

MEMORANDUM

DRAFT

September 9, 2005

To: Transportation Planning Board

From: Michael J. Clifford
Systems Planning Applications Director

Subject: Air Quality Conformity Assessment for the 2005 Update of the
Constrained Long Range Plan (CLRP) and the FY2006-2011
Transportation Improvement Program (TIP)

INTRODUCTION

This memo documents summary results of the air quality conformity assessment of the 2005 CLRP and the FY2006-2011 TIP. The results are based upon the analysis contained in the September 15, 2005 draft technical report, Air Quality Conformity Determination Of The 2005 Constrained Long Range Plan And The FY2006-2011 Transportation Improvement Program For The Washington Metropolitan Region, and are being forwarded to the TPB Technical Committee for review and comment. According to the TPB's schedule for action on the plan, TIP, and conformity determination, the results will be released for public comment and interagency consultation on September 15, 2005, comments will be accepted through October 15, 2005, with action by the Board scheduled for the October 19, 2005 meeting.

BACKGROUND

On April 20, 2005 the TPB approved the scope of work and the project submissions for inclusion in the conformity analysis for the year 2005 update of the CLRP and FY2006-2011 TIP. Key technical inputs to the analysis included: Round 7 Cooperative Forecasts; the Version 2.1D #50 Travel Demand Model utilizing the new project submissions, and reflecting updated transit service and transit fares; EPA's Mobile6.2 Emissions Factor Model; and a refined Mobile Emissions Post-Processor using latest travel demand and mobile emissions planning assumptions for specific use with the Version 2.1D #50 and Mobile6 models.

The ozone precursor mobile emissions budgets used in this analysis are taken from the Metropolitan Washington Air Quality Committee's (MWAQC) Severe Area State

Implementation Plan (SIP) document, *Plan to Improve Air Quality in the Washington, DC-MD-VA Region*, February 19, 2004.

Staff proceeded with the technical analyses described below to ascertain whether the draft plan and program would meet the specific conformity criteria.

WORK ACTIVITIES

Technical work activities for the conformity assessment of the 2005 CLRP and FY2006-2011 TIP included the preparation of volatile organic compound (VOC) and nitrogen oxide (NO_x) emissions inventories for specified forecast years associated with the plan and program (base year 2002 & forecast years: 2010, 2020 and 2030). Wintertime carbon monoxide (CO) analysis for conformity has also been conducted. In meeting the requirements for use of latest planning assumptions and methods, this year marked the use of the updated Round 7.0 land activity forecasts, and a modification of the transit capacity constraint input assumptions.

These inventories address a primary conformity assessment criterion to demonstrate that the plan and program adhere to the established mobile source emissions budgets. In anticipation of possible emissions increases associated with implementation of the plan and program, staff (in conjunction with the TPB Technical Committee and its Travel Management Subcommittee) conducted parallel analyses of committed and potential new transportation emissions reduction measures (TERM)s. These results are described in the July 20, 2005 draft report, *Transportation Emissions Reduction Measures (TERMs) Under Consideration for Conformity of the 2005 CLRP and FY 2006 - FY 2011 TIP*.

Today's memo presents a summary of results of the conformity analysis, as follows.

Plan Amendments and Program Elements

There have been a number of new projects and changes advanced for the CLRP / TIP in this year's approval cycle. Attachment A presents a listing of significant new projects since the 2004 CLRP and the FY2005-2010 TIP were approved by the Board on November 17, 2004.

Land Activity Forecasts

On July 13, 2005 COG's Metropolitan Development Policy Committee approved Round 7.0 Cooperative Forecast totals to be used for testing purposes in analysis of the CLRP and TIP. The Round 7.0 data reflect not only the forecast small area land use distributions throughout the Washington area, but also the latest planning assumptions for areas outside the Washington region. For example, the Baltimore land use input to Round 7.0 reflects the Baltimore Metropolitan Council's 'Round 6-A' adopted figures, whereas their previous input to the COG Round 6.4A forecasts was their 'Round 6' figures.

Travel Modeling Process

Using the Version 2.1D #50 model, COG/TPB staff prepared travel demand forecasts for each of the required forecast years. Exhibit 1 presents the geographic areas for modeling and for non-attainment reporting purposes. Exhibit 2 presents the resulting transit trips, vehicle trips, and vehicle miles traveled (VMT) results through time for each conformity analysis year.

Emissions Factors

As with last year's conformity analysis, staff used motor vehicle emissions factors developed from EPA's MOBILE6.2 emissions factor model. (See Appendix D of the full technical report for model inputs and other details of the emissions factor development.) These rates for each pollutant, shown using Fairfax County freeway data as an illustration in Exhibits 3 and 4 for VOC and NO_x, respectively, were developed following execution of the model in one mph speed increments, by jurisdiction, for each analysis year. The charts show significantly reduced rates through time, primarily due to the impacts of having cleaner vehicles in the fleet.

Emissions Analyses

Mobile Emissions Inventories

Prior to calculation of mobile source emissions, the above (AAWDT) forecasts were first factored by seasonal adjustments (a 1.05 ozone season factor or a 0.97 winter season factor) to yield VMT appropriate to each season being analyzed. Staff then applied the Mobile6.2 emissions factors to the travel demand forecasts by season to prepare mobile source emissions inventories for each forecast year. These emissions results are summarized in Exhibit 5 and indicate VOC and NO_x emissions for network and off-network components for each analysis year. The table shows dramatic reductions between 2002 and 2020, and further reductions thereafter with emissions reaching about 38 tons per day for both pollutants in 2030. The results reflect the impact of the cleaner fleet (continuing fleet turnover) and related programs, with slowing VMT growth rates through time. Net emissions for each forecast year are shown as the bottom line of the summary table. Mobile source emissions are well within the mobile budgets for all forecast years. Exhibits 6 and 7 present these VOC and NO_x results in a graphical format. In recognition of the fact that estimated emissions are within the mobile source budget for each pollutant, no additional transportation emissions reduction measures are required to demonstrate conformity.

Net Emissions Analysis

The emissions inventory data contained in Exhibit 5 reflect total mobile source network and off-network emissions. However, there are also emissions benefits associated with certain other transportation programs and projects. These benefits, estimated on an off-line basis, are also creditable in conformity analyses. Attachment C represents a summary table of these transportation emissions reduction measures, or TERMS, which have been previously planned or programmed by the TPB. They are arrayed in a 'Tracking Sheet' format to document the implementation status of each. The summary result of these measures, shown as the bottom line

of the 'TERM Tracking Sheet - Current Measures' table within the attachment, amounts to additional reductions in 2010 of 2.5 tons per day of VOC and 5.1 tons per day of NOx. Only those projects which have been affirmed by the implementing agency as having been completed, or are on a realistic schedule towards implementation, are being credited in this emissions analysis. (Documentation from the implementation agencies regarding the status of each project is contained in Appendix J of the full conformity report.) Combining the emissions results in Exhibit 5 with the additional reductions from TERMS would further improve the emissions budget margins for VOC and NOx.

SUMMARY

The analytical results described in this air quality assessment provide a basis for a determination by the TPB of conformity of the 2005 CLRP and the FY2006-2011 TIP.

Following: Exhibits 1-7
Attachments A-C

EXHIBIT 1
**Washington, D.C. - Maryland - Virginia
Modeled Area
and
Metropolitan Statistical Area**

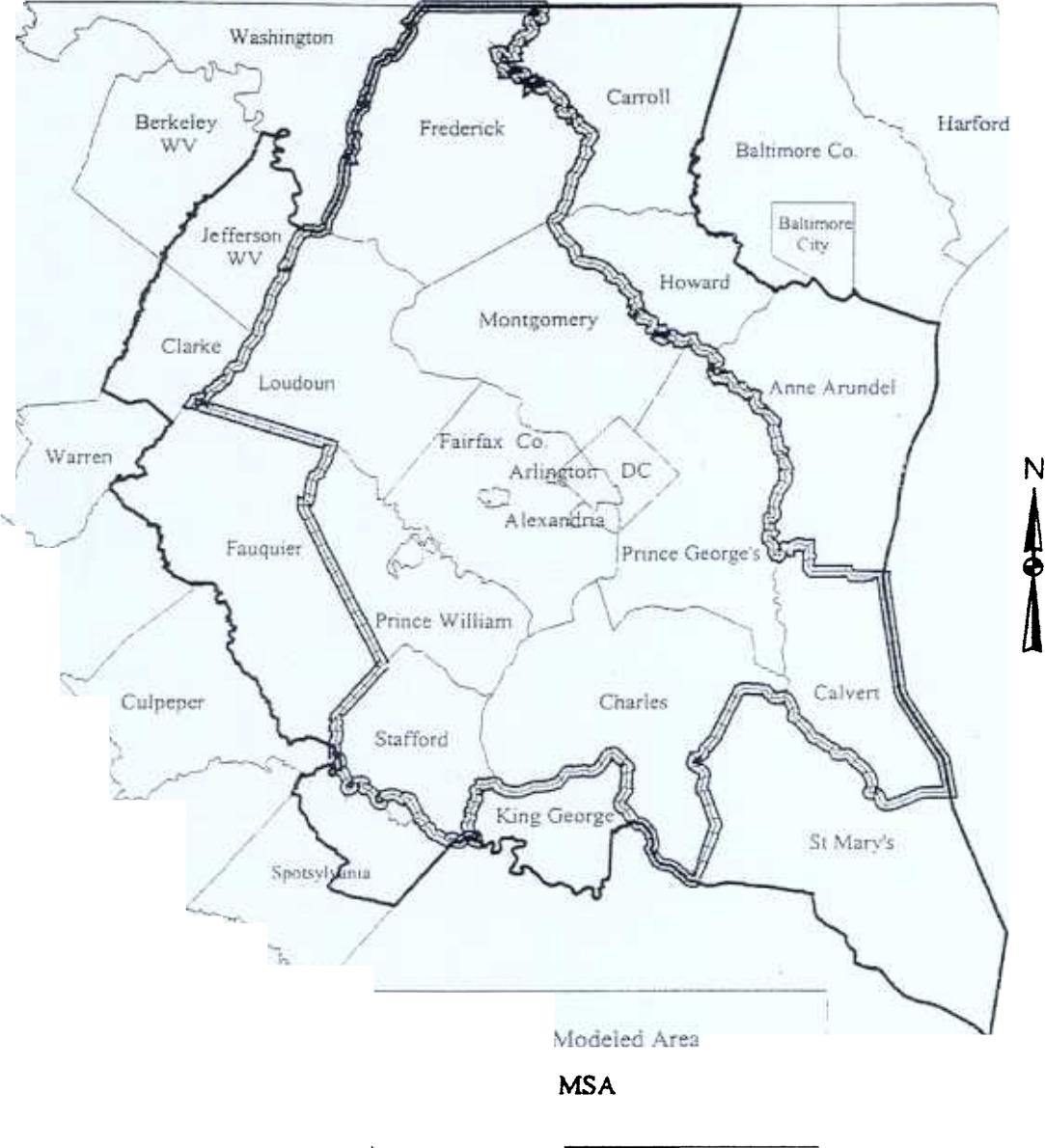


Exhibit 2
Travel Demand Summary
Modeled Area Trips and Vehicle Miles Traveled (000's)

	<u>2002</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>
Transit Trips	895.0	1,024.8	1,241.7	1,346.4
Vehicle Trips	19,407.7	22,283.5	25,173.9	28,042.0
VMT	149,065.6	169,740.6	195,371.9	217,051.1

Exhibit 3
TOTAL 2022-2030 VOC COMPOSITE MOBILE6.2 RUNNING EMISSION
RATES FOR FAIRFAX COUNTY
FREEWAY

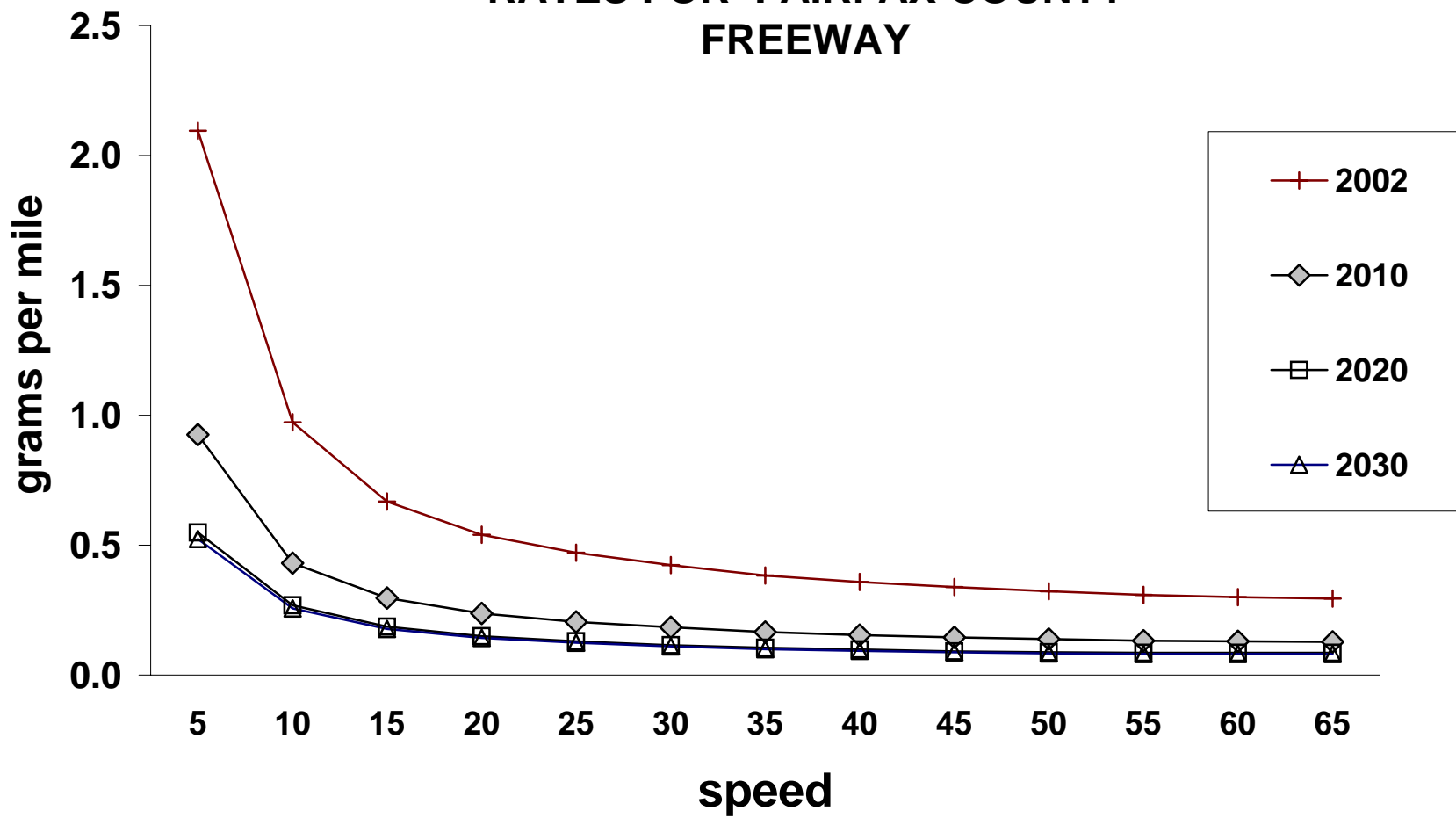


Exhibit 4
TOTAL 2022-2030 NOx COMPOSITE MOBILE6.2 RUNNING EMISSION
RATES FOR FAIRFAX COUNTY
FREEWAY

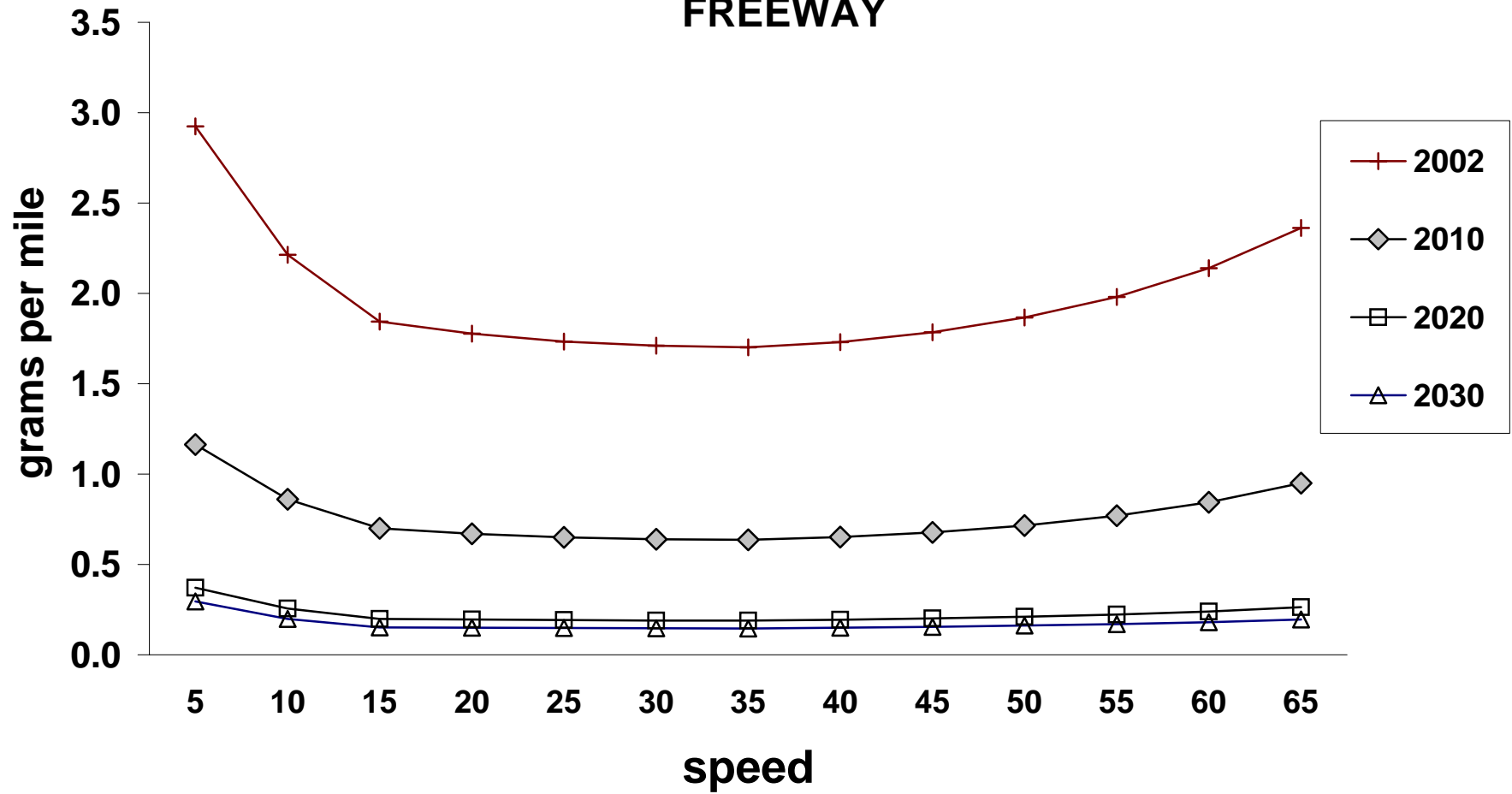


EXHIBIT 5

AIR QUALITY CONFORMITY
Summary Table - MSA (1-Hour Ozone Area)
Mobile Emissions Inventories
for 2005 CLRP and FY 2006-2011 TIP
(Tons/Day)

	2002		2010		2020		2030	
	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
I Network								
Start	25.95	14.17	11.20	6.93	7.09	3.18	6.85	2.54
Running	57.65	243.03	28.57	116.77	19.91	40.84	20.71	31.66
Soak	11.31	-----	9.72	-----	4.82	-----	4.16	-----
II Off-Network								
Diurnal	3.14	-----	2.07	-----	1.03	-----	0.75	-----
Resting Loss	12.32	-----	8.00	-----	3.21	-----	2.28	-----
Local Roads	9.63	12.24	4.76	6.42	3.21	2.82	3.28	2.47
School Buses	0.43	6.09	0.28	3.76	0.17	0.70	0.17	0.27
Transit Buses	0.38	6.57	0.12	3.86	0.12	0.92	0.12	0.25
Auto Access	1.37	1.70	0.69	0.86	0.46	0.44	0.45	0.39
Total	122.17	283.80	65.41	138.60	40.01	48.90	38.75	37.58

TCMs	-0.20	-0.49
Net Emissions	65.21	138.11
 Mobile Emissions Budgets:	97.40	234.70
 Budget Adherence Margin:	32.19	96.59

EXHIBIT 6

Mobile Source VOC Emissions Metropolitan Statistical Area 2005 CLRP and FY 2006-2011 TIP

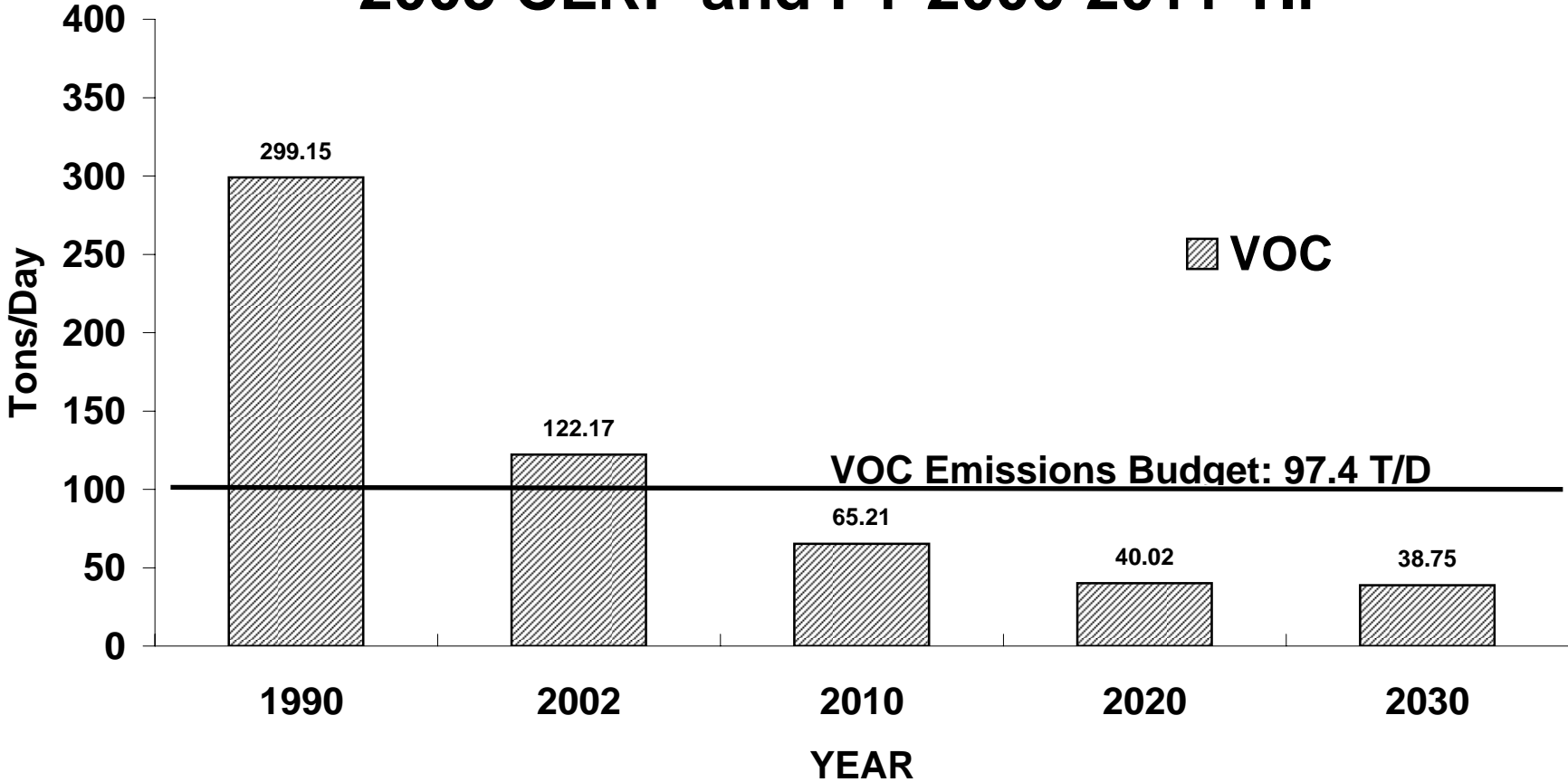
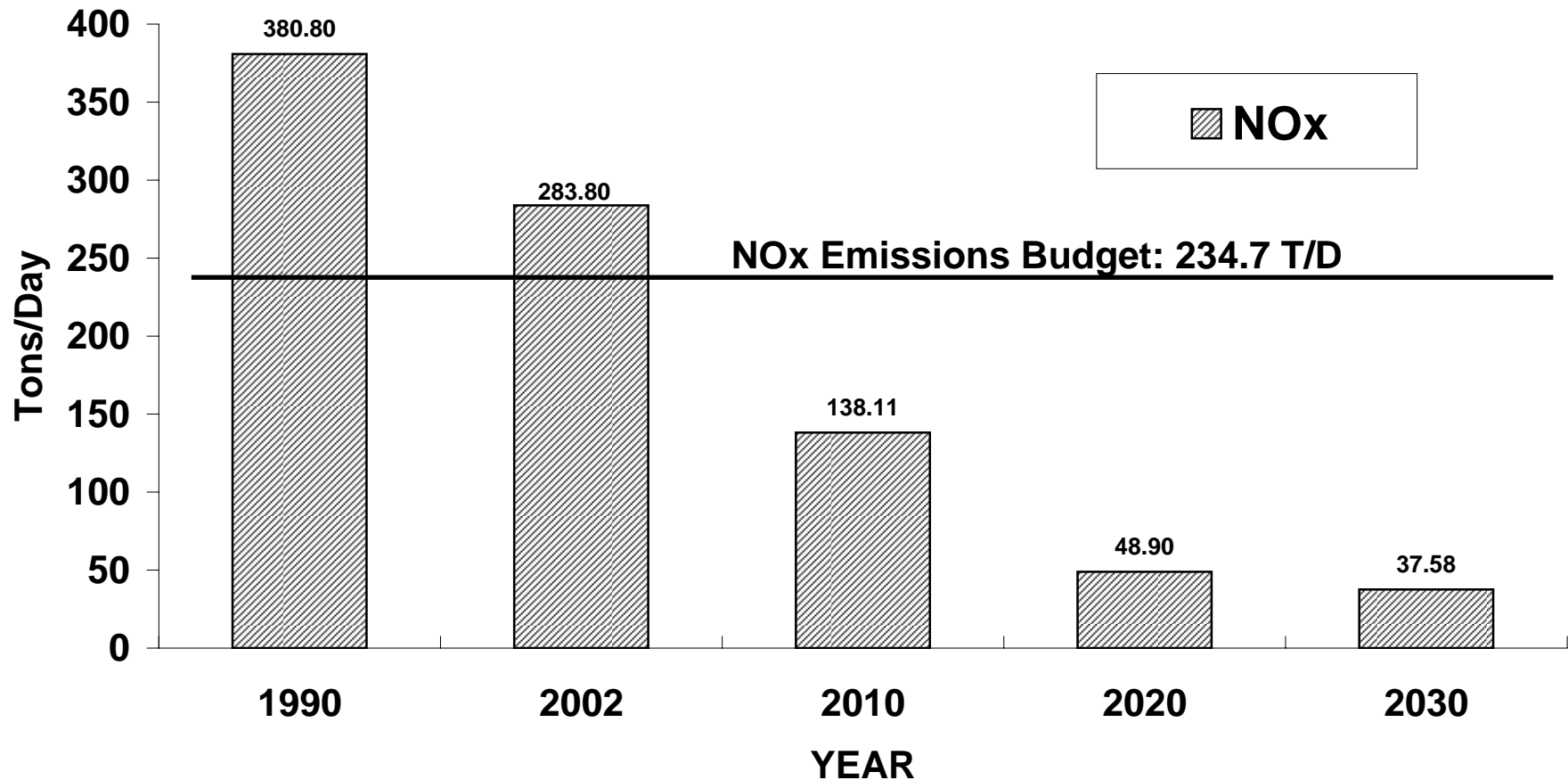


EXHIBIT 7

Mobile Source NOx Emissions Metropolitan Statistical Area 2005 CLRP and FY 2006-2011 TIP



NOTE: TCM emissions benefits applied in 2010

ATTACHMENT A

Table A
Significant Changes
for the
Air Quality Conformity Analysis
of the
2005 CLRP and FY2006-2011 TIP
Projects Inside the TPB Planning Area

ID	Agency	Improvement	Facility	From/At	To	Completion Date	Fac. Type		# Lanes	
							from	to	from	to
MARYLAND										
1	MDOT	Construct	I-95/I-495/Arena Drive Interchange	MD 214	MD 202	2010	1	1	8	8+2
2	MDOT	Widen	MD 27	MD 355	A 305	2006	2	2	4	6
VIRGINIA										
3a	VDOT	Widen/ Construct	I-495 HOT I-495 HOV (peak)	I-395	S. of VA 193 (Georgetown Pike)	2010 2012	1	1	8	8+4 10
3b	VDOT	Construct	I-495 HOT Lanes Interchange	Provides SB to WB, SB to EB, EB to SB, EB to NB, & NB to WB HOV to HOT or HOT to HOV movements	@ VA 267 (Dulles Toll Road)	2010	1	1	--	--
3c	VDOT	Construct	I-495 HOT Lanes Interchange	All movements	@ VA 123 (Chain Bridge Road)	2010	1	1	--	--
3d	VDOT	Construct	I-495 HOT Lanes Interchange	Provides SB to WB, WB to SB, EB to SB, NB to WB, NB to EB, & EB to NB HOV to HOT movements	@ I-66 HOV Lanes	2010	1	1	--	--
3e	VDOT	Construct	I-495 HOT Lanes Interchange	HOT movements to and from South Only	@ US 29	2010	1	1	--	--
3f	VDOT	Construct	I-495 HOT Lanes Interchange	All movements	@ VA 620 (Braddock Road)	2010	1	1	--	--
3g	VDOT	Construct	Construct ramps connecting the existing I-95 / I-395 HOV lanes on Shirley Highway to proposed HOT lanes on the Capital Beltway.	From I-95 / I-395 HOV lanes to I-495 HOT lanes		2010	1	1	--	--
4a	VDOT	Upgrade	VA 7900 (Franconia/Springfield Parkway)	VA 638 (Rolling Rd.)	VA 617 (Backlick Rd.)	2020	5	1	6+2	6+2
4b	VDOT	Construct	VA 7900 (Franconia/Springfield Parkway)	Interchange at Neuman Street		2020	1	1	--	--
5a	Arlington County	Construct	Crystal City-Potomac Yards busway (2-lane) Segment 1	Vicinity of Glebe Rd. Extended	26th St.	2006	--	--	0	2
5b	Arlington County	Construct	Crystal City-Potomac Yards busway (2-lane) Segment 2	26th St.	Crystal City Metro Station	2008	--	--	0	2
5c	Arlington County	Upgrade	Crystal City-Potomac Yards busway to BRT	Vicinity of Glebe Rd. Extended	Crystal City Metro Station	2012	--	--	0	2

**Table B
Significant Changes
for the
Air Quality Conformity Analysis
of the
2005 CLRP and FY2006-2011 TIP
Projects Outside the TPB Planning Area**

ID	Agency	Improvement	Facility	From/At	To	Completion Date	Fac. Type		# Lanes	
							from	to	from	to
MARYLAND										
1	MDOT	Construct	MD 2/4 at Lusby Southern Connector Rd.	MD 765	MD 2/4 at Lusby	2010	0	2	0	3

ATTACHMENT B

HOUSEHOLD DATA

MSA:	2002	2010	2020	2030	2030/2010
D.C.	249809	265303	292904	317696	1.20
MONTGOMERY	330970	367410	405294	438630	1.19
PR.GEORGES	299108	324343	349480	380811	1.17
ARLINGTON	89000	99577	111455	119855	1.20
ALEXANDRIA	63662	70964	76661	86450	1.22
FAIRFAX	374148	426019	479308	500221	1.17
LOUDOUN	70953	112664	149709	170149	1.51
PR. WILLIAM	119778	159345	188652	212864	1.34
FREDERICK	73833	87708	104139	123125	1.40
CHARLES	44286	52228	63654	76880	1.47
STAFFORD	32626	40899	51927	68404	1.67
CALVERT	26570	31045	34331	36212	1.17
SUBTOTAL	1,774,743	2,037,505	2,307,514	2,531,297	1.24
ADDITIONAL COUNTIES:					
HOWARD	94549	108700	124700	128130	1.18
ANNE ARUNDEL	183445	201097	217599	226001	1.12
CARROLL	55308	63550	69516	71822	1.13
FREDERICKSBURG (VA)	8561	10448	12391	13944	1.33
JEFFERSON	17016	20427	25957	33075	1.62
N. SPOTSYLVANIA	26787	35135	44012	52981	1.51
FAUQUIER	21448	26872	35729	47506	1.77
CLARKE	5182	6142	6860	7770	1.27
K. GEORGE	6533	8319	9850	11446	1.38
ST. MARY'S	31801	36441	42604	48399	1.33
SUBTOTAL	450,630	517,131	589,218	641,074	1.24
TOTAL	2,225,373	2,554,636	2,896,732	3,172,371	1.24

SOURCE:
 MWCOG Revised Round 7.0 Cooperative Forecasts
 BMC Round 6-A Cooperative Forecasts

EMPLOYMENT DATA

MSA:	2002	2010	2020	2030	2030/2010
D.C.	744155	783606	830000	859991	1.10
MONTGOMERY	481693	542120	612065	666993	1.23
PR.GEORGES	349356	392866	463816	547696	1.39
ARLINGTON	187633	217836	254418	275798	1.27
ALEXANDRIA	95800	113251	132536	147957	1.31
FAIRFAX	624843	727012	827599	904191	1.24
LOUDOUN	103376	153736	212920	271159	1.76
PR. WILLIAM	127076	157719	190161	217764	1.38
FREDERICK	106647	142412	158278	167257	1.17
CHARLES	47700	62888	66797	69100	1.10
STAFFORD	33603	46140	59216	73394	1.59
CALVERT	25456	32897	34498	35599	1.08
SUBTOTAL	2,927,338	3,372,483	3,842,304	4,236,899	1.26
ADDITIONAL COUNTIES:					
HOWARD	141854	168878	194203	219539	1.30
ANNE ARUNDEL	260251	286363	311932	334723	1.17
CARROLL	56471	61603	64649	65465	1.06
FREDERICKSBURG (VA)	25892	40258	51666	62676	1.56
JEFFERSON	17008	21058	26113	30674	1.46
N. SPOTSYLVANIA	28045	36321	46660	56541	1.56
FAUQUIER	22320	27325	35767	43367	1.59
CLARKE	6079	6793	7685	8552	1.26
K. GEORGE	12084	16022	20557	34303	2.14
ST. MARY'S	48915	58165	61164	63139	1.09
SUBTOTAL	618,919	722,786	820,396	918,979	1.27
TOTAL	3,546,257	4,095,269	4,662,700	5,155,878	1.26

SOURCE:

MWCOG Revised Round 7.0 Cooperative Forecasts

BMC Round 6-A Cooperative Forecasts

NOTE: Includes Census Adjustment

ATTACHMENT C

TERM TRACKING SHEET - CURRENT MEASURES
IMPLEMENTATION: YEAR 2000 AND LATER

ngine Technology), SP- Specific Vehicle Type, TCM - Transportation Control Measures

* NOS	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				ORIGINAL COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED						Project Category *
					FULL	SCALED- BACK	UNDER- WAY	REM			2010		2020		2030		
											VOC	NOX	VOC	NOX	VOC	NOX	
9	X	1994-99	MDOT	Park & Ride Lot - MD 210/ MD 373	X				2000	2003	0.0006	0.0014	0.0004	0.0006	0.0004	0.0006	C
19		1994-99	PRTC	VRE Woodbridge Parking Expansion (add 500 spaces)	X					2002-2003	n/a	n/a	n/a	n/a	n/a	n/a	-
20	X	1994-99	ALEX	King St. Metrorail access improvements				X		2002, '04, '05	0.0011	0.0014	0.0007	0.0006	0.0008	0.0009	C
38	X	1995-00	MDOT	Signal Systems - MD 85 Executive Way to MD 355	X				1996	Pre 2000	0.0000	0.0000			0.0000	0.0000	TR
39	X	1995-00	MDOT	Signal Systems - MD 355 .I-70 ramps to Grove Rd.	X				1996	n/a	0.0000	0.0000			0.0000	0.0000	TR
44		1995-00	MDOT	Signal Systems - MD 410, 62nd Ave. to Riverdale Rd.	X				1996	2002	0.0000	0.0000			0.0000	0.0000	TR
48	X	1995-00	MDOT	MARC Replacement Coaches	X				1999	2004	0.0006	0.0014	0.0004	0.0006	0.0012	0.0018	C (TCM)
49	X	1995-00	MDOT	MARC Expansion Coaches	X				1999	2004	0.0051	0.0132	0.0033	0.0055	0.0054	0.0145	C (TCM)
51	X	1995-00	VDOT	Alexandria Telecommuting Pilot Program	X					2000 & 2001	0.0000	0.0000	-	-			C
52	X	1995-00	VDOT	Fairfax County Bus Shelter (Fairfax Co. TDM program)				X	2000	2001	0.0000	0.0000	-	-			C
54	X	1995-00	VDOT	City of Fairfax Bus Shelters				X	1999	2004	0.0000	0.0005	0.000	0.0002	0.0000	0.0000	C (TCM)
56	X	1995-00	VDOT	Cherry Hill VRE Access				X		2007	0.0040	0.0113	0.003	0.0047	0.0023	0.0047	C (TCM)
58	X	1995-00	WMATA	Bus Replacement (172 buses)	X				1998	1998	0.0690	0.2520			0.0000	0.0000	SP (TCM)
59	X	1995-00	MCG	Shady Grove West Park and Ride				X	2010		0.0000	0.0000	0.000	0.000	0.0000	0.0030	C
60	X	1995-00	MCG	White Oak Park and Ride				X	2010		0.0000	0.0000	0.000	0.000	0.0000	0.0059	C
61	X	1995-00	MCG	Bicycle Facilities				X	FY99		0.0017	0.0009	0.001	0.000	0.0012	0.0006	C
62	X	1995-00	MCG	Pedestrian Facilities to Metrorail				X			0.0028	0.0038	0.002	0.002	0.0015	0.0021	C
63	X	1995-00	MDOT	MARC Replacement Coaches	X				1999	2004	0.0023	0.0057	0.001	0.002	0.0031	0.0059	C
64	X	1995-00	MDOT	MARC Expansion Coaches	X				1999	2004	0.0182	0.0490	0.012	0.021	0.0283	0.0482	C (TCM)
66	X	1995-00	VDOT	Commuter Lots - District Wide				X	varies	1995, 2000	0.0062	0.0156	0.004	0.007	0.0062	0.0157	C
67	X	1995-00	VDOT	I-66 and Stringfellow Rd. Park and Ride	X				2000	2000 end	0.0057	0.0094	0.004	0.004	0.0039	0.0059	C
68	X	1995-00	VDOT	Lake Ridge Park and Ride (now called Tacketts Mill lot)	X					1999/2000	0.0000	0.0047	0.000	0.002	0.0000	0.0030	C
69	X	1995-00	VDOT	Bicycle Trails and Facilities				X	varies	varies	0.0011	0.0080	0.001	0.003	0.0074	0.0053	C
70	X	1995-00	VDOT	Improved Access to Metrorail Stations				X	varies	2000-2010	0.0003	0.0005	0.000	0.000	0.0004	0.0006	C
71	X	1995-00	VDOT	I-66 HOV access at Monument Dr.	X					1997	0.0057	0.0094	0.004	0.004	0.0004	0.0059	C
72		1995-00	DC	Bicycle Facilities				X			0.0136	0.0094	0.009	0.004	0.0093	0.0065	C
73	X	1995-00	REGION	COG Regional Ridesharing Support	X					on-going	0.0000	0.0000	0.000	0.000	0.0000	0.0000	C

TERM TRACKING SHEET - CURRENT MEASURES
IMPLEMENTATION: YEAR 2000 AND LATER

ngine Technology), SP- Specific Vehicle Type, TCM - Transportation Control Measures

* NOS	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				ORIGINAL COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED						Project Category *
					FULL	SCALED- BACK	UNDER- WAY	REM			2010		2020		2030		
											VOC	NOX	VOC	NOX	VOC	NOX	
74	X	1995-00	REGION	M-47 Integrated Ridesharing	X				on-going	0.0265	0.0492	0.017	0.021	0.0139	0.0172	C	
75	X	1995-00	REGION	M-92 Telecommuting Support	X				on-going	0.1775	0.3364	0.115	0.141	0.1889	0.2374	C	
77		1996-01	VDOT	Duke Street Pedestrian Bridge				2005	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	
79	X	1996-01	VDOT	Fairfax County Bus Shelters (30 shelters with project #85)				X	1999	Summer 2001	0.0011	0.0014	0.001	0.001	0.0008	0.0009	C
81	X	1996-01	VDOT	Arlington County Metrocheck Program	X				1997	1997 Onwards	0.0011	0.0014	0.001	0.001	0.0004	0.0009	C
82	X	1996-01	VDOT	Old Dominion Drive Bike Trail				X	2000	2004	0.0006	0.0005	0.000	0.000	0.0004	0.0003	C
83	X	1996-01	WMATA	Bus Replacement (see line 58, above)	X					1998	Credit taken in line 58, above						SP
85	X	1996-01	VDOT	Fairfax County Bus Shelters (30 shelters with project #79)				X	1999	2001	0.0006	0.0005	0.000	0.000	0.0004	0.0009	C
90	X	1996-01	REGION	M-47c Employer Outreach / Guaranteed Ride Home	X					on-going	0.3440	0.5721	0.223	0.240	0.1777	0.1989	C
91	X	1996-01	REGION	M-70a Bicycle Parking				X	1999		0.0040	0.0033	0.003	0.001	0.0039	0.0030	C
92	X			M-92 Telecommuting Support	Combined with item #75												C
95	X	1997-02	MCG	Germantown Transit Center				X	2004		0.0028	0.0090	0.002	0.004	0.0019	0.0053	C (TCM)
102	X	1997-02	PG	Prince George's County Bus Replacement	X				1998	1998	0.0030	0.0090			0.0000	0.0000	SP (TCM)
106	X	1997-02	VDOT	PRTC Employer Commuting Outreach Program	X					1977 on-going	0.0011	0.0002	0.001	0.000	0.0008	0.0000	C
107	X	1997-02	VDOT	PRTC Multimodal Strategic Marketing Implementation Plan	X					1977 on-going	0.0000	0.0002	0.000	0.000	0.0000	0.0003	C
108	X	1997-02	MDOT	M-103 Taxicab Replacement in Maryland	X				1999	2005	0.0797	0.2675			0.3120	0.4810	SP
109	X	1997-02	REGION	M-70b Employer Outreach for Bicycles	X				1998	on going	0.0007	0.0007	0.000	0.000	0.0003	0.0002	C
110	X	1997-02	VDOT	M-77b Vanpool Incentive Programs in Virginia				X	1999	delayed			n/a	n/a	n/a	n/a	C
111	X	1998-03	WMATA	Bus Replacement (108 buses)	X				1999	1999	0.0450	0.1617			0.0000	0.0000	SP
112	X	1998-03	MCG	Montgomery County Bus Replacement	X						0.0080	0.0270			0.0000	0.0000	SP
113	X	1998-03	PG	Prince George's County Bus Replacement	X				1998	1998	0.0010	0.0020			0.0000	0.0000	SP
114	X	1998-03	FDC	Frederick County Bus Replacement	X						0.0010	0.0000			0.0000	0.0000	SP
117	X	1998-03	VDOT	Arlington County Four Mile Run Bike Trail				X	1999	delayed	0.0006	0.0005	0.000	0.000	0.0004	0.0003	C
118	X	1998-03	VDOT	Northern Virginia Turn Bays	X				2000	1998	0.0006	0.0008			0.0008	0.0003	TR
119	X	1998-03	VDOT	Fairfax City Bus Replacement				X	2001	2003	n/a	n/a			n/a	n/a	SP
121	X	1998-03	WMATA	WMATA Bus Replacement (252 buses)	X				2001	2001	0.1060	0.3860			0.0000	0.0000	SP
122	X	97 & 98 TIP	REGION	M-101a Mass Marketing Campaign (Consumer)				X		Underway	0.0732	0.1162	0.047	0.049	0.0752	0.0807	C
123	X	1999-04	MDOT	Various Park and Ride Lots (I-270/MD124, 450 & I-170/MD-75, 54 spaces)	X				2001/1999	2001	0.0045	0.0170	0.003	0.007	0.0039	0.0136	C

TERM TRACKING SHEET - CURRENT MEASURES
IMPLEMENTATION: YEAR 2000 AND LATER

ngine Technology), SP- Specific Vehicle Type, TCM - Transportation Control Measures

* NOS	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				ORIGINAL COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED						Project Category *
					FULL	SCALED- BACK	UNDER- WAY	REM			2010		2020		2030		
											VOC	NOX	VOC	NOX	VOC	NOX	
124	X	1999-04	MDOT	Signal Systems (197/MD-198, MD-382 TO US-301,US301)	X				2000	2002	0.0070	-0.0017	0.005	-0.001	0.0079	-0.0014	TR
125	X	1999-04	VDOT	Transit Center at 7 Corners	X				2002		0.0006	0.0009	0.000	0.000	0.0004	0.0006	C
126	X	1999-04	VDOT	Falls Church Clean Diesel Bus Service	X				2000	2003	0.0040	0.0050			0.0000	0.0000	SP
127		1999-04	VDOT	VA 234 Bike Trail			X		2001	2007	0.0000	0.0000	0.000	0.000	0.0000	0.0000	C
128	X	1999-04	VDOT	PRTC Ridesharing	X				on-going	2000 ongoing	0.0000	0.0000	0.000	0.000	0.0000	0.0000	C
130	X	1996-01	VDOT	M-14: I-66 Feeder Bus Fare Buy Down	X					1998 onward	0.0142	0.0259	0.009	0.011	0.0081	0.0124	C
131	X	2000-05	MDOT	Various park and Ride Lots	x				2002	2003	0.0039	0.0153	0.003	0.006	0.0038	0.0119	C
132	X	2000-05	MDOT	Signal Systems	X				Varies	on-going	0.0017	0.0000	0.1244	0.000	0.0007	0.0000	TR
133	X	2000-05	VDOT	450 Spaces at Gambrill/Hoos Rds. Park and Ride			X		2002	2004	0.0040	0.0085	0.003	0.004	0.0021	0.0041	C
134	X	2000-05	VDOT	300 Spaces at Backlick Rd			X		2003	2006	0.0028	0.0061	0.002	0.003	0.0015	0.0030	C
135	X	2000-05	VDOT	Accotink-Gateway Connector Trail			X		2002	2005	0.0040	0.0047	0.003	0.002	0.0018	0.0020	C
136	X	2000-05	VDOT	Columbia Pike Trail			X		2000	2001, 2005	0.0034	0.0038	0.002	0.002	0.0014	0.0015	C
137	X	2000-05	VDOT	Lee Highway trail			X		2000	2005	0.0017	0.0019	0.001	0.001	0.0006	0.0008	C
138	X	2000-05	VDOT	Arlington Bus Shelter Improvements			X		2005	2005	0.0006	0.0005	0.000	0.000	0.0002	0.0002	C
139	X	2000-05	VDOT	Pentagon Metrostation Improvements	X					2003	0.0045	0.0080	0.003	0.003	0.0022	0.0033	C
140	X	2000-05	MDOT	East/West Intersection Improvements			X		2005	2005	0.0233	0.0118	0.015	0.005	0.0859	0.0337	C
141	X	2001-06	Feds	Federal Transit/Ridesharing subsidy	X				on-going		0.0579	0.0901	0.037	0.038	0.0286	0.0313	C
142	X	2002-07	WMATA	100 CNG buses	X				2002		0.0000	0.1358					SP (TCM)
143	X	2002-07	WMATA	ULSD with CRT filters			X		on-going		0.2100	0.0000	0.4300	0.0000	0.4300	0.0000	H (TCM)
144	X	2003-08	DC	Replace 23 12 Taxicabs with CNG cabs			X		2005	2006	0.0089	0.0157					H
145	X	2003-08	DC	D.C.Incident Response & TrafficManagement System	X				2005	2004	0.0161	0.0414	0.011	0.021	-	0.0168	TR
146	X	2003-08	DC	Bicycle Lane in D. C. (35 Mile) *			X		2005	2006	0.0094	0.0084	0.006	0.004	0.0046	0.0029	C (TCM)
147	X	2003-08	DC	Bicycle Racks in D. C. (500) *	X				2005	2004	0.0013	0.0009	0.001	0.000	0.0006	0.0003	C (TCM)
148	X	2003-08	DC	External Bicycle Racks on WMATA Buses in D. C. (600) *	X				2005	2003	0.0019	0.0031	0.001	0.001	0.0010	0.0011	C (TCM)
149	X	2003-08	DC	CNG Rental Cars (18) *				X	2005		0.0000	0.0002					SP
150	X	2003-08	DC	Sidewalks in D.C. (\$ 5 million)	X				2005	2004	0.0355	0.0552	0.023	0.023	0.0182	0.0192	C
151	X	2003-08	DC	CNG Refuse Haulers (2) *	X				2005	2004	0.0001	0.0020					H (TCM)
152	X	2003-08	DC	Circulator /Feeder Bus Routes	X				2005	2003	0.0129	0.0199	0.008	0.008	0.0066	0.0069	C

TERM TRACKING SHEET - CURRENT MEASURES
IMPLEMENTAION: YEAR 2000 AND LATER

ngine Technology), SP- Specific Vehicle Type, TCM - Transportation Control Measures

* NOS	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				ORIGINAL COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED						Project Category *
					FULL	SCALED- BACK	UNDER- WAY	REM			2010		2020		2030		
											VOC	NOX	VOC	NOX	VOC	NOX	
153	X	2003-08	MDOT	Commuter Tax Credit			X		2005	n/a	0.0776	0.1217	0.050	0.051	0.0398	0.0422	C
155	X	2003-08	MDOT	Employer Vanpool Program (WWB)				X	2005		0.0018	0.0041					C
156	X	2003-08	MDOT	Green Line Link			X		2005	n/a	0.0025	0.0047	0.002	0.002	0.0013	0.0016	C
157	X	2003-08	MDOT	Park & Ride Lots - Southern Maryland *			X		2005	2003/2005	0.0049	0.0108	0.003	0.005	0.0026	0.0038	C
158	X	2003-08	MDOT	Prince George's County- Bus Exp			X		2005	n/a	0.0356	0.0653	0.023	0.027	0.0186	0.0228	C
159	X	2003-08	MDOT	MTA - Bus Service Expansion			X		2005	n/a	0.0080	0.0156	0.005	0.007	0.0042	0.0054	C
160	X	2003-08	MDOT	Ride- On - Super Discount			X		2005	n/a	0.0009	0.0014	0.001	0.001	0.0005	0.0005	C
161	X	2003-08	Regional	Regional Traveler Information Systems			X		2005		0.1012	0.5401	0.068	0.269	0.0686	0.2195	TR
162	X	2003-08	MDOT	Universal Transportation Access (MD + WMATA)			X		2005	n/a	0.0159	0.0248	0.010	0.010	0.0082	0.0086	C
163	X	2003-08	MCG	Construction of 1300 additional Parking Spaces at Grosvenor Metro Garage	X				2004		0.0045	0.0104	0.003	0.004	0.0025	0.0036	C (TCM)
164	X	2003-08	MCG	Bethesda Shuttle Bus Services	X				2004		0.0031	0.0047	0.002	0.002	0.0016	0.0016	C
165	X	2003-08	MCG	External Bicycle Racks on Ride-On Buses in Montgomery County	X				2004		0.0006	0.0010	0.000	0.000	0.0003	0.0003	C
166	X	2003-08	MCG	New CNG Powered Light Duty Vehicle fleet in the County	X				2004		0.0000	0.0001					SP
167	X	2003-08	MCG	Free Bus Service on Selected Routes on I-270	X				2004		0.0011	0.0016	0.001	0.001	0.0005	0.0006	C
168	X	2003-08	MCG	Annual Sidewalk Program	X				2004		0.0169	0.0263	0.011	0.011	0.0087	0.0091	C
169	X	2003-08	MDOT	Bethesda Breeze/International Express Metrobus			X		2005	n/a	0.0037	0.0053	0.002	0.002	0.0019	0.0018	C
170	X	2003-08	MDOT	Bethesda-8, Silver Spring Downtown Dasher and Prince Georges Co. Shuttles at 3 PNR lot			X		2005	n/a	0.0087	0.0104	0.006	0.004	0.0043	0.0036	C
171	X	2003-08	MDOT	Proposed Transportation Management District in Montgomery County (Rockville and Gaithersburg)				X	2005	n/a	0.0057	0.0078	0.004	0.003	0.0029	0.0027	C
172	X	2003-08	MDOT	Sidewalks (Bikes/Pedestrian) at / near Rail Stations	X				2005	2002	0.0092	0.0146	0.006	0.006	0.0047	0.0051	C
173	X	2003-08	MDOT	Neighborhood Sidewalks Improvements (Bike/Pedestrian)	X				2005	2004	0.0032	0.0016	0.002	0.001	0.0015	0.0005	C
174	X	2003-08	MDOT	Neighborhood Conservation Program - Neighborhood Sidewalks Improvements (Bikes/Pedestrian)		X			2005	n/a	0.0028	0.0014	0.002	0.001	0.0013	0.0005	C
175	X	2003-08	MDOT	Maryland bus Transit Service Expansion	X				2005	2004	0.0140	0.0321	0.009	0.013	0.0076	0.0112	C
176	X	2003-08	VDOT	Universal Transportation Access Program			X		2005	2005	0.0012	0.0019	0.001	0.001	0.0006	0.0006	C
177	X	2003-08	VDOT	Interactive Rideshare & Kiosk Initiative			X		2005		0.0004	0.0007	0.000	0.000	0.0002	0.0002	C
178	X	2003-08	VDOT	Mobile Commuter Stores			X		2005		0.0021	0.0039	0.001	0.002	0.0011	0.0014	C
179	X	2003-08	VDOT	Telework Incentive Program (Telework VA) ¹	X				2005	2001	0.0007	0.0012	0.000	0.000	0.0004	0.0004	C
180	X	2003-08	VDOT	Commuter Choice			X		2005		0.0010	0.0014	0.001	0.001	0.0005	0.0005	C
181	X	2003-08	VDOT	Employer Shuttle Services			X		2005		0.0113	0.0165	0.007	0.007	0.0057	0.0057	C

TERM TRACKING SHEET - CURRENT MEASURES
IMPLEMENTATION: YEAR 2000 AND LATER

ngine Technology), SP- Specific Vehicle Type, TCM - Transportation Control Measures

* NOS	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				ORIGINAL COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED						Project Category *
					FULL	SCALED- BACK	UNDER- WAY	REM			2010		2020		2030		
											VOC	NOX	VOC	NOX	VOC	NOX	
184	X	2003-08	VDOT	Van Start / Van Save			X		2005	thru 2006	0.0014	0.0026					C
185	X	2003-08	VDOT	Metro Shuttle Bus			X		2005	1999-2005	0.0012	0.0026	0.001	0.001	0.0006	0.0009	C
187	X	2003-08	VDOT	VRE Mid-Day Train Service	X				2005	2002	0.0016	0.0029	0.001	0.001	0.0008	0.0010	C
190	X	2003-08	VDOT	Employer Vanpool Program (Bridge deck)			X		2005	2004 - 2008	0.0009	0.0019					C
191	X	2003-08	VDOT	Town of Leesburg P&R Lot			X		2005	2004	0.0019	0.0039	0.001	0.002	0.0010	0.0014	C
192	X	2003-08	VDOT	District-wide P&R Lots	X		X		2005	2001-2005	0.0112	0.0222	0.007	0.009	0.0059	0.0078	C
193	X	2003-08	VDOT	Additional Parking at 4 Metro stations			X		2005	2001, 2005	0.0144	0.0331	0.009	0.014	0.0078	0.0116	C
196	X	2003-08	WMATA	64 CNG Buses (Purchased in 2001)	X				2005	2004	0.0021	0.0870					SP (TCM)
197	X	2003-08	WMATA	250 CNG Buses (175 buses by Dec. 2004; 75 buses by mid 2006)			X		2005	2004-2006	0.0083	0.3400					SP
198	X	2003-08	WMATA	60 Engine Replacement (MY 1992 & 1993 MY buses)	X				2004	2004	0.0138	0.0755					SP
199	X	2003-08	WMATA	Car Sharing Program	X				2005	2004	0.0008	0.0018	0.001	0.001	0.0004	0.0006	C
200	X	2003-08	WMATA	Bikes Racks on WMATA Buses in VA (372 Bike Racks)	X				2005	2004	0.0012	0.0019	0.001	0.001	0.0006	0.0007	C (TCM)
202		2003-08	MDOT	Fleet Replacement (state auto fleet, gas to hybrid, 250 vehicles)				X	2005		0.0055	0.0133	0.002	0.003			SP
203	X	2003-08	MDOT	Replace 55 Montgomery County 10 yr. old buses w/ new CNG buses			X		2005	n/a	0.0000	0.2861	0.000	0.066			SP
204		2003-08	MDOT	Neighborhood Bus Shuttle (5 circulator routes)				X	2005		0.0074	0.0121	0.005	0.005	0.0038	0.0042	C
205	X	2003-08	MDOT	New Surface Parking at Transit Centers (500 spaces)			X		2005	n/a	0.0026	0.0059	0.002	0.002	0.0014	0.0021	C
206	X	2003-08	MDOT	Additional Bike Lockers at Metro-Stations				X	2005	n/a	0.0131	0.0208	0.008	0.009	0.0067	0.0072	C
207	X	2003-08	MDOT	Bike Facilities at PnR Lots or other similar location			X		2005	n/a	0.0092	0.0165	0.006	0.007	0.0048	0.0057	C
208	X	2003-08	MDOT	CNG Fueling Stations				X	2005	n/a	0.1270	0.1170					SP
209		2003-08	MDOT	Gas cap replacements (ROP Credit)				X	2005		N/A	N/A	N/A	N/A		-	SP
210		2003-08	MDOT	Gas can turnover (ROP Credit)				X	2005		N/A	N/A	N/A	N/A		-	SP
211	X	2003-08	MDOT	External Bicycle Racks on WMATA Buses (486 MD buses)	X				2005	2002	0.0014	0.0022	0.001	0.001	0.0007	0.0008	C (TCM)
212	X	2003-08	MDOT	Bike \ Pedestrian Trail - Anacostia River Walk			X		2005	n/a	0.0006	0.0005	0.000	0.000	0.0003	0.0002	C
213		2003-08	MDOT	Transit Prioritization - Queue Jumps				X	2005		0.0031	0.0037	0.002	0.002	0.0015	0.0013	C
214	X	2003-08	MDOT	Commuter Choice Benefit/Tax Credit - Marketing Expansion			X		2005	n/a	0.0542	0.0855	0.035	0.036	0.0278	0.0297	C
215	X	2003-08	MDOT	Improvements to Pedestrian Access in TOD areas (4 locations)			X		2005	n/a	0.0059	0.0087	0.004	0.004	0.0030	0.0030	C
216	X	2003-08	MDOT	Telecommuting Expansion	X				2005	n/a	0.0640	0.1202	0.041	0.050	0.0336	0.0419	C
217	X	2003-08	MDOT	Replace older Diesel Engine in Public Sector vehicles				X	2005	n/a	0.0237	0.1300					H
218	X	2003-08	VDOT	MV-92 Telecommuting Program - Expanded ¹	X				2005	2003	0.0684	0.1283	0.044	0.054	0.0359	0.0447	C
219	X	2003-08	VDOT	MV-123 Employer Outreach for Public Sector Employees ¹	X				2005	2003	0.0152	0.0236	0.010	0.010	0.0078	0.0082	C
220	X	2003-08	REGION	Signal System Optimization			X		2005	2005	0.4272	0.1510	0.288	0.075	0.2896	0.0613	TR
Available Emissions Credits											2.489	5.147	1.815	1.417	1.991	1.800	

TRANSPORTATION EMISSION REDUCTION MEASURES (CLRP Projects Only)

(TRACKING SHEET)

Project Category: TR - Traffic Stream, C - Commute, H - Engine Technology (Heavy Duty Vehicles), SP- Specific Vehicle Type

	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				PROJECTED	ACTUAL	TONS/DAY REDUCTION CREDITED				Project Category
					FULL	SCALED-BACK	UNDER-WAY	REMOVED	COMPLETION	COMPLETION	2020		2030		
									DATE	DATE	VOC	NOx	VOC	NOx	
221	X	1995-00 TIP	REGION	M-24 Speed Limit Adherence					2010		0.1207	0.7141	0.0495	0.1828	TR
222		1996-01 TIP	MGC	Rock Spring Park Pedestrian Amenities				X			0.0000	0.0000	0.0000	0.0000	-
223	X	1996-01 TIP	MGC	Olney Transit Center Park and Ride							0.0009	0.0030	0.0003	0.0007	C
224	X	1996-01 TIP	MGC	Damascus Park and Ride							0.0004	0.0015	0.0001	0.0003	C
225	X	1996-01 TIP	DC	M-103 Taxicab Replacement					2015		0.1745	0.3000	0.3490	0.6000	H
226	X	STADIUM ANALYSIS		Taxicab Replacement (MD)				X	2008		0.0780	0.1200	0.1560	0.2400	H
227	X	1997-02 TIP	MDOT	Shady Grove West Transit Center Park and Ride							0.0000	0.0038	0.0000	0.0009	C
228	X	1997-02 TIP	MGC	Olney Transit Center Park and Ride							0.0004	0.0012	0.0003	0.0007	C
229	X	1997-02 TIP	MGC	White Oak Park and Ride							0.0000	0.0076	0.0000	0.0017	C
230	X	1997-02 TIP	MGC	Damascus Park and Ride							0.0002	0.0005	0.0001	0.0003	C
231	X	1997-02 TIP	MGC	Four Corners Transit Center							0.0000	0.0004	0.0000	0.0001	C
232		1997-02 TIP	MGC	Burtonsville Transit Center				X			0.0000	0.0000	0.0000	0.0000	-
233	X	1997-02 TIP	MGC	Silver Spring Transit Access							0.0000	0.0003		0.0002	C
234	X	1997-02 TIP	MGC	Shady Grove Parking Construction							0.0021	0.0072	0.0007	0.0017	C

PLAN TOTAL											0.2992	1.0396	0.4002	0.7894
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GRAND TOTAL (Current Measures-past 2000 + plan)											2.114	2.456	2.391	2.589
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Note: 2010 Emissions benefit estimated using ratios between 2005 and 2010 emissions factors

DEFINITIONS:

CREDIT TAKEN (X means emissions reduction credits taken):

TIP - Emissions credits are taken for projects being implemented, according to the progress reporting schedules provided by the implementing agencies (contained in Appendix L). No credit has been taken for projects in which only some components of the measure have been implemented. (The status of these projects will be reassessed next year).

CLRP - Credit is taken for each of these elements of the CLRP, according to the schedule provided by the implementing agency.

IMPLEMENTATION STATUS:

FULL = project is completed as planned at the time of analysis.

SCALED BACK = project is completed, but at a different level than assumed at the time of analysis (i.e., purchased 50 buses instead of 100)

UNDERWAY = project is not complete, but is close enough that credit may be taken (i.e., under construction, NOT just out for bid)

REMOVED = project no longer expected to be implemented or constructed

COMPLETION DATE:

PROJECTED = project completion date originally expected (i.e., at time of emissions analysis)

ACTUAL = actual year project was open for use, or expected to be open for use if under construction