measures from the TCM definition; in addition, a 'voluntary bundle' of other measures is being utilized in SIP planning and is also discussed below.

Therefore, to more precisely specify the categories of projects being used today we identify the following four mutually exclusive groupings of transportation emissions reducing projects: (1) TCMs, as defined in EPA's conformity rule; (2) vehicle technology, fuel, and maintenance-based measures included for credit in the SIP (called simply 'vehicle-based' measures, hereafter), also from EPA's conformity rule; (3) TERMS, defined as those projects credited in transportation conformity

assessments; and (4) voluntary bundle measures, representing projects advanced to this component of a SIP. Further discussion of these categories appears below.

II. REVIEW OF EXISTING 'TCMs'

This section includes discussion of the topic at the October 24, 2006 meeting of the Travel Management Subcommittee; it is followed by application of TCM (and 'vehicle-based') summary results in the development of draft mobile emissions budgets.

A. Travel Management Subcommittee Discussion

Attachment B contains excerpts from the region's 2004 'severe area SIP' for meeting the 1-hour ozone standards. In the body of that document, p.7 – 66 shows the TCM emissions reductions for 2002 and 2005, and p.9 – 2 shows the mobile emissions budgets once TCMs were applied in the mobile sector. Appendix G lists each TCM and its associated emissions benefits. Given that estimates of existing TCM emissions benefits are now required for the 8-hour ozone SIP years 2008 and 2009, for the determination of 'reasonable further progress' and attainment and for use in setting mobile emissions budgets, MWAQC staff requested such estimates from TPB staff.

Accordingly, staff retrieved the table in Attachment C and presented it at the October 24, 2006 meeting of the Travel Management Subcommittee for discussion. Some questions arose regarding whether some of the line items represented individual projects or continuing programs; review of the table also indicated that some of the entries were 'vehicle-based' measures, not TCMs. Since the meeting, staff completed estimation of 2008 and 2009 emissions benefits for each of the measures. These results are shown as Attachment D; note that the table more properly specifies the measures as TCMs or as vehicle-based measures.

B. Draft Mobile Emissions Budget Calculation

Returning to Attachment B, p.B - 3 illustrates the calculation of the 1-hour ozone mobile emissions budgets in the severe area SIP. TCM emissions estimates are subtracted from the base inventory levels for the 2002 and 2005 rate of progress and attainment years. Now that TCM and vehicle-based measures have been calculated for 2008 and 2009, a similar emissions budget calculation is performed for the 8-hour ozone SIP by applying the emissions reduction estimates to the previously transmitted mobile inventory numbers. These data are shown in Attachment E. It is recommended that, after review and comment by the TPB Technical Committee, these emissions data be formally transmitted by the TPB to MWAQC.

III. TERMS

Attachment F provides an overall summary of the emissions reduction totals by project category in the transportation conformity Tracking Sheet for the 2006 CLRP and FY2007 – 12 TIP. The analysis year is 2010, since 2008 and 2009 benefits have only been calculated for the TCMs and vehicle-based measures to date. The table reflects the credits in 2010 for the SIP measures, as well as the TERMS credits, all of which are

available for transportation conformity.

IV. SIP VOLUNTARY BUNDLE

The fourth category of transportation measures includes any which are being advanced to the 8-hour ozone SIP as a component of the 'voluntary bundle'. Attachment G contains a memo sent from the MWAQC Technical Advisory Committee to MWAQC, from their October 25, 2006 meeting. Such measures are being advanced to the SIP to demonstrate reasonable further progress or attainment. Their use in the SIP, like TCMs or vehicle-based measures, will preclude their later use for conformity purposes. As a bookkeeping task, TPB staff will need to ensure that any of these measures advanced to the SIP are not included in any TERMS reporting.

Attachments (A - G)

Complete Transportation Conformity Regulations that Incorporate the March 10, 2006 Final Rule and all previous rulemakings

Office of Natural and Human Environment
Federal Highway Administration

NOTE: This document includes the current transportation conformity rule that reflects applicable provisions in the Code of Federal Regulations as well as the July 1, 2004 final conformity rule (69 FR 40004) that addresses conformity for the new ozone and PM2.5 air quality standards and the March 1999 court decision, the May 6, 2005 final conformity rule (70 FR 31354) that addresses PM2.5 precursors, and the March 10, 2006 final conformity rule (71 FR 12468) that addresses PM2.5 and PM10 hot-spot analyses. This document is for information purposes only. This document does not supersede existing conformity regulations and guidance that currently apply for conformity determinations.

under 23 U.S.C. 134 and 49 U.S.C.5303. It is the forum for cooperative transportation decision-making.

Milestone has the meaning given in CAA sections 182(g)(1) and 189(c) for serious and above ozone nonattainment areas and PM10 nonattainment areas, respectively. For all other nonattainment areas, a milestone consists of an emissions level and the date on which that level is to be achieved as required by the applicable CAA provision for reasonable further progress towards attainment.

Motor vehicle emissions budget is that portion of the total allowable emissions defined in the submitted or approved control strategy implementation plan revision or maintenance plan for a certain date for the purpose of meeting reasonable further progress milestones or demonstrating attainment or maintenance of the NAAQS, for any criteria pollutant or its precursors, allocated to highway and transit vehicle use and emissions.

National ambient air quality standards (NAAQS) are those standards established pursuant to section 109 of the CAA.

NEPA means the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.).

NEPA process completion, for the purposes of this subpart, with respect to FHWA or FTA, means the point at which there is a specific action to make a determination that a project is categorically excluded, to make a Finding of No Significant Impact, or to issue a record of decision on a Final Environmental Impact Statement under NEPA.

Nonattainment area means any geographic region of the United States which has been designated as nonattainment under section 107 of the CAA for any pollutant for which a national ambient air quality standard exists.

Project means a highway project or transit project.

Protective finding means a determination by EPA that a submitted control strategy implementation plan revision contains adopted control measures or written commitments to adopt enforceable control measures that fully satisfy the emissions reductions requirements relevant to the statutory provision for which the implementation plan revision was submitted, such as reasonable further progress or attainment.

Recipient of funds designated under title 23 U.S.C. or the Federal Transit Laws means any agency at any level of State, county, city, or regional government that routinely receives title 23 U.S.C. or Federal Transit Laws funds to construct FHWA/FTA projects, operate FHWA/FTA projects or equipment, purchase equipment, or undertake other services or operations via contracts or agreements. This definition does not include private landowners or developers, or

contractors or entities that are only paid for services or products created by their own employees.

Regionally significant project means a transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

Safety margin means the amount by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for reasonable further progress, attainment, or maintenance.

Standard means a national ambient air quality standard.

Transit is mass transportation by bus, rail, or other conveyance which provides general or special service to the public on a regular and continuing basis. It does not include school buses or charter or sightseeing services.

Transit project is an undertaking to implement or modify a transit facility or transit-related program; purchase transit vehicles or equipment; or provide financial assistance for transit operations. It does not include actions that are solely within the jurisdiction of local transit agencies, such as changes in routes, schedules, or fares. It may consist of several phases. For analytical purposes, it must be defined inclusively enough to:

(1) Connect logical termini and be of sufficient length to address environmental matters on a broad scope;

(2) Have independent utility or independent significance, i.e., be a reasonable expenditure even if no additional transportation improvements in the area are made; and

(3) Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

Transportation control measure (TCM) is any measure that is specifically identified and committed to in the applicable implementation plan that is either one of the types listed in section 108 of the CAA, or any other measure for the purpose of reducing emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions. Notwithstanding the

first sentence of this definition, vehicle technology-based, fuel-based, and maintenance-based measures which control the emissions from vehicles under fixed traffic conditions are not TCMs for the purposes of this subpart.

Transportation improvement program (TIP) means a staged, multiyear, intermodal program of transportation projects covering a metropolitan planning area which is consistent with the metropolitan transportation plan, and developed pursuant to 23CFR part 450.

Transportation plan means the official intermodal metropolitan transportation plan that is developed through the metropolitan planning process for the metropolitan planning area, developed pursuant to 23 CFR part 450.

Transportation project is a highway project or a transit project.

Written commitment for the purposes of this subpart means a written commitment that includes a description of the action to be taken; a schedule for the completion of the action; a demonstration that funding necessary to implement the action has been authorized by the appropriating or authorizing body; and an acknowledgment that the commitment is an enforceable obligation under the applicable implementation plan.

§93.102 Applicability.

(a) Action applicability.

(1) Except as provided for in paragraph (c) of this section or §93.126, conformity determinations are required for:

(i) The adoption, acceptance, approval or support of transportation plans and transportation plan amendments developed pursuant to 23 CFR part 450 or 49 CFR part 613 by an MPO or DOT;

(ii) The adoption, acceptance, approval or support of TIPs and TIP amendments developed pursuant to 23 CFR part 450 or 49CFR part 613 by an MPO or DOT; and

(iii) The approval, funding, or implementation of FHWA/FTA projects.

(2) Conformity determinations are not required under this subpart for individual projects which are not FHWA/FTA projects. However, §93.121 applies to such projects if they are regionally significant.

(b) *Geographic applicability.* The provisions of this subpart shall apply in all nonattainment and maintenance areas for transportation-related criteria pollutants for which the area is designated nonattainment or has a maintenance plan.

(1) The provisions of this subpart apply with respect to emissions of the following criteria pollutants: ozone,

carbon monoxide (CO), nitrogen dioxide (NO₂), particles with an aerodynamic diameter less than or equal to a nominal 10micrometers (PM₁₀); and particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers (PM_{2.5}).

(2) The provisions of this subpart also apply with respect to emissions of the following precursor pollutants:

(i) Volatile organic compounds (VOC) and nitrogen oxides (NO_x) in ozone areas;

(ii) NO_x in NO₂ areas;

(iii) VOC and/or NO_x in PM₁₀ areas if the EPA Regional Administrator or the director of the State air agency has made a finding that transportation-related emissions of one or both of these precursors within the nonattainment area are a significant contributor to the PM₁₀ nonattainment problem and has so notified the MPO and DOT, or if the applicable implementation plan (or implementation plan submission) establishes an approved (or adequate) budget for such emissions as part of the reasonable further progress, attainment or maintenance strategy;

(iv) NO_x in PM_{2.5} areas, unless both the EPA Regional Administrator and the director of the state air agency have made a finding that transportation-related emissions of NO_x within the nonattainment area are not a significant contributor to the PM_{2.5} nonattainment problem and has so notified the MPO and DOT, or the applicable implementation plan (or implementation plan submission) does not establish an approved (or adequate) budget for such emissions as part of the reasonable further progress, attainment or maintenance strategy; and

(v) VOC, sulfur oxides (SO_x) and/or ammonia (NH₃) in PM_{2.5} areas either if the EPA Regional Administrator or the director of the state air agency has made a finding that transportation-related emissions of any of these precursors within the nonattainment area are a significant contributor to the PM_{2.5} nonattainment problem and has so notified the MPO and DOT, or if the applicable implementation plan (or implementation plan submission) establishes an approved (or adequate) budget for such emissions as part of the reasonable further progress, attainment or maintenance strategy.

(3) The provisions of this subpart apply to PM_{2.5} nonattainment and maintenance areas with respect to PM_{2.5} from re-entrained road dust if the EPA Regional Administrator or the director of the State air agency has made a finding that re-entrained road dust emissions within the area are a significant contributor to the PM_{2.5} nonattainment problem and has so notified the MPO and DOT, or if the applicable implementation plan (or implementation plan

State Implementation Plan

PLAN TO IMPROVE AIR QUALITY IN THE WASHINGTON, DC-MD-VA REGION

February 19, 2004



State Implementation Plan
"Severe Area SIP"

Prepared for:
District of Columbia Department of Health
Maryland Department of the Environment
Virginia Department of Environmental Quality
On behalf of the Metropolitan Washington Air Quality Committee

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS



Appendices

- Appendix A** Membership Rosters for the Metropolitan Washington Air Quality Committee (MWAQC) and its Technical Advisory Committee and the Air Quality Public Advisory Committee
- Appendix B** MOBILE6 Inventories and Documentation
- Appendix C** Round 6.3 Cooperative Forecast Projections
Area and Nonroad Inventories and Projections
- Appendix D** Protocol for Regulatory Photochemical Air Quality Modeling
Attainment Demonstration Modeling Report for Washington DC-MD-VA Area
Episode Selection
Modeling Inventory Preparation and Quality Assurance
Air Quality and Meteorological Data Preparation
Model Performance Evaluation for Baltimore-Washington UAM-IV Domain
EPA Analysis of Regional Model Results
- Appendix E** Point Source Inventories and Projections
- Appendix F** Use of NO_x Substitution in Rate of Progress
RACT Fix-Up Documentation
- Appendix G** Emission Reductions from Transportation Control Measures
- Appendix H** Severe Area Plan Commitments
Date for Achieving 1999-2002 Rate-of-Progress
- Appendix I** Emission Reductions from Phase II RFG Controls
- Appendix J** EPA Voluntary Measures Guidance
Allowable Tonnage from Voluntary Measures
Voluntary Measure Commitments
Additional Documentation for Calculations
- Appendix K** Information Related to Public Hearings and Hearing Notices
Comments Received and Response to Comments
- Appendix L** Analysis of Potential Stationary Source RACM Measures
- Appendix M** Analysis of Potential Area Source RACM Measures
- Appendix N** Analysis of Potential Non-Road Source RACM Measures
- Appendix O** Analysis of Potential Mobile Source RACM Measures

7.5 Transportation control measures (TCMs)

Section 108(f) of the Clean Air Act Amendments provides examples of Transportation Control Measures (TCMs) that can be implemented to reduce emissions from mobile sources. Most TCMs are designed to reduce vehicle miles traveled or vehicle trips or improve the flow of traffic.

In conjunction with state departments of transportation and local transit authorities, state air agencies have identified a number of projects designed to reduce vehicle travel and mitigate traffic congestion in the Metropolitan Washington nonattainment area. These measures include purchase of alternative-fueled vehicles, improvements to bicycle and pedestrian facilities, and improvements to transit services and access to transit facilities. All responsible agencies have committed to implementing these projects by January 1, 2005. Commitment letters and specific project descriptions are contained in Appendix G.

Source Type Affected

Transportation-related activities in the Metropolitan Washington nonattainment area

Implementation

District of Columbia – Department of Transportation

Maryland - Department of Transportation

Virginia - Department of Transportation

Washington Metropolitan Area Transit Authority

Northern Virginia Local Governments

Projected Reductions

VOC Emission Reductions (tons per day)				
	District of Columbia	Maryland	Virginia	Total*
2002 VOC Reductions	0.0059	0.0878	0.1446	0.3
2005 VOC Reductions	0.0041	0.0766	0.1215	0.3

*Total includes 0.0706 tpd in 2002 and 0.0674 tpd in 2005 from WMATA that cannot be assigned to specific states.

NOx Emission Reductions (tons per day)				
	District of Columbia	Maryland	Virginia	Total*
2002 NOx Reductions	0.0048	0.1798	0.3187	0.5
2005 NOx Reductions	0.0062	0.1876	0.3104	0.7

*Total includes 0.0156 tpd in 2002 and 0.1725 tpd in 2005 from WMATA that cannot be assigned to specific states.

*Emission reduction estimates were supplied by the District of Columbia Department of Transportation, the Maryland Department of Transportation, the Virginia Department of Transportation and the Washington Metropolitan Area Transit Authority (WMATA). See Appendix G for details.

9.2 Budget Level for On-Road Mobile Source Emissions

As part of the development of the SIP, MWAQC, in consultation with the Transportation Planning Board (TPB), establishes a mobile source emissions budget. This budget will be the benchmark used to determine if the region's constrained long range transportation plan (CLRP) and six year transportation improvements program (TIP) conform with the Clean Air Act Amendments of 1990. Under EPA regulations the projected mobile source emissions for 2005 becomes the mobile emissions budget for the region unless MWAQC takes actions to set another budget level.

The 2005 mobile emissions inventory reflects the most recent models available, EPA's MOBILE6 and the Travel Demand Model Version 2.1C, used by COG's Transportation Planning Department, and the most recent data available, namely 2002 vehicle registration data. The methodology used to project the 2005 attainment year mobile inventory and to recalculate mobile inventories for milestone years is discussed in detail in Section 3.2.3 and Section 4.1.3.

The mobile emissions budget for attainment and the 2005 Rate-of-Progress is based on the projected 2005 mobile source emissions accounting for all the mobile control measures, including Transportation Control Measures and projected regional growth.

The Mobile Emissions Budget for attainment and the 2005 Rate-of-Progress, based upon the projected 2005 mobile source emissions accounting for all the mobile control measures, including the Transportation Control Measures:

VOC = 97.4 tons/day NOx = 234.7 tons/day

The mobile emissions budget for the 2002 Rate-of-Progress is based on the projected 2002 mobile source emissions accounting for all the mobile control measures, including Transportation Control Measures. The mobile emissions budget for the 2002 Rate-of-Progress is 125.2 tons/day VOC and 290.3 tons/day NOx.

9.3 Transportation Control Measures (TCMs)

Each time the Constrained Long Range Transportation Plan (CLRP) or the six-year Transportation Improvement Plan (TIP) is amended, the TPB will estimate the emissions from the regional transportation network and compare the expected emissions against the mobile emissions budget set in this SIP. This determination will take into account the projects included in the region's transportation plans and the TCMs shown in Table A, which amount to 0.3 tpd VOC and 0.5 tpd NOx in 2002 and 0.3 tpd VOC and 0.7 tpd NOx in 2005. Further information on TCMs can be found in Section 7.5 and in Appendix G.

In anticipation of possible mobile emissions mitigation needs associated with TPB plans and

Appendix B

MOBILE6 Inventories and Documentation

Exhibit 1 Summary Table

2002 & 2005 Mobile Source Emissions inventory for Rate of Progress

	2002				2005			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
M.S. Inventory (t/day)	181.5	335.7	125.5	290.8	178.2	321.2	97.7	235.4
TCMs (t/day)			0.3	0.5			0.3	0.7
Net (t/day)	181.5	335.7	125.2	290.3	178.2	321.2	97.4	234.7

Appendix G

Emission Reduction from Transportation Control Measures

TCMs SIP Projects 2005

ID	Measure	VOC (tpd)	NOx (tpd)	Project Category
Virginia				
NV-1	Park-and-Ride spaces Northern Virginia Districtwide	0.0280	0.0800	c
NV-2	Transit Access Improvements	0.0160	0.0390	c
NV-3	Purchase of New Transit Buses	0.0250	0.0670	
NV-4	Improvements to Pedestrian Facilities	0.0010	0.0020	
NV-5	Construction of Bus Shelters	0.0000	0.0010	c
NV-6	Park-and-Ride spaces Northern Virginia Districtwide	0.0325	0.0838	c
NV-7	Bicycle Lanes / Trails in Northern Virginia	0.0051	0.0053	c
NV-8	Bicycle Lockers in Northern Virginia	0.0004	0.0006	c
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	c
NV-12	CNG Buses	0.0000	0.0174	
Maryland				
MD-1	MD Suburban Bus Replacements	0.0100	0.0250	
MD-2	Transit Parking Facilities	0.0040	0.0090	c
MD-3	MARC Replacement/Expansion Coaches	0.0360	0.1000	c
MD-4	Bicycle Facilities	0.0080	0.0020	c
MD-5	Park and Ride Facilities	0.0060	0.0190	c
MD-6	Grosvenor Metro Garage	0.0060	0.0155	
MD-7	Park & Ride Lots (Recent Additions)	0.0066	0.0171	
WMATA				
WM-1	Bicycle Racks on Transit Buses (1458 total racks)	0.0074	0.0131	c
WM-2	Ultra Low Sulfur Diesel Fuel with CRT filters (886 buses)	0.0600	-	
WM-3	Compressed Natural Gas Buses (164 buses)	-	0.1594	
District of Columbia				
DC-1	Bicycle Lanes (8 miles)	0.0035	0.0035	c
DC-2	CNG Refuse Haulers (2 vehicles)	0.0000	0.0022	
DC-3	Bicycle Racks (150 Racks)	0.0006	0.0005	c
	Total VA, MD	0.3	0.7	

c = commute

Note : The Emissions for Commute TCMs have been adjusted for 2002 Mobile 6 emissions factors.

Adjustment factors for Commute TCMs: NOx - 1.19145; VOC - 1.44161

**TCM Implementation Plan and Schedule
July 2003 Severe Area SIP**

Ref #	Description	Jurisdiction	Responsible Agency	TIP Year	Funding Type	Implementation Year
DC-1	Bicycle Lane in D. C. (8 miles)	DC	DDOT	FY 2002-07	Federal/State	2004
DC-2	New CNG Powered Trash Trucks (2 Vehicles)	DC	DDOT	FY 2002-07	Federal/State	2003
DC-3	Bicycle Racks in D.C. (150 Racks)	DC	DDOT	FY 2002-07	Federal/State	2004
MD-1	Maryland Suburban Bus Replacements	MCG, PG	MCG, PG	FY 1997-02	State/Local	1998/1999
MD-2	Transit Parking Facilities	MD	MDOT	FY 1997-02	State/Local	2000
MD-3	MARC Replacement/Expansion Coaches	MD	MARC	FY 1995-00	State/Local	2000
MD-4	Bicycle Facilities	MD	MDOT	FY 1995-00 FY 1997-02	State/Local	1998
MD-5	Park and Ride Facilities	MD	MDOT	FY 1997-02	State/Local	1998-03
MD-6	Grosvenor Metro Garage	MD	MDOT	FY 1997-02	State/Local	2003-04
MD-7	Maryland Park-and-Ride Lots (Recent Additions)	MD	MDOT	FY 1997-02	State/Local	2000-04
NV-1	Northern Virginia Districtwide Park-And-Ride Spaces	NV	VDOT	FY 1995-00 FY 1996-01	State/Local	1996-99
NV-2	Transit Access Improvements (VRE Parking Spaces)	NV	VDOT	*	Private	2001
NV-3	Purchase Of New Transit Buses (WMATA)	NV	VDOT	FY 1995-00 FY 1996-01	CMAQ	1996-1998
NV-4	Improved Pedestrian Access	NV	VDOT	FY 1997-02	State/Local	2002-04
NV-5	Construction of Bus Shelters (12)	NV	City of Fairfax	FY 1997-02	State/Local	1999 - Summer 2003
NV-6	Park & Ride Spaces (New)	NV	VDOT	Varies	Fed./State	Aug. 2000 - Sept. 2002
NV-7	Bicycle Lanes/Trails in Northern Virginia (12 miles)	NV	VDOT	Varies	Fed./State	1999 - Aug. 2003
NV-8	Bicycle Lockers in Northern Virginia (VDOT)	NV	VDOT	Varies	Fed./State	1997 - 2002
NV-9	Hybrid light Duty Vehicles (25 vehicles)	Fairfax County	Fairfax County	*	State/Local	2002 - 2003
NV-10	Bicycle Trails/Lanes in Northern Virginia (29 miles)	Arlington & P.W. County	Arlington County P.W. County	*	State/Local	2003
NV-11	Sidewalk improvements in Northern Virginia (1.5 miles)	Fairfax City	VDOT	*	State/Local	June 2001 - July 2003
NV-12	11 New CNG Buses in place of Diesel Buses	Arlington County	Arlington County	*	Operating Fund	2003
WM-1	Bicycle Racks on Buses (1458 racks)	Region	WMATA	FY 2003-08	CMAQ	2003
WM-2	ULSD; CRT Filters (886 buses)	Region	WMATA	FY 2003-08	CMAQ; Private	2001; 2004
WM-3	CNG Buses (164 buses)	Region	WMATA	FY 2002-07	Fed/State /Local	2002-03

* Projects implemented as part of the jurisdictions' ongoing countywide capital program and not required to be included in a TIP.

**TCMs And Vehicle Technology-Based, Fuel-Based, and Maintenance-Based Measures
In The 8-Hour Ozone SIP**

Ref #	Description	Jurisdiction	Responsible Agency	TIP Year	Funding Type	Implementation Year	2008 Emissions Tons/day		2009 Emissions Tons/day	
							VOC	NOx	VOC	NOx
TCMs										
DC-1	Bicycle Lane in D. C. (8 miles)	DC	DDOT	FY 2002-07	Federal/State	2004	0.0021	0.0022	0.0019	0.0020
DC-3	Bicycle Racks in D.C. (150 Racks)	DC	DDOT	FY 2002-07	Federal/State	2004	0.0004	0.0003	0.0003	0.0003
MD-2	Transit Parking Facilities	MD	MDOT	FY 1997-02	State/Local	2000	0.0026	0.0055	0.0024	0.0050
MD-3	MARC Replacement/Expansion Coaches	MD	MARC	FY 1995-00	State/Local	2000	0.0232	0.0615	0.0214	0.0551
MD-4	Bicycle Facilities	MD	MDOT	FY 1997-02	State/Local	1998	0.0051	0.0012	0.0047	0.0011
MD-5	Park and Ride Facilities	MD	MDOT	FY 1997-02	State/Local	1998-03	0.0039	0.0117	0.0036	0.0105
MD-6	Grosvenor Metro Garage	MD	MDOT	FY 1997-02	State/Local	2003-04	0.0039	0.0095	0.0036	0.0085
MD-7	Maryland Park-and-Ride Lots (Recent Additions)	MD	MDOT	FY 1997-02	State/Local	2000-04	0.0042	0.0105	0.0039	0.0094
NV-1	Northern Virginia Districtwide Park-And-Ride Spaces	NV	VDOT	FY 1995-00 FY 1996-01	State/Local	1996-99	0.0180	0.0492	0.0166	0.0441
NV-2	Transit Access Improvements (VRE Parking Spaces)	NV	VDOT	*	Private	2001	0.0103	0.0240	0.0095	0.0215
NV-4	Improved Pedestrian Access	NV	VDOT	FY 1997-02	State/Local	2002-04	0.0006	0.0012	0.0006	0.0011
NV-5	Construction of Bus Shelters (12)	NV	City of Fairfax	FY 1997-02	State/Local	1999 - Summer 2003	0.0000	0.0006	0.0000	0.0006
NV-6	Park & Ride Spaces (New)	NV	VDOT	Varies	Fed./State	Aug. 2000 - Sept. 2002	0.0222	0.0514	0.0205	0.0459
NV-7	Bicycle Lanes/Trails in Northern Virginia (12 miles)	NV	VDOT	Varies	Fed./State	1999 - Aug. 2003	0.0031	0.0033	0.0029	0.0029
NV-8	Bicycle Lockers in Northern Virginia (VDOT)	NV	VDOT	Varies	Fed./State	1997 - 2002	0.0002	0.0004	0.0002	0.0003
NV-10	Bicycle Trails/Lanes in Northern Virginia (29 miles)	Arlington & P.W. County	Arlington County P.W. County	*	State/Local	2003	0.0075	0.0079	0.0069	0.0071
NV-11	Sidewalk improvements in Northern Virginia (1.5 miles)	Fairfax City	VDOT	*	State/Local	June 2001 - July 2003	0.0004	0.0005	0.0004	0.0004
WM-1	Bicycle Racks on Buses (1458 racks)	Region	WMATA	FY 2003-08	CMAQ	2003	0.0047	0.008	0.0044	0.0072
						TCM subtotal	0.1124	0.2490	0.1037	0.2229
Vehicle Technology Based, Fuel Based And Maintenance Based Measures										
DC-2	New CNG Powered Trash Trucks (2 Vehicles)	DC	DDOT	FY 2002-07	Federal/State	2003	0.0000	0.0022	0.0000	0.0022
MD-1	Maryland Suburban Bus Replacements	MCG, PG	MCG, PG	FY 1997-02	State/Local	1998/1999	0.0064	0.0154	0.0059	0.0138
NV-3	Purchase Of New Transit Buses (WMATA)	NV	VDOT	FY 1995-00	CMAQ	1996-1998	0.0161	0.0412	0.0148	0.0369
NV-9	Hybrid light Duty Vehicles (25 vehicles)	Fairfax County	Fairfax County	*	State/Local	2002 - 2003	0.0004	0.0009	0.0004	0.0009
NV-12	11 New CNG Buses in place of Diesel Buses	Arlington County	Arlington County	*	Operating Fund	2003	0.0000	0.0174	0.0000	0.0174
WM-2	ULSD; CRT Filters (886 buses)	Region	WMATA	FY 2003-08	CMAQ; Private	2001; 2004	0.0600	0.0000	0.0600	0.0000
WM-3	CNG Buses (164 buses)	Region	WMATA	FY 2002-07	Fed/State /Local	2002-03	0.0000	0.1594	0.0000	0.1594
						Veh.-Tech subtotal	0.0829	0.2365	0.0812	0.2306
						Grand Total	0.1954	0.4854	0.1849	0.4535

* Projects implemented as part of the jurisdictions' ongoing countywide capital program and not required to be included in a TIP.

Summary Table
Mobile Source Emissions Budgets For the 8-Hour Ozone SIP

	2008		2009	
	VOC	NO _x	VOC	NO _x
	Tons/day			
Mobile Source Inventory	70.98	160.3	66.68	146.53
TCMs	0.11	0.25	0.1	0.22
Vehicle Technology Based Measures	0.08	0.24	0.08	0.23
Net	70.79	159.81	66.5	146.08
Draft Mobile Source Budgets	70.8	159.8	66.5	146.1

**2006 CLRP and FY 2007-2012 TIP Conformity Assessment
TERM Tracking Sheet
Emissions Benefits By Category Of Transportation Measure**

Transportation Measure	2010 Emissions	
	VOC	NOx
	Tons/day	
TCM Benefits	0.04	0.11
Vehicle Technology Benefits	0.08	0.23
TERM Benefits	2.34	5.36
Tracking Sheet Total	2.46	5.70

Memorandum

October 25, 2006

TO: Metropolitan Washington Air Quality Committee (MWAQC)

FROM: MWAQC Technical Advisory Committee
Local Government Initiatives Subcommittee

Subject: Proposed Local Voluntary Bundle for the 8-hour Ozone SIP

The MWAQC Technical Advisory Committee (TAC) recommends adoption of several measures to be included as a "voluntary bundle" in the 8-hour ozone SIP for the Washington, DC region. EPA's voluntary measures policy establishes criteria under which emission reductions from voluntary programs are creditable in a SIP. This policy permits states to partner with local jurisdictions to implement emission-reducing programs at the local level. The memorandum includes the process used to develop the recommendations; a list of each of the proposed measures, including estimates of emission reduction benefits, and how the measure will be included (credited or weight of evidence) in the SIP.

Process

The Local Government Initiatives Subcommittee developed recommendations for the voluntary bundle using information provided by local jurisdictions. In September, local governments provided data on implementation of the measures, including implementation date, cost, etc. Staff developed summary proposal of proposed measures, including emission benefits. In October, MWAQC TAC approved recommending 10 measures for inclusion in the voluntary bundle. The list of proposed non-regulatory measures includes:

- Wind Energy Purchases
- Diesel Retrofits
- Low Emission Vehicles
- Low-VOC Paints
- LED Traffic Signal Retrofits
- Energy Performance Contracting
- Solvent Parts Washer Replacement
- Urban Heat Island Mitigation
- Green Buildings
- Episodic Programs

The measures are described in Attachment 1. Additional details on the survey responses for each participating jurisdiction are provided in Attachment 2.

Benefits

Emission reduction benefits for local measures can be credited in the State Implementation Plan (SIP) for attainment or Reasonable Further Progress (RFP) purposes, or the Transportation Improvement Plan (TIP) for conformity purposes. Measures that are not creditable can be included in the SIP as weight of evidence. Attachments 1 and 2 provide additional information on emission reduction benefits. The total SIP credit for the proposed local measures is 0.355 NO_x and 0.004 VOC.

Next Steps

- MWAQC Approval in October.
- Brief COG Board in November.
- Commitment letters from the local jurisdictions to be provided to States by the end of the year.

Attachment 1. Summary of Proposed Local Voluntary Measures for 8-hour Ozone SIP

Measure	Description	Estimated Benefit (tpd)	Commitment Required	Application of Credit
Wind Energy Purchases	Purchase renewable energy (e.g., wind energy) to displace electricity generation from fossil fuels	0.07 NOx	Signed contract; NOx allowance retirement; annual reporting	SIP
Diesel Retrofits	Retrofit diesel vehicles with emission control technology	-	Recordkeeping, annual reporting	Credit reserved
Low Emission Vehicles	Purchase new low-emission vehicles	-	Recordkeeping, annual reporting	Credit reserved
Low-VOC Paints	Use paints with low Volatile Organic Compound (VOC) concentration	0.0009 VOC	Recordkeeping, annual reporting	SIP
LED Traffic Signal Retrofits	Retrofit traffic signals with light emitting diode (LED) technology	0.27 NOx	Signed contract; NOx allowance retirement; annual reporting	SIP
Energy Performance Contracting	Improve energy efficiency of operations, including entering into energy performance contracts to improve building efficiency	0.015 NOx	Signed contract; NOx allowance retirement; annual reporting	SIP
Solvent Parts Washer Replacement	Voluntarily replace solvent-based parts washers with microbial or aqueous cleaners	0.003 VOC	Recordkeeping, annual reporting	SIP
Urban Heat Island Mitigation	Implement programs to reduce the urban heat island effect. Possible programs include tree planting, tree canopy requirements, green roofs, cool pavements	-	Recordkeeping, annual reporting	No credit; weight of evidence
Green Buildings	Improve the energy efficiency of buildings through voluntary compliance programs, building codes, LEEDs program, LEEDs scorecard requirements, developer incentives	-	Recordkeeping, annual reporting	No credit; weight of evidence
Episodic Programs	Take actions to reduce emissions on days when air quality is forecast to be in the code orange or code red range	-	Recordkeeping, annual reporting	No credit; weight of evidence
	TOTAL SIP Credit	0.355 NOx 0.004 VOC		

Attachment 2
DRAFT (October 25, 2006)
Summary of Voluntary Measures Survey Responses (2002-2009)
Washington, DC-MD-VA Ozone Nonattainment Area

Jurisdiction	Commitments in 1-hour Ozone SIP	New Additional Commitments for 8-hour Ozone SIP	2005 Emission Reduction Credited in 1-hour Ozone SIP (tpd)	Possible New 2009 Emission Reduction for 8-hour Ozone SIP (tpd)
Regional Wind Power Purchase Program (kWh/year)				
Montgomery County	28,000,000	21,432,972		
Prince George's County		7,611,601		
Arlington County		2,340,000		
Fairfax County		5,800,000		
District of Columbia		16,500		
Total	28,000,000	37,201,073	0.05 NOx	0.07 NOx
Diesel Retrofits (# of vehicles)				
Fairfax County School Bus	1,329	Complete		
Fairfax County Class 8 Trucks	0	113		
Fairfax County Fire Equipment	0	90		
Fairfax County DOT (DPF)	148	95		
Fairfax County DOT (idling)		95		
Montgomery County	0	253		
Loudoun County	0	237		
Total			No Credit	No credit
Low-Emission Vehicle Purchases (# of vehicles)				
Arlington County	0	69		
Fairfax County	32	90		
Montgomery County	5	121		
Prince George's County	3	8		
M-NCPPC Prince George's	0	23		
Loudoun County	0	25		
District of Columbia	0	1,134		
City of Alexandria	0	55		
City of Greenbelt	0	7		
City of Falls Church	0	7		
Total	40	460	No Credit	No credit
Low-VOC Paint (# of gallons per ozone season day)				
Prince George's County	5			
M-NCPPC Prince George's	15			
Fairfax County	40			
MDOT	502.5			
Arlington		0.63		
City of Alexandria		1.75		
City of Greenbelt		0.20		
Calvert County		1.25		
Total	562.5	3.20	0.166 VOC	0.0009 VOC
LED Traffic Signal Retrofits (# of intersections)				
VDOT	0	864		
MDOT	0	15		
District of Columbia	0	1710		
Montgomery County	0	250		
Arlington County	0	271		
Loudoun County	0	VDOT		
City of Alexandria	0	239		
City of Falls Church	0	818		
Total		4167	0	0.27 NOx
Energy Performance Contracting (kWh/year savings)				
Fairfax County	0	6,630,675		
Arlington County	0	1,500,000		
City of Greenbelt	0	230,000		
Montgomery County	0	pending		
City of Falls Church	0	pending		
Calvert County	0	pending		
Total	0	8,360,675	0	0.015 NOx
Enhanced Enforcement (solvent machine replacement/idling)				
Montgomery County	0	10-30 units	0	0.003-0.009 VOC
Loudoun County		No Idling Policy		
TOTAL				
NOx			0.2 ^(a)	0.355
VOC			3.2 ^(a)	0.004

(a) Total for 1-hour ozone SIP includes several programs not proposed for inclusion in the 8-hour ozone SIP. These measures include Reformulated Consumer Products, Auxiliary Power Units for Locomotives, Gas Can Replacements, and Remote Sensing programs.