DRAFT

AIR QUALITY CONFORMITY DETERMINATION OF THE 2006 CONSTRAINED LONG RANGE PLAN AND THE FY2007-2012 TRANSPORTATION IMPROVEMENT PROGRAM FOR THE WASHINGTON METROPOLITAN REGION

September 20, 2006

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NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS

ABSTRACT

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AGENCY: The Metropolitan Washington Council of Governments is the regional planning organization of the Washington area's major local governments. COG works on finding solutions to regional problems, especially those related to regional growth, transportation, housing, human services, and the environment.

ABSTRACT: This report documents the assessment of the 2006 Constrained Long Range Plan (CLRP) and the FY2007-2012 Transportation Improvement Program (TIP) with respect to air quality conformity requirements under the 1990 Clean Air Act Amendments. The assessment used criteria and procedures contained in the Environmental Protection Agency (EPA)'s final conformity rule, published in the November 24, 1993 Federal Register, with subsequent amendments and additional federal guidance published by the Environmental Protection Agency (EPA) and by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). The assessment is a responsibility of the National Capital Region Transportation Planning Board (TPB).

The report presents an overview of the conformity requirements contained in the legislation and subsequent guidance, and documents the technical procedures used in the analysis including travel demand forecasting, emissions calculation procedures and impacts of transportation emission reduction measures. The analysis demonstrates that mobile source emissions, estimated for the TIP and for each analysis year of the long range plan, adhere to all carbon monoxide, ozone season volatile organic compound and nitrogen oxide emissions budgets established by the Metropolitan Washington Air Quality Committee (MWAQC) and approved by the EPA. Additionally, the "action scenario" (forecast year) emissions for fine particles (PM2.5) pollutants (direct PM2.5 and precursor nitrogen oxide) are not greater than the base year 2002 emissions, thus satisfying the requirement for pollutants without an established budget. These results provide a basis for a determination of conformity of the 2006 CLRP and the FY2007-2012 TIP.

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EXECUTIVE SUMMARY

This report documents the air quality conformity assessment of the 2006 Constrained Long Range Plan (CLRP) and the FY2007-2012 Transportation Improvement Program (TIP) as carried out under the regulations contained in the Environmental Protection Agency's final rule, published in the November 24, 1993 *Federal Register,* with subsequent amendments and additional federal guidance published by the Environmental Protection Agency (EPA) and by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). The process involved consultation with affected agencies such as the EPA, the FHWA, the FTA, and the Metropolitan Washington Air Quality Committee (MWAQC), as well as with the public. The assessment is a responsibility of the National Capital Region Transportation Planning Board.

The first chapter of this report provides a context for the analysis. Chapter II presents an overview of the conformity requirements. This includes a background section on guidance documents following the passage of the 1990 Clean Air Act Amendments, as well as an overview section of the conformity regulations.

Chapter III documents the technical methods and results of the analysis of the CLRP and TIP. The chapter begins with explicit consideration of the overall approach to performing the assessment, i.e., development of a work program which would address all technical and policy requirements of the regulations, respond to comments received on previous analyses and incorporate technical refinements. The discussion provides technical details relating to the travel demand forecasting procedures utilized (network development, transportation/land use interaction, trip table development, modal choice, and traffic assignment), the development of vehicular emissions rates and the subsequent calculation of emissions.

The primary air quality conformity assessment criterion for ozone season (volatile organic compounds and nitrogen oxides) and winter CO pollutants includes comparison of mobile source emissions estimates (developed for specified transportation plan and program years) to emissions budgets for each pollutant, established by MWAQC as part of state air quality implementation plan (SIP) requirements. The assessment criterion for fine particles (PM2.5) pollutants (direct PM2.5 and precursor NOx, which do not yet have established budgets) is that emissions for the "action scenario" (forecast years) must be no greater than those of the 2002 base year. Emissions estimates for all pollutants were developed for 2010, 2020, and 2030 forecast years, using both network analysis and off-line emissions assessment. The results show that the 2006 CLRP and the FY2007-2012 TIP demonstrate adherence to relevant mobile source emissions budgets for all forecast years for ozone season and winter CO pollutants, and that forecast year fine particles pollutants emissions are not greater than the base year 2002 emissions.

Chapter IV addresses interagency and public consultation procedures. These procedures were originally developed in response to the November 1993 regulations and were subsequently updated in response to the August 15, 1997 amendments. The updated procedures were adopted by the TPB in May 1998 and were followed in development of this year's CLRP and TIP.

Chapter V presents the assessment of the 2006 CLRP and the FY2007-2012 TIP with respect to EPA's criteria and procedures. This chapter responds to specific sections of the conformity regulations on a point by point basis, documenting adherence of the overall conformity assessment to the specific technical, policy and procedural requirements.

Based upon this assessment, Chapter VI conveys the results of the study, that the technical analysis provides a basis for a determination of conformity of the 2006 CLRP and the FY2007-2012 TIP.

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LIST OF ACRONYMS

AWDT	Average Weekday Traffic
BMC	Baltimore Metropolitan Council
CAAA	Clean Air Act Amendments of 1990
CAC	Citizens Advisory Committee
CLRP	Constrained Long Range Plan
CMAQ	Congestion Mitigation & Air Quality
CO	Carbon Monoxide
DC DOT	District of Columbia Department of Transportation
DTP	(COG's) Department of Transportation Planning
FAMPO	Fredericksburg Area Metropolitan Planning Organization
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
G/MI	Grams Per Mile
HOV	High Occupancy Vehicle
I/M	Inspection and Maintenance
LOV	Low Occupancy Vehicle
MDOT	Maryland Department of Transportation
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MWAQC	Metropolitan Washington Air Quality Committee
MWCOG	Metropolitan Washington Council of Governments
NOx	Nitrogen Oxides
P's & A's	Productions and Attractions
PM2.5	Fine Particles
PNR	Park and Ride Lot
SIP	State Implementation Plan
TAD	Transportation Analysis District
TAZ	Transportation Analysis Zone
TCM	Transportation Control Measure
TERM	Transportation Emission Reduction Measure
T/D	Tons Per Day
TIP	Transportation Improvement Program
TPB	Transportation Planning Board
US DOT	United States Department of Transportation
US EPA	United States Environmental Protection Agency
V/C	Volume to Capacity Ratio
VDOT	Virginia Department of Transportation
VDRPT	Virginia Department of Rail and Public Transportation
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
WMATA	Washington Metropolitan Area Transit Authority

I. INTRODUCTION

The Washington region is currently designated non-attainment for the federal health standards for ozone and fine particles (PM2.5). Clean air legislation in 1977 provided that a metropolitan planning organization may not approve any transportation project that did not conform to the approved state implementation plan (SIP) for the attainment of clean air standards. This established the responsibility on the part of COG/TPB to review transportation plans and programs and affirm that they conformed to air quality state implementation plans for the region.

This requirement means that TPB plans, programs and projects must be consistent with clean air objectives. In the 1990 Clean Air Act Amendments conformity to an implementation plan is defined as conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards. In addition, Federal activities may not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emission reductions towards attainment.

II. CONFORMITY ASSESSMENT - REQUIREMENTS

A. BACKGROUND

On November 15, 1990 President Bush signed into law the Clean Air Act Amendments of 1990. This legislation specified dates by which clean air standards must be attained and required preparation of a plan identifying the measures to be employed and an implementation schedule for attainment. In the Washington region the ozone standard was to have been met by November 15, 1999.

The clean air act legislation also specified that revised conformity procedures be brought into use, including the "interim" period before revised air quality attainment plans were prepared. According to the law, conformity would be demonstrated if:

> "(A) the transportation plans and programs - (i) are consistent with the most recent estimates of mobile source emissions; (ii) provide for the expeditious implementation of transportation control measures in the applicable implementation plan; and (iii) with respect to ozone and carbon monoxide non-attainment areas, contribute to annual emissions reductions..."; and "(B) the transportation projects - (i) come from a conforming transportation plan and program..."; and "(ii) in carbon monoxide non-attainment areas, eliminate or

reduce the severity and number of violations of the carbon monoxide standards in the area substantially affected by the project". In June 1991 US EPA and US DOT jointly issued the report, Guidance for Determining Conformity of Transportation Plans, Programs and Projects With Clean Air Act Implementation Plans During Phase I of the Interim Period, to provide guidance regarding the criteria and procedures to be followed by metropolitan planning organizations in making conformity determinations. The guidance indicated that "...conformity must now be based on detailed analysis of the potential impacts of transportation plans, programs, and projects on air quality", and provided procedures and definitions for conducting the analysis.

In Summer 1991, using the procedures contained in the guidance document, COG staff performed the first such "systems level" analysis, evaluating the FY92-96 Transportation Improvement Plan (TIP) and the regional long range plan. This analysis provided a general framework for subsequent TIP conformity evaluations.

For the assessment of the ozone season emissions reduction requirement for transportation plans and programs, the guidance document identified a comparison of emissions for future "build" versus "no-build" conditions. The resulting work tasks involved network simulations of regional travel demands and estimates of emissions for alternatives in three forecast years: 1996 - the end of the TIP period; 1999 - the attainment year in the region for ozone; and 2010 - the target year for the region's long range plan. In each case fewer volatile organic compound (VOC) emissions resulted with the "build" condition. Finding that the analysis provided a basis for determining conformity, on September 18, 1991 the TPB adopted the plan and program as conforming elements in support of the Clean Air Act Amendments of 1990 and the attainment of air quality standards for the Washington region.

Federal agencies provided additional guidance for subsequent analyses of the FY93-98 and FY94-99 TIPs. In an October 1991 joint release from DOT and EPA, the June 1991 guidance report was reaffirmed as the basis for conformity assessments. In July, 1992 Mr. Kevin Heanue, Director of FHWA's Office of Environment and Planning, sent a memo to Regional Administrators, which contained some additional guidance. The memo specified that in addition to the "build versus no-build" criterion, reductions from a 1990 base would also have to be demonstrated in order for a conformity finding to be made. Accordingly, staff incorporated this guidance into all subsequent evaluations of TPB plans and programs.

B. CONFORMITY REGULATIONS

Spring - Fall 1994 Experience

The November 24, 1993 *Federal Register* contained EPA's final rule (subsequently amended) on transportation conformity (Reference 1). This action established regulations governing procedures which FHWA, FTA and MPOs must carry out and specific requirements to which transportation plans, programs and projects must adhere. The regulations are comprehensive, covering definitions and specific technical, procedural, consultation and policy aspects of the analyses. Criteria and procedures to be employed are related to the area's standing with EPA in terms of its status in meeting state implementation plan requirements. Different tests apply depending on the time period and whether SIP revisions have been filed with EPA, which establish emissions budgets leading towards reasonable further progress and attainment of air quality standards.

The development of the FY95-2000 TIP and associated CLRP updates represented COG/TPB's first experience under the new regulations. That work established a basis of new procedures for meeting the new requirements, technical and consultative. Specifically, that year's conformity analysis, adopted by the TPB on September 21, 1994, met all of the technical requirements under the federal regulations.

On the consultation side, staff went through a lengthy process involving EPA and state and local air quality agencies to develop and execute transportation and air quality conformity consultation procedures. These procedures have been organized into a separate report, Transportation Planning Board Consultation Procedures with Respect to Transportation Conformity Regulations Governing TPB Plans and Programs (Reference 4). (These procedures were also adopted by the Board initially on September 21, 1994 and subsequently updated in response to EPA's August 15, 1997 amendments and formally adopted by the TPB on May 20, 1998.) Similarly, the consultation procedures executed as part of that conformity analysis also met all requirements under the federal conformity regulations.

Subsequent Experience

(1) Revisions to Technical Process

The regulations also established further technical requirements for conducting the travel demand forecasting and emissions analyses to be used to support conformity determinations. The applicability of these requirements would be phased in as of

January 1, 1995 for the Washington region, as an area in the "serious" ozone non-attainment category.

Staff undertook to address these requirements shortly after the regulations were published in November 1993. This involved significant transportation research activities, the most critical of which involved the development of a modeling capability to "recycle" congested system performance characteristics from the traffic assignment phase back to the trip distribution phase. Following months of staff work, under the policy and technical direction of the Travel Forecasting Subcommittee of the TPB Technical Committee, new procedures were adopted and used for the first time in production in the conformity analysis of the FY95-2000 TIP referenced above. These procedures have been incorporated into COG/TPB's regional travel demand forecasting processes and have also been used in all subsequent conformity assessments. The latest version of these procedures (referred to as the Version 2.1D #50 model) is documented in the COG/TPB Travel Forecasting Model Version2.1TP+, Release D Calibration Report, (Reference 24) and meets all conformity regulations phased into applicability in the Washington region as of January 1, 1995.

(2) Revisions to Assessment Criteria

EPA's August 15, 1997 amendments to its conformity regulations enabled the transition to emissions budget tests, in lieu of the "action - baseline" emissions comparisons, following: (1) submission to EPA of a state implementation plan to establish appropriate mobile source emissions budgets for VOC and NOx and (2) review of the budgets and affirmative action by EPA to determine that the budgets were adequate for conformity purposes. These requirements were met initially with the October 23, 1997 submission by the District of Columbia, Maryland and Virginia air management agencies of MWAQC's Phase I Attainment Plan (Reference 7) to EPA and with EPA's subsequent review and adequacy determination of the budgets. These actions moved the Washington area away from "interim period" and "transitional period" conformity classifications and into a "control strategy" status. This enabled the air quality conformity assessment of the FY99-04 TIP to proceed through adherence to an emissions budget for each pollutant, rather than through use of the previous "action-baseline" emissions comparisons. While such budget adherence criteria were also utilized in that assessment, some significant updates in EPA's emissions budget "adequacy review procedures" also occurred, as described below.

(3) Impacts of March 1999 Court Decision

A March 2, 1999 court decision against EPA remanded several sections of the August 1997 conformity regulations to EPA for revision. Following this decision, EPA and

FHWA/FTA issued guidance (References 2 and 3) for use in the interim period until new regulations could be promulgated. One element of the guidance affected subsequent years' conformity assessments: the establishment of an adequacy review period of up to 90 days for mobile source emissions budgets contained in state air quality implementation plans submitted to EPA. This requirement affected EPA's review of MWAQC's Phase I Attainment Plan for ozone, which was submitted to EPA in May 1999 by the District of Columbia, Maryland and Virginia air management agencies. Following EPA's approval as being adequate for conformity purposes, new VOC and NOx motor vehicle emissions budgets were used in the conformity assessment of the 1999 CLRP and FY2000-2005 TIP (Reference 15). Similarly, MWAQC's Phase II Attainment Plan (Reference 16) in Spring 2000 led to updated emissions budgets, which were used in air quality conformity analyses leading to amendments to the 1999 CLRP and FY2000-2005 TIP (Reference 17), as well as the 2000 CLRP and FY2001-2006 TIP (Reference 18).

(4) Impacts of July 2002 Court Decision

On July 2, 2002 the US Court of Appeals for the District of Columbia vacated the EPA's approval of the State Implementation Plans (SIPs) for the Washington region and recommended them to EPA for further consideration. The mobile emissions attainment budgets in those SIPs were also vacated. In a communication of July 15, 2002, (Reference 23) EPA stated that the mobile budgets then in place for the Washington region were the Rate of Progress (ROP) budgets. EPA also stated its intention to make the attainment budgets effective through a new adequacy finding, and recommended that the TPB demonstrate conformity to both the ROP budgets and the attainment budgets. As documented in Chapter 3 of that report (Reference 25), emissions for all milestone years associated with the 2002 CLRP and FY2003-2008 TIP adhered to both sets of budgets requirements.

(5) 'Severe Area SIP' with MOBILE6 Budgets

In January 2003 EPA reclassified the Washington, D.C., Maryland, Virginia ozone nonattainment area from 'serious' to 'severe'. In anticipation of this, MWAQC was in the process of executing a work program to meet Clean Air Act requirements for severe areas, to attain the health standards by November 15, 2005. Such requirements included: assessment of rate of progress towards attainment; analysis of reasonably available control measures; selection of and commitment to control strategies; demonstration of attainment; and contingency measures.

In January 2002 EPA released an updated version of its mobile emissions factor model, MOBILE6 (Reference 27), or more recently MOBILE6.2 (Reference 29). Since this new

model version offered significant improvements to the estimation of emissions rates, its use was incorporated into the analysis to develop the 'severe area SIP'. Inputs to the MOBILE6 model were developed through the formation of a joint TPB and MWAQC technical group, called the Mobile6 Task Force, and with consultant assistant assistance to COG. Mobile source emissions inventories developed under this work program, for 1990, for rate of progress years, and for the 2005 attainment year, provided the basis for the mobile source component of that plan (referred to in this report as the 'severe area SIP' and included as Reference 28).

Following the completion of the planning and regulatory requirements, MWAQC adopted this plan on August 13, 2003 and the District of Columbia, Maryland and Virginia air management agencies submitted it to EPA. Of critical importance to this transportation conformity assessment is the specification in Chapter 9 of that plan of mobile source emissions budgets. The SIP sets VOC and NOx emissions budgets of 98.1 and 237.4 tons per day, respectively. On December 16, 2003 these budgets were certified by the EPA as being 'adequate' for conformity. The 2003 CLRP and FY2004-2009 TIP were subsequently found to be in conformity through a demonstration of adherence to the budgets.

(6) FY 2005 Conformity Assessments

A. Final 1- Hour Ozone Assessment

In November 2004 the TPB approved the air quality conformity assessment of the 2004 CLRP and FY2005 – 2010 TIP. This analysis effort, documented in detail in Reference 31, marked the use of the Version2.1D #50 travel demand model and updated emissions post-processor. This assessment contained significant refinements to both the travel demand forecasting and air quality analysis processes, implemented following an earlier review performed by the Transportation Research Board. As EPA also finalized nonattainment designations and conformity requirements for the 8-hour standards during this time period, revoking the 1-hour standard as of June 15, 2005, this represented the region's final 1-hour ozone conformity assessment.

B. Transition to 8-Hour Ozone Standard

On April 15, 2004 EPA designated the Washington, DC - MD – VA region as 'moderate' nonattainment for the 8-hour ozone standard. The geographic coverage for the 8-hour area is smaller than the long-standing 1-hour area, since Stafford County, VA was removed. Publication on July 1, 2004 of the final rule for transportation conformity provided conformity assessment criteria and specified a one year grace period for demonstrating conformity to the new standard. Staff then prepared an "8-Hour Ozone

Standard Conformity Assessment Scope Of Work" as a supplement to the 1-hour ozone assessment ongoing at that time. Included among EPA's conformity assessment criteria was use of existing 1-hour emissions budgets, since this work preceded SIP developmental work and creation of mobile source emissions budgets relevant to the 8-hour standard. The TPB approved this work scope in October 2004 and staff then executed the work tasks, which also included analyzing 2010 as the attainment year for the 8-hour ozone standard. Following public comment and interagency consultation, the Board adopted the final conformity assessment report in January 2004. FHWA and FTA approved both the 1-hour and 8-hour ozone assessments in June 2005.

(7) Introduction of Fine Particles (PM2.5) Standards

On December 17, 2004 the Environmental Protection Agency (EPA) designated 224 counties, as well as the District of Columbia, that exceeded the health-based standards for fine particles (PM2.5) as nonattainment areas. PM2.5 standards refer to particulate matter less than or equal to 2.5 micrometers in diameter. The Washington, DC-MD-VA area (consisting of the Washington metropolitan statistical area, excluding Stafford County, Virginia, and Calvert County, Maryland) was designated nonattainment for PM2.5 (see Exhibit 2 for area), and is required to attain clean air as soon as possible but no later than 2010.

As published in the January 5, 2005 Federal Register, these PM2.5 nonattainment designations became effective on April 5, 2005. Nonattainment areas are required by early 2008 to submit to EPA a state implementation plan (SIP) to define the expected methods for reducing the fine particulate matter level in the air and emissions of PM2.5 precursors. However, the new standards affected transportation conformity planning requirements immediately: areas were given a 1 year grace period starting April 5, 2005 in which to demonstrate conformity of transportation plans and programs to the new standards. TPB staff conducted a conformity assessment for PM2.5 (Reference 35) in the Fall of 2005, which was adopted by the TPB on December 21, 2005. The assessment received federal approval prior to the April, 2006 deadline.

C. REPORT ORGANIZATION

Chapter III of this report documents the technical methods utilized and results obtained in analyzing the 2006 CLRP and the FY2007-2012 TIP. Chapter IV documents the consultation procedures followed in the conformity assessment.

Chapter V presents the conformity assessment of the plan and program, responding to specific sections of the conformity regulations on a point by point basis and

documenting adherence of the overall conformity work effort to the specific technical, policy and procedural requirements. Chapter VI presents findings of the analysis.

III. TECHNICAL METHODS

A. APPROACH

In developing the work program for this year's conformity assessment, contained as Appendix A of this report, staff considered initial and updated requirements of the conformity regulations, as well as requirements associated with, and comments received upon, past conformity analyses. This included: base year 2002 and forecast years representing 2010, 2020, and 2030 for ozone season, PM2.5, and wintertime CO analysis; use of current land activity forecasts for the region (Round 7.0a Cooperative Forecasts); use of the refined Version 2.1D #50 (Reference 24) travel demand modeling process which incorporates updated travel characteristics based upon travel survey and Highway Capacity Manual information; and use of 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 Mobile6.2 models (Appendix E). Staff conducted a parallel technical process to identify and analyze Transportation Emission Reduction Measures (TERMs) for ozone season pollutants, as well as for PM2.5 pollutants, under the oversight of the TPB Technical Committee and its Travel Management Subcommittee. This work is documented in Reference 13.

Staff drafted a work program for the analysis and presented it to regional technical and policy committees starting in March 2006. Staff also coordinated the draft work program with EPA, FHWA, FTA and the state and local air management agencies through the TPB consultation procedures. This scope, revised to reflect review comments, was adopted by the TPB on April 19, 2006. Staff execution of the work activities is described in the following overview.

B. TECHNICAL WORK ACTIVITIES

Technical work activities for the 2006 CLRP and FY2007-2012 TIP included the preparation of volatile organic compound (VOC), ozone season nitrogen oxide (NOx), direct PM2.5, PM2.5 precursor NOx, and wintertime carbon monoxide (CO) emissions inventories for specified years associated with the plan and program (base year 2002 and forecast years 2010, 2020, and 2030). These inventories address a primary conformity assessment criterion to demonstrate that the plan and program adhere to established mobile source emissions budgets for ozone season and wintertime CO pollutants. The inventories also allow the baseline (2002) vs. action (forecast year)

comparison required for the PM2.5 pollutants, in which the forecast year emissions may be no greater than those of 2002.

The mobile source emissions estimation process utilized in this analysis involved the separate estimation of travel, vehicle and additional components. This structure is shown in Exhibit 1. While lengthy modeling procedures are involved to compute various travel components (number of trips, vehicle miles of travel, system performance, etc.) and rates of emissions (cold start emissions, tailpipe emissions, etc.) for each simulation, the calculation of mobile source emissions ultimately becomes a simple multiplication of a travel component by a rate of emissions associated with that component. As seen in the exhibit, the number of trip origins multiplied by a (gram/trip) cold start emissions rate yields an estimate of startup emissions. Vehicle miles of travel (VMT) multiplied by a (gram/mile) rate yields running emissions, and so on.

Exhibit 1 also illustrates the comprehensive scope of emissions contained in the mobile source inventory, addressing elements not directly available from current travel demand modeling procedures. This includes emissions associated with the number of vehicles in the region, "auto access" emissions and bus emissions. Exhibit 2 graphically defines the geographical analysis areas of the travel demand model (modeled area), the 1-hour ozone non-attainment area (Metropolitan Statistical Area), the PM2.5 non-attainment area, and the wintertime CO non-attainment area.

Emissions impacts associated with Congestion Mitigation and Air Quality (CMAQ) projects were also analyzed, in an off-line basis primarily by the sponsoring agencies, as a requirement associated with their use. These projects, and other similar projects funded by categories other than CMAQ, are also specifically considered in the analysis for the emissions budget and emissions reductions tests. Exhibit 3 presents an overview of the network analysis work activities and shows their interrelationship. This schematic illustrates the major operations only. It is useful, however, in conveying an overview of the major steps of the emissions calculation process from a data processing vantage. The "post-processor" is the emissions calculation software in use at COG for conformity analyses and SIP planning. Spreadsheets 1 - 4 address calculations required in assessing vehicle, auto access, school bus, and transit bus emissions, respectively.

An overview of the major components relating to traditional COG/TPB systems level analyses is presented below. The discussion of the process is organized into the three main functional areas of: Travel Forecasts, Emission Rates, and Emissions Calculations.

EXHIBIT 1

Analysis Structure for On-Road Mobile Source Emissions

	Transportation Component	X	Emission Factor	=	Emissions
A. Network	1. Trip origins		Cold start rate (g/trip)		Startup
	2. VMT		Stabilized rate (g/mile)		Running
	3. Trip destinations		Hot soak (g/trip)		Hot soak
B. Off-Network	4. Number of vehicles (gasoline fueled)		Diurnal rate (g/day)		Diurnal evaporative
	5. Number of vehicles (gasoline fueled)		Resting loss (g/day)		Resting loss
	6. Auto access to transit		Travel components (above)		Startup, running, hot soak
	7. School & transit bus VMT		(HDDV) Stabilized rate (g/mile)		Running
	8. Local Road VMT		Stabilized Rate (g/mile)		Running

EXHIBIT 2
Washington, D.C. - Maryland - Virginia
Planning Areas

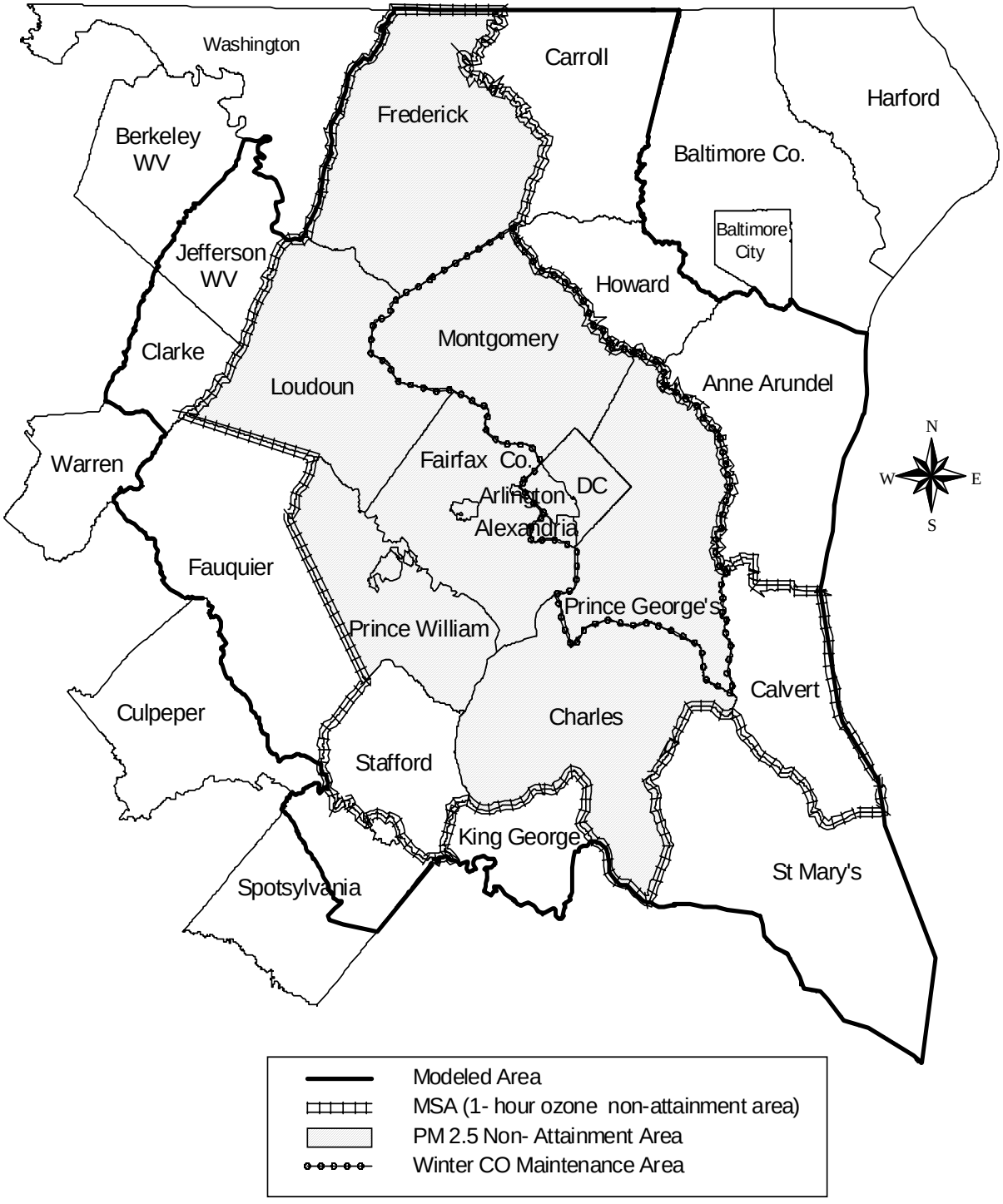
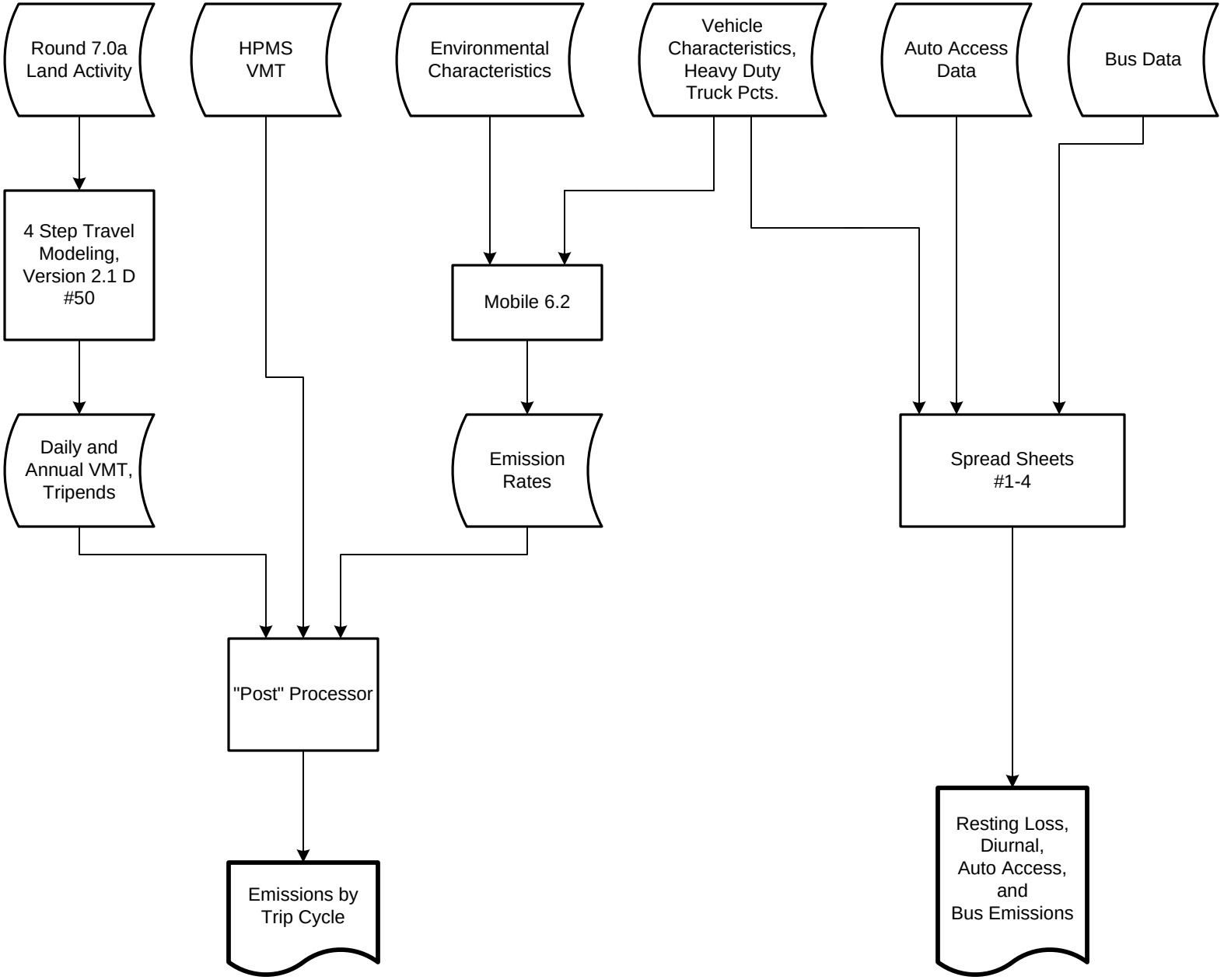


EXHIBIT 3

ON-ROAD MOBILE SOURCE EMISSIONS CALCULATIONS



C6EXH3.VSD

C. TRAVEL FORECASTS

As described above, the preparation of travel forecasts for each of the conformity alternatives was carried out using the Version 2.1D #50 modeling process. As part of the technical methods originally employed in the 1999 CLRP / FY2000-2005 TIP amendments approved in July 2000, transit capacity constraint procedures, modified currently to constrain at 2010 levels, were applied to better relate transit forecast levels with transit carrying ability. These procedures are documented in Reference 17.

As in last year's analysis, in addition to existing toll facilities, the 2006 CLRP and the FY2007-2012 TIP includes the ICC in Maryland and a portion of the Virginia beltway as managed facilities, with time-of-day tolls used to ensure that a high level of service is maintained throughout the day. References 30 and 32 document these procedures.

In past years all travel demand and emissions estimates were reported for an annualized average weekday (tons per day). That is still the case for ozone season and wintertime CO pollutants, however PM2.5 pollutants are reported using annual totals. This requires the application of seasonal travel adjustment factors. Since seasonal travel totals have to include weekend travel as well as weekday travel, it was necessary to prepare adjustment factors to represent ADT occurring in each season of the year. The lower table in Exhibit 10 presents the seasonal adjustment factor necessary to develop ADT VMT for each season.

Network Development

Work on this task began in last winter with the request for project inputs to the 2006 CLRP and the FY2007-2012 TIP. All project submissions were reviewed and organized by DTP staff into transportation networks for appropriate forecast years, according to the project's completion date as estimated by the programming agency. The TPB approved the project inputs at its April 19, 2006 meeting.

Summaries of key assumptions for each forecast year are contained as Exhibits 4 - 6. Exhibit 4 shows major transit elements. Exhibit 5 shows coded HOV & HOT improvements. Exhibit 6 presents mileage summaries for the highway system, according to LOV and HOV/HOT lane miles, and for the rail transit system.

EXHIBIT 4

MAJOR TRANSIT IMPROVEMENTS FROM 2002 BASE

	SERVICE	LIMIT
2005:		
	MARC	Frederick to Pt. of Rocks
	MetroRail / Marc	Silver Spring Intermodal Transit Facility
	Metrorail	Addison Road to Largo
	Metrorail	NY Avenue Station
2010:		
		SAME AS 2005, PLUS
	Anacostia Streetcar project Phase I (replace CSX Shepherd Branch project)	Firth Sterling/S. Capitol St. to Howard Rd/MLK Jr. Ave.
	VRE	Manassas & Fredericksburg lines Service Improvements
	VRE	Cherry Hill Commuter Rail Station
	Bus	K - St. Busway (Mt. Vernon Sq. to Washington Circle)
	Bus	Crystal City/Potomac Yards Busway (Crystal City Metro to Glebe Rd Ext.)
	Bus	New and Modified Service for Beltway HOT lanes-2010 level
2020:		
		SAME AS 2010, PLUS
	Metrorail	Potomac Yards Station
	Rail	Dulles Corridor Rapid Transit (East Falls Church to VA 772)
	Bi - County Transitway	Silver Spring to Bethesda
	Corridor Cities Transitway	Shady Grove to Comsat
	Bus	Crystal City/Potomac Yard Busway to BRT (Glebe Rd Ext to Crystal City Metro)
	Bus	VA-244 Transit Service Improvements (Baileys Crossroads to Pentagon)
	Bus	New and Modified Service for Beltway HOT lanes-2020 level
2030		
	Bus	US-1 bus/right-turn lanes (VA-235 North to SCL Alexandria)

EXHIBIT 5

9/19/2006

CODED HOV/HOT IMPROVEMENTS FROM 2002 BASE:

	FACILITY	IMPROVEMENT	LIMITS	DEFINITION
2005:				
	US 50	Construct	E. of US 301 / MD 3 to E. of I-95/I-495	2+
2010:				
			SAME AS 2005, PLUS	
	I-66	Construct	US 29 (Gainesville) to VA 234 Business	3+
	I-95	Widen	I-495 to Quantico Creek (3 HOV lanes)	3+
	I-95 Wilson Bridge	Construct	US 1 (VA) to MD 210	3+
	I-395	Widen	14th Street Bridge to I-495 (3 HOV lanes)	3+
	I-495 (HOT)	Construct	I-395/I-95 to S. of Georgetown Pike	3+
	Fairfax Co. Pkwy.	Construct	Rugby Rd to I-66	3+
	Fran./Sprfld. Pkwy.	Construct	Ffx. County Pkwy. to Frontier Drive	3+
2020:				
			SAME AS 2010, PLUS	
	I-66	Construct	US 15 to US 29 (Gainesville)	3+
	I-95 Wilson Bridge	Construct	VA 241 (Telegraph Rd) to US 1 (VA)	3+
	I-95	Construct	Quantico Creek to PW/Stafford Line	3+
	I-270	Const./Re-sign	Shady Grove Metro to I-70	3+
	I-495	Construct	S. of Georgetown Pike to American Legion Bridge	3+
	Fairfax Co. Pkwy	Construct	VA 267 (Dulles Toll Rd) to Rugby Rd	3+
	Fairfax Co. Pkwy	Construct	VA 640 (Sydenstricker Rd) to Franconia/ Springfield Pkwy	3+
	Fran./Sprfld. Pkwy.	Upgrade	VA 638 (Rolling Rd) to VA 617 (Backlick Rd)	3+

NOTE: All HOV facilites assumed HOV 3+ by 2010

EXHIBIT 6
RAIL AND ROAD MILES

(modeled area)

	LOV LANE MILES TOTAL	HOV/HOT LANE MILES TOTAL	METRORAIL MILES TOTAL	MD/DC* NON-METRO RAIL MILES TOTAL	VA** NON-METRO RAIL MILES TOTAL
2002	19,234	196	96	116	95
2010	20,581	307	106	132	95
2020	21,702	370	131	149	95
2030	21,963	370	131	149	95

* Includes MARC, Bi-County Transitway, and Corridor Cities Transitway in Maryland, and Anacostia Street Car in the District of Columbia

** Includes VRE

These projects, summarized by state, agency, project characteristics and completion date are contained as Appendix B to this report. The list contains highway and HOV/HOT projects, followed by transit projects. Each project submission was reviewed and, where appropriate, coded into gravity model, modal choice and assignment networks. In many cases the project inputs could not be coded into a regional network since such projects did not involve changes in capacity (e.g., transit operating assistance, highway rehabilitation, bridge reconstruction) or were too small to show up at the regional level (e.g., intersection improvements, improvements to a facility which is not contained in the regional networks).

The COG modeled area includes counties outside the MSA to enable better simulation results within the MSA. Project inputs from these outer counties are provided by their respective MPOs, state DOTs, or county DOTs, and are coded, when appropriate, into the highway and transit networks. While travel demand estimates include all counties in the modeled area, emissions estimates are only tabulated for the defined non-attainment area for each pollutant. As stated above, the modeled area, and the non-attainment areas for each pollutant analyzed, are shown in Exhibit 2.

Transportation/Land Use Interaction

In January 1994 a major milestone in the preparation of updated land activity forecasts for the Washington metropolitan area was achieved with the adoption by the COG Board of Round 5 Cooperative Forecasts. As was done with previous rounds, the Round 5 results contained control totals of households, population and jobs at the jurisdictional level, in five year increments through time to a new horizon year of 2020. In order to assess the interaction between land activity and transportation system performance, the forecasts were adopted in draft form and work tasks were executed to assess the transportation system impacts of the new forecasts. Following the estimation of travel demands associated with the draft forecasts, members of the Planning Directors Committee and their Cooperative Forecast and Data Subcommittee revisited the draft Round 5.0 forecasts.

Following their work of making updates where appropriate, a new round of forecasts, called Round 5.1, was prepared and adopted by the COG Board in May 1994. Similar processes involving Round 5, and Round 6 updates were executed for the analysis of subsequent plans and programs. On May 3, 2006 COG's Metropolitan Development Policy Committee released Round 7.0a forecasts for use in conformity testing of the proposed amendments to the 2006 CLRP and the FY2007-2012 TIP. Because the modeled area extends beyond the COG cooperative forecasting area, there is coordination with the surrounding jurisdictions to include the most recently approved land activity forecasts for the outer areas. In this year's analysis, Baltimore Regional Council's (BMC's) new forecasts, Round 6-B were used.

Exhibit 7 presents Round 7.0a household data for each of the years in the conformity assessment; the table shows a 43% increase from year 2002 to the year 2030 throughout the MSA. Exhibit 8 presents similar data for the employment assumptions and shows a 45% increase over this period. The employment data reflect census adjustments (see Reference 33).

Trip Table Development

After coding the networks, staff proceeded with the trip generation and trip distribution steps within the travel forecasting process. The travel modeling process utilized in this work represents a trip generation and distribution model set based upon results obtained through analysis of the 1994 Household Travel Survey in model calibration and subsequent model validation for year 2000. Separate person trip tables were prepared for home based work and nonwork purposes (for input to the mode choice modeling process) and for all other travel, i.e., taxi, visitor/tourist, school and through trips. The work and nonwork person trip tables were input to the mode choice process, and the output vehicle trip tables from that process were subsequently merged with the other trip purposes for each forecast year and used in traffic assignment. Capacity restrained speeds which are output from the traffic assignment process were then fed back into trip distribution and iterations of the entire process occur until equilibrium travel time conditions are achieved throughout the modeling process. Summary mode choice results are shown in Exhibit 9. Summary results from the last iteration of the process, for all trip purposes, are shown in the upper table of Exhibit 10. This table shows vehicle trips in the region increasing by 45%, from 19.4 million in 2002 to 28.2 million in the year 2030. As mentioned above, the lower table in Exhibit 10 presents the seasonal adjustment factor necessary to convert AAWDT to ADT for each season, for use in the PM2.5 emissions calculations.

Modal Choice

Transit networks were coded for all forecast years and mode choice analyses were executed based upon specific transit representations for 2002, 2010, 2020 and 2030. Transit capacity constraint procedures, in which 2010 constrains later years, (Reference 17) were executed for 2020 and 2030 forecast years.

As stated above, Exhibit 9 presents a summary of the results of the mode choice analysis. Part A summarizes home based work purpose trips and Part B summarizes all trip purposes. The table, similarly, shows nearly a 40% increase in transit travel from 2002 to the year 2030.

EXHIBIT 7

HOUSEHOLD DATA

MSA:	2002	2010	2020	2030	2030/2002
D.C.	249,809	265,303	293,266	318,696	1.28
MONTGOMERY	334,305	370,764	408,661	442,081	1.32
PR.GEORGE'S	295,773	320,989	346,113	377,360	1.28
ARLINGTON	89,000	99,577	111,455	119,855	1.35
ALEXANDRIA	63,662	70,964	76,661	86,450	1.36
FAIRFAX	374,148	426,019	479,308	500,221	1.34
LOUDOUN	70,953	112,664	149,709	170,149	2.40
PR. WILLIAM	119,778	159,345	188,652	212,864	1.78
FREDERICK	73,833	87,708	104,139	123,125	1.67
CHARLES	44,286	52,228	63,654	76,880	1.74
STAFFORD	32,626	40,899	51,927	68,404	2.10
CALVERT	26,570	31,045	34,331	36,212	1.36
SUBTOTAL	1,774,743	2,037,505	2,307,876	2,532,297	1.43
ADDITIONAL COUNTIES:					
HOWARD	94,549	108,700	124,700	127,558	1.35
ANNE ARUNDEL	183,445	201,097	218,399	228,101	1.24
CARROLL	55,308	63,550	69,516	71,822	1.30
FREDERICKSBURG (VA)	8,561	10,448	12,391	13,944	1.63
JEFFERSON	17,016	20,427	25,957	33,075	1.94
N. SPOTSYLVANIA	26,787	35,135	44,012	52,981	1.98
FAUQUIER	21,448	26,872	35,729	47,506	2.21
CLARKE	5,182	6,142	6,860	7,770	1.50
K. GEORGE	6,533	8,319	9,850	11,446	1.75
ST. MARY'S	31,801	36,441	42,604	48,399	1.52
SUBTOTAL	450,630	517,131	590,018	642,602	1.43
TOTAL	2,225,373	2,554,636	2,897,894	3,174,899	1.43

SOURCE:
MWCOG Revised Round 7.0a Cooperative Forecasts
BMC Round 6-B Cooperative Forecasts

EXHIBIT 8

EMPLOYMENT DATA

MSA:	2002	2010	2020	2030	2030/2002
D.C.	744,071	783,462	829,531	859,102	1.15
MONTGOMERY	484,880	545,305	615,355	670,404	1.38
PR.GEORGE'S	346,169	389,681	460,526	544,285	1.57
ARLINGTON	187,633	217,836	254,418	275,798	1.47
ALEXANDRIA	95,800	113,251	132,536	147,957	1.54
FAIRFAX	624,843	727,012	827,599	904,191	1.45
LOUDOUN	103,376	153,736	212,920	271,159	2.62
PR. WILLIAM	127,076	157,719	190,161	217,764	1.71
FREDERICK	106,647	142,412	158,278	167,257	1.57
CHARLES	47,726	62,929	66,843	69,148	1.45
STAFFORD	33,641	46,193	59,285	73,478	2.18
CALVERT	25,425	32,855	34,455	35,556	1.40
SUBTOTAL	2,927,287	3,372,391	3,841,907	4,236,099	1.45
ADDITIONAL COUNTIES:					
HOWARD	141,853	168,875	194,205	219,541	1.55
ANNE ARUNDEL	260,253	285,532	323,908	361,203	1.39
CARROLL	57,373	67,604	70,820	72,450	1.26
FREDERICKSBURG (VA)	25,892	40,258	51,666	62,676	2.42
JEFFERSON	17,008	21,058	26,113	30,674	1.80
N. SPOTSYLVANIA	31,482	40,769	52,378	63,469	2.02
FAUQUIER	22,320	27,325	35,767	43,367	1.94
CLARKE	6,079	6,793	7,685	8,552	1.41
K. GEORGE	12,084	16,022	20,557	34,303	2.84
ST. MARY'S	48,915	58,165	61,164	63,139	1.29
SUBTOTAL	623,259	732,401	844,263	959,374	1.54
TOTAL	3,550,546	4,104,792	4,686,170	5,195,473	1.46

SOURCE:
MWCOG Revised Round 7.0a Cooperative Forecasts
BMC Round 6-B Cooperative Forecasts

NOTE: Includes Census Adjustment

EXHIBIT 9A

2006 CLRP AND FY2007-2012 TIP AIR QUALITY CONFORMITY
DAILY REGIONAL HOME BASED WORK PURPOSE MODE ANALYSIS BY YEAR
(Based on Mode Choice Output- 6th Iteration)

YEAR	HBW MOTORIZED PERSON	TOTAL HBW AUTO PSN	HBW LOV AUTO DRV	HBW HOV AUTO DRV	TOTAL HBW AUTO DRV	HBW CAROCC	HBW TRANSIT	HBW TRANSIT (%)
2002	4,322,991	3,783,950	3,357,436	22,580	3,380,016	1.120	539,041	12.47%
2010	4,996,053	4,402,263	3,893,885	25,384	3,919,269	1.123	593,790	11.89%
2020	5,730,266	5,038,456	4,444,282	32,150	4,476,432	1.126	691,810	12.07%
2030	6,451,403	5,701,928	5,035,715	32,276	5,067,991	1.125	749,475	11.62%

EXHIBIT 9B

2006 CLRP AND FY2007-2012 TIP AIR QUALITY CONFORMITY
DAILY REGIONAL ANALYSIS BY YEAR FOR ALL TRIP PURPOSES
(Based on Mode Choice Output- 6th Iteration)

YEAR	TOTAL MOTORIZED PERSON	TOTAL AUTO PSN	LOV AUTO DRV	HOV AUTO DRV	TOTAL AUTO DRV	TOTAL CAROCC	TOTAL TRANSIT	TRANSIT (%)
2002	24,703,438	23,779,350	18,217,772	22,580	18,240,352	1.304	924,088	3.74%
2010	28,345,086	27,338,623	20,948,451	25,384	20,973,835	1.303	1,006,463	3.55%
2020	32,023,798	30,810,253	23,659,247	32,150	23,691,397	1.300	1,213,545	3.79%
2030	35,448,664	34,133,611	26,299,158	32,276	26,331,434	1.296	1,315,053	3.71%

*Note: Starting in 2010, all HOV facilities are HOV3+

EXHIBIT 10

2006 CLRP / FY2007-2012 TIP CLRP AIR QUALITY CONFORMITY
MODELED AREA TRIPS AND VEHICLE MILES TRAVELED (000's)
ANNUALIZED AVERAGE WEEKDAY TRAFFIC (AAWDT)
(Based on Final Iteration)

YEAR	WORK AND NON-WORK AUTO DRV	TRUCKS (Med + Hvy)	MISC + THRU TRIPS	TOTAL VEH. TRIPS	TOTAL VMT
2002	18,240,816	479,247	708,631	19,428,694	149,042,049
2010	20,973,597	558,651	824,585	22,356,833	171,390,904
2020	23,691,711	651,816	952,699	25,296,226	195,384,352
2030	26,332,812	746,121	1,082,348	28,161,281	216,770,129

Adjustment Factors to Convert AAWDT to ADT By Season For PM2.5

Season	Factor
Season 1 (Jan- Apr)	0.9216
Season 2 (May- Sept)	0.9873
Season 3 (Oct- Dec)	0.9282

NOTE: AAWDT reflects a five day average
ADT reflects a seven day average

Traffic Assignment

Following the preparation of total vehicle travel demands, the resulting table was applied in traffic assignment to estimate vehicle loadings on each facility in the region. After six iterations of the process using the speed feedback procedures, this concluded the traditional travel forecasting elements of the conformity analysis. VMT summaries for each alternative are contained in Exhibit 10. Exhibit 11 shows percentage changes in vehicle miles traveled (VMT) through time compared with percentage changes in households and jobs.

A level of service analysis was not among the objectives of this work, however, aggregate summaries of volume to capacity (V/C) ratios (using level "E" service volumes) for the p.m. peak hour were prepared and are presented as Exhibit 12. The figure shows on a percentage basis the extent to which levels of congestion increase through time.

D. EMISSION RATES

COG / DTP staff, in conjunction with COG's Department of Environmental Programs staff and with consultant assistance of E.H. Pechan and Associates, developed the mobile source emission factors for PM2.5 pollutants, wintertime CO, and ozone precursors, i.e., the rates of volatile organic compounds, carbon monoxide, direct particles, and nitrogen oxide produced by cars and trucks on the highway system. This work involved the application of EPA's MOBILE6.2 model, using vehicular and other characteristics specific to the Washington region, to develop factors which would be applied to the travel estimates associated with each forecast year. The model estimates the pollution rates based upon a variety of different vehicle characteristics (vehicle age, type, weight, fuel, speed, inspection/maintenance program) and environmental characteristics (ambient temperature, humidity).

Updates from last year's analysis include using 2005 vehicle registration data summarized via 'VIN decoder' software, and updated fuel program, I & M, and vehicle specification inputs specified by the air management agencies to develop motor vehicle emissions factors. These rates for each pollutant, shown using Fairfax County freeway data as an illustration in Exhibits 13 and 14 for VOC and NOx, 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. Exhibit 15 presents direct PM2.5 emissions rates through time, by season; data are arrayed in a bar chart since these emissions rates do not vary by vehicle speed.

EXHIBIT 11
DAILY VMT vs CHANGES IN LAND ACTIVITY
(Modeled Area)

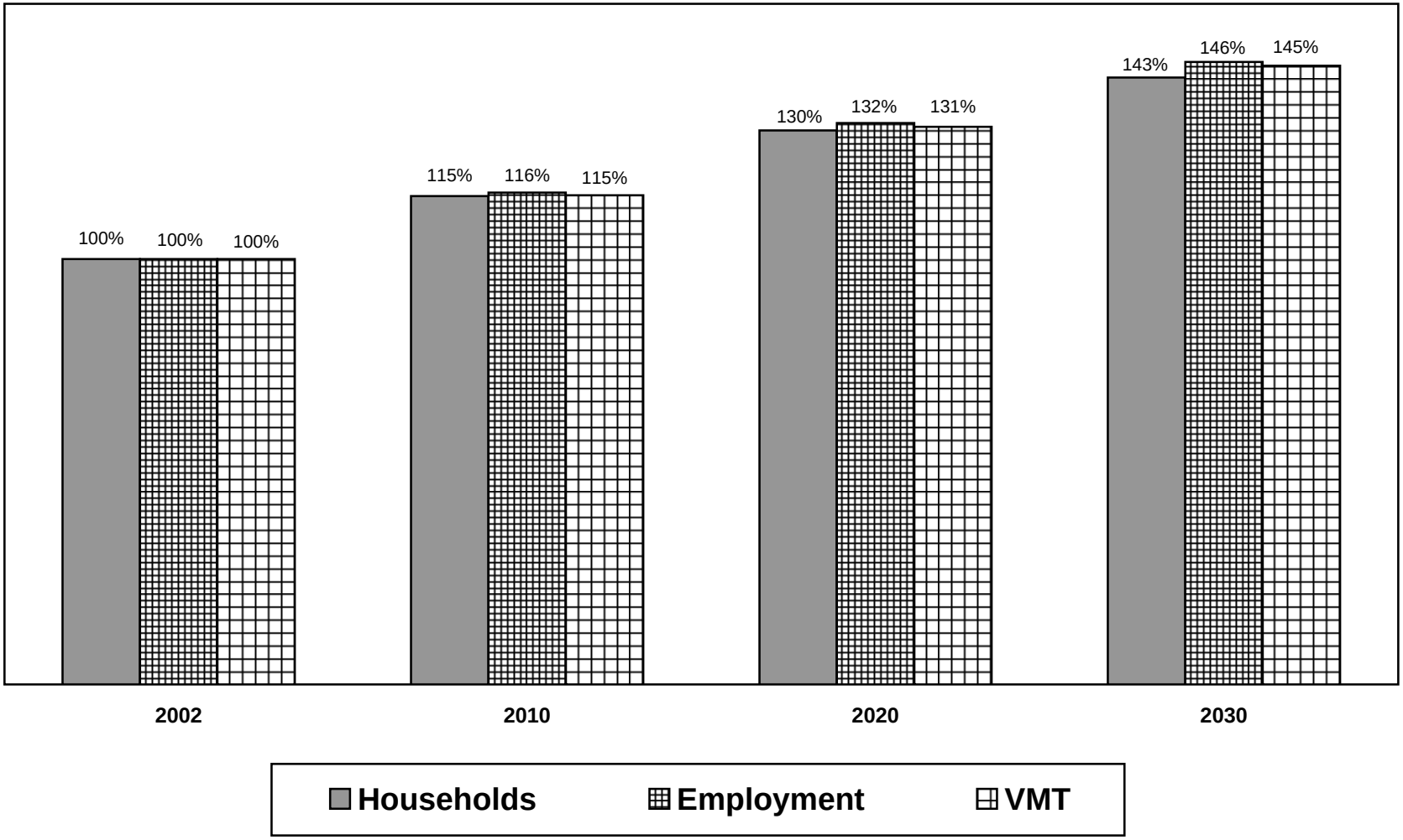


EXHIBIT 12
P.M. PEAK HOUR VMT BY YEAR AND VC RATIO
(Level "E" Service Volumes)
(Modeled Area)

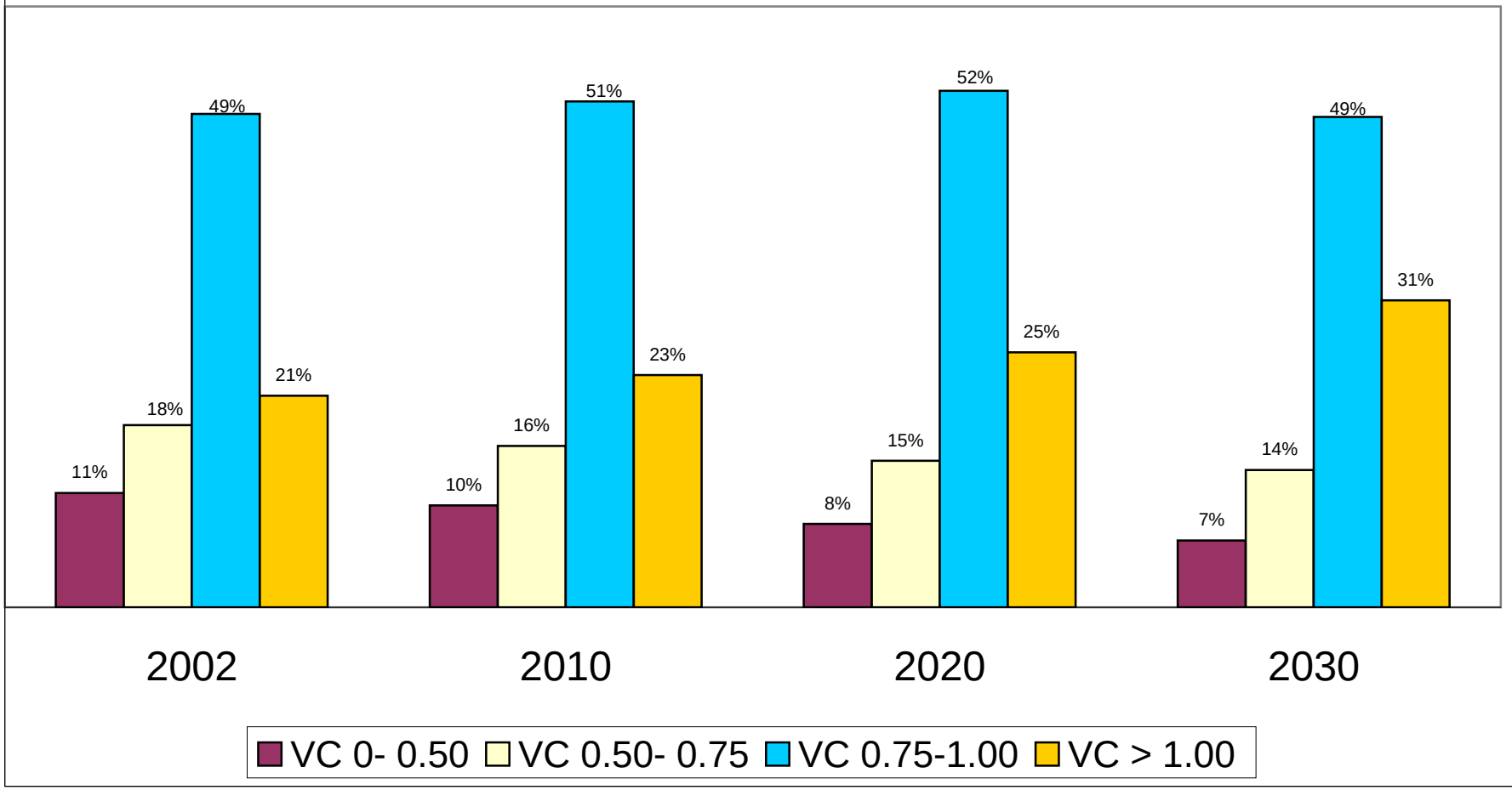


Exhibit 13
TOTAL 2002-2030 VOC COMPOSITE MOBILE6.2 RUNNING EMISSION RATES FOR FAIRFAX COUNTY
FREEWAY

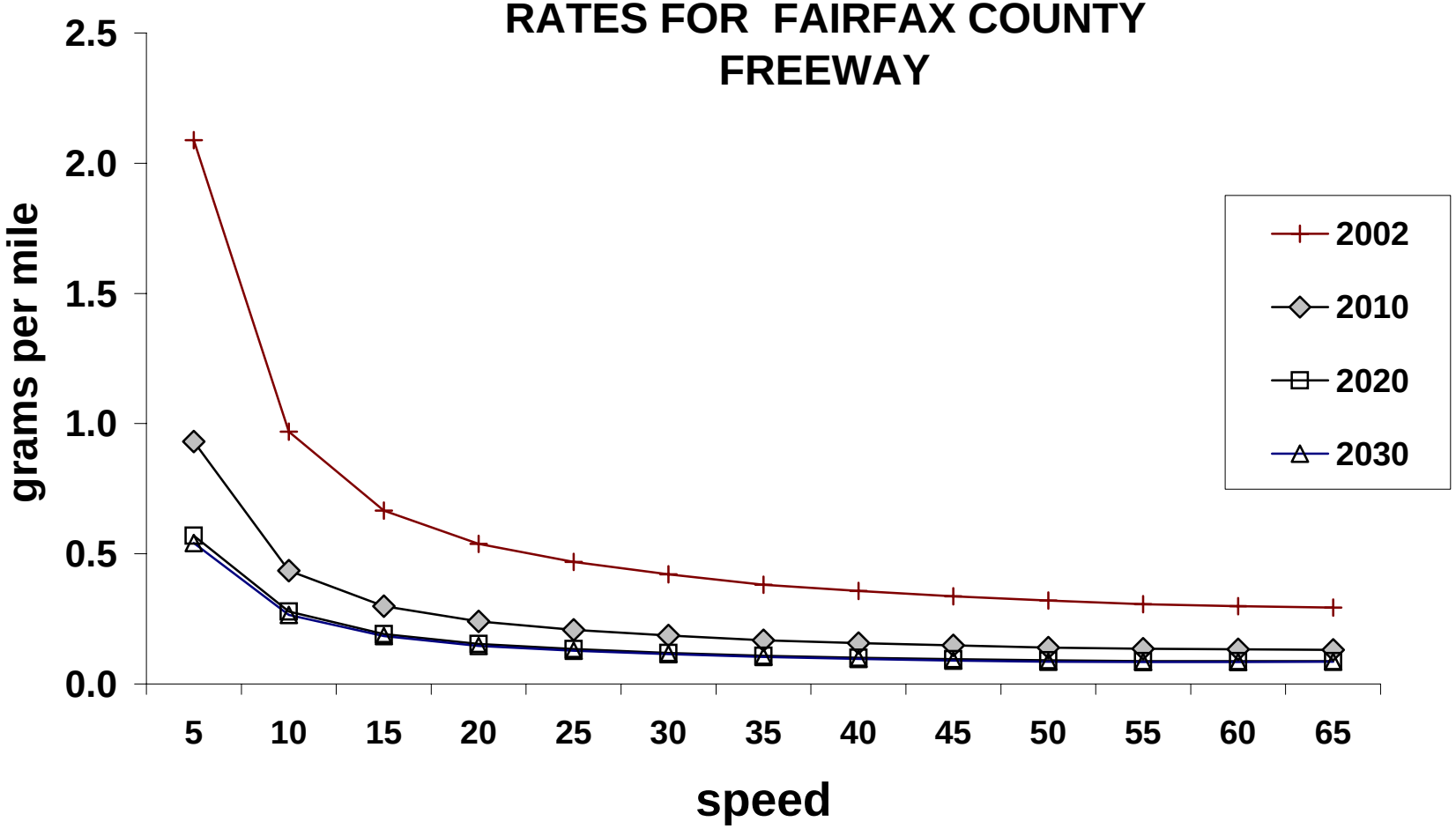


Exhibit 14
TOTAL 2002-2030 NOx COMPOSITE MOBILE6.2 RUNNING EMISSION RATES FOR FAIRFAX COUNTY
FREEWAY

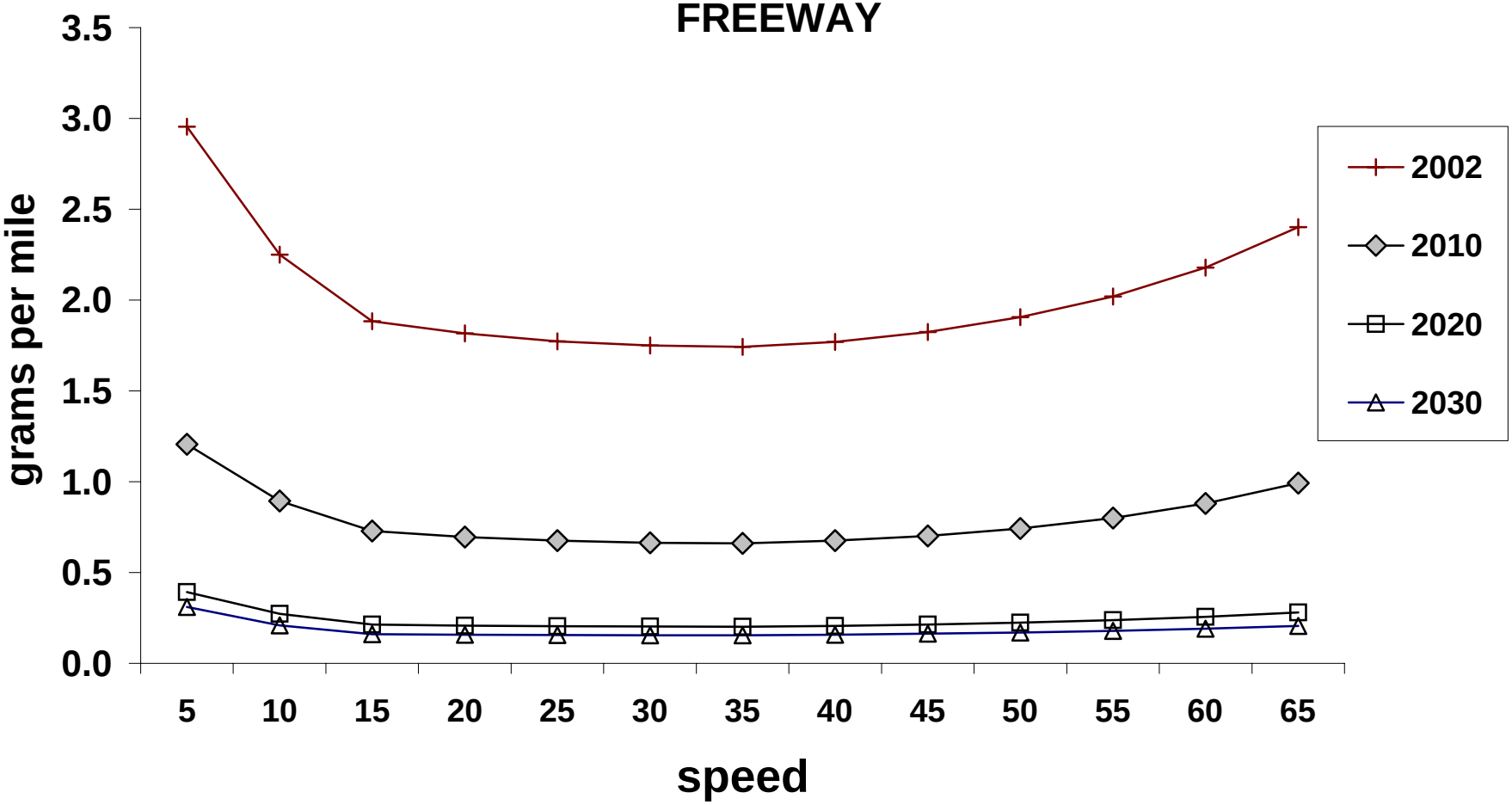
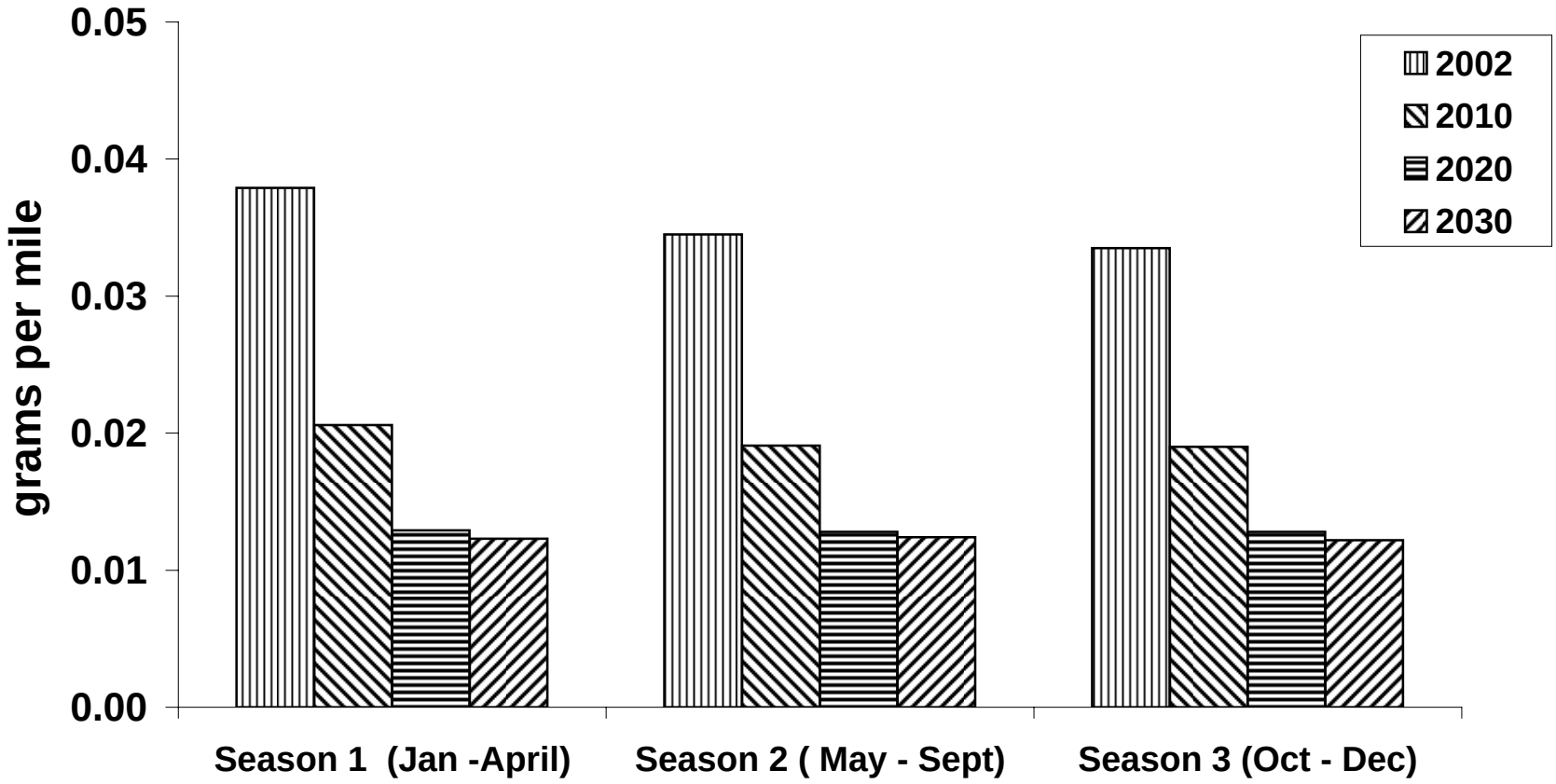


Exhibit 15
DIRECT PM2.5 EMISSION RATES FOR FAIRFAX COUNTY (MAJOR ROADS NETWORK)



Appendix D documents the input assumptions and Appendix E documents the emission factor results of this work.

E. EMISSIONS CALCULATIONS

While travel demand forecasts are prepared for the modeled area, emissions summaries are calculated for each pollutant's specified non-attainment area (or maintenance area, in the case of winter CO). Each of these planning areas is shown in Exhibit 2.

Two types of calculations are made for each pollutant. The first involves applying emissions rates directly to the travel demand results, to yield origin, network running, and destination emissions. The second deals with preparing estimates of emissions associated with diurnals, resting losses, auto access to transit, and buses. These are addressed on an off-line basis since they are not directly derived from the TPB travel demand modeling process. The technical methods associated with performing these off-line assessments are contained in Appendices F to H. Exhibit 3 provides an overview of the analysis structure and emissions calculation process and also identifies where each calculation takes place.

Each pollutant is assessed based on varying criteria. Ozone season pollutants must adhere to EPA approved totals from the Metropolitan Washington Air Quality Committee's (MWAQC's), February, 2004 'severe area' (1-hour ozone) State Implementation Plan (SIP). These budgets received federal approval in Spring, 2005. The region is in maintenance for mobile source wintertime CO and is required to show that pollutant levels do not exceed the approved budget.

Criteria and procedures for demonstrating conformity with respect to PM2.5 in the interim period before SIPs are filed differ from ozone or wintertime carbon monoxide assessments in that there are no existing budgets which can be applied. In this case EPA allows for an assessment that shows emissions in "action" scenarios are no greater than those in a 2002 base. This criterion was established and applied, with the concurrence of MWAQC, in the initial PM2.5 conformity assessment.

<u>Mobile Emissions Inventories</u>

Ozone Season and Wintertime CO – Daily Emissions

Prior to calculation of daily mobile source emissions, the above (AAWDT) travel 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 appropriate Mobile6.2 emissions factors to the travel demand forecasts to prepare mobile source emissions inventories for each forecast year. Exhibit 16 shows, for purposes of illustration, emissions for each jurisdiction in the 1-hour ozone non-attainment area. The categories of emissions also include the additional elements of: running emissions on local streets, vehicle related emissions for diurnals and resting loss, auto access emissions, and bus emissions.

The emissions results for ozone season pollutants are summarized in Exhibit 17 and indicate VOC and NOx 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 falling below 40 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. Both VOC and NOx emissions are well within the mobile budgets for all forecast years. Wintertime CO emissions, shown in exhibit 18, follow these same general trends and are easily within the CO emissions budget level.

Exhibits 19 and 20 present the VOC and NOx results in a graphical format, which perhaps illustrates even better the steady and significant downward trends occurring in both VOC and NOx emissions. Historical emissions reductions from the clean air act amendments 1990 base have been well documented in the past (especially VOC emissions which dropped from about 299 tons per day (T/D) to about 122 T/D in 2002, but NOx emissions have also dropped by nearly 100 T/D from 381 to 284 T/D). From 2002 to year 2010, VOC emissions will be cut further, nearly in half, from 122 T/D to about 66 T/D, and NOx emissions experience even greater reductions, from 284 T/D to 141 T/D. Exhibit 21 portrays similar information for wintertime CO conditions. These exhibits show that the mobile source inventories for the CLRP and the TIP, for each pollutant in each analysis year and scenario, adhere to each relevant emissions budget.

EXHIBIT 16

2006 CLRP and FY 2007-2012 TIP
DAILY MOBILE SOURCE EMISSIONS
BY JURISDICTION AND TRIP CYCLE
Year: 2010
VOC TONS PER DAY

JURIS	ORIGIN	RUNNING		DESTINATION	VEHICLE RELATED EMISSIONS		TOTAL CYCLE
		NETWORK	LOCAL		DIURNAL	REST. LOSS	
DC	1.12	2.71	0.75	1.00	0.15	0.60	6.33
MONTG	2.20	4.83	0.61	1.78	0.39	1.47	11.27
PG	1.93	5.44	0.67	1.74	0.41	1.59	11.78
FRED	0.53	1.68	0.23	0.42	0.12	0.42	3.40
CHAS	0.34	0.67	0.12	0.32	0.09	0.37	1.91
CAL	0.21	0.35	0.09	0.20	0.07	0.27	1.18
ARL	0.56	1.08	0.11	0.46	0.07	0.27	2.55
ALEX	0.33	0.58	0.18	0.27	0.06	0.24	1.66
FFX	2.58	6.40	0.99	2.04	0.42	1.64	14.07
LDN	0.65	1.44	0.34	0.50	0.11	0.42	3.46
PR.W	0.82	2.06	0.46	0.68	0.20	0.79	5.00
STA	0.26	1.07	0.12	0.23	0.07	0.28	2.02
Sub Total	**11.55**	**28.30**	**4.66**	**9.63**	**2.15**	**8.36**	**64.64**
AUTO ACCESS							0.67
TRANSIT BUS							0.17
SCHOOL BUS							0.36
TOTAL EMISSIONS							**65.84**

EXHIBIT 17

AIR QUALITY CONFORMITY

Summary Table - MSA (1-Hour Ozone Area)

Mobile Emissions Inventories

for 2006 CLRP and FY 2007-2012 TIP

(Tons/Day)

	2002		2010		2020		2030	
	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
I Network								
Start	25.75	14.04	11.55	6.85	7.28	3.19	7.06	2.57
Running	57.26	243.61	28.30	119.06	19.94	41.10	20.76	31.94
Soak	11.48	---------	9.63	---------	5.33	---------	4.34	----------
II Off-Network								
Diurnal	3.18	----------	2.15	----------	1.17	----------	0.81	----------
Resting Loss	12.12	----------	8.36	----------	3.72	----------	2.43	----------
Local Roads	9.59	12.07	4.66	6.34	3.21	2.79	3.28	2.48
School Buses	0.43	6.09	0.28	3.76	0.22	0.70	0.17	0.27
Transit Buses	0.38	6.59	0.17	3.76	0.12	1.01	0.12	0.30
Auto Access	1.34	1.65	0.67	0.82	0.46	0.42	0.44	0.38
Total	121.52	284.06	65.76	140.58	41.45	49.20	39.41	37.95

TCMs	-0.20	-0.49
Net Emissions	65.56	140.09
Mobile Emissions Budgets:	97.40	234.70
Budget Adherence Margin:	31.84	94.61

EXHIBIT 18

AIR QUALITY CONFORMITY
Summary Table
Mobile Emissions Inventories - Winter CO
CO Maintenance Area
for 2006 CLRP and FY 2007-2012 TIP
(Tons/Day)

	1990	2010	2020	2030
	Winter CO	Winter CO	Winter CO	Winter CO
I Network				
Start	1051.8	344.64	298.22	314.03
Running	1403.8	338.41	260.35	266.02
II Off-Network				
Local Roads	97.9	23.69	19.87	20.50
School Buses	1.2	0.41	0.10	0.06
Transit Buses	3.5	1.05	0.33	0.14
Auto Access	31.3	12.22	11.45	12.02
TOTAL	2589.5	720.41	590.31	612.76
CO Budget		1671.5	1671.5	1671.5

EXHIBIT 19
Mobile Source VOC Emissions
Metropolitan Statistical Area
2006 CLRP and FY 2007-2012 TIP

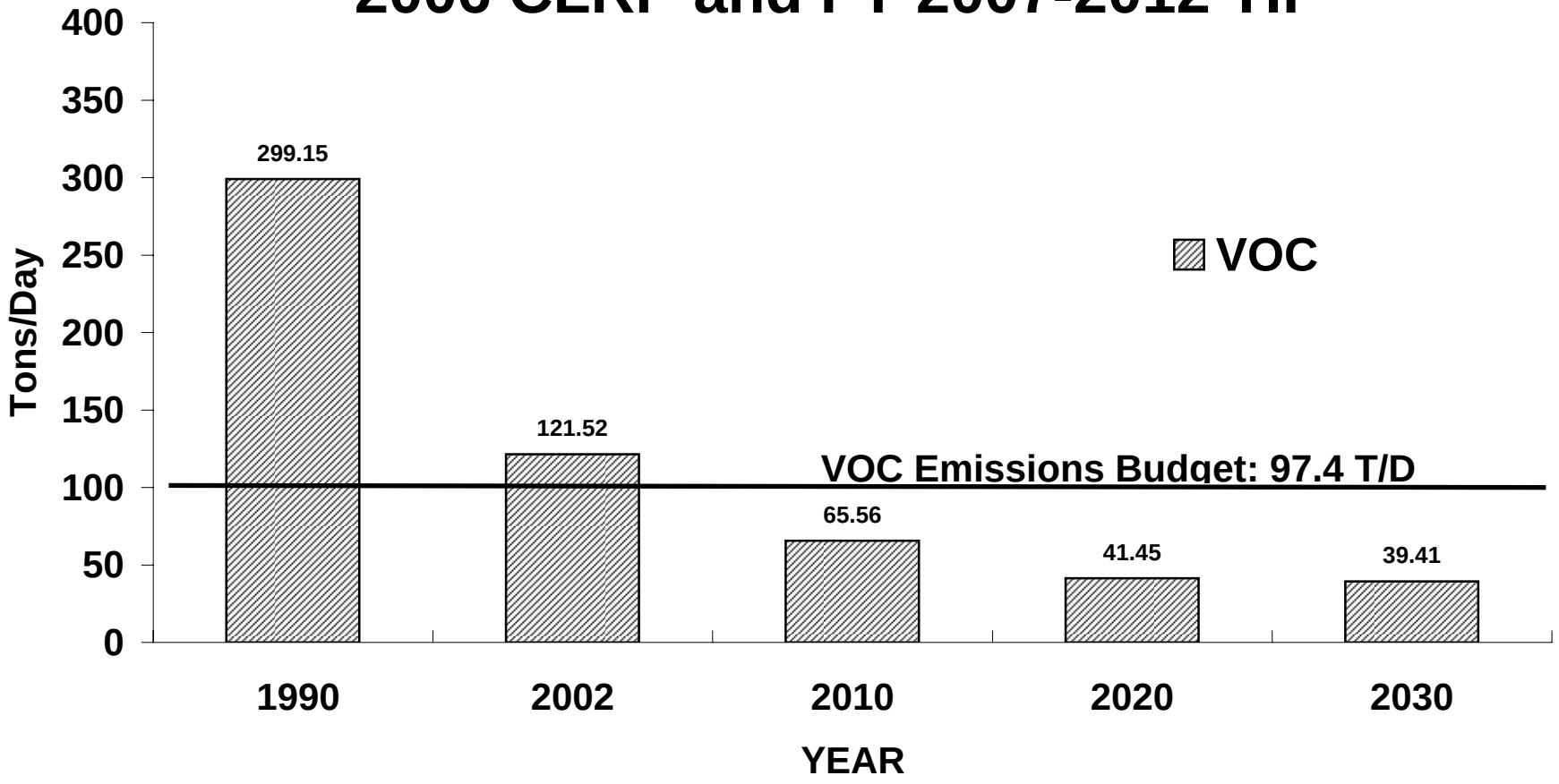
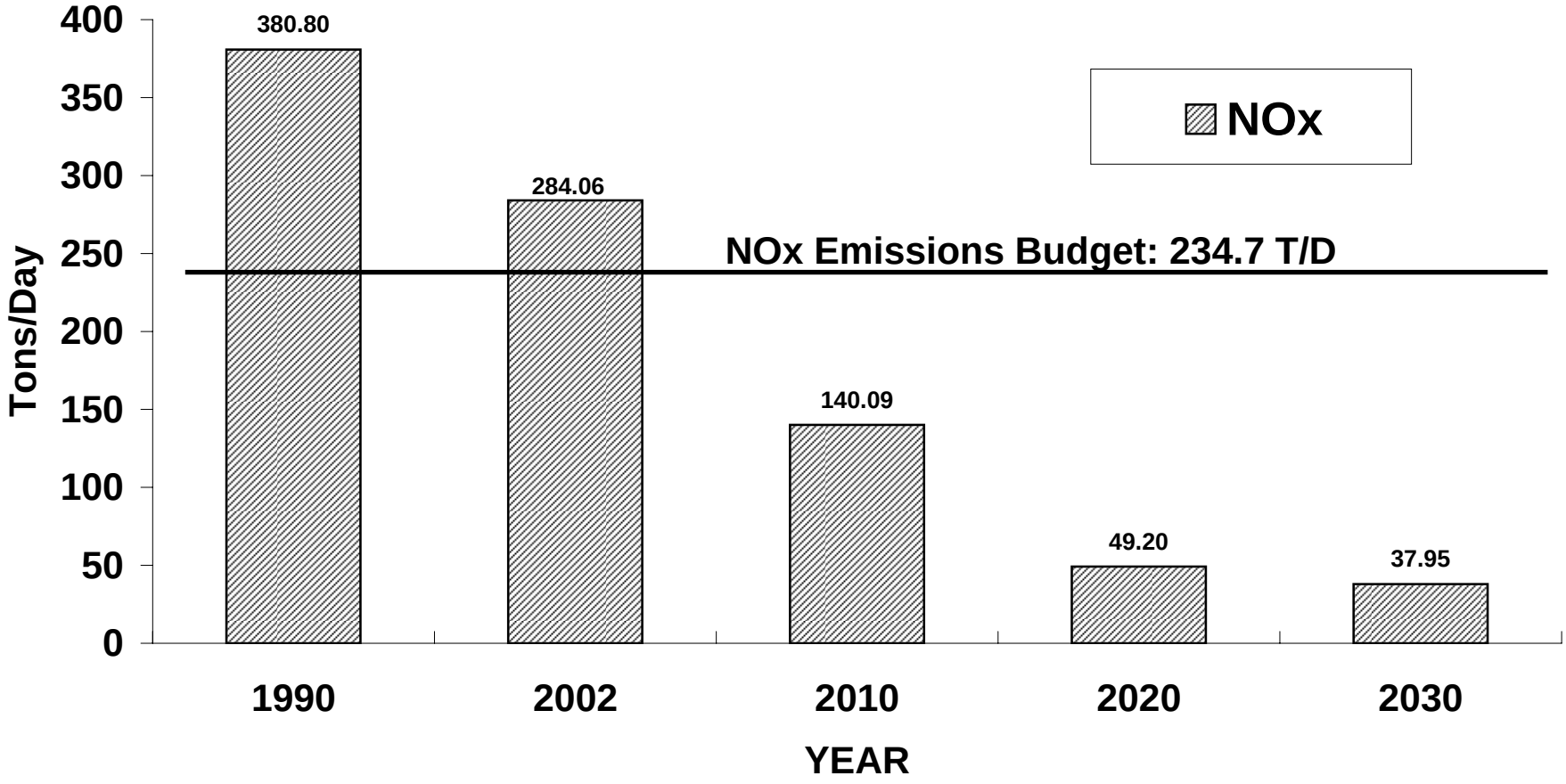
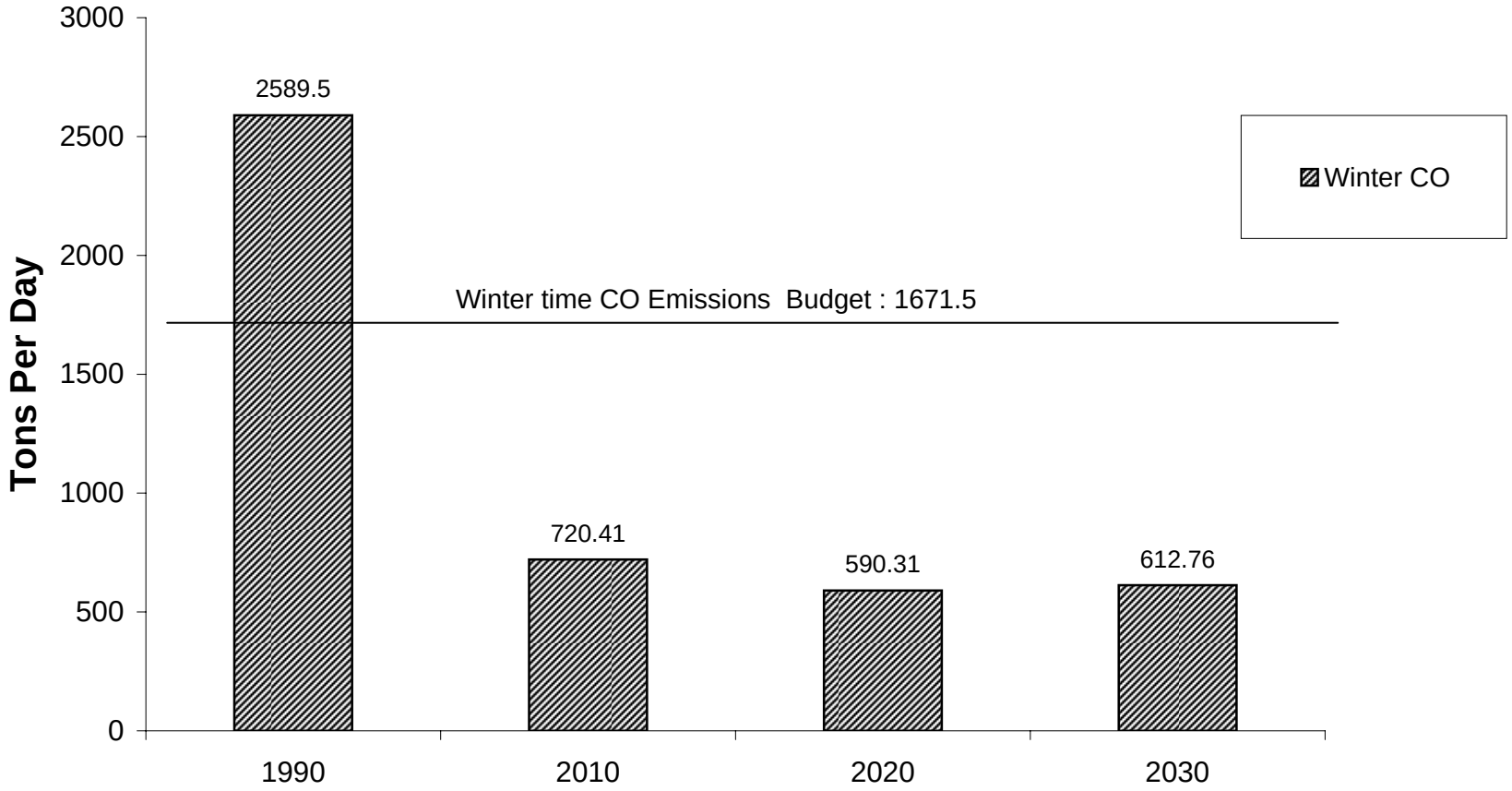


EXHIBIT 20
Mobile Source NOx Emissions
Metropolitan Statistical Area
2006 CLRP and FY 2007-2012 TIP



NOTE: TCM emissions benefits applied in 2010

Exhibit 21
Mobile Source Winter CO Emissions
2006 CLRP and FY 2007-2012 TIP
CO Maintenance Area



PM2.5 – Yearly Emissions

To develop the yearly total PM2.5 emissions, travel and emissions were estimated throughout the year by applying (three) seasonal factors to the primary travel data, followed by applying emissions rates for each of the seasons, and summarizing to obtain yearly totals. Direct PM2.5 and precursor NOx emissions, shown in the Exhibits 22 and 23 tables and Exhibit 24 bar chart, exhibit similar dramatic reductions through time despite the steady increases in vehicle trips and VMT in the forecast years. These reductions are largely attributable to Tier II vehicle standards, cleaner fuels, and the heavy duty engine rule, and will continue to generate additional emissions reductions through time as fleet turnover replaces older vehicles / truck engines with much cleaner ones. Exhibits 22-24 show emissions much lower than base year 2002 conditions, satisfying the primary conformity assessment criterion for PM2.5. 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.

F. NET EMISSIONS ANALYSIS

The emissions inventory data contained in the previous summary tables 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. Exhibit 25 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, with part A of the table documenting ozone season and part B documenting PM2.5 pollutants. The summary result of these measures, shown as the bottom line for each section of the table, amounts to additional reductions in 2010 of 2.3 tons per day of VOC and 5.5 tons per day of NOx, and 29.5 and 1140.9 tons per year of direct PM2.5 and precursor NOx, respectively. 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. These summary tables were prepared following COG staff's review of implementation status reports prepared by programming agencies; the agency status reports are contained in Appendix I. Combining network and off-network emissions results shown in each summary table with the additional reductions from TERMs would further improve the emissions margins for each pollutant.

EXHIBIT 22

AIR QUALITY CONFORMITY SUMMARY TABLE

Direct PM2.5 Emissions

Mobile Source Emissions Inventories for 2006 CLRP and FY 2007-2012 TIP

(Tons)

			Direct PM2.5							
			2002		2010		2020		2030	
		Days	Daily	seasonal	Daily	seasonal	Daily	seasonal	Daily	seasonal
SEASON 1 (JAN-APR)	Major Roads	120	3.78	453.00	2.43	291.36	1.69	202.56	1.72	206.28
	Local Roads	120	0.18	21.12	0.15	18.48	0.15	18.12	0.16	19.32
	School Buses	76	0.32	24.17	0.05	4.07	0.02	1.35	0.01	1.03
	Transit Buses	120	0.24	29.35	0.04	4.69	0.01	1.74	0.01	1.09
	Auto Access	83	0.01	1.00	0.01	0.79	0.01	0.93	0.01	1.01
	Total (Daily)		4.53		2.68		1.88		1.91	
	SEASON TOTAL			528.64		319.39		224.70		228.73

			Direct PM2.5							
			2002		2010		2020		2030	
		Days	Daily	seasonal	Daily	seasonal	Daily	seasonal	Daily	seasonal
SEASON 2 (MAY-SEP)	Major Roads	153	3.71	567.78	2.42	370.87	1.79	274.18	1.85	282.29
	Local Roads	153	0.17	25.86	0.16	24.94	0.16	24.48	0.17	26.32
	School Buses	83	0.30	25.24	0.05	4.21	0.02	1.46	0.01	1.12
	Transit Buses	153	0.24	36.05	0.04	5.68	0.01	2.22	0.01	1.39
	Auto Access	107	0.01	1.22	0.01	1.08	0.01	1.28	0.01	1.40
	Total (Daily)		4.43		2.68		2.00		2.05	
	SEASON TOTAL			656.15		406.78		303.62		312.52

			Direct PM2.5							
			2002		2010		2020		2030	
		Days	Daily	seasonal	Daily	seasonal	Daily	seasonal	Daily	seasonal
SEASON 3 (OCT-DEC)	Major Roads	92	3.35	308.02	2.26	207.74	1.69	155.30	1.71	157.41
	Local Roads	92	0.16	14.26	0.15	13.98	0.15	13.98	0.16	14.81
	School Buses	55	0.26	14.14	0.05	2.56	0.02	0.86	0.01	0.74
	Transit Buses	92	0.21	19.66	0.03	3.11	0.01	1.33	0.01	0.84
	Auto Access	61	0.01	0.64	0.01	0.57	0.01	0.69	0.01	0.75
	Total (Daily)		3.98		2.50		1.88		1.91	
	SEASON TOTAL			356.71		227.97		172.16		174.55

ANNUAL TOTAL				**1,541.50**		**954.14**		**700.48**		**715.80**

EXHIBIT 23

AIR QUALITY CONFORMITY SUMMARY TABLE

PM2.5 Precursor Emissions: NOx

Mobile Source Emissions Inventories for 2006 CLRP and FY 2007-2012 TIP

(Tons)

			Precursor NOx							
			2002		2010		2020		2030	
		Days	Daily	seasonal	Daily	seasonal	Daily	seasonal	Daily	seasonal
SEASON 1 (JAN-APR)	Major Roads-Starts	120	19.88	2386.08	8.64	1036.80	3.89	466.32	3.05	366.48
	Major Roads-VMT	120	227.78	27,333.60	114.26	13711.32	37.42	4490.88	28.09	3370.32
	Local Roads	120	12.45	1494.48	6.49	779.16	2.65	317.52	2.27	272.28
	School Buses	76	4.86	369.44	3.12	236.98	0.57	43.43	0.21	16.31
	Transit Buses	120	6.04	724.74	3.93	471.98	0.96	114.64	0.25	30.38
	Auto Access	83	2.09	173.69	0.95	78.52	0.28	22.93	0.25	20.35
	Total (Daily)		273.11		137.39		45.76		34.12	
	SEASON 1 TOTAL			32,482.02		16,314.77		5,455.72		4,076.13
SEASON 2 (MAY-SEP)	Major Roads-Starts	153	13.10	2003.99	6.07	927.95	2.80	428.71	2.25	344.25
	Major Roads-VMT	153	198.31	30341.89	96.43	14753.33	32.38	4953.38	24.60	3764.41
	Local Roads	153	9.92	1518.22	5.21	797.74	2.24	343.18	1.97	301.72
	School Buses	83	4.81	399.47	2.97	246.28	0.55	45.90	0.21	17.81
	Transit Buses	153	5.99	915.81	3.90	596.06	0.93	141.88	0.25	38.71
	Auto Access	107	1.48	158.45	0.70	75.03	0.22	23.25	0.20	21.22
	Total (Daily)		233.61		115.27		39.12		29.49	
	SEASON 2 TOTAL			35,337.83		17,396.38		5,936.29		4,488.12
SEASON 3 (OCT-DEC)	Major Roads-Starts	92	18.36	1689.40	7.38	679.33	3.56	327.61	2.88	264.87
	Major Roads-VMT	92	213.77	19667.02	97.19	8941.11	34.28	3154.04	26.86	2471.40
	Local Roads	92	11.85	1090.20	5.51	507.01	2.44	224.11	2.17	199.92
	School Buses	55	4.77	262.16	2.74	150.47	0.46	25.44	0.21	11.80
	Transit Buses	92	5.78	531.39	3.66	336.34	0.86	79.45	0.25	23.28
	Auto Access	61	1.97	120.37	0.80	48.83	0.26	15.88	0.23	14.30
	Total (Daily)		256.50		117.27		41.87		32.62	
	SEASON 3 TOTAL			23,360.54		10,663.10		3,826.53		2,985.56
	ANNUAL TOTAL			91,180.39		44,374.25		15,218.54		11,549.81

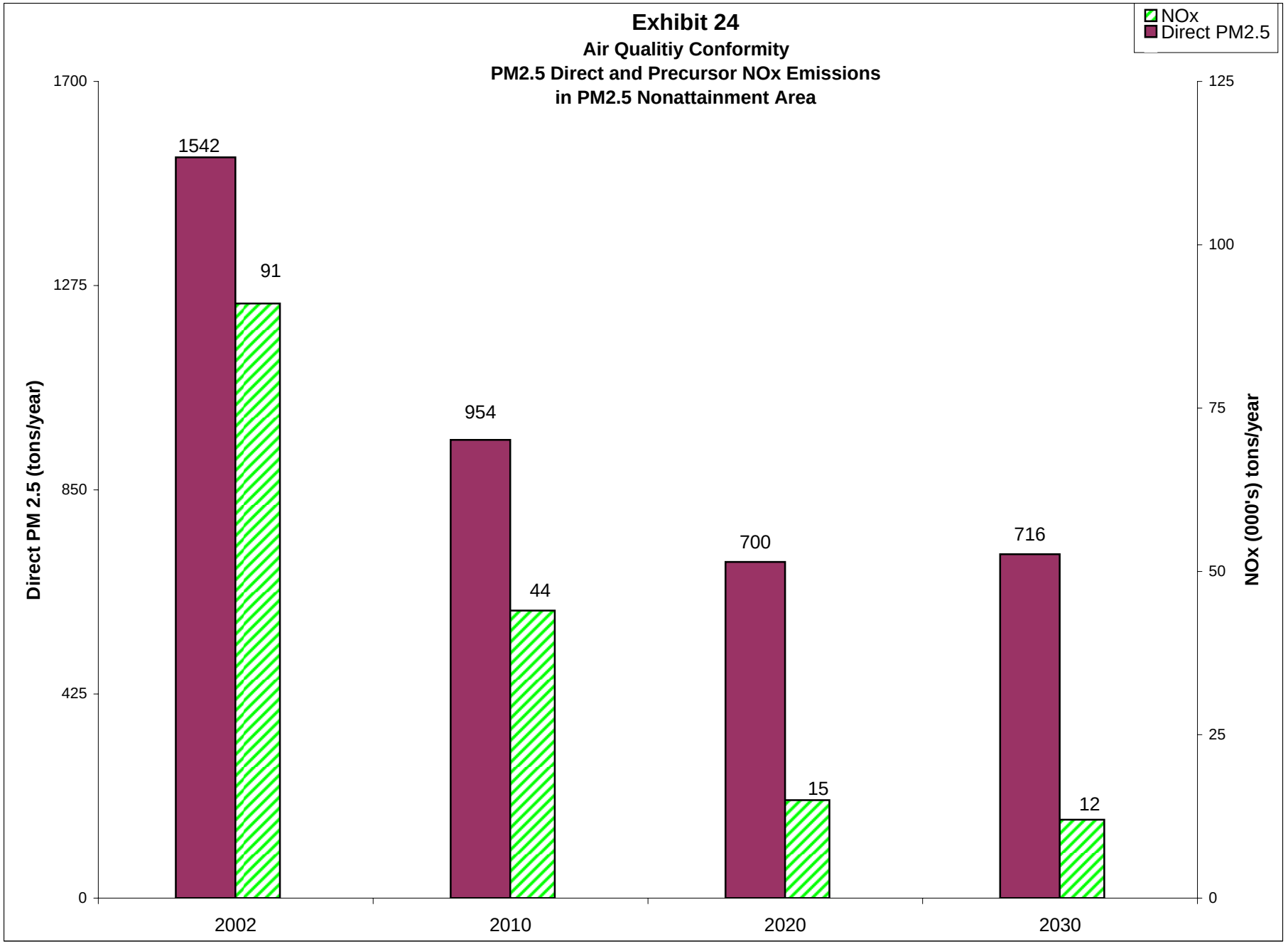


Exhibit 24
Air Qualitiy Conformity
PM2.5 Direct and Precursor NOx Emissions
in PM2.5 Nonattainment Area
NOx
Direct PM2.5
Direct PM 2.5 (tons/year)
NOx (000's) tons/year
1700
1275
850
425
0
125
100
75
50
25
0
1542
91
954
44
700
15
716
12
2002
2010
2020
2030

TERM TRACKING SHEET

TRANSPORTATION EMISSION REDUCTION MEASURES

Part A - Daily Ozone Precursor Emissions

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

NOs	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				ORIGINAL COMPLETION DATE	ACTUAL COMPLETION DATE	2010		2020		2030		Project Category *
					FULL	SCALED-BACK	UNDER-WAY	REM			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	0.0003	0.0006	0.0003	0.0005	C
19	X	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	0.0006	0.0006	0.0006	0.0005	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	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	0.0000	0.0000	TR
44	X	1995-00	MDOT	Signal Systems - MD 410, 62nd Ave. to Riverdale Rd.	X				1996	2002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	TR
48	X	1995-00	MDOT	MARC Replacement Coaches	X				1999	2004	0.0006	0.0014	0.0003	0.0006	0.0003	0.0005	C (TCM)
49	X	1995-00	MDOT	MARC Expansion Coaches	X				1999	2004	0.0052	0.0133	0.0029	0.0055	0.0026	0.0046	C (TCM)
51	X	1995-00	VDOT	Alexandria Telecommuting Pilot Program	X					2000 & 2001	0.0000	0.0000			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			0.0000	0.0000	C
54	X	1995-00	VDOT	City of Fairfax Bus Shelters			X		1999	2004	0.0000	0.0005	0.0000	0.0002	0.0000	0.0002	C (TCM)
56	X	1995-00	VDOT	Cherry Hill VRE Access			X			2007	0.0040	0.0114	0.0023	0.0047	0.0020	0.0039	C (TCM)
58	X	1995-00	WMATA	Bus Replacement (172 buses)	X				1998	1998	0.0690	0.2520					SP (TCM)
59	X	1995-00	MCG	Shady Grove West Park and Ride			X		2010		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	C
60	X	1995-00	MCG	White Oak Park and Ride			X		2010		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	C
61	X	1995-00	MCG	Bicycle Facilities			X		FY99		0.0017	0.0009	0.0010	0.0004	0.0009	0.0003	C
62	X	1995-00	MCG	Pedestrian Facilities to Metrorail			X				0.0029	0.0038	0.0016	0.0016	0.0015	0.0013	C
63	X	1995-00	MDOT	MARC Replacement Coaches	X				1999	2004	0.0023	0.0057	0.0013	0.0024	0.0012	0.0020	C
64	X	1995-00	MDOT	MARC Expansion Coaches	X				1999	2004	0.0183	0.0493	0.0104	0.0205	0.0093	0.0170	C (TCM)
66	X	1995-00	VDOT	Commuter Lots - District Wide			X		varies	1995, 2000	0.0063	0.0156	0.0036	0.0065	0.0032	0.0054	C
67	X	1995-00	VDOT	I-66 and Stringfellow Rd. Park and Ride	X				2000	2000 end	0.0057	0.0095	0.0032	0.0039	0.0029	0.0033	C
68	X	1995-00	VDOT	Lake Ridge Park and Ride (now called Tacketts Mill lot)	X					1999/2000	0.0000	0.0047	0.0000	0.0020	0.0000	0.0016	C
69	X	1995-00	VDOT	Bicycle Trails and Facilities			X		varies	varies	0.0011	0.0081	0.0006	0.0034	0.0006	0.0028	C
70	X	1995-00	VDOT	Improved Acceess to Metrorail Stations			X		varies	2000-2010	0.0003	0.0005	0.0002	0.0002	0.0001	0.0002	C
71	X	1995-00	VDOT	I-66 HOV access at Monument Dr.	X					1997	0.0057	0.0095	0.0032	0.0039	0.0029	0.0033	C
72	X	1995-00	DC	Bicycle Facilities		X					0.0137	0.0095	0.0078	0.0039	0.0070	0.0033	C
73	X	1995-00	REGION	COG Regional Ridesharing Support	X					on-going	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	C

TERM TRACKING SHEET

TRANSPORTATION EMISSION REDUCTION MEASURES

Part A - Daily Ozone Precursor Emissions

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

NOs	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				ORIGINAL COMPLETION DATE	ACTUAL COMPLETION DATE	2010		2020		2030		Project Category *
					FULL	SCALED-BACK	UNDER-WAY	REM			VOC	NOX	VOC	NOX	VOC	NOX	
74	X	1995-00	REGION	M-47 Integrated Ridesharing	X					on-going	0.0381	0.0696	0.0218	0.0290	0.0199	0.0242	C
75	X	1995-00	REGION	M-92 Telecommuting Support	X					on-going	0.0634	0.1095	0.0361	0.0456	0.0328	0.0380	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	0.0006	0.0006	0.0006	0.0005	C
81	X	1996-01	VDOT	Arlington County Metrocheck Program	X				1997	1997 Onwards	0.0011	0.0014	0.0006	0.0006	0.0006	0.0005	C
82	X	1996-01	VDOT	Old Dominion Drive Bike Trail			X		2000	2004	0.0006	0.0005	0.0003	0.0002	0.0003	0.0002	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	0.0003	0.0002	0.0003	0.0002	C
90	X	1996-01	REGION	M-47c Employer Outreach / Guaranteed Ride Home	X					on-going	0.4873	0.8152	0.2767	0.3396	0.2506	0.2822	C
91	X	1996-01	REGION	M-70a Bicycle Parking			X		1999		0.0040	0.0033	0.0023	0.0014	0.0020	0.0011	C
92	X	STADIUM ANALYSIS		M-92 Telecommuting Support [1]	Combined with item #75												C
95	X	1997-02	MCG	Germantown Transit Center			X		2004		0.0029	0.0090	0.0016	0.0038	0.0015	0.0031	C (TCM)
102	X	1997-02	PG	Prince George's County Bus Replacement	X				1998	1998	0.0030	0.0090					SP (TCM)
106	X	1997-02	VDOT	PRTC Employer Commuting Outreach Program	X					1977 on-going	0.0011	0.0002	0.0006	0.0001	0.0006	0.0001	C
107	X	1997-02	VDOT	PRTC Multimodal Strategic Marketing Implementation Plan	X					1977 on-going	0.0000	0.0002	0.0000	0.0001	0.0000	0.0001	C
108	X	1997-02	MDOT	M-103 Taxicab Replacement in Maryland [2]	X				2005	Stopped	0.0797	0.2675	~~0.1340~~	~~0.1827~~	~~0.3120~~	~~0.4810~~	SP
109	X	1997-02	REGION	M-70b Employer Outreach for Bicycles	X				1998	on going	0.0013	0.0018	0.0007	0.0007	0.0006	0.0006	C
110		1997-02	VDOT	M-77b Vanpool Incentive Programs in Virginia			X		1999	delayed	n/a	n/a	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					SP
112	X	1998-03	MCG	Montgomery County Bus Replacement	X					Ongoing	0.0080	0.0270					SP
113	X	1998-03	PG	Prince George's County Bus Replacement	X				1998	Ongoing	0.0010	0.0020					SP
114	X	1998-03	FDC	Frederick County Bus Replacement	X						0.0010	0.0000					SP
117	X	1998-03	VDOT	Arlington County Four Mile Run Bike Trail			X		1999	delayed	0.0006	0.0005	0.0003	0.0002	0.0003	0.0002	C
118	X	1998-03	VDOT	Northern Virginia Turn Bays	X				2000	1998	0.0006	0.0009	0.0003	0.0002	0.0003	0.0002	TR
119	X	1998-03	VDOT	Fairfax City Bus Replacement			X		2001	2003	n/a	n/a					SP
121	X	1998-03	WMATA	WMATA Bus Replacement (252 buses)	X				2001	2001	0.1060	0.3860					SP
122	X	97 & 98 TIP	REGION	M-101a Mass Marketing Campagin (Consumer)			X			2005	0.0385	0.0646	0.0219	0.0269	0.0198	0.0224	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	0.0046	0.0171	0.0026	0.0071	0.0023	0.0059	C

TERM TRACKING SHEET

TRANSPORTATION EMISSION REDUCTION MEASURES

Part A - Daily Ozone Precursor Emissions

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

NOs	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				ORIGINAL COMPLETION DATE	ACTUAL COMPLETION DATE	2010		2020		2030		Project Category *
					FULL	SCALED-BACK	UNDER-WAY	REM			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	0.0040	-0.0005	0.0036	-0.0004	TR
125	X	1999-04	VDOT	Transit Center at 7 Corners	X				2002		0.0006	0.0009	0.0003	0.0004	0.0003	0.0003	C
126	X	1999-04	VDOT	Falls Church Clean Diesel Bus Service	X				2000	2003	0.0040	0.0050					SP
127	X	1999-04	VDOT	VA 234 Bike Trail			X		2001	2007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	C
128	X	1999-04	VDOT	PRTC Ridesharing	X				on-going	2000 ongoing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	C
130	X	1996-01	VDOT	M-14: I-66 Feeder Bus Fare Buy Down	X					1998 onward	0.0143	0.0261	0.0081	0.0109	0.0073	0.0090	C
131	X	2000-05	MDOT	Various park and Ride Lots	x				2002	2003	0.0040	0.0154	0.0022	0.0064	0.0020	0.0053	C
132	X	2000-05	MDOT	Signal Systems	X				Varies	on-going	0.0017	0.0000	0.0016	0.0000	0.0009	0.0000	TR
133	X	2000-05	VDOT	450 Spaces at Gambrill/Hooes Rds. Park and Ride			X		2002	2004	0.0040	0.0085	0.0023	0.0036	0.0020	0.0029	C
134	X	2000-05	VDOT	300 Spaces at Backlick Rd			X		2003	2006	0.0029	0.0062	0.0016	0.0026	0.0015	0.0021	C
135	X	2000-05	VDOT	Accotink-Gateway Connector Trail			X		2002	2005	0.0040	0.0047	0.0023	0.0020	0.0020	0.0016	C
136	X	2000-05	VDOT	Columbia Pike Trail			X		2000	2001, 2005	0.0034	0.0038	0.0019	0.0016	0.0018	0.0013	C
137	X	2000-05	VDOT	Lee Highway trail			X		2000	2005	0.0017	0.0019	0.0010	0.0008	0.0009	0.0007	C
138	X	2000-05	VDOT	Arlington Bus Shelter Improvements			X		2005	2005	0.0006	0.0005	0.0003	0.0002	0.0003	0.0002	C
139	X	2000-05	VDOT	Pentagon Metrostation Improvements	X					2003	0.0046	0.0081	0.0026	0.0034	0.0023	0.0028	C
140	X	2000-05	MDOT	East/West Intersection Improvements			X		2005	2005	0.0235	0.0119	0.0133	0.0049	0.0120	0.0041	C
141	X	2001-06	Feds	Federal Transit/Ridesharing subsidy	X				on-going		0.0584	0.0905	0.0330	0.0377	0.0298	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	0.0160	0.0426	0.0091	0.0117	0.0100	0.0168	TR
146	X	2003-08	DC	Bicycle Lane in D. C. (35 Mile)			X		2005	2006	0.0095	0.0085	0.0054	0.0035	0.0049	0.0029	C (TCM)
147	X	2003-08	DC	Bicycle Racks in D. C. (500)	X				2005	2004	0.0013	0.0009	0.0007	0.0004	0.0007	0.0003	C (TCM)
148	X	2003-08	DC	External Bicycle Racks on WMATA Buses in D. C. (600)	X				2005	2003	0.0020	0.0031	0.0011	0.0013	0.0010	0.0011	C (TCM)
149		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	0.0358	0.0555	0.0203	0.0231	0.0183	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	0.0131	0.0200	0.0074	0.0083	0.0067	0.0069	C

TERM TRACKING SHEET

TRANSPORTATION EMISSION REDUCTION MEASURES

Part A - Daily Ozone Precursor Emissions

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

NOs	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				ORIGINAL COMPLETION DATE	ACTUAL COMPLETION DATE	2010		2020		2030		Project Category *
					FULL	SCALED-BACK	UNDER-WAY	REM			VOC	NOX	VOC	NOX	VOC	NOX	
153	X	2003-08	MDOT	Commuter Tax Credit	X				2005	n/a	0.0782	0.1223	0.0442	0.0509	0.0399	0.0423	C
155		2003-08	MDOT	Employer Vanpool Program (WWB)				X	2005		0.0018	0.0041			0.0009	0.0014	C
156	X	2003-08	MDOT	Green Line Link			X		2005	n/a	0.0026	0.0047	0.0014	0.0019	0.0013	0.0016	C
157	X	2003-08	MDOT	Park & Ride Lots - Southern Maryland			X		2005	2005	0.0050	0.0109	0.0028	0.0045	0.0025	0.0038	C
158	X	2003-08	MDOT	Prince George's County- Bus Exp			X		2005	n/a	0.0358	0.0657	0.0203	0.0273	0.0183	0.0227	C
159	X	2003-08	MDOT	MTA - Bus Service Expansion			X		2005	n/a	0.0081	0.0157	0.0046	0.0065	0.0041	0.0054	C
160	X	2003-08	MDOT	Ride- On - Super Discount			X		2005	n/a	0.0009	0.0014	0.0005	0.0006	0.0005	0.0005	C
161	X	2003-08	Regional	Regional Traveler Information Systems			X		2005	VA:2000 before	0.1006	0.5552	0.0572	0.1522	0.0517	0.1147	TR
162	X	2003-08	MDOT	Universal Transportation Access (MD + WMATA)			X		2005	n/a	0.0161	0.0249	0.0091	0.0104	0.0082	0.0086	C
163	X	2003-08	MCG	Construction of 1300 additional Parking Spaces at Grosvenor Metro Garage	X				2004		0.0046	0.0104	0.0026	0.0044	0.0025	0.0036	C (TCM)
164	X	2003-08	MCG	Bethesda Shuttle Bus Services	X				2004		0.0031	0.0048	0.0018	0.0020	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	0.0003	0.0004	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	0.0017	0.0006	0.0007	0.0005	0.0006	C
168	X	2003-08	MCG	Annual Sidewalk Program	X				2004		0.0171	0.0264	0.0096	0.0110	0.0087	0.0091	C
169		2003-08	MDOT	Bethesda Breeze/International Express Metrobus				X	2005	Removed	0.0037	0.0053	0.0021	0.0022	0.0019	0.0018	C
170		2003-08	MDOT	Bethesda-8, Silver Spring Downtown Dasher and Prince Georges Co. Shuttles at 3 PNR lot				X	2005	Removed	0.0088	0.0104	0.0050	0.0043	0.0045	0.0036	C
171		2003-08	MDOT	Proposed Transportation Management District in Montgomery County (Rockville and Gaithersburg)				X	2005	Removed	0.0057	0.0078	0.0032	0.0033	0.0029	0.0027	C
172	X	2003-08	MDOT	Sidewalks (Bikes/Pedestrian) at / near Rail Stations	X				2005	2002	0.0093	0.0147	0.0053	0.0061	0.0047	0.0051	C
173	X	2003-08	MDOT	Neighborhood Sidewalks Improvements (Bike/Pedestrian)	X				2005	2004	0.0032	0.0017	0.0018	0.0007	0.0017	0.0006	C
174	X	2003-08	MDOT	Neighborhood Conservation Program - Neighborhood Sidewalks Improvements (Bikes/Pedestrian)		X			2005	n/a	0.0028	0.0014	0.0016	0.0006	0.0014	0.0005	C
175	X	2003-08	MDOT	Maryland bus Transit Service Expansion	X				2005	2004	0.0141	0.0323	0.0080	0.0134	0.0072	0.0112	C
176	X	2003-08	VDOT	Universal Transportation Access Program			X		2005	2005	0.0012	0.0019	0.0007	0.0008	0.0006	0.0006	C
177	X	2003-08	VDOT	Interactive Rideshare & Kiosk Initiative			X		2005		0.0004	0.0007	0.0002	0.0003	0.0002	0.0002	C
178	X	2003-08	VDOT	Mobile Commuter Stores			X		2005		0.0021	0.0039	0.0012	0.0016	0.0011	0.0014	C
179	X	2003-08	VDOT	Telework Incentive Program (Telework VA)[1]	X				2005	2001	0.0007	0.0012	0.0004	0.0005	0.0004	0.0004	C
180	X	2003-08	VDOT	Commuter Choice			X		2005		0.0010	0.0014	0.0005	0.0006	0.0005	0.0005	C
181	X	2003-08	VDOT	Employer Shuttle Services			X		2005		0.0114	0.0166	0.0064	0.0069	0.0058	0.0057	C

TERM TRACKING SHEET

TRANSPORTATION EMISSION REDUCTION MEASURES

Part A - Daily Ozone Precursor Emissions

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

NOs	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				ORIGINAL COMPLETION DATE	ACTUAL COMPLETION DATE	2010		2020		2030		Project Category *
					FULL	SCALED-BACK	UNDER-WAY	REM			VOC	NOX	VOC	NOX	VOC	NOX	
184	X	2003-08	VDOT	Van Start / Van Save			X		2005	till 2006	0.0014	0.0026			0.0007	0.0009	C
185	X	2003-08	VDOT	Metro Shuttle Bus			X		2005	1999-2005	0.0012	0.0026	0.0007	0.0011	0.0006	0.0009	C
187	X	2003-08	VDOT	VRE Mid-Day Train Service	X				2005	2002	0.0016	0.0029	0.0009	0.0012	0.0008	0.0010	C
190	X	2003-08	VDOT	Employer Vanpool Program (Bridge deck)			X		2005	2004 - 2008	0.0009	0.0019			0.0005	0.0007	C
191	X	2003-08	VDOT	Town of Leesburg P&R Lot			X		2005	2004	0.0019	0.0039	0.0011	0.0016	0.0010	0.0014	C
192	X	2003-08	VDOT	District-wide P&R Lots	X		X		2005	2001-2005	0.0113	0.0224	0.0064	0.0093	0.0057	0.0077	C
193	X	2003-08	VDOT	Additional Parking at 4 Metro stations			X		2005	2001, 2005	0.0145	0.0333	0.0082	0.0139	0.0074	0.0115	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	0.0004	0.0008	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	0.0007	0.0008	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	0.0019	0.0031			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	0.0000	0.0657			SP
204		2003-08	MDOT	Neighborhood Bus Shuttle (5 circulator routes)				X	2005		0.0075	0.0122	0.0042	0.0051	0.0038	0.0042	C
205	X	2003-08	MDOT	New Surface Parking at Transit Centers (500 spaces)			X		2005	n/a	0.0026	0.0060	0.0015	0.0025	0.0013	0.0021	C
206		2003-08	MDOT	Additional Bike Lockers at Metro-Stations				X	2005		0.0132	0.0209	0.0075	0.0087	0.0067	0.0072	C
207	X	2003-08	MDOT	Bike Facilities at PnR Lots or other similar location			X		2005	n/a	0.0093	0.0165	0.0053	0.0069	0.0048	0.0057	C
208		2003-08	MDOT	CNG Fueling Stations				X	2005		0.1270	0.1170					SP
209		2003-08	MDOT	Gas cap replacements (ROP Credit)				X	2005		N/A	N/A	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	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	0.0008	0.0009	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	0.0003	0.0002	0.0003	0.0002	C
213		2003-08	MDOT	Transit Prioritization - Queue Jumps				X	2005		0.0031	0.0037	0.0017	0.0016	0.0016	0.0013	C
214	X	2003-08	MDOT	Commuter Choice Benefit/Tax Credit - Marketing Expansion	X				2005	Ongoing	0.0546	0.0859	0.0309	0.0358	0.0279	0.0297	C
215	X	2003-08	MDOT	Improvements to Pedestrian Access in TOD areas (4 locations)			X		2005	n/a	0.0060	0.0087	0.0034	0.0036	0.0030	0.0030	C
216	X	2003-08	MDOT	Telecommuting Expansion[1]	**X**				2005	n/a	0.0645	0.1208	0.0365	0.0503	0.0329	0.0417	C
217		2003-08	MDOT	Replace older Diesel Engine in Public Sector vehicles				X	2005		0.0237	0.1300					H
218	X	2003-08	VDOT	MV-92 Telecommuting Program - Expanded[1]	**X**				2005	2003	0.0689	0.1290	0.0390	0.0537	0.0352	0.0446	C
219	X	2003-08	VDOT	MV-123 Employer Outreach for Public Sector Employees [2]	**X**				2005	2003	0.0153	0.0237	0.0086	0.0099	0.0078	0.0082	C
220	X	2003-08	REGION	Signal System Optimization			X		2005	2005	0.4246	0.1552	0.2415	0.0425	0.2183	0.0321	TR
										Available Emissions Credits	**2.352**	**4.894**	**1.437**	**1.130**	**1.343**	**0.878**	

TERM TRACKING SHEET
TRANSPORTATION EMISSION REDUCTION MEASURES (CLRP Projects Only)
Part A - Daily Ozone Precursor Emissions

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

NOs	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				PROJECTED 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	
221	X	1995-00 TIP	REGION	M-24 Speed Limit Adherence					2010		-0.0146	0.5364	-0.0042	0.2365	0.0010	0.0739	TR
222		1996-01 TIP	MGC	Rock Spring Park Pedestrian Amenities				X			0.0010	0.0040	0.0000	0.0000	0.0000	0.0000	-
223	X	1996-01 TIP	MGC	Olney Transit Center Park and Ride					2015		0.0020	0.0080	0.0009	0.0030	0.0003	0.0007	C
224	X	1996-01 TIP	MGC	Damascus Park and Ride						2003	0.0010	0.0040	0.0004	0.0015	0.0001	0.0003	C
225	X	1996-01 TIP	DC	M-103 Taxicab Replacement (DC)					2015		0.0000	0.0000	0.1745	0.3000	0.3490	0.6000	H
226	X	STADIUM ANALYSIS		M-103 Taxicab Replacement (MD)				X	2008		0.0000	0.0000	0.1560	0.2400	0.1560	0.2400	H
227	X	1997-02 TIP	MDOT	Shady Grove West Transit Center Park and Ride				X			0.0000	0.0100	0.0000	0.0038	0.0000	0.0009	C
228	X	1997-02 TIP	MGC	Olney Transit Center Park and Ride					2015		0.0000	0.0000	0.0004	0.0012	0.0003	0.0007	C
229	X	1997-02 TIP	MGC	White Oak Park and Ride					2008		0.0000	0.0200	0.0000	0.0076	0.0000	0.0017	C
230	X	1997-02 TIP	MGC	Damascus Park and Ride						2003	0.0000	0.0000	0.0002	0.0005	0.0001	0.0003	C
231	X	1997-02 TIP	MGC	Four Corners Transit Center					2015		0.0000	0.0010	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	0.0000	0.0000	-
233	X	1997-02 TIP	MGC	Silver Spring Transit Access							0.0000	0.0010	0.0000	0.0003	0.0000	0.0002	C
234	X	1997-02 TIP	MGC	Shady Grove Parking Construction						2003	0.0050	0.0190	0.0021	0.0072	0.0007	0.0017	C
PLAN TOTAL											-0.0066	0.5894	0.1743	0.5583	0.3516	0.6804	
GRAND TOTAL (Current Measures + CLRP plan)											2.345	5.483	1.612	1.688	1.695	1.558	

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 J of Conformity Document). No credit has been taken for projects in which only some components of the measure have been implemented.

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

REMOVED projects

Emissions credits are not counted in toal available emissions credits

1 Line items 218, 216, 179, 92 are all credited as part of M-92 Regional Telecommute Support TERM, line item # 75

2 Line item 108 & 219 credits are taken only for year 2010

Projects fully implemented prior to 2000 were removed from the TERM Tracking Sheet

TERM TRACKING SHEET

TRANSPORTATION EMISSION REDUCTION MEASURES

Part B - Yearly PM 2.5 and Precursor NOx Emissions

***** Project Category: TR - Traffic Stream, C - Commute, H - Heavy Duty Vehicles (Engine 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/ANNUM REDUCTION CREDITED						
					FULL	SCALED-BACK	UNDER-WAY	REM			2010		2020		2030		Project
											PM2.5	Precursor NOx	PM2.5	Precursor NOx	PM2.5	Precursor NOx	Category *
9	X	1994-99	MDOT	Park & Ride Lot - MD 210/ MD 373	X				2000	2003	0.0099	0.3565	0.0095	0.1451	0.0095	0.1199	C
19	X	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	0.0099	0.3565	0.0095	0.1451	0.0095	0.1199	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	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	0.0000	0.0000	TR
44	X	1995-00	MDOT	Signal Systems - MD 410, 62nd Ave. to Riverdale Rd.	**X**				1996	2002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	TR
48	X	1995-00	MDOT	MARC Replacement Coaches	X				1999	2004	0.0099	0.3565	0.0095	0.1451	0.0095	0.1199	C (TCM)
49	X	1995-00	MDOT	MARC Expansion Coaches	X				1999	2004	0.0922	3.3278	0.0891	1.3543	0.0891	1.1191	C (TCM)
51	X	1995-00	VDOT	Alexandria Telecommuting Pilot Program	X					2000 & 2001	0.0000	0.0000	0.0000	0.0000	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	0.0000	0.0000	0.0000	0.0000	C
54	X	1995-00	VDOT	City of Fairfax Bus Shelters			X		1999	2004	0.0033	0.1188	0.0032	0.0484	0.0032	0.0400	C (TCM)
56	X	1995-00	VDOT	Cherry Hill VRE Access			X			2007	0.0791	2.8524	0.0764	1.1608	0.0764	0.9593	C (TCM)
58	X	1995-00	WMATA	Bus Replacement (172 buses)	X				1998	1998	0.9655	34.8307	0.9325	14.1746	0.9325	11.7135	SP (TCM)
59	X	1995-00	MCG	Shady Grove West Park and Ride			X		2010		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	C
60	X	1995-00	MCG	White Oak Park and Ride			X		2010		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	C
61	X	1995-00	MCG	Bicycle Facilities			X		FY99		0.0066	0.2377	0.0064	0.0967	0.0064	0.0799	C
62	X	1995-00	MCG	Pedestrian Facilities to Metrorail			X				0.0264	0.9508	0.0255	0.3869	0.0255	0.3198	C
63	X	1995-00	MDOT	MARC Replacement Coaches	X				1999	2004	0.0395	1.4262	0.0382	0.5804	0.0382	0.4796	C
64	X	1995-00	MDOT	MARC Expansion Coaches	X				1999	2004	0.3426	12.3603	0.3309	5.0301	0.3309	4.1568	C (TCM)
66	X	1995-00	VDOT	Commuter Lots - District Wide			X		varies	1995, 2000	0.1087	3.9220	0.1050	1.5961	0.1050	1.3190	C
67	X	1995-00	VDOT	I-66 and Stringfellow Rd. Park and Ride	X				2000	2000 end	0.0659	2.3770	0.0636	0.9673	0.0636	0.7994	C
68	X	1995-00	VDOT	Lake Ridge Park and Ride (now called Tacketts Mill lot)	X					1999/2000	0.0329	1.1885	0.0318	0.4837	0.0318	0.3997	C
69	X	1995-00	VDOT	Bicycle Trails and Facilities			X		varies	varies	0.0560	2.0204	0.0541	0.8222	0.0541	0.6795	C
70	X	1995-00	VDOT	Improved Acceess to Metrorail Stations			X		varies	2000-2010	0.0033	0.1188	0.0032	0.0484	0.0032	0.0400	C
71	X	1995-00	VDOT	I-66 HOV access at Monument Dr.	X					1997	0.0659	2.3770	0.0636	0.9673	0.0636	0.7994	C
72	X	1995-00	DC	Bicycle Facilities		X					0.0659	2.3770	0.0636	0.9673	0.0636	0.7994	C
73	X	1995-00	REGION	COG Regional Ridesharing Support	X					on-going	**0.0000**	**0.0000**	0.0000	0.0000	0.0000	0.0000	C

TERM TRACKING SHEET

TRANSPORTATION EMISSION REDUCTION MEASURES

Part B - Yearly PM 2.5 and Precursor NOx Emissions

***** Project Category: TR - Traffic Stream, C - Commute, H - Heavy Duty Vehicles (Engine 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/ANNUM REDUCTION CREDITED						Project Category *
					FULL	SCALED-BACK	UNDER-WAY	REM			2010		2020		2030		
											PM2.5	Precursor NOx	PM2.5	Precursor NOx	PM2.5	Precursor NOx	
74	X	1995-00	REGION	M-47 Integrated Ridesharing	X					on-going	**0.5025**	**17.4290**	**0.4853**	**7.0961**	**0.4853**	**5.8907**	C
75	X	1995-00	REGION	M-92 Telecommuting Support	X					on-going	**0.7777**	**27.425**	**0.7511**	**11.1663**	**0.7511**	**9.2494**	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	0.0099	0.3565	0.0095	0.1451	0.0095	0.1199	C
81	X	1996-01	VDOT	Arlington County Metrocheck Program	X				1997	1997 Onwards	0.0099	0.3565	0.0095	0.1451	0.0095	0.1199	C
82	X	1996-01	VDOT	Old Dominion Drive Bike Trail			X		2000	2004	0.0033	0.1188	0.0032	0.0484	0.0032	0.0400	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	0.0033	0.1188	0.0032	0.0484	0.0032	0.0400	C
90	X	1996-01	REGION	M-47c Employer Outreach / Guaranteed Ride Home	X					on-going	5.7371	204.265	5.5409	83.1721	5.5409	68.8075	C
91	X	1996-01	REGION	M-70a Bicycle Parking			X		1999		0.0231	0.8319	0.0223	0.3386	0.0223	0.2798	C
92	X	STADIUM ANALYSIS		M-92 Telecommuting Support [1]	Combined with item #75												C
95	X	1997-02	MCG	Germantown Transit Center			X		2004		0.0626	2.2581	0.0605	0.9190	0.0605	0.7594	C (TCM)
102	X	1997-02	PG	Prince George's County Bus Replacement	X				1998	1998	0.0345	1.2440	0.0333	0.5062	0.0333	0.4183	SP (TCM)
106	X	1997-02	VDOT	PRTC Employer Commuting Outreach Program	X					1977 on-going	0.0016	0.0594	0.0016	0.0242	0.0016	0.0200	C
107	X	1997-02	VDOT	PRTC Multimodal Strategic Marketing Implementation Plan	X					1977 on-going	0.0016	0.0594	0.0016	0.0242	0.0016	0.0200	C
108	X	1997-02	MDOT	M-103 Taxicab Replacement in Maryland [2]	**X**				2005	Stopped	1.0249	36.9731	0.9899	15.0465	0.9899	12.4340	SP
109	X	1997-02	REGION	M-70b Employer Outreach for Bicycles	X				1998	on going	**0.0118**	**0.4461**	**0.0114**	**0.1817**	**0.0114**	**0.1491**	C
110		1997-02	VDOT	M-77b Vanpool Incentive Programs in Virginia			X		1999	delayed	n/a	n/a	n/a	n/a	n/a	n/a	C
111	X	1998-03	WMATA	Bus Replacement (108 buses)	X				1999	1999	0.6196	22.3497	0.5984	9.0954	0.5984	7.5162	SP
112	X	1998-03	MCG	Montgomery County Bus Replacement	X					Ongoing	0.1035	3.7319	0.0999	1.5187	0.0999	1.2550	SP
113	X	1998-03	PG	Prince George's County Bus Replacement	X				1998	Ongoing	0.0077	0.2764	0.0074	0.1125	0.0074	0.0930	SP
114	X	1998-03	FDC	Frederick County Bus Replacement	X						0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	SP
117	X	1998-03	VDOT	Arlington County Four Mile Run Bike Trail			X		1999	delayed	0.0033	0.1188	0.0032	0.0484	0.0032	0.0400	C
118	X	1998-03	VDOT	Northern Virginia Turn Bays	X				2000	1998	0.0058	0.2092	0.0056	0.0851	0.0056	0.0703	TR
119	X	1998-03	VDOT	Fairfax City Bus Replacement			X		2001	2003	n/a	n/a	n/a	n/a	n/a	n/a	SP
121	X	1998-03	WMATA	WMATA Bus Replacement (252 buses)	X				2001	2001	1.4790	53.3518	1.4284	21.7119	1.4284	17.9421	SP
122	X	97 & 98 TIP	REGION	M-101a Mass Marketing Campagin (Consumer)		X				2005	**0.4554**	**16.1981**	**0.4398**	**6.5955**	**0.4398**	**5.4570**	C

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TERM TRACKING SHEET

TRANSPORTATION EMISSION REDUCTION MEASURES

Part B - Yearly PM 2.5 and Precursor NOx Emissions

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

NOs	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS FULL	SCALED-BACK	UNDER-WAY	REM	ORIGINAL COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/ANNUM REDUCTION CREDITED 2010 PM2.5	2010 Precursor NOx	2020 PM2.5	2020 Precursor NOx	2030 PM2.5	2030 Precursor NOx	Project Category *
123	X	1999-04	MDOT	Various Park and Ride Lots(I-270/MD124, 450 & I-170/MD-75, 54 spaces)	X				2001/1999	2001	0.1186	4.2786	0.1146	1.7412	0.1146	1.4389	C
124	X	1999-04	MDOT	Signal Systems (197/MD-198, MD-382 TO US-301,US301)	X				2000	2002	-0.0116	-0.4184	-0.0112	-0.1703	-0.0112	-0.1407	TR
125	X	1999-04	VDOT	Transit Center at 7 Corners	X				2002		0.0066	0.2377	0.0064	0.0967	0.0064	0.0799	C
126	X	1999-04	VDOT	Falls Church Clean Diesel Bus Service	X				2000	2003	0.0192	0.6911	0.0185	0.2812	0.0185	0.2324	SP
127	X	1999-04	VDOT	VA 234 Bike Trail			X		2001	2007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	C
128	X	1999-04	VDOT	PRTC Ridesharing	X				on-going	2000 ongoing	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	C
130	X	1996-01	VDOT	M-14: I-66 Feeder Bus Fare Buy Down	X					1998 onward	0.1812	6.5367	0.1750	2.6602	0.1750	2.1983	C
131	X	2000-05	MDOT	Various park and Ride Lots	x				2002	2003	0.1071	3.8639	0.1035	1.5725	0.1035	1.2994	C
132	X	2000-05	MDOT	Signal Systems	X				Varies	on-going	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	TR
133	X	2000-05	VDOT	450 Spaces at Gambrill/Hooes Rds. Park and Ride			X		2002	2004	0.0593	2.1393	0.0573	0.8706	0.0573	0.7194	C
134	X	2000-05	VDOT	300 Spaces at Backlick Rd			X		2003	2006	0.0428	1.5450	0.0414	0.6288	0.0414	0.5196	C
135	X	2000-05	VDOT	Accotink-Gateway Connector Trail			X		2002	2005	0.0329	1.1885	0.0318	0.4837	0.0318	0.3997	C
136	X	2000-05	VDOT	Columbia Pike Trail			X		2000	2001, 2005	0.0264	0.9508	0.0255	0.3869	0.0255	0.3198	C
137	X	2000-05	VDOT	Lee Highway trail			X		2000	2005	0.0132	0.4754	0.0127	0.1935	0.0127	0.1599	C
138	X	2000-05	VDOT	Arlington Bus Shelter Improvements			X		2005	2005	0.0033	0.1188	0.0032	0.0484	0.0032	0.0400	C
139	X	2000-05	VDOT	Pentagon Metrostation Improvements	X					2003	0.0560	2.0204	0.0541	0.8222	0.0541	0.6795	C
140	X	2000-05	MDOT	East/West Intersection Improvements			X		2005	2005	0.0824	2.9712	0.0795	1.2092	0.0795	0.9992	C
141	X	2001-06	Feds	Federal Transit/Ridesharing subsidy	X				on-going		0.6293	22.7002	0.6078	9.2380	0.6078	7.6341	C
142	X	2002-07	WMATA	100 CNG buses	X				2002		0.5203	18.7699	0.5025	7.6386	0.5025	6.3123	SP (TCM)
143	X	2002-07	WMATA	ULSD with CRT filters			X		on-going		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	H (TCM)
144	X	2003-08	DC	Replace ~~23~~ 12 Taxicabs with CNG cabs			X		2005	2006	0.0602	2.1700					H
145	X	2003-08	DC	D.C.Incident Response & TrafficManagement System	X				2005	2004	0.2859	10.3131	0.2761	4.1970	0.2761	3.4683	TR
146	X	2003-08	DC	Bicycle Lane in D. C. (35 Mile)			X		2005	2006	0.0443	2.1829	0.0428	0.8897	0.0428	0.7095	C (TCM)
147	X	2003-08	DC	Bicycle Racks in D. C. (500)	X				2005	2004	0.0041	0.2486	0.0040	0.1014	0.0040	0.0794	C (TCM)
148	X	2003-08	DC	External Bicycle Racks on WMATA Buses in D. C. (600)	X				2005	2003	0.0214	0.7740	0.0206	0.3152	0.0206	0.2601	C (TCM)
149		2003-08	DC	CNG Rental Cars (18)				X	2005	Removed	0.0008	0.0276					SP
150	X	2003-08	DC	Sidewalks in D.C. ($ 5 million)	X				2005	2004	0.3818	13.9434	0.3688	5.6779	0.3688	4.6821	C

TERM TRACKING SHEET

TRANSPORTATION EMISSION REDUCTION MEASURES

Part B - Yearly PM 2.5 and Precursor NOx Emissions

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											PM2.5	Precursor NOx	PM2.5	Precursor NOx	PM2.5	Precursor NOx	
151	X	2003-08	DC	CNG Refuse Haulers (2)	X				2005	2004	0.0077	0.2764					H (TCM)
152	X	2003-08	DC	Circulator /Feeder Bus Routes	X				2005	2003	0.1373	5.0295	0.1325	2.0481	0.1325	1.6881	C
153	X	2003-08	MDOT	Commuter Tax Credit	X				2005	n/a	0.8434	30.6955	0.8145	12.4995	0.8145	10.3114	C
155		2003-08	MDOT	Employer Vanpool Program (WWB)				X	2005	Removed	0.0312	1.0252	0.0301	0.0417	0.0301	0.0349	C
156	X	2003-08	MDOT	Green Line Link			X		2005	n/a	0.0338	1.1686	0.0326	0.4758	0.0326	0.3951	C
157	X	2003-08	MDOT	Park & Ride Lots - Southern Maryland			X		2005	2008	0.0729	2.4009	0.0703	0.9773	0.0703	0.8170	C
158	X	2003-08	MDOT	Prince George's County- Bus Exp			X		2005	n/a	0.4736	16.3874	0.4578	6.6719	0.4578	5.5404	C
159	X	2003-08	MDOT	MTA - Bus Service Expansion			X		2005	n/a	0.1147	3.9082	0.1108	1.5911	0.1108	1.3240	C
160	X	2003-08	MDOT	Ride- On - Super Discount			X		2005	n/a	0.0097	0.3547	0.0094	0.1445	0.0094	0.1191	C
161	X	2003-08	Regional	Regional Traveler Information Systems			X		2005	VA:2000 before	3.7282	134.4892	3.6007	54.7315	3.6007	45.2286	TR
162	X	2003-08	MDOT	Universal Transportation Access (MD + WMATA)			X		2005	n/a	0.1712	6.2518	0.2414	3.7169	0.2414	3.0650	C
163	X	2003-08	MCG	Construction of 1300 additional Parking Spaces at Grosvenor Metro Garage	X				2004		0.1157	3.7816	0.1653	2.5458	0.1653	2.0993	C (TCM)
164	X	2003-08	MCG	Bethesda Shuttle Bus Services	X				2004		0.0327	1.1987	0.3158	0.4882	0.0316	0.4023	C
165	X	2003-08	MCG	External Bicycle Racks on Ride-On Buses in Montgomery County	X				2004		0.0066	0.2414	0.0064	0.0983	0.0064	0.0811	C
166	X	2003-08	MCG	New CNG Powered Light Duty Vehicle fleet in the County	X				2004		0.0004	0.0138					SP
167	X	2003-08	MCG	Free Bus Service on Selected Routes on I-270	X				2004		0.0114	0.4152	0.0110	0.1691	0.0110	0.1394	C
168	X	2003-08	MCG	Annual Sidewalk Program	X				2004		0.1818	6.6397	0.1756	2.7038	0.1756	2.2296	C
169		2003-08	MDOT	Bethesda Breeze/International Express Metrobus				X	2005	Removed	0.0357	1.3422	0.0345	0.5466	0.0345	0.4491	C
170		2003-08	MDOT	Bethesda-8, Silver Spring Downtown Dasher and Prince Georges Co. Shuttles at 3 PNR lot				X	2005	Removed	0.0645	2.6461	0.0623	1.0779	0.0623	0.8764	C
171		2003-08	MDOT	Proposed Transportation Management District in Montgomery County (Rockville and Gaithersburg)				X	2005	Removed	0.0513	1.9714	0.0495	0.8029	0.0495	0.6579	C
172	X	2003-08	MDOT	Sidewalks (Bikes/Pedestrian) at / near Rail Stations	X				2005	2002	0.1017	3.6896	0.0983	1.5024	0.0983	1.2400	C
173	X	2003-08	MDOT	Neighborhood Sidewalks Improvements (Bike/Pedestrian)	X				2005	2004	0.0039	0.4468	0.0038	0.1823	0.0038	0.1374	C
174	X	2003-08	MDOT	Neighborhood Conservation Program - Neighborhood Sidewalks Improvements (Bikes/Pedestrian)		X			2005	n/a	0.0034	0.3909	0.0033	0.1595	0.0033	0.1202	C
175	X	2003-08	MDOT	Maryland bus Transit Service Expansion	X				2005	2004	0.2449	8.0083	0.2366	3.2599	0.2366	2.7281	C
176	X	2003-08	VDOT	Universal Transportation Access Program			X		2005	2005	0.0129	0.4688	0.0125	0.1909	0.0125	0.1575	C
177	X	2003-08	VDOT	Interactive Rideshare & Kiosk Initiative			X		2005		0.0051	0.1771	0.0049	0.0721	0.0049	0.0599	C
178	X	2003-08	VDOT	Mobile Commuter Stores			X		2005		0.0283	0.9788	0.0273	0.3985	0.0273	0.3297	C

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					FULL	SCALED-BACK	UNDER-WAY	REM			2010		2020		2030		
											PM2.5	Precursor NOx	PM2.5	Precursor NOx	PM2.5	Precursor NOx	
179	X	2003-08	VDOT	Telework Incentive Program (Telework VA)[1]	**X**				2005	2001	0.0083	0.2992	0.0080	0.1218	0.0080	0.1006	C
180	X	2003-08	VDOT	Commuter Choice			X		2005		0.0095	0.3521	0.0091	0.1434	0.0091	0.1179	C
181	X	2003-08	VDOT	Employer Shuttle Services			X		2005		0.1119	4.1792	0.1081	1.7020	0.1081	1.3995	C
184	X	2003-08	VDOT	Van Start / Van Save			X		2005	till 2006	0.0185	0.6399	0.0179	0.2605	0.0179	0.2164	C
185	X	2003-08	VDOT	Metro Shuttle Bus			X		2005	1999-2005	0.0195	0.6403	0.0188	0.2606	0.0188	0.2179	C
187	X	2003-08	VDOT	VRE Mid-Day Train Service	X				2005	2002	0.0211	0.7275	0.0203	0.2962	0.0203	0.2461	C
190	X	2003-08	VDOT	Employer Vanpool Program (Bridge deck)			X		2005	2004 - 2008	0.0139	0.4694	0.0134	0.0000	0.0134	0.0000	C
191	X	2003-08	VDOT	Town of Leesburg P&R Lot			X		2005	2004	0.0290	0.9740	0.0279	0.3966	0.0279	0.3305	C
192	X	2003-08	VDOT	District-wide P&R Lots	X		X		2005	2001-2005	0.1645	5.5666	0.1588	2.2662	0.1588	1.8875	C
193	X	2003-08	VDOT	Additional Parking at 4 Metro stations			X		2005	2001, 2005	0.2527	8.2607	0.2440	3.3626	0.2440	2.8140	C
196	X	2003-08	WMATA	64 CNG Buses (Purchased in 2001)	X				2005	2004	0.3335	12.0304					SP (TCM)
197	X	2003-08	WMATA	250 CNG Buses (175 buses by Dec. 2004; 75 buses by mid 2006)			X		2005	2004-2006	0.0316	46.9938					SP
198	X	2003-08	WMATA	60 Engine Replacement (MY 1992 & 1993 MY buses)	X				2004	2004	0.2892	10.4326					SP
199	X	2003-08	WMATA	Car Sharing Program	X				2005	2004	0.0138	0.4492	0.0133	0.1828	0.0133	0.1530	C
200	X	2003-08	WMATA	Bikes Racks on WMATA Buses in VA (372 Bike Racks)	X				2005	2004	0.0194	0.7026	0.0187	0.2861	0.0184	0.2361	C (TCM)
202		2003-08	MDOT	Fleet Replacement (state auto fleet, gas to hybrid, 250 vehicles)				X	2005	Removed	0.0510	1.8383	0.0492	0.7481	0.0492	0.6182	SP
203	X	2003-08	MDOT	Replace 55 Montgomery County 10 yr. old buses w/ new CNG buses			X		2005	n/a	1.0962	39.5439	1.0587	16.0927	1.0587	13.2986	SP
204		2003-08	MDOT	Neighborhood Bus Shuttle (5 circulator routes)				X	2005	Removed	0.0853	3.0595	0.0824	1.2458	0.0824	1.0296	C
205	X	2003-08	MDOT	New Surface Parking at Transit Centers (500 spaces)			X		2005	n/a	0.0451	1.4784	0.0436	0.6018	0.0436	0.5035	C
206		2003-08	MDOT	Additional Bike Lockers at Metro-Stations				X	2005	Removed	0.1444	5.2364	0.1395	2.1323	0.1395	1.7599	C
207	X	2003-08	MDOT	Bike Facilities at PnR Lots or other similar location			X		2005	n/a	0.1184	4.1347	0.1144	1.6834	0.1144	1.3963	C
208		2003-08	MDOT	CNG Fueling Stations				X	2005	Removed	0.4483	16.1714					SP
209		2003-08	MDOT	Gas cap replacements (ROP Credit)				X	2005	Removed	N/A	N/A	N/A	N/A	N/A	N/A	SP

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											PM2.5	Precursor NOx	PM2.5	Precursor NOx	PM2.5	Precursor NOx	
210		2003-08	MDOT	Gas can turnover (ROP Credit)				X	2005	Removed	N/A	N/A	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	0.0223	0.8100	0.0216	0.3298	0.0216	0.2722	C (TCM)
212	X	2003-08	MDOT	Bike \ Pedestrian Trail - Anacostia River Walk			X		2005	n/a	0.0023	0.1206	0.0022	0.0492	0.0022	0.0389	C
213		2003-08	MDOT	Transit Prioritization - Queue Jumps				X	2005	Removed	0.0233	0.9455	0.0225	0.3851	0.0225	0.3136	C
214	X	2003-08	MDOT	Commuter Choice Benefit/Tax Credit - Marketing Expansion	X				2005	Ongoing	0.5935	21.5571	0.5732	8.7782	0.5732	7.2434	C
215	X	2003-08	MDOT	Improvements to Pedestrian Access in TOD areas (4 locations)			X		2005	n/a	0.0587	2.1898	0.0566	0.8918	0.0566	0.7334	C
216	X	2003-08	MDOT	Telecommuting Expansion[1]	**X**				2005	n/a	0.8765	30.1378	0.8466	12.2700	0.8466	10.1977	C
217		2003-08	MDOT	Replace older Diesel Engine in Public Sector vehicles				X	2005	Removed	0.4981	17.9682					H
218	X	2003-08	VDOT	MV-92 Telecommuting Program - Expanded[1]	**X**				2005	2003	0.9361	32.1855	0.9041	13.1037	0.9041	10.8905	C
219	X	2003-08	VDOT	MV-123 Employer Outreach for Public Sector Employees [2]	**X**				2005	2003	0.1629	5.9508	0.1574	2.4232	0.1574	1.9982	C
220	X	2003-08	REGION	Signal System Optimization			X		2005	2005	1.0421	37.5917	1.0065	15.2983	1.0065	12.6420	TR
				Available Emissions Credits							**25.326**	**990.642**	**23.029**	**358.494**	**22.745**	**296.403**	

TERM TRACKING SHEET

TRANSPORTATION EMISSION REDUCTION MEASURES (CLRP Projects Only)

Part B - Yearly PM 2.5 and Precursor NOx Emissions

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

NOs	CREDIT	TIP			IMPLEMENTATION STATUS				PROJECTED COMPLETION	ACTUAL COMPLETION	TONS/ANNUM REDUCTION CREDITED						Project
											2010		2020		2030		
	TAKEN	CREDITED	AGENCY	PROJECT	FULL	SCALED-BACK	UNDER-WAY	REM	DATE	DATE	PM2.5	Precursor NOx	PM2.5	Precursor NOx	PM2.5	Precursor NOx	Category
221	X	1995-00 TIP	REGION	M-24 Speed Limit Adherence					2010		3.7282	134.4889	3.8136	57.9425	1.4355	18.0353	TR
222		1996-01 TIP	MGC	Rock Spring Park Pedestrian Amenities				X			0.0278	1.0029	0.0000	0.0000	0.0000	0.0000	-
223	X	1996-01 TIP	MGC	Olney Transit Center Park and Ride					2015		0.0556	2.0058	0.0490	0.7443	0.0136	0.1705	C
224	X	1996-01 TIP	MGC	Damascus Park and Ride						2003	0.0278	1.0029	0.0245	0.3722	0.0068	0.0852	C
225	X	1996-01 TIP	DC	M-103 Taxicab Replacement (DC)					2015		0.0000	0.0000	4.8375	73.5000	11.6550	146.4300	H
226	X	STADIUM ANALYSIS		M-103 Taxicab Replacement (MD)				X	2008		0.0000	0.0000	3.8700	58.8000	4.6620	58.5720	H
227	X	1997-02 TIP	MDOT	Shady Grove West Transit Center Park and Ride				X			0.0695	2.5073	0.0612	0.9304	0.0170	0.2131	C
228	X	1997-02 TIP	MGC	Olney Transit Center Park and Ride					2015		0.0000	0.0000	0.0201	0.3053	0.0136	0.1705	C
229	X	1997-02 TIP	MGC	White Oak Park and Ride					2008		0.1390	5.0145	0.1225	1.8608	0.0339	0.4262	C
230	X	1997-02 TIP	MGC	Damascus Park and Ride						2003	0.0000	0.0000	0.0075	0.1145	0.0051	0.0639	C
231	X	1997-02 TIP	MGC	Four Corners Transit Center					2015		0.0070	0.2507	0.0061	0.0930	0.0017	0.0213	C
232		1997-02 TIP	MGC	Burtonsville Transit Center				X			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-
233	X	1997-02 TIP	MGC	Silver Spring Transit Access							0.0070	0.2507	0.0050	0.0763	0.0034	0.0426	C
234	X	1997-02 TIP	MGC	Shady Grove Parking Construction						2003	0.1321	4.7638	0.1163	1.7677	0.0322	0.4049	C
PLAN TOTAL											4.0966	147.7773	9.0021	136.7766	13.2008	165.8505	
GRAND TOTAL (Current Measures + CLRP plan)											29.423	1138.419	32.032	495.271	35.946	462.253	

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 J of Conformity Document). No credit has been taken for projects in which only some components of the measure have been implemented.

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

REMOVED projects

Emissions credits are not counted in toal available emissions credits

1 Line items 218, 216, 179, 92 are all credited as part of M-92 Regional Telecommute Support TERM, line item # 75

2 Line item 108 & 219 credits are taken only for year 2010

Projects fully implemented prior to 2000 were removed from the TERM Tracking Sheet

IV. CONSULTATION

The November 1993 regulations identified specific requirements and processes for consultation on an interagency basis and with the public. The requirements addressed consultation as regards the preparation of state air quality implementation plans (SIP)s as well as conformity determinations. The regulations stated that in addition to establishing these procedures for the future, reasonable opportunity for consultation must be provided for current conformity assessments.

To address these requirements, the TPB began discussion of an appropriate approach starting in January 1994. Consultation agencies were identified as the Environmental Protection Agency (EPA), Federal Highway Administration (FHWA), Federal Transit Administration (FTA) and the Metropolitan Washington Air Quality Committee (MWAQC) and its member agencies.

Following a series of work sessions, public forums, comments and correspondence with the consultation agencies and the public, the TPB developed and adopted a set of procedures to fully address all requirements. The procedures involve invitations to the public and the consultation agencies to attend and become involved in all TPB matters regarding transportation conformity. Similarly, over the past few years the TPB has expanded the opportunity for public involvement through a series of new initiatives. Examples include: the public comment period at the start of each TPB meeting; regular public forums and workshops on major topics; a monthly newsletter; the institution of the Citizens Advisory Committee. The procedures have been summarized into a report called the TPB Public Involvement Process (Reference 11).

The TPB adopted both sets of procedures on September 21, 1994 and staff has subsequently executed them. In the August 15, 1997 amendments to its conformity regulations, EPA established additional requirements regarding consultation. Accordingly, COG/TPB staff, in consultation with MWAQC, appropriate federal agencies and the public, prepared draft updates to the TPB procedures. Following an extensive review and comment period, the TPB adopted revised consultation procedures (Reference 4), which were followed throughout the preparation of the 2006 CLRP and the FY2007-2012 TIP. Exhibit 26 lists the original schedule for these public involvement/consultation opportunities throughout the year. Additional materials are contained as Appendix C.

Exhibit 26
Schedule
For the 2006 Constrained Long-Range Transportation Plan (CLRP) and FY 2007 – 2012 Transportation Improvement Program (TIP)

*November 16, 2005	TPB Reviews Draft Call For Projects (formerly called the "Solicitation Document")
*December 21, 2005	TPB Releases Final Call For Projects
December 21, 2005	Transportation Agencies Begin Submitting Project Information through Database Application
February 3, 2006	DEADLINE: Transportation Agencies Complete On-Line Project Submissions
February 9, 2006	Plan and TIP Project Submissions and Draft Scope of Work for Conformity Assessment Released for Public Comment
*February 15, 2006	TPB Briefed on Project Submissions and Scope of Work
March 9, 2006	Updated Project Submission Information and Draft Scope of Work Released for Public Comment
*March 15, 2006	TPB Briefed on Project Submissions and Scope of Work
April 10, 2006	Public Comment Period Ends
*April 19, 2006	TPB Reviews Public Comments and is asked to Approve Scope of Work and Project Submissions for Inclusion in the Air Quality Conformity Analysis
*July 19, 2006	TPB Receives Status Report on the Conformity Assessment, Draft Plan and TIP
September 14, 2006	Draft Conformity Assessment and Draft Plan and TIP Released for Public Comment (Public-friendly materials are provided to facilitate public comment)
*September 20, 2006	TPB Briefed on the Conformity Assessment and the Plan and TIP
October 14, 2006	Public Comment Period Ends
*October 18, 2006	TPB Reviews Public Comments and Responses to Comments, and is Presented the Draft Conformity Assessment and the Draft Plan and TIP for Adoption

*TPB Meeting

V. CONFORMITY ASSESSMENT - CRITERIA AND PROCEDURES

EPA's conformity regulations identify criteria and procedures for the determination of conformity. These regulations vary according to pollutants and to different actions being considered and according to the time period and the area's standing with EPA in terms of meeting SIP milestone requirements. The May 6, 2005 amendments to EPA's regulations represent the current transportation conformity requirements. The following sections indicate: (1) the appropriate sections of the regulations which must be adhered to in this conformity analysis, and (2) the manner in which the regulations have been met.

A. CONFORMITY CRITERIA

This section identifies the criteria (sections of the regulations) which the CLRP and TIP must meet in order to conform to current implementation plans in the District of Columbia, Maryland and Virginia. Exhibit 27 lists all sections of the regulations relevant at this time to assessment of the 2006 CLRP and the FY2007-2012 TIP. The following discussion indicates the manner in which each criterion was met.

B. RELATIONSHIP TO CRITERIA

Sec. 93.110 Criteria and procedures: Latest planning assumptions.

The conformity assessment is based upon the most current planning assumptions available for the Washington region. Draft Round 7.0a Cooperative Forecasts were approved by the Metropolitan Development Policy Committee for testing in conjunction with conformity analyses. These forecasts were developed and reviewed with an explicit perspective on transportation and land use interaction.

Travel demand modeling methods incorporating the latest travel time refinements were used in this study. Other refinements include development and use of a comprehensive set of transit and HOV networks. As with previous conformity analyses, transit fares are modeled explicitly in the modal choice process. The analysis includes actual fares for the base year simulation, with forecast year fares based on current (June 30, 2006) fares with increases through time as a function of increases in the consumer price index. Base year fares are modeled to reflect the WMATA tariff and other actual charges levied by each transit provider; the updated fare tariffs provided the basis for future analysis years. Transit operating policies, such as hours and frequency of service, are updated annually and modeled explicitly to reflect actual conditions in the peak

Exhibit 27

Conformity Criteria

All Actions at all times:	
Sec. 93.110	Latest planning assumptions.
Sec. 93.111	Latest emissions model.
Sec. 93.112	Consultation.
Transportation Plan:	
Sec. 93.113(b)	TCMs.
Sec. 93.118 or Sec. 93.119	Emissions budget or Emission reduction.
TIP:	
Sec. 93.113(c)	TCMs.
Sec. 93.118 or Sec. 93.119	Emissions budget or Emission reduction.
Project (From a Conforming Plan and TIP):	
Sec. 93.114	Currently conforming plan and TIP.
Sec. 93.115	Project from a conforming plan and TIP.
Sec. 93.116	CO and PM10 hot spots.
Sec. 93.117	PM10 control measures.
Project (Not From a Conforming Plan and TIP):	
Sec. 93.113(d)	TCMs.
Sec. 93.114	Currently conforming plan and TIP.
Sec. 93.116	CO and PM10 hot spots.
Sec. 93.117	PM10 control measures.
Sec. 93.119	Interim emissions in areas without motor vehicle emissions budgets

and off-peak hours. The overall travel demand modeling process is continually monitored and refined as needed to reflect changing conditions, whether related to travel patterns, TERM effectiveness or other changes, as new data become available.

Sec. 93.111 Criteria and procedures: Latest emissions model.

The current analysis used MOBILE6.2, the latest emission factor model specified by EPA for use in preparation of state implementation plans and conformity assessments.

Sec. 93.112 Criteria and procedures: Consultation.

As discussed in Chapter IV, appropriate and extensive interagency and public consultation procedures have been followed throughout this analysis.

Sec. 93.113 Criteria and procedures: Timely implementation of TCMs.

The policy element of the 2006 CLRP specifically addresses the implementation of projects and measures designed to achieve air quality attainment goals. Previous TIPs contained CMAQ-funded TERMs and TCM projects which are elements of the regional ozone attainment plan. As a means of addressing this section of the conformity regulations, implementing agencies prepared progress reports on the implementation status of each of these projects. Appendix I contains the responses from each implementing agency, which document the implementation progress. Some are subject to normal delays associated with the programming process.

Exhibit 28 summarizes funding totals by category in the Annual Element of the FY2007-2012 TIP. As seen in the table, almost 40% of programmed expenditures address transit, ridesharing and bikeways.

EXHIBIT 28

FUNDING CATEGORIES
IN THE ANNUAL ELEMENT OF THE FY2007-2012 TIP

CATEGORY	TOTAL ANNUAL ELEMENT COST (000's)
Transit	
Capital	$ 950,700
Operating	$ 715,800
Highway	$ 2,533,300
Wilson Bridge	$ 259,000
Ridesharing	$ 8,300
Bikeways	$ 58,100
TOTAL	$ 4,525,200

Sec. 93.114 Criteria and procedures: Currently conforming transportation plan and TIP.

There is a currently conforming plan and program in the Washington region. This current conformity analysis is designed to update and supersede the (conforming) FY2006-2011 TIP and the (conforming) 2005 CLRP, adopted by the TPB in October, 2005.

Sec. 93.115 Criteria and procedures: Projects from a plan and TIP.

All projects advanced for implementation will come from a conforming plan and program.

Sec. 93.116 Criteria and procedures: Localized CO and PM10 violations (hot spots).

Any project advanced to the FY2007-2012 TIP must first have met this criterion as an element of its environmental study. (The Washington area is now in attainment for both carbon monoxide and PM10.)

Sec. 93.117 Criteria and procedures: Compliance with PM10 and PM2.5 control measures.

The Washington area is in attainment for PM10. TPB staff is currently working on a conformity analysis for PM2.5, and plans to present the results in a supplemental report in the late Fall of 2005.

93.118 Motor vehicle emissions budget

As discussed in Chapter II, part B, this analysis includes use of the existing 1-hour ozone budgets since the SIP work creating budgets relevant to the 8-hour standard is not yet complete. As discussed in Chapter III, total VOC, NOx and CO emissions for all program and plan milestone analysis years are well within their respective emissions budgets.

Sec. 93.119 Criteria and procedures: Interim emissions in areas without motor vehicle budgets

The forecast year PM2.5 pollutant emissions are below those of the 2002 base year.

NOTE: See EPA's May 6, 2005 conformity regulations for the full text associated with each section's requirements.

VI. FINDINGS

The analytical results described above provide a basis, in relation to US EPA conformity regulations, for a determination of conformity of the year 2006 Constrained Long Range Plan and the FY2007-2012 Transportation Improvement Program for The Washington Metropolitan Region, with requirements of the Clean Air Act Amendments of 1990.