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AIR QUALITY CONFORMITY DETERMINATION
OF THE CONSTRAINED LONG RANGE PLAN
AND THE FY99-2004
TRANSPORTATION IMPROVEMENT PROGRAM
FOR THE
WASHINGTON METROPOLITAN REGION



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JULY 15, 1998

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NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
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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 Constrained Long Range Plan (CLRP) and the FY99-2004 Transportation Improvement Program (TIP) with respect to air quality conformity requirements under the 1990 Clean Air Act Amendments. The assessment used the criteria and procedures contained in the Environmental Protection Agency (EPA)'s final conformity rule, published in the November 24, 1993 Federal Register with amendments on August 7, 1995, November 14, 1995 and August 15, 1997. The assessment is a responsibility of the National Capital Region Transportation Planning Board.

The report presents an overview of the conformity requirements contained in the legislation 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 the volatile organic compound, nitrogen oxide and carbon monoxide emissions budgets established by the Metropolitan Washington Air Quality Committee and approved for conformity analyses by the EPA. These results provide a basis for a determination of conformity of the CLRP and the FY99-2004 TIP.

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EXECUTIVE SUMMARY

This report documents the air quality conformity assessment of the Constrained Long Range Plan (CLRP) and the FY99-2004 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 on August 7 and November 14, 1995 and August 15, 1997. The process involved consultation with affected agencies such as the U.S. Environmental Protection Agency (EPA), Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and 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 includes comparison of mobile source emissions estimates (developed for specified transportation plan and program years) to emissions budgets for volatile organic compounds (VOC), nitrogen oxides (NO_x), and carbon monoxide (CO) established by MWAQC. Emissions were developed for the TIP (1999) and the CLRP (2005, 2010 and 2020) using both network analysis and off-line emissions assessment. These measures include Congestion Mitigation and Air Quality (CMAQ) projects and similar projects in the plan and program which are funded by other than CMAQ monies. The results show that the CLRP and the FY99-2004 TIP demonstrate adherence to each mobile source emissions budget for all forecast years.

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 CLRP and the FY99-2004 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 CLRP and the FY99-2004 TIP.

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13. Transportation Assessment, National Air & Space Museum Facility at Washington Dulles International Airport, February 1997, Barton-Aschman Associates, Inc.
14. December 31, 1997 letter from Judith M. Katz, EPA to W. David Watts, D.C. Department of Consumer & Regulatory Affairs, regarding adequacy for conformity determinations of mobile source budgets in Phase I Attainment Plan.

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 DPW	District of Columbia Department of Public Works
DTP	(COG's) Department of Transportation Planning
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
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. 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 must be 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 nonattainment 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 nonattainment 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 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 (Reference 2), Transportation Planning Board Consultation Procedures with Respect to Transportation Conformity Regulations Governing TPB Plans and Programs. (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 nonattainment 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. These procedures are documented in FY94 Development Program for MWCOG Travel Forecasting Models, Volume A: Current Applications (Reference 3) and meet 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 with the submission by the District of Columbia, Maryland and Virginia air management agencies of MWAQC's Phase I Attainment Plan (Reference 12) to EPA and with EPA's subsequent review and adequacy determination of the budgets (correspondence contained as Reference 14). These actions move the Washington area away from "interim period" and "transitional period" conformity classifications and into a "control strategy" status, i.e., rather than demonstrating progress towards mobile source emissions reductions, the plans and program now must adhere to an emissions budget for each pollutant. Accordingly, the scope of work for this year's air quality conformity assessment was developed to perform emissions budget tests in lieu of the "action-baseline" emissions analyses.

C. REPORT ORGANIZATION

Chapter III of this report documents the technical methods utilized and results obtained in analyzing the CLRP and the FY99-2004 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 the old and new requirements of the conformity regulations, as well as requirements associated with, and comments received upon, past conformity analyses. This included: forecast years representing 1999, 2005, 2010 and 2020; use of a newly completed set of land activity forecasts for the region (Round 6a Cooperative Forecasts); use of the refined travel demand modeling process which incorporates the recycling of congested highway speeds back into trip distribution (Reference 3 - FY94 Development Program For MWCOG Travel Forecasting Models, Volume A: Current Applications); use of updated travel demand and emissions procedures to enable a more accurate representation of higher speeds and associated emissions (Reference 6); use of a 'special generator' approach to reflect travel characteristics associated with the Maryland football stadium in Prince George's County (Reference 7); estimation of wintertime carbon monoxide (CO) emissions through time to ensure adherence to the CO emissions budget, established in the past in conjunction with the region's being redesignated as attainment for CO (Reference 8); use of

procedures developed in the conduct of the Wilson Bridge MIS (Reference 10) to reflect the impacts on travel demand of tolls, and use of a special generator approach to reflect travel associated with the proposed National Air and Space Museum Facility at Dulles Airport (Reference 13). Staff conducted a parallel technical process to identify and analyze transportation emission reduction measures (TERMs), under the oversight of the TPB Technical Committee and its Travel Management Subcommittee. This work is documented in Reference 11.

Staff drafted a work program for the analysis and presented it to regional technical and policy committees starting in January of this year. 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, subsequently revised to reflect review comments, formed the basis for this year's conformity work program.

B. OVERVIEW

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.

This represents the approach taken in previous SIP planning activities at COG (Reference 4), to prepare comprehensive mobile source inventories for the nonattainment area. Earlier conformity analyses addressed only travel related emissions, associated with the modeled area. These different coverage areas, the MSA and the transportation modeled area, are shown in Exhibit 2. While the earlier conformity analyses could be completed considering only the modeled portion of the MSA, with subsequent requirements relating to emissions budgets associated with the 15% VOC reduction plan (Reference 5) and emissions reductions for the nonattainment area, MSA-based totals have been incorporated into the analysis.

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.

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 1

Analysis Structure for On-Road Mobile Source Emissions

	<u>Transportation Component</u>	X	<u>Emission Factor</u>	=	<u>Emissions</u>
A. Travel	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. Vehicle	4. Number of vehicles (gasoline fueled)		Diurnal rate (g/day)		Diurnal evaporative
	5. Number of vehicles (gasoline fueled)		Resting loss (g/day)		Resting loss
C. Additional	6. Auto access to transit		Travel components (above)		Startup, running, hot soak
	7. Bus VMT		(HDDV) Stabilized rate (g/mile)		Running

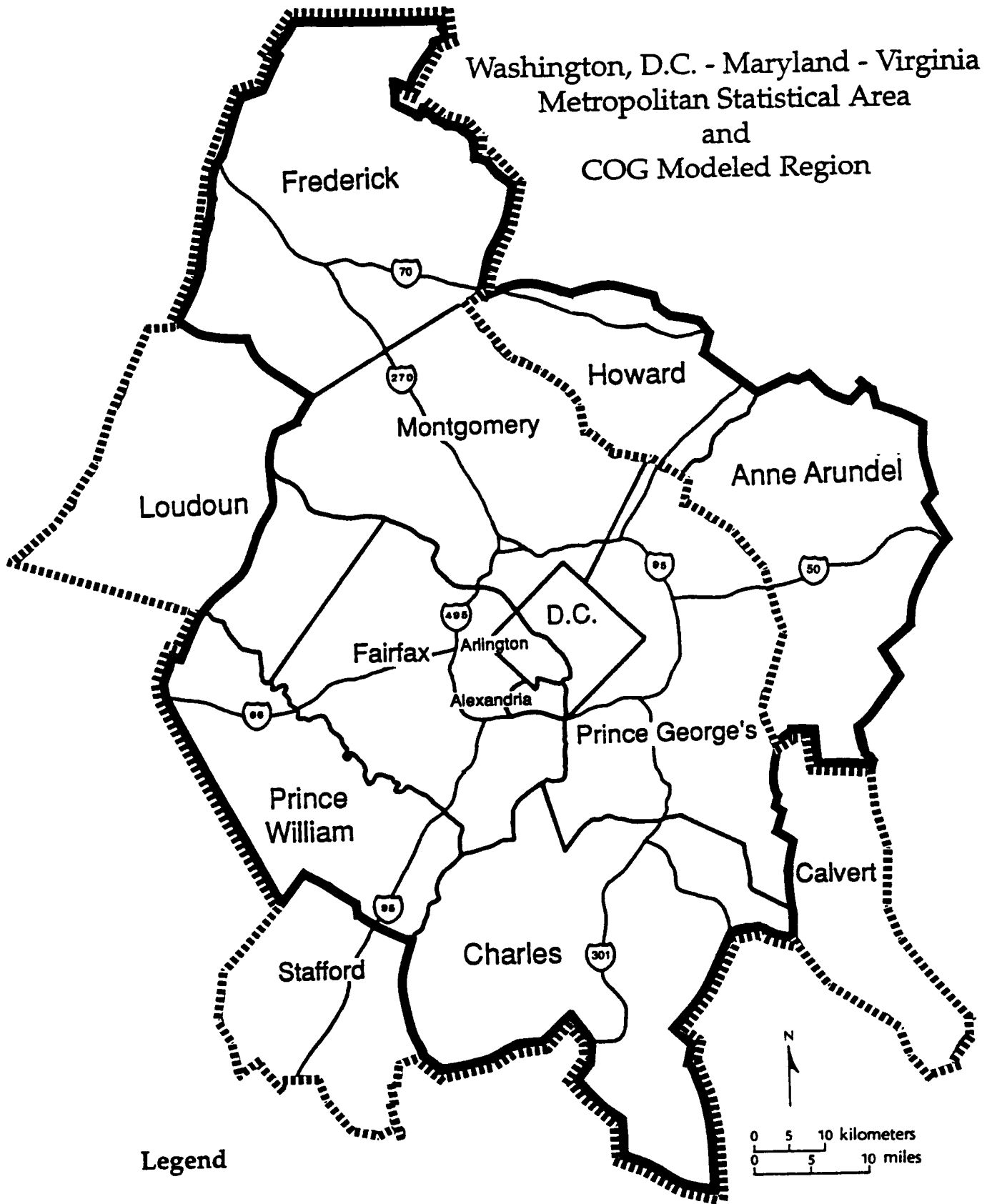


Exhibit 3 presents an overview of the network analysis work activities and shows their interrelationship. This schematic illustrates the major operations only. It is useful, however, in conveying an overview of the major steps of the emissions calculation process from a data processing vantage. The "post-processor" is the emissions calculation software in use at COG for conformity analyses and SIP planning. Spreadsheets 1 - 4 address calculations required in assessing exurban, vehicle, auto access and 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.

C. TRAVEL FORECASTS

As described above, the preparation of travel forecasts for each of the conformity alternatives was carried out using the "speed feedback" refinements to the COG/TPB forecasting methods. These procedures represent refinements to prior methods, developed as a part of continuing model development efforts to upgrade the travel demand forecasting process. The procedures are now routinely used in production for regional analysis at COG and will continue to form the basis for future regional long range and project planning activities. Another modeling refinement contained in this year's analysis consists of the representation of the proposed Air and Space Museum at Dulles Airport (Reference 13) as a 'special generator'. This is similar to the refinement (documented in Reference 7) developed during FY96 COG work program activities to reflect travel associated with the Maryland football stadium in Prince George's County, which is now an element of the travel demand forecasting process.

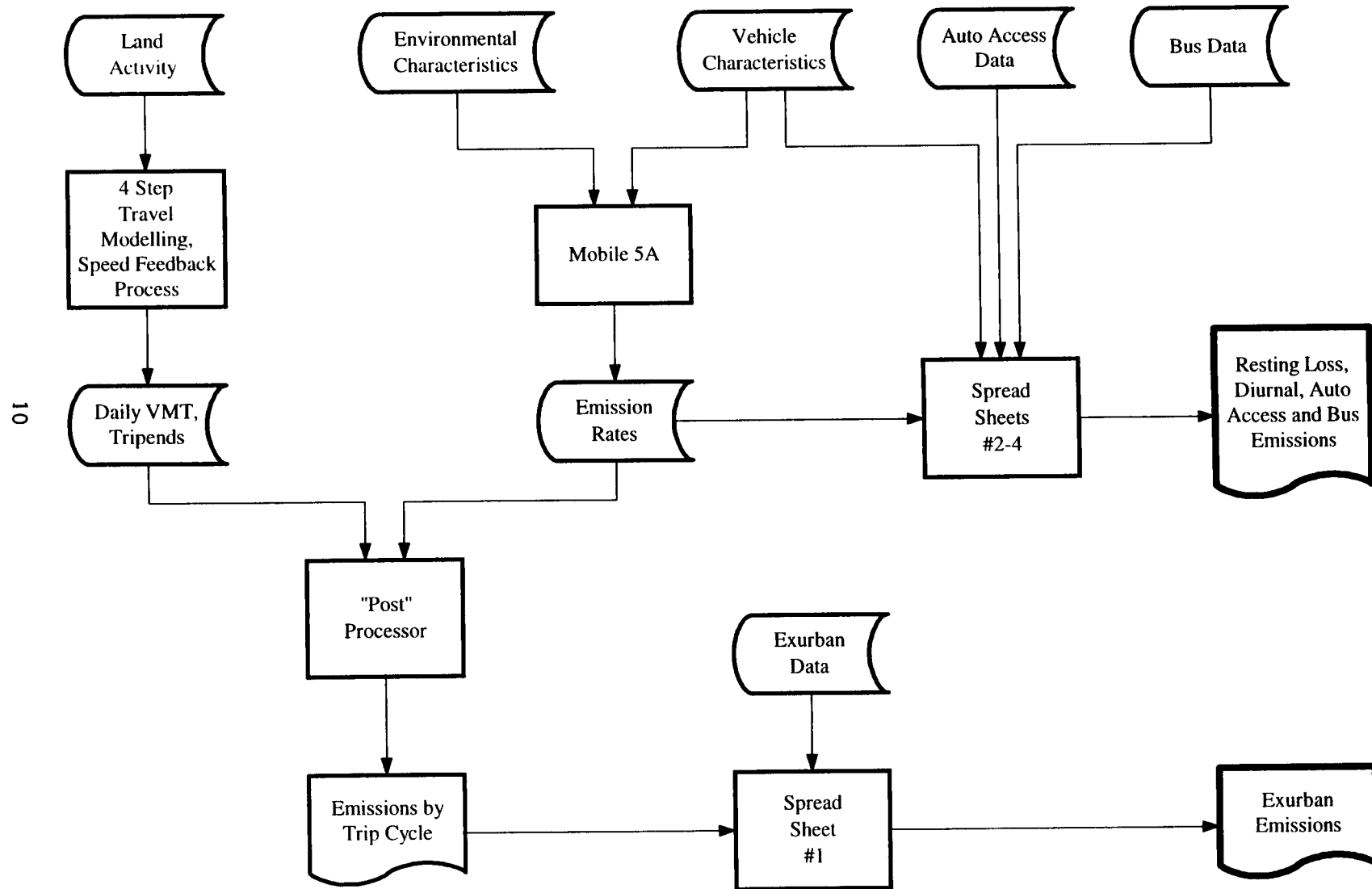
Similarly, other recent revisions to the travel demand and emissions estimation process resulted from an analysis (Reference 6) performed by staff for the TPB during FY96 examining the impacts of proposed higher speed limits in Maryland and Virginia. As part of this analysis, updated procedures to better reflect actual operating conditions were developed and are now formal elements of the overall process. Finally, in FY96 and FY97 staff performed developmental work to assess the impacts of tolls as part of the Wilson Bridge MIS. As a result of this study, in January 1997 the TPB amended the CLRP to add a new element - a widened bridge containing a \$1.00 toll in each direction. The procedures used to perform this travel demand assessment (Reference 10) have been incorporated into COG/TPB's regional forecasting process and were applied in this assessment.

Network Development

Work on this task began this past winter with the request for project inputs to the CLRP and the FY99-2004 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.

EXHIBIT 3

ON-ROAD MOBILE SOURCE EMISSIONS CALCULATIONS



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

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 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).

Exhibit 2 presented the geographic areas analyzed as a part of this analysis. The map delineates the current COG/TPB modeled area, as well as the nonattainment or MSA area. Consistent with previous analysis, while Calvert County, Maryland, and the western part of Loudoun County and Stafford County, Virginia are not included in the modeled area, emissions in these areas were explicitly considered through other techniques used in air quality planning. This is described later in this chapter. Staff efforts are currently underway to expand the modeled area to include the entire MSA.

Howard and Anne Arundel counties are members of the Baltimore Metropolitan Council (BMC) planning region. Since these areas are included within the COG modeled area (to enable better simulation results in Montgomery and Prince George's counties), project inputs for these two areas were also included, provided through the coordination efforts of the Maryland Department of Transportation (MDOT) and the BMC. While these two counties are included within the travel demand and emissions estimation procedures, since mobile source emissions are inventoried and analyzed at the MSA (nonattainment) level emissions within Howard and Anne Arundel counties are removed from the analysis. Inputs from Charles County were also received from MDOT and are included in the analysis.

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.

EXHIBIT 4

5/19/98

MAJOR TRANSIT IMPROVEMENTS FROM 1990:

	SERVICE	LIMIT
1999 Program:		
	Metrorail	King Street to Van Dorn Street
	Metrorail	L'Enfant Plaza to Anacostia
	Metrorail	Gallery Place to U Street/Cardozo
	Metrorail	Silver Spring to Glenmont
	Metrorail	Union Station to Greenbelt
	Metrorail	Van Dorn to Franconia / Springfield
	VRE	Feeder Bus Service
	VRE	Manassas Line
	VRE	Fredericksburg Line
	VRE	Franconia/Springfield Station
	VRE	Lorton Commuter Rail Station
	BUS	Dulles Corridor Bus Service (1999 routes)
2005 Plan:		
		SAME AS 1999, PLUS
	Metrorail	Anacostia to Branch Avenue
	Metrorail	Addison Road to Largo
	Metrorail / VRE	Potomac Greens Metro / VRE Station
	VRE	Cherry Hill Station
	VRE	Western Fairfax Station
	MetroRail / Marc	Silver Spring Intermodal Transit Facility
	MARC	Frederick to Pt. of Rocks

EXHIBIT 4

5/19/98

MAJOR TRANSIT IMPROVEMENTS FROM 1990:

	SERVICE	LIMIT
2010 PLAN:		
	Georgetown Branch Light Rail BUS	SAME AS 2005, PLUS Silver Spring to Bethesda Dulles Corridor Bus Service (2010 routes)
2020 PLAN:		
	BUS	SAME AS 2010, PLUS US 301 Corridor Bus Service

EXHIBIT 5

5/19/98

CODED HOV IMPROVEMENTS FROM 1990 BASE:

	FACILITY	IMPROVEMENT	LIMITS	DEFINITION
1999 Program:				
	I-95	Construct	Springfield to Quantico Creek	3+
	I-66	Modify	Inside Beltway	3+
	I-66	Construct	I-495 to US 50	2+
	I-66	Construct	US 50 to VA 234	2+
	I-270	Construct	Eastern Spur	2+
	I-270	Re-sign	NB "Y" to I-370	2+
	I-270	Const./Re-sign	I-370 to MD 121	2+
	I-270	Construct	Western Spur	2+
	I-270	Re-sign	SB I-370 to "Y"	2+
	Dulles Toll Road	Construct	VA 28 to I-495	2+
2005 Plan:				
		SAME AS 1999, PLUS		
	I-66	Construct	US 15 to VA 234	3+
	US 50	Construct	US 301 / MD 3 to W. of MD 410	3+
2010 Plan:				
		SAME AS 2005 EXCEPT ALL HOV FACILITIES TESTED AS 3+, PLUS		
	I-395	Widen	14th Street Bridge to I-495 (3 HOV lanes)	3+
	I-95	Widen	I-495 to Quantico Creek (3 HOV lanes)	3+
	I-95	Construct	Quantico Creek to PW/Stafford Line	3+
	MD 4	Construct	MD 223 to I-95 /I-495	3+
	Fairfax Co. Pkwy.	Construct	Franconia/Springfield Pkwy. to VA 640	3+
	Fran./Sprfld. Pkwy.	Construct	Ffx. County Pkwy. to Frontier Drive	3+

EXHIBIT 5

5/19/98

CODED HOV IMPROVEMENTS FROM 1990 BASE:

	FACILITY	IMPROVEMENT	LIMITS	DEFINITION
2020 PLAN:				
		SAME AS 2010, PLUS		
	I-495	Construct	I-395/I-95 to Dulles Toll Road	3+

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EXHIBIT 6
06/05/98
RAIL AND ROAD MILES

	LOV LANE MILES	HOV LANE MILES	METRORAIL MILES	MARC RAIL MILES	VRE RAIL MILES
	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
1990	13,170	40	69	104	0
1999 PROGRAM	14,560	185	97	118	82
2005 PLAN	15,030	215	106	118	82
2010 PLAN	15,570	257	106	122*	82
2020 PLAN	16,040	280	106	122*	82

* INCLUDES TOTAL FOR GEORGETOWN BRANCH LIGHT RAIL

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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 5.2, Round 5.3 and Round 5.4 updates were executed for the analysis of the FY96, FY97 and FY98 TIPs. In April 1998 the COG Board approved Round 6a forecasts for testing of the FY99-2004 TIP and these land activity forecasts were used in the current analysis.

Exhibit 7 presents Round 6a household data for the 1990 base and each of the forecast years in the conformity assessment and shows a 47% increase by the year 2020 throughout the modeled area. Exhibit 8 presents similar data for the employment assumptions and shows a 43% increase over this period.

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 1987/88 Home Interview Survey. Separate trip tables were prepared for home based work person travel (for input to the mode choice modeling process) and for all other travel, i.e., nonwork purposes, taxi, visitor/tourist, school and through trips.

The work 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 are 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 for work purpose travel are shown in Exhibit 9. Summary results from the last iteration of the process, for all trip purposes, are shown in Exhibit 10. This table shows vehicle trips in the region increasing by two thirds, from twelve and one half million in 1990 to more than twenty one million in the year 2020.

Modal Choice

Updated transit elements include modification of bus routes to reflect updated service. Transit elements in D.C., Maryland and Virginia are very similar to last year's with some slight changes in project completion dates. Transit networks were coded for all forecast years and mode choice analyses were executed based upon specific transit representations for 1999, 2005, 2010 and 2020. Additional detail regarding these technical methods is contained in Appendix C.

EXHIBIT 7

HOUSEHOLD DATA

COG REGION:	1990	1999	2005	2010	2020	1999/1990	2005/1990	2010/1990	2020/1990
D.C.	249,634	221,853	221,801	233,998	257,304	0.89	0.89	0.94	1.03
MONT	281,867	311,808	335,004	355,010	390,007	1.11	1.19	1.26	1.38
PG	258,003	289,837	309,491	325,139	356,777	1.12	1.20	1.26	1.38
ARL	78,520	89,461	94,004	97,399	104,114	1.14	1.20	1.24	1.33
ALEX	53,280	60,501	63,554	65,542	68,609	1.14	1.19	1.23	1.29
FFX	303,899	351,639	379,824	404,035	460,433	1.16	1.25	1.33	1.52
LDN	23,106	41,435	56,735	69,610	94,992	1.79	2.46	3.01	4.11
PW	81,371	105,355	121,577	134,721	159,955	1.29	1.49	1.66	1.97
FRED	52,570	68,930	79,397	88,227	105,887	1.31	1.51	1.68	2.01
SUBTOTAL	1,382,250	1,540,819	1,661,387	1,773,681	1,998,078	1.11	1.20	1.28	1.45
OUTER COUNTIES:									
HOW	68,337	92,160	108,600	117,700	122,400	1.35	1.59	1.72	1.79
AA	149,114	173,421	188,500	197,100	217,000	1.16	1.26	1.32	1.46
CHAS	32,950	42,135	48,260	53,270	66,703	1.28	1.46	1.62	2.02
SUBTOTAL	250,401	307,716	345,360	368,070	406,103	1.23	1.38	1.47	1.62
TOTAL	1,632,651	1,848,535	2,006,747	2,141,751	2,404,181	1.13	1.23	1.31	1.47

SOURCE:
MWCOG Round 6a Cooperative Forecasts
BMC Round 5-A Cooperative Forecasts

EXHIBIT 8
EMPLOYMENT DATA

COG REGION:	1990	1999	2005	2010	2020	1999/1990	2005/1990	2010/1990	2020/1990
D.C.	747,316	708,069	729,319	768,514	832,303	0.95	0.98	1.03	1.11
MONT	465,505	492,676	540,004	580,013	630,010	1.06	1.16	1.25	1.35
PG	310,326	322,031	359,270	387,296	451,659	1.04	1.16	1.25	1.46
ARL	183,127	199,271	207,533	228,885	260,207	1.09	1.13	1.25	1.42
ALEX	92,209	97,229	105,783	110,369	115,890	1.05	1.15	1.20	1.26
FFX	443,823	550,734	626,117	666,783	731,862	1.24	1.41	1.50	1.65
LDN	34,801	62,470	83,856	101,962	137,925	1.80	2.41	2.93	3.96
PW	84,422	109,430	129,312	145,591	173,190	1.30	1.53	1.72	2.05
FRED	54,000	79,202	96,000	106,021	116,004	1.47	1.78	1.96	2.15
SUBTOTAL	2,415,529	2,621,112	2,877,194	3,095,434	3,449,050	1.09	1.19	1.28	1.43
OUTER COUNTIES:									
HOW	106,268	135,754	153,104	164,405	187,006	1.28	1.44	1.55	1.76
AA	245,899	271,102	289,790	302,778	313,495	1.10	1.18	1.23	1.27
CHAS	38,718	49,402	54,528	58,200	61,400	1.28	1.41	1.50	1.59
SUBTOTAL	390,885	456,258	497,422	525,383	561,901	1.17	1.27	1.34	1.44
TOTAL	2,806,414	3,077,370	3,374,616	3,620,817	4,010,951	1.10	1.20	1.29	1.43

SOURCE:
MWCOG Round 6a Cooperative Forecasts
BMC Round 5-A Cooperative Forecasts

EXHIBIT 9

FY99-04 TIP/CLRP AIR QUALITY CONFORMITY REGIONAL HOME BASED WORK PURPOSE MODE ANALYSIS BY YEAR (Based on Mode Choice Output)

YEAR	HBW PERSON	TOTAL AUTO PSN	LOV AUTO DRV	HOV AUTO DRV	TOTAL AUTO DRV	HBW CAROCC	HBW TRANSIT	TRANSIT (%)
1990	3,631,630	3,131,958	2,669,160	20,612	2,689,772	1.164	499,603	13.76
1999 PROGRAM	4,378,035	3,836,901	3,251,416	42,464	3,293,880	1.165	541,085	12.36
2005 PLAN	4,897,558	4,288,558	3,617,234	63,276	3,680,510	1.165	608,988	12.43
2010 PLAN	5,318,996	4,650,308	3,915,994	60,350	3,976,344	1.169	668,697	12.57
2020 PLAN	6,091,369	5,302,480	4,409,247	93,354	4,502,601	1.178	788,821	12.95

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

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EXHIBIT 10

FY99-04 TIP/CLRP AIR QUALITY CONFORMITY REGIONAL VEHICLE TRIPS BY PURPOSE BY YEAR (Based on Final Iteration)

YEAR	HBW AUTO DRV	NON-WORK ADR TRIPS	TRUCKS (Med + Hvy)	MISC + THRU TRIPS	TOTAL VEH. TRIPS	TOTAL VMT
1990	2,692,070	8,984,915	352,692	540,546	12,570,007	101,946,610
1999 PROGRAM	3,664,116	10,951,145	398,687	650,584	15,301,237	128,057,795
2005 PLAN	3,689,246	12,227,629	438,726	726,646	17,081,803	143,809,112
2010 PLAN	3,993,420	13,235,255	472,002	787,684	18,488,006	156,506,887
2020 PLAN	4,548,320	15,080,983	533,548	919,358	21,082,209	183,060,474

As stated above, Exhibit 9 presents a summary of the results of the mode choice analysis. The table shows nearly a sixty percent increase in transit travel to the year 2020. Modal share for transit decreases slightly during this period from 13.8 to 13 percent.

Traffic Assignment

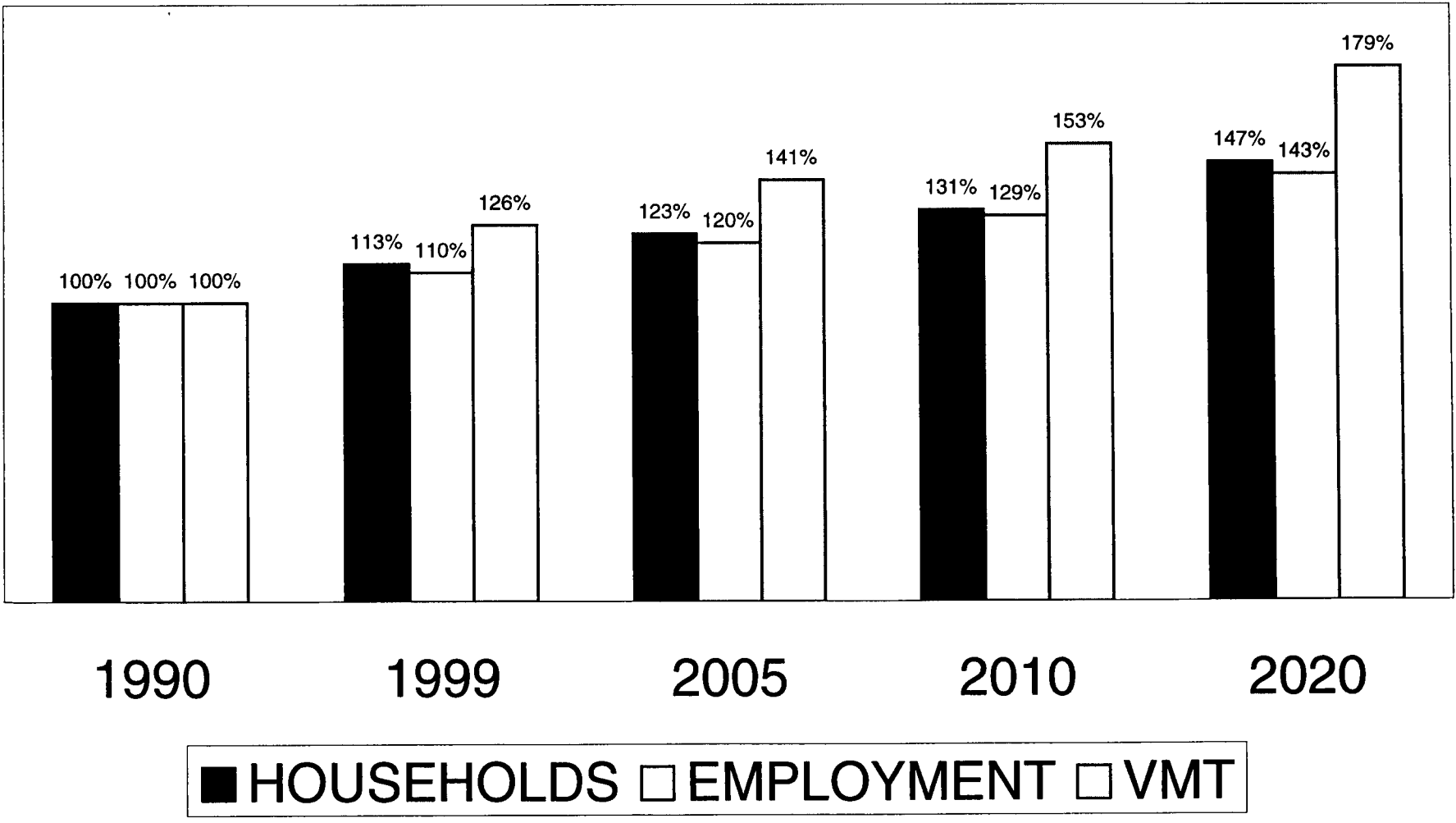
Following the preparation of total vehicle travel demands, the resulting table was applied in traffic assignment to estimate vehicle loadings on each facility in the region. After two iterations of the process using the speed feedback procedures, this concluded the traditional travel forecasting elements 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 "C" service volumes) for the p.m. peak hour were prepared and are presented as Exhibit 12. The figure shows that forced flow conditions will approximately triple between 1990 and 2020, accounting for nearly three fourths of all travel in the peak hour.

D. EMISSION RATES

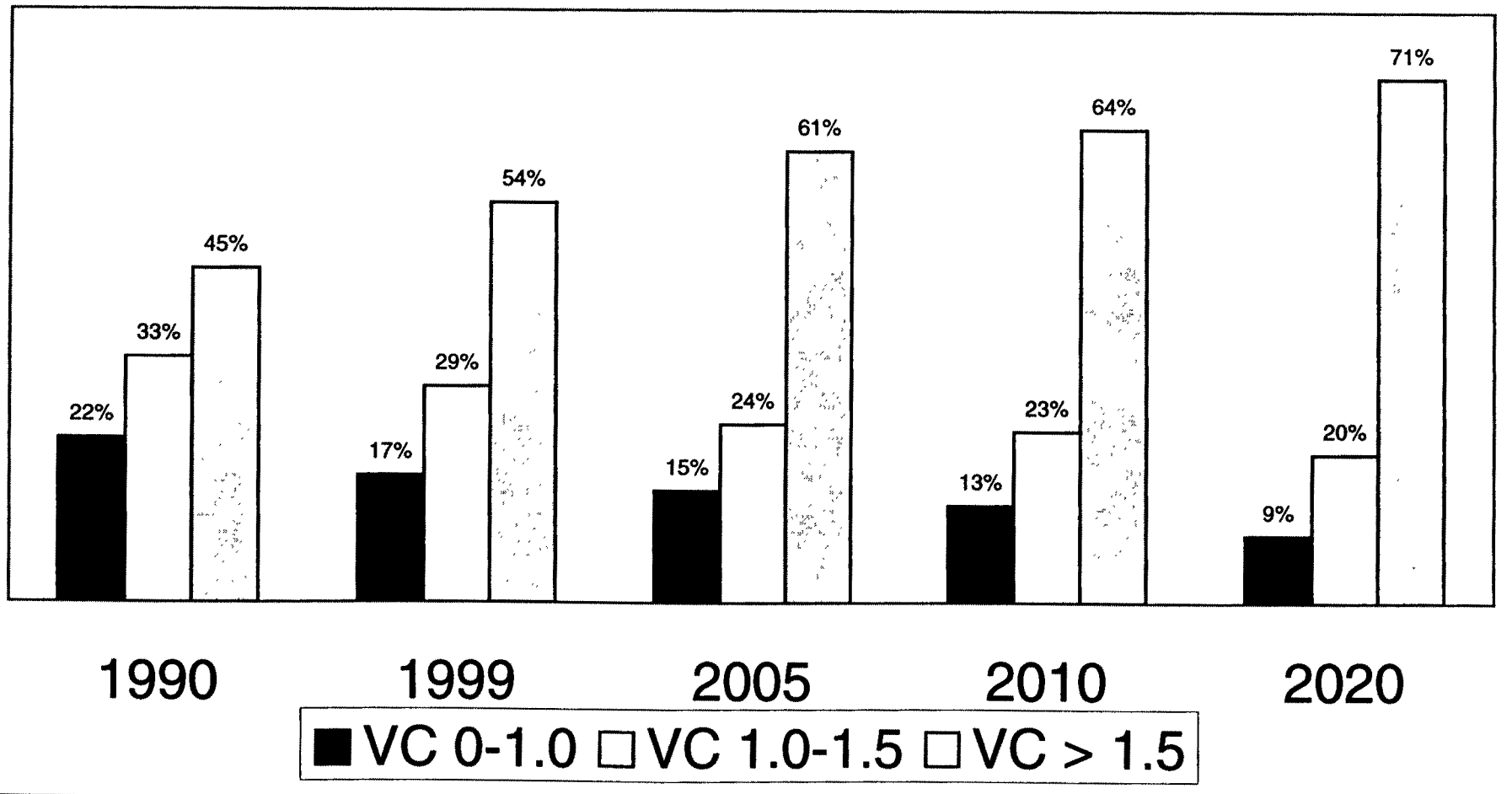
COG'S Department of Environmental Programs has the responsibility of developing mobile source emission factors for wintertime CO and for ozone precursors, i.e., the rates of volatile organic compounds, carbon monoxide, and nitrogen oxide produced by cars and trucks on the highway system. This work involved (with contractor assistance) the application of EPA's MOBILE model, (version 5a) 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).

EXHIBIT 11 VMT vs CHANGES IN LAND ACTIVITY



23

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



Exhibits 13 and 14 illustrate average VOC and NOX emission factors, respectively, (using District of Columbia vehicles as an example) by speed range for 1990 through 2020. These curves illustrate the effects of reduced volatility of gasoline, cleaner vehicles in the region through time due to fleet turnover, and other legislated changes such as enhanced vehicle inspection/maintenance programs.

Appendix D documents the input assumptions and Appendix E documents the emission factor results of this work, which, since the current emission factor model is still MOBILE5a, remains the same as last year's inputs, except for the use of 2005 as an explicit forecast year and the use of EPA's Fall 1997-promulgated heavy duty engine rule credits as an explicit assumption in year 2010 and 2020.

E. EMISSIONS CALCULATIONS

Whereas, earlier conformity analyses have addressed TPB plans and programs by estimating their emissions impacts on the Washington region's "modeled area", i.e., that area covered by COG/TPB computer networks, these results now provide only the first major step towards construction of total mobile source emissions. Staff had to execute a series of additional work tasks in order to compile a comprehensive mobile source emissions inventory for the Washington nonattainment area, defined as the District of Columbia, Maryland and Virginia MSA.

Two different types of activities are involved in this estimation. The first is to address the differences in the geographic areas and the second deals with preparing estimates of emissions associated with diurnals, resting losses, and 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. Exhibit 15 incorporates the analysis structure seen in Exhibit 1, with the data processing flows seen in Exhibit 3 providing an overview of the process. The exhibit also identifies where each calculation takes place. The following sections address the calculation of emissions for the modeled area, the relationship of the two different areas, and the calculation of emissions for the MSA.

Modeled Area

Regional travel demands for each alternative (consisting of trip ends, assigned daily volumes, and related information such as capacity, facility type, distance, etc., at the link level), were used to develop travel characteristics required for the calculation of emissions. In this work a "post-processor" consisting of a detailed set of traffic estimation procedures was executed to convert the daily travel into hourly estimates and to compute vehicle miles traveled (VMT) and associated speeds. Emission factors were then applied to the travel data to compute ozone season VOC, carbon monoxide and nitrogen oxide emissions and wintertime CO emissions.

EXHIBIT 13

TOTAL COMPOSITE RUNNING EMISSION FACTORS DISTRICT OF COLUMBIA FOR 1990, 1999, 2000, 2010 AND 2020

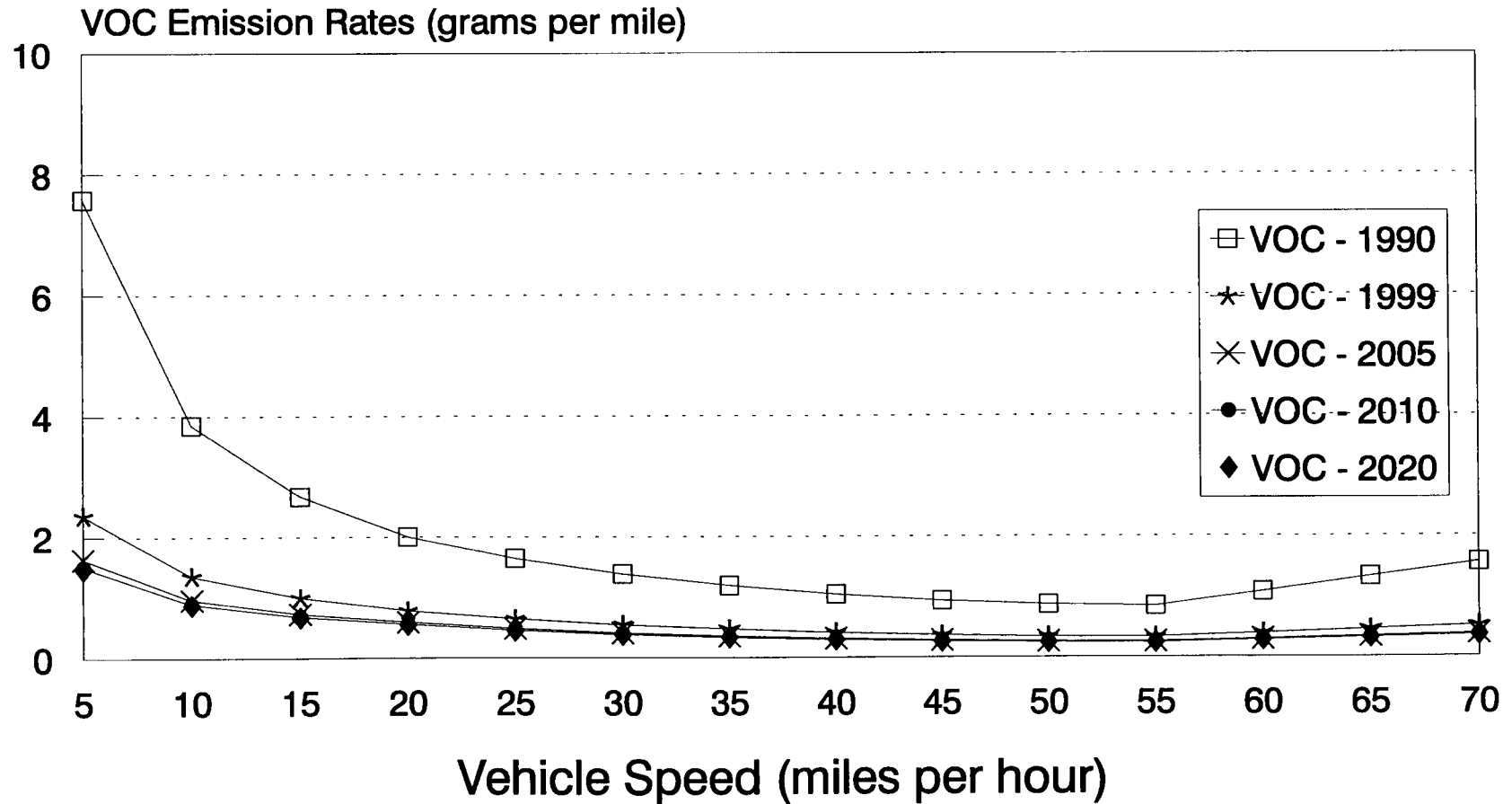
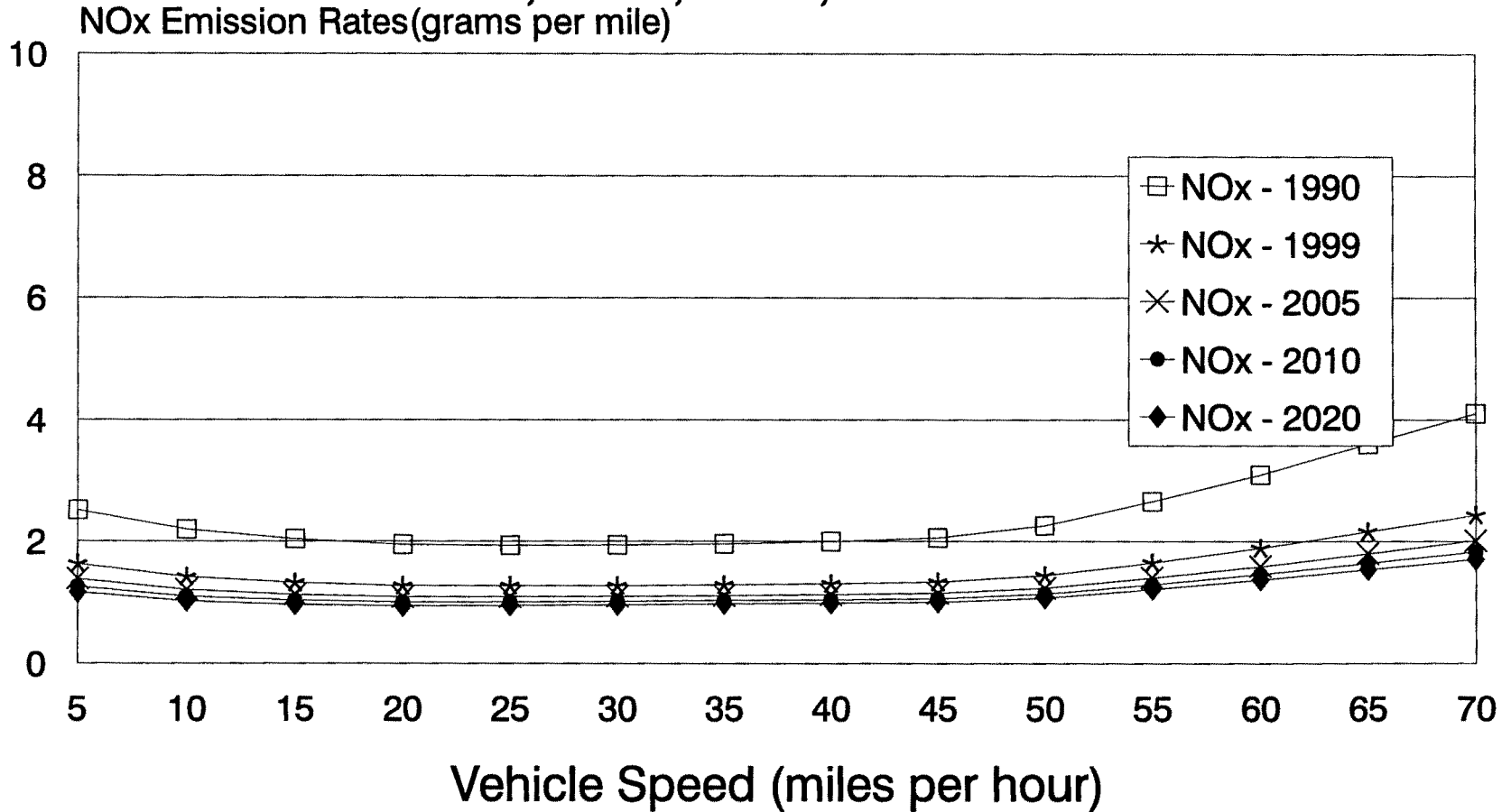


EXHIBIT 14

TOTAL COMPOSITE RUNNING EMISSION FACTORS DISTRICT OF COLUMBIA FOR 1990, 1999, 2005, 2010 AND 2020



Prepared by MWCOG, DTP 5/30/98 MOBILE5a
file:c9exh14.prs

EXHIBIT 15

EMISSIONS CALCULATION OVERVIEW						
				<u>EMISSIONS CALCULATION</u>		
<u>TRANSPORTATION COMPONENT</u>	X	<u>EMISSIONS FACTOR</u>	=	<u>EMISSIONS</u>	<u>URBAN</u>	<u>EXURBAN</u>
<u>Travel</u>						
Trip Origins		Cold start & hot transient rates (g/trip)		Startup	Post-processor	Spreadsheet #1
VMT		Stabilized rate (g/mile)		Running	Post-processor	Post-processor
Trip destinations		Hot soak rate (g/trip)		Hot soak (HC)	Post-processor	Spreadsheet #1
<u>Vehicle</u>						
Number of vehicles		Diurnal rate (g/day)		Diurnal Evaporative (HC)	Spreadsheet #2	
Number of vehicles		Resting loss (g/day)		Resting loss Evaporative (HC)	Spreadsheet #2	
<u>Additional</u>						
Auto access to transit		All travel components (above)		Startup, Running, Hot Soak	Spreadsheet #3	
Bus VMT		HDDV stabilized rate (g/mile)		Running	Spreadsheet #4	

Appendix E documents these procedures in detail. Exhibit 16 presents a summary of VMT, average speed and emissions results for the three pollutants, for each alternative. Exhibit 16b portrays the same information for wintertime CO conditions.

Relationship of Modeled Area and MSA

Technical assessments associated with the conformity analysis require examination of emissions for the MSA. Following the preparation of emissions for the "modeled area", staff had to develop emissions at the MSA level. This involved estimating emissions for Calvert County, Stafford County and the western portion (outside the modeling 'cordon') of Loudoun County and also removing Howard and Anne Arundel counties' emissions from the modeled area summary totals.

These areas are shown in Exhibit 2. Staff prepared emissions analyses for the MSA for all conditions and results are presented in the following section. The technical methods associated with performing these assessments are contained in Appendices F to I.

MSA-Based Emissions Inventories

The MSA-based results, for 1999 VOC emissions as an illustration, are shown in Exhibit 17. The exhibit presents emissions for each jurisdiction in the nonattainment 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.

EXHIBIT 16A

 AIR QUALITY CONFORMITY ANALYSIS - COG MODELED AREA
 TRANSPORTATION IMPROVEMENT PROGRAM AND CONSTRAINED LONG RANGE PLAN
 COMPARISON OF TRIP CYCLE EMISSIONS BY YEAR/ALTERNATE

TRIP CYCLE	1990 BASE	1999 PROGRAM	2005 PLAN	2010 PLAN	2020 PLAN
ORIGIN EMISSIONS:					
VEHICLE TRIPS	12,570,007	15,301,237	17,081,803	18,488,006	21,082,209
VOC (GM)	46,461,343	31,895,340	29,935,220	31,906,439	36,264,316
(TN)	51.2149	35.1586	32.9980	35.171	39.975
AVG RATE (GM/VEH)	1.3201	0.7445	0.6259	0.6164	0.614
CO(GM)	437,616,118	312,797,025	348,142,174	374,261,793	452,952,629
(TN)	482.3896	344.8000	383.7614	412.553	469.533
AVG RATE (GM/VEH)	12.4337	7.3009	7.2789	7.2298	7.216
NX (GM)	26,308,301	17,966,251	17,127,864	18,251,486	20,676,427
(TN)	29.0000	19.8044	18.8803	20.119	22.792
AVG RATE (GM/VEH)	0.7475	0.4193	0.3581	0.3526	0.350
RUNNING EMISSIONS:					
VMT	101,946,610	128,057,305	143,808,581	156,506,388	183,059,972
AVG SPEED (MPH)	40.51	41.00	40.42	39.85	38.36
VOC (GM)	123,472,764	60,627,882	51,006,066	53,330,356	63,120,638
(TN)	136.1055	66.8309	56.2246	58.7867	69.579
AVG RATE (GM/MI)	1.2112	0.4734	0.3547	0.3408	0.345
CO (GM)	1,571,456,102	664,026,353	619,960,290	649,785,051	778,609,184
(TN)	1732.2352	731.9644	683.3898	716.2660	858.270
AVG RATE (GM/MI)	15.4145	5.1854	4.3110	4.1518	4.253
NX (GM)	224,713,281	181,718,178	171,047,446	170,673,679	184,927,958
(TN)	247.7042	200.3102	188.5477	188.1357	203.848
AVG RATE (GM/MI)	2.2042	1.4190	1.1894	1.0905	1.010
DESTINATION EMISSIONS:					
ATTRACTIONS	12,570,007	15,301,237	17,081,803	18,488,006	21,082,209
VOC (GM)	36,547,138	13,295,703	9,044,436	8,412,236	9,080,874
(TN)	40.2864	14.6560	9.9698	9.2729	10.010
AVG RATE (GM/VEH)	2.9075	0.8689	0.5295	0.0538	0.431
TOTAL TRIP CYCLE					
VOC (TONS)	227.6068	116.6455	99.1924	103.2305	119.563

CO (TONS)	2,214.6248	1,076.7643	1,067.1512	1,128.8193	1,327.803
NX (TONS)	276.7042	220.1146	207.4279	208.2545	226.640

EXHIBIT 16B

**AIR QUALITY CONFORMITY ANALYSIS - COG MODELED AREA
 TRANSPORTATION IMPROVEMENT PROGRAM AND CONSTRAINED LONG RANGE PLAN
 COMPARISON OF TRIP CYCLE EMISSIONS BY YEAR/ALTERNATE
 WINTER CO EMISSIONS**

TRIP CYCLE	1990 BASE	1999 PROGRAM	2005 PLAN	2010 PLAN	2020 PLAN
ORIGIN EMISSIONS: VEHICLE TRIPS	12,570,007	15,301,237	17,081,803	18,488,006	21,082,209
CO (GM)	1,596,475,519	699,143,599	639,079,265	644,938,804	718,009,967
(TN)	1759.8145	770.6745	704.4649	710.9239	791.4712
AVG RATE (GM/VEH)	45.3595	16.3186	13.3617	12.4586	12.1634
RUNNING EMISSIONS:					
VMT	101,946,610	128,057,305	143,808,581	156,506,388	183,059,972
AVG SPEED (MPH)	40.50	41.00	40.42	39.85	38.36
CO (GM)	1,710,692,612	879,510,259	951,846,606	1,013,214,223	1,212,565,681
(TN)	1885.7174	969.4949	1049.2321	1116.8784	1336.6260
AVG RATE (GM/MI)	16.7803	6.8681	6.6188	6.4739	6.6239
TOTAL TRIP CYCLE					
CO (TONS)	3,645.5318	1,740.1694	1,753.6970	1,827.8023	2,128.0971

**EXHIBIT 17
FY 99-2004
DAILY MOBILE SOURCE EMISSIONS
BY JURISDICTION AND TRIP CYCLE
1999 PROGRAM
VOC TONS PER DAY**

JURISDICTION	ORIGIN	RUNNING		DESTINATION	VEHICLE RELATED EMISSIONS		TOTAL CYCLE
		NETWORK	LOCAL		DIURNAL	REST. LOSS	
DC	3.28	7.11	0.73	1.37	0.39	0.60	13.49
MONTG	5.13	9.22	0.91	2.06	0.91	1.33	19.56
PG	5.79	11.72	0.84	2.39	0.79	1.22	22.76
FRED	1.67	3.31	0.65	0.78	0.31	0.41	7.14
CHAS	1.02	1.15	0.30	0.45	0.18	0.25	3.34
CAL	0.54	0.56	0.24	0.24	0.11	0.15	1.85
ARL	1.67	2.91	0.26	0.70	0.23	0.34	6.12
ALEX	0.99	1.71	0.16	0.41	0.18	0.27	3.71
FFX	7.50	14.24	1.64	3.11	1.23	1.73	29.45
LDN	1.17	1.53	0.23	0.51	0.21	0.28	3.93
PR.W	2.21	3.41	0.45	0.94	0.43	0.63	8.07
STA	0.44	1.31	0.16	0.19	0.15	0.19	2.44
TOTAL	31.41	58.18	6.58	13.14	5.13	7.41	121.87
AUTO ACCESS							0.90
BUS							0.58
TOTAL EMISSIONS							123.35

Includes: Mobile 5a
1987/88 Home Interview Survey Cold Start %'s
3.6 Miles Startup at 25 mph
Local Street VMT at 25 mph

Exhibit 18 presents the emissions results for VOC for all plan and program years. The chart indicates that the emissions budget is maintained for all years.

Exhibit 19 presents the emissions results for NO_x for all plan and program analysis years. The chart shows that the NO_x emissions budget is respected for all forecast years. Exhibit 20 presents wintertime carbon monoxide (CO) emissions through time and a comparison with the CO emissions budget. The chart indicates that the emissions budget is maintained for all years.

F. NET EMISSIONS ANALYSIS

The preceding discussion has primarily focused on plan and program emissions analyzed through network-based methods. There are, however, a number of other projects contained in the plan and program which cannot be effectively modeled through the regional network-based methods. Emissions benefits associated with these projects have been estimated on an off-line basis, either by COG staff or by implementing agency staff. These include CMAQ-funded projects, which are advanced specifically as emissions-reducing projects. Exhibit 21 presents a listing of CMAQ funded projects in the FY99-2004 TIP and their associated emissions impacts. The exhibit indicates, however, that most of these projects have already been programmed and credited in previous TIPs. Exhibit 22 presents a similar list of additional such projects, which are not, however, funded with CMAQ monies. Exhibit 23 arrays these emissions-reducing projects on a cost-effectiveness basis.

Similarly, Exhibit 24 tracks the implementation status of previously planned and programmed projects, with emissions benefits estimated on an off-line basis. This exhibit provides a comprehensive summary of all projects previously considered in conformity analyses. Only those projects which have been affirmed by the appropriate implementing agency as having been implemented or being on a realistic path towards implementation are included for emissions credit. These projects are shown in shaded text in the exhibit. This summary was prepared following COG staff's review of implementation status reports prepared by programming agencies; the agency status reports are contained in Appendix L. The bottom line of this analysis indicates that substantial emissions benefits are associated with these projects, ranging from 1.7 and 2.3 tons/day of VOC and NO_x, respectively, in 1999, to 2.8 and 5.6 tons/day in 2020.

Exhibit 25 provides a comprehensive picture of the emissions analysis associated with the CLRP and FY99 TIP. As seen in the summary totals, emissions associated with the plan and program are well within the mobile source emissions budgets for each analysis year. COG staff, working with the TPB Technical Committee and its Travel Management Subcommittee, did assemble a group of TERMS available for adoption to mitigate any emissions increases. Given these emissions results, however, the programming of additional measures is not warranted at this time.

EXHIBIT 18
Mobile Source VOC Emissions
Plan and Program Alternatives
Metropolitan Statistical Area
Results of Summary Analysis

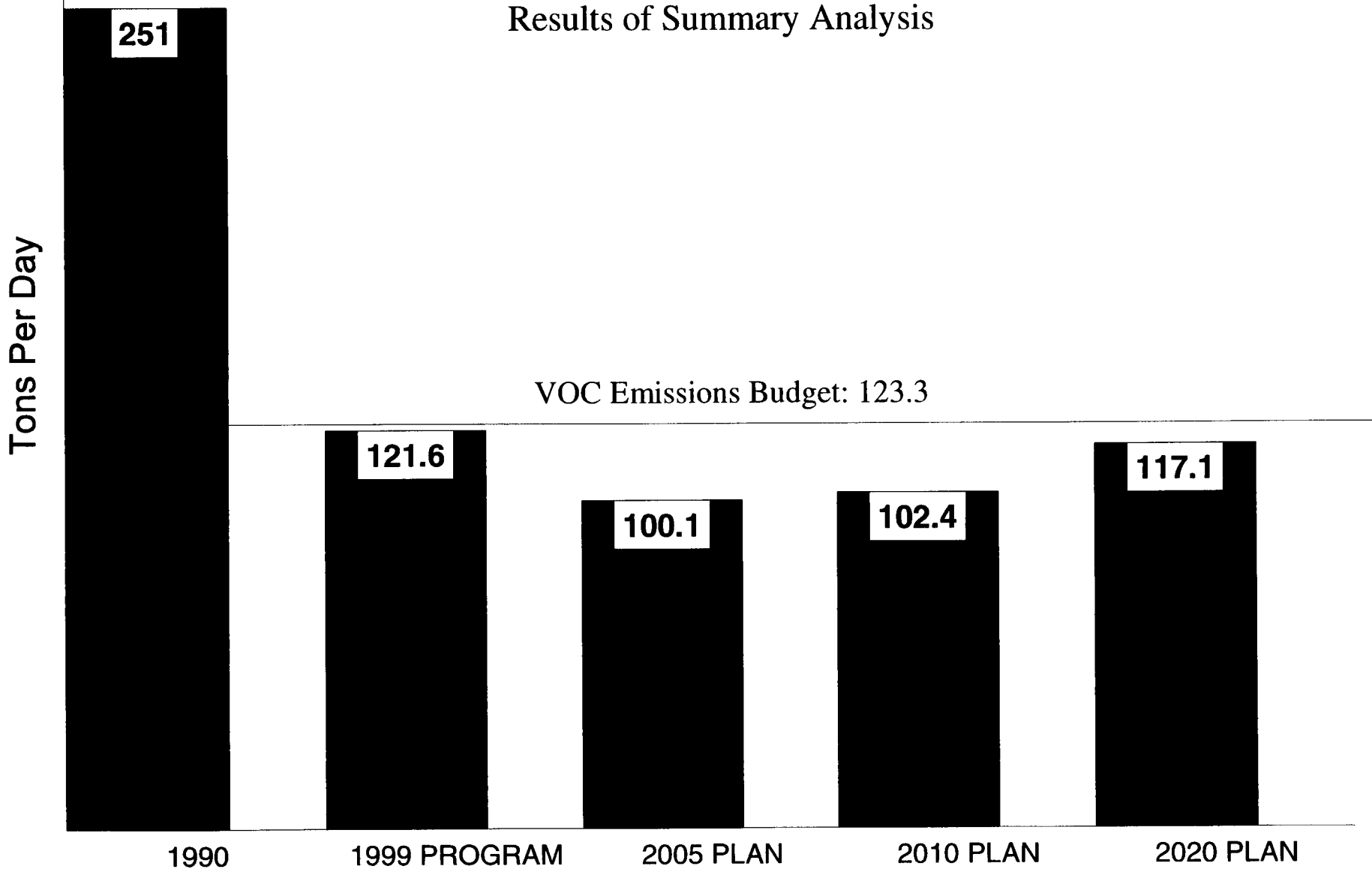


EXHIBIT 19
Mobile Source NOx Emissions
Plan and Program Alternatives
Metropolitan Staistical Area
Results of Summary Analysis

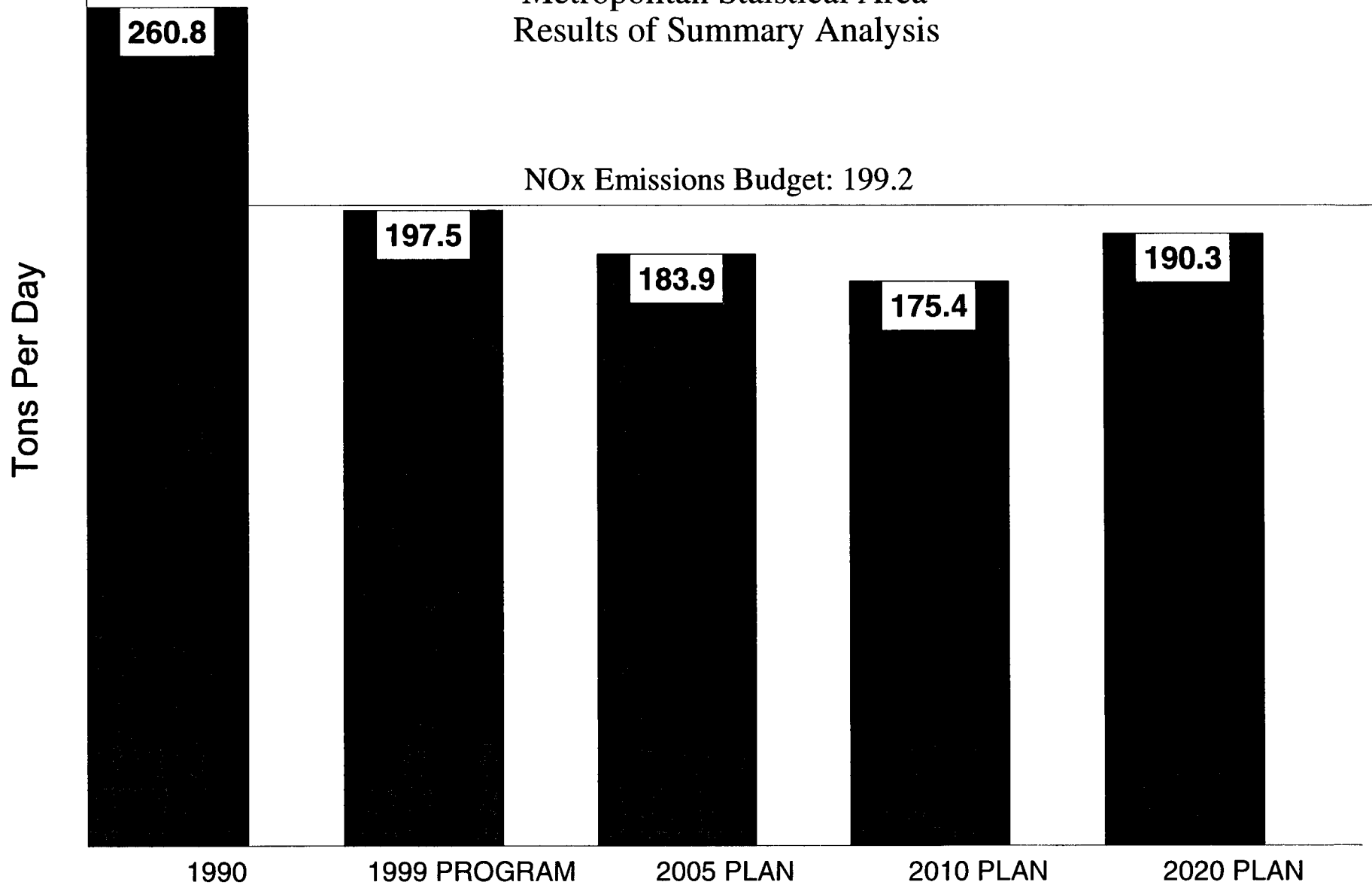


EXHIBIT 20
MOBILE SOURCE WINTERTIME CARBON MONOXIDE EMISSIONS
Plan and Program Alternatives
CO Non-Attainment Area
Results of Network Analysis

Wintertime CO Emissions Budget: 1671.5

Tons Per Day

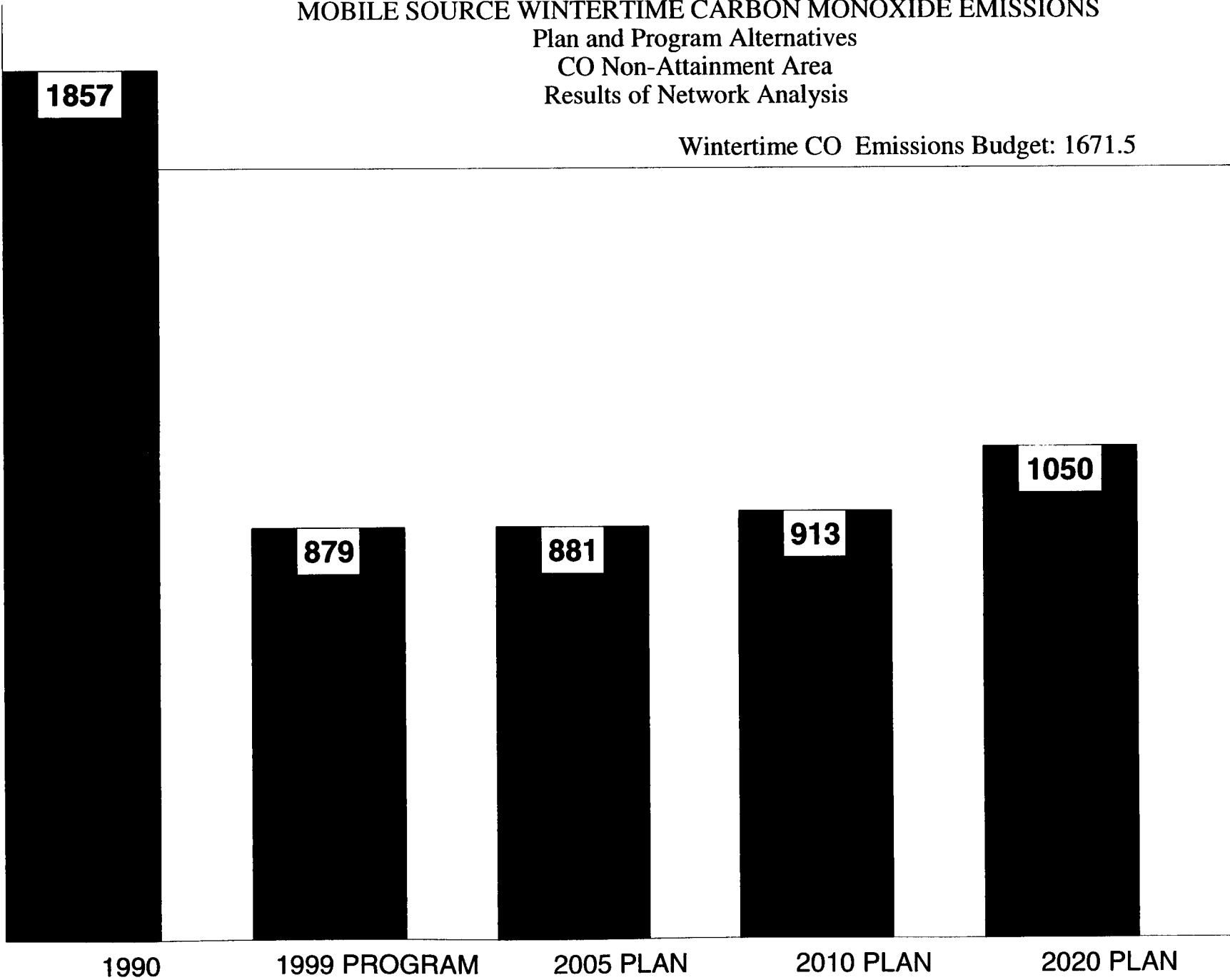


EXHIBIT 21

6/04/98

TRANSPORTATION EMISSION REDUCTION MEASURE ANALYSIS
FY99-2004 TIP & CLRP SUBMISSIONS

	<u>BENEFIT</u>							
	1999 (tons/day)		2005 (tons/day)		2010 (tons/day)		2020 (tons/day)	
	VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX
CMAQ								
Various P&R lots	-	-	0.008	0.036	0.009	0.040	0.01	0.044
Signal Systems	0.013	-0.002	0.012	-0.002	0.009	-0.002	0.016	-0.003
CHART			No Quantitative Assessment					
TERP Program			No Quantitative Assessment					
WMATA Bus Replacement			Credited in a previous TIP					
VA								
Regional Signal Systems			Credited in a previous TIP					
WMATA Bus Replacement			Credited in a previous TIP					
Regional Ridesharing			Credited in a previous TIP					
M47: Integrated Ridesharing			Credited in a previous TIP					
M47c: Employer Outreach			Credited in a previous TIP					
M47c: G'rantd. Ride Home			Credited in a previous TIP					
M70a: Bicycle Parking			Credited in a previous TIP					
M70b: Emp. Outreach for bikes			Credited in a previous TIP					
M77b: Van Pool Incentives			Credited in a previous TIP					

M-92: Enhanced Telecomm.				Credited in a previous TIP				
MWAQC Public Education	|	|	|	Under Development	|	|	|	|
M101A Mass Marketing Campaign	|	|	|	Credited in a previous TIP	|	|	|	|
Enhanced Commuter Assistance- -Program (Arlington)	|	|	|	No Quantitative Assessment	|	|	|	|
Transit Center at 7 Corners	0.001	0.002	0.001	0.002	0.001	0.002	0.001	0.002

EXHIBIT 21

6/04/98

**TRANSPORTATION EMISSION REDUCTION MEASURE ANALYSIS
FY99-2004 TIP & CLRP SUBMISSIONS**

	BENEFIT							
	1999 (tons/day)		2005 (tons/day)		2010 (tons/day)		2020 (tons/day)	
	VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX
CMAQ								
VA(contd..)								
Falls Church Electric Bus Service(NVTC)	0.004	0.005	0.000	0.000	0.000	0.000	0.000	0.000
RT 234 Bike Trail	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WMATA Bus Replacement			Credited in a previous TIP					
DC								
WMATA Bus Replacement			Credited in a previous TIP					
Regional Ridesharing			Credited in a previous TIP					
Metropolitan Branch Trail			Credited in a previous TIP					
Public Education Program			Credited in a previous TIP					
Bikeways -various locations			Credited in a previous TIP					
Mall Trail improvements			Credited in a previous TIP					
MacArthur Blvd. Trail			Credited in a previous TIP					
Mass Ave. S.E. Trail			Credited in a previous TIP					
Telecommuting			Credited in a previous TIP					
Employer Outreach			Credited in a previous TIP					
Guaranteed Ride Home			Credited in a previous TIP					

MLK Ave/11th St/18th St	No Quantitative Assessment							
TOTAL CMAQ	0.018	0.005	0.021	0.036	0.019	0.040	0.027	0.043

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EXHIBIT 22

6/04/98

**TRANSPORTATION EMISSION REDUCTION MEASURE ANALYSIS
FY99-2004 TIP & CLRP SUBMISSIONS**

	1999 (tons/day)		2005 (tons/day)		2010 (tons/day)		2020 (tons/day)	
	VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX
NON-CMAQ								
MD								
Hagerstown Telework Center				Credited in a previous TIP				
Endzone Campaign				Under Development				
Mont. Co. Bus Replacement				Credited in a previous TIP				
P.G. Bus Replacement				Credited in a previous TIP				
M70a: Bicycle Parking				Credited in a previous TIP				
M70b: Emp. Outreach for Bikes				Credited in a previous TIP				
M47c: Employer Outreach				Credited in a previous TIP				
M47c: Guaranteed Ride Home				Credited in a previous TIP				
M103: Taxicab Replacement				Credited in a previous TIP				
M92 Telecommuting Centers				Credited in a previous TIP				
M101A Mass Marketing Campaign				Credited in a previous TIP				
VA								
Arl. Co. Transit Stores								
PRTC Ridesharing	0.006	0.011	0.000	0.000	0.000	0.000	0.000	0.000
Arl. Co. Four Mile Run Bike Trail				Credited in a previous TIP				

Fairfax City Bus Replacement	Credited in a previous TIP
Accotink Gateway Connector	No Quantitative Assessment
DC	
Bicycle Facilities	Credited in a previous TIP

EXHIBIT 22

6/04/98

**TRANSPORTATION EMISSION REDUCTION MEASURE ANALYSIS
FY99-2004 TIP & CLRP SUBMISSIONS**

	1999 (tons/day)		2005 (tons/day)		2010 (tons/day)		2020 (tons/day)	
	VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX
	NON-CMAQ							
REGION								
COG Reg. Ridesharing Support			Credited in a previous TIP					
Endzone Partnership/ Ozone Map			Under Development					
WMATA								
Bus Replacement*			Credited in a previous TIP					
TOTAL NON-CMAQ	0.006	0.011	0.000	0.000	0.000	0.000	0.000	0.000

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EXHIBIT 23

**COST EFFECTIVENESS ANALYSIS
FY99-2004 TIP & CLRP SUBMISSIONS**

TRANSPORTATION EMISSION REDUCTION MEASURES	COST PER TON* (\$)	
	VOC	NOX
MD		
Various Park & Ride lots	74,000	16,900
Signal Systems	14,000	N/A
VA		
Transit Center at 7 Corners	32,000	19,000
Falls Church Electric Bus Service (NVTC)	250,000	336,000
PRTC Rideshare	473,900	90,900

NOTE: (*): Emission reduction and cost effectiveness values are calculated on an average daily basis over the lifespan of the project.

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EXHIBIT 24A

TRANSPORTATION EMISSION REDUCTION MEASURES
 Credited in Air Quality Conformity Analyses (calendar years 1993-1997)
 (TRACKING SHEET)

ID	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				PROJECTED COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED							
					FULL	SCALED-BACK	UNDER-WAY	REMOVED			1999		2000		2010		2020	
											VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX
1	X	1994-99 TIP	MDOT	Signal Systems - MD 3, MD 450 to Waugh Chapel	X				1994	1996								
2	X	1994-99 TIP	MDOT	Signal Systems - MD 450, 56th to MD 564			X		1994	1998	0.004	-0.002	0.003	-0.002	0.003	-0.002	0.003	-0.002
3	X	1994-99 TIP	MDOT	Signal Systems - MD 193, Rhode Island to Hanover			X		1994	1998	0.003	-0.002	0.002	-0.002	0.002	-0.002	0.002	-0.001
4	X	1994-99 TIP	MDOT	Signal Systems - MD 197, S. Laurel to Clubhouse			X		1994	1998	0.002	-0.001	0.002	-0.001	0.002	-0.001	-0.001	-0.001
5	X	1994-99 TIP	MDOT	Signal Systems - MD 5, 15th to Metzertott	X				1994	1997	0.002	-0.002	0.002	-0.001	0.002	-0.001	0.002	-0.001
6	X	1994-99 TIP	MDOT	Signal Systems - Marlow Heights to MD 637			X		1994	1998	0.001	-0.001	0.001	-0.001	0.001	-0.001	0.001	-0.001
7		1994-99 TIP	MDOT	Safety and Geometric Improvements				X	1994	n/a								
8		1994-99 TIP	MDOT	Park & Ride Lot - MD 355/ MD 187				X	1993	n/a	0.001	0.002	0.001	0.002	0.001	0.002	0.000	0.001
9		1994-99 TIP	MDOT	Park & Ride Lot - MD 210/ MD 373					1994	1999	0.001	0.003	0.001	0.003	0.001	0.003	0.001	0.002
11		1994-99 TIP	MDOT	Germantown Garage Parking Exp. (add 1000 spaces)				X		n/a	0.015	0.041	0.013	0.040	0.011	0.034	0.012	0.034
12	X	1994-99 TIP	VDOT	Signal Systems			X			Summer, 1998	0.588	-0.235	0.513	-0.228	0.437	-0.197	0.445	-0.194
14	X	1994-99 TIP	VDOT	Ridesharing (Regional & PRTC)	X						0.078	0.177	0.068	0.170	0.064	0.157	0.059	0.143
15	X	1994-99 TIP	LOUD	VA 28 Corridor Park & Ride Lot (add 100 spaces)	X				1995		0.002	0.004	0.001	0.004	0.001	0.003	0.001	0.003
16	X	1994-99 TIP	PRTC	VRE Signalization			X			Fall, 1998	0.010	0.026	0.009	0.026	0.007	0.022	0.007	0.022
17	X	1994-99 TIP	PRTC	VRE Locomotive Purchase (2)	X				1995		0.023	0.062	0.020	0.060	0.017	0.052	0.018	0.051
18	X	1994-99 TIP	PRTC	PRTC Feeder Vehicle Purchase	X				1994		0.012	0.022	0.011	0.021	0.009	0.018	0.009	0.018
19		1994-99 TIP	PRTC	VRE Woodbridge Parking Expansion (add 400 spaces)							0.006	0.017	0.005	0.016	0.005	0.014	0.005	0.014
20	X	1994-99 TIP	ALEX	King St. Metrorail access improvements			X				****	****	****	****	0.002	0.003	0.002	0.003
21	X	1994-99 TIP	WMATA	WMATA Bus Replacement	X						0.010	0.026	0.009	0.023	0.000	0.000	0.000	0.000
22		1995-00 TIP	MDOT	Park & Ride Lot - I-70 at Walser Dr. (new, 900+ spaces)				X	1997	n/a	0.009	0.026	0.008	0.025	0.008	0.024	0.007	0.022
23		1995-00 TIP	MDOT	Park & Ride Lot - MD 117/ MD 118 (new, 75 spaces)				X	1996	n/a	0.001	0.002	0.000	0.001	0.000	0.001	0.000	0.001
24	X	1995-00 TIP	MDOT	Park & Ride Lot - I-270/ MD 80 (add 100 spaces)			X		1996	1999	0.001	0.002	0.001	0.002	0.001	0.002	0.001	0.002
25	X	1995-00 TIP	MDOT	Park & Ride Lot - Brunswick MARC (add 300 spaces)			X				0.012	0.036	0.011	0.035	0.010	0.033	0.009	0.030
26	X	1995-00 TIP	MDOT	Signal Systems - MD 202, 57th Ave. to Fire House Rd.	X				1995	1996								
27	X	1995-00 TIP	MDOT	Signal Systems - MD 4, Forestville Rd. to Shadyside Dr.			X		1995	1998								
28	X	1995-00 TIP	MDOT	Signal Systems - US 1, Ritz Way to Murkirk Rd	X				1995	1997								
29	X	1995-00 TIP	MDOT	Signal Systems - MD 193, Hanover Pkwy to Prospect Hill Rd.	X				1995	1996								
30	X	1995-00 TIP	MDOT	Signal Systems - MD 212, Cherry Hill Rd. to Old Gunpr. Rd.	X				1995	1996								
31	X	1995-00 TIP	MDOT	Signal Systems - MD 198, Van Dusen Rd. to US 1			X		1995	1998								
32		1995-00 TIP	MDOT	Signal Systems - MD 450, MD 197 to Race Track Rd.				X	1995	n/a								
33		1995-00 TIP	MDOT	Signal Systems - MD 450, MD 564 to Carter Ave.				X	1995	n/a								
34		1995-00 TIP	MDOT	Signal Systems - MD 450, US 1 Alt. to MD 202				X	1995	n/a								
35		1995-00 TIP	MDOT	Signal Systems - MD 458, MD 414 to Walker Mill Rd.				X	1995	n/a								

SEE TOTAL BELOW FOR SIGNAL SYSTEMS

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36	X	1995-00 TIP	MDOT	Signal Systems - MD 214, MD 193 to Campus Way	X				1996	1996								
37		1995-00 TIP	MDOT	Signal Systems - MD 223, Steed Rd. to Dangerfield Rd.				X	1996	n/a								
38	X	1995-00 TIP	MDOT	Signal Systems - MD 85 Executive Way to MD 355	X				1996	1996								
39	X	1995-00 TIP	MDOT	Signal Systems - MD 355, J-70 ramps to Grove Rd.	X				1996	1996								
40	X	1995-00 TIP	MDOT	Signal Systems - US 301, Excalibur Rd. to Governor Bridge	X				1996	1996								
41	X	1995-00 TIP	MDOT	Signal Systems - US 301, MD 382 to Rosaryville Rd.	X				1996	1996								
42	X	1995-00 TIP	MDOT	Signal Systems - MD 650, Sheridan St. to Metzert Rd.	X				1996	1996								
43		1995-00 TIP	MDOT	Signal Systems - MD 410, MD 210, to Taylor Ave.				X	1996	n/a								
44		1995-00 TIP	MDOT	Signal Systems - MD 410, 62nd Ave. to Riverdale Rd.				X	1996	n/a								
45	X	1995-00 TIP	MDOT	Signal Systems - MD 202, Campus Way to Whitehouse Rd.	X				1996	1996								
46	X	1995-00 TIP	MDOT	Signal Systems - TOTAL CREDITED PROJECTS	X				see above	see above	0.026	-0.019	0.021	-0.015	0.020	-0.013	0.018	-0.010
47		1995-00 TIP	MDOT	Geometric Improvements				X	1995	n/a	0.002	0.001	0.002	0.001	0.002	0.001	0.002	0.001
48	X	1995-00 TIP	MDOT	MARC Replacement Coaches			X		1999		****	****	0.002	0.006	0.002	0.006	0.002	0.006
49	X	1995-00 TIP	MDOT	MARC Expansion Coaches			X		1999		****	****	0.019	0.060	0.017	0.056	0.015	0.051
50	X	1995-00 TIP	VDOT	Park & Ride Facilities - PRTC Public Transit Support - 1 year	X				1995		-	-	-	-	-	-	-	-
51	X	1995-00 TIP	VDOT	Alexandria Telecommuting Pilot Program	X						0.001	0.001	0.001	0.001	-	-	-	-
52	X	1995-00 TIP	VDOT	Fairfax Co. TDM program expansion - 1 year program	X						-	-	-	-	-	-	-	-
53	X	1995-00 TIP	VDOT	Alexandria Bus Access Improvements			X				0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
54	X	1995-00 TIP	VDOT	City of Fairfax Bus Shelters			X				0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.000
55	X	1995-00 TIP	VDOT	Lorton VRE Access	X				1995		0.007	0.018	0.005	0.014	0.005	0.013	0.004	0.012
56	X	1995-00 TIP	VDOT	Cherry Hill VRE Access			X				****	****	0.007	0.026	0.007	0.022	0.006	0.018
57	X	1995-00 TIP	DC	Right Turn on Red			X				****	****	0.090	0.065	0.000	0.000	0.000	0.000
58	X	1995-00 TIP	WMATA	Bus Replacement	X						0.026	0.071	0.023	0.063	0.048	0.0158	0.043	0.151

42a

EXHIBIT 24B

TRANSPORTATION EMISSION REDUCTION MEASURES
Credited in Air Quality Conformity Analyses (calendar years 1993-1997)
(TRACKING SHEET)

	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				PROJECTED COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED							
					FULL	SCALED-BACK	UNDER-WAY	REMOVED			1999		2000		2010		2020	
											VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX
59	X	1995-00 TIP	MGC	Shady Grove West Park and Ride			X		2010		****	****	****	****	0.000	0.010	0.000	0.010
60	X	1995-00 TIP	MGC	White Oak Park and Ride			X		2010		****	****	****	****	0.000	0.020	0.000	0.020
61	X	1995-00 TIP	MGC	Bicycle Facilities			X		FY99		****	****	0.003	0.002	0.003	0.002	0.003	0.002
62	X	1995-00 TIP	MGC	Pedestrian Facilities to Metrorail			X				0.005	0.009	0.005	0.008	0.004	0.007	0.004	0.007
63	X	1995-00 TIP	MDOT	MARC Replacement Coaches			X		1999		****	****	0.008	0.024	0.007	0.023	0.006	0.021
64	X	1995-00 TIP	MDOT	MARC Expansion Coaches			X		1999		****	****	0.070	0.225	0.064	0.208	0.058	0.191
65	X	1995-00 TIP	VDOT	VRE Park and Ride Expansion - 3800 spaces	X				1997		0.050	0.170	0.050	0.160	0.045	0.145	0.040	0.130
66	X	1995-00 TIP	VDOT	Commuter Lots - District Wide	X				varies	varies	0.010	0.026	0.009	0.028	0.012	0.038	0.015	0.048
67	X	1995-00 TIP	VDOT	I-66 and Stringfellow Rd. Park and Ride					2000		****	****	****	****	0.010	0.020	0.010	0.020
68	X	1995-00 TIP	VDOT	Lake Ridge Park and Ride	X				1996		0.000	0.020	0.000	0.010	0.000	0.010	0.000	0.010
69	X	1995-00 TIP	VDOT	Bicycle Trails and Facilities		X					****	****	****	****	0.020	0.016	0.019	0.017
70	X	1995-00 TIP	VDOT	Pedestrian Facilities to Metrorail					varies		****	****	****	****	0.001	0.002	0.001	0.002
71	X	1995-00 TIP	VDOT	I-66 HOV access at Monument Dr.	X				1997		0.010	0.020	0.010	0.020	0.010	0.020	0.010	0.020
72		1995-00 TIP	DC	Bicycle Facilities		X					0.028	0.021	0.023	0.019	0.024	0.020	0.025	0.021
73	X	1995-00 TIP	REGION	COG Regional Ridesharing Support	X				on-going		0.078	0.177	0.068	0.170	0.064	0.157	0.059	0.143
74	X	1995-00 TIP	REGION	M-47 Integrated Ridesharing	X				on-going		0.068	0.160	0.060	0.150	0.051	0.130	0.052	0.120
75	X	1995-00 TIP	REGION	M-92 Telecommuting Support	X				on-going		0.292	0.660	0.257	0.630	0.220	0.530	0.222	0.520
76		1996-01 TIP	MDOT	MD 5 / MD 373 Park and Ride				X	1999	n/a	0.003	0.010	0.003	0.009	0.002	0.008	0.002	0.008
77		1996-01 TIP	VDOT	Alexandria Landmark Transit Center							0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
78	X	1996-01 TIP	VDOT	Tysons Westpark Transit Center	X				1998		0.003	0.006	0.002	0.006	0.000	0.006	0.002	0.006
79	X	1996-01 TIP	VDOT	Fairfax County Bus Shelters		X			1998		0.001	0.002	0.001	0.003	0.002	0.003	0.002	0.003
80	X	1996-01 TIP	VDOT	Loudoun County Bus Shelters		X					0.001	0.002	0.001	0.002	0.001	0.004	0.001	0.004
81	X	1996-01 TIP	VDOT	Arlington County Metrocheck Program	X				1997	1997-1999	-	-	-	-	-	-	-	-
82	X	1996-01 TIP	VDOT	Old Dominion Drive Bike Trail			X				****	****	****	****	0.001	0.001	0.001	0.001
83	X	1996-01 TIP	WMATA	Bus Replacement	X						0.019	0.046	0.017	0.041	0.000	0.000	0.000	0.000
84		1996-01 TIP	MGC	Stamp Out Bad Bus Stops				X	1999	n/a	0.001	0.002	0.001	0.002	0.001	0.002	0.001	0.002
85	X	1996-01 TIP	VDOT	Fairfax County Bus Shelters (30)			X		FY2001		****	****	****	****	0.001	0.002	0.001	0.003
86	X	1996-01 TIP	VDOT	Tacketts Mill Park and Ride	X				1996		0.013	0.033	0.012	0.033	0.011	0.032	0.011	0.032
87	X	1996-01 TIP	VDOT	Reston Bus Replacement	X						0.003	0.015	0.003	0.015	-	-	-	-
88	X	1996-01 TIP	VDOT	Construct Left Turn Bays			X		varies		0.003	0.001	0.003	0.001	0.003	0.001	0.003	0.001
90	X	1996-01 TIP	REGION	M-47c Employer Outreach / Guaranteed Ride Home (\$10)	X				on-going		0.270	0.570	0.360	0.810	0.520	1.180	0.540	1.190
91	X	1996-01 TIP	REGION	M-70a Bicycle Parking			X		1999		****	****	****	****	0.010	0.010	0.010	0.010
92	X	STADIUM ANALYSIS		M-92 Telecommuting Support	X						-	-	0.033	0.075	0.035	0.077	0.036	0.078

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93	X	1997-02 TIP	PRTC	PRTC Omnlink Bus Service	X				1996	-	-	-	-	-	-	-	-
94	X	1997-02 TIP	MGC	Lake Forest Transit Center	X			1997	1996	0.001	0.004	0.001	0.004	0.001	0.003	0.001	0.003
95	X	1997-02 TIP	MCG	Germantown Transit Center			X	2004		-	-	****	****	0.005	0.019	0.005	0.018
96	X	1997-02 TIP	MGC	Tulagi Pl. Park and Ride	X			1997	1995	0.001	0.003	0.001	0.003	0.001	0.003	0.001	0.003
97	X	1997-02 TIP	MDOT	MD 5 Rel./MD 205 Park and Ride Construction	X			1999	1998	0.005	0.017	0.004	0.016	0.003	0.014	0.003	0.014
98	X	1997-02 TIP	MDOT	I-270 / MD 80 Park and Ride Expansion			X	1996	1999	0.003	0.012	0.002	0.012	0.002	0.011	0.002	0.010
99	X	1997-02 TIP	MDOT	Hagerstown Telework Center (Wash. MSA Benefits)	X			1997	1997	0.002	0.009	0.001	0.008	0.001	0.007	0.001	0.007
100	X	1997-02 TIP	PG	Anacostia Bicycle Trail	X			1999	1997	0.008	0.001	0.008	0.001	0.008	0.001	0.008	0.001
101	X	1997-02 TIP	MGC	Montgomery County Bus Replacement	X					0.007	0.020	0.006	0.020	-	-	-	-
102	X	1997-02 TIP	PG	Prince George's County Bus Replacement	X			1998	1998	0.003	0.011	0.003	0.011	-	-	-	-
103	X	1997-02 TIP	PG	Prince George's County Bus Service			X	1998	1998	0.005	0.012	0.004	0.010	0.003	0.009	0.003	0.009
104	X	1997-02 TIP	VDOT	I-66 Park and Ride at VA 234 / Portsmouth	X			1996		0.008	0.021	0.008	0.022	0.011	0.034	0.015	0.045
105	X	1997-02 TIP	VDOT	Arl. Co. Transit Ridership Develop. Initiative Program	X			on-going		0.010	0.010	0.009	0.010	0.007	0.008	0.007	0.008
106	X	1997-02 TIP	VDOT	PRTC Employer Commuting Outreach Program	X			on-going		0.008	0.013	0.005	0.001	0.002	0.000	0.002	0.000
107	X	1997-02 TIP	VDOT	PRTC Multimodal Strategic Marketing Implementation Plan	X			on-going		0.001	0.001	0.000	0.001	0.000	0.001	0.000	0.001
108	X	1997-02 TIP	MDOT	M-103 Taxicab Replacement in Maryland			X	1999		0.087	0.136	0.130	0.202	0.312	0.481	0.312	0.481
109	X	1997-02 TIP	REGION	M-70b Employer Outreach for Bicycles			X	1998		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
110	X	1997-02 TIP	VDOT	M-77b Vanpool Incentive Programs in Virginia			X	1998		0.109	0.264	0.097	0.258	0.098	0.257	0.111	0.280
		1997-02	WMATA	Bus Replacement						****	****	****	****	0.000	0.000	0.000	0.000
111	X	1998-03 TIP	MGC	Montgomery County Bus Replacement	X					0.010	0.031	0.012	0.039	0.003	0.014	0.000	0.000
112	X	1998-03 TIP	PG	Prince George's County Bus Replacement	X			1998	1998	0.001	0.003	0.001	0.003	0.000	0.000	0.000	0.000
113	X	1998-03 TIP	FDC	Frederick County Bus Replacement	X					0.001	0.002	0.001	0.000	0.000	0.000	0.000	0.000
114	X	1998-03 TIP	FDC	Frederick County Shuttles	X					0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001

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EXHIBIT 24C

TRANSPORTATION EMISSION REDUCTION MEASURES
 Credited in Air Quality Conformity Analyses (calendar years 1993-1997)
 (TRACKING SHEET)

	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				PROJECTED COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED							
					FULL	SCALED-BACK	UNDER-WAY	REMOVED			1999		2000		2010		2020	
											VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX
115	X	1998-03 TIP	VDOT	PRTC Ridesharing	X					on-going	-	-	-	-	-	-	-	-
116	X	1998-03 TIP	VDOT	Arlington County Four Mile Run Bike Trail		X			1999		-	-	0.001	0.001	0.001	0.001	0.001	0.001
117	X	1998-03 TIP	VDOT	Northern Virginia Turn Bays		X			2000		****	****	****	****	0.001	0.001	0.002	0.001
118	X	1998-03 TIP	VDOT	Fairfax City Bus Replacement		X			2000		****	****	****	****	0.000	0.000	0.000	0.000
119	X	1998-03 TIP	VDOT	Alternative Fueled Vehicles		X			1999		****	****	0.001	0.001	0.001	0.001	0.001	0.001
120		1998-03 TIP	VDOT	WMATA Bus Replacement							****	****	****	****	0.000	0.000	0.000	0.000

PROGRAM SUBTOTAL (implemented projects ONLY)	1.901	2.654	2.090	3.356	2.214	3.851	2.228	3.794
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EXHIBIT 24D

TRANSPORTATION EMISSION REDUCTION MEASURES
 Credited in Air Quality Conformity Analyses (calendar years 1993-1997)
 (TRACKING SHEET)
 (CLRP Only Projects)

	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				PROJECTED COMPLETION DATE	ACTUAL COMPLETION DATE	1999		2000		2010		2020	
					FULL	SCALED-BACK	UNDER-WAY	REMOVED			VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX
121	X	1995-00 TIP	REGION	M-24 Speed Limit Adherence							-	-	-	-	0.200	1.030	0.280	1.390
122		1996-01 TIP	MGC	Rock Spring Park Pedestrian Amenities				X			-	-	-	-	0.001	0.004	0.001	0.004
123	X	1996-01 TIP	MGC	Olney Transit Center Park and Ride							-	-	-	-	0.002	0.008	0.002	0.008
124	X	1996-01 TIP	MGC	Damascus Park and Ride							-	-	-	-	0.001	0.004	0.001	0.004
125	X	1996-01 TIP	DC	M-103 Taxicab Replacement							-	-	-	-	-	-	0.349	0.600
126	X	STADIUM ANALYSIS		Taxicab Replacement							-	-	-	-	-	-	0.156	0.240
127	X	1997-02 TIP	MDOT	Shady Grove West Transit Center Park and Ride							-	-	-	-	0.000	0.010	0.000	0.010
128	X	1997-02 TIP	MGC	Olney Transit Center Park and Ride							-	-	-	-	-	-	0.002	0.008
129	X	1997-02 TIP	MGC	White Oak Park and Ride							-	-	-	-	0.000	0.020	0.000	0.020
130	X	1997-02 TIP	MGC	Damascus Park and Ride							-	-	-	-	-	-	0.001	0.003
131	X	1997-02 TIP	MGC	Four Corners Transit Center							-	-	-	-	0.000	0.001	0.000	0.001
132		1997-02 TIP	MGC	Burtonsville Transit Center				X			-	-	-	-				
133	X	1997-02 TIP	MGC	Silver Spring Transit Access							-	-	-	-		0.001		0.002
134	X	1997-02 TIP	MGC	Shady Grove Parking Construction							-	-	-	-	0.005	0.019	0.005	0.019
135	X	97 & 98 TIP	REGION	M-101a Mass Marketing Campagin (Consumer)							-	-	-	-	0.320	0.686	0.372	0.782
PLAN TOTAL											-	-	-	-	0.528	1.779	1.168	3.087
GRAND TOTAL (program implemented + plan)											1.901	2.654	2.090	3.356	2.742	5.630	3.396	6.881

DEFINITIONS:

CREDIT TAKEN (X means emissions reduction credits taken):

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

IMPLEMENTATION STATUS:

- FULL = project is completed as planned at the time of analysis.
- SCALED BACK = project is completed, but at a different level than assumed at the time of analysis (i.e., purchased 50 buses instead of 100)
- UNDERWAY = project is not complete, but is close enough that credit may be taken (i.e., under construction, NOT just out for bid)
- REMOVED = project no longer expected to be implemented or constructed

COMPLETION DATE:

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

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

**** Reflects instances where emissions reductions previously credited are no longer appropriate to the indicated forecast year, due to schedule slippage.

NOTE: WMATA bus replacement numbers were calculated to reflect methodology used by the Travel Management Subcommittee.

EXHIBIT 25

Mobile Source Emissions - Summary Analysis

FY 99-2004 TIP/CLRP Conformity Analysis

	1999		2005		2010		2020	
	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
Network Analysis	123.353	205.268	102.300	193.507	104.919	194.846	120.339	212.576
FY 99 CMAQ Projects (1)	-0.018	-0.005	-0.021	-0.036	-0.019	-0.040	-0.027	-0.043
FY 99 Non-CMAQ Projects (2)	-0.006	-0.011	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
TERM Credits (3)	-1.901	-2.654	-2.416	-4.493	-2.742	-5.630	-3.396	-6.881
SIP Credits								
Phase II RFG (4)	N/A	N/A	N/A	N/A	N/A	-8.700	N/A	-10.300
Additional VA I/M Benefits	N/A	-5.500	N/A	-5.500	N/A	-5.500	N/A	-5.500
Heavy Duty Engine Rule (5)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SIP TCMS	+0.200	+0.400	+0.200	+0.400	+0.200	+0.400	+0.200	+0.400
NET EMISSIONS	121.63	197.50	100.06	183.87	102.36	175.38	117.12	190.25

NOTE: VOC Emissions Budget: 123.3 Tons/Day
 NOx Emissions Budget: 199.2 Tons/Day

- (1) Exhibit 21 Data
- (2) Exhibit 22 Data
- (3) Exhibit 24 Data
- (4) Phase I Attainment Plan (Reference 12)
- (5) Reflected with in emissions factors for 2010 and 2020

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 9).

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 2), which were followed throughout the preparation of the FY99-2004 TIP and CLRP. Exhibit 26 lists these public involvement/consultation opportunities throughout the year. Additional materials are contained as Appendix K.

TBP PUBLIC INVOLVEMENT & INTERAGENCY CONSULTATION SCHEDULE FY99-2004 TIP & CLRP

1997		1998						
NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY

1. Project Solicitation		*	*						
2. Conformity Work Scope			*	*	*	*			
3. Receive Project Submissions & Document; Receive Comments				*	*				
4. Development of TERMS									
A. Travel Mgmt. Subcommittee: Receipt / Analysis of Measures	*	*	*	*					
B. Preparation of Short List				*	*	*			
C. Programming Agencies: Projects and Emissions Results						*			
5. Execute Conformity						*			
6. Document Conformity Results								*	
7. Review Comments & Finalize Report									*
11/19/97 TPB Meeting									
12/17/97 TPB Meeting									
1/21/98 TPB Meeting									
2/18/98 TPB Meeting									
3/18/98 TPB Meeting / Public Forum									
4/15/98 TPB Meeting									
5/20/98 TPB Meeting									
6/11/98 TPB Citizens Advisory Committee / Public Forum									
6/17/98 TPB Meeting									
7/9/98 TPB CAC / Public Forum									
7/15/98 TPB Meeting									

* TPB Meetings and Public Forums
TERMs = Transportation Emissions Reduction Measures

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. 93.118 or Sec. 93.119 Emissions budget or Emission reduction.
-

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V. CONFORMITY ASSESSMENT - CRITERIA AND PROCEDURES

EPA's conformity regulations identify criteria and procedures for the determination of conformity. These regulations vary according 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 August 15, 1997 amendments to EPA's regulations enabled major changes to the conformity assessment process - the transition to the emissions budget tests in lieu of the "action - baseline" emissions comparisons previously employed. The two sections following 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 CLRP and the FY99-2004 TIP. The following discussion indicates the manner in which each criterion was met.

B. RELATIONSHIP TO CRITERIA

93.110 Latest planning assumptions

The conformity assessment is based upon the most current planning assumptions available for the Washington region. The land activity forecasts were adopted by the COG Board in April 1998 for testing in conjunction with this conformity analysis. 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 and fare 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; subsequent updated fare tariffs provided the basis for 1999 and future analysis years. Transit operating policies, such as hours and frequency of service, are modeled explicitly to reflect actual conditions in the 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.

93.111 Latest emissions model

The current analysis used MOBILE5a, the same emission factor model specified by EPA for use in preparation of state implementation plans and employed in the Phase I Attainment Plan which set the mobile source emissions budgets for ozone precursors and CO redesignation.

93.112 Consultation

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

93.113 Timely implementation of TCMs

The policy element of the 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 Phase I 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. This includes the "NO_x mitigation" projects which were programmed in the FY95 - FY98 TIPs to address the conformity requirements of demonstrating reductions in a nitrogen oxide emissions as part of the "build/no-build" test. Appendix L and Exhibit 24 of the report contain 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 FY99-2004 TIP. As seen in the table, approximately 41% of programmed expenditures address transit, ridesharing and bikeways.

EXHIBIT 28

FUNDING CATEGORIES IN THE ANNUAL ELEMENT OF THE FY99 TIP

CATEGORY	TOTAL ANNUAL ELEMENT COST (000's)
Transit	
Capital	\$ 617,900
Operating	\$ 421,600
Highway	\$ 1,546,000
Ridesharing	\$ 31,500
Bikeways	\$ 5,900
TOTAL	\$ 2,622,900

93.114 Currently conforming 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) FY98-2003 TIP and the (conforming) long range plan, adopted by the TPB in July 1997.

93.115 Projects from a conforming plan and TIP

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

93.116 Local carbon monoxide and PM10 violations

Any project advanced to the FY99-2004 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.)

93.117 Compliance with PM10 measures

The Washington area is in attainment for PM10.

93.118 Motor vehicle emissions budget

As discussed in Chapter III, total VOC, NOx and CO emissions for all program and plan milestone analysis years are well within the emissions budgets established as part of the Phase I Attainment Plan and the CO redesignation to attainment, respectively.

VI. FINDINGS

The analytical results described above provide a basis, in relation to US EPA conformity regulations, for a determination of conformity of the constrained long range plan and the FY99-2004 Transportation Improvement Program for The Washington Metropolitan Region, with requirements of the Clean Air Act Amendments of 1990.

APPENDIX A

Air Quality Conformity Scope of Work

**AIR QUALITY CONFORMITY ASSESSMENT:
CONSTRAINED LONG RANGE PLAN UPDATE AND
FY99-2004 TRANSPORTATION IMPROVEMENT PROGRAM**

SCOPE OF WORK

I. INTRODUCTION

As approved by the TPB at its December 17, 1997 meeting, projects are now being solicited for the FY99 TIP and the constrained long range plan. The schedule is designed for adoption of both the plan and program in July 1998.

The updated plan and program must meet air quality conformity requirements, as published in the November 24, 1993 Federal Register and as subsequently amended, most recently on August 15, 1997. These regulations specify both technical criteria and consultation procedures to follow in performing the assessment. Some of the requirements went into effect immediately after publication of the regulations; others were phased into effect as of January 1, 1995; still others go into effect as a function of the status of SIP requirements.

This scope of work provides a context in which to perform the conformity analyses and presents an outline of the work tasks required to address all regulations currently applicable.

II. REQUIREMENTS AND APPROACH

A. Criteria (See Exhibit 1)

As described in the 1990 Clean Air Act Amendments, conformity is demonstrated if transportation plans and programs:

1. Are consistent with most recent estimates of mobile source emissions,
2. Provide expeditious implementation of TCMs, and
3. Contribute to annual emissions reductions.

B. Regulations (8/15/97 Federal Register)

1. Technical aspects - updated regulations enable the phase-out of the 'baseline versus action' scenario conformity tests and replacement with emissions budget tests, following the establishment of mobile source emissions budgets

2. Consultation aspects - updated regulations affect the public/interagency consultation process, which will be revised in parallel to the execution of the work program. This is covered in Section III.

C. Approach (In addition to the highlighted elements below, a summary list of major policy and technical input assumptions shown as Attachment A, and all transportation network elements, will be finalized at the March 18, 1998 TPB meeting.)

1. Action scenario for each forecast year, with parallel efforts to analyze transportation emissions reduction measures (TERMs) (ongoing within mobile source SIP planning activities) with oversight from the Travel Management Subcommittee. This task assumes the development of volatile organic compounds (VOC) and nitrogen oxide (NOx) mobile source emissions budgets. Should this event not occur, additional baseline scenarios will also be developed for use in demonstrating emissions reductions in the baseline versus action test.
2. Regionally significant projects
3. Round 6.0 Cooperative Forecasts (including any modifications made between February and April 1998)
4. Speed feedback modeling methods (current methods) and current cordon
5. MOBILE5a emission factor model, e.g., vehicle fleet mix, consistent with the procedures utilized to establish the VOC, NOx and carbon monoxide (CO) mobile source emissions budgets.
6. VOC, NOx and CO (wintertime) emissions budgets;
7. MSA-based geography

III. CONSULTATION

1. Execute TPB consultation procedures, reflecting the development and phase-in of any revised procedures based upon the August 15, 1997 regulations (Exhibit 2: time line and consultation elements)
2. Meet with the MWAQC Technical Advisory Committee's Conformity Subcommittee to discuss the scope of work, TERM development process, and other work activities as needed; discuss at TPB meetings or forums, as needed, the following milestones:
 - Project solicitation
 - Scope of work
 - TERM proposals
 - Project submissions: documentation and comments
 - Analysis of TERMS, list of mitigation measures
 - Conformity assessment: documentation and comments
 - Process: comments and responses

IV. WORK TASKS

1. Receive project inputs from programming agencies and organize into conformity documentation listings
 - Project type, limits, NEPA approval, etc.
 - Phasing with respect to forecast years
 - Action scenarios
2. Utilize 1990 baseline conditions (redo previous 1990 analysis, should there be any land activity, network or modeling revisions to the previous estimates)
 - Travel demand modeling
 - Expand analysis to include exurban areas
 - Emissions calculation (MOBILE) model
 - Additional emissions categories, e.g., bus, auto access to transit, off-network travel
 - Compare to previous 1990 emissions inventories
3. Prepare 1999 TIP action scenario travel and emissions estimates
 - Code, edit, build highway networks, transit networks
 - Execute travel demand modeling
 - Expand to exurban areas
 - Calculate emissions

4. Prepare 2005 CLRP action conditions
 - Tasks as in 1999 analysis
5. Prepare 2010 CLRP action conditions
 - Tasks as in year 1999 analysis
6. Prepare 2020 CLRP action conditions
 - Tasks as in year 2010 analysis
7. Identify extent to which TIP and plan provide for expeditious implementation of TCMs contained in state implementation plans and emissions mitigation requirements of previous TIP and CLRP commitments (TERMs)
 - In the FY99 TIP solicitation document staff identified previous TCM and TERM commitments and requested a status report from the implementing agencies
 - These reports, to be folded into the final air quality conformity report as an appendix, will be reviewed for the projects' progress towards implementation
 - Staff will prepare a summary progress report to identify emissions reduction credits appropriate for inclusion in emissions budget adherence tests
8. Coordinate / analyze emissions reductions associated with CMAQ and similar projects
 - Obtain project-specific emissions reductions from programming agencies
 - Summarize VOC and NOx reductions for each milestone year
 - With oversight from the Travel Management Subcommittee, propose and analyze additional measures for their emissions benefits, costs, cost effectiveness, and other evaluation criteria
9. Analyze results of above technical analysis
 - Reductions from 1990 base
 - VOC, NOx and CO emissions budgets
 - With oversight from the Travel Management Subcommittee, the Technical Committee and the TPB, identify and recommend additional measures should plan or program fail any test and incorporate
10. Assess conformity and document results in a report
 - Document methods
 - Draft conformity report

- Forward to technical, and policy committees
- Make available for public and interagency consultation
- Receive comments
- Address comments and present to TPB for action
- Finalize report and forward to FHWA, FTA and EPA

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Exhibit 1

Table 1 -- 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. 93.118 or Sec. 93.119	Emissions budget or Emission reduction.

Sec. 93.110 Criteria and procedures: Latest planning assumptions.

The conformity determination must be based upon the most recent planning assumptions in force at the time of the conformity determination.

Sec. 93.111 Criteria and procedures: Latest emissions model.

The conformity determination must be based on the latest emission estimation model available.

Sec. 93.112 Criteria and procedures: Consultation.

Conformity must be determined according to the consultation procedures in this subpart and in the applicable implementation plan, and according to the public involvement procedures established in compliance with 23 CFR part 450.

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

The transportation plan, TIP, or any FHWA/FTA project which is not from a conforming plan and TIP must provide for the timely implementation of TCMs from the applicable implementation plan.

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

There must be a currently conforming transportation plan and currently conforming TIP at the time of project approval.

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

The project must come from a conforming plan and program.

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

The FHWA/FTA project must not cause or contribute to any new localized CO or PM10 violations or increase the frequency or severity of any existing CO or PM10 violations in CO and PM10 nonattainment and maintenance areas.

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

The FHWA/FTA project must comply with PM10 control measures in the applicable implementation plan.

Sec. 93.118 Criteria and procedures: Motor vehicle emissions budget.

The transportation plan, TIP, and project not from a conforming transportation plan and TIP must be consistent with the motor vehicle emissions budget(s) in the applicable implementation plan (or implementation plan submission).

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

The transportation plan, TIP, and project not from a conforming transportation plan and TIP must contribute to emissions reductions.

NOTE: See EPA's August 15, 1997 conformity regulations for the full text associated with each section's requirements.

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EXHIBIT 2

2/11/98

TPB PUBLIC INVOLVEMENT & INTERAGENCY CONSULTATION SCHEDULE
FY99-2004 TIP & CLRP

1997		1998						
NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY

1. Project Solicitation	*	*						
2. Conformity Work Scope		*	*	*	*			
3. Receive Project Submissions & Document; Receive Comments				*	*			
4. Development of TERMS								
A. Travel Mgmt. Subcommittee: Receipt / Analysis of Measures	*	*	*	*				
B. Preparation of Short List				*	*	*		
C. Programming Agencies: Projects and Emissions Results						*		
5. Execute Conformity					*	*		
6. Document Conformity Results							*	
7. Review Comments & Finalize Report								*
11/19/97 TPB Meeting								
12/17/97 TPB Meeting								
1/21/98 TPB Meeting								
2/18/98 TPB Meeting								
3/18/98 TPB Meeting / Public Forum								
4/15/98 TPB Meeting								
5/20/98 TPB Meeting								
6/11/98 TPB Citizens Advisory Committee / Public Forum								
6/17/98 TPB Meeting								
7/9/98 TPB CAC / Public Forum								
7/15/98 TPB Meeting								

* TPB Meetings and Public Forums
TERMs = Transportation Emissions Reduction Measures

WORK SCOPE ATTACHMENT A

3/11/98

POLICY AND TECHNICAL INPUT ASSUMPTIONS AIR QUALITY CONFORMITY ANALYSIS OF FY98 TIP AND CLRP

1. Land Activity

- Round 6.0 Cooperative Forecasts (including any modifications made between February and April 1998)

2. Project Inputs

- Project submissions: as released for public and interagency review on 2/12/98

3. Travel Demand Modeling Methods

- 'Speed feedback' methods (June 1994 'Current Applications' report); toll analyses as developed and applied in the Wilson Bridge MIS
- 'Current cordon'
- I-66 (inside the beltway) at HOV-3 in 1999 and subsequent years
- Speed limits as currently posted in DC, MD and VA

4. Emission Factors

- MOBILE5a
- Enhanced I/M in DC, MD, and VA, using EPA 'performance standards'
- No LEV programs assumed
- No oxygenated fuels assumed for assessment of wintertime carbon monoxide conditions
- Emission factors for speeds between 66 and 70 mph developed on a straight line extrapolation basis from the slope between 55 and 65 mph

5. Emissions Modeling Methods / Credits

- As described in July 1997 conformity report
- MSA geography, based on current cordon
- Heavy Duty Engine Rule
- Phase 2 Reformulated Gasoline
- Virginia I/M SIP Credits

6. Conformity Assessment Criteria

- 8/15/97 EPA regulations, including 1/1/95 technical requirements
- Analysis years: 1999, 2005, 2010, 2020

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APPENDIX B

List of Project Inputs

**SIGNIFICANT CHANGES OR ADDITIONS TO FY99-04
TRANSPORTATION IMPROVEMENT PROGRAM (TIP)
AND CONSTRAINED LONG RANGE PLAN (CLRP)**

Highway and HOV:

<u>State</u>	<u>Facility</u>	<u>Project</u>
Maryland	US 301	Widen / Upgrade from MD at TB to US 50 - widen from 4 to 6 lanes (formerly listed as a study project)
Maryland	US 1	Widen from I-95/I-495 to Sunnyside Ave. - widen from 4 to 6 lanes
Maryland	MD 28	Widen from Key West Blvd. to Great Seneca Hwy. - from 4 to 6 lanes
Maryland	MD 4 HOV lanes	Construct from MD 223 to I-495 - widen from 4 to 6 lanes for HOV
Maryland	MD 117	Delete project - from west of 118 to I-270 - previously widen from 2 to 4/6 lanes
Maryland	MD 223	Delete project- from MD 5 to MD 4 - previously widen from 2 to 4 lanes
Virginia	I-95	Widen from Newington to VA 123 - widen from 6 to 8 lanes (formerly listed as a study project)
Virginia	I-95	Improve access to Park and Ride lot at VA 123
Virginia	US 1	Widen from Occoquan Rd. to Occoquan River -widen from 4 to 6 lanes
Virginia	VA 7	Construct interchange at Clairborne Pkwy. / West Spine Rd.
Virginia	US 15	Delete project - from Loudoun Co. Line to US 50 - previously widen from 2 to 4/6 lanes
Virginia	VA 28	Construct interchange at VA 763 (Barnesfield Rd.) and access Dulles Smithsonian Air and Space Museum
Virginia	US 50 (Middleburg Bypass)	Change: Construct as 2 lane facility - formerly listed as construct 4 lane facility
D.C.	no significant changes	
Transit:		
Virginia	Cherry Hill VRE Station	Construct new VRE station at Cherry Hill Peninsula in Prince William Co.

5/20/98

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Key to the Air Quality Conformity Tables:

Highway and HOV project tables:

COLUMN 1:

Agency - identification of submitting agency

COLUMN 2:

Project number - project identification number (for reference purposes)

COLUMN 3:

Type of improvement - defined as follows:

Construct	= build a new facility
Widen	= increase the number of lanes on an existing facility
Upgrade	= improve the facility type of a roadway
Relocate	= construct an existing facility on a new right-of-way
Reconstruct	= modify an existing facility with no capacity increase i.e., shoulder paving, geometric improvements
Rehabilitate	= repair existing structures - no capacity increase
Study	= to review alternative transportation improvements- project planning or preliminary engineering only

COLUMN 4:

Environmental Review (NEPA) - status of the environmental review

The National Environmental Policy Act (NEPA) requires a study to determine the environmental impact of all transportation projects that involve federal approvals. The type of environmental review is determined by the scope of the project. Projects cannot be constructed until the appropriate review has been approved by federal agencies. The environmental review status in column 4 is defined as follows:

Approved	= The project has received approval from the appropriate federal agency and may be constructed
Pending	= The project is under study and is undergoing environmental review, or has not yet begun environmental review.

N/A = Projects that do not require federal approvals.

COLUMN 5:

Facility - name of facility to be studied or improved

COLUMN 6:

Limits - the boundaries of the study or facility improvements

COLUMN 7:

Old Facility Type - defined as follows:

- 1 = Interstate
- 2 = Major Arterial
- 3 = Minor Arterial
- 4 = Collector
- 5 = Expressway with at-grade intersections

If a facility is being upgraded, the old facility type is in the "from" column, and the new facility type is in the "to" column. If the facility is not being upgraded, the "from" and "to" columns are the same.

COLUMN 8:

New Facility Type - defined as follows:

- 1 = Freeways and High Speed Ramps
- 2 = Expressways
- 3 = Parkways
- 4 = Class I Arterial
- 5 = Class II Arterial
- 6 = Class III Arterial
- 7 = Class I Collector
- 8 = Class II Collector
- 9 = Low Speed Ramps
- 10 = Centroid Connectors

Detailed discussion of the new facility types:

Freeways

Limited-access roadways with fully grade-separated interchanges and no at-grade access or signals. Four or more lanes (both directions). Travel lanes always separated by raised median or concrete barrier. No parking.

Expressways.

High-speed, controlled-access roadways. Major cross roads (Class I arterial and above) are usually grade-separated, other cross roads are either right turn in or right turn out, or controlled by signals, with the expressway having at least 80% of the green time. At-grade intersections always have left turn lanes or prohibit left turns. No driveways, but may have frontage roads. Four to eight lanes. Directional movements separated by raised median or concrete barriers.

Parkways

Limited-access roadways with heavy and medium trucks prohibited. Sharper curves, steeper grades and narrower lanes compared to freeways. Major cross roads are grade separated, other cross roads are stop controlled, right turn in/ right turn out. No signals, no driveways, but may have some scenic or limited parking areas. Sometimes 2, but usually 4 lanes (both directions). Directional movements separated by raised median or barrier of wood or stone.

Class I Arterial

Major arterials. Higher type cross roads are usually grade separated. Lower type cross roads are controlled by signals, with the Class I arterial having 70% of the green time (or semi-actuated controls favoring the arterial). Usually have progressive signals and/or computer controlled signal systems with progression favoring the Class I arterial. Averages no more than 2 signals per mile. At-grade intersections usually have left turn lanes and often have right turn lanes. Has few driveways and may have frontage roads. Directional movements usually separated by painted or raised median or concrete barrier. No parking.

Class II Arterial

Medium arterials. Higher type cross roads are grade separated or controlled by signals, with the Class II arterial having no more than 40% of the green time. Lower type cross roads are controlled by signals, with the Class II Arterial having at least 60% of the green time (or semi-actuated controls favoring the Class II Arterial). May have progressive signals and/or computer controlled signal systems with the progression favoring the Class II Arterial. Averages no more than 6 signals per mile. At-grade intersections always have left-turn lanes and sometimes have right turn lanes. From 2 to 6 lanes (both directions). Some driveways, but no frontage roads. Directional movements usually separated by painted or raised median or concrete barrier. No parking.

Class III Arterial

Minor arterials. Higher type cross roads are grade separated or controlled by signals, with the Class III Arterial having no more than 40% of the green time. Lower type cross roads are controlled by signals, with the Class III Arterials having at least 60% of the green time. No progressive signals or computer controlled signal systems. Averages no more than 10 signals per mile. At-grade intersections usually have left turn lanes but rarely have right turn lanes. From 2 to 4 lanes (both directions). Have driveways, but no frontage roads. Directional movements usually separated by painted median. Parking may be allowed, especially during off-peak hours.

Class I Collector

Major collectors. Higher type cross roads are grade separated or controlled by signals, with the Class I Collector having no more than 40% of the green time. Lower type cross roads are controlled by stop signs or signals, with the Class I Collector having at least 60% of the green time. No progressive signals or computer controlled signal systems. Averages no more than 12 signals per mile. At-grade intersections may have left-turn lanes, but no right turn lanes. Usually 2, but sometimes 4 lanes (both directions). Have many driveways, but no frontage roads. Directional movements separated by painted median. Parking may be allowed, especially during off-peak hours.

Class II Collector

Minor collectors. Higher type cross roads are grade separated or controlled by signals, with the Class II Collector having no more than 40% of the green time. Lower type cross roads are controlled by stop signs or signals, with the Class II Collector having at least 60% of the green time. No progressive signals or computer controlled signal systems. Large number of signals per mile. At-grade intersections do not have left-turn lanes or right turn lanes. Usually 2 lanes (both directions). Have more driveways than Class I Collector, but no frontage roads. Directional movements may not be separated by median. Parking is allowed.

High-Speed Ramps

Includes "outer" ramps for cloverleaf interchanges, "slip" ramps, ramps for directional interchanges, and other ramps with large radius of curvature (500 ft or more). No signals or stop signs at the end of the ramps. Adequate merge area. No driveways, frontage roads, medians or parking. 1 or 2 lanes (one direction).

Low-Speed Ramps

Includes "inner" ramps for clover leaf interchanges and other ramps with short radius of curvature. End of ramp controlled by stop sign or signal. Barely adequate merge area. Always 1 lane (one direction). No driveways, frontage roads, medians or parking.

COLUMN 9:

Number of Lanes - same explanation of "from" and "to " columns as above

COLUMN 10:

Currently under construction or right-of-way acquired? -

"yes"	=	the facility is currently under construction and/or right-of-way has been acquired
"no"	=	the facility is not currently under construction and right-of-way has not been acquired
"completed"	=	the facility is open for use

COLUMN 11:

Project Completion Date

COLUMN 12:

Network - These columns show which network year each project is coded into for the air quality conformity analysis. This is an indicator of when the project is expected to be completed and open for use. The following defines the data found in the "network" column:

"X "	=	the project is coded in the indicated network
"-"	=	the project is not coded in the indicated network
exempt	=	these projects are defined as "exempt from the requirement that a conformity determination be made" in the November 23, 1993 federal regulations that outlined procedures for determining the air quality conformity analysis of plans and programs
not coded	=	the project is under study and is <u>not</u> included in the air quality conformity analysis

COLUMN 13:

In TIP - An "X" indicates that the project is included in the TIP

COLUMN 14:

In Base - An "X" indicates that the project is included in the baseline networks. A project is defined to be in the baseline if it is completed, under construction, has a NEPA approval, or had construction money programmed in the first three years of the previously approved TIP.

Transit Table:

The transit table is a subset of the highway/HOV table, and corresponding columns have the same definitions.

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

NOTE: Shaded sections indicate changes
from the FY98 -03 TIP

DRAFT
DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020	
DISTRICT OF COLOMBIA																		
DCDPW	DI1	construct	approved	I-295 (East Leg)	Barney Circle interchange improv.		5		4&2	no	2001	-	-	X	X	X	X	
DCDPW	DI2	construct	approved	I-295 (Anacostia Fwy.)	At Suitland Parkway	-	-	-	-	no							X	
DCDPW	DI3	rehab.	approved	I-395 - Center Leg Mall	Tunnel Rehabilitation	-	-	-	-	no		exempt						X
DCDPW	DI4	study	pending	I-295 HOV lanes	MD/DC line to E. Capitol St.	1	1			no		not coded						X
DCDPW	DI5	study	pending	SE/SW Freeway	14th St. Bridges to Penn. Ave. SE					no		not coded						X
DCDPW	DP1	rehab.	approved	Whitehurst Freeway	Rehab./improv. .7 mi. section	-	-	4	4	no		exempt						X
DCDPW	DP2	Grd. Sep.	pending	NY Ave. and Florida Ave.	Interchange	-	-	-	-	no		-	-	-	X	X	X	X
DCDPW	DP3	Grd. Sep.	pending	NY Ave and Bladensburg Rd	Interchange	-	-	-	-	no		-	-	-	X	X	X	X
DCDPW	DP4	Grd. Sep.	pending	E Cap. St. & Benning Rd.	Interchange	-	-	-	-	no		-	-	-	-		X	X
DCDPW	DS1	reconst.	pending	Georgetown South. Entrance		-	-	-	-	yes								X
DCDPW	DS2b	study	pending	Southern Ave.	Naylor Rd. to Erie St.		2		4	no		not coded						X
DCDPW	DS3	construct	pending	Minnesota Ave. extension	Sheriff Rd. to Meade St.				4	no		X	X	X	X	X	X	X
DCDPW	DS4	construct	pending	Eastern Ave.	Anacostia Ave. to Kenilworth Ave.		2		4	no		-	-	-	X	X	X	-
DCDPW	DB1	rehab.	approved	Case Memorial Br.	over Washington Channel	-	-	-	-			exempt						X
DCDPW	DB2	rehab.	approved	Penn. Ave. Br.	over Anacostia River	-	-	-	-			exempt						X
DCDPW	DB3	rehab.	approved	Connecticut Ave. Br.	over Rock Creek	-	-	-	-			exempt						X
DCDPW	DB4	rehab.	approved	NY Ave. Br.	over Penn RR	-	-	-	-			exempt						X
DCDPW	DB5	rehab.	approved	NY Ave. Br.	over South Dakota Ave.	-	-	-	-			exempt						X
DCDPW	DB6	rehab.	approved	11th St. Br.	Interchange	-	-	-	-			exempt						X
DCDPW	DB7	rehab.	approved	Anacostia Freeway Br.	over Penn. Ave.	-	-	-	-			exempt						X
DCDPW	DB8	rehab.	N.A.	Fred. Douglass Mem. Br.	Electrical & Mechanical System	-	-	-	-			exempt						X
DCDPW	DB9	rehab.	approved	Military Rd. Br.	over Rock Creek	-	-	-	-			exempt						X
DCDPW	DB10	rehab.	approved	Mass Ave. Br.	over Rock Creek	-	-	-	-			exempt						X

1-9

DCDPW	DB11a	rehab.	approved	Kenilworth Ave.	Over E Capitol St. & Ramp C	-	-	-	-			exempt		X
DCDPW	DB11b	rehab.	approved	Kenilworth Ave.	over Nannie Helen Burroughs Ave., N.E.	-	-	-	-			exempt		X
DCDPW	DB12	rehab.	approved	Pedestrian Ramp	At Penn. Ave.	-	-	-	-			exempt		X
DCDPW	DB13	rehab.	approved	Mass Ave., NW	Tunnel under Thom. Circ. @ 14th St.	-	-	-	-			exempt		X
DCDPW	DB14	rehab.	approved	Park Rd. Br. NW (#25)	over Piney Branch Pkwy.	-	-	-	-			exempt		X
DCDPW	DB15	rehab.	pending	Pedestrian Br.	over Anacostia Fwy. At Pope Br.	-	-	-	-			exempt		X
DCDPW	DB16	rehab.	pending	Pedestrian Br.	over Kenilworth at Douglass St.	-	-	-	-			exempt		X
DCDPW	DB17	rehab.	pending	Pedestrian Br.	over Kenilworth Ave. Nash St.	-	-	-	-			exempt		X
DCDPW	DB18	rehab.	pending	Pedestrian Br.	over Kenilworth Ave. at Lane Pl.	-	-	-	-			exempt		X
DCDPW	DB19	rehab.	pending	P St. Br.	over Rock Creek	-	-	-	-			exempt		X
DCDPW	DB20	rehab.	approved	Q St. Br.	over Rock Creek	-	-	-	-			exempt		X
DCDPW	DB21	rehab.	approved	M St. Br.	over Rock Creek	-	-	-	-			exempt		X
DCDPW	DB22	rehab.	pending	Wisconsin Ave. Br.	over C&O Canal	-	-	-	-			exempt		X
DCDPW	DB23	rehab.	pending	31st St. Br.	over C&O Canal	-	-	-	-			exempt		X
DCDPW	DB24	rehab.	pending	Jefferson Br.	over C&O Canal	-	-	-	-			exempt		X
DCDPW	DB25	rehab.	pending	30th St. Br.	over C&O Canal	-	-	-	-			exempt		X
DCDPW	DB26	rehab.	pending	29th St. Br.	over C&O Canal	-	-	-	-			exempt		X
DCDPW	DB27	rehab.	pending	Benning Rd. Br. NE	over Kingman Lake	-	-	-	-			exempt		X
DCDPW	DB28	rehab.	approved	Minnesota Ave. Br.	over Watts Branch NE (#82)	-	-	-	-			exempt		X
DCDPW	DB29	rehab.	approved	24th St. Br.	over K St. NW (#102)	-	-	-	-			exempt		X
DCDPW	DB30	rehab.	pending	Theodore Roosevelt Br.	over Potomac River	-	-	-	-			exempt		X
DCDPW	DB31	rehab.	pending	11th St. Br. SW	over D St. & Penn RR	-	-	-	-			exempt		X
DCDPW	DB32	rehab.	pending	Porter St. Br.	over Klinge Rd.	-	-	-	-			exempt		X
DCDPW	DB33	rehab.	pending	Eastern Ave. Br.	over RR	-	-	-	-			exempt		X
DCDPW	DB34	rehab.	pending	7th St. Br.	over Southwest Freeway	-	-	-	-			exempt		X
DCDPW	DB35	rehab.	pending	Hunt Pl. Br.	over Watts Branch	-	-	-	-			exempt		X
DCDPW	DB36	rehab.	pending	Benning Rd. Br.	over Anacostia River	-	-	-	-			exempt		X
DCDPW	DB37	rehab.	pending	Southeast Fwy.	2nd St. to 11th St.	-	-	-	-			exempt		X
DCDPW	DB38	rehab.	pending	9th St. Br.	over SW Fwy.	-	-	-	-			exempt		X
DCDPW	DB39	rehab.	pending	Southeast Fwy.	bridge ramps	-	-	-	-			exempt		X
DCDPW	DB40	rehab.	pending	Center 14th St. Br.	over Potomac River	-	-	-	-			exempt		X

FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

**NOTE: Shaded sections indicate changes
from the FY98 -03 TIP**

DRAFT
DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020	
						DCDPW	DB41	rehab.	pending			11th St. Br. SE	over Anacostia River	-	-	-	-	
DCDPW	DB42	rehab.	pending	16th St. NW	underpass at Scott Circle	-	-	-	-			exempt						X
DCDPW	DB43	rehab.	pending	Connecticut Ave.	underpass at Dupont Circle	-	-	-	-			exempt						X
DCDPW	DB44	rehab.	N.A.	Bridge inspection	ON/OFF System	-	-	-	-			exempt						X
DCDPW	DB45	rehab.	N.A.	Bridge Painting and Renovation		-	-	-	-			exempt						X
DCDPW	DM1	rehab.	N.A.	Safety Improvements	Citywide	-	-	-	-			exempt						X
DCDPW	DM2	rehab.	N.A.	Resurfacing	Streets & Freeways Citywide	-	-	-	-			exempt						X
DCDPW	DM3	rehab.	N.A.	Roadway Reconstruction	Citywide	-	-	-	-			exempt						X
DCDPW	DM4	improve	N.A.	Traffic Operations	Citywide	-	-	-	-			exempt						X
DCDPW	DM5	rehab.	N.A.	Roadway upgrades	Citywide	-	-	-	-			exempt						X
DCDPW	DM6	rehab.	N.A.	Roadside improvements	Citywide	-	-	-	-			exempt						X
DCDPW	DM7		N.A.	CMAQ projects	Various locations	-	-	-	-			exempt						X
DCDPW	DM8		N.A.	Enhancements	Various locations	-	-	-	-			exempt						X
DCDPW	DM9	rehab.	N.A.	Electrical systems	Citywide	-	-	-	-			exempt						X
DCDPW	DM10		N.A.	Planning & mgmt. systems	Various locations	-	-	-	-			exempt						X
DCDPW	DM11		N.A.	Demonstration projects	Various locations	-	-	-	-			exempt						X
DCDPW	DM12		N.A.	Federal Lands Highways	Various locations	-	-	-	-			exempt						X
DCDPW	DM13	rehab.	N.A.	Local street improvements	Citywide	-	-	-	-			exempt						X
DCDPW	DM14	restore	pending	Liberty Plaza	G St. in front of MLK Library	-	-	-	-			exempt						X
DCDPW	DM15	study	N.A.	IVHS	Citywide	-	-	-	-			exempt						X
MARYLAND																		
MDOT	MI1a	study	pending	I-95/I-495 HOV Lanes	Am. Legion Br. To W. Wilson Br.	1	1	8	10	no		not coded						-
MDOT	MI1b	construct	pending	I-95/ Woodrow Wilson Br.	MD 210 to Telegraph Rd.	1	1	6	10	no	2005	-	-	X	X	X	X	
MDOT	MI1d	upgrade	approved	I-495 Interchange	at MD 185	1	1	-	-	completed	1996	X	X	X	X	X	X	
MDOT	MI1e	construct	approved	I-95/I-495 Interchange	at Ritchie Marlboro Road	1	1	-	-	no	2005	-	-	X	X	X	X	
MDOT	MI1f	construct	pending	I-95 Interchange	at Contee Rd. Rel. with two lane C-D roads NB & SB from north of MD 212 to north of MD 198	1	1	8	8+4	no	2010	-	-	-	X	X	X	
MDOT	MI1g	study	pending	I-95 (HOV lanes)	I-95 to PG/Howard Co. line	1	1		10	no		not coded						-
MDOT	MI1h	construct	approved	I-95/I-495	Interchange at Arena Dr. Ext. - SB ramps	1	1	-	-	completed	1997	X	X	X	X	X	X	
MDOT	MI1i	construct	approved	I-95/I-495 Interchange	Interchange at Arena Dr. Ext. - NB ramps	1	1			yes	1998	X	X	X	X	X	X	
MDOT	MI2a	widen	approved	I-270 (HOV lanes)	Middlebrook Rd. to north of MD 121	1	1	4	6	completed	1996	X	X	X	X	X	X	
MDOT	MI2b	widen	approved	I-270 (HOV lanes)	I-270 Spur to I-495 (east segment)	1	1	4	6	completed	1995	X	X	X	X	X	X	
MDOT	MI2c	widen	approved	I-270 Spur (HOV lane)	I-270 to s. of Bradley (w. Segment)	1	1	4	6	completed	1996	X	X	X	X	X	X	

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MDOT	MI2e	modify	approved	I-270 NB (HOV lane)	"Y" split to s. of Montrose Rd.	1	1	6	6	completed	1996	X	X	X	X	X	X	-
MDOT	MI2f	modify	approved	I-270 NB (HOV lane)	S. of Montrose to MD 124	1	1	4+2	4+2	completed	1996	X	X	X	X	X	X	-
MDOT	MI2g	modify	approved	I-270 NB (HOV lane)	MD 124 to Middlebrook Rd.	1	1	4	4	completed	1996	X	X	X	X	X	X	-
MDOT	MI2h	modify	approved	I-270 SB (HOV lane)	South of MD 118 to I-370	1	1	4	4	completed	1996	X	X	X	X	X	X	-
MDOT	MI2i	modify	approved	I-270 SB (HOV lane)	I-370 to south of Montrose Rd.	1	1	4+2	4+2	completed	1996	X	X	X	X	X	X	-
MDOT	MI2j	modify	approved	I-270 SB (HOV lane)	South of Montrose Rd. to "Y" Split	1	1	6	6	completed	1996	X	X	X	X	X	X	-
MDOT	MI2k	upgrade	approved	I-270 Interchange	at Md 187	1	1	-	-	no	2010	-	-	-	X	X	X	X
MDOT	MI2l	upgrade	approved	I-270 Spur Interchange	at Democracy Boulevard	1	1	-	-	no	2000	-	-	X	X	X	X	X
MDOT	MI2q	study	pending	I-270/US 15 Corridor Study	Shady Grove Metro to Biggs Ford Rd.	1	1	4+2	8	no								-
MDOT	MI2n	construct	pending	I-270 Interchange	at Rockledge Dr. Connector	1	1	-	-	no	2003	-	-	X	X	X	X	X
MDOT	MI2o	construct	approved	I-270 Spur Interchange	at Fernwood Dr. (HOV only)	1	1	-	-	no	2010	-	-	.	X	X	X	X
MDOT	MI2p	reconstruct	approved	I-270 Interchange	at Md 124	1	1	-	-	no	2001	-	-	X	X	X	X	X
MDOT	MI4	widen	approved	I-70	Mt. Phillip Rd. to MD 144	1	1	4	6	no	2010	-	-	-	X	X	X	X
MDOT	MP1a	widen	pending	MD 2/4	S. of MD 765 to n. of Stoakley Rd.	2	2	4	6	no	2010	-	-	-	X	X	X	-
MDOT	MP2b	widen	approved	MD 3	MD 450 in PG Co. to MD 450 in AA Co.	5	5	4	6	completed	1996	X	X	X	X	X	X	X
MDOT	MP2c	study	pending	MD 3 - relocation	US 50 to the Anne Arundel Co. Line	-	5	-	4	no								-
MDOT	MP3a	upgrade	pending	MD 4	MD 223 to I-95/I-495	2	5	4	4	no	2010	-	-	-	X	X	X	-
MDOT	MP3b	widen	pending	MD 4 (HOV lanes)	MD 223 to I-95/I-495	5	5	4	6	no	2010	-	-	-	X	X	X	-
MDOT	MP3c	construct	pending	MD4 Interchange	at MD 260	2	5	-	-	no	2005	-	-	X	X	X	X	-
MDOT	MP3d	widen	approved	MD 4	I-95/I-495 to Forestville Rd.	2	2	4	6	no	1995	X	X	X	X	X	X	X
MDOT	MP4a	wid/const	approved	MD 5 Interchange	at MD 337 and Manchester Dr.	2	5	6	7	completed	1997	X	X	X	X	X	X	X

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

**NOTE: Shaded sections indicate changes
from the FY98 -03 TIP**

DRAFT
DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP	
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020		
						MDOT	MP4b	wid/const	approved			MD 5 Interchange	at Coventry Way & Malcolm/Shultz Rd.	2	5	-	-		yes
MDOT	MP4c	wid/const	approved	MD 5 Interchange	at MD 373/Brandywine Rd. Relocated	2	5	4	6	no	2005	-	-	X	X	X	X	X	X
MDOT	MP4f	upgr/wid	approved	MD 5	US 301 at T.B. to Coventry Way	2	5	4	6	no	2010	-	-	-	X	X	X	-	-
MDOT	MP4h	study	pending	MD 5 (HOV lanes)	Smallwood Dr. to I-95/I-495	5	5	6	8	no									-
MDOT	MP4i	study	pending	MD5/ I-95/ I-495	Direct Access to Branch Ave. Metro					no									-
MDOT	MP4j	widen	approved	MD 5 southbound	Suitland Pkwy to MD 414	2	2	3	4	no	2000	-	X	X	X	X	X	X	X
MDOT	MP4k	construct	pending	MD 5 relocated	Hughesville Bypass	5	5	2	4	no	2005	-	-	X	X	X	X	-	-
MDOT	MP5a	upgrade	approved	US 29	Sligo Creek Parkway to s. of MD 193	2	5	6	6	no	2020	-	-	-	-	-	X	-	-
MDOT	MP5b	widen	approved	US 29	at MD 193	2	2	6	8	completed	1996	X	X	X	X	X	X	X	X
MDOT	MP5c	upgrade	approved	US 29	North of MD 193 to south of MD 650	2	5	6	6	no	2020	-	-	-	-	-	X	-	-
MDOT	MP5d	widen	approved	US 29	Bridge over MD 650	5	5	4	6	completed	1995	X	X	X	X	X	X	-	-
MDOT	MP5e	upgrade	approved	US 29	N. of MD 650 to s. of Howard Line	2	5	6	6	no	2020	-	-	-	-	-	X	-	-
MDOT	MP5f	study	pending	US 29 Busway	Silver Spring Metro to MD 198	2	2	6	6+1	no									X
MDOT	MP5g	construct	approved	US 29 Interchange	MD 198,Randolph Rd., Briggs Chaney Rd.	2	5	6	6	no	2005	-	-	X	X	X	X	X	X
MDOT		upgrade	pending	US 50 Interchange	at Columbia Park Rd. n.b. to e.b. US 50 ramp	1	1	-	-	no	2002	-	-	X	X	X	X	X	X
MDOT		widen	pending	US 50 (HOV lanes)	US 301/MD 3 to w. of MD 410	1	1	6	6+2	no	2005	-	-	X	X	X	X	-	-
MDOT	MP6c	widen	approved	MD 210	MD 228 Conn. to Old Fort Rd.	2	2	4	6	completed	1995	X	X	X	X	X	X	-	-
MDOT	MP6d	study	pending	MD 210 (HOV lanes)	MD 228 to I-95/I-495	2	2	6	6+2	no									X
MDOT	MP7a	relocate	approved	MD 228 Connector	MD 228 @ Shrvlve.Rd.to Beal.Hill Rd.	-	2	-	4	completed	1996	X	X	X	X	X	X	-	-
MDOT	MP7b	relocate	approved	MD 228 Connector	Bealle Hill Rd. to MD 210	-	2	-	2	completed	1996	X	X	X	-	-	-	-	-
MDOT	MP7c	widen	approved	MD 228 connector	w. of Mattawoman Ck. To MD 210	2	2	2	4	no	2000	-	X	X	X	X	X	X	X
MDOT	MP8a	widen	pending	US 301	s. of MD 5 at TB to US w/w. side service rd	2	1	4/6	6	no	2020	-	-	-	-	-	X	X	X
MDOT	MP8b	widen	approved	US 301/MD 5	N. of Timothy Branch to T.B.	2	2	4	6	completed	1997	X	X	X	X	X	X	X	-
MDOT	MP8d	relocate	pending	US 301	Waldorf Bypass	-	5	-	6	no	2020	-	-	-	-	-	X	-	-
MDOT	MP9a	study	pending	ICC (PEAK PERIOD HOV)	I-370 to US 1	-	2	-	4	no									X
MDOT	MP10a	widen	pending	US 1	Paint Branch Pkwy. To I-95/I-495	2	2	4	6	no									X
MDOT	MP10b	reconst.	pending	US 1	I-95 / I-495 to Sunnyside Ave.	2	2	4	6	no	1999	X	X	X	X	X	X	X	X
MDOT	MS2	widen	approved	MD 26	Trading Lane to MD 194	3	3	2	4	completed	1997	X	X	X	X	X	X	-	-
MDOT	MS3d	widen	approved	MD 28	Riffleford Rd to Muddy Branch Rd.	3	3	2	4	no	2010	-	-	-	X	X	X	X	X
MDOT	MS3e	widen	approved	MD 28	Muddy Branch Rd. to Great Seneca Hwy.	3	3	4	6	no	2010	-	-	-	X	X	X	X	X
MDOT	MS3h	construct	approved	MD 28 Relocated	Shady Grove Rd. to I-270	-	2	-	6	completed	1997	X	X	X	X	X	X	-	-
MDOT	MS4a	widen	approved	MD 108	Olney Mill Road to MD 182	2	2	2	4	completed	1996	X	X	X	X	X	X	-	-
MDOT	MS5	reconst.	pending	MD 117 Interchanges	Shaffer Rd. to I-270	-	-	-	-	no	2010	-	-	-	X	X	X	X	X

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MDOT	MS6a	widen	approved	MD 124	MD 28 to Longdraft Road	2	2	2	4	completed	1997	X	X	X	X	X	-	-
MDOT	MS6b	widen	approved	MD 124	MD 28 to Longdraft Road	2	2	4	6	no	2020	-	-	-	-		X	-
MDOT	MS8	relocate	approved	MD 194	Woodsboro Bypass	-	3	-	2	completed	1995	X	X	X	X	X	X	-
MDOT	MS10a	extend	pending	MD 201 Extended	Sunnyside Ave. to Contee Rd.	2	2	-	4	no	2010	-	-	-	X	X	X	X
MDOT	MS10b	widen	N/A	MD 201	Rittenhouse Rd. to Pontiac St.	2	2	4	6	no	2005	-	-	X	X	X	X	X
MDOT	MS10c	widen	approved	MD 201	I-95 to Cherrywood Ln.	2	2	2/4	6	no	1999	X	X	X	X	X	X	X
MDOT	MS10d	widen	approved	MD 201	Cherrywood Ln. to Sunnyside Ave.	2	2	2	4	no	1999	X	X	X	X	X	-	X
MDOT	MS10e	widen	pending	MD 201	Cherrywood Ln. to Sunnyside Ave.	2	2	4	6	no	2020	-	-	-	-	-	X	-
MDOT	MS11a	widen	approved	MD 202	Black Swan Rd. to Whitehouse Rd.	2	2	2	4	completed	1998	X	X	X	X	X	X	-
MDOT	MS11b	widen	N/A	MD 202	Arena Dr. to Capital Beltway	2	2	4	6	completed	1997	X	X	X	X	X	X	-
MDOT	MS12	widen	approved	MD 205 (MD 5 rel.)	US 301 to MD 5	2	2	2	4	completed	1998	X	X	X	X	X	X	-
MDOT		widen	approved	MD 211	DC line to MD 212	3	3	2	4	completed	1998	X	X	X	X	X	X	-
MDOT	MS13a	widen	approved	MD 214	MD 193 to west of US 301	2	2	2	4	completed	1997	X	X	X	X	X	X	-
MDOT	MS13b	widen	approved	MD 214	Brightseat Road to Campus Way	3	3	2	6	completed	1995	X	X	X	X	X	X	-
MDOT	MS14	widen	pending	DM 223	MD 5 to MD 4 (Intersection improvs. only)	3	3	2	2	no	2010	-	-	-	X	X	X	-
MDOT	MS16a	widen	approved	MD 355	MD 124 to Middlebrook Road	2	2	2	6	yes	1999	X	X	X	X	X	X	X
MDOT	MS16b	widen	approved	MD 355	Middlebrook Road to MD 27	2	2	2	4	completed	1996	X	X	X	X	X	X	-
MDOT	MS16c	widen	approved	MD 355	Middlebrook Road to MD 27	2	2	4	6	no	2010	-	-	-	X	X	X	-
MDOT	MS17a	reconst.	approved	MD 410A	MD 500 to MD 410	3	3	4	4	completed	1995	X	X	X	X	X	X	-
MDOT	MS18a	widen	approved	MD 450	Seabrook Rd. to MD 704	3	3	2	4	yes	1999	X	X	X	X	X	X	X
MDOT	MS18b	widen	approved	MD 450	MD 704 to MD 193	3	3	2	6	yes	1999	X	X	X	X	X	X	X
MDOT	MS18c	relocate	approved	MD 450	MD 193 to Bell Station Rd.	2	2	2	6	no	2000	-	X	X	X	X	X	X
MDOT	MS18h	relocate	approved	MD 450	Bell Station Rd. to MD 197	2	2	2	4	no	2010	-	-	-	X	X	X	X

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

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DRAFT
DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020	
MDOT	MS18d	relocate	approved	MD 450	MD 197 to w. of US 301	2	2	2	4	no	2010	-	-	-	X	X	X	X
MDOT	MS18f	widen	approved	MD 450	Whitfield Chapel to Greenwood Ln.	3	3	2	4	no	2010	-	-	-	X	X	X	X
MDOT	MS18g	widen	approved	MD 450	Greenwood Ln. to Seabrook Rd.	3	3	2	4	no	2010	-	-	-	X	X	X	X
MDOT	MS18l	construct	pending	MD 450	CSX RR grade separation	3	3	4	4	no	2010	exempt						
MDOT	MS19a	widen	approved	MD 650	MD 198 to Cape May Dr.	2	2	2	4	completed	1998	X	X	X	X	X	X	-
MDOT	MS19b	widen	approved	MD 650	Cape May Dr. to Randolph Rd.	2	2	2	6	completed	1998	X	X	X	X	X	X	-
MDOT	MS20a	widen	pending	East St.	9th St. to East Patrick St.	3	3	2	4	no	2010	-	-	-	X	X	X	X
MDOT	MS20b	extend	pending	East St. Extended	E. Patrick St. to South St.	-	3	-	4	no	2002	-	-	X	X	X	X	X
MDOT	MS 20c	extend	pending	East St. Extended	South St. to Walser Dr.	-	3	-	4	no	2010	-	-	-	X	X	X	X
MDOT	MS21a	construct	approved	Arena Dr. Ext.	US Air Arena to Brightseat Rd.	-	3	-	5	completed	1997	X	X	X	X	X	X	-
MDOT	MS21b	construct	approved	Arena Dr. Ext.	Brightseat Rd. to Stadium Dr.	-	3	-	6	completed	1997	X	X	X	X	X	X	-
MDOT	MS22a	widen	approved	Brightseat Rd.	Sheriff Rd. to MD 202	-	3	-	7	completed	1997	X	X	X	X	X	X	-
MDOT	MS22b	construct	approved	Brightseat Rd. Rel.	Stadium to Sheriff Rd.	-	3	-	6	completed	1997	X	X	X	X	X	X	-
MDOT	MS22c	widen	approved	Brightseat Rd.	MD 214 to Arena Dr.	3	3	2	4	completed	1997	X	X	X	X	X	X	-
MDOT	MS23a	widen	approved	Summerfield Blvd.	Fieldstone Way to Wilson Farm Prop.	-	3	3	6	completed	1997	X	X	X	X	X	X	-
MDOT	MS23b	construct	approved	Summerfield Blvd. Ext.	Summerfield Blvd. To Stadium Dr.	-	3	-	6	completed	1997	X	X	X	X	X	X	-
MDOT	MS24	construct	approved	Hill Oaks Rd. Ext.	Hill Rd. to Stadium Dr.	-	4	-	4	completed	1997	X	X	X	X	X	X	-
MDOT	MS25	construct	approved	Stadium Dr.	Ring road around stadium	-	4	-	4	completed	1997	X	X	X	X	X	X	-
MDOT	MS26	widen	approved	MD 637 (Naylor Rd.)	Suitland Pkwy to MD 5	4	4	2	4	no	2000	-	X	X	X	X	X	X
MDOT	MS27	construct	pending	MD 765 extended	Dowell Rd. to Spinnaker Rd.	4	4	-	2	no	2000	-	X	X	X	X	X	-
MONT CO	MC1a	construct	N.A.	Briggs Chaney Rd.	200 ft. w. of Old Col. Pk. To 1400 ft. w. of existing Briggs Chaney Rd.		3	-	2	completed		X	X	X	X	X	X	-
MONT CO	MC1b	widen	N.A.	Briggs Chaney Rd.	W. of Old Col. Pk. to Automobile Blvd.		3	2	4	completed		X	X	X	X	X	X	-
MONT CO	MC1c	widen	N.A.	Briggs Chaney Rd.	Auto. Blvd to Aston Manor Dr.	3	3	2	4	no	2004	-	-	X	X	X	X	X
MONT CO	MC1d	reconstruct	N.A.	Briggs Chaney Rd.	Aston Manor Dr. to Gentry Ridge Ct.	3	3	2	2	no	2004	-	-	X	X	X	X	X
MONT CO	MC1f	widen	N.A.	Briggs Chaney Rd.	Gateshead Manor Way to PG Co. line	3	3	2	4	no		-	-	-	-	-	X	-
MONT CO	MC1e	reconstruct	N.A.	Briggs Chaney Rd.	realign at MD 650 opp. Norwood Rd.		3	-	2	no		-	-	-	-	-	X	-
MONT CO		reconst.	N.A.	Brink/Wightman Rd. Fac. Planning	MD 27 to Goshen Rd.	3	3	2	4	no		-	-	-	-	-	X	-
MONT CO	MC3	extend	N.A.	Chapman Ave. Ext. Pl.	Bou Ave. to Executive Blvd.		3	-	4	no		-	-	-	X	X	X	-
MONT CO	MC4b	widen	N.A.	E. Randolph Road	Burkhart St. to Old Columbia Pike		3	2	5	yes	1999	X	X	X	X	X	X	X
MONT CO	MC5a	construct	N.A.	Father Hurley/ Ridge Rd.	Crystal Rock to I-270		2	-	6	completed		X	X	X	X	X	X	-
MONT CO	MC5b	construct	N.A.	Father Hurley/ Ridge Rd.	I-270 to existing MD 27		2	-	4	completed		X	X	X	X	X	X	-
MONT CO	MC5c	widen	N.A.	Father Hurley/ Ridge Rd.	I-270 to existing MD 27		2	4	6	no		-	-	-	-	-	X	-

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MONT CO	MC5d	construct	N.A.	Father Hurley Blvd.	Wisteria to MD 118 To relocated		2	-	4	no		-	-	-	-	-	X	-	
MONT CO	MC6	construct	N.A.	Frndshp. Blvd/Hills Plaza	Willard Ave. to Western Ave.		3	-	4	completed		X	X	X	X	X	X	X	-
MONT CO	MC7a	widen	N.A.	Goshen Rd. Fac. Planning	Girard St. to Warfield Rd.		3	2	4	no		-	-	-	X	X	X	X	-
MONT CO	MC7b	construct	N.A.	Goshen Rd. Fac. Planning	Warfield Rd. to Brink Rd.		3	-	2	no		-	-	-	X	X	X	X	-
MONT CO	MC8b	widen	N.A.	Great Seneca Hwy.	Middlebrook to MD 124		2	4	6	no		-	-	-	X	X	X	X	-
MONT CO		reconst.	N.A.	MD 117	Existing MD 118 to rel. MD 118 (included in MD 118 relocated)	2	2	2	6	yes	1999	X	X	X	X	X	X	X	X
MONT CO	MC12g	construct	N.A.	MD 118 Relocated	Existing MD 118 (s. of MD 117) to MD 117		2		6	yes	1999	X	X	X	X	X	X	X	X
MONT CO	MC12a	construct	N.A.	MD 118 Relocated	MD 117 to Wisteria		2	-	6	yes	1999	X	X	X	X	X	X	X	X
MONT CO	MC12c	construct	N.A.	MD 118	MD 355 to I-270		2	-	6	completed		X	X	X	X	X	X	X	-
MONT CO	MC12d	construct	N.A.	MD 118 Ext (Grmntwn. Rd.)	MD 355 to Scenery Dr.		2	-	3	completed		X	X	X	X	X	X	X	-
MONT CO	MC12e	construct	N.A.	MD 118 Ext (Grmntwn. Rd.)	Scenery Dr. to M-83/Watkins Mill Rd.		2	-	3	no	2004	-	-	X	X	X	X	X	X
MONT CO	MC12f	widen	N.A.	MD 118 Ext (Grmntwn. Rd.)	MD 355 to M-83/Watkins Mill Rd.		2	3	6	no		-	-	-	-	-	X	X	-
MONT CO	MC13	construct	N.A.	MD 124 Ext. (Woodfield Rd.) Fac. Pln.	MD 108 to MD 27		3	-	2	no		-	-	-	X	X	X	X	-
MONT CO	MC14b	widen	N.A.	Middlebrook Road	Great Scenery Highway to I-270		2	3	6	yes		X	X	X	X	X	X	X	X
MONT CO	MC14d	widen	N.A.	Middlebrook Road	I-270 to MD 355		2	3	6	completed		X	X	X	X	X	X	X	-
MONT CO	MC14e	construct	N.A.	Middlebrook Road Ext.	MD 355 to M-83		2	-	3	completed		X	X	X	X	X	X	X	-
MONT CO	MC14g	widen	N.A.	Middlebrook Road Ext.	MD 355 to M-83		2	3	6	no		-	-	-	-	-	X	X	-
MONT CO	MC15	construct	pending	Montrose Parkway Fac. Pl.	E. of I-270 to E. of MD 355		3	-	4	no		-	-	-	X	X	X	X	-
MONT CO	MC18a	construct	pending	Norbeck Rd. Ext.	MD 28 to MD 198		3	-	2	no	2002	-	X	X	X	X	X	X	X
MONT CO	MC18b	widen	pending	Norbeck Rd. Ext.	MD 28 to MD 198		3	2	4	no		-	-	-	-	-	X	X	-
MONT CO	MC20	construct	N.A.	Shady Grove Rd.	Briardale Rd. to MD 115		3	4	6	no	2004	-	-	X	X	X	X	X	-
MONT CO		construct	N.A.	Silver Spring Transit Access	Extend Silver Spring Ave. (w.of GA Ave)					no		-	-	-	-	-	X	X	-

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

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from the FY98 -03 TIP**

DRAFT
DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020	
												(previously in transit listing)	parallel with rail, to Bonifant St.					
MONT CO		construct	N.A.	Snouffer School Rd. Fac. Planning	Goshen Rd. to Centerway Rd.	3	3	2	4	no		-	-	-	-	-	X	-
MONT CO	MC22	construct	N.A.	Valley Park Dr.	e. of MD 27 to exist. Valley Park Dr.		4	-	2	no	2004	-	X	X	X	X	X	-
MONT CO	MC23a	construct	pending	Watkins Mill Rd. ext.	Md 117 to MD 355		3	-	4	no		-	-	-	X	X	X	-
MONT CO	MC23b	widen	N.A.	Watkins Mill Rd. and Brdg	N of Travis Ave. to Watkins Mill Dr.		3	1-2	4	completed	1998	X	X	X	X	X	X	X
MONT CO	MC25	construct	pending	I-270 Overpass/ Westlake Fernwood Rd.	Brg. over I-270 spur and roadway improvs. from Wstlake Ter. to Frnwd.		3	-	4	completed		X	X	X	X	X	X	X
MONT CO	MC26	construct	N.A.	Bordly Dr.	MD 97 east to 1800' to existing Bordly Dr.			-	2	no	2001	-	-	X	X	X	X	
MONT CO	MC27	widen	N.A.	Fairland Rd. Fac. Planning	US 29 to Briggs Chaney Rd.	3	3	2	4	no		-	-	-	-	X	X	
MONT CO	MC 28	construct	pending	Stringtown Rd Ext Facility Panning	I-270/ MD 121 Int. to 400 ft east of MD 355	-	2	-	4	no		-	-	-	X	X	X	-
MONT CO	MC29	rehab.	N.A.	Quince Orchard Rd Fac. Planning	Duffel Mill Rd to MD 28	4	4	2	2	no		-	-	-	-	X	X	-
MONT CO	MC30	construct	N.A.	Nebel St Ext Facility Planning	Randolph Rd to Bou Ave/Chapman Ave	-	3	-	4	no		-	-	-	-	X	X	-
PG CO	PGS1	widen	N.A.	85th Ave.	Harkins Rd. to MD 450		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS2	construct	approved	ACF Prop. Loop	Kenilworth Ave to Calvert Rd. Rel.		4		4	completed	1996	X	X	X	X	X	X	-
PG CO	PGS3a	widen	N.A.	Addison Rd	MD 214 to Walker Mill Rd		3	2	4	no		-	-	X	X	X	X	-
PG CO	GPS3b	widen	N.A.	Addison Rd	Seat Pleasant to MD 704		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS4	widen	approved	Adelphi Rd	Metzerott Rd to MD 193		3	2	4	completed	1996	X	X	X	X	X	X	-
PG CO	PGS5	construct	pending	Allentown Rd. Rel.	MD 210 to Brinkley Rd.		3	-	4	no		-	-	-	X	X	X	-
PG CO	PGS6	widen	N.A.	Ammendale/VM Rds.	I-95 to west of US 1		3	2	6	no		-	-	X	X	X	X	-
PG CO	PGS8	rehab.	approved	Belcrest Rd	Adelphi Rd. to Queens Chapel Rd.		4	-	4	completed	1996	X	X	X	X	X	X	-
PG CO	PGS9a	widen	N.A.	Bowie Race Tk. Rd.	Md 450 to Old Chapel Rd.		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS9b	widen	pending	Bowie Race Tk. Rd.	MD 197 to Old Chapel Rd.		4	2	4	no		X	X	X	X	X	X	-
PG CO	PGS10	widen	N.A.	Brandywine Rd	N of MD 223 to Thrift Rd		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS11	widen	pending	Brightseat Rd	Sheriff Rd to Arena Dr.		4	2	4	no		X	X	X	X	X	X	-
PG CO	PGS12	widen	N.A.	Brinkley Rd	St Barnabas Rd to Allentown Rd.		3	4	6	no		-	-	-	X	X	X	-
PG CO	PGS13	construct	N.A.	Brooks Dr. Ext	Marlboro Pike to Rollins Ave.		3	-	4	no		-	-	-	X	X	X	-
PG CO	PGS14	widen	N.A.	Cabin Branch Dr	Columbia Park Rd to N. Sheriff Rd.		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS15	construct	approved	Calvert Rd. Rel.	MD 201 to US 1		3	-	4	completed		X	X	X	X	X	X	-
PG CO	PGS16a	widen	N.A.	Campus Way N	Lake Arbor Way to S of Lottsford Rd.		4	-	4	no		-	X	X	X	X	X	-
PG CO	PGS16b	construct	N.A.	Campus Way N Ext	S of Lottsford Rd to Everts Dr.		4	-	4	no		-	X	X	X	X	X	-
PG CO	PGS17	widen	N.A.	Cherry Hill Rd	US 1 to Montgomery Co Line		3	2	4	no		-	X	X	X	X	X	-
PG CO	PGS18	widen	N.A.	Church Rd	Oak Grove Rd to MD 450		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS19	construct	approved	Clinton	Fringe Parking Lot Expansion		-	-	-	yes		X	X	X	X	X	X	-

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PG CO	PGS20a	widen	N.A.	Columbia Park Rd	Cabin Branch Rd to Columbia Terr.		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS20b	widen	N.A.	Columbia Park Rd	US 50 to Cabin Branch Dr		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS21a	wid/const	pending	Contee Rd	US 1 to Van Dusen Rd		3	2	4	no		-	X	X	X	X	X	-
PG CO	PGS21b	widen	N.A.	Contee Rd	Briarwood Dr to US 1		4	2	4	no		X	X	X	X	X	X	-
PG CO	PGS21c	construct	N.A.	Contee Rd Ext	Old Gunpowder Rd to Van Dusen Rd.		3	-	4	no		-	X	X	X	X	X	-
PG CO	PGS22	widen	N.A.	Dangerfield Rd	Cheltenham Ave to Woodyard Rd.		4	2	4	no		-	-	X	X	X	X	-
PG CO	PGS23	rehab.	N.A.	Decatur St	Over NE Branch of Anacostia River		3	-	2	completed	1996				exempt			X
PG CO	PGS24a	widen	N.A.	Dower House Rd	MD 223 to Foxley Rd		4	2	4	no		-	-	-	-		X	-
PG CO	PGS24b	widen	N.A.	Dower House Rd	Foxley Rd to MD 4		4	2	6	no		-	-	-	-		X	-
PG CO	PGS25	widen	N.A.	Fisher Rd	Brinkley Rd to Holten Lane		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS26	construct	N.A.	Forbes Blvd Ext	S of Amtrack to MD 193		4	-	4	no		-	-	-	X	X	X	-
PG CO	PGS27	widen	N.A.	Forestville Rd	MD 337 to MD 4		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS28	construct	approved	Ft Washington	Fringe Parking Lot		-	-	-	completed	1996	X	X	X	X	X	X	-
PG CO	PGS29	widen	N.A.	Ft Washington Rd	Riverview Rd to MD 210		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS30a	widen	N.A.	Good Luck Rd	Md 201 to Cipriano Rd		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS30b	widen	N.A.	Good Luck Rd	Cipriano Rd to MD 193		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS31	widen	approved	Harkins Rd	Ellin Rd. to MD 450		4	2	4	completed	1996	X	X	X	X	X	X	-
PG CO	PGS32	construct	pending	Harry S Tru Dr Ext	Ritchie Mar Rd to Exist. HST Dr.		4	-	4	yes		X	X	X	X	X	X	-
PG CO	PGS33	widen	N.A.	Highbridge Rd	MD 450 to Fletchertown		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS34a	widen	N.A.	Hill Rd	MD 704 to MD 214		4	2	4	no		-	X	X	X	X	X	-
PG CO	PGS34b	construct	N.A.	Hill Rd Ext	MD 704 to Sheriff Rd		4	-	2	no		-	X	X	X	X	X	-
PG CO	PGS35	widen	N.A.	Karen Blvd	Walker Mill Rd to MD 214		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS37	construct	approved	Laurel	Fringe Parking Lot		-	-	-	completed	1996	X	X	X	X	X	X	-

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CFY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

NOTE: Shaded sections indicate changes from the FY98 -03 TIP

DRAFT
DATE OF PREPARATION: 3/10/98

1	2	3	4	5	6	7		8		9	10	11						12
						FACILITY TYPE	NUMBER OF LANES	CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	PROJECT COMPLT. DATE			NETWORK						
												FROM	TO	FROM	TO	1999	2000		2005	2010	2015	2020	IN TIP
PG CO	PGS38	widen	N.A.	Livingston Rd	MD 210 to MD 210		3/4	2	4	no		-	-	X	X	X	X	-
PG CO	PGS39a	widen	N.A.	Lottsford Vista Rd	MD 704 to Ardwick Ardmore Rd.		4	2	2	no		-	-	X	X	X	X	-
PG CO	PGS39b	widen	N.A.	Lottsford Vista Rd	MD 704 to Ardwick Ardmore Rd. Rel.		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS40a	widen	pending	Lottsford Rd.	MD 202 to MD 193		3	2	4	no		X	X	X	X	X	X	-
PG CO	PGS40b	widen	N.A.	Woodmore / Mt. Oaks Rds.	MD 193 to Mitchellville Rd.		3	2	4	no		-	-	-	X	X	X	-
PG CO	PGP4	construct	N.A.	MD 193	ramp to southbound BW Pkwy.		5	-	4	no		-	-	-	X	X	X	-
PG CO	PGS42	widen	N.A.	MD 223	Rosaryville Rd to Dower House Rd		2	2	4	no		-	X	X	X	X	X	-
PG CO	PGS44a	widen	N.A.	Metzerott Rd	MD 650 to Adelphi Rd.		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS44b	widen	N.A.	Metzerott Rd	Adelphi Rd. to MD 193		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS45	widen	approved	Mitchellville Rd	Mt Oak Rd to MD 197 (Collington Rd.)		4	2	6	yes		X	X	X	X	X	X	-
PG CO	PGS46	widen	N.A.	Muirkirk Rd	US 1 to Odell Rd		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS47	widen	N.A.	Oak G/Leeland Rds	MD 193 to US 301		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS48	widen	N.A.	Old Alex Ferry Rd	MD 223 to MD 5		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS49	replace	N.A.	Odell Rd Bridge	Over Indian Creek		4	-	2	yes		exempt						X
PG CO	PGS50	widen	N.A.	Old Branch Ave	N of MD 223 to MD 337		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS51a	widen	N.A.	Old Gunpowder Rd SB	Powder Mill Rd to Greencastle Rd.		3	-	2	no		-	-	X	X	X	X	-
PG CO	PGS51b	rehab.	N.A.	Old Gunpowder Rd NB	Powder Mill Rd to Greencastle Rd.		3	-	2	no		-	-	X	X	X	X	-
PG CO	PGS51c	widen	N.A.	Old Gunpowder Rd	Greencastle Rd. to MD 198		3	2	4	no		-	-	-	X	X	X	-
PG CO	PGS52	widen	N.A.	South Osborne Rd	US 301 to MD 223		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS53	widen	N.A.	Oxon Hill Rd	Careybrook La to S of Bald Eagle Rd		4	2	4	no		-	X	X	X	X	X	-
PG CO	PGS54	widen	N.A.	Rhode Island Ave	MD 193 to US 1		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS55	widen	N.A.	Ritchie Mar Rd	MD 4 to White House Rd		3	2	4	no		-	-	-	X	X	X	-
PG CO	PGS56a	widen	approved	Ritchie Rd	Alberta Dr to Walker Mill Rd.		4	2	4	yes		-	X	X	X	X	X	-
PG CO	PGS56c	construct	approved	Ritchie Rd Ext / Summerfield	MD 214 to Nailey Rd. E.		4	-	4	completed	1996	X	X	X	X	X	X	-
PG CO	PGS56d	construct	N.A.	Ritchie Rd Ext/Raljon Rd.	Nailey Rd. E. to Sheriff Rd.		4	-	4	yes		X	X	X	X	X	X	-
PG CO	PGS56e	widen	N.A.	Ritchie/Forest Rds	MD 4 to Alberta Dr		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS57	widen	N.A.	Rollins Ave	MD 214 to Walker Mill Rd		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS58	widen	N.A.	Rosaryville Rd	US 301 to MD 223		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS59	widen	N.A.	Sheriff Rd	MD 704 to Brightseat Rd		4	2	4	no		-	-	X	X	X	X	-
PG CO	PGS60a	construct	N.A.	Spine Rd / Brandywine	MD 5 to Brandywine Rd		3	-	2	no		-	X	X	X	X	X	-
PG CO	PGS60b	construct	N.A.	Spine Rd. /Brandywine Rd.	US 301/MD 5 to Brandywine Rd.		3	2	6	no		-	-	-	X	X	X	-
PG CO	PGS61	widen	N.A.	Springfield Rd	MD 564 to Good Luck Rd		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGP2	construct	N.A.	Suitland Pkwy	Interchange at Rena/Forestv. Rds		5	-	-	no		-	-	X	X	X	X	-

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PG CO	PGS62a	widen	N.A.	Suitland Rd	MD 337 to Suitland Parkway		3	2	4	no		--	-	X	X	X	X	-
PG CO	PGS62b	widen	N.A.	Suitland Rd	Suitland Parkway to MD 458		3	2	4	no		-	-	-	X	X	X	-
PG CO	PGS63	widen	N.A.	Sunnyside Ave	US 1 to MD 201		4	2	4	no		-	X	X	X	X	X	-
PG CO	PGS64	widen	N.A.	Surratts Rd	Beverly Ave to Brandywine Rd		4	2	4	no		X	X	X	X	X	X	-
PG CO	PGS65	widen	N.A.	Temple Hills Rd	MD 223 to MD 414		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS66	replace	N.A.	Trumps Hill Rd. Bridge	Over Charles Branch		4	-	2	yes							X	X
PG CO	PGP5a	construct	pending	US 50	w.bound ramp tp Columbia Park Rd.		-	-	-	no		-	-	-	X	X	X	-
PG CO	PGP5b	construct	N.A.	US 50	e.bound ramp Cheverly vicinity		-	-	-	no		-	X	X	X	X	X	-
PG CO	PGS67a	widen	N.A.	Van Dusen Rd	Contee Rd to MD 198		3	2	4	no		-	-	-	X	X	X	-
PG CO	PGS67b	widen	N.A.	Van Dusen Rd Interchange	At Contee Rd.		3	-	-	no		-	-	-	-		X	-
PG CO	PGS68	widen	N.A.	Virginia Manor Rd	Muirkirk Rd to Contee Rd		4	2	4	no		-	-	X	X	X	X	-
PG CO	PGS69a	construct	N.A.	Walker Mill Rd	Silver Hill Rd Ext to Ritchie Rd		3	2	4	no		-	-	X	X	X	X	-
PG CO	PGS69b	construct	pending	Walker Mill Rd Extended	Ritchie Rd. to I-95		3	-	6	no		X	X	X	X	X	X	-
PG CO	PGS70	widen	N.A.	Wheeler Rd	MD 414 to DC Limits		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGS71	widen	N.A.	White House Rd	Ritchie Marlboro Rd to MD 202		3	2	6	no		-	-	-	X	X	X	-
PG CO	PGS72	widen	N.A.	Whitfield Chapel Rd	MD 450 to Ardwick Ardmore Rd		4	2	4	no		-	-	-	X	X	X	-
PG CO	PGP3	construct	N.A.	Willowbrook Pkwy	MD 214 to US 301		2	-	4	no		-	-	-	X	X	X	-
PG CO	GS73	rehab.	N.A.	Ardwick Ardmore Rd.	St. Joseph Dr. to 91st Ave		4	2	2	no		-	X	X	X	X	X	-
FRED	FP1	relocate	pending	MD 80 and MD 355	relocate MD 80 from I-270 to MD 355 and relocate MD 355 from s. of MD 80 to n. of Urbana		2		4	no		X	X	X	X	X	X	-
FRED	FS1	upgr/wid	pending	New Design Rd.	Elmer Derr Rd. to Adventist Dr.		2	2	2	4	no		X	X	X	X	X	-

FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

NOTE: Shaded sections indicate changes
from the FY98 -03 TIP

DRAFT
DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020	
BALT. REG.	AA1a	widen		I-97	MD 176 to MD 174 w/ MD 100 interchg.	1	1	4	6	yes	1996	X	X	X	X	X	X	-
BALT. REG.	AA1b	widen		I-97	MD 648 to MD 176 w/ MD 176 interchg.	1	1	4	6	yes	1996	X	X	X	X	X	X	-
BALT. REG.	AA1c	widen		I-97	MD 174 to MD 3 Bus.	1	1	4	6	yes	1996	X	X	X	X	X	X	-
BALT. REG. BALT. REG.	AA1d	construct		I-97 / MD 178 / MD 32	ramps s. from MD 178 to I-97 N. and from N. I-97 to MD 178	1	1					-	-	-	-	-	X	-
BALT. REG.	AA2a	construct		I-195	Interchange at MD 170						1997	X	X	X	X	X	X	-
BALT. REG.	AA2b	widen		I-195	MD 295 to BWI Airport	1	1	4	6			-	-	X	X	X	X	-
BALT. REG.	AA3a	widen		MD 2	Cypress Creek Rd. to Whites Rd.			4	6	yes	1996	X	X	X	X	X	X	-
BALT. REG.	AA3b	widen		MD 2	College Pkwy. to Jones Station Rd.			4	6	yes	1996	X	X	X	X	-	X	-
BALT. REG.	AA3c	widen		MD 2	Virginia Ave. to MD 214			2	6		2005	-	-	X	X	-	X	-
BALT. REG.	AA3d	construct		MD 2	Interchange at College Pkwy.							-	-	-	-	-	X	-
BALT. REG.	AA3e	widen		MD 2	MD 10 to US 50/301			4	6			-	-	X	X	X	X	-
BALT. REG.	AA4a	widen		MD 3	MD 450 to Crawford / Cronson Blvd.			4	6		1997	X	X	X	X	X	X	-
BALT. REG.	AA4b	widen		MD 3	MD 175 to St. Stephen's Church Rd.			4	6		2000	-	X	X	X	X	X	-
BALT. REG.	AA4c	widen		MD 3	Craw./Cron.Blvd. to St. Steph.'s Ch. Rd.			4	6			-	-	X	X	X	X	-
BALT. REG.	AA4d	widen		MD 3	MD 32 to MD 175			4	6			-	-	X	X	X	X	-
BALT. REG.	AA5a	widen		MD 32	MD 198 to Mapes Rd.			4	6	yes	1996	X	X	X	X	X	X	
BALT. REG. BALT. REG.	AA5b			MD 32	BW Pkwy. to E. of MD 198 (includes intchgs. at MD 295 NSA and MD 198			4	4			-	-	X	X	X	X	-
BALT. REG.	AA5c	widen		MD 32	BW Pkwy. to Howard Co. line			4	8			-	-	-	-	-	X	-
BALT. REG. BALT. REG.	AA6a	construct		MD 100	Howard Co. line to MD 295 (intchg. at Race and MARC station)			0	4	yes	1996	X	X	X	X	X	X	-
BALT. REG.	AA6b	construct		MD 100	MD 170 to I-97 (intchg. at MD 170)			0	6	yes	1996	X	X	X	X	X	X	-
BALT. REG.	AA6c	construct		MD 100	Interchange at MD 295					yes	1996	X	X	X	X	X	X	-
BALT. REG.	AA6d	construct		MD 100	MD 295 to MD 170 (intchg. at MD 713)			0	4		1998	X	X	X	X	X	X	-
BALT. REG.	AA7	widen		MD 170	MD 32 to MD 100			2	4			-	-	-	-	X	X	-
BALT. REG.	AA8a	widen		MD 175	MD 174 to BW Parkway			2	4			-	-	-	-	X	X	-
BALT. REG.	AA8b	widen		MD 175	MD 32 to MD 170			4	5			-	-	-	-	X	X	-
BALT. REG.	AA8c	widen		MD 175	MD 170 to Higgins Dr.			4	5			-	-	-	-	X	X	-
BALT. REG.	AA9	widen		MD 214	MD 424 to Loch Haven Rd.			2	4			-	-	-	-	-	X	-
BALT. REG.	AA10	widen		MD 665	Bywater Rd. to Gimini Dr.			4	5		1997	X	X	X	X	X	X	-
BALT. REG.	AA11	widen		College Parkway	Existing 4 lanes to Cape St. Clair Rd.			2	4		1994	X	X	X	X	X	X	-
BALT. REG.	HW1a	construct		I-70	Interchange at Marroittsville Rd.							-	-	-	-	-	X	-
BALT. REG.	HW1b	construct		I-70 HOV lanes (2+)	US 29 to I-695 during peak			6	8			-	-	-	-	-	X	-

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BALT. REG.	HW2	construct		I-95 HOV lanes (2+)	Balt. Co. line to PG. Co. line			8	10			-	-	-	-	X	X	-
BALT. REG.	HW3a	construct		MD 32	MD 108 to Pindell School			0	4	yes	1996	X	X	X	X	X	X	-
BALT. REG.	HW3b	widen		MD 32	MD 108 to I-70			2	4		2010	-	-	-	X	X	X	-
BALT. REG.	HW3c	widen		MD 32	US 29 to Anne Arundel Co. line			4/6	8			-	-	-	-	X	X	-
BALT. REG.	HW4	relocate		MD 97	I-70 to Carroll Co. line			2	2			-	-	-	-	-	X	-
BALT. REG.	HW5a	construct		MD 100	I-95 to Anne Arundel Co. line			0	4		1995	X	X	X	X	X	X	-
BALT. REG.	HW5b	construct		MD 100	Interchange at Snowden River Pkwy.						2000	-	X	X	X	X	X	-
BALT. REG.	HW5c	construct		MD 100	Intchg. at Center Park Dr./Exec. Park Dr.							X	X	X	X	X	X	-
BALT. REG.	HW5d	construct		MD 100	MD 104 to I-95			0	6		2000	-	X	X	X	X	X	-
BALT. REG.	HW6a	widen		MD 108	Homewood Rd. to Guilford Rd.			2	4			-	-	-	-	-	X	-
BALT. REG.	HW6b	widen		MD 108	MD 104 to MD 175			2	4			-	-	-	-	-	X	-
BALT. REG.	HW7	construct		MD 175	Interchange at MD 108							-	-	-	-	-	X	-
BALT. REG.	HW8a	construct		MD 216	I-95 to US 29			0	4			-	-	-	-	X	X	-
BALT. REG.	HW8b	widen		MD 216	US 29 to Pindell School Rd.			2	4			-	-	-	-	X	X	-
BALT. REG.	HW8c	construct		MD 216	Interchg. at Leishear Rd/Loop Rd. W.							-	-	-	-	X	X	-
BALT. REG.	HW9a	widen		US 1	Ducketts Ln. to MD 32			4	6			-	-	-	-	-	X	-
BALT. REG.	HW9b	widen		US 1	Old Balt./Wash. Blvd. to CSX RR			4	5		1995	X	X	X	X	X	X	-
BALT. REG.	HW9c	widen		US 1	Wilbert to Brewers Court			4	5		1995	X	X	X	X	X	X	-
BALT. REG.	HW9d	widen		US 1	Deep Run to Business Park			4	5		1995	X	X	X	X	X	X	-
BALT. REG.	HW10a	construct		US 29	Interchange at MD 216						2005	-	-	X	X	X	X	-
BALT. REG.	HW10b	widen		US 29	MD 175 to Mont. Co. line			4	6			-	-	X	X	X	X	-
BALT. REG.	HW10c	construct		US 29	Interchg. at Gormon Rd/Johns Hop. Rd.						2005	-	-	X	X	X	X	-

FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

**NOTE: Shaded sections indicate changes
from the FY98 -03 TIP**

DRAFT
DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020	
BALT. REG.	HW10d	widen		US 29	I-70 to MD 103			6	8			-	-	-	-	X	X	-
BALT. REG.	HW11a	construct		Rogers Ave. Relocated	US 40 to Town and Country Blvd.			0	4			-	-	-	-	X	X	-
BALT. REG.	HW11b	widen		Rogers Ave. Relocated	US 40 to Courthouse Dr.			2	4			-	-	-	-	X	X	-
BALT. REG.	HW12a	construct		Star Dr.	MD 108 to MD 32			0	3		1996	X	X	X	X	X	X	-
BALT. REG.	HW12b	construct		Star Dr.	MD 32 to Guilford			0	3		1996	X	X	X	X	X	X	-
BALT. REG.	HW13a	construct		Sanner Rd.	MD 216 to Johns Hopkins Rd.			0	4			-	-	-	-	X	X	-
BALT. REG.	HW13b	widen		Sanner Rd.	Johns Hopkins Rd. to Pindell School Rd.			2	4			-	-	-	-	X	X	-
BALT. REG.	HW14a	construct		Snowden River Pkwy.	Tamar Rd. to MD 108			0	4		1997	X	X	X	X	X	X	-
BALT. REG.	HW14b	construct		Snowden River Pkwy.	MD 108 to MD 100 w/ MD 100 interchg.			0	4		1997	X	X	X	X	X	X	-

NOTE: Projects from the Baltimore Region (Howard and Anne Arundel Counties) are included for informational purposes only. Howard and Anne Arundel Counties are not in the Washington MSA,

and projects in these counties are coded in the networks in order to produce the most accurate output data from the air quality conformity analysis.

VIRGINIA

VDOT	VI1a	implem.	approved	I-66 TMS	US 50 - I-495	-	-	-	-	yes	1998								-
VDOT	VI1s	implement	approved	I-66 TMS	I-495 to DC	-	-	-	-	no	2000								X
VDOT	VI1b	implem.	approved	I-66 TMS	VA 234 to US 50	-	-	-	-	yes	1998								-
VDOT	VI1o	study	pending	I-66 study (MIS)	US 15 to Capital Beltway	1	1	4/6	6/8	no	2001	not coded						X	
VDOT	VI1m	widen	pending	I-66 HOV during peak	US 15 to US 29 (Gainesville)	1	1	4	6	no	2005	-	-	X	X	X	X	X	X
VDOT	VI1c	widen	pending	I-66 HOV during peak (+ HOV ramp)	US 29 (Gnsvle.) to VA 234	1	1	4	8	no	2005	-	-	X	X	X	X	X	X
VDOT	VI1d	widen	approved	I-66 HOV during peak	.8 mi. w. of VA 234 to US 50	1	1	4	8	completed	1997	X	X	X	X	X	X	X	-
VDOT	VI1e	construct	approved	I-66 HOV ramp	at Monument Dr.	-	-	-	-	completed	1997	X	X	X	X	X	X	X	-
VDOT	VI1p	construct	approved	I-66 HOV ramp	at Stringfellow Rd.	-	-	-	-	completed		X	X	X	X	X	X	X	-
VDOT	VI1q	construct	approved	I-66 Commuter Lot	at Stringfellow Rd. (500 spaces)	-	-	-	-	no	1999	X	X	X	X	X	X	X	X
VDOT	VI1r	construct	pending	I-66 Commuter Lot	at VA 234/Portsmouth Blvd (500 sps)	-	-	-	-	completed	1996	X	X	X	X	X	X	X	X
VDOT	VI1i	reconstruct	pending	I-66 Rest area 10 East and West	convert to car only	-	-	-	-	no	2000								X
VDOT	VM5	study	pending	I-66 relocate facilities	Truck Weigh Station at Fairfax Co. Pkwy	-	-	-	-	no	2007								X
VDOT	VI1j	construct	approved	I-66 interchange	at Fairfax Co. Parkway	-	-	-	-	completed		X	X	X	X	X	X	X	-
VDOT	VI1k	relocate	pending	I-66 interchange	at VA 28 (relocate WB to NB ramp)	-	-	-	-	yes	1998								X
VDOT	VI1l	study	pending	I-66 ramp	EB on-ramp from US 29 (Arlington)	-	-	-	-	no		not coded						-	
VDOT	VI1m	reconst.	pending	I-66 WB off-ramp	at US 50	-	-	-	-	completed		X	X	X	X	X	X	X	X
VDOT	VI1t	relocate	approved	I-66 HOV Ramp	at I-495 (EB TO SB)	-	-	-	1	completed	1997	X	X	X	X	X	X	X	X
VDOT	VI1u	restripe	N.A.	I-66	VA 123 to I-495	-	-	-	-	completed	1998	X	X	X	X	X	X	X	X
VDOT	VI1v	study	pending	I-66 & I-95 corridors	location /feasability studies for addl. PnR lots	-	-	-	-			not coded						-	

FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

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DRAFT
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1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP	
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020		
VDOT	VI2y	reconstruct	pending	I-95 at VA 123 interchange	Improve access to Park-n-Ride lot	-	-	-	-	no									X
VDOT	VI2z	reconstruct	pending	I-95	bridges over Quantico Creek	1	1	6	6	no									X
VDOT	VI3a	study	pending	I-395 and 14th St. Bridge NB	GW Pkwy ramp to north side of bridge	1	1	3/4	5	no	2004								-
VDOT	VI3b	restripe	pending	I-395 HOV (3 lanes total)	I-95 to DC	1	1	2	3	no	2010	-	-	-	X	X	X		-
VDOT	VI3c	study	pending	I-395 HOV ramp connections	HOV access in Alexandria	-	-	-	-	no	2005								-
VDOT	VI3d	study	pending	I-395 HOV connection	at Seminary Rd. to & from the south	-	-	-	-	no	2005								X
VDOT	VI3e	implement	pending	I-395 TMS	I-95/I-495 to DC	-	-	-	-	no	2000								X
VDOT	VI4d	construct	approved	I-495 deceleration lane	at VA 620	1	1	-	-	completed									-
VDOT	VI4e	construct	approved	I-495 CD lane(inner loop)	at VA 7	-	-	-	-	completed	1997								X
VDOT	VI4r	study	pending	I-495 5th lane (HOV peak)	I-395 to American Legion Bridge (MIS)	1	1	8	10		1999								X
VDOT	VI4i	construct	approved	I-495 HOV (peak)	I-395 to I-66	1	1		10	no	2012	-	-	-	-	X	X		X
VDOT	VI4j	construct	approved	I-495 HOV (peak)	I-66 to Dulles Toll Rd.	1	1		10	no	2012	-	-	-	-	X	X		X
VDOT	VI4k	study	pending	I-495 HOV (peak)	Dulles Toll Rd. to Am. Leg. Bridge	1	1		10	no	2012								X
VDOT	VI4o	construct	approved	I-495 auxiliary lane	US 50 to I-66	1	1		8	completed		X	X	X	X	X	X		-
VDOT	VI4q	implement		ITS Wash. Metro Traveler Info. Service	Implementation and Benefits Analysis/Evaluation	-	-	-	-	no	2002								X
VDOT	VP1m	study	N.A.	US 1 Corridor Study	STC line to I-495	-	-	-	-	completed	1998								X
VDOT	VP1a	widen	pending	US 1	Stafford Co. Line to VA 235 North	2	2	4	6	no	2010	-	-	-	X	X	X		-
VDOT	VP1c	replace	approved	US 1	Giles Run Bridge	-	-	-	-	completed									-
VDOT	VP 1e	construct	approved	US 1 left turn lanes	at Buckman Rd.	-	-	-	-	completed									-
VDOT	VP1f	widen	pending	US 1 (3 la. NB - 4 la. SB)	Lorton Rd. to Telegraph Rd.	2	2	4	7	no	2004	-	X	X	X	X	X		X
VDOT	VP1j	widen	pending	US 1	at Accotink Creek Bridge	2	2	4	6	no	2004	-	-	X	X	X	X		X
VDOT	VP1i	widen	approved	US 1 (Main St.)	Cannonball Run Bridge	2	2	2	4	completed	1995	X	X	X	X	X	X		-
VDOT	VP1n	construct	pending	US 1 Interchange	at VA 123			-	-	no	2005	-	-	X	X	X	X		X
VDOT	VP1p	widen	pending	US 1	Occoquan Rd to Occoquan River (part of 1/123)	2	2	4	6	no	2005	-	-	X	X	X	X		X
VDOT	VP1o	widen	pending	US 1 / Neabsco Creek Bridge	VA 610 (Neabsco Rd.) To VA 638 (Nea. Mills Rd.)			4	6	no	2002	-	-	X	X	X	X		X
VDOT	VU5a	widen	approved	US 1 (Main St.)	Mine Rd. - Canal Rd.	4	4	2	4	no	1999	X	X	X	X	X	X		X
VDOT	VP1q	widen	pending	US 1 (Main St.)	Canal Rd. to Old Stagecoach Rd.	4	4	2	4	no	1999	X	X	X	X	X	X		X
VDOT	VP1k	reconst.	approved	US 1	Intersection at VA 784					yes	1998								X
VDOT	VU8b	reconst	pending	VA 7 (W. Broad St.)	Fairfax St. - Little Falls St.	2	2	4	4	no	2004	-	-	X	X	X	X		X
VDOT	VP2b	widen	pending	VA 7	Seven Corners - Bailey's Crossroads	2	2	4	6	no	2020	-	-	-	-	-	X		-
VDOT	VP2d	construct	approved	VA 7 (Hamilton/Purcellville/Roundhill Bypass)			1	2	4	completed	1995								-
VDOT	VP 2f	widen	approved	VA 7 (including bridges)	VA 7/ US 15 bypass to VA 28	2	2	4	6	completed	1997	X	X	X	-	-	-		-

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VDOT	VP2g	upgrade	pending	VA 7 (new interchanges)	VA 7 / US 15 bypass to VA 28	2	1	6	6	no	2005	-	-	X	X	X	X	X	X
VDOT	VP2i	widen	pending	VA 7	Countryside Blvd. to VA 777	2	2	4	6	yes	1999	X	X	X	X	X	X	X	-
VDOT	VP2r	widen	pending	VA 7	Lakeland Dr. to VA 228	2	2	4	6	yes	1999	X	X	X	X	X	X	X	X
VDOT	VP2n	reconst.	pending	VA 7 intersection	at Countryside Blvd. (dbl. Left turn EB)	-	-	-	-	yes		X	X	X	X	X	X	X	X
VDOT	VP2o	reconst.	pending	VA 7 intersection	at Lewinsville Rd.	-	-	-	-	no	1999	X	X	X	X	X	X	X	X
VDOT	VP2p	construct	pending	VA 7 interchange	@ Clairborne Pkwy. / West Spine Rd.	-	1	-	-	no	2010	-	-	-	X	X	X	X	-
VDOT	VP2q	study	pending	VA 7 interchange	Algonkian Pkwy.	-	1	-	-	no	2010								X
VDOT	VP2j	widen	pending	VA 7 Leesburg Bypass	Bus. 7 west to Bus. 7 east	2	2	4	6	no	2006	-	-	-	X	X	X	X	X
VDOT	VP2k	approved	pending	VA 7 interchg. (ultimate)	at US 15 Bypass (complete loops)		2	-	-	no	1999	X	X	X	X	X	X	X	-
VDOT	VP2l	widen	pending	VA 7	Dulles Toll Rd. to I-495	2	2	6	8	no	2010	-	-	-	X	X	X	X	-
VDOT	VP2m	widen	pending	VA 7	LDN line to Dulles Toll Rd.	2	2	4	6	no	2010	-	-	-	X	X	X	X	-
VDOT	VU31	construct	pending	VA 7/US 15 Interchange-interim	extend WB decel lane at US 15 (NBL)	-	-	-	-	completed		X	X	X	X	X	X	X	-
VDOT	VU32	reconstruct	pending	VA 7/US 15 Interchange	phase II & III improvements	-	-	-	-	completed	1997	X	X	X	X	X	X	X	-
VDOT	VP2n	construct	approved	VA 7 / US 15 Bypass	at Sycolin Rd. - extend turn lanes	-	-	-	-	completed	1997	X	X	X	X	X	X	X	-
VDOT	VP3b	study	pending	VA 9	W. VA. State Line - VA 7		2	2	4	no		not coded						X	
VDOT	VP4m	study	pending	US 15 Corridor Safety Study	PW / Loud. Co. line to Potomac River	2	2	2	2	no	1999	not coded						X	
VDOT	VP4e	widen	pending	US 15	US 29 to I-66	2	2	2	4	no	2020	-	-	-	-	-	X	-	
VDOT	VP4f	widen	pending	US 15	I-66 to Loudoun Co. line	2	2	2	4	no	2020	-	-	-	-	-	X	-	
VDOT	VP4i	study	pending	US 15	US 29 to Loudoun Co. line	2	2	4	6	no	2005	not coded						-	
VDOT	VP4j	reconst.	approved	US 15 turn lanes	at VA 704 (Logmill Rd.)	-	-	-	-	completed								-	
VDOT	VP4k	reconst.	pending	US 15 turn lanes	at US 50	-	-	-	-	no								-	
VDOT	VP4l	reconst.	pending	US 15	1.3 mi. s. of MD line to 1 mi. s. of MD line	2	2	2	2	completed	1997	X	X	X	X	X	X	X	-
VDOT	VP5	reconst.	pending	VA 27 interchange	at Columbia Pike	-	-	-	-	no	2000							X	
VDOT	VP6n	construct	pending	VA 28 turn lanes	at VA 606 (Old Ox Rd.)	-	-	-	-	no	1999								X

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

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						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020	
						VDOT	VP6b	study	pending			VA 28	NCL Manassas Park to US 29	-	-	4	6	
VDOT	VP6c	construct	approved	VA 28 partial Interchange	Vic. VA 763 (Barnsfield Rd.)	-	-	-	-	no	2003	-	-	X	X	X	X	X
VDOT	VP6r	construct	approved	Smithsonian Air/Sp. Mus.	Dulles Airport - Museum Access	-	-	-	-	no	2003	-	-	X	X	X	X	X
VDOT	VP6d	widen	approved	VA 28 (as part of 28/29 interchange)	US 29 to I-66 (add NB lane)	2	2	6	7	no	2001	-	-	X	X	X	X	X
VDOT	VP6e	study	pending	VA 28 (widen & interchgs.)	I-66 to Dulles Toll Rd.	2	1	6	8	no	2020	not coded						-
VDOT	VP6f	construct	pending	VA 28 Byp.(Tri-County Pkwy)	VA 234 to I-66	-	2	-	4	no	2015	-	-	-	-	X	X	-
VDOT	VP6i	study	pending	Tri-County Parkway	I-66 to US 50	-	1	-	4	no	2020	not coded						-
VDOT	VP6j	study	pending	Loudoun Parkway	US 50 to DTR Ext/VA 607	-	2	-	4	no	2020	not coded						-
VDOT	VP6g	study	pending	VA 28	Dulles Toll Rd. to VA 7 (add interchgs)	2	1	6	6	no	2020	not coded						-
VDOT	VP6o	study/ROW	pending	VA 28 Interchange	at VA 625 (Church Rd.)	2	2	6	6	no	2006							X
VDOT	VP6h	widen	pending	VA 28	FQC line to VA 215	2	2	2	4	no	2020	-	-	-	-	-	X	X
VDOT	VP6k	widen	pending	VA 28	VA 215 to VA 234 Bypass	2	2	2	4	no	2010	-	-	-	X	X	X	X
VDOT	VP6l	construct	approved	VA 28 turn lanes	at VA 782 (Residency Rd.)	-	-	-	-	completed	1997	X	X	X	X	X	X	X
VDOT	VP6m	widen	pending	VA 28	NCL Manassas to SCL Manassas Park	2	2	4	6	yes	1999	X	X	X	X	X	X	-
VDOT	VP6p	widen	approved	VA 28 (as part of 28/29 Interchg)	Old C'ville to US 29 (4 lanes SB; 3 lanes NB)	2	2	4	7	no	2001	-	-	X	X	X	X	X
VDOT	VP6q	widen	approved	VA 28 (as part of 28/29 Interchg)	Machen Rd. to Old Centerville Rd. (3 lanes SB)	2	2	4	5	no	2001	-	-	X	X	X	X	X
VDOT	VU21	widen	pending	VA 28 (Centreville Rd.)	SCL - NCL Manassas Park	2	2	4	6	yes	1998	X	X	X	X	X	X	-
VDOT	VP7a	widen	pending	US 29	ECL Fairfax to I-495	2	2	4	6	no	2010	-	-	-	X	X	X	X
VDOT	VP7b	widen	approved	US 29 (flush median)	VA 655 to Fairfax Circle	2	2	4	4	completed		X	X	X	X	X	X	-
VDOT	VP7h	construct	approved	US 29 Interchange	at VA 28 (Centreville)	-	-	-	-	no	2001	-	-	X	X	X	X	X
VDOT	VP7i	widen	approved	US 29 (as part of 28/29 Interchg)	Trinity Pkwy. to VA 28 (add 3rd lane WB)	2	2	5	6	no	2001	-	-	X	X	X	X	X
VDOT	VP7j	widen	approved	US 29 (as part of 28/29 Interchg)	VA 28 to Old Braddock Rd.	2	2	4	6	no	2001	-	-	X	X	X	X	X
VDOT	VP7g	study	pending	US 29	FQC line to I-66 (Gainesville)	2	2	4	6	no	2007	not coded						X
VDOT	VU6a	widen	approved	US 29 (Lee Highway)	Draper Dr. - Eaton Pl.	2	2	4	6	completed	1996	X	X	X	X	X	X	X
VDOT	VU6b	widen	pending	US 29	Eaton Place to Chain Bridge Rd.	2	2	4	6	no	2002	-	-	X	X	X	X	X
VDOT	VP7h	reconst.	approved	US 29	Bridge and appr. at Big Rocky Run	2	2	4	4	no	2000	exempt						X
VDOT	VP7i	study	pending	US 29 Reloc. around Battlefield	I-66 (Gainesville) to VA 621 (part of I-66 MIS)	2	2	2	6	no		not coded						X
VDOT	VP8a	construct	pending	US 50 (Middleburg Bypass)	.4 m.w. WCL Middleburg to US 50	-	2	-	2	no	2006	-	-	-	X	X	X	X
VDOT	VP8k	widen	pending	US 50	Middleburg Bypass to US 15	2	2	2	4	no	2010	-	-	-	X	X	X	-
VDOT	VP8b	widen	pending	US 50	US 15 to VA 616 (Goshen Rd.)	2	2	2	4	no	2003	-	-	X	X	X	X	X
VDOT	VP8c	widen	pending	US 50	Loudoun Co. line to VA 661 (Lee Rd.)	2	2	4	6	no	2020	-	-	-	-	-	X	-
VDOT	VP8l	widen	approved	US 50	Lee Rd. to VA 657 (Centreville Rd.)	2	2	4	6	completed		X	X	X	X	X	X	-
VDOT	VP8d	widen	pending	US 50	Centreville Rd. to Stringfellow Rd.	2	2	4	6	yes	1998	X	X	X	X	X	X	X

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VDOT	VP8e	widen	approved	US 50	Stringfellow Rd. to FFX Co. Pkwy.	2	2	4	6	completed		X	X	X	X	X	X	-
VDOT	VP8g	widen	pending	US 50	I-66 to WCL Fairfax	2	2	4/6	8	no	2020	-	-	-	-	-	X	-
VDOT	VP8m	widen	pending	US 50 (EBL)	I-66 to Waples Mill Rd.	2	2	2	3	completed		X	X	X	X	X	X	X
VDOT	VP8n	widen	pending	US 50 (WBL)	I-66 to Waples Mill Rd.	2	2	2	3	no	2020	-	-	-	X	X	X	-
VDOT	VP8h	widen	pending	US 50	ECL Fairfax to ARC line	2	2	4	6	no	2020	-	-	-	-	-	X	-
VDOT	VP8i	reconst.	pending	US 50 interchange	at VA 120 (Glebe Rd.)	-	-	-	-	no	2010	-	-	-	X	X	X	-
VDOT	VP8o	reconst.	pending	US 50 interchange	at Courthouse Rd./10th St.	-	-	-	-	no	2005	not coded						X
VDOT	VP8j	reconst.	pending	US 50 - median barrier	N. Jackson to Irving	2	2	6	6	no	2001							X
VDOT	VP8l	reconst.	pending	US 50	Bridge and appr. at VA 27	2	2	6	6	no	2001							X
VDOT	VP9a	widen	approved	VA 120	I-66 to N. Fairfax Dr.	2	2	4	6	completed		X	X	X	X	X	X	-
VDOT	VP9b	widen	approved	VA 120	N. Fairfax Dr. to Henderson Rd.	2	2	4	6	completed	1997	X	X	X	X	X	X	X
VDOT	VP9c	widen	approved	VA 120 - turn lanes	at VA 244 (Columbia Pike)	-	-	-	-	no	1998							X
VDOT	VP9d	reconstruct	pending	VA 120	bridge at US 50	-	-	-	-	no	2000							X
VDOT	VP10a	widen	approved	VA 123	Burke Lake Rd.- 1.6 M S of Southern RR	2	2	2	4	completed	1996	X	X	X	X	X	X	-
VDOT	VP10b	construct	approved	VA 123 left turn lane	at VA 643		2	-	-	completed		X	X	X	X	X	X	-
VDOT	VP10d	widen	approved	VA 123	I-95 to the FFX/PW Co. line	2	2	2/4	6	completed		X	X	X	X	X	X	X
VDOT	VP10e	widen	pending	VA 123	FFX/PW Co. line to Hoos Rd.	2	2	2	6	no	2005	-	-	X	X	X	X	X
VDOT	VP10q	widen	pending	VA 123	Hoos Rd. to Burke Lake Rd.	2	2	2	4	no	2004	-	-	X	X	X	X	X
VDOT	VP10m	widen	approved	VA 123	Burke Lake Rd. to Ffx Co. Pkwy.	2	2	2	4	completed		X	X	X	X	X	-	-
VDOT	VP10h	widen	pending	VA 123	Hoos Rd. to Ffx. Co. Pkwy.	2	2	4	6	no	2010	-	-	-	X	X	X	-
VDOT	VP10f	widen	pending	VA 123	Ffx. Co. Pkwy. to Burke Center Parkway	2	2	4	6	no	2010	-	-	-	X	X	X	-
VDOT	VP10g	widen	approved	VA 123 (as part of 1/123 interchg)	US 1 to Horner Rd.	2	2	4	6	no	2005	-	-	X	X	X	X	X
VDOT	VP10g	widen	approved	VA 123	Horner Rd. to Devils Reach Rd.	2	2	4	6	no	2020							

FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

NOTE: Shaded sections indicate changes from the FY98 -03 TIP

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DATE OF PREPARATION: 3/10/98

1	2	3	4	5	6	7		8		9	10	11						12			
						FACILITY TYPE	TO	NUMBER OF LANES				CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	PROJECT COMPLT. DATE	NETWORK						IN TIP	
								FROM	TO					1999	2000	2005	2010		2015		2020
VDOT	VP10j	widen	pending	VA 123	VA 7 to I-495	2	2	6	8	no	2010	-	-	-	X	X	X	-			
VDOT	VP10o	widen	pending	VA 123	I-495 to VA 694 (Great Falls St.)	2	2	4	6	no	2010	-	-	-	X	X	X	X			
VDOT	VP10p	widen	pending	VA 123 Interchange	at DAAR (add NB ramp)	-	-	-	-	completed	1997	X	X	X	X	X	X	X			
VDOT	VP10l	widen	pending	VA 123	at Occoquan River Bridge		2	2	6	no	2005	-	-	X	X	X	X	X			
VDOT	VP10r	widen	pending	VA 123	Burke Center Pkwy to Braddock Rd.	2	2	4	6	no	2020	-	-	-	-	-	X	-			
VDOT	VP11	widen	approved	VA 228 (Dranesville Rd.)	NCL Herndon - VA 7	2	2	2	4	yes	1998	X	X	X	X	X	X	X			
VDOT	VP12a	widen	pending	VA 234	Eclipse Dr. to Snowfall Dr.	2	2	2	4	no	2001	-	-	X	X	X	X	X			
VDOT	VP12b	widen	approved	VA 234	Waterway to Eclipse Dr.	2	2	2	4	no	2000	-	X	X	X	X	X	X			
VDOT	VP12c	widen	approved	VA 234	Waterway Dr. to I-95	2	2	2	6	completed		X	X	X	X	X	X	-			
VDOT	VP12m	study	approved	VA 234	.6 mi. e. of I-95 to 1.2 mi. e. scl Manassas			2	4	no	2006	not coded						X			
VDOT	VP12d	widen	approved	VA 234	I-95 to US 1	2	2	2	4	no	2001	-	-	X	X	X	X	X			
VDOT	VP12e	widen	approved	VA 234	Snowfall Dr. to VA 234 Bypass	2	2	2	4	no	2002	-	-	X	X	X	X	X			
VDOT	VP12l	widen	approved	VA 234	SCL Manassas to VA 234 Bypass		2	2	4	no	2010	-	-	-	X	X	X	-			
VDOT	VP12g	construct	approved	VA 234 (Manassas Bypass)	I-66 to Balls Ford Rd.	-	5	-	4	completed	1997	X	X	X	X	X	-	X			
VDOT	VP12h	construct	approved	VA 234 (Manassas Bypass)	Balls Ford Rd. - Wellington Rd.	-	5	-	4	completed	1997	X	X	X	X	X	-	X			
VDOT	VP12i	construct	approved	VA 234 (Manassas Bypass)	Wellington Rd. to VA 28	-	5	-	4	completed	1997	X	X	X	X	X	-	X			
VDOT	VP12j	construct	approved	VA 234 (Manassas Bypass)	VA 28 to VA 234/649 S. of Manassas	-	5	-	4	yes	2001	-	-	X	X	X	-	X			
VDOT	VP12k	wid/upgr.	approved	VA 234 (Manassas Bypass)	I-66 to VA 234 S. of Manassas	5	1	4	6	no	2020	-	-	-	-	-	X	-			
VDOT	VP13a	widen	pending	VA 236	Pickett Rd. to I-395	2	2	4	6	no	2020	-	-	-	-	-	X	-			
VDOT	VP13b	study	pending	VA 236 (Intersection/spot improv)	Pickett Rd. to Hummer Rd.					no	1998							X			
VDOT	VP14a	reconst.	pending	VA 244 (Columbia Pike)	S. Veitch St. to S. Scott St.	2	2	-	-	no	1998	X	X	X	X	X	X	X			
VDOT	VP14b	reconst.	pending	VA 244 (Columbia Pike)	Arlington Co. Line to Carlyn Springs Rd.	-	-	-	-	no								-			
VDOT	VP15a	widen	pending	VA 267 (Dis. Toll Rd.) HOV(Peak)	VA 28 to I-495	1	1	6	8	yes	1999	X	X	X	X	X	X	X			
VDOT	VP15b	reconstruct	pending	VA 267 Interchange	at Wiehle Ave.	-	-	-	-	yes	1998	X	X	X	X	X	X	X			
VDOT		reconstruct	approved	VA 287 Intersection	at VA 663 (improve sight distance)	-	-	-	-	no	1998							X			
VDOT	VP18	study	pending	Western Trans. Corridor (MIS)	I-95 to VA/MD state line	-	1	-	4	no		not coded						X			
MWAA	MW1	widen	pending	Dulles Access Rd.	Dulles Airport to VA 123	1	1	4	6	no	2010	-	-	-	X	X	X	-			
VDOT		study	pending	PWC/FXC Connector	Eastern PWC to Western FXC		1			no		not coded						-			
VDOT		construct	approved	Dulles Greenway	Dulles Toll Rd. to VA 7 with Interchanges at VA 28, VA 606, VA 607, E. Spine Rd., W. Spine Rd, VA 659 & VA 7/US 15 Bypass	-	1	-	4	completed		X	X	X	X	X	X	-			
VDOT		construct	approved	Dulles Greenway	at VA 653 and VA 654	-	-	-	-	no		-	-	-	X	X	X	-			
VDOT	VU	widen	pending	Chain Bridge Rd.- add n.b. lane	Route 29/50 to existing 6 in. section	2	2	5	6	no	2006	-	-	X	X	X	X	X			
VDOT	VU	study	pending	King St.	Evergreen Mill Rd. to SCL Leesburg			2	4	no	2004	not coded						X			

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VDOT	VU	study	pending	Nokesville Rd.	Overpass- N.S. RR and Wellington Rd.	2	2	4	4	no	2004	-	-	X	X	X	X	X
VDOT	VU	reconstruct	pending	Pickett Rd.- turn lanes and signals	Mathy Dr. to Main St.			-	-	no	2001							X
VDOT	VU	study	pending	Lee Hwy.	Chain Bridge Rd. to wcl Fairfax City			4	6	no	2006			not coded				X
VDOT	VU1a	widen	pending	King St. (RR underpass)	Commonwealth Ave. - Russell Rd.	2	2	3	4	no	2003	-	-	X	X	X	X	X
VDOT	VU1b	widen	pending	King St.	WCL Alexandria - I-395 (with interchange at Beau)	2	2	4	6	no	2002	-	-	X	X	X	X	X
VDOT	VU1c	reconstruct	pending	King St.	Quaker Ln. to Dearing St. (spot improv.)	-	-	-	-	no								X
VDOT	VU2a	widen	approved	Clermont Ave.	I-95 - Eisenhower Ave.	3	3	3	4	completed	1997	X	X	X	X	X	X	-
VDOT	VU2b	construct	approved	Clermont Ave.	Eisenhower to Edsall Rd. (alignment #5)	-	3	-	4	no	2020	-	-	-	-	-	X	-
VDOT	VU3	widen	approved	Braddock Rd. (RR underpass)	Mt. Vernon Ave. - West St.	3	3	2	4	yes	1999	X	X	X	X	X	X	X
VDOT		rehab.	approved	Duke St.	Bridge over CSX Railway			4	4	yes	1998			exempt				X
VDOT	VSF27	rehab.	pending	Branch Rd.	Maple Ave. to Valley Dr.	4	4	2	2	no	2000							X
VDOT	VU4	widen	approved	Eisenhower Ave.	Cameron Run - Telegraph Rd.	3	3	2	4	yes	1999	X	X	X	X	X	X	X
VDOT	VU30	widen	pending	Elden St./ Centreville Rd.	Worldgate Dr. to Herndon Pkwy.	2	2	4	6	no	2001	-	-	X	X	X	X	X
VDOT	VU	study	pending	East Elden St.	network includes Spring St., Herndon Pkwy	-	-	-	-	no	2000			not coded				-
VDOT	VU	reconstruct	pending	South Elden St.	Herndon Pkwy to Sterling Rd.	3	3	4	4	no	2015			exempt				-
VDOT	VU	reconstruct	pending	Elden St.	Sterling Rd. to Monroe St.	3	3	2	2	no	2020							
VDOT	VU	reconstruct	pending	East Elden St.	Monroe St. to Herndon Pkwy. East	3	3	4	4	no	2015							
VDOT	VU	widen	pending	East Elden St.	Herndon Pkwy. East to Fairfax Co. Pkwy.	3	3	4	6	no	2010	-	-	-	X	X	X	-
VDOT	VU10b	widen	pending	Spring St.	Herndon Pkwy E. to Fairfax County Parkway	3	3	4	6	no	2005	-	-	X	X	X	X	X
VDOT	VU10a	reconst.	pending	Spring St. turn lanes	at Little St.	3	3	4	4	completed	1997	X	X	X	X	X	X	-
VDOT	VU11a	construct	pending	Herndon Pkwy	Dranesville Rd. - Crestview Dr.	-	3	-	4	completed		X	X	X	X	X	X	X

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

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DRAFT
DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020	
						VDOT	VU11b	reconstruct	pending			Herndon Pkwy	at Elden St. (east)	3	3	4	4		no	1998	exempt						-
VDOT	VU	reconstruct	pending	Park Avenue	at Station St. and at Monroe St.	3	3	2	2	no	1998	exempt						-
VDOT	VU	reconstruct	pending	Alabama Drive	S. Elden St. to Van Buren S.	4	4	2	2	no	2002							X
VDOT		reconstruct	pending	Main St. (City of Manassas)	Southern Railway	-	-	-	-	no	1998	exempt						X
VDOT	VU12	widen	approved	Plaza St. Extension	East Market St. - Sycolin	4	4	2	4	completed	1997	X	X	X	X	X	X	X
VDOT	VU13a	widen	approved	Catoctin Circle	South St. - King St.	4	4	2	4	no	2002	-	-	X	X	X	X	X
VDOT	VU13b	construct	approved	Catoctin Circle Extension	.2 mi. n. Market St. to Edwards Ferry Rd.	-	3	-	4	completed	1997	X	X	X	X	X	X	X
VDOT	VU14	widen	approved	Liberia Ave.	VA 28 - PW Parkway	3	3	2	4	completed	1996	X	X	X	X	X	X	X
VDOT	VSP26	widen	pending	Richmond / Fairview Ave.	Dumfries Ave. to Liberia Ave.	3	3	2	4	no	2001	-	-	X	X	X	X	X
VDOT		widen	approved	Dumfries Rd. (VA 234)	SCL Manassas to Hastings Dr.	3	3	2	4	no	2001	-	-	X	X	X	X	X
VDOT	VU25	reconst.	approved	Cardinal Park Dr.	turn lane at VA 7 (EBL)	-	-	-	-	completed	1997	X	X	X	X	X	X	-
VDOT	VU26	reconst.	approved	VA 236 (Duke St.)	Intersection at Walker St.	-	-	-	-	completed	1996	X	X	X	X	X	X	-
VDOT	VU27	construct	approved	VA 621 (Evergreen Mills)	turn lane at US 15 (NBL)	-	-	-	-	completed	1997	X	X	X	X	X	X	-
VDOT	VU28a	construct	pending	Battlefield Parkway	US 15 (s.of Lsborg.) To US 15 Byp. N	-	2	-	4,6	no	2010	-	-	-	X	X	X	-
VDOT	VU29	construct	pending	University Dr. (realign)	Pohick Dr. to Armstrong St.	-	4	-	2	yes	2000	-	X	X	X	X	X	X
VDOT	VU31	widen	pending	East Market St.	Loudoun St. to Sycolin Rd.	4	2	2	4	no	1999	X	X	X	X	X	X	X
VDOT	VU32	widen	pending	US 15 (King St.)	Evergreen Mill Rd. to SCL Leesburg	-	-	2	4	no	2004	-	-	X	X	X	X	X
VDOT	VU33	widen	pending	Sycolin Rd.	VA 7/ US 15 Bypass to SCL Leesburg			2	4	no	2010	-	-	-	X	X	X	-
VDOT	VU	reconstruct	pending	(VA 401) S. Van Dorn St.	Edsall to Pickett Rd. (spot improv.)					no	2020							X
VDOT	VU	reconst.	pending	Beulah Rd.	Maple Ave. to WCL Vienna			2	2	no	2003	-	-	X	X	X	X	X
VDOT	VU34a	reconst.	approved	Cottage St.	Locust St. to Moore Ave.	4	4	2	2	completed	1997	X	X	X	X	X	X	X
VDOT	VU34b	reconst.	approved	Cottage St.	Moore Ave to Cedar Ln.	4	4	2	2	no	2003	-	-	X	X	X	X	X
VDOT	VU35a	reconst.	pending	Mill Rd.	Realign at Stovall St.	-	-	-	-	no	1998	X	X	X	X	X	X	X
VDOT	VU35b	construct	pending	Mill Rd.	Mill Rd. Extension			-	2	no	2004	-	-	X	X	X	X	X
VDOT	VSP1a	wid/const.	approved	VA 610 (Cardinal Dr.)	I-95 to US 1	3	3	2	6	yes	1999	X	X	X	X	X	X	X
VDOT	VSP1b	construct	approved	VA 610 (Cardinal Dr.)	Greenmont Rd. to I-95	3	3	2	4	no	2000	-	X	X	X	X	X	X
VDOT		widen	approved	VA 615 (Loudoun Dr.)	US 15 to 1 mi. n. of US 15		3	2	2	completed		X	X	X	X	X	X	X
VDOT	VSP2a	widen	pending	VA 619 (Linton Hall Rd.)	US 29 to Glen Kirk Rd.	4	3	2	6	no	2003	-	-	X	X	X	X	-
VDOT	VSP2b	widen	pending	VA 619 (Linton Hall Rd.)	Glenkirk Rd. to Devlin Rd.	4	3	2	4	no	2003	-	-	X	X	X	X	X
VDOT	VSP2e	widen	pending	VA 619 (Linton Hall Rd.)	Devlin Rd. to VA 28	4	3	2	4	no	2014	-	-	-	X	X	X	-
VDOT	VSP2c	rehab	N.A.	VA 619 (Bristow Rd.)	Southern RR Crossing	3	2	2	2	completed		exempt						
VDOT	VSP2f	reconstruct	pending	VA 619 (Fuller Heights Rd.)	Bridge over Little Creek	3	3	1	2	no	2002	-	-	X	X	X	X	X
USMC		widen	pending	at Russell Rd.	I-95 to Dunlap Ave., incl. reconst. to US 1 int.	2	2	2	4	no	2003	-	-	X	X	X	X	-

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PW CO	VSP3a	widen	pending	VA 621 (Balls Ford Rd.)	VA 234 to Bethlehem Rd.		3	2	4	no	2010	-	-	-	X	X	X	-
	VSP3b	widen	pending	VA 621 (Balls Ford Rd.)	Bethlehem Rd. to VA 234 Bypass		3	2	4	no	2010	-	-	-	X	X	X	-
VDOT	VSP3c	reconstruct	pending	VA 621 (Balls Ford Rd.)	at VA 660 - Improve Intersection	3	3	-	-	no	1998							X
VDOT	VSP4	install	N.A.	VA 625 (Jefferson St.)	RR Crossing Signal		4	2	2	completed		exempt						
VDOT	VSP	construct	pending	VA 635 (Cherry Hill VRE Access Rd.)	VA 234/US 1 to proposed VRE station	-	3	-	2	no	2004	-	-	X	X	X	X	-
VDOT	VSP	study	pending	VA 636 (Featherstone Rd.)	CSX RR - grade separation	-	-	-	-	no	2004							X
PW CO		widen	pending	VA 639 (Horner Rd.)	PW Pkwy. to Minnieville Rd.	3	3	2	4	completed	1997	X	X	X	X	X	X	-
VDOT	VSP5d	widen	pending	VA 640 (Minnieville Rd.)	VA 610 to Spriggs Rd.	3	3	2	4	no	2010	-	-	-	X	X	X	-
VDOT	VSP5e	widen	pending	VA 640 (Minnieville Rd.)	Spriggs Rd. to VA 234	3	3	2	4	no	2020	-	-	-	-	-	X	-
VDOT	VSP15c	widen	pending	VA 640 (Minnieville Rd.) formerly VA 663 (Dvis.Frd.Rd.)	VA 641 to VA 639	2	2	2	4	no	2003	-	-	X	X	X	X	X
VDOT	VSP15a	widen	approved	VA 641 (Old Bridge Rd.) formerly VA 663 (Dvis.Frd.Rd.)	VA 123 to VA 253	3	3	4	6	completed		X	X	X	X	X	X	-
VDOT	VSP15b	widen	pending	VA 641 (Old Bridge Rd.) formerly VA 663 (Dvis.Frd.Rd.)	VA 253 to VA 640	3	3	4	6	no	1999	X	X	X	X	X	X	-
VDOT	VSP6	widen	pending	VA 641 (Old Bridge Rd.)	VA 3000 to VA 640	3	3	4	6	no	2020	-	-	-	-	-	X	-
VDOT	VSP8a	widen	pending	VA 643 (Purcell Rd.)	VA 234 to VA 642	3	3	2	4	no	2020	-	-	-	-	-	X	-
VDOT	VSP12a	widen	pending	VA 643 (Spriggs Rd.)	VA 640 to VA 642	3	3	2	4	no	2008	-	-	-	X	X	X	X
VDOT	VSP12b	widen	pending	VA 643 (Spriggs Rd.)	VA 234 to VA 640	3	3	2	4	no	2020	-	-	-	-	-	X	-
VDOT		reconst.	pending	VA 656 (Kettle Run Rd.)	Bridge and approaches at Kettle Run	4	4	1	2	no	2000	-	X	X	X	X	X	X
VDOT	VSP9	widen	pending	VA 660 (Bethlehem Rd.)	VA 28 to VA 621	3	3	2	4	no	2020	-	-	-	-		X	-
VDOT	VSP11a	widen	approved	VA 642 (Hoadly Rd.)	VA 234 to VA 643		3	2	4	completed	1996	X	X	X	X	X	X	-
VDOT	VSP13	reconst.	pending	VA 649 (Old Church Rd.)	replace bridge over State Run		4	2	2	completed		exempt						X

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

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1	2	3	4	5	6	7		8		9	10	11						12		
						FACILITY TYPE		NUMBER OF LANES				CURRENTLY UNDER CONSTR. OR R.O.W.	PROJECT COMPLT. DATE	NETWORK						
						FROM	TO	FROM	TO					ACQUIRED ?	1999	2000	2005		2010	2015	2020	IN TIP
VDOT	VSP16	widen	approved	VA 668 (Rixlew Ln.)	VA 234 to VA 674	3	3	2	4	yes	1998	X	X	X	X	X	X	X		
VDOT	VSP17a	widen	approved	VA 674 (Wellington Rd.)	Manassas WCL to VA 668	3	3	2	4	yes	1998	X	X	X	X	X	X	X		
VDOT	VSP17b	widen	approved	VA 674 (Wellington Rd.)	VA 668 to VA 234 Bypass	3	3	2	4	no	2010	-	-	-	X	X	X	X		
VDOT	VSP17c	widen	pending	VA 674 (Wellington Rd.)	VA 234 Bypass to US 29	3	3	2	4	no	2005	-	-	X	X	X	X	X		
VDOT	VSP18	widen	pending	VA 676 (Catharpin Rd.)	VA 55 to VA 704	3	3	2	4	no	2020	-	-	-	-	-	X	-		
VDOT	VSP19	reconst.	approved	VA 692 (Lucasville Rd.)	bridge and appr. at Broad Run	4	4	1	2	yes	1997	exempt						X		
VDOT	VSP	reconst.	approved	VA 679 (Lake Dr.)	Replace culvert at Bull Run Tributary	4	4	2	2	yes	1998	X	X	X	X	X	X	X		
VDOT	VSP20a	construct	approved	VA 784 (Dale Blvd. ext.)	Neabsco Mills to US 1	-	3	-	4	yes	1997	X	X	X	X	X	X	X		
VDOT	VSP20b	widen	pending	VA 784 (Dale Rd.)	I-95 to VA 640	-	3	4	6	no	2020	-	-	-	-	-	X	X		
VDOT	VSP21a	construct	pending	VA 1600 (Ashton Ave.)	VA 668 to VA 1784 (Crestwood Dr.)	-	3	-	4	no	1998	X	X	X	X	X	X	X		
VDOT	VSP21b	construct	pending	VA 1600 (Ashton Ave.)	Crestwood Dr. to Coverstone Dr.	-	3	-	4	completed		X	X	X	X	X	X	-		
VDOT	VSP21c	construct	pending	VA 1600 (Ashton Ave.)	Coverstone Dr. to VA 621	-	3	-	4	yes	1998	X	X	X	X	X	X	X		
VDOT	VSP22	construct	pending	Liberia Ave. Ext.	VA 3000 to VA 234	-	3	2	4	no	2000	-	X	X	X	X	X	X		
VDOT		construct	pending	Clover Hill Rd. Ext.	VA 234 Bypass to Manassas Airport	-	4	-	4	no	2010	-	-	-	X	X	X	-		
VDOT		construct	pending	Sudley Manor Dr. Ext.	VA 234 Bypass to Rodes Dr.	-	4	-	4	no	2010	-	-	-	X	X	X	-		
VDOT		construct	pending	VA 840 (University Dr.) formerly E-W Connector	Godwin Dr. to VA 234 Bypass	-	3	-	2	completed	1998	X	X	X	-	-	-	-		
VDOT		widen	pending		Godwin Dr. to VA 234 Bypass	3	3	2	4	no	2010	-	-	-	X	X	X	-		
VDOT		construct	pending		VA 234 Byp. to VA 660 (Bethlehem Rd.)	-	3	-	4	no	2010	-	-	-	X	X	X	-		
VDOT		construct	approved	Gateway Blvd.	Godwin Dr. to Wakeman Dr.	-	3	-	4	completed	1997	X	X	X	X	X	X	-		
VDOT	VSP	construct	pending	Heathcote Dr.	US 29 to Catharpin Rd.	-	3	-	4	no	2010	-	-	-	X	X	X	-		
VDOT		construct	pending	Pedestrian Bridge over CSX	N. of Featherstone Rd at Veterans Park					no	1999							X		
VDOT		construct	pending	at Fuller Heights	Bridge over Little Creek			1	2	no	2002	-	-	X	X	X	X	X		
VDOT		reconst.	pending	at Lomond Dr.	Bridge and appr. over Flat Branch			2	2	completed	1999							X		
PW CO	VSP23a	construct	approved	VA 3000 (PW Pkwy.)	Liberia Ave. to Hoadly Rd.	-	2	-	4	completed		X	X	X	X	X	X	-		
PW CO	VSP23b	construct	approved	VA 3000 (PW Pkwy.)	VA 641 to VA 640	-	2	-	4	completed		X	X	X	X	X	X	-		
PW CO	VSP23d	widen	pending	VA 3000 (PW Pkwy.)	VA 640 to Liberia Ave.	2	2	4	6	no	2020	-	-	-	-	-	X	-		
PW CO	VSP23e	reconstruct	pending	VA 3000 (PW Pkwy.)	at Hillendale - extend left turn lane					no	1999									
PW CO	VSP24	construct	approved	VA 1596 (Williamson Blvd)	Sudley Manor Dr. to Portsmouth Rd.		4		4	no	2005	-	-	X	X	X	X	-		
PW CO	VSP25a	reconst.	pending	VA 1781 (Telegraph Rd.)	Horner Rd. to Minnieville Rd.	4	4	2	2	no	1999	X	X	X	X	X	X	-		
PW CO	VSP25b	widen	pending	VA 1781 (Telegraph Rd.)	Horner Rd. to Minnieville Rd.	4	4	2	4	no	2015	-	-	-	-	X	X	-		
PW CO	VSP25c	widen	pending	VA 1781 (Telegraph Rd.)	Horner Rd. to Prince William Parkway	4	4	2	4	no	2010	-	-	-	X	X	X	-		
PW CO	VSP27	widen	approved	Yates Ford Conn./Davis Fd. Rd.	PW Pkwy. to Davis Ford Rd./Yates Fd. Rd.	3	3	2	4	completed		X	X	X	X	X	X	X		
VDOT	VSP37	construct	pending	Somerset Crossing Dr. (Hymt Bypass	Gabriel Pl. to Aden Rd.	-	4	-	4	no	2020	-	-	-	-	-	X	-		

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VDOT	VSF1	widen	approved	VA 602 (Reston Pkwy)	VA 608 (W Ox Rd.) to VA 665		3	2	4	completed		X	X	X	X	X	X	-
VDOT	VSF2a	widen	pending	VA 608 (W. Ox Rd.)	US 50 to VA 764 (Oxon Rd.)	3	3	2	4	no	2005	-	-	X	X	X	X	X
VDOT	VSF2c	widen	pending	VA 608 (W. Ox Rd.)	VA 764 (Oxon Rd.) to VA 602 (Lawyers Rd.)		3	2	4	no	2002	-	-	X	X	X	X	X
VDOT	VSF3	study	approved	VA 609 (Pleas. Val. Rd.)	Bridge and appr. over Ellick Run		3	2	2	completed								X
VDOT	VSF4a	widen	approved	VA 611 (Telegraph Rd.)	US 1 to VA 7100 (Ffx. Co. Pkwy.)	3	3	2	4	no	2001	-	-	X	X	X	X	X
VDOT	VSF4b	widen	approved	VA 611 (Telegraph Rd.)	Ffx. Co. Pkwy. to VA 613 (Beulah St)	3	3	2	4	no	2000	-	X	X	X	X	X	X
VDOT	VSF4c	widen	pending	VA 611 (Telegraph Rd.)	VA 613(Beulah St) to VA 633 (S. Kings Hwy.)		3	2	4	no	2005	-	-	X	X	X	X	-
VDOT	VSF4h	widen	pending	VA 611 (Telegraph Rd.)	VA 633 (S. Kings Hwy.) to VA 644 (Franconia Rd.)	3	3	2	4	no	2007	-	-	-	X	X	X	X
VDOT	VSF4e	reconst.	pending	VA 611 (Telegraph Rd.)	VA 1635 Intersection Improvements			2		completed								X
VDOT	VSF4f	study	pending	VA 611 (Furnace Rd.)	VA 123 to VA 642 (Lorton Rd.)	3	3	2	4	no		not coded						-
VDOT	VSF4g	reconstruct	pending	VA 611 (Old Colchester Rd.)	.28 mi n of VA 3180 to .6 mi n of VA 3180	4	4	2	2	no	2000							X
VDOT		reconst.	approved	VA 612 (Yates Ford Rd.)	VA 645 to VA 641			2	2	no	2000							X
VDOT	VSF5a	widen	approved	VA 613 (Beulah St.)	VA 644 to VA 7900 (Fran./Sprg. Pkwy.)	3	3	2	4	no	2001	-	-	X	X	X	X	X
VDOT	VSF5b	widen	approved	VA 613 (Beulah St.)	VA 7900 to Kingstowne Village Pkwy.	3	3	2	4	completed	1997	X	X	X	X	X	X	-
VDOT	VSF5c	widen	approved	VA 613 (Beulah St.)	Kingstowne Village Pkwy. to VA 611	3	3	2	4	yes	1998	X	X	X	X	X	X	-
VDOT	VSF5d	widen	approved	VA 613 (Beulah St.)	VA 611 (Telegraph) to VA 615 (Woodlawn Rd.)	3	3	2	4	yes	1998	X	X	X	X	X	X	-
VDOT	VSF6a	widen	approved	VA 617 (Backlick Rd.)	Fullerton Rd. to Beverly Ln.	3	3	2	4	completed	1997	X	X	X	X	X	X	-
VDOT	VSF6b	reconstruct	pending	VA 617 (Backlick Rd.)	bridge at CSX RR		3	2	2	completed	1997							-
VDOT	VSF7	widen	pending	VA 618 (Woodlawn Rd.)	US 1 to VA 611 (Telegraph Rd.)	3	3	2	4	no	2008	-	-	-	X	X	X	X
VDOT	VSF8c	study	pending	VA 620 (Braddock Rd. (HOV)	I-495 to VA 645 Brk. Lke. Rd.)	-	3	4	2	no		not coded						-
VDOT	VSF8d	study	pending	VA 620 (Braddock Rd.)	VA 645(Brk.Lke.Rd) to VA 651(Guinea Rd)	3	3	4	6	no		not coded						-
VDOT	VSF8f	widen	approved	VA 620 (Braddock Rd.)	VA 123 (Ox Rd.) to Ffx. Co. Pkwy.	3	3	2	4	completed		X	X	X	X	X	-	-
VDOT	VSF8g	widen	pending	VA 620 (Braddock Rd.)	VA 123 (Ox. Rd.) to Ffx. Co. Pkwy.	3	3	4	6	no	2011	-	-	-	-	X	X	-

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

**NOTE: Shaded sections indicate changes
from the FY98 -03 TIP**

DRAFT

DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020	
VDOT	VSF8h	widen	approved	VA 620 (Braddock Rd.)	Ffx. Co. Pkwy. to VA 645 (Clifton Rd.)	3	3	2	4	yes	1998	X	X	X	X	X	X	-
VDOT	VSF8i	widen	approved	VA 620 (Braddock Rd.)	VA 645(Clifton Rd) to VA 659(Un.Mill Rd)	3	3	2	4	completed	1997	X	X	X	X	X	X	-
VDOT	VSF8k	study	pending	VA 620 (Braddock Rd.)	VA 28 to US 29	3	3	2	4	no		not coded						-
VDOT	VSF8l	study	pending	VA 620 (Braddock Rd.)	Pleasant Valley Rd. to Flatlick Branch	4	3	2	2	no		not coded						-
VDOT	VSF	reconst.	approved	VA 623 (Old Mill Rd.)	Bridge and appr. at N. Fork Dogue Ck.			2	2	no	1999							X
VDOT	VSF10a	widen	approved	VA 638 (Rolling Rd.)	Fairfax Co. Pkwy. to VA 644	3	3	2	4	no	2002	-	-	X	X	X	X	X
VDOT	VSF10b	widen	pending	VA 638 (Rolling Rd.)	Ffx. Co. Pkwy. to VA 641	3	3	2	4	no		-	-	-	X	X	X	X
VDOT	VSF10e	widen	pending	VA 638 (Rolling Rd.)	Odell St/ Ffx. Co. Pkwy. to Delong Dr.	3	3	2	4	no	2004	-	-	X	X	X	X	X
VDOT	VSF10f	widen	pending	VA 638 (Rolling Rd.)	Delong Dr. to I-95	3	3	2	4	no	2000	-	X	X	X	X	X	X
VDOT	VSF10c	widen	pending	VA 638 (Pohick Rd.)	I-95 to US 1		3	2	4	no	2005	-	-	X	X	X	X	X
VDOT	VSF11	reconstruct	approved	VA 640 (Gambriell Rd.)	.1 mi. n. VA 6075 to VA 6997		4	2	2	completed	1996	X	X	X	X	X	X	-
VDOT	VSF12a	reconst.	approved	VA 641 (Pohick Rd.)	VA 636 to VA 6070 (S. Run Rd.)	3	3	2	2	no	2000							X
VDOT	VSF12b	reconst.	pending	VA 641 (Pohick Rd.)	Magic Lea Rd. to Giles St.	3	3	2	2	no	2007							X
VDOT	VSF13a	widen	approved	VA 642 (Lorton Rd.)	VA 600 (Silverbrook Rd.) to VA 748	3	3	2	4	no	2003	-	-	X	X	X	-	X
VDOT	VSF13b	reconst.	approved	VA 642 (Lorton Rd.)	replace CSX RR underpass	3	3	2	4	no	2000	-	X	X	X	X	X	X
VDOT	VSF13c	widen	approved	VA 642 (Lorton Rd.)	VA 748 (Armistead) to US 1	3	3	2	4	no	2003	-	-	X	X	X	X	X
VDOT	VSF13d	widen	pending	VA 642 (Lorton Rd.)	VA 611 (Frnce.Rd) to VA 600(Slvrbrk.Rd)	3	3	2	4	no	2011	-	-	-	-	X	X	-
VDOT	VSF13e	widen	pending	VA 642 (Lorton Rd.)	VA 600 (Silverbrook Rd.) to US 1	3	3	4	6	no	2013	-	-	-	-	X	X	-
VDOT	VSF14a	constr.	approved	VA 643 (Burke Ctr. Pkwy.)	VA 123 to Ffx. Co. Pkwy.	3	3	-	4	completed		X	X	X	X	X	X	-
VDOT	VSF14b	widen	approved	VA 643 (Lee Chapel Rd.)	Ffx. Co. Pkwy. to VA 644		3	2	4	no	2001	-	-	X	X	X	X	X
VDOT	VSF14c	widen	approved	VA 643 (Burke Ctr. Pkwy)	Burke Lake Rd. to Marshall Pond Rd.	3	3	2	4	no	2001	-	-	X	X	X	X	X
VDOT	VSF15	widen	approved	VA 644 (Franconia Rd.)	Craft Rd. to VA 611	3	3	2	4	no	2007	-	-	-	X	X	X	X
VDOT	VSF16a	widen	approved	VA 645 (Burke Lake Rd.)	Ffx. Co. Pkwy. to VA 643	3	3	2	4	no	2002	-	-	X	X	X	X	X
VDOT	VSF16d	reconst.	approved	VA 645 (Lees Corner Rd.)	.25 mi. n. US 50 to 1.52 mi. s. VA 657	4	4	2	2	completed								-
VDOT	VSF16e	construct	approved	VA 645 (Stringfellow Rd.)	Westbrook Dr. to US 29			2	4	completed		X	X	X	X	X	X	-
VDOT	VSF16f	reconst.	pending	VA 645 (Stringfellow Rd.)	VA 4978 intersection improvements	-	-	-	-	completed								-
VDOT	VSF	widen	pending	VA 651 (Guinea Rd.)	Roberts Pkwy. to Pommery Dr.	3	3	2	4	no	2006	-	-	-	X	X	X	X
VDOT	VSF	widen	approved	VA 651 (Guinea Rd.)	VA 643 to New Guinea Rd.	3	3	2	4	yes	2000	-	X	X	X	X	X	X
VDOT	VSF	widen	approved	VA 651 (Roberts Parkway)	Grade separation - limits?	3	3	2	4	yes	2000	-	X	X	X	X	X	X
VDOT	VSF17a	widen	approved	VA 655 (Jermantown Rd.)	I-66 to VA 123		3	2	4	yes		X	X	X	X	X	X	-
VDOT	VSF17b	construct	approved	VA 655 (Shirley Gate Rd.)	Ffx. Pkwy to Braddock Rd.	3	3	-	4	no	2007	-	-	-	X	X	X	X
VDOT	VSF18a	widen	approved	VA 657 (Centreville Rd.)	Westmore Dr. to US 50	3	3	2	4	yes	1998	X	X	X	X	X	X	X
VDOT	VSF18i	widen	approved	VA 657 (Centreville Rd.)	US 50 to Metrotech Dr.	3	3	2	6	yes	1998	X	X	X	X	X	X	X

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VDOT	VSF18b	widen	pending	VA 657 (Centreville Rd.)	Metrotech Dr to VA 688 (McLearen Rd)	3	3	2	4	no	2005	-	-	X	X	X	-	X
VDOT	VSF18c	widen	pending	VA 657 (Centreville Rd.)	Metrotech Dr. to VA 668 (McLearen Rd)	3	3	4	6	no	2016	-	-	-	-	-	X	-
VDOT	VSF18d	widen	approved	VA 657 (Centreville Rd.)	VA 668(McLearen Rd) to VA 608 (W.Ox Rd)		3	2	4	completed		X	X	X	X	X	X	-
VDOT	VSF18e	study	pending	VA 657 (Centreville Rd.)	VA 668(McLearen Rd) to Fryng Pan Rd.	3	3	4	6	no		not coded						-
VDOT	VSF18h	widen	pending	VA 657 (Centreville Rd.)	VA 608 (W. Ox Rd.) to Fryng Pan Rd.	3	3	2	4	no	2006	-	-	-	X	X	X	X
VDOT	VSF18g	study	pending	VA 657 (Centreville Rd.)	VA 608 (W. Ox Rd.) to Fryng Pan Rd.		3	4	6	no		not coded						-
VDOT	VSF20	reconst.	pending	VA 660 (Ffx. Station Rd.)	bridge and appr. at Popes Head Ck.		4	2	2	no	2002	exempt						X
VDOT	VSF21a	construct	approved	VA 673 (Lawyers Rd. Ext.)	VA 657 (Centreville Rd.) to VA 608		3		2	completed		X	X	X	-	-	-	-
VDOT	VSF21b	widen	approved	VA 673 (McLearen Rd.)	VA 657 (Centreville Rd.) to VA 608		3	2	4	no		-	-	-	X	X	X	-
VDOT	VSF21c	construct	approved	VA 673 (McLearen Rd.)	VA 608 to VA 602 & intchg. at Ffx Co Pkwy		3	-	4	no		-	-	-	X	X	X	-
VDOT	VSF22a	reconst.	approved	VA 674 (Springvale Rd.)	bridge and appr. at Piney Run		4	2	2	no		exempt						X
VDOT	VSF22b	reconst.	approved	VA 674 (Hunter Mill Rd.)	.1 mi. s. VA 677 to VA 5320 (Sunrs. Val.)	3	3	2	2	no	2002							X
VDOT	VSF22c	reconst.	pending	VA 674 (Hunter Mill Rd.)	bridge and appr. at Colvin Ck.		4	2	2	no	2000	exempt						X
VDOT	VSF22d	reconst.	pending	VA 674 (Hunter Mill Rd.)	bridge and appr. at Difficult Run		4	2	2	no	2001	exempt						X
VDOT	VSF23	reconst.	approved	VA 675 (Browns Mill Rd.)	bridge and appr. at Difficult Run		4	2	2	completed		exempt						-
VDOT	VSF24	widen	approved	VA 684 (Spring Hill Rd.)	VA 7 to VA 6034 (International Dr.)	3	3	2	4	no	2004	-	-	X	X	X	X	X
VDOT	VSF27	replace	pending	VA 700 (Hunter Rd.)	Bridge and approaches at Bear Branch		-	-	-	no	2003	exempt						X
VDOT	VSF28	construct	pending	VA 5498 (Roberts Rd.)	.3 mi. n. of VA 651 to Collingham Dr.		3	-	2	no		X	X	X	X	X	X	X
VDOT	VSF29	construct	pending	VA 6197 (Roberts Pkwy) & RR bridge	Burke Centre Pkwy. to VA 651		3	-	4	yes	2000	-	X	X	X	X	X	X
VDOT	VSF30	reconstruct	pending	VA 703 (Shreve Rd.)	Bucklelew Dr. to Pine Castle Rd.			2	2	no	1998							X
VDOT	VSF25t	construct	approved	Fairfax Co. Pkwy. Interchange	at VA 7	-	-	-	-	yes	1999	X	X	X	X	X	X	X
VDOT	VSF25a	construct	approved	Fairfax Co. Pkwy.	VA 7 to VA 606 (Baron Cameron Ave.)		2		4	no	2000	-	X	X	X	X	X	X
VDOT	VSF25u	construct	approved	Fairfax Co. Pkwy.	interchange at Baron Cameron			-	-	no	2000	-	X	X	X	X	X	X

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

NOTE: Shaded sections indicate changes from the FY98 -03 TIP

DRAFT
DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020	
						VDOT	VSF25c	construct	approved			Fairfax Co. Pkwy.	VA 606 to VA 675 (Sunset Hills Rd.)		2		6	
VDOT	VSF25d	construct	approved	Fairfax Co. Pkwy.	VA 675 to Sunrise Valley Dr.		2	-	6	completed		X	X	X	X	X	X	-
VDOT	VSF25e	widen	pending	Fairfax Co. Pkwy.	VA 5320 (Sunrise Valley Dr.) to I-66		2	4	6	no	2010	-	-	-	X	X	X	-
VDOT	VSF25f	construct	approved	Fairfax Co. Pkwy.	I-66 to VA 123		2		4	completed		X	X	X	-		-	-
VDOT	VSF25g	widen	pending	Fairfax Co. Pkwy.	I-66 to VA 123		2	4	6	no	2010	-	-	-	X	X	X	-
VDOT	VSF25r	construct	approved	Fairfax Co. Pkwy.	Interchange at US 50		-	-	-	completed		X	X	X	X	X	X	X
VDOT	VSF25h	construct	approved	Fairfax Co. Pkwy.	VA 123 to VA 636 (Hooes Rd.)		2		4	completed		X	X	X	X	X	X	X
VDOT	VSF25s	construct	pending	Fairfax County Parkway	At Pohic Rd. - complete interchange		2	2	-	no	2001	-	-	X	X	X	X	X
VDOT	VSF25j	widen	pending	Fairfax Co. Pkwy.	VA 636 (Hooes Rd.) to VA 640 (Sydnstrckr.)		2	2	4	no	2010	-	-	-	X	X	X	-
VDOT	VSF25l	construct	pending	Fairfax Co. Pkwy. HOV	VA 640 to VA 7900 (Fra/Sprngfld Pkwy.)		-	2	-	no	2010	-	-	-	X	X	X	-
VDOT	VSF25m	construct	approved	Fairfax Co. Pkwy.	VA 7900 (F-S Pkwy.) to Fullerton Rd.		2	-	4	no	2005	-	-	X	-	-	-	X
VDOT	VSF25n	widen	pending	Fairfax Co. Pkwy.	VA 7900 (F-S Pkwy.) to Fullerton Rd.		2	2	4	no	2015	-	-	-	-	X	X	-
VDOT	VSF25o	construct	approved	Fairfax Co. Pkwy.	Newington Rd. to VA 611 (Telegraph Rd.)		2		4	completed	1997	X	X	X	X	X	X	-
VDOT	VSF25r	construct	approved	Fairfax Co. Pkwy.	Fullerton Rd. to Newington Rd.		2		4	completed		X	X	X	X	X	X	-
VDOT	VSF25p	construct	approved	Fairfax Co. Pkwy.	VA 611 (Telegraph Rd.) to US 1		2		4	completed		X	X	X	X	X	X	-
VDOT	VSF25q	construct	approved	Frcna-Sprngfld Pkwy.	Interchange at Frontier Dr.					completed		X	X	X	X	X	X	x
VDOT	VSF26	construct	pending	Frcna-Sprngfld Pkwy. HOV	Ffx. Co. Pkwy. to Frontier Dr.		2		2	no	2010	-	-	-	X	X	X	-
VDOT	VM1	install	N.A.	Signs	Districtwide		-	-	-	no								X
VDOT	VM2	improve	N.A.	Beautification Improvs.	Districtwide		-	-	-	no								X
VDOT	VM3	construct	pending	Commuter Lots	Districtwide		-	-	-	no								X
VDOT	VM4	study	approved	Adv. Traffic Mgmt. System	Districtwide		-	-	-	no								X
VDOT	VM5	construct	pending	Weigh Station	I-66		-	-	-	no								X
FFX CO	FFX1	reconst.	approved	VA 228 (Dranesville Rd.)	Hiddenbrook Dr. to Kingstream Dr.		3	2	2	completed		X	X	X	X	X	X	-
FFX CO	FFX2a	study	pending	VA 602 (Reston Pkwy.)	VA 5320 (S. Valley Dr.) to VA 606		3	3	4	no		not coded						-
FFX CO	FFX3c	study	pending	VA 608 (Frying Pan Rd.)	VA 28 to VA 657 (Centreville Rd.)		3	3	2/4	no		not coded						-
FFX CO	FFX4	study	pending	VA 609 (Plsnt. Valley Rd.)	US 29 to US 50		3	3	2/4	no		not coded						-
FFX CO	FFX5a	widen	approved	VA 613 (S. Van Dorn St.)	I-495 to VA 644 (Franconia Rd.)		3	3	4	completed		X	X	X	X	X	X	-
FFX CO	FFX5c	study	approved	VA 613 (S. Van Dorn St.)	VA 644 to Kingstowne Village Pkwy.		3	3	4	no		not coded						-
FFX CO	FFX5d	construct	pending	VA 613 (S. Van Dorn St.)	Kingstowne Blvd. to VA 611		-	3	-	no	2005	-	-	X	X	X	X	-
FFX CO	FFX5e	widen	pending	VA 613 (S. Van Dorn St.)	Kingstowne Blvd. to VA 611		3	3	4	no	2015	-	-	-	-	X	X	-
FFX CO	FFX6	study	pending	VA 620 (Braddock Rd.)	VA 662 (Stone Rd.) to Flatlick Branch		3	3	2	no		not coded						-
FFX CO	FFX8	study	pending	VA 640 (Syndenstricker Rd.)	VA 644 (Keene M. Rd) to Ffx Co. Pkwy.		3	3	2	no		not coded						-
FFX CO	FFX9a	study	pending	VA 643 (Lee Chapel Rd.)	VA 123 to Ffx. Co. Pkwy.		3	3	2	no		not coded						-

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FFX CO	FFX9b	widen	pending	VA 643 (Burke Cntr. Pkwy.)	VA 645 to Marshall Pond Dr.	3	3	2	4	yes	1999	X	X	X	X	X	X	-
FFX CO	FFX10	study	pending	VA 644 (Old Keene Mill)	VA 643 to Ffx. Co. Pkwy.	3	3	2	4	no		not coded						-
FFX CO	FFX11a	widen	pending	VA 645 (Stringfellow Rd.)	Ffx. Co. Pkwy. to US 50	3	3	2	4	no	2010	-	-	-	X	X	X	-
FFX CO	FFX11b	widen	pending	VA 645 (Stringfellow Rd.)	US 50 to I-66	3	3	2	4	no	2010	-	-	-	X	X	X	-
FFX CO	FFX11c	widen	pending	VA 645 (Stringfellow Rd.)	US 29 to Westbrook		3	2	4	completed		X	X	X	X	X	X	-
FFX CO	FFX12a	construct	pending	VA 651 (Guinea Rd.)	VA 123 to Roberts Rd.	3	3	2	4	no		-	-	-	-		X	-
FFX CO	FFX14	study	pending	VA 657 (Walney Rd.)	VA 662 (Poplar Tree) to Wstflds. Blvd.	3	3	2	4	no		not coded						
FFX CO	FFX15a	study	pending	VA 662 (Poplar Tree Rd.)	VA 645 to Wstflds. Blvd.	3	3	2	4	no		not coded						
FFX CO	FFX15b	study	pending	VA 662 (Stone Rd.)	US 29 to VA 8460 (Stonecroft Blvd.)	3	3	2	4	no		not coded						
FFX CO	FFX16a	study	pending	VA 665 (Fox Mill Rd.)	VA 602 (Reston Pkwy) to Ffx. Co. Pkwy.)	3	3	2	4	no		not coded						
FFX CO	FFX16b	reconstruct	pending	VA 665 (Fox Mill Rd.)	Ffx. Co. Pkwy. to VA 666 (Monroe St.)	3	3	2	2	no								-
FFX CO	FFX16c	widen	pending	VA 665 (Fox Mill Rd.)	VA 666 to VA 657 (Centreville Rd.)	3	3	2	4	completed		X	X	X	X	X	X	-
FFX CO	FFX17a	study	pending	VA 666 (Monroe St.)	VA 608 (W. Ox. Rd.) to VA 665 (Fox Mill)		3	2	4	no		not coded						-
FFX CO	FFX17b	widen	pending	VA 666 (Monroe St.)	VA 665 (Fox Mill) to Herndon	3	3	2	6	no	2010	-	-	-	X	X	X	-
FFX CO	FFX18	widen	pending	VA 668 (McLearen Rd.)	VA 28 to VA 657 (Centreville Rd.)	3	3	2	6	no	2010	-	-	-	X	X	X	-
FFX CO	FFX20a	widen	pending	VA 674 (Hunter Mill Rd.)	VA 5320 (Sunrise Valley Dr.) to DTR	3	3	2	4	completed		X	X	X	X	X	X	-
FFX CO	FFX20b	widen	pending	VA 674 (Hunter Mill Rd.)	VA 673 (Vale Rd.) to VA 123	3	3	2	4	no	2020	-	-	-	-	-	X	-
FFX CO	FFX21b	study	pending	VA 675 (Sunset Hills Rd.)	VA 828 (Wiehle Ave.) to Ffx. Co. Pkwy.		3	4	6	no		not coded						-
FFX CO	FFX22a	construct	pending	VA 828 (Wiehle Ave.)	VA 602 (Reston Pkwy.) to Ffx. Co. Pkwy.	-	3	-	4	yes	2001	-	-	X	X	X	X	-
FFX CO	FFX22b	construct	pending	VA 828 (Wiehle Ave.)	Ffx. Co. Pkwy. to VA 228 (Drmsville Rd.)	3	3	-	4	yes	2002	-	-	X	X	X	X	-
FFX CO	FFX22c	study	pending	VA 828 (Wiehle Ave.)	VA 228 (Drmsville Rd.) to Loudoun Co.	-	3	-	4	no		not coded						-
FFX CO	FFX23		pending	VA 5320 (Snrise Valley Dr.)	VA 666(Monroe St) to VA 657(C'vle Rd.)		3	-	4	completed		X	X	X	X	X	X	-
FFX CO	FFX24b	widen	pending	VA 8460 (Stonecroft Blvd.)	VA 662 (Stone Rd.) to VA 661 (Lee Rd.)	3	3	4	6	yes	1999	X	X	X	X	X	X	-

FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

**NOTE: Shaded sections indicate changes
from the FY98 -03 TIP**

DRAFT
DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020	
						FFX CO	FFX24c	construct	pending			VA 8460 (Stonecroft Blvd.)	VA 661 (Old Lee Rd.) to Willard Rd.		3	-	4	
FFX CO	FFX24d	widen	pending	VA 8460 (Stonecroft Blvd.)	VA 661 (Old Lee Rd.) to Willard Rd.	3	3	4	6	no	2010	-	-	-	X	X	X	-
FFX CO	FFX24e	construct	pending	VA 8460 (Stonecroft Blvd.)	Willard Rd. to US 50		3	-	6	no	2000	-	X	X	X	X	X	-
FFX CO	FFX25	widen	pending	Nutley St.	US 50 - US 29	3	3	2	4	no	2020	-	-	-	-	X	X	-
VDOT	VSL16	reconstruct	pending	VA 605 (Rock Hill Rd.)	VA 606 to Fairfax County line	4	4	2	2	no	2005							
VDOT	VSL1a	widen	approved	VA 606 (Old Ox Rd.)	VA 28 to .32 mi. w. of VA 634	4	3	2	4	completed	1995	X	X	X	X	X	X	-
VDOT	VSL1b	widen	pending	VA 606 (Old Ox Rd.)	VA 634 to VA 621	4	3	2	4	no	2017	-	-	-	-	-	X	-
VDOT	VSL1c	widen	pending	VA 606 (Old Ox Rd.)	VA 621 to US 50	4	3	2	4	no	2001	-	-	X	X	X	X	X
VDOT	VSL10a	construct	pending	VA 607 (Loudoun Pkwy)	Greenway to VA 625	-	3	-	4	no	2005	-	-	X	X	X	X	-
VDOT	VSL10b	widen	pending	VA 607 (Loudoun Pkwy)	VA 625 to VA 7	4	3	2	4		2010	-	-	-	X	X	X	-
VDOT	VSL	reconstruct	pending	VA 611 (Saint Louis Rd.)	.16 km w VA 733 to .97 km w VA 733	4	4	2	2	no	2002							X
VDOT	VSL2a	reconst.	pending	VA 620 (Braddock Rd.)	Ffx. Co. Line to VA 621	4	4	2	2	no	2000							X
VDOT	VSL2b	reconst.	pending	VA 620 (Braddock Rd.)	VA 621 to VA 659	4	4	2	2	no	2020							-
VDOT	VSL12	widen	pending	VA 625 (Church Rd.)	VA 28 to VA 637	3	3	2	4	no		-	-	X	X	X	X	X
VDOT	VSL3a	widen	approved	VA 637 (Potomac View Rd.)	VA 625 to Cascades Pkwy.	3	3	2	4	completed	1997	X	X	X	X	X	X	-
VDOT	VSL3b	reconstruct	approved	VA 637 (Potomac View Rd.)	.28 mi s of VA 7 to .66 mi s of VA 7	4	4	2	2	yes	1999							-
VDOT	VSL18	reconstruct	pending	VA 653 (Cochran Mill Rd.)	Bridge and approaches at Goose Creek					no	2009							X
VDOT	VSL4a	widen	pending	VA 659 (Belmont Ridge Rd.)	VA 625 to VA 7	4	3	2	4	no	2004	-	-	X	X	X	X	X
VDOT	VSL4b	widen	pending	VA 659 (Belmont Ridge Rd.)	US 50 to VA 625	4	3	2	4	no	2010	-	-	-	X	X	X	-
VDOT	VSL4c	widen	pending	VA 659 (Belmont Ridge Rd.)	PW County line to US 50	4	3	2	4	no	2015	-	-	-	-	X	X	-
VDOT	VSL4e	reconstruct	pending	VA 659 (Gum Spring Rd.)	US 50 to VA 620	4	4	2	2	no	2008							X
VDOT	VSL5a	reconst.	approved	VA 663 (Wenner Rd.)	VA 287 to VA 855	4	4	2	2	completed	1997							-
VDOT	VSL5b	reconst.	approved	VA 663 (Taylorstown Rd.)	VA 664 to 1.3 mi. n. of VA 664	4	4	2	2	no	1999							X
VDOT	VSL6	reconstruct	approved	VA 675 (Church St.)	WCL Lovettsville to VA 287	4	4	2	2	no	1999							X
VDOT	VSL13	reconst.	approved	VA 719 (Airmont Rd.)	.4 mi. s. VA 712 to .3 mi. s. VA 712	4	4	2	2	completed	1997							-
VDOT	VSL14	reconst.	pending	VA 729 (Shelburne Glebe Rd.)	Bridge and appr. at N. Fork Goose Ck.		3	2	2	no	2000							-
VDOT	VSL15	reconst.	pending	VA 769 (Woodburn Rd.)	.3 mi. s. of VA 1016 to VA 704	4	4	2	2	no	2000							X
VDOT	VSL7	reconst.	approved	VA 733 (Lime Kiln Rd.)	2.1 mi. w. of US 15 to VA 763	4	4	2	2	no	1999							X
VDOT	VSL8a	reconst.	pending	VA 734 (Snickersville Tpk)	bridge and appr. at Beaverdam Creek		4	2	2	no	2000							X
VDOT	VSL8b	reconstruct	approved	VA 734 (Snickersville Tpk)	US 50 to VA 627	4	4	2	2	completed	1997							-
VDOT	VSL8c	reconstruct	pending	VA 734 (Snickersville Tpk)	VA 627 to VA 730	4	4	2	2	no	2005							X
VDOT	VSL8d	reconstruct	pending	VA 734 (Snickersville Tpk)	VA 719 to VA 725	4	4	2	2	no	2005							X
VDOT	VSL9	reconst.	approved	VA 855 (Quarter Branch Rd)	VA 663 to .2 mi. w. of VA 663	4	4	2	2	completed	1996							-

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VDOT	VSL11a	reconst.	approved	VA 782 (Tranquility Rd.)	VA 7 to .5 mi. s. of VA 7	4	4	2	2	completed	1997								X
LOUD CO	VSL11b	construct	approved	VA 882	.3 mi s of VA 7 to VA 7 Recreation access	-	4	-	2	no	1998	X	X	X	X	X	X	X	X
ARL CO	AR1a	reconst.	pending	US 29/Lee Hwy.	N. Quincy - N. Kenmore	2	2	4	4	yes	1999	X	X	X	-	-	-	-	-
ARL CO	AR1b	widen	pending	US 29/Lee Hwy.	N. Quincy - N. Kenmore	3	3	4	6	no	2010	-	-	-	X	X	X	X	-
ARL CO	AR1c	reconstruct	pending	US 29 turn lanes	Quincy to Lexington	-	-	-	-	no	2020								-
ARL CO	AR2b	reconstruct	pending	US 50 (interchg.improvs)	Henderson to Four Mile Run	-	-	-	-	no	2020								-
ARL CO	AR2c	construct	pending	US 50 interchange	at VA 110/ N. Scott Rd.	-	-	-	-	no	2020								-
ARL CO	AR2d	construct	pending	US 50 (interchg.improvs)	at Pershing Dr./ Ft. Myer Dr.	-	-	-	-	no	2020								-
ARL CO	AR2e	reconstruct	pending	US 50 (interchg.improvs)	Manchester St. to ARC/FFX line	-	1	6	6	no	2020	-	-	-	-	-	-	X	-
ARL CO	AR3a	reconst.	pending	VA 120 (geometric)	Military Rd. - DC line	-	-	-	-	no	2020	-	-	-	-	-	-	X	-
ARL CO	AR3d	widen	pending	VA 120	N. Henderson to US 50	3	3	4	6	no	2010	-	-	-	X	X	X	X	-
ARL CO	AR3e	reconstruct	pending	VA 120	24th Rd. to W. Glebe Rd.	3	3	4	4	no	2010	-	-	-	X	X	X	X	-
ARL CO	AR4	reconst	pending	VA 123 (geometric)	VA 120 - Ffx. Co. line	-	-	-	-	no	2010	-	X	X	X	X	X	X	-
ARL CO	AR5a	reconstruct	pending	VA 244 (Columbia Pike)	Washington Blvd. to Oakland St.	3	3	4	5	no	2010	-	-	-	X	X	X	X	-
ARL CO	AR5b	reconstruct	pending	VA 244	Oakland St. to ARL/FFX line	3	3	4	4	no	2000								X
ARL CO	AR5c	reconstruct	pending	VA 244	S. Orme St. to Southgate Rd.	3	3	4	4	no	2010								X
ARL CO	AR6a	widen	pending	VA 309 (geometric)	VA 120 to US 29	3	3	2	4	no	2010	-	-	-	X	X	X	X	-
ARL CO	AR6b	reconst	pending	VA 309 (geometric)	US 29 to FFX Co. line	-	-	-	-	no	2000								-
ARL CO	AR7	widen	pending	Carlyn Springs Rd.	Ffx. Co. line - 7th Rd. S.	3	3	2	4	completed		X	X	X	X	X	X	X	-
ARL CO	AR8	widen	pending	Clark St. (3 Ins s.bound)	12th - I-395	4	4	2	3	no	2010	-	-	-	X	X	X	X	-
ARL CO	AR9	widen	pending	Crystal Dr. (n.bound)	S. 12th - I-395	4	4	2	3	no	2010	-	-	-	X	X	X	X	-
ARL CO	AR10	reconst	pending	N. Dittmar (geometric)	N. Glebe - Walker Chapel	-	-	-	-	no	2020								-
ARL CO	AR11	widen	pending	S. Eads	15th St. S. - Army Navy Dr.	3	3	4	6	no	2005	-	-	X	X	X	X	X	-

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

NOTE: Shaded sections indicate changes from the FY98 -03 TIP

DRAFT
DATE OF PREPARATION: 3/10/98

1 AGENCY	2 PROJECT #	3 IMPROV.	4 ENVIRONMENTAL REVIEW (NEPA)	5 FACILITY	6 LIMITS	7 FACILITY TYPE		8 NUMBER OF LANES		9 CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	10 PROJECT COMPLT. DATE	11 NETWORK						12 IN TIP	
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020		
						ARL CO	AR12	reconst	pending			S. Frederick (geom.)	Columbia Pike - George Mason Dr.	-	-	-	-		no
ARL CO	AR13	widen	pending	S. Joyce	15th St. - Army Navy Dr.	3	3	2	4	no	2001	-	-	X	X	X	X		
ARL CO	AR16	reconst	pending	N. Vermont St.	Old Dominion - N. Vernon St.	-	-	-	-	no	2015								
ARL CO	AR17a	widen	pending	VA 237 (Washington Blvd.)	Wilson - Kirkwood	3	3	3	4	no	2010	-	-	-	X	X	X		
ARL CO	AR17c	construct	pending	VA 237 (Washington Blvd.)	interchange at Wilson Blvd.	-	-	-	-	no	2010	-	-	-	X	X	X		
ARL CO	AR17d	reconst	pending	VA 237 (Washington Blvd.)	Quintana to McKinley Rd.	-	-	-	-	no	2015								
ARL CO	AR18	reconst	pending	Williamsburg Blvd. (geo.)	Sycamore to N. Glebe Rd.	-	-	-	-	no	2020	-	-	-	-			X	
ARL CO	AR19a	widen	pending	Wilson Blvd.	N. Frederick - George Mason Dr.	3	3	4	6	no	2010	-	-	-	X	X	X		
ARL CO	AR19b	widen	pending	Wilson Blvd.	VA 120 to N. Quincy	3	3	4	6	no	2001	-	-	X	X	X	X		
ARL CO	AR19c	widen	pending	Wilson Blvd.	N. Quincy St. to Washington Blvd.	3	3	4	6	no	2020	-	-	-	-	-	X		
ARL CO	AR20	widen	pending	S. 15th St.	S. Eads - S. Hayes	3	3	4	6	no	2001	-	-	X	X	X	X		
ARL CO	AR21	reconst	pending	Fairfax Dr.	Courthouse Rd. - Ft. Myer Dr.	-	-	2	2	no	2015								
ARL CO	AR22	upgrade	pending	N. George Mason Dr (geom)	Little Falls - Old Dominion	-	-	-	-	completed									
ARL CO	AR23	reconst	pending	N. Kent St. & 19th St.	geometric	-	-	-	-	completed									
ARL CO	AR25a	reconst	pending	Lorcom Ln & N Randolph Rd.	safety improvements	-	-	-	-	no	2000								
ARL CO	AR25b	reconst	pending	Lorcom Ln. (geometric)	Spout Run - N Edgewood St.	-	-	-	-	completed	1997								
ARL CO	AR26	reconst.	pending	N. Nash St.	Lee Hwy. - Key Blvd.	4	4	2	2	yes	2006	-	-	-	X	X	X		
ARL CO	AR27	widen	pending	N. Pershing Dr.	George Mason Dr. - VA 120	3	3	2	4	no	2006	-	-	-	X	X	X		
ARL CO	AR28a	const	pending	N. Quincy St.	VA 120 - Wilson Blvd.	-	4	-	4	completed	1997	X	X	X	X	X	X		
ARL CO	AR28b	widen	pending	N. Quincy St.	Wilson Blvd. - VA 237	4	4	2	4	no	2008	-	-	-	X	X	X		
ARL CO	AR29	reconst	pending	S. Uhle St. (geometric)	Walter Reed - 2nd St.	-	-	-	-	no	2006								
ARL CO	AR30	reconst	pending	N Westmoreland St. (geom)	Washington - Williamsburg	-	-	-	-	no	2010								
ARL CO	AR31	reconst	pending	26th St. N. (geometric)	Vermont - Yorktown	-	-	-	-	no	2010								
ARL CO	AR32	construct	pending	Signal System Upgrade	Countywide	-	-	-	-	no	2008								X
ARL CO	AR33	study	pending	Four Mile Run Bike and Ped. Trail	Shirlington to W. Glebe	-	-				1999								X
NPS	FL1a	reconst.	approved	GW Parkway	Spout Run - Roosevelt Br.		5		5	yes		X	X	X	X	X	X		X
NPS	FL1b	reconst.	approved	GW Parkway	Roosevelt Br. to Key Br.		5		5	yes		X	X	X	X	X	X		X
NPS	FL1c	rehab.	pending	GW Parkway	Dead Run/Turkey Run Br.		5		4	no		X	X	X	X	X	X		X
NPS	FL2b	reconst.	approved	BW Parkway Interchange	at MD 197		2		4	no		X	X	X	X	X	X		X
NPS	FL13	study	pending	Suitland Parkway intersections	at Naylor Rd. and Rena Rd.							study only						X	
NPS	FL14	study	pending	Clara Barton Parkway	Glen Echo to C&O lock 6			2?	4	no		study only						X	
NPS	FL15	rehab.		Whitehurst Freeway & lower K St.							2001								X
NPS	FL3	reconst.	pending	15th St.	Constitution Ave. to Maine Ave.		3		2	no		X	X	X	X	X	X		X

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NPS	FL4	rehab.	pending	Park Roads - Pres. Park	Entire length within park		4		2	no		X	X	X	X	X	X	X
			pending	E. Exec. Dr., E St.,														
			pending	Hamilton Pl., & State Pl.														
NPS	FL7a	rehab.	pending	Independence Ave.	15th St. to 23rd St.		2		6	no	2003	-	-	X	X	X	X	X
NPS	FL7b			Independence Ave.	3rd St. SW to 7th St. SW						1999							X
NPS	FL7c			Independence Ave.	14th St. to Lincoln Memorial						2002							X
NPS	FL8	rehab.	pending	Maine Ave.	Independence Ave. to Constit. Ave.		3		4	no		X	X	X	X	X	X	X
NPS	FL9a	reconst.	pending	Rock Creek Pkwy.	Virginia Ave. to Beach Dr.		3		2	no		X	X	X	X	X	X	X
NPS	FL10	rehab.	pending	Lincoln Circle	Entire circle		4		2	no	2002	-	-	X	X	X	X	X
NPS	FL11a	rehab.	pending	Constitution Ave	15th St. to 23rd St.		2		8	no		X	X	X	X	X	X	X
NPS	FL11b			Constitution Ave.	2nd St. NE to 7th St. NW						1999							X
NPS	FL16			2nd St. NE/SE	Constitution Ave. to Independence Ave.						2000							X
NPS	FL17			Fort Dupont and Davis (?) Dr.							1999							X
NPS	FL18			Ohio Dr.							2002							X
NPS	FL19			Carderick entrance Road							2000							X
NPS	FL12	rehab.	N/A	Park roads and bridges	All parks	-	-	-	-	n/a		X	X	X	X	X	X	X
FAMPO	FAI1a	construct		I-95 interchange	at VA 627	1	1	-	-	no	2003	-	-	X	X	X	X	X
FAMPO	FAI1c	reconst.		I-95 interchange	at VA 630	1	1	-	-	no	2005	-	-	X	X	X	X	X
FAMPO	FAI1b	study		I-95 HOV Phase I (peak)	PW Co. line to Proposed Outer Conn.	1	1	-	2	no		study only						X
FAMPO	FAI1d	study		I-95 HOV Phase II (peak)	Proposed Outer Conn. to VA 3	1	1	-	2	no		study only						X
FAMPO	FAI2	study		Western Transportation Corridor	I-95 to Prince William Co.	1	1	-	4	no		study only						X
FAMPO	FAP3	reconst.		Brooke Rail Access (CMAQ)	1.6 mi. e. to US 1 to Brooke Rail Station	4	4	2	2	no	2001	-	-	X	X		X	X
FAMPO	FAP2	construct		VA 218 - RR Grd Sep.	.4 mi to 1.4 mi. e. of VA 3	3	3	2	4	no	2001	-	-	X	X	X	X	X

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (HIGHWAY AND HOV)

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DRAFT
DATE OF PREPARATION: 3/10/98

1	2	3	4	5	6	7		8		9	10	11						12	
AGENCY	PROJECT #	IMPROV.	ENVIRONMENTAL REVIEW (NEPA)	FACILITY	LIMITS	FACILITY TYPE		NUMBER OF LANES		CURRENTLY UNDER CONSTR. OR R.O.W. ACQUIRED ?	PROJECT COMPLT. DATE	NETWORK						IN TIP	
						FROM	TO	FROM	TO			1999	2000	2005	2010	2015	2020		
FAMPO	FAP4a	construct		Outer Connector - Phase 1	VA 1 Stf.to VA 17 in Stf.w.of F'burg	3	3	-	4	no	2004	-	-	X	X	X	X	X	X
FAMPO	FAP4b	study		Outer Connector - Phase 2	VA 17 Stf.w.of F'burg.to VA 3 in Spts.	3	3	-	4	no		study only						X	
FAMPO	FAP4c	study		Outer Connector - NE Quadrant	VA 1 in Stf. to US 17 Spts. ne of F'burg	3	3	-	4	no		study only						-	
FAMPO	FAS7a	widen		VA 607	VA 218 to VA 608	4	4	2	4	no	2003	-	-	X	X	X	X	X	X
FAMPO	FAS7b	reconstruct		VA 607	VA 218 to VA 3	4	4	2	4	no		study only						X	
FAMPO	FAS3a	widen		VA 610	3.8 mi. w. to 2.5 mi. w. of I-95	4	4	2	4	completed		X	X	X	X	X	X		
FAMPO	FAS3b	reconst.		VA 610	0.6 m. e. of VA 643 to 3.8 m. w. of I-95	4	4	2	4	no	2000	-	X	X	X	X	X	X	X
FAMPO	FAS8	reconstruct		VA 624	.01 mi. e. of VA 627 to VA 626	4	4	2	4	no	2003	-	-	X	X	X	X	X	X
FAMPO	FAS9	widen		VA 627	US 1 to VA 651	4	4	2	4	no		study only							
FAMPO	FAS5a	widen		VA 630	0.3 mi. e. US 1 to 1.6 mi. e. of US 1	4	4	2	4	no	2002	-	-	X	X	X	X	X	X
FAMPO	FAS5b	widen		VA 630	0.3 mi. e. VA 628 to US 1	4	4	2	4	no	2002	-	-	X	X	X	X	X	X
FAMPO	FAS10a	reconst.		VA 654	US 17 to 0.5 mi. s. US 17	4	4	2	2	completed	1997	X	X	X	X	X	X	X	-
FAMPO	FAS10b	reconst.		VA 654	US 17 to VA 652	4	4	2	2	no	2004	-	-	X	X	X	X	X	X
FAMPO	FAS7	widen		VA 684	VA 610 to .8 mi. s. of VA 610	4	4	2	4	no	2000	-	X	X	X	X	X	X	X
FAMPO	FAS11	construct		VA 684 Extension	0.8 mi. s. VA 610 to US 17		4	-	4	no		-	-	-	X	X	X	X	-

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FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (TRANSIT)

DRAFT

DATE OF PREPARATION: 3/10/98

NOTE: Shaded sections indicate changes
from the FY98 -03 TIP

1	2	3	4	5	6	9	10	11						12
								AGENCY	PROJECT #	IMPROV.	ENVIRONMENTAL REVIEW (NEPA)	PROJECT	LIMITS		CURRENTLY UNDER CONSTR OR R.O.W. ACQUIRED?	PROJECT COMPLT. DATE	NETWORK						IN TIP
								1999	2000	2005	2010	2015	2020	
WMATA	WT1	construct	approved	Metrorail	Fort Totten to Greenbelt	completed		X	X	X	X	X	X	-
WMATA	WT2	construct	approved	Metrorail	Van Dorn to Franconia/Springfield	yes		X	X	X	X	X	X	X
WMATA	WT3	construct	approved	Metrorail	Wheaton to Glenmont	yes		X	X	X	X	X	X	X
WMATA	WT4	construct	approved	Metrorail	U St. to Fort Totten	yes		X	X	X	X	X	X	X
WMATA	WT5	construct	approved	Metrorail	Anacostia to Branch Ave.	yes		-	-	X	X	X	X	X
ALX/WMATA	WT6	construct	pending	Metrorail station/ VRE station	Potomac Yards - Alexandria	no		-	-	X	X	X	X	-
WMATA	WT7	study	pending	Metrorail	W. Falls Ch. to Dulles Airport/LDN Co.	no		not coded						X
WMATA	WT8	study	pending	Metrorail	Vienna to Centreville	no		not coded						-
WMATA	WT8	study	pending	Metrorail	Huntington to Tysons Corner Area via VA 236			not coded						-
WMATA	WT8	study	pending	Metrorail	Pentagon to Tysons Corner via Columbia Pike and Gallows Rd.			not coded						-
DCDPW	DC1	study	pending	Metrorail	Extension to Ft. Lincoln	no		not coded						-
DCDPW	DC2	study	pending	Metrorail	Extension along NY Ave.	no		not coded						-
DCDPW	DC3	study	pending	Metrorail	Extension to Adams Morgan	no		not coded						-
DCDPW	DC4	study	pending	Metrorail	Extension to Georgetown	no		not coded						-
MDOT	MT1		pending	MARC Service	Brunswick, Camden and Penn Line	no		X	X	X	X	X	X	X
MDOT	MT3	construct	pending	Parking	Brunswick- 407 exist- add 300	no		X	X	X	X	X	X	X
MDOT	MT5	construct	pending	Parking	Frederick Area - 500 total	no	2002	-	-	X	X	X	X	X
MDOT	MT7	construct	pending	Parking	Germantown- 385 exist- add 300	no		X	X	X	X	X	X	X
MDOT	MT17	construct	pending	MARC Service	Frederick to Pt. of Rocks	no	2002	-	-	X	X	X	X	X
MDOT	MT18	construct	approved	Parking	Point-of-Rocks- 221 exist- add 51	no		X	X	X	X	X	X	
MDOT	MT19	construct	pending	Parking	Laurel- 295 exist- add 80	no		X	X	X	X	X	X	X
MDOT	MT20	construct	pending	Intermodal Transit Facility	Silver Spring	no		-	-	X	X	X	X	X
MDOT	MT21	construct	pending	Georgetown Branch Light Rail	Silver Spring to Bethesda	no	2006	-	-	-	X	X	X	X
MDOT	MT22	construct	pending	Addison Rd. Extended Metrorail	Addison Road to Largo	no	2005	-	-	-	X	X	X	X
MDOT	MT23	study	pending	Addison Rd. Extended Transitway	Largo to Bowie	no		not coded						X
MDOT	MT24	study	pending	I-270 Transitway	Shady Grove Metro Station to Clarksburg	no		not coded						-
MDOT	MT26a	study	pending	US 301 / MD 5 transit study	US 301 / MD 5 Corridor	no		-	-	-	-	-	-	-
MDOT	MT26b	const/impl	pending	US 301 corridor	Park & Ride lots and bus service	no	2020	-	-	-	-	-	X	X
PG CO	PT1	construct	approved	Parking	Clinton Fringe - 400 spaces	completed		X	X	X	X	X	X	X
PG CO	PT2	construct	approved	Parking	Laurel Fringe - 450-600 spaces	completed		X	X	X	X	X	X	X
PG CO	PT3	construct	approved	Parking	Ft. Wash. Fringe - 450-600 spaces	completed		X	X	X	X	X	X	X
MONT	MCT1	construct	N.A.	Burtonsville Transit Center	Northeast quadrant of US 29/ MD 198	no	2002	-	-	X	X	X	X	X
MONT	MCT3	construct	N.A.	Damascus Park-n-Ride	S.E. quadrant of MD 108/ MD 124	no	2002	-	-	X	X	X	X	X
MONT	MCT4	construct	N.A.	Four Corners Transit Center	MD 193/ US 29	no		-	-	-	X	X	X	-

MONT	MCT5	construct	N.A.	Germantown Transit Center	MD 118/ Crystal Rock Dr.	no	2004	-	-	X	X	X	X	X
MONT	MCT6	construct	approved	Lakeforest Transit Center	Lakeforest Mall, Gaithersburg	completed		X	X	X	X	X	X	X
MONT	MCT7	construct	N.A.	Olney Transit Center Fac. PIng.	Along MD 97, north of MD 108	no		-	-	-	X	X	X	-
MONT	MCT8	construct	N.A.	Shady Grove West Transit Center	W. of I-270 in the Shady Grv.W. area	no		-	-	-	X	X	X	-
MONT	MCT9	construct	N.A.	White Oak Park-n-Ride	Northeast quadrant of US 29/ MD 650	no		-	-	-	X	X	X	-
MONT	MCT10	construct	N.A.	Silver Spring Trans. Access PIng.	Improve acc. to Slvr.Spring.Metro Sta.	no		-	-	-	X	X	X	-
MONT	MCT11	study	pending	North Bethesda Transit Way	Grosv. Metro Station to Mont. Mall	no		not coded						-

FY99-2004 TIP AND CLRP AIR QUALITY CONFORMITY INPUTS (TRANSIT)

DRAFT

DATE OF PREPARATION: 3/10/98

NOTE: Shaded sections indicate changes from the FY98 -03 TIP.

1	2	3	4	5	6	9	10	11						12
								NETWORK							IN TIP
AGENCY	PROJECT #	IMPROV.	ENVIRONMENTAL REVIEW (NEPA)	PROJECT	LIMITS	CURRENTLY UNDER CONSTR OR R.O.W. ACQUIRED?	PROJECT COMPLT. DATE	1999	2000	2005	2010	2015	2020	
MONT	MCT13	study	pending	Georgia Avenue Transitway	Glnmnt.Metro Stat. to Olney Town Ctr	no		not coded						-
MONT	MCT15	implement	N.A	N. Bethesda Transp. Mgt. Dist.	North Bethesda	compl. (on-going)		X	X	X	X	X	X	X
MONT	MCT16	implement	N.A	NIH Naval Med. Transp. Mgmt.	NIH - Bethesda Organ.	compl. (on-going)		X	X	X	X	X	X	X
MONT	MCT19	construct	N.A	Shady Grove Metro Station Garage	Shady Grove Metro Station	no	2001	-	-	X	X	X	X	-
MONT	MCT20	construct	approved	G'town Branch interim bike trail	Silver Spring CBD to Bethesda CBD	completed		X	X	X	X	X	X	X
MONT	MCT21	construct	N.A	Langley Park Terminal Fac. Plan.	Takoma Park	no		-	-	-	X	X	X	
MONT	MCT22	construct	pending	Viers Mill Rd. Bus Priority Fac. Pln.	MD 355 to MD 193	no		-	-	-	X	X	X	
MONT	MCT23	construct	N.A	Kingsview Park and Ride Fac. Pln.	MD 117/MD118	no		-	-	-	X	X	X	
MONT	MCT23	construct	N.A	Grovesnor Metro Parking	Garage Facility Planning	no								
NVTC/PRTC	VR1	increase	pending	VRE Service Increase	DC to Fredericksburg & Manassas	no		-	-	-	X	X	X	X
NVTC/PRTC	VR2	study	pending	Service Extension	Manassas to Haymarket	no		not coded						-
NVTC/PRTC	VR3	construct	pending	Parking Lot expansions	various locations	yes		X	X	X	X	X	X	X
NVTC/PRTC	VR4	implement	N.A.	VRE Feeder Bus Service	Northern Virginia Area	yes		X	X	X	X	X	X	X
		study	pending	EPG People Mover	Ft. Belvoir to Springfield	no		not coded						-
FFX	FT1	construct	approved	Dulles Corridor Parking	1800 spaces-Reston E. & Hern./Monroe	yes	1998	X	X	X	X	X	X	X
FFX	FT2	construct	approved	Transit Center	Tysons Westpark Transit Center	yes	1999	X	X	X	X	X	X	X
FFX	FT3	construct	pending	Transit Center	Reston Transit Center	no		-	-	-	X	X	X	X
FFX	FT4	increase	N.A.	Bus Service	Dulles TSM Buses		1999	X	X	X	X	X	X	X
FFX	FT5	construct	pending	Maintenance Facility	Fairfax Connector Bus Garage	yes	2001	-	-	X	X	X	X	X
FFX	FT6	expand	pending	Maintenance Facility	Newington Bus Garage Expansion	yes		-	-	X	X	X	X	-
FFX	FT7	construct	approved	Lorton Commuter Rail Station	Lorton VRE + Parking	completed		X	X	X	X	X	X	-
FFX	FT8	construct	approved	Fran/Spring. Comm. Rail Station	Fran/Spring. VRE + 200 park. spaces	completed	1997	X	X	X	X	X	X	-
FFX	FT9	expand	pending	Parking expansion	Burke Centre VRE - add 200 spaces	no	1996	X	X	X	X	X	X	-
FFX	FT10	construct	pending	W. Fairfax Comm. Rail Station	Western Fairfax VRE + parking	no	2004	-	-	X	X	X	X	X
FFX	FT11	install	N.A.	Bus shelters	30 - various locations	yes		X	X	X	X	X	X	X
FFX	FT13	construct	pending	Stringfellow Rd.	Park-and-Ride - 500 spaces	no	1999	-	X	X	X	X	X	X
FFX	FT6	construct	pending	Maintenance Facility	Hunington Bus Garage Expansion	yes	2000	-	X	X	X	X	X	X
FFX	FT15	construct	pending	Pedestrian Trails	Countywide	no	1999	X	X	X	X	X	X	X
THER	HER1	construct	pending	Bus Shelters	Throughout Herndon	no	2010	-	-	-	X	X	X	-
THER	HER2	construct	pending	Provision of Access	Herndon to Dulles Rail	no								
ARL	ARL1	install	N.A.	Canopies	Clarendon Metrostation over escalators	no	1999							

VDOT	VA7	construct	pending	Dulles Corr. Parking - 753 spaces	Dulles Greenway and VA 606	no	1999	X	X	X	X	X	X	X
VDOT	VA1	construct	pending	King St. Metro Station Improvs.		no								X
VDOT	VA2	implement	pending	VA 28 Corr. Parking	Near Shaw Rd.	yes								X
VDOT	VA3	implement	pending	Parking	Lake Ridge Area - 350 spaces	no	1998	X	X					X
VDOT	VA4	fund	N.A.	Commuter assistance program	Arlington County	n/a								X
VDOT	VA5	fund	N.A.	Regional ridesharing program	MWCOG	n/a								X
PW CO	PW1	fund		Cherry Hill Commuter Rail Station	Cherry Hill Peninsula	no	2000	-	X	X	X	X	X	X
VDOT	VA6	fund	N.A.	Ridesharing program	PRTC	n/a								X

APPENDIX C

Documentation of Modal Choice Analysis

Metropolitan Washington Council of Governments
777 North Capitol Street, NE
Washington, D.C. 20002

MEMORANDUM

DATE: 10/21/92
TO: Air Quality Conformity Analysis Files
FROM: Ronald J. Milone
UPDATED: May 20, 1998 by Jane Posey
SUBJECT: Modal Choice Estimation Procedures for Conformity Work

Introduction

The explicit consideration of modal choice in the travel demand forecasting procedures applied in the current conformity exercise is the same as last year's approach. The current version of the mode choice allows the user to define HOV facilities with different levels of occupancy at the same time. The current forecasting approach includes estimation of modal diversion from low occupancy vehicles (LOVs) to transit and high occupancy vehicles (HOVs) as a result of facility improvements that favor such modes. This memorandum documents the modal choice procedure as applied for the conformity work, for 1990 and forecast years 1999, 2005, 2010, and 2020.

Mode choice modeling at MWCOG is presently performed for the work purpose only, whereby daily work person trips at the traffic zone interchange level are disaggregated to transit and auto occupancy groups. The model is an adaption of the COG mainframe procedure developed in 1986¹ and subsequently converted

¹See MWCOG Mode Choice Study/Development, Calibration and Validation of the Mode Choice Model, Barton Aschman Associates, Inc., 7/16/86.

to a microcomputer platform².

This memorandum provides an overview of the mode choice model, and further provides details on how the model was applied for conformity work.

Mode Choice Model Overview

The MWCOG mode choice model is based on a nested logit structure and is developed from the field of economics and consumer choice behavior. Whereas most transportation models deal with aggregate rates and equations, logit type models are based on individual choice based on the utility of one commodity (i.e. a travel mode) over a competing commodity. The degree of utility depends on the individual, whether he/she owns a car for example, and comparative costs and service levels associated with each travel mode available.

The current mode choice procedure is used to disaggregate Home-Based-Work (HBW) person trips (internal-to-internal only) resulting from trip generation and trip distribution into 3 primary mode groups: transit, drive alone, and group ride modes. The transit mode is actually estimated with the distinction of access type, either walk or auto. Subsequent to the primary "split", the group ride mode is further distributed into 3 groups corresponding to 2, 3, and 4+ auto occupants.

The input variables considered in the mode choice model may be viewed as two general types: zonal attribute variables and trip interchange variables. Zonal variables are quantitative factors impacting trips from or to a specific traffic zone. Zonal variables related to the trip origin include automobile ownership levels, highway access time, and the zonal area percent that is within walking distance to transit. At the destination end, zonal variables considered are daily parking costs, highway egress time, and the zonal area

²See User's Guide for the MWCOG Mode Choice Application Program/Microcomputer Version, William Allen, Jr., 3/20/92

percent that is within walking distance from transit service. MWCOG zonal parking costs are estimated in a sub-model as a function of zonal employment density. Trip interchange variables include transit fares as well as several Level-Of-Service (LOS) variables estimated for AM peak-hour conditions. Trip interchange variables are developed from manually coded regional networks reflecting future highway and transit supply. Highway networks include link speeds, distances, and capacities associated with each major facility in the metropolitan area. Transit networks include speeds and distances of links traversed by transit operators as well as the headways assumed for each transit route. These networks, in conjunction with computer models employing shortest-path algorithms, provide the essential basis for estimating zone to zone transit fares and travel times³. Highway LOS variables, time and distance, are based on a capacity restrained traffic assignment, to reflect congested AM peak hour conditions. Transit LOS variables are developed from networks that reflect both walk access and drive access to transit service. For each access type, network time is calculated by transit trip component, i.e., access time, initial wait time, transfer wait time, bus in-vehicle time, and rail in-vehicle time. The zonal walk percents described above serve to prorate the amount zonal trip productions subject to walk access LOS attributes. For zones assigned a zonal walk percent of less than 100%, the balance of potential transit riders are assumed to experience auto access transit times.

The mode choice model operation involves weighting each input variable on a zone to zone basis to arrive at a comparative utility for each mode. This utility or "score" associated with each alternative determines the percentage of work-person trips that will choose each mode.

As stated above, the mode choice phase of the travel demand process occurs after trip generation and trip distribution of work trips are estimated. There is no explicit consideration of transit access or transit service in the amount and spatial distribution of work travel in the region. Arguably, travel modeling could be improved by either incorporating transit access-related variables into trip generation and/or by incorporating explicit transit times into the gravity model framework. These improvements are being considered for future work.

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³Travel time files from zone to zone are sometimes referred to as "skim" files.

APPENDIX D

Documentation of Emission Factor Development



METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS

*Local governments working together
for a better metropolitan region*

- District of Columbia
- Bowie
- College Park
- Frederick County
- Gaithersburg
- Greenbelt
- Montgomery County
- Prince George's County
- Rockville
- Takoma Park
- Alexandria
- Arlington County
- Fairfax
- Fairfax County
- Falls Church
- Loudoun County
- Prince William County

MEMORANDUM

June 14, 1993

TO: FILES

FROM: David C. Foerter *DF*
Air Quality Programs Manager
Department of Environmental Programs

RE: FY'94-99 Conformity Analysis MOBILE5.0(a) Assumptions:
Technical Documentation

The following is a summary of the MOBILE emissions factor model input parameters and assumptions used to produce vehicle emission factors for the FY'94-99 air quality and transportation annual conformity analysis.

Temperature (degrees F)

Seasonal Temperature	Summer
Average Minimum	72.0
Average Maximum	93.0
Ambient	85.7

Jurisdictional Description

Jurisdiction	Subject to I/M in 1990
District of Columbia	YES
City of Alexandria, VA	YES
Arlington County, VA	YES
City of Fairfax, VA	YES
Fairfax County, VA	YES
Loudoun County, VA	NO
Prince William Co., VA	YES
Stafford County, VA	NO
Calvert County, MD	NO
Charles County, MD	NO
Frederick County, MD	NO
Montgomery County, MD	YES
Pr. George's Co., MD	YES

VMT Distribution (percentages)

Vehicle Type	DC, Urbanized MD & VA Percent VMT	Xurban MD & VA Percent VMT
LDGV	82.0	75.0
LDGT1	9.1	15.0
LDGT2	1.4	1.3
HDGV	1.6	2.1
LDDV	1.4	1.2
LDDT	0.0	0.0
HDDV	2.9	3.8
MC	1.6	1.6

Percent VMT by Time Interval (Trip Length Distributions - TLD)

Interval	MWCO G TLD	M5.0(a) Default
< 10 minutes	16.6	33.227
11-20 minutes	33.9	32.883
21-30 minutes	23.4	14.871
31-40 minutes	13.3	7.886
41-50 minutes	6.1	3.645
> 50 minutes	6.7	7.488

Speeds

All scenarios run at 5 mph increments from 5 to 65 mph

Registration Distribution

[Convention: By vehicle type with first percentage (* 100) for newest model year and progressing through 25 vehicle model years; Repeated for each vehicle category (ldgv, ldgt1, ldgt2, hdgv, lddv, lddt, hddv, mc) and then each jurisdiction]

REGISTRATION DISTRIBUTION - Vehicle Model Year

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25					

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DISTRICT OF COLUMBIA

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FREDERICK COUNTY, MD

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FAIRFAX COUNTY, VA

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LOUDOUN COUNTY, VA

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MONTGOMERY COUNTY, MD

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PRINCE WILLIAM COUNTY, VA

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STAFFORD COUNTY, VA

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Inspection & Maintenance (I/M) and Anti-Tampering Programs

I/M for District of Columbia in 1990

I/M program selected:

Start year (January 1):	1983
Pre-1981 MYR stringency rate:	19%
First model year covered:	1964
Last model year covered:	2020
Waiver rate (pre-1981):	0.%
Waiver rate (1981 and newer):	0.%
Compliance Rate:	80.%
Inspection type:	Test Only
Inspection frequency	Annual
Vehicle types covered:	LDGV - Yes LDGT1 - Yes LDGT2 - No HDGV - No
1981 & later MYR test type:	Idle
Cutpoints, HC:	220.000
CO:	1.200
NOx:	999.000

No ATP in place in 1990

I/M for Maryland (Prince George's and Montgomery Counties Only) in 1990

I/M program selected:

Start year (January 1):	1989
Pre-1981 MYR stringency rate:	25%
First model year covered:	1969
Last model year covered:	2020
Waiver rate (pre-1981):	22.%
Waiver rate (1981 and newer):	23.%
Compliance Rate:	100.%
Inspection. type:	Test Only
Inspection frequency	Biennial
Vehicle types covered	LDGV - Yes LDGT1 - Yes LDGT2 - Yes HDGV - Yes
1981 & later MYR test type:	Idle
Cutpoints, HC:	220.000
CO:	1.200
NOx:	999.000

Anti-tampering program selected:

Start year (January 1):	1989
First model year covered:	1977
Last model year covered:	2020
Vehicle types covered:	LDGV, LDGT1, LDGT2, HDGV
Type:	Test Only
Frequency:	Biennial
Compliance Rate:	100.0%
Air pump system disablements:	No
Catalyst removals:	Yes
Fuel inlet restrictor disable:	Yes
Tailpipe lead deposit test:	No
EGR disablement:	No

Evaporative system disablements: No
PCV system disablements: No
Missing gas caps: No

I/M for Virginia (City of Alexandria, Arlington, Fairfax and Prince William Counties Only) in 1990

I/M program selected:

Start year (January 1): 1989
Pre-1981 MYR stringency rate: 31%
First model year-covered: 1969
Last model year covered: 2020
Waiver rate (pre-1981): 7.%
Waiver rate (1981 and newer): 4.%
Compliance Rate: 80.%
Inspection type: Computerized Test and Repair
Inspection frequency: Biennial
Vehicle types covered: LDGV - Yes
LDGT1 - Yes
LDGT2 - Yes
HDGV - No
1981 & later MYR test type: Idle
Cutpoints, HC: 220.000 CO: 1.200 NOx: 999.000

Anti-tampering program selected:

Start year (January 1): 1989
First model year covered: 1973
Last model year covered: 2020
Vehicle types covered: LDGV, LDGT1, LDGT2
Type: Test and Repair
Frequency: Biennial
Compliance Rate: 80.0%
Air pump system disablements: Yes
Catalyst removals: Yes
Fuel inlet restrictor disable: Yes
Tailpipe lead deposit test: No
EGR disablement: No
Evaporative system disable: Yes

PCV system disablements:	Yes
Missing gas caps:	Yes

E.H. PECHAN & ASSOCIATES, INC.

5537 Hempstead Way
Springfield, VA 22151

(703) 642-1120
Facsimile (703) 642-1258

June 9, 1993

Mr. David Foerter
Metropolitan Washington Council of Governments
777 North Capitol Street
Suite 300
Washington, DC 20002-4201

Dear David:

The enclosed diskette contains the MOBILE5A output files for the four cases listed below. The files are self-extracting, with the MOBILE5A output files included in four individual .EXE files by case. The MOBILE5A input files used to make these runs are unchanged from those used to do the runs with MOBILE5, which you already have.

The four cases are defined as follows:

CASE99AD -- 1990 Adjusted Base Inventory (1999 emission factors, 7.8 psi RVP, 1990 I/M programs, no Clean Air Act controls, 1990 VMT)

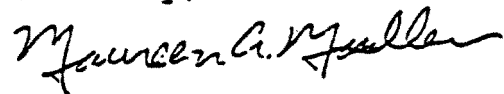
CASE99C4 -- 1999 Progress Inventory, Case 4 (1999 emission factors, reformulated gasoline, biennial enhanced I/M programs in all counties, with Clean Air Act controls, 1999 VMT)

CASE10C4 -- 2010 Progress Inventory, Case 4 (2010 emission factors, reformulated gasoline, biennial enhanced I/M programs in all counties, with Clean Air Act controls, 2010 VMT)

CASE20C4 -- 2020 Progress Inventory, Case 4 (2020 emission factors, reformulated gasoline, biennial enhanced I/M programs in all counties, with Clean Air Act controls, 2020 VMT)

Refer to my letter to you dated March 5 for further documentation of these files. Please feel free to call me if you have any questions on what is included in these cases.

Sincerely,



Maureen A. Mullen

 **ICF**
Consulting Group
9300 Lee Highway
Fairfax, VA 22031-1207
703/934-3000 Fax: 703/934-9740

To: Eulalie Lucas, MWCOG
From: Rich Denbow, Lori Duvall
Subject: MOBILE5a Modeling for MWCOG Conformity Analysis
Date: June3, 1998
cc: Joan Rohlfs, MWCOG DEP

Attached you will find documentation of the modeling assumptions ICF used to produce vehicle emission rates for MWCOG using MOBILE5a. To develop these rates, MWCOG provided MOBILE input files that were developed in the 1993-1994 time frame for analysis years before 1999. ICF then produced future year input files using the same registration data, VMT distribution data, and additional inputs that were in the COG files.

The Case 4 Scenario was modeled, which assumes CAA requirements, RFG, and biennial enhanced I/M. All jurisdictions in the Washington DC-MD-VA Ozone Nonattainment area were modeled. Emission rates were produced for ozone season HC, NO_x, and CO for 2005, 2010, and 2020, as well as wintertime CO for 1999 and 2005. For ozone season emission rates, the effects of EPA's recent Heavy-Duty Diesel Engine (HDDE) standards were modeled. For these runs, ICF followed U.S. EPA guidance to produce the rates (*MOBILE Information Sheet #5 - Inclusion of New Heavy-Duty Diesel Engines in MOBILE5a and MOBILE5b Modeling, January 30, 1998*).

Shortly after release of this guidance, EPA notified MOBILE5a users of an error in the basic emission rates included in MOBILE5a for HDDEs. The effect of this "bug" is an underestimate of HDDE NO_x emission rates using MOBILE5a. The guidance corrected the bug fix as well as produced emission rates to reflect the new HDDE standard taking effect in 2004.

In order to correct the bug and also take credit for the new HDDE NO_x emission standards, two sets of MOBILE5a runs were made for years 2010 and 2020. In the first set, the MOBILE5a HDDE NO_x rates were corrected without modeling the new engine standard. In addition to setting the NEWFLG parameter in the MOBILE5a input files to 2, new basic emission rates data must be included in the one-time data section of the files. Table A summarizes the information included in order to correct the HDDE MOBILE5a NO_x rates.

Table A. Inputs used to correct MOBILE5a HDDE NOx rates.

Variable Name	Value	Content
Region Modeled	1	Low altitude
Vehicle Type	7	Heavy-duty diesel vehicles
Pollutant	3	NOx
First Model Year/ Last Model Year	90/90 91/97 98/20	First/last years for three separate records
New Zero-mile Value	5.639 g/mi 4.598 g/mi 3.679 g/mi	Values in grams per mile for each of the first/last model year combinations
New Deterioration Rate	0.00 g/mi-10K mi 0.00 g/mi-10K mi 0.00 g/mi-10K mi	Values in grams per mile per 10,000 miles for each of the first/last model year combinations

The above information appears in the one-time data section of the MOBILE input files as follows:

```

003 (indicates number of new BER records to be read)
1 7 3 90 90 05.639 00.000
1 7 3 91 97 04.598 00.000
1 7 3 98 20 03.679 00.000
    
```

In the second set of MOBILE5a runs for 2010 and 2020, HDDE rates were corrected to MOBILE5a levels, plus the 2004 engine standard was assumed. As with the first set of 2010 and 2020 rates described above, new basic emission rates data must be included in the one-time data section of the MOBILE5a input files. Table B summarizes the information included in order to correct the HDDE MOBILE5a NOx rates and take credit for the 2004 HDDE standard.

Table B. Inputs used to correct MOBILE5a HDDE emission rates and include 2004 engine standard.

Variable Name	Value	Content
Region Modeled	1	Low altitude
Vehicle Type	7	Heavy-duty diesel vehicles
Pollutant	3	NOx
First Model Year/ Last Model Year	90/90 91/97 98/03 04/20	First/last years for three separate records
New Zero-mile Value	5.639 g/mi 4.598 g/mi 3.679 g/mi 1.840 g/mi	Values in grams per mile for each of the first/last model year combinations
New Deterioration Rate	0.00 g/mi-10K mi 0.00 g/mi-10K mi 0.00 g/mi-10K mi 0.00 g/mi-10K mi	Values in grams per mile per 10,000 miles for each of the first/last model year combinations

The above information appears in the one-time data section as follows:

004 (indicates number of new BER records to be read)
1 7 3 90 90 05.639 00.000
1 7 3 91 97 04.598 00.000
1 7 3 98 03 03.679 00.000
1 7 3 04 20 01.840 00.000

To summarize, the following MOBILE5a runs were performed to produce emission rates for MWCOG:

- 1999: One run to produce wintertime CO emission rates.
- 2005: One run for ozone season emission rates, with no corrections for the HDDE rule or the bug fix, and one run to produce wintertime CO emission rates.
- 2010: Two runs for ozone season emission rates. The first fixes the bug and takes credit for the HDDE rule, per the U.S. EPA guidance document. The second run makes the bug fix only.
- 2020: Two runs for ozone season emission rates, as stated for 2010. The first fixes the bug and takes credit for the HDDE rule. The second run makes the bug fix only.

Documentation of the additional MOBILE assumptions follows.

Table 1
MOBILE5a Control Flag Settings

Record Number	Variable Name	Content and Code Used
1	PROMPT	1 = No prompting, vertical format
2	PROJID	COG MOBILE Files
3	TAMFLG	1 = Use MOBILE5a tampering rates
4	SPDFLG	4 = One average speed for all vehicle types, plus one alternate set of trip length distribution data for all scenarios
5	VMFLAG	3 = Input one VMT mix for <u>all</u> scenarios
6	MYMRFG	3 = Use MOBILE5a annual mileage accumulation rates and county-specific registration distributions
7	NEWFLG	2 = Use alternative heavy-duty diesel emission rates
8	IMFLAG	3 = Two user-specified I/M programs
9	ALHFLG	1 = No corrections
10	ATPFLG	8 = User-specified ATP program
11	RLFLAG	5 = No refueling emission factors calculated
12	LOCFLG	1 = One LAP record input for <u>all</u> scenarios
13	TEMFLG	1 = Exhaust temperatures calculated by MOBILE5a
14	OUTFMT	3 = 112 column descriptive output format
15	PRTFLG	4 = Print HC, NOx, and CO
16	IDLFLG	1 = No idle emission factors
17	NMHFLG	2 = NMHC emission factors
18	HCFLAG	3 = Component and total HC emission factors printed

Table 2
VMT Distribution by Vehicle Type (percentages)

Vehicle Type	Urban VMT Mix	Exurban VMT Mix
LDGV	82.0	75.0
LDGT1	9.1	15.0
LDGT2	1.4	1.3
HDGV	1.6	2.1
LDDV	1.4	1.2
LDDT	0.0	0.0
HDDV	2.9	3.8
MC	1.6	1.6

**Table 3
Summary of Basic I/M Program Descriptive Input Records**

Field	Description and Codes	Values Used		
		DC	MD	VA
1	Program start year	83	83	83
2	Stringency level (%)	40	40	40
3	First model year	68	68	68
4	Last model year	20	20	20
5	Waiver rate for pre-1981 model year vehicles (%)	03	03	03
6	Waiver rate for 1981 and later model year vehicles (%)	03	03	03
7	Compliance rate (%)	96	96	96
8	Program type 1 = Test only 2 = Test and repair (computerized) 3 = Test and repair (manual)	1	1	2
9	Inspection frequency 1 = Annual 2 = Biennial	2	2	2
10	Vehicle types subject to inspection (1 = No, 2 = Yes)			
	LDGV	2	2	2
	LDGT1	2	2	2
	LDGT2	1	2	2
	HDGV	1	1	1
11	Test type 1 = Idle test 2 = 2500/Idle test 3 = Loaded idle test 4 = Transient (IM240) test	2	2	2
12	Default cutpoints flag 1 = Defaults 2 = User supplied	2	2	2
13	Alternate I/M credits flag for Tech I-II vehicles 1 = Use MOBILE5a defaults 2 = Use user-input credits	1	1	1
14	Alternate I/M credits flag for Tech IV+ vehicles 1 = Use MOBILE5a defaults 2 = Use user-input credits	1	1	1
15	User Supplied Cutpoints for			
	HC (ppm)	220	220	220
	CO (%)	1.20	1.20	1.20
	NOx (NA)	999	999	999

Table 4
Summary of I/—240 Program Descriptive Input Records

Field	Description and Codes	Values Used		
		DC	MD	VA
1	Program start year	83	83	83
2	Stringency level (%)	40	40	40
3	First model year	81	81	81
4	Last model year	20	20	20
5	Waiver rate for pre-1981 model year vehicles (%)	03	03	03
6	Waiver rate for 1981 and later model year vehicles (%)	03	03	03
7	Compliance rate (%)	96	96	96
8	Program type 1 = Test only 2 = Test and repair (computerized) 3 = Test and repair (manual)	1	1	1
9	Inspection frequency 1 = Annual 2 = Biennial	2	2	2
10	Vehicle types subject to inspection (1 = No, 2 = Yes)			
	LDGV	2	2	2
	LDGT1	2	2	2
	LDGT2	2	2	2
	HDGV	1	1	1
11	Test type 1 = Idle test 2 = 2500/Idle test 3 = Loaded idle test 4 = Transient (IM240) test	4	4	4
12	Default cutpoints flag 1 = Defaults 2 = User supplied		2	2
13	Alternate I/M credits flag for Tech I-II vehicles 1 = Use MOBILE5a defaults 2 = Use user-input credits	1	1	1
14	Alternate I/M credits flag for Tech IV+ vehicles 1 = Use MOBILE5a defaults 2 = Use user-input credits	1	1	1
15	User Supplied Cutpoints for			
	HC (ppm)	0.80	0.80	0.80
	CO (%)	20.0	20.0	20.0
	NOx (NA)	2.00	2.00	2.00

Table 5
Summary of ATP Descriptive Input Records

Field	Description and Codes	DC	MD	VA
1	Program start year	83	83	83
2	First model year	75	75	75
3	Last model year	20	20	20
4	Vehicle types subject to ATP inspections (1 = No, 2 = Yes)			
	LDGV	2	2	2
	LDGT1	2	2	2
	LDGT2	2	2	2
	HDGV	1	1	1
5	Program type 1 = Test only 2 = Test and repair	1	1	1
6	Inspection frequency 1 = Annual 2 = Biennial	2	2	2
7	Compliance rate (%)	96	96	96
8	Inspections performed (1 = Inspection not performed, 2 = Inspection performed)			
	Air pump system	2	2	2
	Catalyst	2	2	2
	Fuel inlet restrictor	2	2	2
	Tailpipe lead deposit test	1	1	1
	EGR system	1	1	1
	Evaporative emission control system	1	1	1
	PCV system	1	1	1
	Gas cap	1	1	1

Table 6
Summary of Functional Pressure Input Records

Field	Description and Codes	DC	MD	VA
1	Program start year	83	83	83
2	First model year	75	75	75
3	Last model year	20	20	20
4	Vehicle types subject to functional pressure (1 = No, 2 = Yes)			
	LDGV	2	2	2
	LDGT1	2	2	2
	LDGT2	1	1	1
	HDGV			
5	Program type 1 = Test only 2 = Test and repair	1	1	1
6	Inspection frequency 1 = Annual 2 = Biennial	2	2	2
7	Compliance rate (%)	96	96	96

Table 7
Summary of Purge Testing Input Records

Field	Description and Codes	DC	MD	VA
1	Program start year	83	83	83
2	First model year	81	81	81
3	Last model year	20	20	20
4	Vehicle types subject to purge testing (1 = No, 2 = Yes)			
	LDGV	2	2	2
	LDGT1	2	2	2
	LDGT2	2	2	2
	HDGV	1	1	1
5	Program type 1 = Test only 2 = Test and repair	1	1	1
6	Inspection frequency 1 = Annual 2 = Biennial	2	2	2
7	Compliance rate (%)	96	96	96

**Table 8
Trip Length Distribution Inputs**

Interval	MWCOG Trip Length Distributions	MOBILE5a Defaults
< 10 Minutes	16.6	6.744
11 - 20 Minutes	33.9	18.507
21 - 30 Minutes	23.4	16.775
31 - 40 Minutes	13.3	13.108
41 - 50 Minutes	6.1	8.335
> 50 Minutes	6.7	36.531

**Table 9
Summary of Scenario Descriptive Records**

Field	Description and Codes	DC	MD	VA
1	Region 1 for Low Altitude	1	1	1
2	Calendar year of evaluation	multi	multi	multi
3	Speeds to be used	5-65	5-65	5-65

**Table 10
Summary of Local Area Parameter Records**

Field	Description and Codes	DC	MD	VA
1	Fuel volatility class	B	B	B
2	Period 1 RVP (psi)	7.8	7.8	7.8
3	Period 2 RVP (psi)	7.8	7.8	7.8
4	Period 1 RVP start year	20	20	20
5	Oxygenated Fuel Flag (not modeled)	1	1	1
6	Diesel sales fraction flag (User specified)	2	2	2
7	Reformulated Gasoline flag (modeled)	2	2	2

Table 11
Ozone Season and CO Season Temperatures Modeled
for the Metropolitan Washington Area

	Minimum Daily Temperature (°F)	Maximum Daily Temperature (°F)	Ambient Daily Temperature (°F)
Ozone Season	72.0	93.0	85.7
CO Season	33.0	53.0	46.5

Table 12
Operation Mode Fractions

PCCN	PCHC	PCCC
20.6	27.3	20.6

Table 13
Registration Distribution Percentages by Age for the District of Columbia

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	4.84	12.20	5.71	2.30	3.40	2.34
2	9.19	18.05	8.76	4.70	6.70	4.94
3	9.74	12.10	8.62	4.70	6.70	8.25
4	8.74	11.10	7.35	4.70	6.70	14.56
5	8.21	7.88	5.66	4.70	6.70	11.66
6	7.89	5.54	4.02	3.80	7.30	7.43
7	5.77	4.15	4.35	3.30	6.10	9.10
8	5.11	2.79	4.37	2.10	4.00	13.55
9	5.17	2.82	9.21	2.60	4.10	9.29
10	5.10	2.30	9.30	2.90	5.10	7.92
11	5.77	2.19	8.02	3.40	5.30	5.35
12	5.46	2.02	5.63	6.40	6.60	5.61
13	4.63	1.38	3.24	5.40	5.50	0.00
14	3.52	2.59	3.11	5.80	5.70	0.00
15	2.18	2.31	2.63	5.10	4.50	0.00
16	1.94	2.20	2.08	3.80	1.90	0.00
17	1.75	1.47	1.49	4.30	2.30	0.00
18	1.30	1.25	1.33	4.10	2.80	0.00
19	0.92	1.28	1.21	3.50	2.40	0.00
20	0.62	0.89	0.71	2.90	1.60	0.00
21	0.47	0.69	0.51	2.10	1.10	0.00
22	0.39	0.62	0.56	2.20	0.90	0.00
23	0.31	0.55	0.51	2.20	0.70	0.00
24	0.23	0.41	0.35	1.40	0.50	0.00
25	0.78	1.24	1.27	11.70	1.60	0.00

Table 14
Registration Distribution Percentages by Age for Calvert County, Maryland

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	4.04	6.61	3.92	2.30	3.40	1.09
2	8.52	13.47	8.40	4.70	6.70	1.93
3	10.02	15.53	10.40	4.70	6.70	1.53
4	9.75	14.23	10.71	4.70	6.70	1.39
5	10.30	13.12	9.81	4.70	6.70	2.03
6	9.93	9.30	11.08	3.80	7.30	3.71
7	8.22	7.30	7.29	3.30	6.10	2.97
8	7.26	5.77	6.34	2.10	4.00	2.23
9	4.86	3.02	4.28	2.60	4.10	2.72
10	3.73	1.45	3.10	2.90	5.10	3.61
11	3.65	1.03	2.77	3.40	5.30	3.36
12	2.93	0.99	2.48	6.40	6.60	73.43
13	3.23	2.16	3.77	5.40	5.50	0.00
14	2.69	1.74	3.52	5.80	5.70	0.00
15	2.16	1.24	2.57	5.10	4.50	0.00
16	1.46	0.84	1.74	3.80	1.90	0.00
17	0.83	0.55	1.00	4.30	2.30	0.00
18	0.61	0.29	1.40	4.10	2.80	0.00
19	0.80	0.31	0.82	3.50	2.40	0.00
20	0.69	0.44	1.11	2.90	1.60	0.00
21	0.54	0.27	0.55	2.10	1.10	0.00
22	0.43	0.08	0.83	2.20	0.90	0.00
23	0.42	0.08	0.66	2.20	0.70	0.00
24	0.36	0.06	0.42	1.40	0.50	0.00
25	2.57	0.10	1.06	11.70	1.60	0.00

Table 15
Registration Distribution Percentages by Age for Charles County, Maryland

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	4.32	6.73	4.29	2.30	3.40	2.86
2	8.50	12.76	8.13	4.70	6.70	8.00
3	9.98	15.31	9.74	4.70	6.70	5.29
4	9.94	14.87	10.61	4.70	6.70	5.21
5	10.06	12.05	10.09	4.70	6.70	5.80
6	9.73	9.04	10.75	3.80	7.30	10.06
7	8.52	7.07	7.53	3.30	6.10	7.05
8	7.52	5.67	6.31	2.10	4.00	6.17
9	5.02	2.97	4.36	2.60	4.10	7.05
10	3.66	1.69	3.23	2.90	5.10	8.08
11	3.47	1.19	2.67	3.40	5.30	6.98
12	2.98	1.03	2.53	6.40	6.60	27.46
13	3.34	2.37	3.99	5.40	5.50	0.00
14	2.70	2.20	3.25	5.80	5.70	0.00
15	2.24	1.57	2.50	5.10	4.50	0.00
16	1.40	0.94	1.66	3.80	1.90	0.00
17	0.73	0.58	1.19	4.30	2.30	0.00
18	0.69	0.52	1.40	4.10	2.80	0.00
19	0.77	0.45	0.98	3.50	2.40	0.00
20	0.69	0.24	1.03	2.90	1.60	0.00
21	0.51	0.28	0.76	2.10	1.10	0.00
22	0.42	0.16	0.66	2.20	0.90	0.00
23	0.47	0.08	0.59	2.20	0.70	0.00
24	0.33	0.09	0.51	1.40	0.50	0.00
25	2.00	0.14	1.23	11.70	1.60	0.00

Table 16
Registration Distribution Percentages by Age for Frederick County, Maryland

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	3.90	6.94	3.91	2.30	3.40	3.08
2	9.04	12.55	7.87	4.70	6.70	3.86
3	10.52	14.02	9.71	4.70	6.70	5.06
4	9.88	13.11	10.37	4.70	6.70	5.06
5	9.80	11.62	9.66	4.70	6.70	6.20
6	9.53	9.94	11.01	3.80	7.30	8.54
7	7.95	7.70	7.22	3.30	6.10	6.91
8	7.34	6.17	6.38	2.10	4.00	6.17
9	4.87	2.73	4.50	2.60	4.10	6.52
10	3.86	1.63	3.05	2.90	5.10	8.80
11	3.45	1.05	2.73	3.40	5.30	8.28
12	3.18	1.17	2.77	6.40	6.60	31.52
13	3.13	3.25	4.38	5.40	5.50	0.00
14	2.74	2.41	3.69	5.80	5.70	0.00
15	1.96	1.59	2.62	5.10	4.50	0.00
16	1.26	1.05	1.89	3.80	1.90	0.00
17	0.73	0.63	1.04	4.30	2.30	0.00
18	0.73	0.52	1.22	4.10	2.80	0.00
19	0.81	0.43	1.04	3.50	2.40	0.00
20	0.67	0.46	1.10	2.90	1.60	0.00
21	0.49	0.32	0.71	2.10	1.10	0.00
22	0.51	0.20	0.62	2.20	0.90	0.00
23	0.45	0.13	0.59	2.20	0.70	0.00
24	0.40	0.08	0.49	1.40	0.50	0.00
25	2.79	0.29	1.41	11.70	1.60	0.00

Table 17
Registration Distribution Percentages by Age for Montgomery County, Maryland

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	4.62	8.99	3.58	2.30	3.40	3.07
2	9.81	15.30	8.68	4.70	6.70	5.26
3	9.83	15.55	11.29	4.70	6.70	6.27
4	10.57	14.51	11.52	4.70	6.70	6.33
5	11.04	12.22	10.57	4.70	6.70	6.79
6	10.61	9.26	12.19	3.80	7.30	9.90
7	8.77	7.05	8.02	3.30	6.10	7.00
8	7.83	5.13	6.96	2.10	4.00	5.37
9	5.25	2.39	4.39	2.60	4.10	6.79
10	3.99	1.32	2.99	2.90	5.10	8.88
11	3.39	1.02	2.36	3.40	5.30	6.26
12	2.79	0.80	2.25	6.40	6.60	28.09
13	2.53	1.71	3.37	5.40	5.50	0.00
14	2.01	1.37	2.67	5.80	5.70	0.00
15	1.49	0.96	2.06	5.10	4.50	0.00
16	0.93	0.68	1.43	3.80	1.90	0.00
17	0.54	0.37	0.84	4.30	2.30	0.00
18	0.51	0.30	0.90	4.10	2.80	0.00
19	0.52	0.34	0.79	3.50	2.40	0.00
20	0.49	0.22	0.81	2.90	1.60	0.00
21	0.36	0.17	0.48	2.10	1.10	0.00
22	0.31	0.08	0.45	2.20	0.90	0.00
23	0.30	0.08	0.39	2.20	0.70	0.00
24	0.24	0.05	0.25	1.40	0.50	0.00
25	1.28	0.14	0.76	11.70	1.60	0.00

Table 18
Registration Distribution Percentages by Age for Prince Georges County, MD

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	4.16	7.21	3.58	2.30	3.40	3.23
2	8.57	14.15	8.55	4.70	6.70	5.33
3	9.46	15.01	10.04	4.70	6.70	6.17
4	10.40	14.26	10.95	4.70	6.70	5.01
5	10.52	12.20	9.33	4.70	6.70	6.68
6	9.46	8.19	10.62	3.80	7.30	11.86
7	8.42	7.03	7.72	3.30	6.10	8.16
8	7.75	5.43	6.41	2.10	4.00	6.33
9	5.14	2.97	4.26	2.60	4.10	6.63
10	3.99	1.73	2.95	2.90	5.10	8.48
11	3.71	1.23	2.71	3.40	5.30	5.52
12	3.10	1.09	2.40	6.40	6.60	26.62
13	3.29	2.59	3.79	5.40	5.50	0.00
14	2.71	1.83	3.28	5.80	5.70	0.00
15	2.09	1.46	2.73	5.10	4.50	0.00
16	1.43	1.06	2.09	3.80	1.90	0.00
17	0.83	0.58	1.26	4.30	2.30	0.00
18	0.75	0.52	1.46	4.10	2.80	0.00
19	0.76	0.45	1.11	3.50	2.40	0.00
20	0.61	0.37	1.11	2.90	1.60	0.00
21	0.47	0.22	0.86	2.10	1.10	0.00
22	0.38	0.09	0.67	2.20	0.90	0.00
23	0.34	0.10	0.63	2.20	0.70	0.00
24	0.29	0.04	0.45	1.40	0.50	0.00
25	1.40	0.16	1.05	11.70	1.60	0.00

Table 19
Registration Distribution Percentages by Age for Alexandria City, Virginia

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	6.76	7.04	5.58	2.30	3.40	3.06
2	8.20	11.40	7.35	4.70	6.70	3.95
3	9.55	11.12	9.45	4.70	6.70	4.47
4	9.37	11.18	7.65	4.70	6.70	5.82
5	8.93	12.82	8.12	4.70	6.70	9.10
6	7.77	7.34	6.53	3.80	7.30	8.28
7	7.32	6.21	5.46	3.30	6.10	5.89
8	5.39	4.21	3.99	2.10	4.00	6.79
9	4.85	3.66	3.95	2.60	4.10	13.80
10	4.78	3.05	3.82	2.90	5.10	10.07
11	4.48	2.00	3.22	3.40	5.30	5.00
12	4.33	2.28	6.79	6.40	6.60	23.79
13	4.03	2.51	6.01	5.40	5.50	0.00
14	3.25	2.16	5.28	5.80	5.70	0.00
15	2.55	1.66	4.17	5.10	4.50	0.00
16	1.46	1.17	2.15	3.80	1.90	0.00
17	1.43	1.76	2.79	4.30	2.30	0.00
18	1.31	1.48	1.33	4.10	2.80	0.00
19	1.00	1.48	1.29	3.50	2.40	0.00
20	0.73	1.09	0.95	2.90	1.60	0.00
21	0.54	0.83	0.99	2.10	1.10	0.00
22	0.43	0.73	0.95	2.20	0.90	0.00
23	0.34	0.65	0.90	2.20	0.70	0.00
24	0.27	0.57	0.86	1.40	0.50	0.00
25	0.92	1.62	0.43	11.70	1.60	0.00

Table 20
Registration Distribution Percentages by Age for Arlington County, Virginia

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	11.21	5.61	3.71	2.30	3.40	2.54
2	9.25	9.21	5.35	4.70	6.70	4.12
3	8.35	11.03	7.42	4.70	6.70	3.79
4	8.41	10.85	6.68	4.70	6.70	4.94
5	8.23	11.83	6.99	4.70	6.70	8.72
6	7.35	7.63	7.07	3.80	7.30	9.20
7	7.19	7.40	5.35	3.30	6.10	5.80
8	5.39	5.47	4.37	2.10	4.00	8.10
9	4.86	4.72	3.48	2.60	4.10	13.28
10	4.75	4.13	4.26	2.90	5.10	7.96
11	4.49	2.57	3.59	3.40	5.30	6.28
12	4.00	2.60	7.81	6.40	6.60	25.26
13	3.65	2.21	7.73	5.40	5.50	0.00
14	2.75	2.20	6.05	5.80	5.70	0.00
15	2.12	2.02	5.54	5.10	4.50	0.00
16	1.19	1.19	2.46	3.80	1.90	0.00
17	1.18	1.74	2.30	4.30	2.30	0.00
18	1.14	1.14	1.95	4.10	2.80	0.00
19	0.97	1.24	1.52	3.50	2.40	0.00
20	0.74	0.76	1.21	2.90	1.60	0.00
21	0.54	0.70	1.17	2.10	1.10	0.00
22	0.47	0.85	0.86	2.20	0.90	0.00
23	0.41	0.70	0.62	2.20	0.70	0.00
24	0.36	0.59	0.47	1.40	0.50	0.00
25	0.96	1.61	2.03	11.70	1.60	0.00

Table 21
Registration Distribution Percentages by Age for Fairfax County, Virginia

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	7.22	6.87	5.46	2.30	3.40	3.73
2	9.22	10.76	7.95	4.70	6.70	4.42
3	10.08	12.23	9.44	4.70	6.70	4.24
4	10.53	12.91	9.00	4.70	6.70	5.75
5	10.19	13.46	9.21	4.70	6.70	9.52
6	8.99	8.49	8.24	3.80	7.30	8.24
7	8.06	7.78	6.30	3.30	6.10	5.77
8	5.53	5.41	4.61	2.10	4.00	7.83
9	4.48	3.62	3.12	2.60	4.10	11.92
10	4.20	2.82	3.32	2.90	5.10	8.15
11	3.69	1.95	3.10	3.40	5.30	6.09
12	3.55	2.00	6.18	6.40	6.60	24.34
13	3.09	1.48	6.53	5.40	5.50	0.00
14	2.41	1.43	4.87	5.80	5.70	0.00
15	1.71	1.09	3.40	5.10	4.50	0.00
16	1.00	0.69	1.76	3.80	1.90	0.00
17	0.99	1.12	1.62	4.30	2.30	0.00
18	0.98	1.05	1.29	4.10	2.80	0.00
19	0.82	0.98	1.02	3.50	2.40	0.00
20	0.64	0.60	0.66	2.90	1.60	0.00
21	0.50	0.59	0.57	2.10	1.10	0.00
22	0.45	0.54	0.52	2.20	0.90	0.00
23	0.41	0.49	0.48	2.20	0.70	0.00
24	0.38	0.45	0.44	1.40	0.50	0.00
25	0.88	1.19	0.91	11.70	1.60	0.00

Table 22
Registration Distribution Percentages by Age for Loudoun County, Virginia

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	6.60	6.42	5.21	2.30	3.40	3.56
2	9.10	9.17	8.05	4.70	6.70	4.84
3	10.01	11.03	9.13	4.70	6.70	4.97
4	10.09	11.38	6.87	4.70	6.70	6.50
5	9.59	12.60	6.99	4.70	6.70	9.38
6	8.30	9.14	6.29	3.80	7.30	6.81
7	7.75	8.69	5.57	3.30	6.10	3.99
8	5.03	5.55	3.92	2.10	4.00	7.48
9	4.16	3.77	2.45	2.60	4.10	12.14
10	4.00	3.15	3.07	2.90	5.10	7.23
11	3.63	2.28	3.43	3.40	5.30	6.38
12	3.94	2.36	6.96	6.40	6.60	26.73
13	3.61	2.29	6.94	5.40	5.50	0.00
14	2.91	1.75	6.24	5.80	5.70	0.00
15	2.20	1.54	3.67	5.10	4.50	0.00
16	1.28	0.93	2.36	3.80	1.90	0.00
17	1.31	1.03	2.61	4.30	2.30	0.00
18	1.26	1.26	1.86	4.10	2.80	0.00
19	1.15	1.03	1.72	3.50	2.40	0.00
20	0.84	0.80	1.33	2.90	1.60	0.00
21	0.65	0.66	1.05	2.10	1.10	0.00
22	0.59	0.66	1.12	2.20	0.90	0.00
23	0.53	0.66	1.05	2.20	0.70	0.00
24	0.48	0.66	0.97	1.40	0.50	0.00
25	1.00	1.19	1.17	11.70	1.60	0.00

Table 23
Registration Distribution Percentages by Age for Prince William County, Virginia

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	6.69	8.35	4.25	2.30	3.40	2.90
2	9.19	10.90	7.31	4.70	6.70	3.26
3	9.85	12.14	8.46	4.70	6.70	4.11
4	9.97	12.87	7.63	4.70	6.70	5.49
5	9.37	13.03	8.19	4.70	6.70	8.70
6	8.01	8.29	7.42	3.80	7.30	8.91
7	7.38	7.50	6.41	3.30	6.10	6.11
8	5.02	4.76	4.78	2.10	4.00	7.41
9	4.17	3.61	2.93	2.60	4.10	13.00
10	4.20	2.54	3.36	2.90	5.10	8.67
11	3.82	1.72	3.13	3.40	5.30	6.32
12	4.03	1.88	6.79	6.40	6.60	25.12
13	3.73	1.59	6.49	5.40	5.50	0.00
14	3.10	1.29	5.42	5.80	5.70	0.00
15	2.24	0.97	3.58	5.10	4.50	0.00
16	1.33	0.62	2.17	3.80	1.90	0.00
17	1.34	1.05	2.13	4.30	2.30	0.00
18	1.33	1.06	1.83	4.10	2.80	0.00
19	1.11	1.19	1.37	3.50	2.40	0.00
20	0.82	0.64	1.08	2.90	1.60	0.00
21	0.69	0.69	1.06	2.10	1.10	0.00
22	0.60	0.70	1.12	2.20	0.90	0.00
23	0.52	0.69	1.06	2.20	0.70	0.00
24	0.46	0.68	1.01	1.40	0.50	0.00
25	1.04	1.24	1.01	11.70	1.60	0.00

Table 24
Registration Distribution Percentages by Age for Stafford County, Virginia

Vehicle Age	LDGV and LDDV	LDGT1 and LDDT	LDGT2	HDGV	HDDV	MC
1	5.51	5.89	4.16	2.30	3.40	3.41
2	8.30	9.05	7.01	4.70	6.70	3.21
3	8.91	10.77	7.01	4.70	6.70	4.72
4	8.66	11.52	5.10	4.70	6.70	4.02
5	8.46	11.49	5.68	4.70	6.70	9.34
6	7.24	6.43	5.68	3.80	7.30	9.04
7	7.17	7.15	4.64	3.30	6.10	6.12
8	5.01	5.55	3.24	2.10	4.00	7.93
9	4.42	3.91	2.76	2.60	4.10	12.85
10	4.56	3.00	3.40	2.90	5.10	7.53
11	4.20	2.53	3.17	3.40	5.30	5.82
12	4.87	2.53	7.84	6.40	6.60	26.00
13	4.36	2.64	8.37	5.40	5.50	0.00
14	3.64	2.13	7.33	5.80	5.70	0.00
15	2.99	1.65	4.80	5.10	4.50	0.00
16	1.78	1.17	2.97	3.80	1.90	0.00
17	1.76	1.67	3.72	4.30	2.30	0.00
18	1.66	1.69	3.01	4.10	2.80	0.00
19	1.51	1.83	2.09	3.50	2.40	0.00
20	0.94	1.03	1.40	2.90	1.60	0.00
21	0.81	1.21	1.59	2.10	1.10	0.00
22	0.69	1.10	1.31	2.20	0.90	0.00
23	0.60	0.99	1.08	2.20	0.70	0.00
24	0.51	0.90	0.90	1.40	0.50	0.00
25	1.43	2.20	1.72	11.70	1.60	0.00


APPENDIX E

Documentation of Mobile Source Emission Calculations (post-processor)

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS

777 North Capitol Street, N.E.
Suite 300
Washington, D.C. 20002-4201

MEMORANDUM

TO: FY99-04 TIP Conformity Files
FROM: Ronald Milone
DATE: October 21, 1992
UPDATED: June 5, 1998 by Eulalie Lucas 
SUBJECT: Estimation Procedures of Mobile Source Emissions
FY99-04 TIP and CLRP Conformity Study

1.0.0 BACKGROUND

This document describes the calculation method used to produce 1990, 1999, 2005, 2010, and 2020 mobile source emission estimates based on the FY99-04 Transportation Improvement Program (TIP) and Constrained Long Range Plan (CLRP). The results of the process were used to assess how well the plan and program conformed to air quality goals.

The emission estimation process, in general, represents the combined efforts of two departments within MWCOG: the development of emission rates produced by the Environmental Programs (EP) department, and the provision of land use data, the development of regional transportation demand data, and the processing of final emissions results by the Department of Transportation Planning (DTP). Travel data includes daily trip tables and daily network link volumes, which are normal byproducts of the standard urban transportation planning process. The estimation of emission rates, by pollutant, is developed through the use of the MOBILE 5amodel, as prescribed by EPA. The emissions calculation can be viewed, in general, as product of travel data and emission rates. The travel modeling data is designed to simulate average annual weekday condition. Emission rates produced by MOBILE 5a, on the other hand, reflect a worst case seasonal condition, i.e. when meteorological conditions are most conducive to mobile source pollution.

The estimation of mobile source emissions involves 3 fundamental travel components: running emissions, trip-end emissions, and diurnal emissions. Running emissions refer to those produced after the vehicle has achieved a hot stable running mode and are calculated as a function of Vehicle Miles Traveled (VMT). Trip-end emissions refer to those produced at the beginning of vehicle operation, before the engine is fully warmed, and to evaporative emissions produced subsequent to the engine shutdown. Trip origin emissions are divided into two types, cold starts (where the engine has been allowed time to cool completely) and hot transient starts (where the engine is still warm from the last shutoff). Respective pollutant rates per trip are applied to cold starts and hot transient starts to calculate trip origin emissions. Trip destination emissions, also known as hot soaks, are similarly calculated on a per trip emission rate basis. Diurnal emissions refer to the evaporative loss of pollutants due to the change in ambient temperature during the day, irrespective of vehicle usage. VOC emissions are associated with all travel components mentioned above. CO and NOX, however, are associated only with trip origin and running phases of the trip cycle.

The approach described above is sometimes referred to as a "hybrid" method, where trip-end emissions are calculated separately from over-the-highway emissions. Other approaches assume the calculation of trip-end and highway

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The following sections describe in greater detail the emission estimation process for the first two travel components; diurnal emissions are documented in a separate request.

2.0.0 RUNNING EMISSIONS

Running emission factors based on the MOBILE 5a model, by pollutant, are shown on Attachment 1. Factors are given on the basis of vehicle type, the county-based area of vehicle registration, and average running speed, from 5 to 65 mph in increments of 5 mph. The county of vehicle registration is relevant to emission rates as inspection and maintenance standards vary. The relationship between emission rates and speeds is inverse for speeds of 0 to approximately 50 mph. Beyond this speed, emission rates begin to rise, but very slightly.

In keeping up with the procedures adopted in the FY97 - 2002 TIP and CLRP, speed was raised to 70 mph for those freeways which currently have a 65 mph limit, for the FY 99-2004 analysis.. To analyze the impact of this update, the program code in the post-processor was revised to allow VMT above 65 mph to be identified and summarized. Also, Emission factors were developed for speeds above 65 mph.

There are some enhancements which were made to the transportation modeling "raw outputs" before they could be combined with the emission factors. The standard results of the MWCOG travel demand process are 24 hour link traffic volumes and speeds. Because the emissions rates are sensitive to facility speeds over the day, which will vary with local area peaking characteristics, an effort was made to develop time-of-day specific speeds, for each link in the travel network.

An automated process was applied to estimate link operating speeds for several time periods, over the average day. The process was borrowed from a technique developed in the 1982 Air Quality Inventory work performed by MWCOG. Traffic distributions for ten discrete periods of the day were calculated based on a regional traffic count survey conducted in 1980. The traffic distributions were summarized on the basis of the link's directional orientation toward the central downtown core of the District of Columbia. The summaries were made for inbound (heading toward the regional core), outbound (heading away from the regional core), and circumferential (heading around the CBD). Table 1 shows the resulting distributions.

**TABLE 1
ASSUMED HOURLY TRAFFIC DISTRIBUTIONS
BY LINK ORIENTATION**

----- LINK ORIENTATION -----

<u>HOURLY PERIOD</u>	<u>INBOUND</u>	<u>OUTBOUND</u>	<u>CIRCUMFERENTIAL</u>
12MID - 6AM	0.007182	0.039200	0.03600
6AM - 7AM	0.068402	0.022700	0.03850
7AM - 8AM	0.106802	0.045200	0.07200
8AM - 9AM	0.091902	0.047700	0.06850
9AM - 10AM	0.065202	0.045200	0.06800
10AM - 3PM	0.253402	0.250200	0.26250
3PM - 4PM	0.059402	0.074200	0.06500
4PM - 6PM	0.118402	0.200200	0.15700
6PM - 7PM	0.050902	0.075200	0.06250

<u>7PM -12MD</u>	<u>0.178402</u>	<u>0.200200</u>	<u>0.17000</u>
TOTAL:	1.000000	1.000000	1.00000

The above distributions were applied to the appropriate link volumes enabling the calculation of volume-to-capacity ratios by time period. The ratios were then inserted into the BPR curve adapted by MWCOG to calculate daily congested speeds by time period. The results of this process were validated with observed speed data conducted in the District of Columbia and Beltway data.

The MWCOG BPR curve used for the speed calculation is as follows:

$$S_r = (S_c * 1.15) / (1 + 0.15 * (V/C)^4); \text{ subject to } 0 \leq V/C \leq 1.6$$

Where:

S_r = Restrained Speed

S_c = LOS "C" Speed

V/C = Volume to Capacity Ratio

Note:

If V/C exceeds 1.6, then the "excess" volume is displaced into the following time increment.

The level-of-service "C" speed and capacity used in the above equation are taken from a simple matrix based on facility type and area type. Also, as shown, the MWCOG BPR curve assumes a slower rate of speed decay for instances of extreme congestion.

Because the emission factors are given on the basis of the county of vehicle registration, the application of such factors to a given link volume, where the county registration distribution is unknown, was made difficult. A simple solution was proposed by using the total vehicle trip table used as input to the assignment process. The trip matrix was formatted at the county interchange from which the proportion of trip origins to destinations was calculated. The trip origin distributions were assumed to hold true for all links within a given county, and were therefore used to weight the emission factors.

Mathematically, the general form for calculating running emission factors at the network link level is as follows:

$$E^p = \sum_{t=1}^{10} \left(\sum_{s=1}^{12} (VMT_t * W_s * EF_{st}) \right)$$

Where:

E^p = Daily link level running in grams attributed to pollutant p.

VMT_t = Link VMT estimated at time t.

W^s = Emission factor weight based on the trip origin distribution from origin county s, to the county where the link is located.

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EF_{st} = Emission factor (grams/mile) for pollutant p, originating from county s, at speed calculated at time t.

3.0.0 TRIP-END EMISSIONS

Trip-end emissions are computed by applying emission factors to zonal trip productions and trip attractions. The computation is therefore performed on centroid connector volumes, and intrazonal trips associated with each traffic zone. Trip origin emissions are calculated by applying cold start and hot transient factors to centroid link volumes produced from zones and intrazonal volumes. Trip-destination volumes are computed by applying hot soak factors to centroid link volumes arriving into zones and, again, to intrazonal trips.

Several pre-calculation steps were addressed before the emissions were calculated. First, total zonal productions had to be divided into cold start-related and hot transient start-related trips. Cold and hot transient start distributions were developed from the 1987/88 Home Interview Survey. Distributions based on the percent of auto starts for autos previously driven less than one hour and for autos previously driven for more than one hour, by time of day, were developed. Table 2 shows the percent shares.

TABLE 2
PERCENT AUTO STARTS FOR AUTOS DRIVEN
PREVIOUSLY MORE/LESS THAN 1 HOUR

<u>HOURLY PERIOD</u>	<u>% AUTO DRIVE PREVIOUSLY MORE THAN 1 HR.</u>	<u>% AUTO DRIVEN PREVIOUSLY LESS THAN 1 HR.</u>
12MID - 6AM	0.93	0.07
6AM - 7AM	0.96	0.04
7AM - 8AM	0.91	0.09
8AM - 9AM	0.80	0.20
9AM - 10AM	0.65	0.35
10AM - 3PM	0.55	0.45
3PM - 4PM	0.65	0.35
4PM - 6PM	0.68	0.32
6PM - 7PM	0.61	0.39
7PM - 12MI	0.68	0.32

Secondly, centroid and intrazonal vehicles produced by the travel modeling process were required to be disaggregated to hourly estimates. To address this requirement, all zones were placed into one of three land-use types: a residential type, for zones which had a daily production/total trip-end ratio of greater than or equal to 0.65, an employment type, for zones which had a daily production/total trip-end ratio of less than or equal to 0.35, and a mixed type for all other zones. Daily trips associated with residential and employment type zones were then distributed to hourly periods by applying the inbound and outbound distributions, respectively, shown on Table 2. The circumferential distribution on this table was applied to intrazonal trips, as well as all trips associated with mixed type zones.

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Thirdly, since the trip-end factors, as in the case of the running emission factors, were based on the county of vehicle registration, 3 rules were established to calculate origin-end emissions. 1) For those trip productions associated with a residential type zone, and for all intrazonal trips, emission factors were taken directly from the county in which the zone was located. 2) For those trips associated with an employment type zone, emissions were weight averaged, in the same manner highway link emissions were calculated. 3) For trips associated with a mixed type zone, an average result produced by rule 1 and rule 2 was calculated. With regard to destination-end emissions, 2 rules were established: 1) for intrazonal trips emission factors were taken directly from the county in which the zone was located. 2) For all zonal attractions, emissions were weight averaged in the same manner highway link emissions were calculated.

Mathematically, daily zonal trip origin emissions for a given pollutant may be expressed as follows:

For Rule 1:

$$E^p = \sum_{t=1}^{10} \left(\sum_{s=1}^{12} (VOL_t * 2.8mi * ((CW_t * CF_s) * (HW_t * HF_s))) \right)$$

For Rule 2:

$$E^p = \sum_{t=1}^{10} \left(\sum_{s=1}^{12} (VOL_t * 2.8mi * ((CW_t * CF_s) * (HW_t * HF_s)) * W_s) \right)$$

Where:

E^p = Daily zonal origin-end emissions in grams attributed to pollutant p for trips originating from a zone or traveling from within a zone.

VOL_t = zonal productions estimated time t.

W_s = Total emission factor weight based on the origin distribution of vehicles from origin county s, destined to county location of zone.

CF^t = Cold start emission factor (grams/mile) for pollutant p originating from county s.

CW_t = Cold start emission weight at time t.

HF^s = Hot transient start emission factor (grams/mile) for pollutant p originating from county s.

HW_t = Hot transient start emission weight at time t.

Daily zonal trip destination emissions for a given pollutant may similarly be expressed as follows:

For Rule 1:

$$E^p = \sum_{t=1}^{10} \left(\sum_{s=1}^{12} (\text{VOL}_t * \text{HSF}_s) \right)$$

For Rule 2:

$$E^p = \sum_{t=1}^{10} \left(\sum_{s=1}^{12} (\text{VOL}_t * \text{HSF}_s) * W_s \right)$$

Where:

E^p = Daily zonal destination emissions in grams attributed to pollutant p for trips destined to a zone or traveling within a zone.

VOL_t = zonal attractions estimated at time t.

W_s = Total emission factor weight based on the origin distribution of vehicles from county s, to county location of zone.

HSF_s = Hot Soak emission factor (grams/mile) for pollutant p based on vehicles originating from county s.

ATTACHMENT 1

MOBILE 5A EMISSION FACTORS 1990,1999,2005,2010, and 2020

TOTAL COMPOSITE EMISSION FACTORS BY SPEED
MOBILE 5a OPERATING MODE: RUNNING (0/0/0)
YEAR: 1990 AREA: DC

11:59 Tuesday, June 11, 1996

VEH SPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)
5	7.581	74.775	2.511
10	3.851	39.368	2.197
15	2.672	27.097	2.037
20	2.003	20.891	1.948
25	1.640	17.153	1.933
30	1.382	14.555	1.936
35	1.190	12.715	1.957
40	1.045	11.460	1.995
45	0.935	10.661	2.057
50	0.869	10.369	2.258
55	0.844	10.505	2.655
60	1.079	20.085	3.096
65	1.319	29.828	3.600
70	1.559	39.571	4.104

TOTAL COMPOSITE EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: COLD (100/0/100)
 YEAR: 1990 AREA: DC
 9/ 1/92

VEH SPEED	HC (GM/MI)	CO (GM/M)	NX (GM/M)	HOT SK (GM/TRIP)	WTDRNL (GM/VEH)	RESTGL (GM/VEH/HR)
5	12.440	118.127	3.308	3.268	8.026	0.111
10	6.511	62.839	2.907	3.268	8.026	0.111
15	4.599	43.907	2.719	3.268	8.026	0.111
20	3.562	34.374	2.621	3.268	8.026	0.111
25	2.924	28.434	2.619	3.268	8.026	0.111
30	2.481	24.384	2.634	3.268	8.026	0.111
35	2.155	21.510	2.663	3.268	8.026	0.111
40	1.911	19.470	2.711	3.268	8.026	0.111
45	1.726	18.049	2.781	3.268	8.026	0.111
50	1.623	17.442	3.059	3.268	8.026	0.111
55	1.598	17.578	3.631	3.268	8.026	0.111
60	1.943	31.500	4.248	3.268	8.026	0.111
65	2.293	45.586	4.929	3.268	8.026	0.111

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TOTAL COMPOSITE EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: HOT (0/100/0)
 YEAR: 1990 AREA: DC
 9/ 1/92

VEH SPEED	HC (GM/MI)	CO (GM/M)	NX (GM/MI)	HOT SK (GM/TRI)	WTDRL (GM/VEH)	RESTGL (GM/VEH/HR)
5	9.578	86.240	3.036	3.268	8.026	0.111
10	4.911	45.719	2.670	3.268	8.026	0.111
15	3.420	31.701	2.492	3.268	8.026	0.111
20	2.596	24.629	2.398	3.268	8.026	0.111
25	2.129	20.370	2.388	3.268	8.026	0.111
30	1.799	17.447	2.397	3.268	8.026	0.111
35	1.554	15.378	2.424	3.268	8.026	0.111
40	1.371	13.939	2.470	3.268	8.026	0.111
45	1.233	12.981	2.541	3.268	8.026	0.111
50	1.155	12.603	2.799	3.268	8.026	0.111
55	1.130	12.740	3.324	3.268	8.026	0.111
60	1.377	22.744	3.892	3.268	8.026	0.111
65	1.630	32.913	4.523	3.268	8.026	0.111

E-11

HOT TRANSIENT START/COLD STARTS EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: HOT (0/100/0)
 ASSUMED DISTANCE TRAVELED IN START MODE: 3.59 MILES
 YEAR: 1990 AREA: DC

VEH SPEED	|-----HOT HC (GM/TRIP)	TRANSIENT CO (GM/TRIP)	STARTS-----| NX (GM/TRIP)	|----- HC (GM/TRIP)	COLD STARTS CO (GM/TRIP)	-----| NX (GM/TRIP)
5	7.169	41.159	1.885	17.444	155.634	2.861
10	3.805	22.800	1.698	9.549	84.261	2.549
15	2.685	16.528	1.633	6.918	60.348	2.448
20	2.129	13.419	1.615	5.597	48.404	2.416
25	1.756	11.549	1.633	4.610	40.499	2.463
30	1.497	10.382	1.655	3.945	35.286	2.506
35	1.307	9.560	1.677	3.464	31.574	2.535
40	1.170	8.900	1.705	3.109	28.756	2.570
45	1.070	8.329	1.738	2.840	26.523	2.599
50	1.027	8.020	1.942	2.707	25.392	2.876
55	1.027	8.024	2.402	2.707	25.392	3.504
60	1.070	9.546	2.858	3.102	40.980	4.136
65	1.116	11.075	3.314	3.497	56.571	4.771

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TOTAL COMPOSITE EMISSION FACTORS BY SPEED
MOBILE5a OPERATING MODE: RUNNING (0/0/0)
YEAR: 1999 AREA: DC

11:26 Thursday, May 9, 1996

VEH SPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)
5	2.354	23.388	1.631
10	1.352	13.810	1.422
15	0.998	10.332	1.324
20	0.778	8.440	1.271
25	0.641	6.657	1.270
30	0.542	5.464	1.275
35	0.468	4.626	1.287
40	0.410	4.026	1.307
45	3.364	3.596	1.337
50	0.337	3.410	1.440
55	0.330	3.461	1.652
60	0.388	5.341	1.889
65	0.448	7.286	2.159
70	0.508	9.231	2.429

COMPOSITE EMISSION FACTORS BY SPEED
 5A OPERATING MODE: COLD (100/0/100)
 YEAR: 1999 CASE 4 AREA: DC
 9/ 1/92

VEH SPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)	HOT SK (GM/TRIP)	WTDRNL (GM/VEH)	RESTGL (GM/VEH/HR)
5	4.760	46.808	2.088	0.875	1.270	0.081
10	2.767	27.727	1.825	0.875	1.270	0.081
15	2.081	21.074	1.709	0.875	1.270	0.081
20	1.686	17.465	1.649	0.875	1.270	0.081
25	1.381	13.691	1.658	0.875	1.270	0.081
30	1.171	11.172	1.670	0.875	1.270	0.081
35	1.017	9.388	1.686	0.875	1.270	0.081
40	0.898	8.077	1.710	0.875	1.270	0.081
45	0.806	7.093	1.742	0.875	1.270	0.081
50	0.756	6.630	1.878	0.875	1.270	0.081
55	0.750	6.681	2.166	0.875	1.270	0.081
60	0.837	9.823	2.478	0.875	1.270	0.081
65	0.927	13.029	2.825	0.875	1.270	0.081

E-14

TOTAL COMPOSITE EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: HOT (0/100/0)
 YEAR: 1999 CASE 4 AREA: DC
 9/ 1/92

VEH SPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)	HOT SK (GM/TRIP)	WTDNRN (GM/VEH)	RESTGL (GM/VEH/HR)
5	3.136	34.230	1.858	0.875	1.270	0.081
10	1.806	20.235	1.623	0.875	1.270	0.081
15	1.342	15.279	1.516	0.875	1.270	0.081
20	1.065	12.593	1.460	0.875	1.270	0.081
25	0.876	9.902	1.464	0.875	1.270	0.081
30	0.743	8.106	1.473	0.875	1.270	0.081
35	0.644	6.837	1.487	0.875	1.270	0.081
40	0.566	5.913	1.509	0.875	1.270	0.081
45	0.506	5.231	1.540	0.875	1.270	0.081
50	0.472	4.918	1.662	0.875	1.270	0.081
55	0.466	4.969	1.917	0.875	1.270	0.081
60	0.519	7.301	2.196	0.875	1.270	0.081
65	0.575	9.696	2.508	0.875	1.270	0.081

E-15

HOT TRANSIENT STARTS/COLD STARTS EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: HOT (0/100/0)
 ASSUMED DISTANCE TRAVELLED IN START MODE: 3.59 MILES
 YEAR: 1999 CASE 4 AREA: DC

VEH SPEED	|-----HOT HC (GM/TRIP)	TRANSIENT CO (GM/TRIP)	STARTS----- | NX (GM/TRIP)	|----- HC (GM/TRIP)	COLD STARTS CO (GM/TRIP)	-----| NX (GM/TRIP)
5	2.807	38.923	0.815	8.638	84.078	1.641
10	1.630	23.066	0.722	5.080	49.962	1.447
15	1.235	17.760	0.689	3.888	38.564	1.382
20	1.030	14.909	0.679		32.400	1.357
25	0.844	11.650	0.696	2.657	25.252	1.393
30	0.722	9.485	0.711	2.258	20.492	1.418
35	0.632	7.937	0.718	1.971	17.096	1.432
40	0.560	6.774	0.725		14.543	1.447
45	0.510	5.870	0.729	1.587	12.554	1.454
50	0.485	5.414	0.797	1.504	11.560	1.572
55	0.488	5.414	0.951		11.560	1.845
60	0.470	7.036	1.102	1.612	16.090	2.115
65	0.456	8.652	1.253	1.720	20.617	2.391

E-16

TOTAL COMPOSITE EMISSIONS FACTORS BY SPEED
MOBILE5a OPERATING MODE: RUNNING (0/0/0)
YEAR: 2005 AREA: DC

15:24 Tuesday, June 2, 1998

OBS	ESPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)
1	5	1.632	19.780	1.383
2	10	0.963	11.944	1.209
3	15	0.730	9.149	1.130
4	20	0.591	7.599	1.090
5	25	0.483	5.857	1.095
6	30	0.409	4.698	1.102
7	35	0.354	3.878	1.112
8	40	0.312	3.278	1.128
9	45	0.278	2.829	1.151
10	50	0.260	2.619	1.233
11	55	0.255	2.647	1.403
12	60	0.294	3.889	1.590
13	65	0.335	5.167	1.801
14	70	0.376	6.445	2.012

TOTAL COMPOSITE EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: COLD (100/0/100)
 YEAR: 2005 CASE 4 AREA: DISTRICT OF COLUMBIA.
 SPRING/SUMMER 1993

VEH SPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)	HOT SK (GM/TRIP)	WTDRNL (GM/VEH)	RESTGL (GM/VEH/HR)
5	3.622	42.180	1.776	0.540	0.805	0.052
10	2.149	25.477	1.555	0.540	0.805	0.052
15	1.648	19.723	1.462	0.540	0.805	0.052
20	1.363	16.542	1.415	0.540	0.805	0.052
25	1.110	12.712	1.428	0.540	0.805	0.052
30	0.939	10.159	1.440	0.540	0.805	0.052
35	0.816	8.344	1.455	0.540	0.805	0.052
40	0.722	6.998	1.474	0.540	0.805	0.052
45	0.648	5.970	1.499	0.540	0.805	0.052
50	0.609	5.471	1.606	0.540	0.805	0.052
55	0.604	5.500	1.837	0.540	0.805	0.052
60	0.666	7.744	2.086	0.540	0.805	0.052
65	0.729	10.026	2.358	0.540	0.805	0.052

TOTAL COMPOSITE EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: HOT (0/100/0)
 YEAR: 2005 CASE 4 AREA: DISTRICT OF COLUMBIA.
 SPRING/SUMMER 1996

VEH SPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)	HOT SK (GM/TRIP)	WTDRNL (GM/VEH)	RESTGL (GM/VEH/HR)
5	2.261	30.623	1.568	0.540	0.805	0.052
10	1.336	18.457	1.372	0.540	0.805	0.052
15	1.018	14.218	1.287	0.540	0.805	0.052
20	0.832	11.877	1.244	0.540	0.805	0.052
25	0.680	9.139	1.253	0.540	0.805	0.052
30	0.575	7.314	1.262	0.540	0.805	0.052
35	0.499	6.019	1.275	0.540	0.805	0.052
40	0.441	5.063	1.293	0.540	0.805	0.052
45	0.395	4.338	1.316	0.540	0.805	0.052
50	0.370	3.991	1.411	0.540	0.805	0.052
55	0.365	4.020	1.613	0.540	0.805	0.052
60	0.400	5.670	1.832	0.540	0.805	0.052
65	0.438	7.357	2.076	0.540	0.805	0.052

HOT TRANSIENT STARTS/COLD STARTS EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: HOT (0/100/0)
 ASSUMED DISTANCE TRAVELLED IN START MODE: 3.59 MILES
 YEAR: 2005 CASE 4 AREA: DISTRICT OF COLUMBIA.

VEH SPEED	]-----HOT	TRANSIENT	STARTS-----]	]-----	COLD	STARTS	-----]
	HC (GM/TRIP)	CO (GM/TRIP)	NX (GM/TRIP)	HC (GM/TRIP)	CO (GM/TRIP)		NX (GM/TRIP)
5	2.258	38.926	0.664	7.144	80.416		1.411
10	1.339	23.382	0.585	4.258	48.583		1.242
15	1.034	18.198	0.564	3.296	37.961		1.192
20	0.865	15.358	0.553	2.771	32.105		1.167
25	0.707	11.782	0.567	2.251	24.609		1.195
30	0.596	9.391	0.574	1.903	19.605		1.213
35	0.521	7.686	0.585	1.659	16.033		1.231
40	0.463	6.408	0.592	1.472	13.355		1.242
45	0.420	5.417	0.592	1.328	11.276		1.249
50	0.395	4.925	0.639	1.253	10.239		1.339
55	0.395	4.929	0.754	1.253	10.242		1.558
60	0.381	6.394	0.869	1.335	13.839		1.781
65	0.370	7.862	0.987	1.414	17.444		2.000

TOTAL COMPOSITE EMISSIONS FACTORS BY SPEED
MOBILE5a OPERATING MODE: RUNNING (0/0/0)
YEAR: 2010 AREA: DC

11:08 Tuesday, June 2, 1998

OBS	ESPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)
1	5	1.502	19.090	1.257
2	10	0.890	11.546	1.102
3	15	0.679	8.891	1.036
4	20	0.554	7.417	1.003
5	25	0.453	5.690	1.011
6	30	0.383	4.538	1.020
7	35	0.332	3.722	1.031
8	40	0.293	3.121	1.045
9	45	0.263	2.668	1.064
10	50	0.246	2.452	1.137
11	55	0.242	2.472	1.291
12	60	0.279	3.616	1.459
13	65	0.317	4.786	1.644
14	70	0.355	5.956	1.829

TOTAL COMPOSITE EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: COLD (100/0/100)
 YEAR: 2010 HDE + BUGFIX AREA: DISTRICT OF COLUMBIA.
 WINTER 1998

VEH SPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)	HOT SK (GM/TRIP)	WTDRNL (GM/VEH)	RESTGL (GM/VEH/HR)
5	3.449	41.199	1.642	0.463	0.684	0.033
10	2.052	24.956	1.441	0.463	0.684	0.033
15	1.579	19.399	1.359	0.463	0.684	0.033
20	1.313	16.316	1.321	0.463	0.684	0.033
25	1.069	12.487	1.337	0.463	0.684	0.033
30	0.903	9.933	1.351	0.463	0.684	0.033
35	0.784	8.114	1.365	0.463	0.684	0.033
40	0.694	6.762	1.382	0.463	0.684	0.033
45	0.624	5.726	1.403	0.463	0.684	0.033
50	0.587	5.220	1.501	0.463	0.684	0.033
55	0.584	5.239	1.715	0.463	0.684	0.033
60	0.642	7.314	1.941	0.463	0.684	0.033
65	0.702	9.415	2.186	0.463	0.684	0.033

TOTAL COMPOSITE EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: HOT (0/100/0)
 YEAR: 2010 HDE + BUGFIX AREA: DISTRICT OF COLUMBIA.
 WINTER 1998

VEH SPEED		CO (GM/MI)	NX (GM/MI)	HOT SK (GM/TRIP)	WTDRL (GM/VEH)	RESTGL (GM/VEH/HR)
5	2.115	29.843	1.438	0.463	0.684	0.033
10	1.254	18.028	1.261	0.463	0.684	0.033
15	0.960	13.950	1.188	0.463	0.684	0.033
20	0.791	11.692	1.153	0.463	0.684	0.033
25	0.646	8.957	1.165	0.463	0.684	0.033
30	0.546	7.132	1.176	0.463	0.684	0.033
35	0.474	5.835	1.189	0.463	0.684	0.033
40	0.419	4.874	1.205	0.463	0.684	0.033
45	0.376	4.142	1.224	0.463	0.684	0.033
50	0.353	3.787	1.311	0.463	0.684	0.033
55	0.349	3.807	1.496	0.463	0.684	0.033
60	0.382	5.335	1.694	0.463	0.684	0.033
65	0.417	6.889	1.910	0.463	0.684	0.033

HOT TRANSIENT STARTS/COLD STARTS EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: HOT (0/100/0)
 ASSUMED DISTANCE TRAVELLED IN START MODE: 3.59 MILES
 YEAR: 2010 HDE + BUGFIX AREA: DISTRICT OF COLUMBIA.

VEH SPEED	]-----HOT HC (GM/TRIP)	TRANSIENT CO (GM/TRIP)	STARTS-----] NX (GM/TRIP)	]----- HC (GM/TRIP)	COLD STARTS CO (GM/TRIP)	-----] NX (GM/TRIP)
5	2.201	38.603	0.650	6.990	79.371	1.382
10	1.307	23.270	0.571	4.172	48.142	1.217
15	1.009	18.162	0.546	3.231	37.724	1.160
20	0.851	15.347	0.539	2.725	31.947	1.142
25	0.693	11.729	0.553	2.211	24.401	1.170
30	0.585	9.312	0.560	1.867	19.368	1.188
35	0.510	7.586	0.567	1.623	15.767	1.199
40	0.452	6.293	0.574	1.440	13.071	1.210
45	0.406	5.292	0.574	1.296	10.978	1.217
50	0.384	4.793	0.625	1.224	9.937	1.307
55	0.384	4.793	0.736	1.228	9.934	1.522
60	0.370	6.171	0.844	1.303	13.276	1.730
65	0.359	7.550	0.955	1.382	16.618	1.946

TOTAL COMPOSITE EMISSIONS FACTORS BY SPEED
MOBILE 5a OPERATING MODE: RUNNING (0/0/0)
YEAR 2020 CASE 4 AREA:DC

11:02 Tuesday, June 2 1998

OBS	ESPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)
1	5	1.463	19.023	1.326
2	10	0.868	11.512	1.158
3	15	0.663	8.870	1.083
4	20	0.543	7.402	1.044
5	25	0.443	5.672	1.048
6	30	0.375	4.518	1.054
7	35	0.325	3.700	1.064
8	40	0.288	3.097	1.079
9	45	0.258	2.643	1.101
10	50	0.242	2.426	1.178
11	55	0.238	2.446	1.338
12	60	0.275	3.574	1.515
13	65	0.313	4.728	1.715
14	70	0.351	5.882	1.915

TOTAL COMPOSITE EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: COLD (100/0/100)
 YEAR: 2020 HDE + BUGFIX AREA: DISTRICT OF COLUMBIA.
 WINTER 1998

VEH SPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)	HOT SK (GM/TRIP)	WDRNL (GM/VEH)	RESTGL (GM/VEH/HR)
5	3.400	41.078	1.548	0.438	0.660	0.023
10	2.026	24.898	1.362	0.438	0.660	0.023
15	1.560	19.364	1.290	0.438	0.660	0.023
20	1.298	16.292	1.257	0.438	0.660	0.023
25	1.056	12.455	1.277	0.438	0.660	0.023
30	0.893	9.897	1.293	0.438	0.660	0.023
35	0.775	8.075	1.307	0.438	0.660	0.023
40	0.687	6.720	1.323	0.438	0.660	0.023
45	0.618	5.682	1.341	0.438	0.660	0.023
50	0.582	5.174	1.433	0.438	0.660	0.023
55	0.578	5.194	1.636	0.438	0.660	0.023
60	0.636	7.242	1.849	0.438	0.660	0.023
65	0.695	9.316	2.076	0.438	0.660	0.023

TOTAL COMPOSITE EMISSION FACTORS BY SPEED
MOBILE 5A OPERATING MODE: HOT (0/100/0)
YEAR: 2020 HDE + BUGFIX AREA: DISTRICT OF COLUMBIA.
WINTER 1998

VEH SPEED	HC (GM/MI)	CO (GM/MI)	NX (GM/MI)	HOT SK (GM/TRIP)	WDRNL (GM/VEH)	RESTGL (GM/VEH/HR)
5	2.070	29.753	1.345	0.438	0.660	0.023
10	1.230	17.985	1.183	0.438	0.660	0.023
15	0.943	13.924	1.119	0.438	0.660	0.023
20	0.778	11.674	1.090	0.438	0.660	0.023
25	0.634	8.933	1.106	0.438	0.660	0.023
30	0.537	7.105	1.119	0.438	0.660	0.023
35	0.465	5.804	1.132	0.438	0.660	0.023
40	0.413	4.841	1.146	0.438	0.660	0.023
45	0.371	4.107	1.163	0.438	0.660	0.023
50	0.349	3.751	1.243	0.438	0.660	0.023
55	0.345	3.771	1.418	0.438	0.660	0.023
60	0.377	5.278	1.603	0.438	0.660	0.023
65	0.412	6.812	1.801	0.438	0.660	0.023

HOT TRANSIENT STARTS/COLD STARTS EMISSION FACTORS BY SPEED
 MOBILE 5A OPERATING MODE: HOT (0/100/0)
 ASSUMED DISTANCE TRAVELLED IN START MODE: 3.59 MILES
 YEAR: 2020 HDE + BUGFIX AREA: DISTRICT OF COLUMBIA.

VEH SPEED	]-----HOT HC (GM/TRIP)	TRANSIENT CO (GM/TRIP)	STARTS-----] NX (GM/TRIP)	]----- HC (GM/TRIP)	COLD STARTS CO (GM/TRIP)	-----] NX (GM/TRIP)
5	2.179	38.521	0.643	6.954	79.177	1.371
10	1.300	23.238	0.567	4.157	48.056	1.210
15	1.005	18.144	0.542	3.220	37.673	1.156
20	0.844	15.336	0.531	2.710	31.915	1.131
25	0.686	11.707	0.546	2.201	24.351	1.160
30	0.582	9.287	0.556	1.860	19.311	1.181
35	0.503	7.553	0.564	1.616	15.706	1.192
40	0.449	6.261	0.567	1.432	13.007	1.203
45	0.406	5.256	0.574	1.292	10.910	1.213
50	0.384	4.757	0.617	1.221	9.865	1.300
55	0.384	4.757	0.725	1.221	9.865	1.508
60	0.366	6.117	0.836	1.296	13.168	1.720
65	0.355	7.482	0.944	1.371	16.471	1.931

APPENDIX F

Exurban and Local Street Emissions Calculations

DATE: June 3, 1998

TO: Mike Clifford
Systems Planning Applications Director

FROM: Eulalie G. Lucas *EGL*
Transportation Engineer

SUBJECT: Air Quality Conformity Analysis: Procedures used in computing elements of the mobile source emissions inventories beyond the 'post-processor' methods:

- (1) Running emissions (network-based) for the exurban area of the Metropolitan Statistical Area (MSA),
- (2) Running emissions on local streets (off-network) throughout the MSA,
- (3) Tripend emissions for the exurban area.

INTRODUCTION

This memo describes updates to the processing of mobile source: (1) running emissions for the exurban area (network-based), (2) running emissions on local streets (off-network) throughout the MSA, and (3) tripend emissions for the exurban area. The exurban area includes those counties that are in the MSA but are not part of the Council of Governments' (COG) modeled area. These counties are Stafford and the western portion of Loudoun in Virginia and Calvert in Maryland. Two major inputs are required for the computation of both local and exurban running emissions: transportation demand data (daily trip tables and daily network link volumes) and emission rates. Travel data for the exurban area were not generated from the COG/TPB modeling process, therefore special procedures were applied which are described in the following paragraphs.

APPROACH

Previous Experience

Running emissions in the exurban area

For the 1990 emissions inventory, for the area outside the COG/TPB modeled area, two different procedures were applied. Travel simulation data for 1990 were received for Calvert County from Tri-County Council for Southern Maryland and base year traffic counts were used for western Loudoun and Stafford counties.

A 1990 network of the COG modeled region was adjusted to represent the MSA. Howard and Anne Arundel counties were eliminated and western Loudoun, Stafford and Calvert counties were added to the network. The standard variables such as a-node, b-node, distance, speed and capacity class, number of lanes and counts were added to the network for the three additional counties. Once this task was completed VMT estimates for those three counties were computed and reviewed. A link data file and an x, y - coordinates file were then used for the calculation of running emissions for the exurban area. The output from this 1990 running emissions process formed the base from which VMT for the milestone years were calculated. A 'nearest neighbor' approach was used to develop growth factors; Prince William County growth rates were used for Stafford County, Charles for Calvert and eastern Loudoun for western Loudoun.

Running emissions on local streets throughout the MSA

The calculation of running emissions associated with travel on local streets is an off-line process and involves the use of Highway Performance Monitoring System (HPMS) data. Since these data are based on observed values, it was necessary to forecast milestone years using a regional growth rate based on network VMT. 1990 HPMS data were reported for the District of Columbia, at the county level in Maryland, and for northern Virginia as a whole, excluding Stafford County.

Tripend emissions in the exurban area

Tripend emissions are calculated at zone level for each hour of the day by applying start-up emission factors (with associated cold start percentages) to trip origins and by applying hot soak emission factors to trip destinations. Because the exurban area is not in the COG modeled region the calculation of tripend emissions was an off-line process performed at the county level. The following two steps were carried out in the estimation of tripend emissions associated with the exurban area. First, average origin and destination emission factors per unit of development (households plus jobs) were prepared for each pollutant, using the 'nearest neighbor' approach described above. The emission

rates were then applied to the respective exurban county per unit of development, again households plus jobs, based upon forecasts of such development in each county.

The following updates were made for the FY99-2004 TIP/CLRP air quality conformity analysis: (1) Tri-County's travel data for Calvert County were "reconciled" with HPMS observed data, in keeping with methods used with the COG/TPB modeled region. VMT for 1990 were recalculated and redistributed based on HPMS summaries. The resulting totals were used in the calculation of network running emissions for 1990 as well as for all milestone years.

(2) Since 1990 HPMS data for northern Virginia does not include Stafford County, a separate procedure was used to compute local street VMT for that county. In previous years the average growth rates for northern Virginia as a whole were applied to Stafford County's VMT for 1990 to develop the estimates for milestone years. For the current analysis, however, in keeping with the 'nearest neighbor' approach, the growth rate for Prince William County was applied.

(3) For the calculation of emissions associated with local street VMT for jurisdictions in northern Virginia there were two changes from the approach used in previous years: a) an individual emissions rate from MOBILE5a output was used instead of an average emissions rate and b) an individual growth rate was applied to the 1990 HPMS data for each county instead of an average growth rate for all of northern Virginia..

FY99-2004 TIP/CLRP Updates:

Round 5.4 landuse was replaced with Round6a and VMT for Stafford County was redistributed to be consistent with HPMS distributions. Revised Mobile 5a rates reflecting the new heavy duty engine rule were used in running emissions calculation for 2010 and 2020.

SUMMARY AND RESULTS

This memo serves as documentation of the process used in estimating exurban emissions and local street emissions regionwide for the FY99-2004 TIP and CLRP conformity analysis. The adjustments to the process for this year's conformity analysis are described in the paragraph above. Table 1 displays the initial and and Table 2 the updated distribution of 1990 VMT by

route type for Stafford County followed by 2020 emissions estimates and VMT for 2020 for the exurban area. Tables 3 and 4 show local emissions for all jurisdictions in the MSA. Table 5 shows 2020 origin and destination VOC emission rates for the adjacent counties in the modeled region and the emissions estimates computed for the exurban area using those rates from the respective counties.

TABLE 1

1990 BASE AIR QUALITY HIGHWAY SIMULATION
 SIMULATED VMT BY JURISDICTION CODE AND ROUTE TYPE
 *** STAFF,CALVERT,W. LDN ONLY ***

12:28 Tuesday, May 14, 1996

DJUR	ROUTE TYPE				TOTAL
	FREEWAY	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR	
W LDN	.	137634	59288	119484	316406
STAFFORD	734913	44204	.	870797	1649914
CALVERT	.	742529	165889	241933	1150351
TOTAL	734913	924367	225177	1232214	3116671

TABLE 2

1990 BASE AIR QUALITY HIGHWAY SIMULATION
 SIMULATED VMT BY JURISDICTION CODE AND ROUTE TYPE
 *** STAFF,CALVERT,W. LDN ONLY ***

09:28 Thursday, June 5, 1997

DJUR	ROUTE TYPE				TOTAL
	FREEWAY	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR	
W LDN	.	137634	59288	119484	316406
STAFFORD	734913	44204	333612	537185	1649914
CALVERT	.	742529	165889	241933	1150351
TOTAL	734913	924367	558789	898602	3116671

2020 PLAN FY 99-2004 SENSITIVITY TEST HIGHWAY SIMULATION
 SIMULATED HC BY JURISDICTION AND ROUTE TYPE
 *** RUNNING EMISSIONS -STAFF,CALVERT,W. LDN ONLY ***
 (IN GRAMS)

09:14 Thursday, June 4, 1998

DJUR	ROUTE TYPE				TOTAL
	FREEWAY	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR	
W LDN	.	134499	57938	127077	319514
STAFFORD	562471	27204	243538	551947	1385160
CALVERT	.	369531	83426	127779	580736
TOTAL	562471	531234	384901	806803	2285410

2020 PLAN FY 99-2004 SENSITIVITY TEST HIGHWAY SIMULATION
 SIMULATED CO BY JURISDICTION AND ROUTE TYPE
 *** RUNNING EMISSIONS - STAFF, CALVERT, W. LDN ONLY ***
 (IN GRAMS)

09:14 Thursday, June 4, 1998

DJUR	ROUTE TYPE				TOTAL
	FREEWAY	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR	
W LDN	.	1390862	599136	1304273	3294270
STAFFORD	8077025	279018	2585255	6726426	17667724
CALVERT	.	3795914	859094	1310598	5965606
TOTAL	8077025	5465794	4043484	9341296	26927600

2020 PLAN FY 99-2004 SENSITIVITY TEST HIGHWAY SIMULATION
 SIMULATED NOX BY JURISDICTION AND ROUTE TYPE
 *** RUNNING EMISSIONS -STAFF,CALVERT,W. LDN ONLY ***
 (IN GRAMS)

09:14 Thursday, June 4, 1998

DJUR	ROUTE TYPE				TOTAL
	FREEWAY	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR	
W LDN	.	684331	294786	489489	1468606
STAFFORD	2800570	138214	851652	1331338	5121774
CALVERT	.	1848062	409490	534308	2791860
TOTAL	2800570	2670607	1555928	2355136	9382241

2020 PLAN FY 99-2004 SENSITIVITY TEST HIGHWAY SIMULATION
 SIMULATED VMT BY JURISDICTION CODE AND ROUTE TYPE
 *** STAFF, CALVERT, W. LDN ONLY ***

09:14 Thursday, June 4, 1998

DJUR	ROUTE TYPE				TOTAL
	FREEWAY	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR	
W LDN	.	567052	244267	492274	1303593
STAFFORD	1807886	108742	820686	1321475	4058788
CALVERT	.	1544459	345049	503221	2392730
TOTAL	1807886	2220253	1410002	2316970	7755111

2020 PLAN FY 99-2004 SENSITIVITY TEST HIGHWAY SIMULATION
 SIMULATED HC BY JURISDICTION AND ROUTE TYPE
 *** RUNNING EMISSIONS - STAFF,CALVERT,W.LDN ONLY ***
 (IN TONS)

Thursday, June 4, 1998

DJUR	ROUTE TYPE				TOTAL
	FREEWAY	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR	
W LDN	.	0.1483	0.0639	0.1401	0.3522
STAFFORD	0.6200	0.0300	0.2685	0.6084	1.5269
CALVERT	.	0.4073	0.0920	0.1409	0.6402
TOTAL	0.6200	0.5856	0.4243	0.8893	2.5192

2020 PLAN FY 99-2004 SENSITIVITY TEST HIGHWAY SIMULATION
 SIMULATED CO BY JURISDICTION AND ROUTE TYPE
 *** RUNNING EMISSIONS - STAFF,CALVERT,W. LDN ONLY ***
 (IN TONS)

09:14 Thursday, June 4, 1998

DJUR	ROUTE TYPE				TOTAL
	FREEWAY	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR	
W LDN	.	1.5332	0.6604	1.4377	3.6313
STAFFORD	8.9034	0.3076	2.8498	7.4146	19.4753
CALVERT	.	4.1843	0.9470	1.4447	6.5760
TOTAL	8.9034	6.0250	4.4572	10.2970	29.6826

2020 PLAN FY 99-2004 SENSITIVITY TEST HIGHWAY SIMULATION
 SIMULATED NOX BY JURISDICTION AND ROUTE TYPE
 *** RUNNING EMISSIONS - STAFF,CALVERT,W. LDN ONLY ***
 (IN TONS)

09:14 Thursday, June 4, 1998

DJUR	ROUTE TYPE				TOTAL
	FREEWAY	MAJOR ARTERIAL	MINOR ARTERIAL	COLLECTOR	
W LDN	.	0.7543	0.3249	0.5396	1.6189
STAFFORD	3.0871	0.1524	0.9388	1.4676	5.6458
CALVERT	.	2.0371	0.4514	0.5890	3.0775
TOTAL	3.0871	2.9438	1.7151	2.5961	10.3422

TABLE 3

**LOCAL EMISSIONS CALCULATION WORKSHEET
NOx
2020 ACTION**

JUR	1990 TOTALForecast		Growth Rate(C/B)	HPMS Loc. VMT	Forecast Loc. VMT	2020 RUNNING @ 25MPH	RUNNING	RUNNING
	VMT(000S)	VMT (000S)					EMISS. (GMs)	EMISS. (TONS)
DC	8380	11349.30	1.354	968000	1310932	0.954	1250629	1.379
MTG	16840	26739.93	1.588	1170700	1858980	0.876	1628466	1.795
PG	18664	31770.07	1.702	1007000	1714083	0.912	1563243	1.723
FRED	5073	11352.53	2.238	651000	1456779	0.949	1382483	1.524
CHS	2231	4638.92	2.079	317000	659115	0.949	625500	0.689
CALVRT	1150	2392.73	2.080	257700	536016	0.948	508143	0.560
VA	34880.3	60572.01	1.737	3105000	5392043	1.582	4911744	5.414
(BELOW)								
				(A)	(B)		(A)*(B)	
	TOTAL			PRORATED	2020 RUN.		NOx	NOx
JUR	VMT(000S)			VA LOCAL	EMISS RATE		EMISS.	EMISS.
				VMT	@ 25MPH		VA LOCAL	VA LOCAL
							GMs	TONS
ARL	3740	5062.64	1.354	332729	450413	0.933	420235	0.463
ALX	2202	3063.07	1.391	195896	272515	0.945	257526	0.284
FFX	22001	38071.62	1.730	1957396	3387154	0.894	3028115	3.338
LDN	1903	7839.14	4.119	169334	697432	0.962	670929	0.740
P W	5054	6535.54	1.293	449645	581454	0.92	534938	0.590

VA	34900	60572.01		3105000	5388967	1.582	4911744	5.414
			Regional Avg.					
STAF	140884	140884.00	1.293	182183	182183	1.019	185644	0.205
TOTAL	87219.361	148815.50		7476400	12927947		11870209	13.085
						Total MSA	12055853.472	13.289

TABLE 4

LOCAL EMISSIONS CALCULATION WORKSHEET
 VOC
 2020 ACTION

JUR	1990	Forecast VMT (000S)	Growth Rate (C/B)	1990	Forecast Loc. VMT	2020 RUNNING	RUNNING	RUNNING
	TOTAL VMT(000S)			HPMS Loc. VMT		EMISS RATE @ 25MPH	EMISS. (GMs)	EMISS. (TONS)
DC	8380.39	11349.30	1.35	968000	1310932	0.443	580743	0.640
MTG	16839.58	26739.93	1.59	1170700	1858980	0.410	762182	0.840
PG	18664.48	31770.07	1.70	1007000	1714083	0.427	731913	0.807
FRED	5073.18	11352.53	2.24	651000	1456779	0.443	645353	0.711
CHS	2231.08	4638.92	2.08	317000	659115	0.441	290670	0.320
CALVRT	1150.35	2392.73	2.08	257700	536016	0.446	239063	0.264
VA	34900.21	60572.01	1.74	3105000	5388967	0.426	2297094	2.532

(BELOW)

JUR	1990	Growth Rate	(A)	2020 RUN. EMISS RATE @ 25MPH	(B)	(A)*(B)	VOC	VOC
	TOTAL VMT(000S)		PRORATED VA LOCAL VMT		EMISS RATE @ 25MPH	VOC EMISS. VA LOCAL GMs	VOC EMISS. VA LOCAL TONS	
ARL	3739.87	5062.64	1.35	332729	450413	0.44	198182	0.218
ALX	2201.87	3063.07	1.39	195896	272515	0.443	120724	0.133
FFX	22001.14	38071.62	1.73	1957396	3387154	0.418	1415830	1.561
LDN	1903.32	7839.14	4.12	169334	697432	0.447	311752	0.344
PW	5054.01	6535.54	1.29	449645	581454	0.431	250607	0.276

VA	34900	60572.0	1.74	3105000	5388967	0.426	2297094	2.532
		Pr. William Avg.						
STAF	140884	140884	1.293	182183	182183	0.475	86537	0.095
TOTAL	87239.272	148815.5		7476400	12924871		5547018	6.115
						Total MSA	5633555.2	6.210

**TABLE 5
MOBILE SOURCE EMISSIONS INVENTORY FOR THE EXURBAN AREA
VOC
2020 ACTION**

MODELED AREA				EXURBAN AREA			
	EMMIS.	HH+JOBS	RATE		HH+JOBS	EMISS/GM	TONS
E.LDN	Grams			W.LDN			
ORIG	1668111	232917	7.16	ORIG	30799	220577	0.243
DEST	426799	232917	1.83	DEST	30799	56436	0.062
P.WILL				STAFF			
ORIG	2628759	333145	7.89	ORIG	70800	558664	0.616
DEST	656203	333145	1.97	DEST	70800	139456	0.154
CHARLES				CAL			
ORG	1122566	128103	8.76	ORIG	71800	629183	0.694
DEST	288613	128103	2.25	DEST	71800	161764	0.178

APPENDIX G

Vehicle-related Emissions Calculations

VEHICLE OWNERSHIP FORECASTS BY JURISDICTION

Year Jurisdiction	1999	2005	2010	2020
District of Columbia	286,200	293,945	300,400	313,300
Anne Arundel	446,000	485,164	517,800	605,900
Calvert	72,400	91,655	107,700	140,000
Charles	117,100	135,591	151,000	187,000
Frederick	197,400	227,182	252,000	311,200
Howard	229,500	263,373	291,600	365,900
Montgomery	713,800	809,418	889,100	1,049,500
Prince George's	590,300	649,427	698,700	797,100
Alexandria	126,900	130,336	133,200	138,900
Arlington	163,200	167,618	171,300	178,600
Fairfax	914,300	1,015,591	1,100,000	1,269,900
Loudoun	133,900	160,136	182,000	225,800
Prince William	300,500	347,845	387,300	466,400
Stafford	91,100	111,609	128,700	162,700
MSA - SUBTOTAL MODELED AREA	3,707,100 4,219,100	4,140,355 4,685,627	4,501,400 5,074,400	5,240,400 5,909,500
TOTAL	4,382,600	4,888,891	5,310,800	6,212,200

5/13/98 Year 2005 interpolated, using 1999 and 2010 data.

YEAR 1990 DIURNAL AND RESTING LOSS EMISSIONS

Jurisdiction	Year	TOTAL VEHICLES	FACTORS		EMISSIONS	
			DIURNAL (gm/day/veh)	RESTGL (gm/hr/veh)	DIURNAL (Tons/day)	RESTGL (Tons/day)
District of Columbia		274,600	8.026	0.111	2.381	0.790
Anne Arundel		370,900	7.060	0.111	2.829	1.067
Calvert		43,400	7.427	0.111	0.348	0.125
Charles		89,200	7.374	0.111	0.711	0.257
Frederick		148,400	7.591	0.111	1.217	0.427
Howard		168,600	6.296	0.111	1.147	0.485
Montgomery		570,400	6.296	0.111	3.879	1.642
Prince George's		501,700	7.060	0.111	3.826	1.444
Alexandria		121,800	7.537	0.111	0.992	0.351
Arlington		156,600	7.446	0.111	1.260	0.451
Fairfax		762,400	6.685	0.111	5.506	2.194
Loudoun		94,600	8.063	0.111	0.824	0.272
Prince William		229,600	7.433	0.111	1.844	0.661
Stafford		60,400	9.249	0.111	0.603	1.174
MSA - SUBTOTAL		3,053,100			23.390	8.786
MODELED AREA		3,488,800			26.414	10.040
TOTAL		3,592,600			27.366	10.339

Note: 98% of vehicles, which are gas operated, are used to compute Diurnal and Resting Loss emissio

HG - DIU97.WB1 (same as MOBIL50A.WK1, but 2000 and 2020 vehicle forecasts added)

05/21/96 (DC, Alex, and Arl forecasts rev 9/13/94, 1997 Forecasts incl, rounded off to the nearest hundre

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YEAR 1999 DIURNAL AND RESTING LOSS EMISSIONS

Jurisdiction	Year	TOTAL VEHICLES	FACTORS		EMISSIONS	
			DIURNAL (gm/day/veh)	RESTGL (gm/hr/veh)	DIURNAL (Tons/day)	RESTGL (Tons/day)
District of Columbia		286,200	1.270	0.081	0.393	0.601
Anne Arundel		446,000	1.243	0.080	0.599	0.925
Calvert		72,400	1.434	0.081	0.112	0.152
Charles		117,100	1.401	0.081	0.177	0.246
Frederick		197,400	1.466	0.081	0.313	0.415
Howard		229,500	1.178	0.072	0.292	0.428
Montgomery		713,800	1.178	0.072	0.908	1.332
Prince George's		590,300	1.243	0.080	0.793	1.224
Alexandria		126,900	1.298	0.081	0.178	0.226
Arlington		163,200	1.321	0.081	0.233	0.343
Fairfax		914,300	1.245	0.073	1.230	1.730
Loudoun		133,900	1.460	0.081	0.211	0.281
Prince William		300,500	1.334	0.081	0.433	0.631
Stafford		91,100	1.559	0.081	0.153	0.191
MSA - SUBTOTAL		3,707,100			5.134	7.414
MODELED AREA		4,219,100			5.759	8.424
TOTAL		4,382,600			6.025	8.767

Note: 98% of vehicles, which are gas operated, are used to compute Diurnal and Resting Loss emissions

HG - DIU97.WB1 (same as MOBIL50A.WK1, but 2000 and 2020 vehicle forecasts added)

05/21/96 (DC, Alex, and Arl forecasts rev 9/13/94, 1997 Forecasts incl, rounded off to nearest hundred)

MOBILE 5.0A

YEAR 2005 DIURNAL AND RESTING LOSS EMISSIONS

Jurisdiction	Year	TOTAL VEHICLES	FACTORS		EMISSIONS	
			DIURNAL (gm/day/veh)	RESTGL (gm/hr/veh)	DIURNAL (Tons/day)	RESTGL (Tons/day)
District of Columbia		293,945	0.805	0.052	0.256	0.396
Anne Arundel		485,164	0.775	0.042	0.406	0.528
Calvert		91,655	0.871	0.042	0.086	0.100
Charles		135,591	0.863	0.042	0.126	0.148
Frederick		227,182	0.875	0.042	0.215	0.247
Howard		263,373	0.755	0.042	0.215	0.287
Montgomery		809,418	0.755	0.042	0.660	0.881
Prince George's		649,427	0.775	0.042	0.544	0.707
Alexandria		130,336	0.808	0.043	0.114	0.145
Arlington		167,618	0.808	0.043	0.146	0.187
Fairfax		1,015,591	0.784	0.042	0.860	1.106
Loudoun		160,136	0.884	0.043	0.153	0.179
Prince William		347,845	0.804	0.043	0.302	0.388
Stafford		111,609	0.929	0.051	0.112	0.148
MSA - SUBTOTAL		4,140,355			3.574	4.632
MODELED AREA		4,685,627			3.997	5.199
TOTAL		4,888,891			4.195	5.447

Note: 98% of vehicles, which are gas operated, are used to compute Diurnal and Resting Loss er 2005 interpolated using 1999 and 2010 as data points.

DIU05.WB3 (same as MOBIL50A.WK1, but 2000 and 2020 vehicle forecasts added)

05/21/96 (DC, Alex, and Arl forecasts rev 9/13/94, 1997 Forecasts incl, rounded off to the nearest h
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YEAR 2010 DIURNAL AND RESTING LOSS EMISSIONS

Jurisdiction	Year	TOTAL VEHICLES	FACTORS		EMISSIONS	
			DIURNAL (gm/day/veh)	RESTGL (gm/hr/veh)	DIURNAL (Tons/day)	RESTGL (Tons/day)
District of Columbia		300,400	0.684	0.033	0.222	0.257
Anne Arundel		517,800	0.660	0.032	0.369	0.430
Calvert		107,700	0.719	0.031	0.084	0.087
Charles		151,000	0.713	0.031	0.116	0.121
Frederick		252,000	0.716	0.031	0.195	0.203
Howard		291,600	0.650	0.032	0.205	0.242
Montgomery		889,100	0.650	0.032	0.624	0.738
Prince George's		698,700	0.660	0.032	0.498	0.580
Alexandria		133,200	0.676	0.033	0.097	0.114
Arlington		171,300	0.687	0.033	0.127	0.147
Fairfax		1,100,000	0.656	0.033	0.780	0.941
Loudoun		182,000	0.733	0.033	0.144	0.156
Prince William		387,300	0.674	0.033	0.282	0.331
Stafford		128,700	0.756	0.033	0.105	0.110
MSA - SUBTOTAL		4,501,400			3.274	3.784
MODELED AREA		5,074,400			3.660	4.258
TOTAL		5,310,800			3.848	4.455

Note: 98% of vehicles, which are gas operated, are used to compute Diurnal and Resting Loss emissions

HG - DIU97.WB1 (same as MOBIL50A.WK1, but 2000 and 2020 vehicle forecasts added)

05/21/96 (DC, Alex, and Arl forecasts rev 9/13/94, 1997 Forecasts incl, rounded off to nearest hundred)

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YEAR 2020 DIURNAL AND RESTING LOSS EMISSIONS

Jurisdiction	Year	TOTAL VEHICLES	FACTORS		EMISSIONS	
			DIURNAL (gm/day/veh)	RESTGL (gm/hr/veh)	DIURNAL (Tons/day)	RESTGL (Tons/day)
District of Columbia		313,300	0.660	0.023	0.223	0.187
Anne Arundel		605,900	0.646	0.023	0.423	0.361
Calvert		140,000	0.696	0.023	0.105	0.083
Charles		187,000	0.696	0.023	0.141	0.112
Frederick		311,200	0.699	0.023	0.235	0.186
Howard		365,900	0.635	0.023	0.251	0.218
Montgomery		1,049,500	0.635	0.023	0.720	0.626
Prince George's		797,100	0.646	0.023	0.556	0.475
Alexandria		138,900	0.659	0.023	0.099	0.083
Arlington		178,600	0.661	0.023	0.128	0.107
Fairfax		1,269,900	0.640	0.023	0.878	0.757
Loudoun		225,800	0.706	0.023	0.172	0.135
Prince William		466,400	0.649	0.023	0.327	0.278
Stafford		162,700	0.726	0.023	0.128	0.097
MSA - SUBTOTAL		5,240,400			3.712	3.125
MODELED AREA		5,909,500			4.153	3.524
TOTAL		6,212,200			4.385	3.704

Note: 98% of vehicles, which are gas operated, are used to compute Diurnal and Resting Loss emissions

HG - DIU97.WB1 (same as MOBIL50A.WK1, but 2000 and 2020 vehicle forecasts added)

05/21/96 (DC, Alex, and Arl forecasts rev 9/13/94, 1997 Forecasts incl, rounded off to nearest hundred)

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APPENDIX H

Auto Access Emissions Calculations

DATE: June 5, 1998

TO: Air Quality Conformity Files: FY99-2004 Transportation Improvement Program(TIP) and Constrained Long Range Plan (CLRP)Files

FROM: Eulalie G.Lucas
Department of Transportation Planning (DTP) *EL*

SUBJECT: Mobile Source Emissions: Auto Access to Transit.

INTRODUCTION

This memo documents work involved in the estimation of vehicle emissions associated with auto access to transit for preparation of mobile source emissions for FY99-2004 TIP and CLRP air quality conformity analysis. Data for this element of the process were obtained from the 1990 Metrorail Passenger survey and from DTP'S, November 1990, report entitled "Washington Regional Park-And-Ride Inventory and Analysis".

APPROACH

As in the estimation of emissions associated with bus VMT, "auto access" to transit emissions was an offline task. 1990 Metrorail Passenger survey data were used as a base to compute vehicle miles of travel(VMT). A regional growth factor was applied to these data to obtain milestone years for use in the above project.

Metrorail survey data had been geocoded by zone; therefore, it was possible to compute vehicle miles of travel(VMT) from zone of residence to the zone in which the station is located. An average trip length was computed for all Metrorail terminal stations and for four "internal" stations. Trip length distributions for these selected stations indicated that most trips originated at an average of seven miles from the terminal stations and four miles from the internal stations. Based on these results all remaining trips were assigned an average trip distance according to the location of the station or parking lot. These trips included trips to commuter rail stations and park-and-ride lots located in the MSA. The following paragraphs describe the process involved in the development of the emissions estimates

EMISSIONS CALCULATIONS UPDATES

The general approach for calculating emissions remained the same for the FY 99-2004 analysis of the TIP and the CLRP i.e. by applying an emissions rate to the various components of travel. However, in this year's analysis Heavy Duty Engine(HDE) emissions rates were calculated on-line which resulted in lower rates and subsequently lower auto access to transit emissions. The process that was used for this work is illustrated below. A detail description of the emissions estimation process for the three travel components listed below is contained in Appendix E of this year's conformity report.

General Process:

<u>EMISSIONS</u>	=	<u>TRAVEL</u>	X	<u>EMISSIONS RATE</u>
Start up	=	Trip origins		Rate per trip
Running	=	VMT		Rate by veh. speed
Hot Soak	=	Trip destinations		Rate per trip

Application of growth factor:

<u>EMISSIONS</u>	=	<u>TRAVEL</u>	X <u>Gr.Fac.</u>	X	<u>EMISSIONS RATE</u>
Start up	=	Trip origins			Rate per trip
Running	=	VMT			Rate by veh. speed
Hot Soak	=	Trip destinations			Rate per trip

The following paragraphs describe adjustments to the emissions estimation process for this project.

Running Emissions

For trips originating outside the MSA, only miles in the MSA were used in VMT calculations. For example, VMT calculations for trips originating in the Annapolis area included only miles from the Patuxet River crossing to New Carrollton metro station. This adjustment was made for trips to all of the terminal Metrorail stations and for commuter rail and park-and-ride lots located on or near the border of the MSA.

Tripend Emissions

In computing cold start emissions only one cold start was applied for trips originating outside the MSA. Similarly, for hot soaks, only one hot soak was used in the hot soak equation.

SUMMARY

This memo serves as documentation of the process used in the estimation of mobile source emissions generated by auto to transit trips in the MSA. Attached is 2020 summary tables of emissions by trip cycle and source. Tables for all milestone years are available in the auto access to transit files.

**2020 NOx AIR QUALITY EMISSIONS INVENTORY
AUTO ACCESS TO TRANSIT
ACTION SCENARIO**

LOCATION	OUTSIDE MSA	INSIDE MSA	1990 INSIDE	1990 OUTSIDE	AVERAGE TRIP LENGTH	VMT	E M I S S I O N S			
							COLD START	RUNNING	HOT SOAK	(tons/day)
RATE			Growth Rate =		1.8		Grams Rate 1.176	Grams Rate 0.958	Grams Rate	
COMMUTER RAIL LOTS										
BRUNSWICK 25%	144	432	778	259	7.5	5,832	0.0024	0.0123	0.0000	0.015
PT OF ROCKS 25%	60	180	324	108	7.5	2,430	0.0010	0.0051	0.0000	0.006
DICKERSON		14	25	0	7.5	189	0.0001	0.0004	0.0000	0.000
BARNESVILLE		50	90	0	7.5	675	0.0002	0.0014	0.0000	0.002
GERMANTOWN		195	351	0	7.5	2,633	0.0009	0.0056	0.0000	0.006
MET GROVE		120	216	0	7.5	1,620	0.0006	0.0034	0.0000	0.004
WAS GROVE		20	36	0	7.5	270	0.0001	0.0006	0.0000	0.001
GARRETT PARK		15	27	0	7.5	203	0.0001	0.0004	0.0000	0.000
BOWIE 50%	53	54	97	95	7.5	722	0.0004	0.0015	0.0000	0.002
SEABROOK 15%	15	90	162	27	7.5	1,205	0.0005	0.0025	0.0000	0.003
KENSINGTON		25	45	0	7.5	338	0.0001	0.0007	0.0000	0.001
LAUREL 30%	55	127	229	99	7.5	1,720	0.0007	0.0036	0.0000	0.004
GAITHESBURG		350	630	0	7.5	4,725	0.0016	0.0100	0.0000	0.012
BERWYN HEIGHTS		30	54	0	4.5	243	0.0001	0.0005	0.0000	0.001
RIVERDALE		30	54	0	4.5	243	0.0001	0.0005	0.0000	0.001
METRO RAIL LOTS										
ADDISON ROAD 40%	351	526	947	632	7.5	7,104	0.0033	0.0150	0.0000	0.018
ARCHIVES		12	22	0	4.5	97	0.0001	0.0002	0.0000	0.000
ARLING		10	18	0	4.5	81	0.0000	0.0002	0.0000	0.000
BALLSTON		1175	2115	0	4.5	9,518	0.0055	0.0201	0.0000	0.026
BENN.RD		520	936	0	4.5	4,212	0.0024	0.0089	0.0000	0.011
BETH		395	711	0	4.5	3,200	0.0018	0.0068	0.0000	0.009
BRADD RD		208	374	0	4.5	1,685	0.0010	0.0036	0.0000	0.005
BROOKLAND		932	1678	0	4.5	7,549	0.0043	0.0159	0.0000	0.020
CHEVERLY		662	1192	0	4.5	5,362	0.0031	0.0113	0.0000	0.014
CLARENDON		554	997	0	4.5	4,487	0.0026	0.0095	0.0000	0.012
CLEVELAND PK		366	659	0	4.5	2,965	0.0017	0.0063	0.0000	0.008
COURT HOUSE		256	461	0	4.5	2,074	0.0012	0.0044	0.0000	0.006
CRYSTAL CITY		347	625	0	4.5	2,811	0.0016	0.0059	0.0000	0.008
DEANWOOD		526	947	0	4.5	4,261	0.0025	0.0090	0.0000	0.011
DUN LORING 10%	209	1890	3402	376	4.5	15,302	0.0093	0.0323	0.0000	0.042
DUPONT CIRCLE		165	297	0	4.5	1,337	0.0008	0.0028	0.0000	0.004
EASTERN MKT		178	320	0	4.5	1,442	0.0008	0.0030	0.0000	0.004
EAST FALLS CH		1015	1827	0	4.5	8,222	0.0047	0.0174	0.0000	0.022
EIS		352	634	0	4.5	2,851	0.0016	0.0060	0.0000	0.008
FARRAGUT NORTH		102	184	0	4.5	826	0.0005	0.0017	0.0000	0.002
FARRAGUT WEST		221	398	0	4.5	1,790	0.0010	0.0038	0.0000	0.005
FEDERAL CENTER		75	135	0	4.5	608	0.0004	0.0013	0.0000	0.002
FEDERAL TRI		54	97	0	4.5	437	0.0003	0.0009	0.0000	0.001
FOGGY		102	184	0	4.5	826	0.0005	0.0017	0.0000	0.002
FOR		664	1195	0	4.5	5,378	0.0031	0.0114	0.0000	0.014
FRH.HEIGHTS		679	1222	0	4.5	5,500	0.0032	0.0116	0.0000	0.015
GALLERY PLACE		124	223	0	4.5	1,004	0.0006	0.0021	0.0000	0.003
GROSVENOR		1351	2432	0	4.5	10,943	0.0063	0.0231	0.0000	0.029
HUNT NORTH 40%	1321	1981	3566	2378	7.5	26,746	0.0123	0.0565	0.0000	0.069
JUD SQUARE		110	198	0	4.5	891	0.0005	0.0019	0.0000	0.002
KING ST		235	423	0	4.5	1,904	0.0011	0.0040	0.0000	0.005

LANDOVER 25%	509	1526	2747	916	7.5	20,604	0.0063	0.0433	0.0000	0.0000
L'ENFANT PLAZA		296	533	0	4.5	2,398	0.0014	0.0051	0.0000	0.006
MCPHERSON SQ		52	94	0	4.5	421	0.0002	0.0009	0.0000	0.001
MEDICAL CENTER		341	614	0	4.5	2,762	0.0016	0.0058	0.0000	0.007
METRO CENTER		177	319	0	4.5	1,434	0.0008	0.0030	0.0000	0.004
MINNES		384	691	0	4.5	3,110	0.0018	0.0066	0.0000	0.008
NAT AIR		87	157	0	4.5	705	0.0004	0.0015	0.0000	0.002
NEW CARROL 50%	1142	1141	2054	2056	7.5	15,410	0.0080	0.0325	0.0000	0.041
PRNTAGON		561	1010	0	4.5	4,544	0.0026	0.0096	0.0000	0.012
PENTAGON CITY		381	686	0	4.5	3,086	0.0018	0.0065	0.0000	0.008
POTOMAC AVE		533	959	0	4.5	4,317	0.0025	0.0091	0.0000	0.012
R.I.AVE 30%	349	814	1465	628	4.5	6,594	0.0046	0.0139	0.0000	0.019
ROCKVILLE		977	1759	0	4.5	7,914	0.0046	0.0167	0.0000	0.021
ROSSLYN		356	641	0	4.5	2,884	0.0017	0.0061	0.0000	0.008
SHADY GROVE 10%	458	4120	7416	824	7.5	55,623	0.0203	0.1175	0.0000	0.138
SILVER SPRING		2132	3838	0	4.5	17,269	0.0099	0.0365	0.0000	0.046
SMITH MALL		120	216	0	4.5	972	0.0006	0.0021	0.0000	0.003
STADIUM ARM		976	1757	0	4.5	7,906	0.0046	0.0167	0.0000	0.021
TAKOMA PK		972	1750	0	4.5	7,873	0.0045	0.0166	0.0000	0.021
TENLEYTON		451	812	0	4.5	3,653	0.0021	0.0077	0.0000	0.010
TWINBROOK		1771	3188	0	4.5	14,345	0.0083	0.0303	0.0000	0.039
UNION STAT		378	680	0	4.5	3,062	0.0018	0.0065	0.0000	0.008
VAN NESS		343	617	0	4.5	2,778	0.0016	0.0059	0.0000	0.007
VIENNA 25%	697	2091	3764	1255	7.5	28,229	0.0114	0.0596	0.0000	0.071
VA SQUARE		642	1156	0	4.5	5,200	0.0030	0.0110	0.0000	0.014
WES		1571	2828	0	4.5	12,725	0.0073	0.0269	0.0000	0.034
WHITE FLINT		1633	2939	0	4.5	13,227	0.0076	0.0279	0.0000	0.036
WOODLEY		68	122	0	4.5	551	0.0003	0.0012	0.0000	0.001
RHODE ISLAND		165	297	0	7.5	2,228	0.0008	0.0047	0.0000	0.005
BUS & CAR POOL LOTS										
CARTER BARRON		74	133	0	4.5	599	0.0003	0.0013	0.0000	0.002
S.CAP.ST		87	157	0	4.5	705	0.0004	0.0015	0.0000	0.002
SOLDIERS HOME		110	198	0	4.5	891	0.0005	0.0019	0.0000	0.002
PG PLAZA		47	85	0	4.5	381	0.0002	0.0008	0.0000	0.001
PENN MAR SHOPP.		42	76	0	4.5	340	0.0002	0.0007	0.0000	0.001
CAP PLAZA		1	2	0	4.5	8	0.0000	0.0000	0.0000	0.000
EASTOVER		37	67	0	4.5	300	0.0002	0.0006	0.0000	0.001
FOUR MILE RUN		30	54	0	4.5	243	0.0001	0.0005	0.0000	0.001
SPRINGFIELD MALL		137	247	0	4.5	1,110	0.0006	0.0023	0.0000	0.003
SPRINGFIELD METH CH		121	218	0	4.5	980	0.0006	0.0021	0.0000	0.003
FRED ARMORY		7	13	0	7.5	95	0.0000	0.0002	0.0000	0.000
MYERSVILLE		34	61	0	7.5	459	0.0002	0.0010	0.0000	0.001
ROSEMONT		11	20	0	7.5	149	0.0001	0.0003	0.0000	0.000
URBANA		141	254	0	7.5	1,904	0.0007	0.0040	0.0000	0.005
JEFFERSON		42	76	0	7.5	567	0.0002	0.0012	0.0000	0.001
NORBECK RD		29	52	0	7.5	392	0.0001	0.0008	0.0000	0.001
MID-PIKE PLAZA		484	871	0	7.5	6,534	0.0023	0.0138	0.0000	0.016
MONTGOMERY MALL		150	270	0	7.5	2,025	0.0007	0.0043	0.0000	0.005
FAIRLAND 50%	190	190	342	342	7.5	2,565	0.0013	0.0054	0.0000	0.007
KNIGHTSBRIDGE 50%	190	190	342	342	7.5	2,565	0.0013	0.0054	0.0000	0.007
COMUS ROAD		30	54	0	7.5	405	0.0001	0.0009	0.0000	0.001
LAKEFOREST MALL		100	180	0	7.5	1,350	0.0005	0.0029	0.0000	0.003
BURTONSVILLE		200	360	0	7.5	2,700	0.0009	0.0057	0.0000	0.007
FORCEY MEM.		65	117	0	7.5	878	0.0003	0.0019	0.0000	0.002
TECH ROAD		25	45	0	7.5	338	0.0001	0.0007	0.0000	0.001
ST.MARKS		10	18	0	7.5	135	0.0000	0.0003	0.0000	0.000
BELTWAY		26	47	0	7.5	351	0.0001	0.0007	0.0000	0.001
GREENBELT ARMORY		122	220	0	7.5	1,647	0.0006	0.0035	0.0000	0.004

LAUREL		49	88	0	7.5	882	0.0002	0.0014	0.0000	0.0000
LIVINGSTON RD		70	126	0	7.5	945	0.0003	0.0020	0.0000	0.002
ABC DRIVE IN		26	47	0	7.5	351	0.0001	0.0007	0.0000	0.001
BOWIE/BELAIR 20%	56	223	401	101	7.5	3,013	0.0012	0.0064	0.0000	0.008
CLINTON 50%	135	135	243	243	7.5	1,823	0.0009	0.0038	0.0000	0.005
OXON HILL 20%	50	199	358	90	7.5	2,689	0.0010	0.0057	0.0000	0.007
MARLBORO RACE TRACK	129	130	234	232	7.5	1,748	0.0009	0.0037	0.0000	0.005
BELAIR PLAZA		54	97	0	7.5	729	0.0003	0.0015	0.0000	0.002
FT. WASHINGTON		93	167	0	7.5	1,256	0.0004	0.0027	0.0000	0.003
MONTPELIER REC PARK		42	76	0	7.5	567	0.0002	0.0012	0.0000	0.001
EASTOVER		37	67	0	7.5	500	0.0002	0.0011	0.0000	0.001
RESTON		290	522	0	7.5	3,915	0.0014	0.0083	0.0000	0.010
GREENBRIAR		75	135	0	7.5	1,013	0.0004	0.0021	0.0000	0.002
FAIR OAKS		166	299	0	7.5	2,241	0.0008	0.0047	0.0000	0.006
ROLLING VALLEY		355	639	0	7.5	4,793	0.0017	0.0101	0.0000	0.012
BURKE CENTER		59	106	0	7.5	797	0.0003	0.0017	0.0000	0.002
SHIRLEY PLAZA		58	104	0	7.5	783	0.0003	0.0017	0.0000	0.002
SPRINGFIELD CINEMA		112	202	0	7.5	1,512	0.0005	0.0032	0.0000	0.004
SPRINGFIELD PLAZA		267	481	0	7.5	3,605	0.0012	0.0076	0.0000	0.009
LORTON P&R		107	193	0	7.5	1,445	0.0005	0.0031	0.0000	0.004
FFX CITY MUNICIPAL		33	59	0	7.5	446	0.0002	0.0009	0.0000	0.001
BRADLEES DEPT ST		56	101	0	7.5	756	0.0003	0.0016	0.0000	0.002
FAIRLANES BOWL		15	27	0	7.5	203	0.0001	0.0004	0.0000	0.000
NOTTOWAY PARK		2	4	0	7.5	27	0.0000	0.0001	0.0000	0.000
FFX FRINGE PARKING		1	2	0	7.5	14	0.0000	0.0000	0.0000	0.000
HORNER RD		302	544	0	7.5	4,077	0.0014	0.0086	0.0000	0.010
LAKE RIDGE		114	205	0	7.5	1,539	0.0005	0.0033	0.0000	0.004
MINNIEVILLE RD 40%	224	336	605	403	7.5	4,536	0.0021	0.0096	0.0000	0.012
GORDON BLVD		156	281	0	7.5	2,106	0.0007	0.0044	0.0000	0.005
DUMFRIES RD		49	88	0	7.5	662	0.0002	0.0014	0.0000	0.002
HILLENDALE		200	360	0	7.5	2,700	0.0009	0.0057	0.0000	0.007
POTOMAC MILLS		6	11	0	7.5	81	0.0000	0.0002	0.0000	0.000
PW SQUARE		45	81	0	7.5	608	0.0002	0.0013	0.0000	0.001
NVCC COMMUTER LOT		90	162	0	7.5	1,215	0.0004	0.0026	0.0000	0.003
FALMOUTH 30%	141	328	590	254	7.5	4,432	0.0019	0.0094	0.0000	0.011
AQUIA 20%	72	286	515	130	7.5	3,866	0.0015	0.0082	0.0000	0.010
STAFFORD		401	722	0	7.5	5,414	0.0019	0.0114	0.0000	0.013
TOTAL						513956.07	0.2490	1.0855	0.0000	1.3345

**2020 VOC AIR QUALITY EMISSIONS INVENTORY
AUTO ACCESS TO TRANSIT
ACTION SCENARIO**

LOCATION	OUTSIDE MSA	INSIDE MSA	1990		AVERAGE TRIP LENGTH	VMT	E M I S S I O N S			
			INSIDE	OUTSIDE			COLD START Grams Rate	RUNNING Grams Rate	HOT SOAK Grams Rate	(tons/day)
			Growth Rate =								1.8
COMMUTER RAIL LOTS										
BRUNSWICK 25%	144	432	778	259	7.5	5,832	0.0044	0.0041	0.0009	0.009
PT OF ROCKS 25%	60	180	324	108	7.5	2,430	0.0018	0.0017	0.0004	0.004
DICKERSON		14	25	0	7.5	189	0.0001	0.0001	0.0000	0.000
BARNESVILLE		50	90	0	7.5	675	0.0004	0.0005	0.0001	0.001
GERMANTOWN		195	351	0	7.5	2,633	0.0017	0.0019	0.0003	0.004
MET GROVE		120	216	0	7.5	1,620	0.0011	0.0012	0.0002	0.002
WAS GROVE		20	36	0	7.5	270	0.0002	0.0002	0.0000	0.000
GARRETT PARK		15	27	0	7.5	203	0.0001	0.0001	0.0000	0.000
BOWIE 50%	53	54	97	95	7.5	722	0.0007	0.0005	0.0001	0.001
SEABROOK 15%	15	90	162	27	7.5	1,205	0.0009	0.0009	0.0002	0.002
KENSINGTON		25	45	0	7.5	338	0.0002	0.0002	0.0000	0.001
LAUREL 30%	55	127	229	99	7.5	1,720	0.0014	0.0012	0.0003	0.003
GAITHESBURG		350	630	0	7.5	4,725	0.0031	0.0034	0.0006	0.007
BERWYN HEIGHTS		30	54	0	4.5	243	0.0003	0.0002	0.0001	0.000
RIVERDALE		30	54	0	4.5	243	0.0003	0.0002	0.0001	0.000
METRO RAIL LOTS										
ADDISON ROAD 40%	351	526	947	632	7.5	7,104	0.0061	0.0050	0.0012	0.012
ARCHIVES		12	22	0	4.5	97	0.0001	0.0001	0.0000	0.000
ARLING		10	18	0	4.5	81	0.0001	0.0001	0.0000	0.000
BALLSTON		1175	2115	0	4.5	9,518	0.0103	0.0068	0.0020	0.019
BENN.RD		520	936	0	4.5	4,212	0.0046	0.0030	0.0009	0.008
BETH		395	711	0	4.5	3,200	0.0035	0.0023	0.0007	0.006
BRADD RD		208	374	0	4.5	1,685	0.0018	0.0012	0.0004	0.003
BROOKLAND		932	1678	0	4.5	7,549	0.0082	0.0054	0.0016	0.015
CHEVERLY		662	1192	0	4.5	5,362	0.0058	0.0038	0.0011	0.011
CLARENDON		554	997	0	4.5	4,487	0.0048	0.0032	0.0010	0.009
CLEVELAND PK		366	659	0	4.5	2,965	0.0032	0.0021	0.0006	0.006
COURT HOUSE		256	461	0	4.5	2,074	0.0022	0.0015	0.0004	0.004
CRYSTAL CITY		347	625	0	4.5	2,811	0.0030	0.0020	0.0006	0.006
DEANWOOD		526	947	0	4.5	4,261	0.0046	0.0030	0.0009	0.009
DUN LORING 10%	209	1890	3402	376	4.5	15,302	0.0175	0.0109	0.0035	0.032
DUPONT CIRCLE		165	297	0	4.5	1,337	0.0014	0.0009	0.0003	0.003
EASTERN MKT		178	320	0	4.5	1,442	0.0016	0.0010	0.0003	0.003
EAST FALLS CH		1015	1827	0	4.5	8,222	0.0089	0.0058	0.0018	0.016
EIS		352	634	0	4.5	2,851	0.0031	0.0020	0.0006	0.006
FARRAGUT NORTH		102	184	0	4.5	826	0.0009	0.0006	0.0002	0.002
FARRAGUT WEST		221	398	0	4.5	1,790	0.0019	0.0013	0.0004	0.004
FEDERAL CENTER		75	135	0	4.5	608	0.0007	0.0004	0.0001	0.001
FEDERAL TRI		54	97	0	4.5	437	0.0005	0.0003	0.0001	0.001
FOGGY		102	184	0	4.5	826	0.0009	0.0006	0.0002	0.002
FOR		664	1195	0	4.5	5,378	0.0058	0.0038	0.0011	0.011
FRH.HEIGHTS		679	1222	0	4.5	5,500	0.0059	0.0039	0.0012	0.011
GALLERY PLACE		124	223	0	4.5	1,004	0.0011	0.0007	0.0002	0.002
GROSVENOR		1351	2432	0	4.5	10,943	0.0118	0.0078	0.0023	0.022
HUNT NORTH 40%	1321	1981	3566	2378	7.5	26,746	0.0231	0.0190	0.0046	0.047
JUD SQUARE		110	198	0	4.5	891	0.0010	0.0006	0.0002	0.002
KING ST		235	423	0	4.5	1,904	0.0021	0.0014	0.0004	0.004

LANDOVER 25%	509	1526	2747	916	7.5	20,604	0.0156	0.0146	0.0031	0.0000
L'ENFANT PLAZA		296	533	0	4.5	2,398	0.0026	0.0017	0.0005	0.005
MCPHERSON SQ		52	94	0	4.5	421	0.0005	0.0003	0.0001	0.001
MEDICAL CENTER		341	614	0	4.5	2,762	0.0030	0.0020	0.0006	0.006
METRO CENTER		177	319	0	4.5	1,434	0.0015	0.0010	0.0003	0.003
MINNES		384	691	0	4.5	3,110	0.0034	0.0022	0.0007	0.006
NAT AIR		87	157	0	4.5	705	0.0008	0.0005	0.0002	0.001
NEW CARROL 50%	1142	1141	2054	2056	7.5	15,410	0.0150	0.0109	0.0030	0.029
PRNTAGON		561	1010	0	4.5	4,544	0.0049	0.0032	0.0010	0.009
PENTAGON CITY		381	686	0	4.5	3,086	0.0033	0.0022	0.0007	0.006
POTOMAC AVE		533	959	0	4.5	4,317	0.0047	0.0031	0.0009	0.009
R.I.AVE 30%	349	814	1465	628	4.5	6,594	0.0087	0.0047	0.0017	0.015
ROCKVILLE		977	1759	0	4.5	7,914	0.0086	0.0056	0.0017	0.016
ROSSLYN		356	641	0	4.5	2,884	0.0031	0.0020	0.0006	0.006
SHADY GROVE 10%	458	4120	7416	824	7.5	55,623	0.0381	0.0395	0.0075	0.085
SILVER SPRING		2132	3838	0	4.5	17,269	0.0187	0.0123	0.0037	0.035
SMITH MALL		120	216	0	4.5	972	0.0011	0.0007	0.0002	0.002
STADIUM ARM		976	1757	0	4.5	7,906	0.0085	0.0056	0.0017	0.016
TAKOMA PK		972	1750	0	4.5	7,873	0.0085	0.0056	0.0017	0.016
TENLEYTON		451	812	0	4.5	3,653	0.0039	0.0026	0.0008	0.007
TWINBROOK		1771	3188	0	4.5	14,345	0.0155	0.0102	0.0031	0.029
UNION STAT		378	680	0	4.5	3,062	0.0033	0.0022	0.0007	0.006
VAN NESS		343	617	0	4.5	2,778	0.0030	0.0020	0.0006	0.006
VIENNA 25%	697	2091	3764	1255	7.5	28,229	0.0214	0.0200	0.0042	0.046
VA SQUARE		642	1156	0	4.5	5,200	0.0056	0.0037	0.0011	0.010
WES		1571	2828	0	4.5	12,725	0.0138	0.0090	0.0027	0.026
WHITE FLINT		1633	2939	0	4.5	13,227	0.0143	0.0094	0.0028	0.027
WOODLEY		68	122	0	4.5	551	0.0006	0.0004	0.0001	0.001
RHODE ISLAND		165	297	0	7.5	2,228	0.0014	0.0016	0.0003	0.003
BUS & CAR POOL LOTS										
CARTER BARRON		74	133	0	4.5	599	0.0006	0.0004	0.0001	0.001
S.CAP.ST		87	157	0	4.5	705	0.0008	0.0005	0.0002	0.001
SOLDIERS HOME		110	198	0	4.5	891	0.0010	0.0006	0.0002	0.002
PG PLAZA		47	85	0	4.5	381	0.0004	0.0003	0.0001	0.001
PENN MAR SHOPP.		42	76	0	4.5	340	0.0004	0.0002	0.0001	0.001
CAP PLAZA		1	2	0	4.5	8	0.0000	0.0000	0.0000	0.000
EASTOVER		37	67	0	4.5	300	0.0003	0.0002	0.0001	0.001
FOUR MILE RUN		30	54	0	4.5	243	0.0003	0.0002	0.0001	0.000
SPRINGFIELD MALL		137	247	0	4.5	1,110	0.0012	0.0008	0.0002	0.002
SPRINGFIELD METH CH		121	218	0	4.5	980	0.0011	0.0007	0.0002	0.002
FRED ARMORY		7	13	0	7.5	95	0.0001	0.0001	0.0000	0.000
MYERSVILLE		34	61	0	7.5	459	0.0003	0.0003	0.0001	0.001
ROSEMONT		11	20	0	7.5	149	0.0001	0.0001	0.0000	0.000
URBANA		141	254	0	7.5	1,904	0.0012	0.0014	0.0002	0.003
JEFFERSON		42	76	0	7.5	567	0.0004	0.0004	0.0001	0.001
NORBECK RD		29	52	0	7.5	392	0.0003	0.0003	0.0001	0.001
MID-PIKE PLAZA		484	871	0	7.5	6,534	0.0042	0.0046	0.0008	0.010
MONTGOMERY MALL		150	270	0	7.5	2,025	0.0013	0.0014	0.0003	0.003
FAIRLAND 50%	190	190	342	342	7.5	2,565	0.0025	0.0018	0.0005	0.005
KNIGHTSBRIDGE 50%	190	190	342	342	7.5	2,565	0.0025	0.0018	0.0005	0.005
COMUS ROAD		30	54	0	7.5	405	0.0003	0.0003	0.0001	0.001
LAKEFOREST MALL		100	180	0	7.5	1,350	0.0009	0.0010	0.0002	0.002
BURTONSVILLE		200	360	0	7.5	2,700	0.0018	0.0019	0.0003	0.004
FORCEY MEM.		65	117	0	7.5	878	0.0006	0.0006	0.0001	0.001
TECH ROAD		25	45	0	7.5	338	0.0002	0.0002	0.0000	0.001
ST.MARKS		10	18	0	7.5	135	0.0001	0.0001	0.0000	0.000
BELTWAY		26	47	0	7.5	351	0.0002	0.0002	0.0000	0.001
GREENBELT ARMORY		122	220	0	7.5	1,647	0.0011	0.0012	0.0002	0.002

LAUREL		49	88	0	7.5	662	0.0004	0.0005	0.0001	0.001
LIVINGSTON RD		70	126	0	7.5	945	0.0006	0.0007	0.0001	0.001
ABC DRIVE IN		26	47	0	7.5	351	0.0002	0.0002	0.0000	0.001
BOWIE/BELAIR 20%	56	223	401	101	7.5	3,013	0.0022	0.0021	0.0004	0.005
CLINTON 50%	135	135	243	243	7.5	1,823	0.0018	0.0013	0.0004	0.003
OXON HILL 20%	50	199	358	90	7.5	2,689	0.0020	0.0019	0.0004	0.004
MARLBORO RACE TRAC	129	130	234	232	7.5	1,748	0.0017	0.0012	0.0003	0.003
BELAIR PLAZA		54	97	0	7.5	729	0.0005	0.0005	0.0001	0.001
FT.WASHINGTON		93	167	0	7.5	1,256	0.0008	0.0009	0.0002	0.002
MONTPELIER REC PARK		42	76	0	7.5	567	0.0004	0.0004	0.0001	0.001
EASTOVER		37	67	0	7.5	500	0.0003	0.0004	0.0001	0.001
RESTON		290	522	0	7.5	3,915	0.0025	0.0028	0.0005	0.006
GREENBRIAR		75	135	0	7.5	1,013	0.0007	0.0007	0.0001	0.002
FAIR OAKS		166	299	0	7.5	2,241	0.0015	0.0016	0.0003	0.003
ROLLING VALLEY		355	639	0	7.5	4,793	0.0031	0.0034	0.0006	0.007
BURKE CENTER		59	106	0	7.5	797	0.0005	0.0006	0.0001	0.001
SHIRLEY PLAZA		58	104	0	7.5	783	0.0005	0.0006	0.0001	0.001
SPRINGFIELD CINEMA		112	202	0	7.5	1,512	0.0010	0.0011	0.0002	0.002
SPRINGFIELD PLAZA		267	481	0	7.5	3,605	0.0023	0.0026	0.0005	0.005
LORTON P&R		107	193	0	7.5	1,445	0.0009	0.0010	0.0002	0.002
FFX CITY MUNICIPAL		33	59	0	7.5	446	0.0003	0.0003	0.0001	0.001
BRADLEES DEPT ST		56	101	0	7.5	756	0.0005	0.0005	0.0001	0.001
FAIRLANES BOWL		15	27	0	7.5	203	0.0001	0.0001	0.0000	0.000
NOTTOWAY PARK		2	4	0	7.5	27	0.0000	0.0000	0.0000	0.000
FFX FRINGE PARKING		1	2	0	7.5	14	0.0000	0.0000	0.0000	0.000
HORNER RD		302	544	0	7.5	4,077	0.0026	0.0029	0.0005	0.006
LAKE RIDGE		114	205	0	7.5	1,539	0.0010	0.0011	0.0002	0.002
MINNIEVILLE RD 40%	224	336	605	403	7.5	4,536	0.0039	0.0032	0.0008	0.008
GORDON BLVD		156	281	0	7.5	2,106	0.0014	0.0015	0.0003	0.003
DUMFRIES RD		49	88	0	7.5	662	0.0004	0.0005	0.0001	0.001
HILLENDALE		200	360	0	7.5	2,700	0.0018	0.0019	0.0003	0.004
POTOMAC MILLS		6	11	0	7.5	81	0.0001	0.0001	0.0000	0.000
PW SQUARE		45	81	0	7.5	608	0.0004	0.0004	0.0001	0.001
NVCC COMMUTER LOT		90	162	0	7.5	1,215	0.0008	0.0009	0.0002	0.002
FALMOUTH 30%	141	328	590	254	7.5	4,432	0.0035	0.0031	0.0007	0.007
AQUIA 20%	72	286	515	130	7.5	3,866	0.0028	0.0027	0.0006	0.006
STAFFORD		401	722	0	7.5	5,414	0.0035	0.0038	0.0007	0.008
TOTAL	6550.00	50087.00	90156.60	11790.00		513956.07	0.4671	0.3649	0.0923	0.9243

APPENDIX I

Bus Emissions Estimation

MEMORANDUM

Date: June 9, 1998

TO: Michael J. Clifford
Systems Planning Applications Director

FROM: Eulalie G. Lucas *ELG*
Department of Transportation Planning (DTP).

SUBJECT: Bus Emissions: Revised HDE (Heavy Duty Engine) rule

INTRODUCTION

This memo describes work involved in the preparation of bus emission estimates for FY99-2004 TIP and CLRP air quality conformity analysis. Data for this element of the inventory were obtained from bus operators in the Metropolitan Statistical Area(MSA).

APPROACH

As in the estimation of emissions associated with "auto access" to transit, calculation of bus emissions was an off-line task. Vehicle miles of travel(VMT) along with operating speeds were obtained from all major public transportation operators in the MSA. Table 1 lists the agencies, years and operating speeds. Emission factors used in the calculation of emissions were from MOBILE5a model output, obtained from COG/Department of Environment Programs(DEP).

EMISSIONS CALCULATIONS

Since tripend emissions are not associated with diesel operated vehicles, only emissions for the running component of the trip cycle were calculated. Emissions were calculated through the application of heavy duty diesel vehicle(HDDV) emissions factors by operating speed to a travel component(VMT). Table 2

shows the emissions factors by speed range.

EMISSIONS = TRAVEL X EMISSIONS RATE

Running = VMT Rate by veh.speed

FY99-2004 TIP/CLRP Updates:

On January 30, 1998, EPA issued guidance for the online calculations of emissions associated with the operation of heavy-duty engines which takes effect after year 2005. Because of this rule HDE rates are lower resulting in a decrease in bus emissions for years 2010 and 2020. Since there were no VMT updates from the bus operators the HDE ruling is the only update associated with the calculations of bus emissions for the FY 99-2004 conformity analysis of the TIP and CLRP.

SUMMARY

This memo documented the steps involved in the preparation of bus emissions estimations for VOC and NOX for the FY99-2004 TIP and CLRP. Summaries for each pollutant for 2020 are attached for the purpose of this memo. A complete list is available in the bus emissions files.

TABLE 1
FY 99-2004
DAILY MOBILE SOURCE EMISSIONSBUS EMISSIONS
VOC EMISSIONS
2020

JURISDICTION	OPERATOR	VMT (DAILY)	O.P.SPEED (MPH)	VOC Em.F (G/MI)	VOC (G/D)	VOC (T/D)
DISTRICT OF COLUMBIA	WMATA	60000	10	3.04	182400	0.201
MONTGOMERY COUNTY	WMATA	21600	15	2.44	52704	0.058
SILVER SPRING	RIDE-ON	12680	12	3.04	38547	0.042
GAITHERSBURG	RIDE-ON	10460	18	2.00	20920	0.023
PRINCE GEORGES COUNT	WMATA	29000	15	2.44	70760	0.090
ARLINGTON COUNTY	COUNTY	240	8	3.04	730	0.001
CITY OF ALEXANDRIA	DASH	1900	12	3.04	5776	0.006
FAIRFAX CITY	CITY	1650	23	2.44	4026	0.004
FAIRFAX COUNTY	COUNTY	5590	16	2.44	13640	0.015
VIRGINIA	WMATA	36500	15	2.44	89060	0.098
PRINCE WILLIAM	COMMUTERIDE	450	22	2.00	900	0.001
TOTAL					479462.4	0.541

TABLE 2
FY 99-2004
DAILY MOBILE SOURCE EMISSIONS BUS EMISSIONS
BUS NO_x EMISSIONS
2020

JURISDICTION	OPERATOR	VMT (DAILY)	O.P.SPEED (MPH)	NO _x Em.F (G/MI)	NO _x (G/D)	NO _x (T/D)
DISTRICT OF COLUMBIA	WMATA	60000	10	5.21	312600	0.345
MONTGOMERY COUNTY	WMATA	21600	14	4.48	96768	0.107
SILVER SPRING	RIDE-ON	12680	12	5.21	66063	0.073
GAITHERSBURG	RIDE-ON	10460	18	3.99	41735	0.046
PRINCE GEORGES COUNT	WMATA	29000	14	4.48	129920	0.282
ARLINGTON COUNTY	COUNTY	207	8	5.21	1078	0.001
CITY OF ALEXANDRIA	DASH	1900	12	5.21	9899	0.011
FAIRFAX CITY	CITY	1650	15	4.48	7392	0.008
FAIRFAX COUNTY	COUNTY	5590	16	4.48	25043	0.028
VIRGINIA	WMATA	36500	16	4.48	163520	0.180
PRINCE WILLIAM	COMMUTERIDE	450	22	3.99	1796	0.002
TOTAL					855814.4	1.082

APPENDIX J

Summary of Technical Results

1. **Memo transmitting summary results to TPB** **J 1-12**
2. **Memo transmitting Travel Management Subcommittee recommendations regarding TERMS (in the event TERMS were needed to mitigate plan or program emissions increases)** **J 13-20**



Local governments working together for a better metropolitan region

MEMORANDUM

July 8, 1998

*District of Columbia
Bowie
College Park
FREDENCK
FREDENCK COUNTY
GATHERSBURG
GREENBELT
MONTGOMERY COUNTY
PRINCE GEORGE'S COUNTY
ROCKVILLE
TAKOMA PARK
ALEXANDRIA
ARLINGTON COUNTY
FAIRFAX
FAIRFAX COUNTY
FALLS CHURCH
LOUDOUN COUNTY
PRINCE WILLIAM COUNTY*

To: Transportation Planning Board

From: Michael J. Clifford 
Systems Planning Applications Director

Subject: Updates to Draft Air Quality Conformity Assessment of FY99-2004
Transportation Improvement Program (TIP) and Constrained Long Range
Plan (CLRP) Amendments

Introduction

At the June 11, 1998 public forum following the TPB Citizen's Advisory Committee meeting, staff released the draft report on the air quality conformity assessment of the FY99-2004 TIP and CLRP amendments. A June 11, 1998 memo from me to the TPB summarized the results of that work effort. Since that time, some minor changes have been identified and will be incorporated into the final report.

One set of such changes involves the receipt of additional progress reports on the implementation status of transportation emissions reduction measures which were credited in previous air quality conformity analyses. Since the draft report was issued in June, we have received new or supplementary reports from Montgomery County, the Maryland Mass Transit Administration, the Maryland State Highway Administration, the Virginia Department of Transportation and Frederick County. While the magnitude of change is small, these reports have a direct bearing on the emissions credits contained in the plan and program and on subsequent budget adherence tests performed in the conformity assessment. Consequently, this additional information has been utilized in the analysis to update some of the tables and charts, as follows in this memo.

Background

On March 18, 1998 the TPB approved the list of draft CLRP amendments and FY99-2004 project elements to be tested for adherence to air quality conformity requirements. Since that time staff has performed the technical analyses to ascertain whether the draft plan and program meet the specific conformity criteria, as detailed in EPA's August 1997 updated conformity regulations.

Technical work activities included the preparation of volatile organic compound (VOC), nitrogen oxide (NO_x) and carbon monoxide (CO) emissions inventories for specified forecast years associated with the plan and program (forecast years: 1999, 2005, 2010 and 2020). These inventories address a primary conformity assessment criterion to demonstrate that the plan and program adhere to established mobile source emissions budgets. In anticipation of emissions increases associated with implementation of the plan and program, staff (in conjunction with the TPB Technical Committee and its Travel Management Subcommittee) conducted parallel analyses of potential transportation emissions reduction measures (TERMs). The objective of this work was to develop potential additional plan and program elements which could be utilized to mitigate any such increases. Completion of the analyses, however, showed that the plan and program emissions estimates were within the budgets for each pollutant, for each forecast year.

The draft report, Air Quality Conformity Determination of the Constrained Long Range Plan and the FY99-2004 Transportation Improvement Program for the Washington Metropolitan Region, June 11, 1998, documents the entire analysis. This full report will be finalized following discussion of comments / responses at the July 15, 1998 TPB meeting. Today's memo presents a "bottom line" summary of results, as follows.

I. Plan Amendments and Program Elements

There have been relatively few significant changes advanced for the CLRP in this year's approval cycle. Exhibit 1 presents a listing of the other major changes since the FY98-2003 TIP and CLRP updates were approved by the Board on July 16, 1997.

II. Land Activity Forecasts

On April 8, 1998 the COG Board approved Round 6a Cooperative Forecasts to be used for testing purposes in analysis of the TIP and CLRP. Accordingly, these forecasts provided the land activity assumptions which were used in the conformity assessment.

III. Emissions Analyses

Systems Level Forecasts

COG/TPB staff prepared travel demand forecasts for each of the required forecast years. COG Department of Environmental Programs staff (through contractor assistance) provided the input emissions factors. These rates for each pollutant were consistent with all previous input assumptions, with one exception: year 2010 and 2020 include the specification of EPA's Fall 1997-promulgated heavy duty engine rule. COG/TPB staff then prepared network-based VOC, NO_x, and CO mobile source emissions inventories for each case.

Net Emissions Analysis

In addition to the network-based emissions inventory data, other emissions reductions associated with the plan and program (which were estimated on an off-line basis) are also creditable in the budget comparisons. Exhibits 2 - 4 present the net summaries (reflecting network-based emissions and off-line emissions reductions associated with previous TIP analyses, the CLRP, the FY99 TIP, and the Phase I Attainment Plan) of VOC, NO_x, and CO emissions, respectively. Exhibit 5 (a-d) represents a summary table of the transportation emissions reduction measures 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. Only those projects (shown as an "x" in the table) which have been affirmed by the implementing agency as having been completed, or are on a realistic schedule towards implementation, are being credited in this emissions analysis. Documentation from the implementation agencies regarding the status of each project is contained in Appendix L of the report.

Exhibit 6 presents the summary emissions results for all cases. This table presents a comprehensive summary of: the network emissions; previously implemented TERMS and new TERMS for which emissions benefits are expected; and credits toward emissions budget adherence contained in the Phase I Attainment Plan (state implementation plan). Net emissions for each forecast year are shown as the bottom line of the summary (and as presented graphically in Exhibits 2 - 4). Emissions are seen to be well within the budgets in all cases.

TERM Recommendations

In recognition of the fact that estimated emissions are well within the mobile source budget for each pollutant, no additional transportation emissions reduction measures need to be programmed to demonstrate conformity. The TPB Technical Committee and its Travel Management Subcommittee had developed a technical report of TERMS and a "short list" of recommended measures in the event additional emissions reduction measures were needed. This material will be at the ready for the future, should additional emissions reduction measures be required.

Summary

The analytical results described in the full air quality conformity assessment report provide a basis for a determination by the TPB of conformity of the CLRP and the FY99-2004 TIP.

Attached Exhibits (6)

Exhibit 1

SIGNIFICANT CHANGES OR ADDITIONS TO FY99-04 TRANSPORTATION IMPROVEMENT PROGRAM (TIP) AND CONSTRAINED LONG RANGE PLAN (CLRP)

Highway and HOV:

<u>State</u>	<u>Facility</u>	<u>Project</u>
Maryland	US 301	Widen / Upgrade from MD 5 at TB to US 50 - widen from 4 to 6 lanes (formerly listed as a study project)
Maryland	US 1	Widen from I-95/I-495 to Sunnyside Ave. - widen from 4 to 6 lanes
Maryland	MD 28	Widen from Key West Blvd. to Great Seneca Hwy. - from 4 to 6 lanes
Maryland	MD 4 HOV lanes	Construct from MD 223 to I-495 - widen from 4 to 6 lanes for HOV
Maryland	MD 117	Delete project - from west of 118 to I-270 - previously widen from 2 to 4/6 lanes
Maryland	MD 223	Delete project- from MD 5 to MD 4 - previously widen from 2 to 4 lanes
Virginia	I-95	Widen from Newington to VA 123 - widen from 6 to 8 lanes (formerly listed as a study project)
Virginia	I-95	Improve access to Park and Ride lot at VA 123
Virginia	US 1	Widen from Occoquan Rd. to Occoquan River -widen from 4 to 6 lanes
Virginia	VA 7	Construct interchange at Clairborne Pkwy./West Spine Rd.
Virginia	US 15	Delete project - from Loudoun Co. Line to US 50 - previously widen from 2 to 4/6 lanes
Virginia	VA 28	Construct interchange at VA 763 (Barnesfield Rd.) and access Dulles Smithsonian Air and Space Museum
Virginia	US 50 (Middleburg Bypass)	Change: Construct as 2 lane facility - formerly listed as construct 4 lane facility
D.C.	no significant changes	

Transit:

Virginia	Cherry Hill VRE Station	Construct new VRE station at Cherry Hill Peninsula in Prince William Co.
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2/13/98

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EXHIBIT 2
Mobile Source VOC Emissions
Plan and Program Alternatives
Metropolitan Statistical Area
Results of Summary Analysis

S-5

Tons Per Day

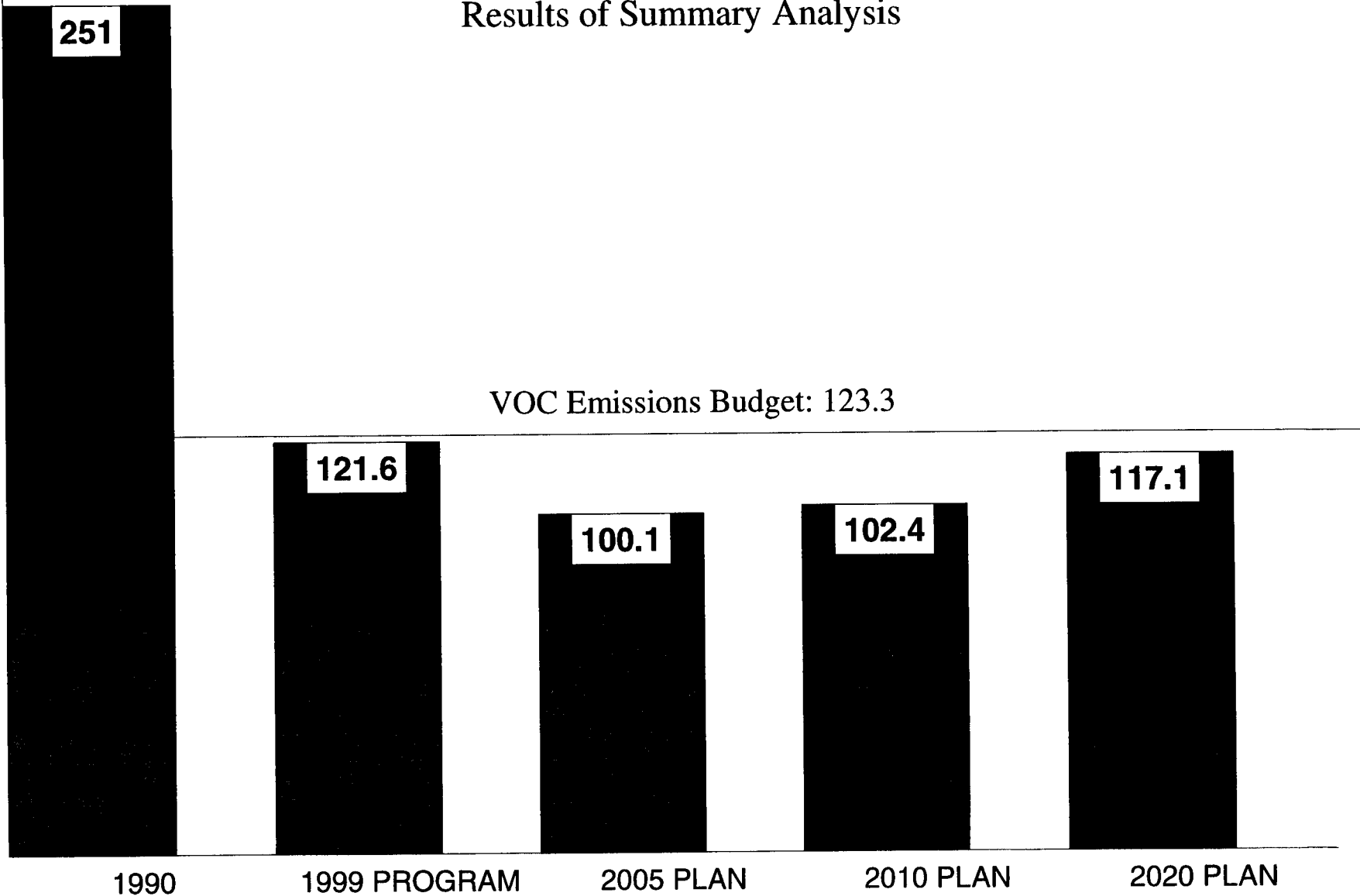


EXHIBIT 3
Mobile Source NOx Emissions
Plan and Program Alternatives
Metropolitan Staistical Area
Results of Summary Analysis

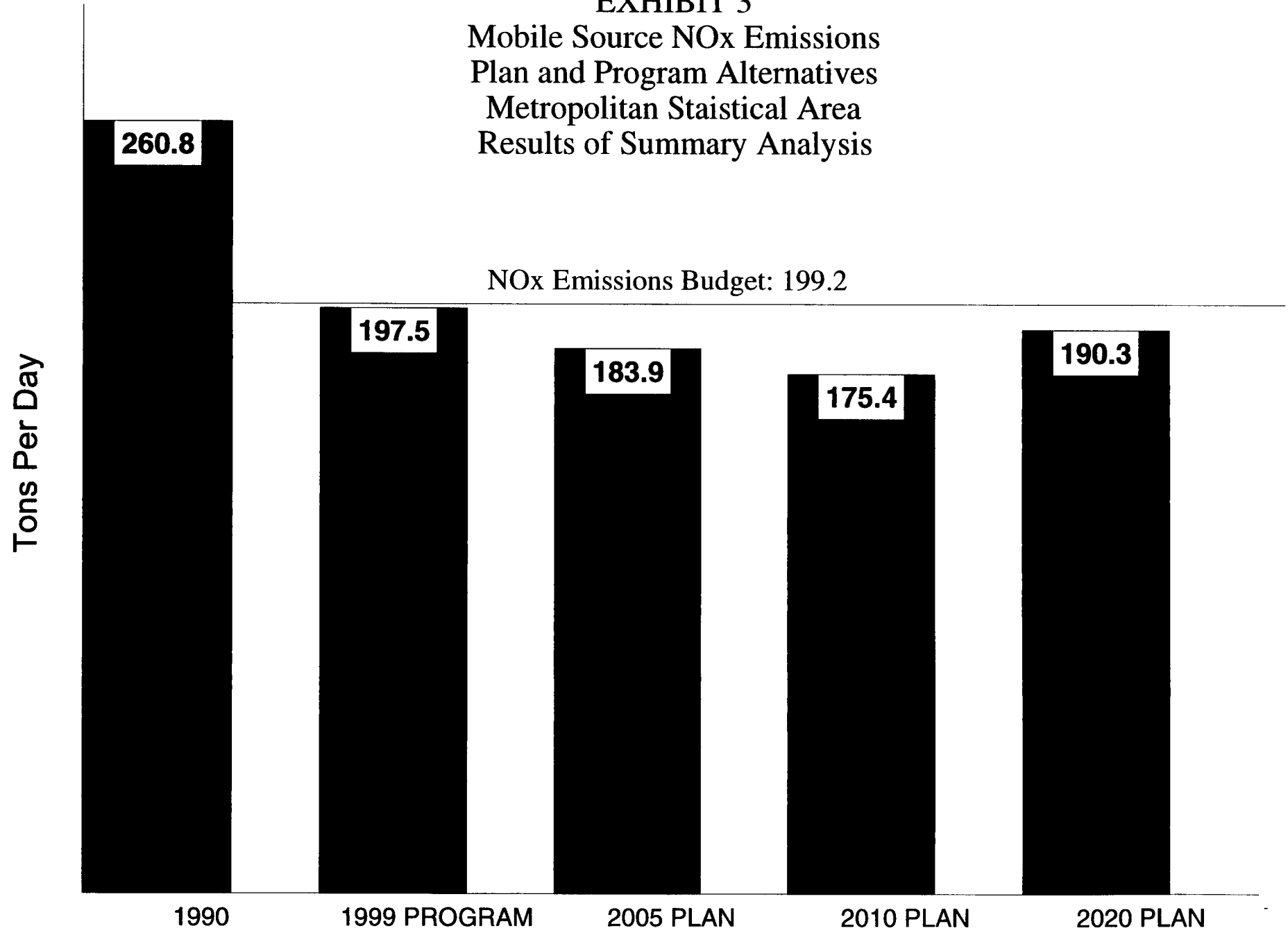


EXHIBIT 4
MOBILE SOURCE WINTERTIME CARBON MONOXIDE EMISSIONS
Plan and Program Alternatives
CO Non-Attainment Area
Results of Network Analysis

Wintertime CO Emissions Budget: 1671.5

Tons Per Day

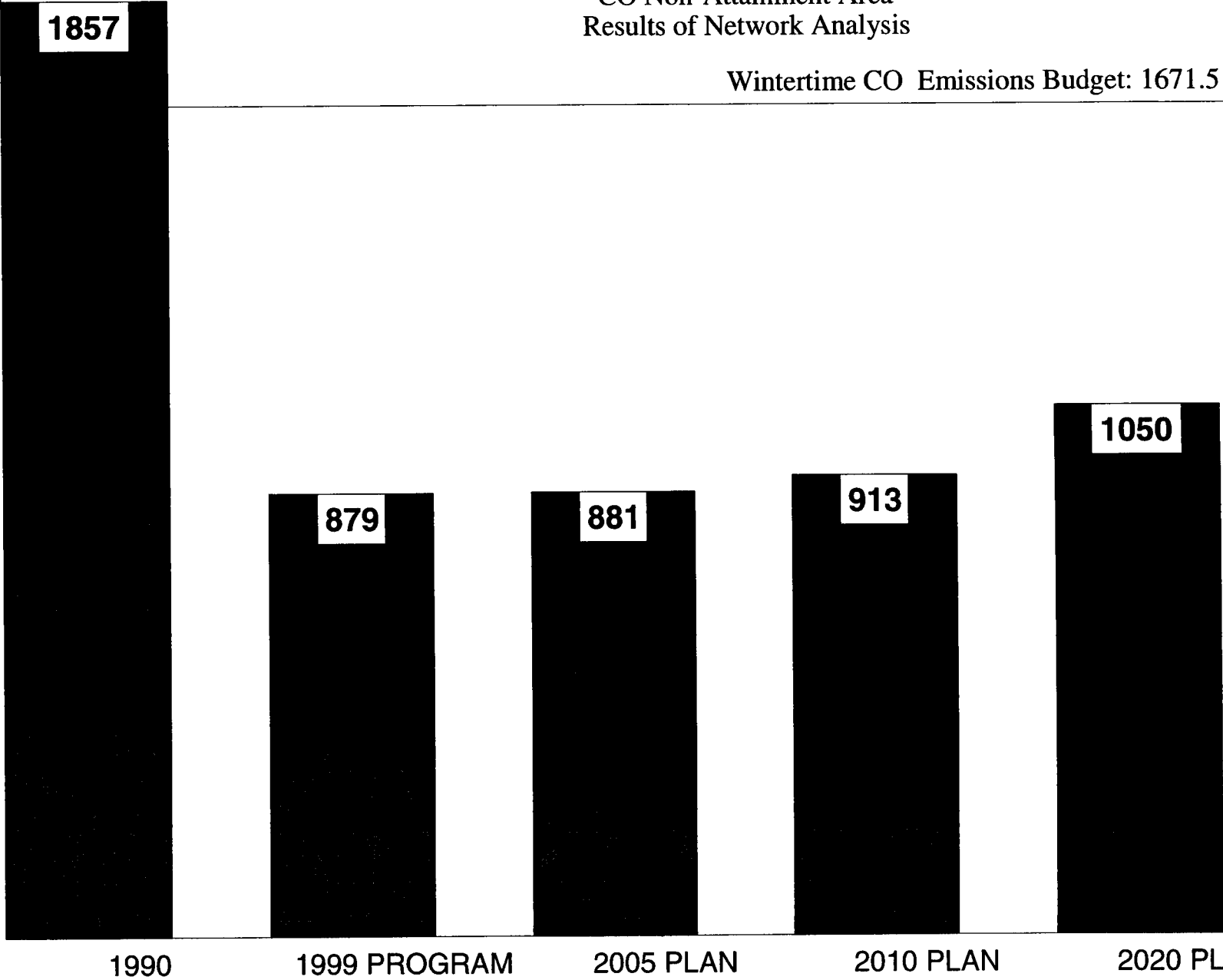


EXHIBIT 5A

TRANSPORTATION EMISSION REDUCTION MEASURES
Credited in Air Quality Conformity Analyses (calendar years 1993-1997)
(TRACKING SHEET)

CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				PROJECTED COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED								
				FULL	SCALED-BACK	UNDER-WAY	REMOVED			1999		2000		2010		2020		
										VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX	
1	X	1994-99 TIP	MDOT	Signal Systems - MD 3, MD 450 to Waugh Chapel	X				1994	1996								
2	X	1994-99 TIP	MDOT	Signal Systems - MD 450, 56th to MD 564			X		1994	1998	0.004	-0.002	0.003	-0.002	0.003	-0.002	0.003	-0.002
3	X	1994-99 TIP	MDOT	Signal Systems - MD 193, Rhode Island to Hanover			X		1994	1998	0.003	-0.002	0.002	-0.002	0.002	-0.002	0.002	-0.001
4	X	1994-99 TIP	MDOT	Signal Systems - MD 197, S. Laurel to Clubhouse			X		1994	1998	0.002	-0.001	0.002	-0.001	0.002	-0.001	-0.001	-0.001
5	X	1994-99 TIP	MDOT	Signal Systems - MD 5, 15th to Metzertott	X				1994	1997	0.002	-0.002	0.002	-0.001	0.002	-0.001	0.002	-0.001
6	X	1994-99 TIP	MDOT	Signal Systems - Marlow Heights to MD 637			X		1994	1998	0.001	-0.001	0.001	-0.001	0.001	-0.001	0.001	-0.001
7		1994-99 TIP	MDOT	Safety and Geometric Improvements				X	1994	n/a								
8		1994-99 TIP	MDOT	Park & Ride Lot - MD 355/ MD 187				X	1993	n/a	0.001	0.002	0.001	0.002	0.001	0.002	0.000	0.001
9		1994-99 TIP	MDOT	Park & Ride Lot - MD 210/ MD 373					1994	1999	0.001	0.003	0.001	0.003	0.001	0.003	0.001	0.002
11		1994-99 TIP	MDOT	Germantown Garage Parking Exp. (Add 1000 spaces)				X		n/a	0.015	0.041	0.013	0.040	0.011	0.034	0.012	0.034
12	X	1994-99 TIP	VDOT	Signal Systems			X			Summer, 1998	0.588	-0.235	0.513	-0.228	0.437	-0.197	0.445	-0.194
14	X	1994-99 TIP	VDOT	Ridesharing (Regional & PRTC)	X						0.078	0.177	0.068	0.170	0.064	0.157	0.059	0.143
15	X	1994-99 TIP	LOUD	VA 28 Corridor Park & Ride Lot (add 100 spaces)	X					1995	0.002	0.004	0.001	0.004	0.001	0.003	0.001	0.003
16	X	1994-99 TIP	PRTC	VRE Signalization			X			Fall, 1998	0.010	0.026	0.009	0.026	0.007	0.022	0.007	0.022
17	X	1994-99 TIP	PRTC	VRE Locomotive Purchase (2)	X					1995	0.023	0.062	0.020	0.060	0.017	0.052	0.018	0.051
18	X	1994-99 TIP	PRTC	PRTC Feeder Vehicle Purchase	X					1994	0.012	0.022	0.011	0.021	0.009	0.018	0.009	0.018
19		1994-99 TIP	PRTC	VRE Woodbridge Parking Expansion (add 400 spaces)							0.006	0.017	0.005	0.016	0.005	0.014	0.005	0.014
20	X	1994-99 TIP	ALEX	King St. Metrorail access improvements			X				*****	****	****	****	0.002	0.003	0.002	0.003
21	X	1994-99 TIP	WMATA	WMATA Bus Replacement	X						0.010	0.026	0.009	0.023	0.000	0.000	0.000	0.000
22		1995-00 TIP	MDOT	Park & Ride Lot - I-70 at Walsler Dr. (new, 900+ spaces)				X	1997	n/a	0.009	0.026	0.008	0.025	0.008	0.024	0.007	0.022
23		1995-00 TIP	MDOT	Park & Ride Lot - MD 117/ MD 118 (new, 75 spaces)				X	1996	n/a	0.001	0.002	0.000	0.001	0.000	0.001	0.000	0.001
24	X	1995-00 TIP	MDOT	Park & Ride Lot - I-270/ MD 80 (add 100 spaces)			X		1996	1999	0.001	0.002	0.001	0.002	0.001	0.002	0.001	0.002
25	X	1995-00 TIP	MDOT	Park & Ride Lot - Brunswick MARC (add 300 spaces)			X				0.012	0.036	0.011	0.035	0.010	0.033	0.009	0.030
26	X	1995-00 TIP	MDOT	Signal Systems - MD 202, 57th Ave. to Fire House Rd.	X				1995	1996								
27	X	1995-00 TIP	MDOT	Signal Systems - MD 4, Forestville Rd. to Shadyside Dr.			X		1995	1998								
28	X	1995-00 TIP	MDOT	Signal Systems - US 1, Ritz Way to Murkirk Rd.	X				1995	1997								
29	X	1995-00 TIP	MDOT	Signal Systems - MD 193, Hanover Pkwy to Prospect Hill Rd.	X				1995	1996								
30	X	1995-00 TIP	MDOT	Signal Systems - MD 212, Cherry Hill Rd. to Old Gunpdr. Rd.	X				1995	1996								
31	X	1995-00 TIP	MDOT	Signal Systems - MD 198, Van Dusen Rd. to US 1			X		1995	1998								
32		1995-00 TIP	MDOT	Signal Systems - MD 450, MD 197 to Race Track Rd.				X	1995	n/a								
33		1995-00 TIP	MDOT	Signal Systems - MD 450, MD 564 to Carter Ave.				X	1995	n/a								
34		1995-00 TIP	MDOT	Signal Systems - MD 450, US 1 Alt. to MD 202				X	1995	n/a								
35		1995-00 TIP	MDOT	Signal Systems - MD 458, MD 414 to Walker Mill Rd.				X	1995	n/a								
36	X	1995-00 TIP	MDOT	Signal Systems - MD 214, MD 193 to Campus Way	X				1996	1996								

SEE TOTAL BELOW FOR SIGNAL SYSTEMS

37		1995-00 TIP	MDOT	Signal Systems - MD 223, Steed Rd. to Dangerfield Rd.				X	1996	n/a								
38	X	1995-00 TIP	MDOT	Signal Systems - MD 85 Executive Way to MD 355	X				1996	1996								
39	X	1995-00 TIP	MDOT	Signal Systems - MD 355, I-70 ramps to Grove Rd.	X				1996	1996								
40	X	1995-00 TIP	MDOT	Signal Systems - US 301, Excaliber Rd. to Governor Bridge	X				1996	1996								
41	X	1995-00 TIP	MDOT	Signal Systems - US 301, MD 382 to Rosaryville Rd.	X				1996	1996								
42	X	1995-00 TIP	MDOT	Signal Systems - MD 650, Sheridan St. to Metzert Rd.	X				1996	1996								
43		1995-00 TIP	MDOT	Signal Systems - MD 410, MD 212, to Taylor Ave.				X	1996	n/a								
44		1995-00 TIP	MDOT	Signal Systems - MD 410, 62nd Ave. to Riverdale Rd.				X	1996	n/a								
45	X	1995-00 TIP	MDOT	Signal Systems - MD 202, Campus Way to Whitehouse Rd.	X				1996	1996								
46	X	1995-00 TIP	MDOT	Signal Systems - TOTAL CREDITED PROJECTS	X				see above	see above	0.026	-0.019	0.021	-0.015	0.020	-0.013	0.018	-0.010
47		1995-00 TIP	MDOT	Geometric Improvements				X	1995	n/a	0.002	0.001	0.002	0.001	0.002	0.001	0.002	0.001
48	X	1995-00 TIP	MDOT	MARC Replacement Coaches			X		1999		****	****	0.002	0.006	0.002	0.006	0.002	0.006
49	X	1995-00 TIP	MDOT	MARC Expansion Coaches			X		1999		****	****	0.019	0.060	0.017	0.056	0.015	0.051
50	X	1995-00 TIP	VDOT	Park & Ride Facilities - PRTC Public Transit Support - 1 year	X					1995	-	-	-	-	-	-	-	-
51	X	1995-00 TIP	VDOT	Alexandria Telcommuting Pilot Program	X						0.001	0.001	0.01	0.001	-	-	-	-
52	X	1995-00 TIP	VDOT	Fairfax Co. TDM program expansion - 1 year program	X						-	-	-	-	-	-	-	-
53	X	1995-00 TIP	VDOT	Alexandria Bus Access Improvements			X				0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
54	X	1995-00 TIP	VDOT	City of Fairfax Bus Shelters			X				0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.000
55	X	1995-00 TIP	VDOT	Lorton VRE Access	X					1995	0.007	0.018	0.005	0.014	0.005	0.013	0.004	0.012
56	X	1995-00 TIP	VDOT	Cherry Hill VRE Access			X				****	****	0.007	0.026	0.007	0.022	0.006	0.018
57	X	1995-00 TIP	DC	Right Turn on Red			X				****	****	0.090	0.065	0.000	0.000	0.000	0.000
58	X	1995-00 TIP	WMATA	Bus Replacement	X						0.026	0.071	0.023	0.063	0.048	0.158	0.043	0.151

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EXHIBIT 5B

TRANSPORTATION EMISSION REDUCTION MEASURES
Credited in Air Quality Conformity Analyses (calendar years 1993-1997)
TRACKING SHEET)

	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				PROJECTED COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED							
					FULL	SCALED-BACK	UNDER-WAY	REMOVED			1999		2000		2010		2020	
											VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX
59	X	1995-00 TIP	MGC	Shady Grove West Park and Ride			X		2010		****	****	****	****	0.000	0.010	0.000	0.010
60	X	1995-00 TIP	MGC	White Oak Park and Ride			X		2010		****	****	****	****	0.000	0.020	0.000	0.020
61	X	1995-00 TIP	MGC	Bicycle Facilities			X		FY99		****	****	0.003	0.002	0.003	0.002	0.003	0.002
62	X	1995-00 TIP	MGC	Pedestrian Facilities to Metrorail			X				0.005	0.009	0.005	0.008	0.004	0.007	0.004	0.007
63	X	1995-00 TIP	MDOT	MARC Replacement Coaches			X		1999		****	****	0.008	0.024	0.007	0.023	0.006	0.021
64	X	1995-00 TIP	MDOT	MARC Expansion Coaches			X		1999		****	****	0.070	0.225	0.064	0.208	0.058	0.191
65	X	1995-00 TIP	VDOT	VRE Park and Ride Expansion - 3800 spaces	X					1997	0.050	0.170	0.050	0.160	0.045	0.145	0.040	0.130
66	X	1995-00 TIP	VDOT	Commuter Lots - District Wide	X				varies	varies	0.010	0.026	0.009	0.028	0.012	0.038	0.015	0.048
67	X	1995-00 TIP	VDOT	I-66 and Stringfellow Rd. Park and Ride					2000		****	****	****	****	0.010	0.020	0.010	0.020
68	X	1995-00 TIP	VDOT	Lake Ridge Park and Ride	X					1996	0.000	0.020	0.000	0.010	0.000	0.010	0.000	0.010
69	X	1995-00 TIP	VDOT	Bicycle Trails and Facilities		X					****	****	****	****	0.020	0.016	0.019	0.017
70	X	1995-00 TIP	VDOT	Pedestrian Facilities to Metrorail					varies		****	****	****	****	0.001	0.002	0.001	0.002
71	X	1995-00 TIP	VDOT	I-66 HOV access at Monument Dr.	X					1997	0.010	0.020	0.010	0.020	0.010	0.020	0.010	0.020
72		1995-00 TIP	DC	Bicycle Facilities		X					0.028	0.021	0.023	0.019	0.024	0.020	0.025	0.021
73	X	1995-00 TIP	REGION	COG Regional Ridesharing Support	X					on-going	0.078	0.177	0.068	0.170	0.064	0.157	0.059	0.143
74	X	1995-00 TIP	REGION	—47 Integrated Ridesharing	X					on-going	0.068	0.160	0.060	0.150	0.051	0.130	0.052	0.120
75	X	1995-00 TIP	REGION	—92 Telecommuting Support	X					on-going	0.292	0.660	0.257	0.630	0.220	0.530	0.222	0.520
76		1996-01 TIP	MDOT	MD 5 / MD 373 Park and Ride				X	1999	n/a	0.003	0.010	0.003	0.009	0.002	0.008	0.002	0.008
77		1996-01 TIP	VDOT	Alexandria Landmark Transit Center							0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
78	X	1996-01 TIP	VDOT	Tysons Westpark Transit Center	X					1998	0.003	0.006	0.002	0.006	0.000	0.006	0.002	0.006
79	X	1996-01 TIP	VDOT	Fairfax County Bus Shelters		X				1998	0.001	0.002	0.001	0.003	0.002	0.003	0.002	0.003
80	X	1996-01 TIP	VDOT	Loudoun County Bus Shelters		X					0.001	0.002	0.001	0.002	0.001	0.004	0.001	0.004
81	X	1996-01 TIP	VDOT	Arlington County Metrocheck Program	X				1997	1997-1999	-	-	-	-	-	-	-	-
82	X	1996-01 TIP	VDOT	Old Dominion Drive Bike Trail			X				****	****	****	****	0.001	0.001	0.001	0.001
83	X	1996-01 TIP	WMATA	Bus Replacement	X						0.019	0.046	0.017	0.041	0.000	0.000	0.000	0.000
84		1996-01 TIP	MGC	Stamp Out Bad Bus Stops				X	1999	n/a	0.001	0.002	0.001	0.002	0.001	0.002	0.001	0.002
85	X	1996-01 TIP	VDOT	Fairfax County Bus Shelters (30)			X		FY2001		****	****	****	****	0.001	0.002	0.001	0.003
86	X	1996-01 TIP	VDOT	Tacketts Mill Park and Ride	X					1996	0.013	0.033	0.012	0.033	0.011	0.032	0.011	0.032
87	X	1996-01 TIP	VDOT	Reston Bus Replacement	X						0.003	0.015	0.003	0.015	-	-	-	-
88	X	1996-01 TIP	VDOT	Construct Left Turn Bays			X			varies	0.003	0.001	0.003	0.001	0.003	0.001	0.003	0.001
90	X	1996-01 TIP	REGION	M-47c Employer Outreach / Guaranteed Ride Home (\$10)	X					on-going	0.270	0.570	0.360	0.810	0.520	1.180	0.540	1.190
91	X	1996-01 TIP	REGION	M-70a Bicycle Parking			X		1999		****	****	****	****	0.010	0.010	0.010	0.010
92	X	STADIUM ANALYSIS		—92 Telecommuting Support	X						-	-	0.033	0.075	0.035	0.077	0.036	0.078

93	X	1997-02 TIP	PRTC	PRTC Omnlink Bus Service	X				1996	-	-	-	-	-	-	-	-
94	X	1997-02 TIP	MGC	Lake Forest Transit Center	X			1997	1996	0.001	0.004	0.001	0.004	0.001	0.003	0.001	0.003
95	X	1997-02 TIP	MCG	Germantown Transit Center			X	2004		-	-	****	****	0.005	0.019	0.005	0.018
96	X	1997-02 TIP	MGC	Tulagi Pl. Park and Ride	X			1997	1995	0.001	0.003	0.001	0.003	0.001	0.003	0.001	0.003
97	X	1997-02 TIP	MDOT	MD 5 Rel./MD 205 Park and Ride Construction	X			1999	1998	0.005	0.017	0.004	0.016	0.003	0.014	0.003	0.014
98	X	1997-02 TIP	MDOT	I-270 / MD 80 Park and Ride Expansion			X	1996	1999	0.003	0.012	0.002	0.012	0.002	0.011	0.002	0.010
99	X	1997-02 TIP	MDOT	Hagerstown Telework Center (Wash. MSA Benefits)	X			1997	1997	0.002	0.009	0.001	0.008	0.001	0.007	0.001	0.007
100	X	1997-02 TIP	PG	Anacostia Bicycle Trail	X			1999	1997	0.008	0.001	0.008	0.001	0.008	0.001	0.008	0.001
101	X	1997-02 TIP	MGC	Montgomery County Bus Replacement	X					0.007	0.020	0.006	0.020	-	-	-	-
102	X	1997-02 TIP	PG	Prince George's County Bus Replacement	X			1998	1998	0.003	0.011	0.003	0.011	-	-	-	-
103	X	1997-02 TIP	PG	Prince George's County Bus Service			X	1998	1998	0.005	0.012	0.004	0.010	0.003	0.009	0.003	0.009
104	X	1997-02 TIP	VDOT	I-66 Park and Ride at VA 234 / Portsmouth	X				1996	0.008	0.021	0.008	0.022	0.011	0.034	0.015	0.045
105	X	1997-02 TIP	VDOT	Arl. Co. Transit Ridership Develop. Initiative Program	X				on going	0.010	0.010	0.009	0.010	0.007	0.008	0.007	0.008
106	X	1997-02 TIP	VDOT	PRTC Employer Commuting Outreach Program	X				on going	0.008	0.013	0.005	0.001	0.002	0.000	0.002	0.000
107	X	1997-02 TIP	VDOT	PRTC Multimodal Strategic Marketing Implementation Plan	X				on going	0.001	0.001	0.000	0.001	0.000	0.001	0.000	0.001
108	X	1997-02 TIP	MDOT	—103 Taxicab Replacement in Maryland			X	1999		0.087	0.136	0.130	0.202	0.312	0.481	0.312	0.481
109	X	1997-02 TIP	REGION	M-70b Employer Outreach for Bicycles			X	1998		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
110	X	1997-02 TIP	VDOT	—77b Vanpool Incentive Programs in Virginia			X	1998		0.109	0.264	0.097	0.258	0.098	0.257	0.111	0.280
		1997-02	WMATA	Bus Replacements						****	****	****	****	0.000	0.000	0.000	0.000
111	X	1998-03 TIP	MGC	Montgomery County Bus Replacement	X					0.010	0.031	0.012	0.039	0.003	0.014	0.000	0.000
112	X	1998-03 TIP	PG	Prince George's County Bus Replacement	X			1998	1998	0.001	0.003	0.001	0.003	0.000	0.000	0.000	0.000
113	X	1998-03 TIP	FDC	Frederick County Bus Replacement	X					0.001	0.002	0.001	0.000	0.000	0.000	0.000	0.000
114	X	1998-03 TIP	FDC	Frederick County Shuttles	X					0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001

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EXHIBIT 5C

TRANSPORTATION EMISSION REDUCTION MEASURES
 Credited in Air Quality Conformity Analyses (calendar years 1993-1997)
 (TRACKING SHEET)

	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				PROJECTED COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED							
					FULL	SCALED-BACK	UNDER-WAY	REMOVED			1999		2000		2010		2020	
											VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX
115	X	1998-03 TIP	VDOT	PRTC Ridesharing	X				on-going	-	-	-	-	-	-	-	-	
116	X	1998-03 TIP	VDOT	Arlington County Four Mile Run Bike Trail			X		1999		-	-	0.001	0.001	0.001	0.001	0.001	
117	X	1998-03 TIP	VDOT	Northern Virginia Turn Bays			X		2000		****	****	****	****	0.001	0.001	0.002	
118	X	1998-03 TIP	VDOT	Fairfax City Bus Replacement			X		2000		****	****	****	****	0.000	0.000	0.000	
119	X	1998-03 TIP	VDOT	Alternative Fueled Vehicles			X		1999		****	****	0.001	0.001	0.001	0.001	0.001	
120		1998-03 TIP	VDOT	WMATA Bus Replacement							****	****	****	****	0.000	0.000	0.000	
PROGRAM SUBTOTAL (implemented projects ONLY)										1.901	2.654	2.090	3.356	2.214	3.851	2.228	3.794	

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EXHIBIT 5D

TRANSPORTATION EMISSION REDUCTION MEASURES
Credited in Air Quality Conformity Analyses (calendar years 1993-1997)
(TRACKING SHEET)
(CLRP Only Projects)

	CREDIT TAKEN	TIP CREDITED	AGENCY	PROJECT	IMPLEMENTATION STATUS				PROJECTED COMPLETION DATE	ACTUAL COMPLETION DATE	TONS/DAY REDUCTION CREDITED							
					FULL	SCALED-BACK	UNDER-WAY	REMOVED			1999		2000		2010		2020	
											VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX
121	X	1995-00 TIP	REGION	M-24 Speed Limit Adherence							-	-	-	-	0.200	1.030	0.280	1.390
122		1996-01 TIP	MGC	Rock Spring Park Pedestrian Amenities				X			-	-	-	-	0.001	0.004	0.001	0.004
123	X	1996-01 TIP	MGC	Olney Transit Center Park and Ride							-	-	-	-	0.002	0.008	0.002	0.008
124	X	1996-01 TIP	MGC	Damascus Park and Ride							-	-	-	-	0.001	0.004	0.001	0.004
125	X	1996-01 TIP	DC	M-103 Taxicab Replacement							-	-	-	-	-	-	0.349	0.600
126	X	STADIUM ANALYSIS		Taxicab Replacement							-	-	-	-	-	-	0.156	0.240
127	X	1997-02 TIP	MDOT	Shady Grove West Transit Center Park and Ride							-	-	-	-	0.000	0.010	0.000	0.010
128	X	1997-02 TIP	MGC	Olney Transit Center Park and Ride							-	-	-	-	-	-	0.002	0.008
129	X	1997-02 TIP	MGC	White Oak Park and Ride							-	-	-	-	0.000	0.020	0.000	0.020
130	X	1997-02 TIP	MGC	Damascus Park and Ride							-	-	-	-	-	-	0.001	0.003
131	X	1997-02 TIP	MGC	Four Corners Transit Center							-	-	-	-	0.000	0.001	0.000	0.001
132		1997-02 TIP	MGC	Burtonsville Transit Center				X			-	-	-	-				
133	X	1997-02 TIP	MGC	Silver Spring Transit Access							-	-	-	-		0.001		0.002
134	X	1997-02 TIP	MGC	Shady Grove Parking Construction							-	-	-	-	0.005	0.019	0.005	0.019
135	X	97 & 98 TIP	REGION	M-101a Mass Marketing Campaign (Consumer)							-	-	-	-	0.320	0.686	0.372	0.782
PLAN TOTAL											-	-	-	-	0.528	1.779	1.168	3.087
GRAND TOTAL (program implemented + plan)											1.901	2.654	2.090	3.356	2.742	6.630	3.396	6.8811

DEFINITIONS:	
CREDIT TAKEN (X means emissions reduction credits taken):	
TIP - Emissions credits are taken for projects being implemented, according to the progress reporting schedules provided by the implementing agencies (contained in Appendix L). No credit has been taken for projects in which only some components of the measure have been implemented. (The status of these projects will be reassessed next year).	
CLRP - Credit is taken for each of these elements of the CLRP, according to the schedule provided by the implementing agency.	
IMPLEMENTATION STATUS:	
FULL = project is completed as planned at the time of analysis.	
SCALED BACK = project is completed, but at a different level than assumed at the time of analysis (i.e., purchased 50 buses instead of 100)	
UNDERWAY = project is not complete, but is close enough that credit may be taken (i.e., under construction, NOT just out for bid)	
REMOVED = project no longer expected to be implemented or constructed	

	COMPLETION DATE:
	PROJECTED = project completion date originally expected (i.e., at time of emissions analysis)
	ACTUAL = actual year project was open for use, or expected to be open for use if under construction
	**** Reflects instances where emissions reductions previously credited are no longer appropriate to the indicated forecast year, due to schedule slippage.

EXHIBIT 6
Mobile Source Emissions - Summary Analysis

FY 99-2004 TIP/CLRP Conformity Analysis

	1999		2005		2010		2020	
	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
Network Analysis	123.353	205.268	102.300	193.507	104.919	194.846	120.339	212.576
FY 99 CMAQ Projects (1)	-0.018	-0.005	-0.021	-0.036	-0.019	-0.040	-0.027	-0.043
FY 99 NON-CMAQ Projects (2)	-0.006	-0.011	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
TERM Credits (3)	-1.901	-2.654	-2.416	-4.493	-2.742	-5.630	-3.396	-6.881
SIP Credits								
Phase II RFG (4)	N/A	N/A	N/A	N/A	N/A	-8.700	N/A	-10.300
Additional VA I/M Benefits	N/A	-5.500	N/A	-5.500	N/A	-5.500	N/A	-5.500
Heavy Duty Engine Rule (5)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SIP TCMS	+0.200	+0.400	+0.200	+0.400	+0.200	+0.400	+0.200	+ 0.400
NET EMISSIONS	121.63	197.50	100.06	183.87	102.36	175.38	117.12	190.25

NOTE: VOC Emissions Budget: 123.3 Tons/Day
NOx Emissions Budget: 199.2 Tons/Day

- (1) Exhibit 21 Data
- (2) Exhibit 22 Data
- (3) Exhibit 24 Data
- (4) Phase I Attainment Plan (Reference 12)
- (5) Reflected within emissions factors for 2010 and 2020

J-12




Local governments working together for a better metropolitan region

May 27, 1998

*District of Columbia
Bowie
College Park
Frederick
Frederick County
Gaithersburg
Greenbelt
Montgomery County
Prince George's County
Rockville
Takoma Park
Alexandria
Arlington County
Fairfax
Fairfax County
Falls Church
Loudoun County
Prince William County*

MEMORANDUM

To: TPB Technical Committee

From: Daivamani Sivasailam
Principal Transportation Engineer 

Subject: Report on the 5/26/98 Travel Management Subcommittee meeting, including recommended Transportation Emission Reduction Measures (TERMs) for the FY 99-04 TIP&CLRP conformity analysis

The Travel Management Subcommittee met on May 26, 1998 and the major item of discussion was developing the "shortlist of TERMs" for the FY 99-04 TIP & CLRP. Staff presented a draft document titled, "Analysis of Potential Transportation Emission Reduction Measures (TERMs) for the FY 99-04 Transportation Improvement Program (TIP) and Updated Constrained Long Range Plan (CLRP)". This document contains detailed information on the TERMs analyzed from the list of TERMs under consideration as VOC and/or NOx mitigation measures for conformity of the FY 99-04 TIP&CLRP.

During its review of the TERMs, the subcommittee discussed the emission factors used for the TERM M-98 Alternative Fueled Vehicles (CNG vehicles); the NOx emissions factors which were greater than 0.2 grams/mile were considered by some members to be high. Staff responded by indicating that the factors used in the analysis were obtained from a guidance document for estimating emissions credit for natural gas vehicles. The subcommittee concurred with the analysis used for TERM M-115 Telecourses at Local Colleges and Universities, which will be moved to the list of candidate TERMs. The subcommittee asked staff to refine the assumptions used in the analysis of TERM M-124 Tourist Outreach Program.

Using the quantitative and qualitative criteria initially developed last year, the subcommittee developed a short list of TERMs for the TPB Technical Committee's consideration. From this short list of TERMs the subcommittee recommended a single TERM as the preferred measure for adoption if there is a need for VOC or NOx mitigation during any of the analysis years. The subcommittee also discussed including TERM M-102 Selected Bicycle Routes in the short list of TERMs. However, M-102 was not included since a number of projects in Virginia are being

funded through other sources and some of the implementing agencies indicated problems associated with completing bicycle trail projects on time due to reasons beyond their control.

Depending on the mitigation needs estimated for any of the analysis years, the implementation year of the recommended TERM could be adjusted to produce sufficient emission reduction. If needed to demonstrate conformity, the subcommittee's recommended measure and the short list of TERMS (not prioritized) are listed below.

Recommended TERM for the FY 99-04 TIP&CLRP

M-101 a: Mass Marketing Campaign (consumer)

Short List of TERMS for the FY 99-04 TIP&CLRP

- M-123: Employer Outreach Service For Public Sector Agencies
- M-95: Additional Park and Ride Lot Spaces
- M-110: Transit Stores in Maryland
- M-117: Transit Stores in Virginia
- M-118: Expand Metrorail Parking
- M-113: Kiosks in Maryland
- M-14a: Metrobus Fare Buydown in Maryland

The attached tables 1 through 6 provide detailed information on: emissions reduction, qualitative criteria, cost, vehicle trips and vehicle miles of travel reduction, and implementation schedule for the recommended, short list and other list of candidate TERMS.

Attachments

TABLE 1
SUMMARY OF TERMS FOR 99-04 TIP & CLRP
- VOC Emissions Reductions -

							1999-2004 TOTAL TIP COST	COST EFFECT. /2 2005	DC/MD/VA PERCENT SHARE
		June 1999	June 2005	June 2010	June 2020	Time for Benefits			
VOC Emissions Reduction REQUIREMENTS / 1		N/A	N/A	N/A	N/A				
RECOMMENDED TERM									
M-101a	Mass Marketing Campaign (Consumer)	0.0000	0.3288	0.3275	0.3811	2 years	\$4,610,000	\$9,300	10/45/45
SHORT LIST OF CANDIDATE TERMS									
M-123	Employer Outreach Service For Public Sector Agencies	0.0000	0.0840	0.0846	0.0986	1 years	\$2,880,000	\$22,900	10/45/45
M-95	Additional Park-and-Ride Lot Spaces	0.0000	0.0055	0.0055	0.0066	3 years	\$2,875,000	\$50,600	**
M-110	Transit Stores in Maryland	0.0000	0.0308	0.0678	0.1040	2 years	\$1,796,000	\$53,400	0/100/0
M-117	Transit Stores in Virginia/4	0.0000	0.0219	0.0290	0.0357	2 years	\$753,500	\$98,700	0/0/100
M-118	Expand Metrorail Parking /4	0.0000	0.0000	0.0104	0.0106	3 years	\$4,500,000	\$148,400	**
M-113	Kiosks in Maryland	0.0000	0.0082	0.0116	0.0142	2 years	\$928,000	\$111,600	0/100/0
M-14a	Metrobus Fare Buydown (MD)	0.0000	0.0050	0.0051	0.0059	0.5 year	\$1,252,800	\$167,000	0/100/0
LIST OF OTHER TERMS									
M-122	GRH for Southern Maryland (St. Mary's County)	0.0010	0.0055	0.0070	0.0078	1 years	\$333,100	\$40,400	0/100/0
M-70c	Bicycle Parking Canopies	0.0000	0.0008	0.0008	0.0009	1 year	\$86,500	\$28,800	33/33/33
M-115	Telecourses at Local Colleges and Universities	0.0000	0.0154	0.0155	0.0180	2.5 years	\$1,200,000	\$52,000	33/33/33
M-102	Selected Bicycle Routes	0.0000	0.0204	0.0206	0.0236	3 years	\$5,202,000	\$28,800	0/65/35
M-14	Metrobus Fare Buydown (VA) /3	0.0000	0.0285	0.0287	0.0335	0.5 years	\$4,980,000	\$116,500	0/0/100
M-112	Proximity Commuting	0.0000	0.0078	0.0078	0.0092	1 year	\$360,000	\$184,600	10/45/45
M-98	Alternative Fueled Vehicles (50)	0.0000	0.0129	0.0102	0.0000	1 year	\$1,550,000	\$48,000	10/45/45
M-119	2 Electric Shuttle Buses in Tysons Corner	0.0000	0.0030	0.0031	0.0036	2 year	\$1,265,700	\$281,300	0/0/100
M-78	Increased Frequency on Selected Bus Routes	0.0000	0.0312	0.0314	0.0364	2 years	\$11,592,450	\$247,700	**
M-76	TMOs in Maryland	0.0000	0.0032	0.0072	0.0133	3 years	\$2,221,000	\$433,700	0/100/0
M-99	Bus Replacement (50)	0.0000	0.0387	0.0353	0.0000	3 years	\$90,000,000	\$425,000	**
M-93	Improve Pedestrian Facilities Near Rail Stations	0.0000	0.0009	0.0027	0.0049	3 years	\$1,650,000	\$488,900	0/50/50

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- ** Funding shares of each jurisdiction is to be determined during implementation
- /1 If any; to be estimated from the mobile emissions for each year vs. the mobile budget.
- /2 Dollars per ton.
- /3 This program was adopted as a TIP amendment in FY96 and cannot be adopted as an emissions reduction measure until I-66 reverts to HOV-3.
- /4 The cost effectiveness is calculated for 2010.

Notes: **The mobile source emissions budget for VOC is 123.3 T/D**
M-76, M-110, M-113, & M-117 are TERMS with multiple elements. For ease of reference the Cost Effectiveness reflects calculations for single elements.

TABLE 2
SUMMARY OF TERMS FOR 99-04 TIP & CLRP
- NOx Emissions Reductions -

							1999-2004		
		June 1999	June 2005	June 2010	June 2020	Time for	TOTAL	COST	DC/MD/VA
NOx Emissions Reduction Requirements / 1		N/A	N/A	N/A	N/A	Benefits	TIP	EFFECT. /2	PERCENT
							COST	2005	SHARE
RECOMMENDED TERM									
M-101a	Mass Marketing Campaign (Consumer)	0.0000	0.7014	0.7001	0.7980	2 years	\$4,610,000	\$4,400	10/45/45
SHORT LIST OF CANDIDATE TERMS									
M-123	Employer Outreach Service For Public Sector Agencies	0.0000	0.1822	0.1848	0.2106	1 years	\$2,880,000	\$10,500	10/45/45
M-95	Additional Park-and-Ride Lot Spaces	0.0000	0.0183	0.0185	0.0211	3 years	\$2,875,000	\$15,200	**
M-110	Transit Stores in Maryland	0.0000	0.0831	0.1846	0.2747	2 years	\$1,796,000	\$19,800	0/100/0
M-117	Transit Stores in Virginia	0.0000	0.0590	0.0789	0.0943	2 years	\$753,500	\$36,600	0/0/100
M-118	Expand Metrorail Parking /4	0.0000	0.0000	0.0371	0.0365	3 years	\$4,500,000	\$41,600	**
M-113	Kiosks in Maryland	0.0000	0.0191	0.0273	0.0327	2 years	\$928,000	\$47,100	0/100/0
M-14a	Metrobus Fare Buydown (MD)	0.0000	0.0117	0.0119	0.0135	0.5 year	\$1,252,800	\$71,400	0/100/0
LIST OF OTHER TERMS									
M-122	GRH for Southern Maryland (St. Mary's County)	0.0021	0.0133	0.0170	0.0185	1 year	\$333,100	\$16,700	0/100/0
M-70c	Bicycle Parking Canopies	0.0000	0.0011	0.0011	0.0012	1 year	\$86,500	\$21,000	33/33/33
M-115	Telecourses at Local Colleges and Universities	0.0000	0.0340	0.0345	0.0393	2.5 years	\$1,200,000	\$23,500	33/33/33
M-102	Selected Bicycle Routes	0.0000	0.0249	0.0253	0.0288	3 years	\$5,202,000	\$23,600	0/65/35
M-14	Metrobus Fare Buydown (VA) /3	0.0000	0.0643	0.0652	0.0743	0.5 years	\$4,980,000	\$51,600	0/0/100
M-112	Proximity Commuting	0.0000	0.0235	0.0238	0.0272	1 year	\$360,000	\$61,300	10/45/45
M-98	Alternative Fueled Vehicles (50)	0.0000	0.0051	0.0041	0.0000	1 year	\$1,550,000	\$121,600	10/45/45
M-119	2 Electric Shuttle Buses in Tysons Corner	0.0000	0.0065	0.0066	0.0075	2 year	\$1,265,700	\$129,800	0/0/100
M-78	Increased Frequency on Selected Bus Routes	0.0000	0.0593	0.0601	0.0685	2 years	\$11,592,450	\$130,300	**
M-76	TMOs in Maryland	0.0000	0.0075	0.0168	0.0304	3 years	\$2,221,0 00	\$180,700	0/100/0
M-99	Bus Replacement (50)	0.0000	0.0734	0.0669	0.0000	3 years	\$90,000,000	\$225,000	**

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M-93	Improve Pedestrian Facilities Near Rail Stations	0.0000	0.0016	0.0048	0.0086	3 years	\$1,650,000	\$275,000	0/50/50
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** Funding shares of each jurisdiction is to be determined during implementation

/1 If any; to be estimated from the mobile emissions for each year vs. the mobile budget.

/2 Dollars per ton.

/3 This program was adopted as a TIP amendment in FY96 and cannot be adopted as an emissions reduction measure until I-66 reverts to HOV-3.

/4 The cost effectiveness is calculated for 2010.

Notes: **The mobile source emissions budget for NOx is 199.2 T/D**

M-76, M-110, M-113, & M-117 are TERMS with multiple elements. For ease of reference the Cost Effectiveness reflects calculations for single elements.

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TABLE 3
SUMMARY OF TERMS FOR 99-04 TIP & CLRP
- QUALITATIVE CRITERIA - (Maryland & Virginia)

		QUALITATIVE CRITERIA (noted by high, med., or low)									
		Impacts on Congestion		Enhance Existing Programs		Ease of Implementation		Likelihood of Adoption		Supports Multi-Modal	
		MD	VA	MD	VA	MD	VA	MD	VA	MD	VA
RECOMMENDED TERM											
M-101a	Mass Marketing Campaign (Consumer)	HIGH		HIGH		HIGH		MED-HIGH		HIGH	
SHORT LIST OF CANDIDATE TERMS											
M-123	Employer Outreach Service For Public Sector Agencies	HIGH		HIGH		HIGH	LOW-MED	MED-HIGH	HIGH	HIGH	
M-95	Additional Park-and-Ride Lot Spaces	MED		HIGH		MED		HIGH/MED		HIGH	MED/HIGH
M-110	Transit Stores in Maryland	HIGH		HIGH		HIGH		MED-HIGH		HIGH	
M-117	Transit Stores in Virginia	MED		HIGH		MED		HIGH		HIGH	
M-118	Expand Metrorail Parking	HIGH		HIGH		MED		MED	HIGH	HIGH	
M-113	Kiosks in Maryland	LOW		MED		MED		MED		LOW	MED
M-14a	Metrobus Fare Buydown (MD)	Pending results of evaluation of pilot program.									
LIST OF OTHER TERMS											
M-122	GRH for Southern Maryland (St. Mary's County)	LOW	MED	MED	HIGH	HIGH		HIGH	MED	MED	
M-70c	Bicycle Parking Canopies	LOW		LOW		HIGH		MED		MED	
M-115	Telecourses at Local Colleges and Universities	MED		MED		MED		MED		LOW	
M-102	Selected Bicycle Routes	LOW	MED	MED		MED		LOW	MED	LOW	MED
M-14	Metrobus Fare Buydown (VA)	MED		MED		HIGH		MED		MED	
M-112	Proximity Commuting	LOW		HIGH		MED		MED		LOW	
M-98	Alternative Fueled Vehicles (50)	LOW		MED	LOW	MED		LOW		LOW	
M-119	2 Electric Shuttle Buses in Tysons Corner	MED		HIGH		LOW		LOW		MED	
M-78	Increased Frequency on Selected Bus Routes	MED		MED		MED		LOW		HIGH	MED
M-76	TMOs in Maryland	LOW-MED		HIGH		LOW		MED		HIGH	MED
M-99	Bus Replacement (50)	LOW		MED		HIGH		LOW		MED	

M-93	Improve Pedestrian Facilities Near Rail Stations	LOW	MED	LOW	LOW-MED	LOW	MED
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LOW-MED = Value is between the two rankings

J-17a

TABLE 4
SUMMARY OF TERMS FOR 99-04 TIP & CLRP
- COST ANALYSIS -

		COST ANALYSIS - 99-04 TIP						TOTAL TIP COST	DAYS PER YEAR	LIFESPAN (YEARS)
		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004			
RECOMMENDED TERM										
M-101a	Mass Marketing Campaign (Consumer)	\$1,275,000	\$1,020,000	\$815,000	\$600,000	\$500,000	\$400,000	\$4,610,000	250	1
SHORT LIST OF CANDIDATE TERMS										
M-123	Employer Outreach Service For Public Sector Agencies	\$480,000	\$480,000	\$480,000	\$480,000	\$480,000	\$480,000	\$2,880,000	250	1
M-95	Additional Park-and-Ride Lot Spaces	\$575,000	\$575,000	\$575,000	\$575,000	\$575,000	\$0	\$2,875,000	250	30
M-110	Transit Stores in Maryland	\$58,500	\$61,500	\$204,500	\$347,500	\$490,500	\$633,500	\$1,796,000	295	1
M-117	Transit Stores in Virginia			\$173,500	\$176,500	\$204,500	\$199,000	\$753,500	250	1
M-118	Expand Metrorail Parking						\$4,500,000	\$4,500,000	250	35
M-113	Kiosks in Maryland	\$118,000	\$126,000	\$144,000	\$162,000	\$180,000	\$198,000	\$928,000	250	1
M-14a	Metrobus Fare Buydown (MD)	\$208,800	\$208,800	\$208,800	\$208,800	\$208,800	\$208,800	\$1,252,800	250	1
LIST OF OTHER CANDIDATE TERMS										
M-122	GRH for Southern Maryland (St. Mary's County)	\$36,600	\$44,100	\$51,700	\$59,300	\$66,900	\$74,500	\$333,100	250	1
M-70c	Bicycle Parking Canopies	\$85,500	\$0	\$0	\$0	\$1,000	\$0	\$86,500	250	15
M-115	Telecourses at Local Colleges and Universities	\$300,000	\$180,000	\$180,000	\$180,000	\$180,000	\$180,000	\$1,200,000	250	1
M-102	Selected Bicycle Routes	\$5,202,000	\$0	\$0	\$0	\$0	\$0	\$5,202,000	295	30
M-14	Metrobus Fare Buydown (VA)	\$830,000	\$830,000	\$830,000	\$830,000	\$830,000	\$830,000	\$4,980,000	250	1
M-112	Proximity Commuting	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$360,000	250	1
M-98	Alternative Fueled Vehicles (50)	\$300,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$1,550,000	250	10
M-119	2 Electric Shuttle Buses in Tysons Corner	\$210,950	\$210,950	\$210,950	\$210,950	\$210,950	\$210,950	\$1,265,700	250	1
M-78	Increased Frequency on Selected Bus Routes	\$1,932,075	\$1,932,075	\$1,932,075	\$1,932,075	\$1,932,075	\$1,932,075	\$11,592,450	250	1
M-76	TMOs in Maryland	\$133,500	\$211,500	\$314,500	\$417,500	\$520,500	\$623,500	\$2,221,000	250	1
M-99	Bus Replacement (50)	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$15,000,000	\$90,000,000	304	12
M-93	Improve Pedestrian Facilities Near Rail Stations	\$660,000	\$990,000	\$0	\$0	\$0	\$0	\$1,650,000	250	15

NOTE: The years above reflect the federal fiscal year (i.e., FY 1999 refers to the period of October 1, 1998 to September 30, 1999)

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TABLE 5
SUMMARY OF TERMS FOR 99-04 TIP & CLRP
- REDUCTION IN VEHICLE TRIPS AND VEHICLE MILES OF TRAVEL -

		1999		2005		2010		2020	
		VT	VMT			VT	VMT	VT	VMT
RECOMMENDED TERM									
M-101a	Mass Marketing Campaign (Consumer)	0	0	34,686	510,673	37,673	548,166	42,959	635,703
SHORT LIST OF CANDIDATE TERMS									
M-123	Employer Outreach Service For Public Sector Agenc	0	0	8,502	133,200	9,254	145,424	10,552	168,647
M-95	Additional Park-and-Ride Lot Spaces	0	0	(190)	14,500	(206)	15,831	(235)	18,359
M-110	Transit Stores in Maryland	0	0	1,156	63,737	2,759	152,469	4,119	230,730
M-117	Transit Stores in Virginia	0	0	841	45192	1207	65111	1435	79194
M-118	Expand Metrorail Parking/4	0	0	0	0	-698	32047	-698	32047
M-113	Kiosks in Maryland	0	0	676	14,227	1,031	21,881	1,226	26,614
M-14a	Metrobus Fare Buydown (MD)	0	0	415	8,691	451	9,488	514	11,003
LIST OF OTHER CANDIDATE TERMS									
M-122	GRH for Southern Maryland (St. Mary's County)	57	1418	399	9926	550	13,754	605	15,134
M-70c	Bicycle Parking Canopies	0	0	153	673	166	734	189	852
M-115	Telecourses at Local Colleges and Universities	0	0	1,471	25,000	1,598	27,294	1,822	31,652
M-102	Selected Bicycle Routes	0	0	4,358	14,735	4,734	16,087	5,398	18,656
M-14	Metrobus Fare Buydown (VA) /3	0	0	2,591	47,422	2,815	51,774	3,209	60,042
M-112	Proximity Commuting	0	0	0	18,377	0	20,064	0	23,268
M-98	Alternative Fueled Vehicles (50)	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
M-119	2 Electric Shuttle Buses in Tysons Corner	0	0	320	4,746	348	5,181	396	6,008
M-78	Increased Frequency on Selected Bus Routes	0	0	4,156	41,820	4,514	45,658	5,147	52,950
M-76	TMOs in Maryland	0	0	262	5,554	633	13,470	1,146	24,751
M-99	Bus Replacement (50)	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
M-93	Improve Pedestrian Facilities Near Rail Stations	0	0	136	1,083	434	3,537	777	6,470

N.A. - Not Applicable

Table 6

Funding/Implementation Schedule for Proposed FY 99-04 TIP & CLRP TERMS
Assumes FY 99 funds to become available in July, 1999 and the earliest implementation of each measure

		TIME NEEDED TO IMPLEMENT	TIME NEEDED TO ACHIEVE FULL BENEFIT (AFTER IMPLEMENTATION)	TOTAL TIME (TIME NEEDED AFTER FUNDING AVAILABILITY)	FIRST YEAR OF BENEFITS (summer)
RECOMMEND TERM					
M-101a	Mass Marketing Campaign (Consumer)	1 year(s)	1 year(s)	2 year(s)	2001
SHORT LIST OF CANDIDATE TERMS					
M-123	Employer Outreach Service For Public Sector Agencies	½ year(s)	½ year(s)	1 year(s)	2000
M-95	Additional Park-and-Ride Lot Spaces (400)	2 year(s)	1 year(s)	3 year(s)	2001
M-110	Transit Stores in Maryland (10)	1 year(s)	1 year(s)	2 year(s)	2002
M-117	Transit Stores in Virginia	1 year(s)	1 year(s)	2 year(s)	2003
M-118	Expand Metrorail Parking ¹	1 year(s)	2 year(s)	3 year(s)	2006
M-113	Kiosks in Maryland (6)	1 year(s)	1 year(s)	2 year(s)	2001
M-14a	Metrobus Fare Buydown (MD)	0 year(s)	½ year(s)	½ year(s)	2000
LIST OF OTHER TERMS					
M-122	GRH for Southern Maryland (ST. Mary's County) ²	½ year(s)	½ year(s)	1 year(s)	1999
M-70c	Bicycle Parking Canopies (12)	½ year(s)	½ year(s)	1 year(s)	2000
M-115	Telecourses at Local Colleges and Universities	1 ½ year(s)	1 year(s)	2-1/2 year(s)	2002
M-102	Selected Bicycle Routes	2 year(s)	1 year(s)	3 year(s)	2003
M-14	Metrobus Fare Buydown (VA)	0 year(s)	1/2year(s)	½ year(s)	2000
M-112	Proximate Commuting	1 year(s)	0 year(s)	1 year(s)	2000
M-98	Alternative Fueled Vehicles (50)	1 year(s)	0 year(s)	1 year(s)	2000
M-119	Two Electric Shuttle Buses in Tyson's Corner ¹	1 year(s)	1 year(s)	2 year(s)	2000
M-78	Increased Frequency on Selected Bus Routes	1 year(s)	1 year(s)	2 year(s)	2001
M-76	TMOs in Maryland (12)	2 year(s)	1 year(s)	3 year(s)	2002
M-99	Bus Replacement (50)	2 year(s)	1 year(s)	3 year(s)	2002
M-93	Improve Pedestrian Facilities Near Rail Stations	2 year(s)	1 year(s)	3 year(s)	2002

¹Delayed funding availability

²Assumes funding availability by July 1998

J-20

APPENDIX K

Interagency and Public Involvement Process



Local governments working together for a better metropolitan region

May 8, 1998

NOTE: Illustration of typical
monthly consultation letter

District of Columbia
Bowie
College Park
Frederick
Frederick County
Gaithersburg
Greenbelt
Montgomery County
Prince George's County
Rockville
Takoma Park
Alexandria
Arlington County
Fairfax
Fairfax County
Falls Church
Loudoun County
Prince William County

TO: Transportation Consultation Agencies
(United States Environmental Protection Agency, Federal Highway Administration, Federal Transit Administration, Metropolitan Washington Air Quality Committee, Air Quality Public Advisory Committee, and Transportation Planning Board Citizens Advisory Committee)

FROM: Ronald F. Kirby *RFK*
Director, Department of
Transportation Planning

SUBJECT: Consultation with respect to TPB plans and programs

Enclosure:

- 1) Draft agenda for May 20, 1998 TPB meeting

This memo transmits the agenda for the May TPB meeting, which is relevant to TPB consultation with respect to air quality conformity. Materials associated with each agenda item may be requested from my Administrative Aide, Donna Duncan, at 202-962-3311. As always, you are welcome to attend the TPB meetings (and/or any meetings of the TPB committees and their subcommittees).

The May TPB agenda items relevant for transportation conformity and consultation are identified below.

Item 6 is an action item in which the Board will be asked to approve proposed changes to the air quality conformity consultation procedures. The Board approved revised consultation procedures at their March 18 meeting, however, subsequent to that approval, the Environmental Protection Agency submitted comments. The EPA's comments resulted in the proposed changes. The Board was briefed on these proposed changes at their April meeting.

Item 7 is an information item in which the Board will be given a status report on the air quality conformity assessment of the FY99-04 Transportation Improvement Program (TIP) and Constrained Long Range Plan (CLRP) amendments, and on the development of Transportation Emission Reduction Measures (TERMS).

Item 10 is an information item in which the Board will be briefed on the Round 6a population and employment forecasts approved by the COG Board on April 8. These forecasts will be used in the air quality conformity assessment of the FY99-04 TIP and CLRP amendments. The Board will also be briefed on special forecast considerations in the US 301 corridor.

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Local governments working together for a better metropolitan region

TRANSPORTATION PLANNING BOARD (TPB) MEETING

- District of Columbia
- Bowie
- College Park
- Frederick
- Frederick County
- Gaithersburg
- Greenbelt
- Montgomery County
- Prince George's County
- Rockville
- Takoma Park
- Alexandria
- Arlington County
- Fairfax
- Fairfax County
- Falls Church
- Loudoun County
- Prince William County

Date: May 20, 1998
 Time: 12 noon
 Place: COG Board Room

Special TPB Work Session: The TPB will hold a special work session from 10 to 11:30 am prior to the Board meeting to discuss progress to date on a study to examine implementing new transportation revenue sources in the metropolitan Washington region. Information developed will be provided to a workshop session at the *National Capital Region Congestion and Mobility Summit* scheduled for May 28, 1998. Board members, Technical Committee members, and interested citizens are invited to attend and participate in the TPB work session.

A-G-E-N-D-A
(BEGINS PROMPTLY AT NOON)

- 20 Min. 1. **Public Comment on TPB Procedures and Activities** Chairman Seefeldt

 Interested members of the public will be given the opportunity to make brief comments on transportation issues under consideration by the TPB. Each speaker will be allowed three minutes to present his or her views. Board members will have an opportunity to ask questions of the speakers, and to engage in limited discussion. Speakers are asked to bring written copies of their remarks (50 copies) for distribution at the meeting.
- 2. **Approval of Minutes of April 15, 1998 Meeting** Chairman Seefeldt
- 05 Min. 3. **Report of Technical Committee** Mr. Bigdeli
 Chair, Technical Committee
- 05 Min. 4. **Report of Citizen Advisory Committee** Mr. Wenk
 Chair, Citizen Advisory Committee
- 05 Min. 5. **Report of Program Committee** Mr. Kirby
 Director, COG Department of Transportation Planning

**PUBLIC COMMENTS
ON THE SUBMISSION FOR THE
REGION'S FY99-04
TRANSPORTATION IMPROVEMENT
PROGRAM AND AMENDMENTS TO
THE CONSTRAINED
LONG RANGE PLAN**

The proposed submissions for the FY99-04 Transportation Improvement Program (TIP) and amendments to the adopted Constrained Long Range Plan (CLRP) will be made available by the National Capital Region Transportation Planning Board (TPB) for review at the the Information Center at the Metro-ernments (COG), 777 North Capitol Street, NE, Suite 300, Washington, DC, beginning on February 13, 1998.

Representatives from the District of Columbia, Maryland, Virginia and the Washington Metropolitan Area Transit Authority will review the proposed submissions, which include a range of highway, transit and bicycle improvements, at the TPB meeting on February 18 which begins at 12 noon at COG. Members of the general public are invited to provide comments on these submissions in writing or in person for consideration at the Board meetings on February 18 and March 18.

Please call (202) 962-3311 or (202) 962-3213 (TDD) for additional information or if you are in need of special assistance.

PUBLIC FORUM

**ON THE WASHINGTON REGION'S
PROPOSED
AMENDMENTS TO THE CONSTRAINED
LONG-RANGE PLAN, FY99-04
TRANSPORTATION IMPROVEMENT
PROGRAM, AND AIR QUALITY
CONFORMITY ANALYSIS**

The National Capital Region Transportation Planning Board (TPB) will hold a public forum to initiate the 30-day public comment period of the proposed Constrained Long-Range Plan (CLRP) Amendments and FY99-04 Transportation Improvement Program (TIP), including an air quality conformity analysis, from 7:00-7:30 p.m. on June 11, 1998 at the Metropolitan Washington Council of Governments (COG), 777 N Capital St., NE. Washington, DC 20002. Members of the public are invited to attend the forum, as well as a presentation on these documents at the June 17 TPB meeting at 12 noon

The CLRP shows, the road, bridge, high-occupancy vehicle (HOV), transit, bicycle and pedestrian projects funded through the year 2020. The six-year TIP includes all projects, programs, and strategies that state and local transportation agencies plan to implement between now and 2004. The air quality conformity analysis assesses the plan amendments and program with respect to air quality requirements under the 1990 Clean Air Act Amendments.

Members of the public are invited to comment on the draft documents at the TPB meeting at 12 noon on June 17 and at a second public forum at 7:00-7:30 p.m. on July 9. The Board will be asked to adopt these documents at the July 15 TPB meeting. All meetings and forums will be held at COG.

Copies of the CLRP amendments and TIP will be available at the June 11 meeting and through the COG information center (202) 962-3256

For additional information or for special assistance, please call (202) 962-3311 or (202) 962-3213 (TDD).

PUBLIC FORUM

ON THE WASHINGTON REGION'S PROPOSED AMENDMENTS TO THE CONSTRAINED LONG-RANGE PLAN, FY99-04 TRANSPORTATION IMPROVEMENT PROGRAM, AND AIR QUALITY CONFORMITY ANALYSIS

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For additional information or for special assistance, please call (202) 962-3311 or (202) 962-3213 (TDD).

APPENDIX L

TERMs Implementation Reports



Maryland Department of Transportation

The Secretary's Office

Parris N. Glendening
Governor
David L. Winstead
Secretary
John D. Porcari
Deputy Secretary

March 30, 1998

Ms. Jane Posey
Division of Transportation Planning
Metropolitan Washington Council of Governments
777 North Capitol Street
Suite 300
Washington DC 20002-4201

Dear ^{Jane}Ms. Posey:

In response to your request for the Constrained Long Range Plan and FY 1999-2004 Transportation Improvement Program TERM status, the following information is provided.

M-103: Taxicab Replacement in Maryland

A Taxicab Replacement Working Group has been established consisting of staff from the Maryland Department of Transportation, Maryland Department of the Environment, Washington Council of Government's Transportation and Environmental Divisions and Edwards and Kelcy, Inc. (consultant). The group is in the process of developing an implementation plan for this TERM to be operational in early FY 1999.

M-70a Bicycle Parking

600 bicycle racks have been purchased and are in the process of being installed by the local governments and state. Frederick County received 125 racks; Montgomery County received 155 racks; Prince George's County received 300 racks; and the Maryland Mass Transit Administration received 20 racks. The rack installation is underway and should be complete this summer.

Hagerstown Telework Center (Washington MSA Benefits)

In October 1993, the federal government working with state and local government officials in Maryland opened the Hagerstown Telework Center at the Hagerstown Community College. In 1995, the center moved to larger quarters in downtown Hagerstown. The center is used mostly by federal workers as an alternative to commuting to Washington DC.

My telephone number is (410)- 865-1286

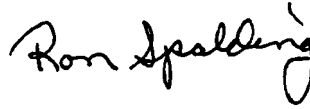
Toll Free Number 1-888-713-1414 TTY For the Deaf: (410) 865-1342

Post Office Box 8755, Baltimore/Washington International Airport, Maryland 21240-0755

Ms. Jane Posey
Page Two

If you have any questions please give me a call.

Sincerely,

A handwritten signature in black ink that reads "Ron Spalding". The signature is written in a cursive style with a large, looped "R" and a long, sweeping "g".

Ron Spalding
Office of Systems Planning and Evaluation

cc: Mr. Henry Kay
Mr. Rick Sheckells
Mr. Howard Simons



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

3975 FAIR RIDGE DRIVE
FAIRFAX, VA 22033
(703) 383-VDOT (8368)

DAVID R. GEHR
COMMISSIONER

THOMAS F. FARLEY
DISTRICT ADMINISTRATOR

April 2, 1998

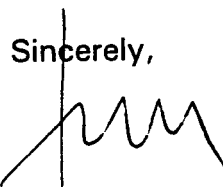
Mr. Ron Kirby
Director, Transportation Planning
Metropolitan Washington Council of Governments
777 N. Capitol Street, #300
Washington, D.C. 20002

Re: Implementation Status of Conformity TERMS

Dear Mr. Kirby:

Please find enclosed an implementation status report for all Transportation Emissions Reduction Measures (TERM) for which VDOT has taken credit. TIP periods covered are from 1994–1999 to 1998–2003.

If you have any questions on the enclosed material, please contact Mr. Joseph Langley at (703) 383-2212, in the absence of Mr. Kanathur Srikanth.

Sincerely,

Thomas F. Farley

TF: KNS
Enclosure

c: Ms. Jo Anne Sorenson
Mr. Kenneth Lantz
Mr. Farid Bigdeli

bc: Mr. Michael Clifford (w/enclo.)
Ms. Jane Posey "
Mr. Grady Ketron
Ms. Fatemeh Allahdoust
Mr. Joseph Langley
Mr. Kanathur Srikanth "

NORTHERN VIRGINIA TERM PROJECTS - STATUS REPORT

FY 1994 –99 TIP PROJECTS

1. Regional Highway Signal Systems

This multi-year project includes most of the jurisdictions in Northern Virginia. It includes upgrading existing traffic signal systems and installing new state-of-the art signals. A total of \$3.85M was allocated in the FY 94 CMAQ program for this project. The following provides status reports for the various components of this project:

VDOT (\$2.4M): This project will upgrade the system that controls about 750 signal-controlled intersections in NoVA. This project is now 95 percent complete. The remaining 5 percent is anticipated to be completed by the summer of 1998.

Arlington County Signalization (\$0.15M): This project will upgrade signals at about 230 intersections. The contract for the project has been issued. The anticipated completion date is March of 1999. Funding to complete this project has been secured (Mr. Robert Garbacz).

City of Manassas Signalization (\$0.3M): This project will upgrade signals at about 23 intersections (emissions credit taken for 19). The implementation plan for the project was divided into two phases. Phase one, involving 12 signals, was completed January of 1998. Phase two is underway (70 percent complete) and is anticipated to be completed in the summer of 1998 (Mr. Jim Banks).

City of Alexandria Signalization (\$0.5M): This is a multi-phase project involving about 200 signal-controlled intersections. Phase one will upgrade signal systems for about 160 intersections. Finalization of the installation contract is expected in March of 1998 and the completion of the project is anticipated in March of 1999. Funding for this project has been secured (Mr. George Jivatodi/Mr. David Jones).

City of Fairfax Signalization (\$0.3M): This project will upgrade signal systems at about 56 intersections. Work began in March of 1996 and is 95 percent complete. The remaining work is scheduled to be completed by the end of March 1998 (Mr. Rolf Muhler).

Town of Herndon Signalization (\$0.2M): This project will upgrade signal systems at about 25 intersections. In coordination with VDOT, the Town is finalizing the design for the system. The Town anticipates FCC approval of the design by the summer of 1998 and completion of the project by the summer of 1999 (Mr. Robert Souza).

2. WMATA Bus Purchase

This project was funded with \$5.7M from Northern Virginia's FY 94 CMAQ funds. The purpose of this project is to replace 30 +/- old buses in WMATA's fleet. The status report for this project is included in WMATA's report to MWCOG (Ms. Kathleen Benton).

3. Ridesharing (PRTC & Regional)

Two hundred thousand dollars (\$0.2M) in FY 94 CMAQ funds was spent in support of PRTC's ridesharing program for fiscal year 1994. Ridesharing is an ongoing program that provides ridematch services to the commuters in and around the Prince William County. The program reduces vehicle trips and emissions by facilitating rideshare arrangements between commuters. This program compliments MWCOG's ongoing regional program of ridematching, which also received FY 94 CMAQ funds (\$0.1M) (Mr. Eric Marx).

4. Route 28 Park-and-Ride Lot

This project was intended to construct a 100-space commuter park-&-ride lot along VA 28 in the vicinity of Route 775 (Shaw Road) in Loudoun County (\$0.15M). Following the initial scoping and cost estimation, Loudoun County negotiated with the Wal-Mart store (at VA 28 & Route 625) to use 150 of its parking spaces as an alternative to building a new park-&-ride lot. This facility has bus services to the Pentagon, Rosslyn and Washington D.C. and has been operational since 1995 (Mr. Arthur Smith).

5. VRE-Signalization

This FY 94 CMAQ (\$1.4M), multi-phase project was aimed at improving the RO to AF interlocking on the CSX right-of-way. Improving the RO to AF interlocking will increase switch and signal reliability, which would allow increased running speeds on both lines and would facilitate the operation of bi-directional service without construction of a third track. This particular phase addressed the CSX tracks between Telegraph Road and the Potomac River. Work on the existing tracks is complete and signal work is underway. Completion of this phase of the project is anticipated in the fall of 1998 (Mr. Brad Miller).

6. VRE Locomotive Purchase

This FY 94 non-CMAQ (\$2.1M) project acquired two locomotives for the VRE system in an effort to increase the system's operational capacity and flexibility. The locomotives were purchased in 1995 and are currently in operation (Mr. Brad Miller).

7. PRTC Feeder Vehicle Purchase

This FY 94 non-CMAQ (\$0.8M) project acquired 20 body-on-chassis, ADA accessible, 25-passenger minibuses to provide feeder service to VRE stations in the PRTC service area. The buses were purchased in November of 1994 and are presently in operation (Mr. Brad Miller).

8. PRTC Woodbridge Parking Expansion (500 spaces)

This FY 93 (\$4.5M) project proposed expansion of the parking garage at VRE's Woodbridge station by 500 spaces. Based on a reexamination of the parking demand at this location, it was decided to undertake this project at a later date. The funds were reprogrammed to the following transit projects which would also reduce emissions: construction of the Cherry Hill VRE Station (\$2.0M), construction of a second platform at the VRE Woodbridge Station (\$0.745M), and purchase of buses (\$1.755M) by WMATA (Mr. Eric Marx).

The following provides status reports for the transit projects identified in the preceding paragraph:

Cherry Hill VRE Station: Construct a VRE train station, parking lot, and access road at the terminus of Cherry Hill Road in Prince William County. This project has secured federal funding and is in the process of finalizing the local match funding requirements. The construction of the VRE station, to be managed by the VRE, will be coordinated with the construction of the access road, which will be managed by the State and the County. The project is estimated to be completed by the end of 1999 (Mr. David Sinclair).

Second Platform at VRE's Woodbridge Station: This project is underway, and completion anticipated by the end of 1999 (Mr. Brad Miller).

WMATA Bus Purchase: The status of this project is contained in WMATA's report to MWCOG (Ms. Kathleen Benton).

9. King Street Metrorail Improvements

Sponsored by the City of Alexandria, this FY 94 CMAQ project (\$0.1M) was aimed at improving the King Street Metro Station. WMATA is currently finalizing the feasibility study for the City. It is anticipated that the recommendations of the study will be finalized in April/May of 1998. Improvements being examined include lengthening the existing platform and installing escalators. The construction schedule will be determined during the latter part of 1998. Funds from prior allocations, from the City, and from bonds are anticipated to fund the construction of this project (Ms. Betsy Massie). Please refer to TERM project #13 in FY 95.

FY 1995 – 2000 TIP PROJECTS

1. PRTC Public Transit Support

This program had four distinct elements, all of which were focused towards reducing LOV mileage and increasing transit usage. The four elements were:

1. Feeder bus service to VRE train stations
2. Route Deviation - a demand responsive intra-county bus service
3. Market Development - serving demand for trips from common origins to common destinations
4. Coordination of the Human Service Transportation (paratransit service) overseen by four different agencies.

Elements one and two (above) were implemented in FY 95 under the name Omnilink Service. Element three was replaced by a similar service called Omni Direct Service. This is a charter bus type of service and the program is designed to be self-supportive. Element four has also been implemented. This is a contract type service that provides transportation to social service agencies in Prince William County. This program is designed to be self-supportive. No emission reduction credits have been taken for elements three and four (Mr. Brad Miller).

2. Alexandria Telecommuting Pilot Program

This project involves marketing and developing telecommuting programs to/for the private businesses in the City of Alexandria. This program compliments the regional Telecommuting program currently being implemented by the MWCOG. This program is underway in the City. Telecommuting seminars are being planned in 1998 as a follow-up to surveys and meetings held with the private businesses in the past years (Ms. Betsy Massie).

3. Fairfax County TDM Program

FY 95 CMAQ funding in the amount of \$0.2m was appropriated for this project. The project was designed to continue implementation of the County's TDM program, which had begun with funds provided by VDRPT's TEIF grants in previous fiscal years. The fund will be used to make site improvements and/or build new bus shelters at various bus stop locations in the county. The anticipated completion time of this undertaking is FY 2000 (Ms. Dottie Cousineau).

4. Alexandria Bus Access Improvements

An FY 95/96 study by the City identified about ten sites where access to bus stops needed improvement. The City of Alexandria received \$0.04M in FY 95 CMAQ funds for this project. In FY 97, work at four of these sites was completed. Work at the remaining six sites is scheduled to be completed in FY 98. Funds needed for completion of the project has been secured (Ms. Betsy Massie).

5. City of Fairfax Bus Shelters

This project received \$0.12M in FY 95 CMAQ funding to install/improve bus shelters at various locations in the City. The City has identified 12 locations to install/improve CUE bus shelters. The City has contracted with VDOT to complete the project. The schedule calls for installing two shelters in April of 1998 and the remaining ten by August of 1998 (Mr. Alex Versoza).

6. Lorton VRE Access

This project received \$0.04M in FY 95 CMAQ money to fund some of the costs associated with the engineering and design of an access road to connect the Lorton VRE commuter rail station to Lorton Road in Fairfax County. The access road has been completed.

7. Cherry Hill VRE Access

This project includes the construction of a VRE train station, parking lot, and access road at the terminus of Cherry Hill Road in Prince William County. This project has secured federal funding and is in the process of finalizing the local match funding requirements. This project received \$0.2M in FY 95 CMAQ funds and, in 1996, an additional \$2.0M in re-programmed FY 93 CMAQ funds (see project # 8 of FY 94-99 TIP TERMS). The construction of the VRE station, to be managed by the VRE, will be coordinated with the construction of the roadway to be managed by the State/the County. The project is estimated to be completed by the end of 1999 (Mr. David Sinclair).

8. VRE Park-and-Ride Expansion (3800 spaces)

This project calls for expanding the capacity of Park-and-Ride lots in Northern Virginia by 3800 spaces, including parking facilities at VRE and Metrorail stations. This was not a single project in one given year; it was a collection of projects sponsored by various jurisdictions within Northern Virginia over a number of years. The table below lists the locations, number of parking spaces built, and the date they opened, or are anticipated to be opened (Mr. Rahul Trivedi).

No.	Agency	Park-and-Ride Project Description	# of Spaces	Status
1	VDOT	Horner Road Lot expansion	260	Completed in 1995
2	None	On Street parking along Hunter Village Road.	103	In use since 1995
3		On Street parking near old Hooes & Sydenstricker Roads.	51	In use since 1995
4	VRE	Burke VRE Park-and-Ride Lot expansion	183	Expanded in 1996
5		Lorton VRE lot	200	Opened in 1995
6	Fairfax Co.	Reston East Park-and-Ride Lot	827	Opened in 1997
7		Reston South Park-and-Ride Lot	412	Opened in 1994

8		Herndon Monroe	1,800	Opened in Dec., 1997
		Total number of commuter Park-&-Ride spaces	3,836	

9. Commuter Lots District Wide

This project represents commuter park-and-ride spaces anticipated to be built at various locations within Northern Virginia between 1998 and 2020. The analysis assumed 650 spaces by 1999; gradually increasing to 1400 spaces by the year 2020. The following projects will not only reach the assumed goal but will exceed the same. Furthermore, the spaces will be built considerably ahead of schedule, providing the region a reduction in emissions in years not accounted for in previous conformity analyses.

No.	Agency	Park-and-Ride Project Description	# of Spaces	Status
1	Loudoun County	Western Regional Park-and-Ride Lot.	750	Anticipated completion Fall of 1999
2	VDOT	I-95 and Route 123 Park-and-Ride Lot	700	Opened in 1995
Total number of commuter Park-&-Ride spaces			1,450	

10. I-66 and Stringfellow Road Park and Ride

This project involves constructing a new 350 space Park-and-Ride facility adjacent to the intersection of I-66 and Stringfellow Rd. in Fairfax County. A reversible HOV ramp has been constructed between the HOV ramps on I-66 and Stringfellow Road in anticipation of the construction of this park-and-ride lot. The design of the park-and-ride lot is complete and undergoing final review. The advertisement date for construction is scheduled for September of 1999, and the facility is likely to open by the end of year 2000 (Mr. Ed Seitz).

11. Lake Ridge Area Park-and-Ride Lot

This project was originally identified as a 350 space park-and-ride lot. It was constructed with 600 spaces. The lot was opened in 1996 and is now known as the Tacketts Mill Lot. (Mr. Rahul Trivedi).

12. Bicycle Trail Facilities

This project included seven different sites at which trail construction and/or improvements were planned. (The sites listed in the May 1996 Status report on this project was not a comprehensive listing and included sites which were not part of this effort.) A brief report on each of these sites is listed below (Mr. Rich Viola):

1. Rosslyn Circle: This project is aimed to improve the flow and safety of bicycle traffic along Lee Highway between N. Lynn St. and N. Quinn St. Design for this project is complete, and construction is estimated to be completed by the spring of 1998.
2. Route 110 Renovation: The purpose of this project is to renovate the trail along Route 110 between Marshall Dr. and Memorial Dr. Funding for this project is anticipated to become available via the County Bond program in FY 99. If funding is secured, the project is likely to be completed by the end of 1999.
3. Washington Blvd.: This multi-phase project involves the addition of bike lanes to Washington Blvd. between N. Sycamore St. and George Mason Dr. Programming discussions are currently underway for this project. Estimated construction time for this project is two years.
4. Washington Blvd. Trail: This project involves construction of a bike trail along Washington Blvd. between Route 50 and Columbia Pike. Funding is anticipated to become available in FY 99 as part of the County Bond program. If funding is secured, the project is estimated to be complete in 2000.
5. W&OD Trail: This is a multi-phase project that involves widening the existing trail. Some phases of the project were completed in the summer of 1996, and the second phase is scheduled to be completed in the summer of 1998. Funding for the remaining phase is anticipated in FY 99 from the County Bond program. Should funding become available the project will be complete in 2000.
6. Route 110 Trail: This project involves paving and realigning the trail along Route 110 between Memorial Dr. and the North Parking Lot of the Pentagon. Programming discussions are currently underway for the FY 2001 cycle. Estimated construction time frame is 2002.
7. Fairfax County Parkway Trail: This project involved construction of a multi-purpose trail, about 8.2 miles in length (discontinuous stretches of trails), along the Fairfax County Parkway. Between 1995 and 1997, 11.41 miles of trail have actually been built (although emission credits have been taken for only 8.2 miles). The completed trail segments are: I-66 to Braddock Rd.-1.25 mi., Braddock Rd. to Route 123-3.12 mi., Route 123 to Hooes Rd.-5.33 mi., Hooes Rd. to Rolling Rd.-1.8 mi., Newington Rd. to Telegraph Rd.-0.46 mi., and Telegraph Rd. to US 1-1.25 mi. (Ms. Anne Messner)

13. Pedestrian Facilities to Metrorail

This project involved improvements to pedestrian access at three commuter rail stations - Brooke (in FAMPO), Burke Centre (Fairfax County) and King Street (City of Alexandria):

Brooke VRE Station: This is a two-phase project that includes widening a three mile stretch of Route 630 (Courthouse Road) from its existing two-lane cross section to a four-lane facility. Completion of Phases One and Two are scheduled for the summers of 2001 and 2003, respectively. Right-of-way acquisition is underway for Phase One and design is underway for Phase Two (Mr. Steven Haynes-VDOT).

Burke Centre VRE Station: This trail project has been incorporated into the Roberts Parkway project, which is currently designing the widening of Roberts Parkway and a grade separation over the Norfolk-Southern Railroad tracks. Project completion is scheduled for the year 2000 (Mike Lake, Fairfax County).

King Street Metro Station: The \$0.2M in RSTP funds allocated in FY 95 were combined with \$0.125M in RSTP funds in FY 96 to fund a study which is currently underway. The purpose of the study is to identify and evaluate improvements to the King Street Metro Station that will improve pedestrian access to the station and increase utilization of the station. Elements of the study include examination/evaluation of :

- Pedestrian access
- Signage
- Bus stop locations
- Skyways to adjacent development
- Platform extension
- Station modifications
- Tunnel to Union Station
- Duke Street access.

Final recommendations from this study are expected in May of 1998 (Royce Drake, WMATA). Please refer to TERM project #9 in FY 94.

14. I-66 HOV Access at Monument Drive

In FY 95, \$0.15M in non-CMAQ funds was appropriated for an engineering feasibility study of a new HOV access ramp between I-66 and Monument Drive in Fairfax County. This reversible ramp is intended for use by HOV-2+ vehicles only and operates between the hours of 5:30 – 9:30 AM and 3:00-7:00 PM on weekdays. The ramp is closed at all other times. The ramp became operational in November of 1997 (Ms. Dottie Cousineau).

FY 1996-2001 TIP PROJECTS

1. Alexandria Landmark Transit Center

The \$0.1M of FY 96 CMAQ funds appropriated for this project is intended for the design and construction of a centralized, climate-controlled transit transfer-center at the Landmark Center Mall in the City of Alexandria. The schedule of the project is dependent upon finalization of the Mall's development plan; particularly, location of the movie theaters. The City is working with Mall management to coordinate the two activities. A definite schedule is yet to be developed (Ms. Betsy Massie).

2. Tysons Westpark Transit Center

FY 96 CMAQ funding of \$0.10M was appropriated for this project to assist in the design and construction of a bus transfer center at the intersection of Jones Bridge and International Drives in Fairfax County. The project will be a bus destination station with a kiss-and-ride lot (37 spaces) and include the construction of an island with 8 bus bays. CTB approval of the construction contract is anticipated in April of 1998, with construction scheduled to be completed by December of 1998 (Ms. Kathy Ichter).

3. Fairfax County Bus Shelters

An amount of \$0.12M has been allocated to the County for this project. As part of the Northern Virginia regional bus shelters program, Fairfax County Office of Transportation has identified 10 locations (Little River Turnpike & Medford Dr. (WB), Braddock & Wakefield Chapel Roads (EB), Route 50 & Stringfellow Rd. (EB), Bowman Towne Dr. & Reston Library (EB), Route 7 & George Marshall Dr. (EB), Columbia Pike & Powell La. (EB), Route 236 & John Marr Dr. (WB), Old Keene Mill Rd. & Field Master Dr. (EB), Pole Rd. & Alameda Ct. (EB), and Route 50 & Graham Rd. (EB)) where bus shelters will be built. The designs for the shelters have been finalized, and they are currently being installed. The project is anticipated to be completed by the late summer of 1998 (Mr. Michael Lake).

4. Loudoun County Bus Shelters

An amount of \$0.020M in FY 96 CMAQ funds has been appropriated for this project. The project is part of the Northern Virginia regional bus shelters program. Loudoun County will install two bus shelters at the Western Regional Park-and-Ride lot when it opens in about 18 months. (Mr. Arthur Smith)

5. Arlington County Metrocheck Program

This project received \$0.20M in FY 96 CMAQ funds. The project was to develop a matching fund program as an incentive for businesses in Arlington County to implement the MetroCheck program. This program began in FY 97 and will continue until FY 99 (Mr. Chris Hamilton).

6. Old Dominion Bike Trail

This project is located in Arlington County and involves planning, design and construction of a bicycle and pedestrian trail along VA Route 309 (Old Dominion Drive) between Lee Highway and the Arlington/Fairfax County Line. The project includes improvements to bus stops, construction of sidewalks, and widening curb lanes. The design of the project is underway and is scheduled to be completed by the fall of 1998. Construction funding is anticipated in FY 99. The estimated construction time is about 3 years (Mr. Rich Viola).

7. Fairfax County Bus Shelters (30)

Fairfax County has received funding (State Enhancement Funds) for the first phase of this project. The project involves installation of up to 30 bus shelters at heavily used bus stop locations in the County. The County plans to install the shelters at a rate of 10 shelters per year starting in FY 99. Funds for the remaining phase have been solicited from the State of Virginia (Mr. Michael Lake).

8. Tacketts Mill Park-and-Ride Lot

This project was funded by non-CMAQ/RSTP sources. This is a 600-space commuter park-and-ride facility with bus service. The facility is located near the Old Bridge Road and Minnieville Road intersection in Prince William County. The facility has been operational since the summer of 1996 (Mr. Rahul Trivedi). See project #11 in FY 95.

9. Reston Bus Replacement

This project was funded by non-CMAQ/RSTP sources. In late 1994, WMATA's bus service in the Dulles Corridor (from Reston & Herndon to the West Falls Church Metro Station, the Pentagon & Crystal City) was replaced by Fairfax County's Fairfax Connector buses. As part of this change, 45 new buses were introduced into the fleet (Mr. Tom Biesiadny).

10. Construct Left Turn Bays

This project reflects nine different construction projects, funded from a variety of sources, which would add left turn bays at intersections currently without left turn bays. As a result of providing left turn bays, instances of through vehicles being blocked by a left turning vehicle were eliminated, thereby increasing system efficiency and reducing emissions. The following is a listing of these different projects and their current status:

1. US 1 - Buckman Road: This project, located in Fairfax County was completed sometime in mid to late 1995 (Mr. Jonathan Stowe).
2. US 1 - Rte. 784 (Dale Blvd. extension): Construction of this project, located in Prince William County, is underway and scheduled to be complete by the summer of '98 (Mr. Billy Green).
3. VA 7 - Lewinsville Road: Preliminary design for this project located in Fairfax County was undertaken in 1996. The implementation of this project has, however, been indefinitely delayed (Mr. John Giometti).

4. VA 7 - Countryside Blvd.: This project is located in Loudoun County. Construction is currently underway and is anticipated to be completed by March, 1998 (Mr. John Giometti).
5. US 15 - VA 704 (Harmony Church Road): This project, located in Loudoun County, was completed in November, 1995 (Ms. Karen Kilby).
6. VA 28 at Residency Road: This project is located in Prince William County. Construction was completed in late fall of 1997 (Mr. Billy Green).
7. VA 657 (Centerville Road): This is a roadway-widening project and is located in Fairfax County. The project is divided into three sections. Construction of the first section (between McLearen Road and West Ox Road) was completed in 1996. Construction of the second section (between Westmore Street and Metro Tech Center Dr.) is currently underway and is expected to be complete by the summer of 1998. Preliminary engineering for the third section (between Metro Tech Center Dr. and McLearen Rd.) is complete and awaiting construction (Mr. John Giometti).
8. US 29 - Harrison Street and US 29 - Pollard Street: The Pollard Street project was completed in the summer of 1997. Construction on the Harrison Street project is scheduled to commence during the summer of 1998 with completion anticipated by summer of 2000 (Ms. Patty Nicoson).

There were two more improvements that added left turn bays at an intersection that have been completed for which emissions credit have not been taken. The VA 7/US 15 at Sycolin Road project was completed in November of 1997, and the VA 643 (Lee Chapel Road) at VA 123 project was completed in 1995 (Mr. John Giometti).

FY 1997-2002 TIP PROJECTS

1. PRTC Omnilink Service

Omnilink provides two types of service: Feeder Bus service, which operates during the morning and evening peak periods and Local/Flexroute service during the day. Both services are currently underway and cover Prince William County and the Manassas area. The Feeder Bus service is included in the Region's transit model (Ms. Beverly Masters).

2. I-66 PNR At VA 234/Portsmouth Road

This 629-space commuter Park-and-Ride lot was funded with non-CMAQ funds. Completed in May of 1996, the P&R lot is located in Prince William County along Portsmouth Road. The lot has pedestrian access, bicycle racks (4) and bus service with 20 kiss-and-ride spaces (Ms. Donna Owens).

3. Arlington Co. Transit Ridership Development Initiative Program

This non-CMAQ funded community based program plans to target residential neighborhoods in corridors with high transit potential for marketing and promotional initiatives to encourage new bus and train ridership. Arlington County has retained the services of Pulsar Advertising Inc., a nationally recognized marketing company, to develop and implement this program. Work on this program began during January of 1996 and is expected to last until December of 1998 (Mr. Christopher Hamilton).

4. PRTC Employer Commuting Outreach Program

The non-CMAQ funded program serves as a sequel to PRTC's recently completed Travel Agent/Employer Based Ridesharing program. The program started in January of 1997 and is scheduled to last until December of 1998. This program plans to target larger employers in Prince William County to promote PRTC's transit services and regional ridesharing (Ms. Beverly LaMasters).

5. PRTC Multimodal Strategic Marketing Implementation Plan

This non-CMAQ funded program has been underway since January 1997 and is anticipated to last until December 1998. This program plans to increase the daily high-occupancy mode trips on PRTC sponsored services. Specific services include Omni Ride Commuter Bus, Omni Match Ridesharing, Omni Link Local Flex-Route, and Omni Link Feeder Bus to the VRE (Ms. Beverly LaMasters).

6. Vanpool Incentives Program in Virginia

This measure was adopted by Northern Virginia and is designed to add 285 new vanpools to the region. The original plan for the measure had envisioned achieving this goal by offering the following incentives to the vanpools: low interest loans, van start/save subsidy and loaner vehicles. Northern Virginia has since revised the plan and proposes to subsidize the capital cost of vanpools program in-lieu of the three incentives. To this end the TCC of Northern Virginia; working with WMATA, PRTC, MWCOG, and other jurisdictions; and after discussions with the FTA, is finalizing the implementation plan for this measure. It is likely that WMATA will implement the plan on behalf of Northern Virginia during the fall of 1998 (Mr. Kanathur Srikanth).

FY 1998-2003 TIP PROJECTS

1. PRTC Ridesharing

This non-CMAQ funded program has been underway since early 1980. The current funding was for one year of concentrated effort on enhancing ridesharing via a targeted marketing campaign. The agency has hired a marketing firm and a marketing manager to implement the measure (Mr. Lauretta Ruest).

2. Four Mile Bike Trail

This is a non-CMAQ project located in Arlington County. Upon completion, it will link three regional bicycle/pedestrian trails, as well as improve the safety of bicycle commuter trips between Arlington, Alexandria and Fairfax County. The design for the project is 90 percent complete. Construction funding has been secured, but is awaiting the execution of an agreement with the Virginia Department of Transportation. The anticipated construction schedule calls for a fall of 1998 beginning and completion by the end of summer, 1999 (Mr. Rich Viola).

3. Northern Virginia Left Turn Bays

This project reflects three different construction projects, funded from a variety of sources, which would add left turn bays at intersections currently without left turn bays. As a result of providing left turn bays, instances of through vehicles being blocked by a left turning vehicle will be eliminated, thereby reducing the amount of emissions. The following is a description of these projects and their current status:

1. VA 7 - Countryside Blvd.: This project is located in Loudoun County. Construction is currently underway and is anticipated to be complete by March, 1998 (Mr. John Giometti).
2. Routes 120 & 244: This intersection improvement project in Arlington County project is underway (public involvement process underway; ROW submission being done). The schedule calls for advertising the construction contract in the fall of 1998; estimated time for completing is the summer of 1999 (Mr. Reggie Beasley).
3. Routes 28 and 606: This intersection improvement project is being implemented by VDOT. The schedule for the project is to advertise the project by May, 1999 and complete the construction within a year after that (Mr. Michael Estes).

Improvements to Spring Street in the Town of Herndon added about five left turn bays at intersections for which emission credits have not been taken. This improvement was completed in January of 1998.

4. Fairfax City Bus Replacements

The City of Fairfax will replace 10-year-old buses from its local service transit fleet. Six new buses were acquired in January of 1998 and six more are planned to be acquired in the year 2000 (Mr. Alex Verzosa).

5. Alternate Fueled Vehicles

This is a Virginia State sponsored program, which provides financial assistance to jurisdictions wishing to purchase and operate vehicles powered by alternate fuels. In Northern Virginia, seven grants have been made under this program. The following describes these grants:

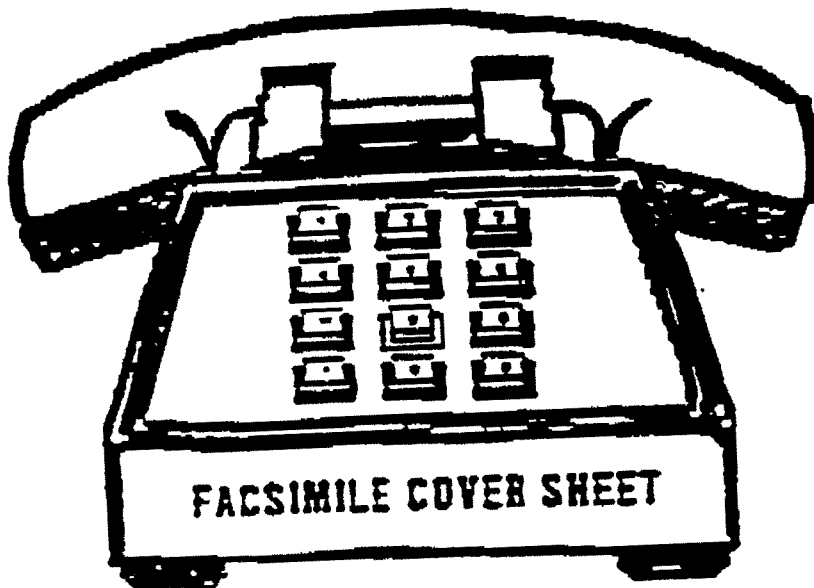
1. City of Fairfax: This program involved the purchase of one OEM CNG powered sedan. The vehicle was acquired in February of 1997 and is currently in use (Mr. Glen Shelton).
2. Fairfax County: This program involves the purchase of 10 new CNG powered vehicles. The County anticipates acquiring the vehicles in 1999. Ten CNG engines on ten buses were, however, replaced in the year 1997 (Mr. Howard Springsteen).
3. Northern Virginia Regional Park Authority: The grant was to acquire two OEM CNG powered vehicles (dedicated light truck and a bi-fuel sedan). The sedan was acquired in April of 1997 & the truck in October of 1997 (Ms. Julie Kutruff).
4. Town of Vienna: The grant was to acquire 3 OEM CNG powered vehicles (1 light truck and two sedans). All three vehicles were acquired in the summer of 1997 (Mr. Dennis King).
5. Prince William County: The County received the grant to convert two of its conventionally fueled sedans to CNG fuel systems. One of the vehicles has been acquired and the County is involved in procuring the services of a vendor to perform the conversion. The County anticipates to have this task completed by the end of 1998 (Ms. Debroah Gore).
6. George Mason University: The original plan was to acquire three new OEM CNG powered vehicles (two light trucks and one sedan). Due to procurement and other concerns, the University now intends to buy electric vehicles. The University is currently renegotiating the funding agreement with VDOT and hopes to acquire the vehicles in the year 1999 (Prof. Marty John).
7. City of Falls Church: The City received the grant to acquire an electric-powered, light-duty truck. The vehicle was acquired in the summer of 1997 (Mr. Wayne French).

6. WMATA Bus Replacement

Kindly refer to WMATA's status report to MWCOG.



**DEPARTMENT OF PUBLIC WORKS
GOVERNMENT OF THE DISTRICT OF COLUMBIA**



NUMBER OF PAGES

2

(INCLUDING THIS COVER SHEET)

IF TRANSMISSION IS NOT COMPLETE, PLEASE CALL THE SENDER.

MAY 18, 1998

DATE

TO: JANE POSEY

DEPARTMENT: COG

FAX NUMBER: 962-3202 TEL NO. _____

FROM: MAURICE KEYS

DEPARTMENT: DC DPLW

FAX NUMBER: (202) 828-7179 TEL: (202) _____

REMARKS: TERMS INFORMATION

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF PUBLIC WORKS
415 12TH STREET, N. W.
WASHINGTON, D C 20004



REPLY TO:
OFFICE OF POLICY AND PLANNING

May 14, 1998

Jane A. Posey
Transportation Engineer
Metropolitan Washington Council
of Governments
777 North Capitol Street, N.E.
Washington, D. C. 20002-4239

Dear Ms. Posey:

In response to your April 27, 1998 letter to Maurice Keys requesting the status of two District of Columbia TERM projects, the following is provided:

- Right Turn on Red (FY95 TIP)

Regulations have been drafted and are under review.
Implementation is expected in FY 1999.

- Bicycle Facilities (FY95 TIP)

Metro Branch Trail - Project is underway (4-98)
Projected Completion - FY 2001

Martin Luther King, Jr. Ave./11th St./18th St. Route
Projected Completion - FY 1998

Massachusetts Ave., S.E. - Removed

Rock Creek Park Trail Improvement - Removed

Capital Crescent Trail - Completed FY 1997

If additional information is needed, please let me know.

Sincerely,

A handwritten signature in black ink that reads "Michelle Pourciau FOR".

**Michelle Pourciau, Chief
Transportation & Public Space
Policy Division**



March 10, 1998

Ms. Jane Posey
Department of Transportation Planning
Metropolitan Washington Council of Governments
777 North Capitol Street, N.E., Suite 300
Washington, D.C. 20002-4226

Dear Jane:

You have requested information regarding the number of buses bought by WMATA with CMAQ funds. Listed below please find the number of buses bought with funds received in Fiscal Years 1993 - 1996. FY 1997 CMAQ funds have not yet been obligated.

<u>Fiscal Year</u>	<u>CMAQ FUNDS (\$000's)</u>	<u>Buses Purchased</u>
1993	\$ 9,808	43
1994	23,310	104
1995	15,787	60
1996	31,723	122
Total:	\$80,628	329

If you have any other questions regarding these expenditures, of course, please call me.

Sincerely,

Kathleen Benton
Transportation Economist/Analyst
Office of Business Planning and Development

cc: K. Srikanth - NoVa VDOT
R. Stevens - WMATA

**Washington
Metropolitan Area
Transit Authority**

600 Fifth Street, NW
Washington, D.C. 20001
202/962-1234

*By Metrorail:
Judiciary Square-Red Line
Gallery Place-Chinatown
Red, Green and
Yellow Lines*

*A District of Columbia,
Maryland and Virginia
Transit Partnership*




Local governments working together for a better metropolitan region

MEMORANDUM

1 May 1998

*District of Columbia
Bowie
College Park
Frederick
Frederick County
Gaithersburg
Greenbelt
Montgomery County
Prince George's County
Rockville
Takoma Park
Alexandria
Arlington County
Fairfax
Fairfax County
Falls Church
Loudoun County
Prince William County*

TO: FY99-2004 TIP Air Quality Conformity Files

FROM: Nicholas Ramfos 
**Chief, Alternative
Commute Programs**

**SUBJECT: Implementation of FY95, FY96, FY97, and FY98 Transportation
Emission Reduction Measures (TERMs)**

The TERM projects programmed for the FY95, FY96, FY97, and FY98 Transportation Improvement Program for Metropolitan Washington (TIP) for the purpose of reducing Nitrogen Oxides and Volatile Organic Compound emissions and achieving air quality conformity for the TIP included Employer Outreach, Guaranteed Ride Home, Telework Resource Center, and Integrated Rideshare programs.

1. Employer Outreach

The Employer Outreach TERM has been in effect since January 1997. The original TERM was adopted by the Transportation Planning Board in the FY95-00 TIP.

Based on research conducted by market research firm, it was estimated based on a Level 1 sales effort that 7% of employers with 100 or more employees would be convinced to offer voluntary commuter efficiency programs to their employees. There are currently nine jurisdictions with 17 sales representatives participating in the regional sales effort.

An Employer Outreach Ad-Hoc Group has been meeting on a regular basis since August 1996 to develop and review regional policies and strategies as well as facilitate cooperation and information sharing among the local outreach sales agents. Regional sales training seminars have been provided through COG as well as one-on-one sales team consultations. Also, a sales lead tracking database has been successfully installed at all of the participating jurisdictions and staff has been working during the course of FY98 to synchronize the database in order to allow access on a region wide basis. In addition, staff has continued negotiations with WMATA's regional Metrochek sales team in order to provide access and share sales lead information.

Staff has also been tracking monthly performance levels of each participating jurisdiction. Number of sales calls, follow-up calls, surveys conducted, and programs implemented are reported on a monthly basis. The results to date include the following:

Total New Sales Calls (FY98):	475
Surveys Conducted (FY98):	43
New TDM Programs Started (FY97 & FY98):	40

An evaluation component to measure placement rates as a direct result of Employer Outreach efforts has been established and implemented by CIC Research, Inc. Each survey applicant who registers to the Commuter Connections program is coded as an Employer Outreach applicant for the random survey which is conducted every other quarter during the calendar year. In addition, a region-wide household telephone survey will also be conducted in January 1999 in order to measure the overall regional effectiveness of the program.

Results of both evaluation projects will be used to calculate emission benefit reductions for this TERM by May 1999.

2. Guaranteed Ride Home Program

The regional Guaranteed Ride Home (GRH) program was adopted by the TPB in the FY96-01 TIP and is serving as a complimentary incentive program for other existing alternative commute programs in the region. Participants began registering to the regional GRH database in January 1997 and have been allowed to use the service four times annually. There is no co-payment required for participation and a one time exemption is permitted with on-line registration. COG coordinates centralized dispatching services for the region through the Commuter Connections 800 telephone line.

The purpose of this measure is to coordinate a regional GRH project which will provide regular ridesharers, transit users, and cyclists/walkers with a ride home in the event of an unexpected emergency or other unexpected situation. The overall goals of the program are to remove a significant barrier to participation in shared ride/transit programs and serve as an integral supporting element of other regional TERMS and to facilitate the retention of existing commuters in alternative commute arrangements.

COG continues to maintain and upgrade the GRH operations software system. The software system enables COG to keep track of registrants, the number of times the program has been used, cost per ride, type of ride, and ride provider information.

Additionally, COG has a daily operations contractor to manage all facets of daily operational services, including but not limited to: verifying GRH eligibility, dispatching accepted and verified rides, and entering and tracking information on the GRH software system.

COG also works with nine contractors who provide taxicab rides and car rental services for the program.

During FY97 and FY98, media campaigns were developed and implemented in order to increase program awareness. The campaigns consisted of direct mail to both residents and employers, radio spots, theater slide ads, and mobile billboards.

An evaluation component for the regional GRH program was also developed and implemented through the regional placement rate study. Applicants are coded according to their GRH initial application to Commuter Connections and then randomly surveyed. A regional household survey which will be conducted in January 1999 and used to measure the overall impact on a regional level. Results from both surveys will be used to calculate emission reduction benefits for this TERM by May 1999.

From January 1997 to April 1998, there were 5,599 applicants who have registered to the GRH program. A total of 1,005 rides were given during the same time period.

3. Telework Resource Center

This TERM was adopted by the TPB in 1994 as part of the FY95-00 TIP and became operational in 1996. The goal of the Telework Resource Center is to add 21,600 new teleworkers by mid-1999. (A baseline telephone household survey was conducted in September 1996 and a series of employer focus groups were conducted in January 1997.) Funding delays held up the implementation of several initiatives that were originally scheduled to begin in early 1997 including the development of a telework information kit, a year-long Telework Demonstration Project, and telework seminars for employers and employees. These initiatives were subsequently implemented beginning in late 1997 after the funding issues were resolved. In 1997, COG also developed a telework Web site as part of the Commuter Connections Home Page, and took over the operation of a telework Bulletin Board System developed by the Federal government.

Evaluation of the Telework Resource Center is being conducted through the Commuter Connections Transportation Demand Management Evaluation Project. Program impact measures include vehicle trip reduction, VMT reduction, energy reduction, emission reduction, and cost/unit of benefit. Telework, unlike other alternative commute options, requires the involvement and approval of the employer. Many employers and employees report that it has taken up to two years to gain approval to telework after the concept was first introduced within the organization.

Following is a summary of Telework Resource Center initiatives implemented in 1997.

Telework Demonstration Project: In August 1997, COG initiated a year-long Telework Demonstration Project with eight organizations in the Washington metropolitan area. Under the scope of this project, COG is providing professional consulting services to help selected sites start or expand a formal telework program in exchange for using the sites as local case study examples. The selected sites include public, private, and non-profit organizations in the District of Columbia, Maryland, and Northern Virginia. The size of the sites ranges from less than 100 to over 9,000 employees. Participating organizations include The Acacia Group, BDM International Inc., Marasco Newton Group, Maryland

Department of Transportation, Southern Management Corporation, Unisys Corporation, Unisys Outsourcing, and the United Planning Organization.

Approximately 150 teleworkers are participating in this project. Most of the teleworkers live in the Washington metropolitan region; however, several either lived in other parts of the country at the outset of the project or moved out of the area (and continued working for their employer) during the course of this project. Most of the participating teleworkers work at home one to three days per week; however, one site's employees work from home on a full-time basis.

To document the effects of this project, COG is conducting pre- and post-implementation surveys with the sites' teleworkers and their managers, co-workers, and clients. The pre- and post-surveys include questions on changes in the teleworkers' travel behavior (e.g., changes in commuting time, distance, and mode). COG is also conducting a series of facilitated discussion groups with the sites' Telework Coordinators to document their progress in implementing their programs and to allow for the exchange of information between sites.

Most of the sites' programs were implemented between January and March 1998. Post-implementation surveys will be conducted six months from the start of each site's program. Results of the project will be documented by COG and highly publicized to area employers. Four separate reports covering policy development, training, implementation and evaluation will be published by the end of 1998. The evaluation component of the Telework Demonstration Project has been coordinated with the Commuter Connections Transportation Demand Management Evaluation Project.

Employer Seminars: Between December 1997 and March 1998, COG conducted five one-day telework seminars in the District of Columbia and Northern Virginia. Ninety-four employer representatives from seventy-five public and private sector organizations attended the seminars. Participants gave the program very high marks in their evaluations.

Telework experts guided participants through the process of planning and implementing a successful telework program. Speakers representing area telework centers and organizations with existing telework programs explored telework options and offered their insights on utilizing telework as a business advantage. Case study examples included the U.S. Department of Agriculture, Fairfax County Government, Southern Management Corporation, and BDM International, Inc.

Three seminars will be conducted in Maryland in May 1998. Additional seminars will be conducted in COG's FY99.

Employee Seminars: Beginning in October 1997, COG developed a two-hour telework seminar for employees called "Keep the Job-Lose the Commute." The seminar includes information on telework options (working at home versus a telework center) and offers practical suggestions for how employees can successfully introduce telework into their

work place. Sample telework policies and home-safety checklists are provided. Thirty-five people attended the five seminars conducted between October 1997 and April 1998. The seminars are held weekday evenings at local telework centers. Additional seminars will be conducted in 1998.

Telework Information Kit: COG's information kit is provided free to individuals and organizations and includes telework fact sheets, a 32-page telework manual, a list of area telework centers, and a list of local and national telework resources. Approximately 3,000 information kits have been distributed since mid-1997.

Telework Web Site: COG's telework web site is accessible through the Commuter Connections Home Page. The site includes information on telework research conducted by COG, a list of area telework centers and links to those centers with web sites, and information on employee and employer seminars. Information from the Telework Demonstration Project is also included.

Telework Bulletin Board System (BBS): The TeleConX BBS was developed by the U.S. General Services Administration to provide information about the Federal government's telework program. Operation of the BBS was transferred to COG in 1997.

Outreach: COG was a participating sponsor of the International Telework Association & Council (ITAC) Conference and Telecommuting Expo held in Crystal City, Virginia, in June 1997. Over 700 people from the Washington metropolitan area attended the conference and expo, and more than 650 people attended one of fifteen local Telecommute America Week events between October 20-24, 1997. Telecommute America is a nation-wide public awareness campaign administered by ITAC.

4. Integrated Ridesharing

This TERM was adopted in 1994 as part of the FY95-00 TIP. The original schedule allowed for two years to integrate the transit information into the ridesharing software and this activity was underway beginning in FY97. The implementation of a regional kiosk project is also dependent upon a successful Commuter Connections software system upgrade.

Several enhancements were completed by a contractor during FY97, however, there have been significant software programming issues that have occurred during FY98 which need to be addressed before full integration of transit, telework center, and park & ride lot information occurs. COG selected a few member client test sites during FY98 to monitor the new Commuter Connections software system as well as the addition of the detailed transit information, telework center information, and park & ride information onto the new software system.

The objective of the regional kiosk project is to develop and implement a regional transportation information source in order to extend the reach and effectiveness of

conventional TDM programs and services to employers and to the general public. In January and February 1998, regional commuter information kiosks were placed at nine sites recommended by a consultant and approved by the High Tech Ad-Hoc Group and the Commuter Connections Subcommittee.

The kiosks, which have been named InfoExpress, are located at Tysons Corner Center, Fair Oaks Mall, Springfield Mall, Wal-Mart in Woodbridge, the Pentagon, Union Station, La Promenade at L'Enfant Plaza, the U.S. Department of Justice and Arlington County Courthouse. The U.S. Department of Justice and Arlington County Courthouse kiosks are mobile units and will be moved to other locations upon request and approval.

As is the case with the other TERMS, applicants to Commuter Connections via the kiosks will be monitored through the regional placement rate survey and regional household telephone survey. Furthermore, a built-in survey on the kiosk application itself will be used to monitor the effectiveness of the kiosks. Results from each of these survey instruments will be used to calculate emission reduction benefits for the TERM by May 1999.



DEPARTMENT OF PUBLIC WORKS
AND TRANSPORTATION

Douglas M. Duncan
County Executive

Graham J. Norton
Director

MEMORANDUM

June 11, 1998

TO: Michael J. Clifford, Systems Planning Applications Director
Metropolitan Washington Council of Governments

FROM: David B. Moss, Planning Manager
Office of Project Development
Department of Public Works and Transportation

DSM

SUBJECT: TERMS Update

Attached is updated information regarding the status of Transportation Emission Reduction Measures (TERMS) which have been submitted by Montgomery County. This updates the information provided last year for these TERMS. Included is implementation information and construction completion dates. If further information is required, please contact me at your convenience.

Attachment
cog\term0198.wpd

TRANSPORTATION EMISSION REDUCTION MEASURES

Projects (FY 95 - 00)

Updated Information

Shady Grove West Park and Ride
White Oak Park and Ride
Pedestrian Facilities to Metrorail

This project is expected to be completed by 2010.
This project is expected to be completed by 2010.
This project has been eliminated from the CIP and has been incorporated into the Annual Sidewalk Program which is an ongoing CIP project.

Bicycle Facilities

Bethesda Trolley Trail is funded and scheduled to be constructed in FY 99.

Projects (FY 96 - 01)

Updated Information

Stamp Out Bad Bus Stops

This project was in the CIP in FY 96 and then eliminated the following year.

Projects (FY 97 - 02)

Updated Information

Lake Forest Transit Center

This project was completed and open to the public in FY 97.

Germantown Transit Center

This project is in the FY 99-04 CIP and is scheduled to be completed by 2004.

Montgomery County Bus Replacement

Montgomery County took delivery of 26 buses during FY 97 which replaced aging buses in the fleet.

Projects (FY 98 - 03)

Updated Information

Montgomery County Bus Replacement

Montgomery County took delivery of 26 buses during FY 98 which replaced aging buses in the fleet.



MASS TRANSIT ADMINISTRATION

MARYLAND DEPARTMENT OF TRANSPORTATION

Parris N. Glendening, Governor • David L. Winstead, Secretary • Ronald L. Freeland, Administrator



June 18, 1998

Mr. Michael Clifford
Metropolitan Washington Council of Governments
Department of Transportation Planning
777 N. Capitol Street, NW
Suite 300
Washington, DC 20002-4226

Dear Mr. Clifford Mike

As requested, the following is a list of TERMS for which the Mass Transit Administration is responsible and their status.

Table with 5 columns: Project No., Project, Status, Projected Completion, Actual Completion. Rows include Germantown Garage Parking, Brunswick Park-n-Ride Lot, MARC Replacement Coaches, and MARC Expansion Coaches.

Project numbers 48 and 49 are behind schedule due to manufacturing problems. Projects 63 and 64 are repeat projects that should not be in the chart.

Please let me know if you have any questions. I can be reached at (410) 767-3772.

Sincerely,

Nancy A. Noonan (handwritten signature)

Nancy A. Noonan
Regional Planner

cc: Ron Spalding



COMMONWEALTH of VIRGINIA
DEPARTMENT OF TRANSPORTATION

DAVID R. GEHR
COMMISSIONER

3975 FAIR RIDGE DRIVE
FAIRFAX, VA 22033
(703) 383-VDOT (8368)

THOMAS F. FARLEY
DISTRICT ADMINISTRATOR

June 19, 1998

Mr. Ron Kirby
Director, transportation Planning
Metropolitan Washington Council of Governments
777 N. Capitol Street, Suite 300
Washington, D.C. 20002

Re: Implementation Status of Conformity TERMS

Dear Mr. Kirby:

Please find enclosed the status report for the Bicycle Parking project of the FY 96-01 CLRP/TIP listing of TERMS. The report for this project was accidentally omitted from the set of implementation status reports that was provided to you by VDOT under Thomas F. Farley's signature dated April 2, 1998. I apologize for any inconvenience this may have caused.

If you have any questions on the enclosed material please contact me at (703) 383-2228.

Sincerely,

A handwritten signature in cursive script that reads "Kanathur N. Srikanth".

Kanathur N. Srikanth
Transportation Engineer

KNS
Enclosure

C: Ms. Jo Anne Soreson
Mr. Kenneth Lantz
Mr. Farid Bigdeli

Bc: Mr. Michael Clifford (w/ enclosure)
Ms. Jane Posey "
Mr. Grady Ketron
Ms. Fatemeh Allahdoust

TCM-70a Bicycle Parking

This TCM was adopted by the TPB during the FY 1996-2001 TIP cycle. The objective of the project is to install 1000 bicycle racks at various locations in Maryland and Virginia (total 2000 bicycle racks). The Virginia Department of Transportation has been working with local jurisdictions to identify locations for installing these racks. A total of 197 locations have been selected to install 291 racks. These racks are scheduled to be installed in fiscal year 1999. The remaining racks are scheduled to be installed in fiscal year 2000. (Ms. Anne Messner)



**Maryland Department of Transportation
State Highway Administration**

Parris N. Glendening
Governor
David L. Winstead
Secretary
Parker F. Williams
Administrator

July 2, 1998

Mr. Michael Clifford
Systems Planning Applications Director
Department of Transportation Planning
Metropolitan Washington Council of Governments
Suite 300
777 North Capitol Street NE
Washington DC 20002-4239

Dear Mr. Clifford:

The following is the latest status of the Maryland State Highway Administration's projects included in the FY 1994-1999, FY 1995-2000, FY 1996-2001, and FY 1997-2002 National Capital Region TIPs for which emission reduction credits were assumed:

FY 1994-1999 TIP

- (1)MD 3, MD 450 to Waugh Chapel Road-signal systemization-completed: 1996
- (2)MD 450, 56th Avenue to MD 564-signal systemization-construction underway-scheduled completion: Fall 1998
- (3)MD 193, Rhode Island Avenue to Hanover Parkway-signal systemization-construction underway-scheduled completion: Fall 1998
- (4)MD 193, South Laurel Avenue to Clubhouse Boulevard-signal systemization-construction underway-scheduled completion: Fall 1998
- (5)MD 193, 15th Street to Metzert Road-signal systemization-completed: 1997
- (6)MD 5, Marlow Heights Shopping Center to MD 637-signal systemization-construction underway-scheduled completion: Fall 1998
- (7)Safety and Geometric Improvements-no longer under consideration-emissions benefits could not be quantified
- (8)MD 355 at MD 187-park and ride lot-add 200 spaces-no longer under consideration-lot operations transferred to Montgomery County Department of Public Works and Transportation
- (9)MD 210/MD 373-park and ride lot-construct 500 space lot-to be advertised for construction this Summer-scheduled completion: Fall 1999

L-33

My telephone number is 410-545-5675

Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free

Word Searchable Version not a True Copy

Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

FY 1995-2000 TIP

- (22)I-70 at Walser Drive-park and ride lot-construct 900 space lot-no longer under consideration-this was one of the proposed station sites for the Frederick MARC extension-site not selected
- (23)MD 117/MD 118-park and ride lot-construct 75 space lot-no longer under consideration-funding reprogrammed for the construction of the two new lots at I-270/MD 80
- (24)I-270/MD 80-park and ride lot-add 100 spaces-replaced with project (98) which removes the existing 194 space lot and replacing it with two new lots of 289 and 301 spaces each-construction underway for the 289 space lot-scheduled completion: Fall 1999-301 space lot-construction to begin in 1999-scheduled completion: Fall 2000
- (26)MD 202, 57th Avenue to Fire House Road-signal systemization-completed: 1996
- (27)MD 4, Forestville Road to Shadyside Drive-signal systemization-construction underway-scheduled completion: Fall 1998
- (28)US 1, Ritz Way to Murkirk Road-signal systemization-completed: 1997
- (29)MD 193, Hanover Parkway to Prospect Hill Road-signal systemization completed: 1996
- (30)MD 212, Cherry Hill Road to Old Gunpowder Road-signal systemization-completed: 1996
- (31)MD 198, Van Dusen Road to US 1-signal systemization-construction underway-scheduled completion: Fall 1998
- (32)MD 450, MD 197 to Race Track Road-signal systemization-no longer under consideration-funding reprogrammed for higher priority projects
- (33)MD 450, MD 564 to Carter Avenue-signal systemization-no longer under consideration-funding reprogrammed for higher priority projects
- (34)MD 450, US 1 Alternate to MD 202-signal systemization-no longer under consideration-funding reprogrammed for higher priority projects
- (35)MD 458, MD 414 to Walker Mill Road-signal systemization-no longer under consideration-funding reprogrammed for higher priority projects
- (36)MD 214, MD 193 to Campus Way-signal systemization-completed: 1996
- (37)MD 223, Steed Road to Dangerfield Road-signal systemization-no longer under consideration-funding reprogrammed for higher priority projects
- (38)MD 85, Executive Way to MD 355-signal systemization-completed: 1996
- (39)MD 355, I-70 Ramps to Grove Road- signal systemization-completed: 1996
- (40)US 301, Excalibur Road to Governor Bridge Road- signal systemization-completed: 1996
- (41)US 301, MD 382 to Rosaryville Road-signal systemization-completed: 1996
- (42)MD 650, Sharidan Street to Metzertott Road-signal systemization-completed: 1996
- (43)MD 410, MD 212 to Taylor Avenue-signal systemization-no longer under consideration-funding reprogrammed for higher priority projects
- (44)MD 410, 62nd Avenue to Riverdale Road-signal systemization-no longer under consideration-funding reprogrammed for higher priority projects
- (45)MD 202, Campus Way to Whitehouse Road-signal systemization-completed: 1996
- (47)Geometric Improvements- no longer under consideration-emissions benefits could not be quantified

Mr. Michael Clifford
Page Three

FY 1996-2001 TIP

(76)MD5/MD 373-park and ride lot-construct 500 space lot-no longer under consideration-land acquisition and environmental issues

FY 1997-2002 TIP

(96)Tulagi Place-park and ride lot-construct a new lot-completed: 1995

(97)MD 5 Relocated/MD 205-park and ride lot-construct 500 spaces-construction underway-scheduled completion: Fall 1998

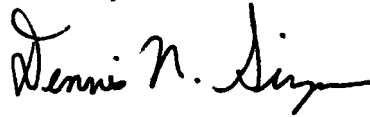
(98)I-270/MD 80-park and ride lot-remove the existing 194 space lot and replace it with two new lots of 289 and 301 spaces each-construction underway for the 289 space lot-scheduled completion: Fall 1999-310 space lot-construction to begin in 1999-scheduled completion: Fall 2000

(99)Hagerstown Telework Center-completed: 1997

(100)Anacostia Bike Trail-completed: 1998

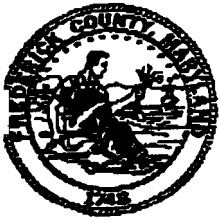
If you have any questions regarding the information provided, please call me or Max Azizi. We may both be reached at (410) 545-5676.

Sincerely,



**Dennis N. Simpson
Assistant Division Chief
Regional and Intermodal
Planning Division**

cc: Mr. Max Azizi, Regional Planner, State Highway Administration
Ms. Nancy Noonan, Regional Representative, Mass Transit Administration
Mr. Howard Simons, Department of Transportation
Mr. Glen Smith, Regional Planner, State Highway Administration
Mr. Ronald Spalding, Senior Regional Planner, Department of Transportation



**DEPARTMENT OF PLANNING AND ZONING
FREDERICK COUNTY, MARYLAND**

Winchester Hall 12 East Church Street Frederick, Maryland 21701 (301) 694-1134

July 8, 1998

Mr. Mike Clifford
MWCOG
777 N. Capital St N.E.
Suite 300
Washington D.C. 20002-4239

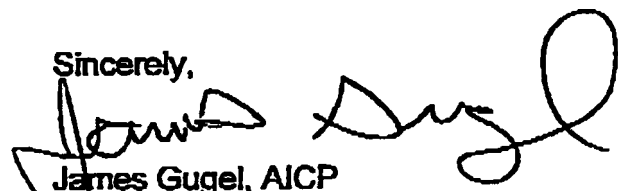
Dear Mr. Clifford:

With regards to the bus replacement and shuttle service items noted in the TIP I have the following information on the implementation of these projects.

- MD 85 Shuffle initiated in October 1996 with 4 trips in the AM and PM peak hours.
- Flex Routes initiated in September 1997 with 2 routes operating from 6:30 AM to 6:00 PM Monday through Friday. This is a fixed route service with the ability to deviate for door to door service.
- Three small buses received in July 1997 for the flex route service. These buses are additions to the fleet.
- The County did not receive any replacement buses in FY 1998.

If you have any questions please feel free to call me at 301-894-1144.

Sincerely,



James Gugel, AICP
Principal Planner

