

## **ITEM 11 - Information**

October 19, 2011

Briefing on the Draft Air Quality Conformity Assessment of  
the 2011 CLRP

**Staff Recommendation:** Receive briefing on the enclosed draft conformity analysis of the 2011 CLRP.

**Issues:** None

**Background:** This conformity assessment and draft plan are scheduled to be released for public comment on October 13. The TPB will be asked to adopt the plan and conformity assessment at its meeting on November 16.

# DRAFT

## **National Capital Region Transportation Planning Board**

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### MEMORANDUM

October 12, 2011

**To: Transportation Planning Board**

**From: Jane Posey  
Senior Transportation Engineer**

**Subject: Air Quality Conformity Assessment for the 2011 Update of the Constrained Long Range Plan (CLRP)**

### INTRODUCTION

This memo documents summary results of the air quality conformity assessment of the 2011 CLRP with respect to the following pollutants:

- **Ozone Season Volatile Organic Compounds (VOC) and Nitrogen Oxides (NO<sub>x</sub>).** Ozone season pollutants must not exceed EPA approved totals from the Metropolitan Washington Air Quality Committee's (MWAQC's) Motor Vehicle Emissions Budgets (MVEBs) from the 8-hour Ozone State Implementation Plan (SIP). MWAQC adopted the 8-hour ozone SIP in May, 2007, and on September 4, 2009, EPA found adequate the 2008 Reasonable Further Progress (RFP) budgets, and stated that the Metropolitan Washington region must use these budgets for future conformity determinations for the 8-hour ozone standard. The RFP budget for VOC is 70.8 tons/day, and for NO<sub>x</sub> is 159.8 tons/day. Ozone season pollutants will no longer be assessed against 1-hour ozone budgets.
- **Fine Particles (PM<sub>2.5</sub>).** In the absence of approved budgets EPA, allows for an assessment that shows emissions in "action" scenarios are no greater than those in a 2002 base. This criterion was established and applied, with the concurrence of MWAQC, in prior PM<sub>2.5</sub> conformity assessments.
- **Wintertime Carbon Monoxide (CO).** The region is in maintenance for mobile source wintertime CO, and is required to show that pollutants do not exceed the approved budget of 1671.5 tons/day.

The analysis shows that mobile emissions are well within the mobile budgets for ozone season VOC and NO<sub>x</sub>, as well as wintertime CO, and are well below the 2002 base year levels for the PM<sub>2.5</sub> pollutants.

The results, based upon analyses contained in the technical report, [Air Quality Conformity Determination Of The 2011 Constrained Long Range Plan For The Washington Metropolitan](#)

Region, were released for public comment and interagency consultation on October 13, 2011. The public comment period is scheduled to end on November 12, 2011.

## **BACKGROUND**

The Transportation Planning Board (TPB) approved the scope of work and the project submissions for the 2011 CLRP air quality conformity analysis on March 16, 2011.

Key technical inputs to the analysis include:

- Round 8.0a Cooperative Land Activity Forecasts
- The Version 2.3 Travel Demand Model including a 3722 Transportation Analysis Zones (TAZ) area system and updated transit service
- New Project Submissions
- 2008 Vehicle Registration Data
- EPA's Mobile6.2 Emissions Factor Model.

## **WORK ACTIVITIES**

Staff prepared inventories for each pollutant for five forecast years (2002, 2016, 2020, 2030 and 2040). Ozone season pollutants (VOC and NO<sub>x</sub>) and wintertime CO are inventoried for average weekday conditions, and precursor NO<sub>x</sub> and direct PM<sub>2.5</sub> are inventoried to reflect emissions on a yearly total basis. Staff applied seasonal adjustment factors to convert daily travel (annual average weekday traffic or AAWDT) to annual values.

These inventories address a primary conformity assessment criterion to demonstrate that emissions associated with the plan do not exceed the approved budgets. In anticipation of possible emissions increases associated with implementation of the plan, staff (in conjunction with the TPB Technical Committee and its Travel Management Subcommittee) conducted parallel analyses of committed and potential new transportation emissions reduction measures (TERM)s, and documented emissions benefits for each analysis year.

### **Plan Amendments**

Attachment A lists the major changes to the conformity project inputs since the 2010 CLRP.

### **Land Activity Forecasts**

The COG Board approved Round 8.0 Cooperative Forecasts in November, 2010. The forecasts reflect both the small area land use distributions throughout the Washington region, and also the latest planning assumptions for areas that are outside the Washington region. When the Baltimore Metropolitan Council recently updated its land use data, COG included those data in a new round of cooperative forecasts, Round 8.0a. The new data were used for the conformity analysis of the 2011 CLRP. Attachment B shows a summary of the Round 8.0a data.

## **Travel Modeling Process**

The new Version 2.3 travel demand model was used for the first time in an air quality conformity analysis. The model includes a finer-grain zone system (3722 instead of 2191 TAZs) and a more detailed street base than that of the Version 2.2 model. Staff completely re-calibrated and re-validated the new model using the 2007/2008 household survey, numerous on-board transit surveys, 2007 Highway Performance Monitoring System (HPMS) traffic count data, and 2007 American Community Survey (ACS) data. The new model, reviewed extensively by the Travel Forecasting Subcommittee, contains numerous upgrades and additional technical parameters, enabling an improved analysis of travel in the region. For more information, review the December 2010 presentation to the TPB Technical Committee, or the Version 2.3 model documentation, both of which are located on the COG website.

In addition, in this air quality conformity assessment the definition of what constitutes a “regionally significant” project was changed. In the past, any project that changed any link in the regional highway or transit network was considered “regionally significant”. The new definition maintains the same threshold for “regional significant” as in the past, but accounts for the finer-grain zone system and more detailed street base. Attachment C contains a technical memo about regional significance.

Staff prepared travel demand forecasts for each of the analysis years using the Version 2.3 travel demand model. Exhibit 1 presents the geographic areas for travel modeling and for emissions reporting for each pollutant. Exhibit 2 presents the resulting average weekday transit trips, vehicle trips, and vehicle miles traveled (VMT) results through time for each conformity analysis year, for the full modeled area.

## **Emissions Factors**

Staff developed emissions factors using EPA’s MOBILE6.2 emissions model. Emissions rates for each pollutant – shown illustratively for Fairfax County in Exhibits 3 and 4 -- were developed following execution of the model in one mph speed increments, by jurisdiction, for each analysis year. The chart shows significantly reduced rates through time, primarily due to the impacts of having cleaner fuel and vehicles in the fleet. Exhibit 5 presents direct PM<sub>2.5</sub> emissions rates through time for each of the three seasons; data are arrayed in a bar chart since these emissions rates do not vary by vehicle speed.

## **Mobile Emissions Inventories**

### *Ozone Season and Wintertime CO – Daily Emissions*

The average annual weekday travel forecasts (AAWDT) generated by the travel demand model were adjusted, using a 1.03 ozone season factor or a 0.96 winter season factor, to develop seasonally appropriate VMT estimates. Staff then applied the appropriate Mobile6.2 emissions factors to the travel demand forecasts to prepare mobile source emissions inventories for each forecast year. These emissions results for ozone season pollutants are summarized in Exhibits 6 and 7 and indicate total VOC and NO<sub>x</sub> emissions for each analysis year. The charts show dramatic reductions throughout the period. Historical emissions reductions from the Clean Air Act amendments 1990 base have been well documented in the past. 2040 VOC and NO<sub>x</sub> emissions represent about 13 percent and less than

9 percent, respectively, of their 1990 levels. The results reflect the impact of the cleaner fuel / fleet and related programs.

### *PM<sub>2.5</sub> – Yearly Emissions*

To develop the yearly total PM<sub>2.5</sub> emissions, travel and emissions were estimated by applying (three) seasonal factors to the primary travel data, followed by applying emissions rates for each of the seasons, and summarizing to obtain yearly totals. Direct PM<sub>2.5</sub> and precursor NO<sub>x</sub> emissions are shown in Exhibits 8 and 9. The emissions reductions through time are largely attributable to Tier II vehicle standards, cleaner fuels, and the heavy duty engine rule.

### *2011 CLRP Emissions Inventories vs. Budgets*

Exhibits 6-9 display net emissions in comparison to emissions budgets for each forecast year. The charts show that emissions are within the mobile budgets (including budgets not yet approved by EPA) for each pollutant, for all forecast years. Wintertime CO emissions (contained in a full technical report but not summarized here) are also within the CO emissions budget.

Exhibits 8 and 9 show that both direct PM<sub>2.5</sub> and precursor NO<sub>x</sub> emissions are much lower than base year 2002 conditions and are within the proposed mobile budgets, for all forecast years, satisfying this additional conformity assessment criterion for PM<sub>2.5</sub>.

## **Net Emissions Analysis**

The emissions inventory data contained in Exhibits 6-9 reflect total mobile source network and off-network emissions. However, there are also emissions benefits associated with certain other transportation programs and projects. These benefits, estimated on an off-line basis, are also creditable in conformity analyses. Attachment D represents a summary table of these transportation emissions reduction measures, or TERMS, which have been previously planned or programmed by the TPB. They are arrayed in a ‘Tracking Sheet’ format to document the implementation status of each, with part A of the table documenting ozone season and part B documenting PM<sub>2.5</sub> pollutants. The summary result of these measures, shown as the bottom line for each section of the table, amounts to additional reductions in each of the pollutants. Only those projects which have been affirmed by the implementing agency as having been completed, or are on a realistic schedule towards implementation, are being credited in this emissions analysis. Combining the emissions results in Exhibits 6-9 with the additional reductions from TERMS would further improve the emissions margins for each pollutant.

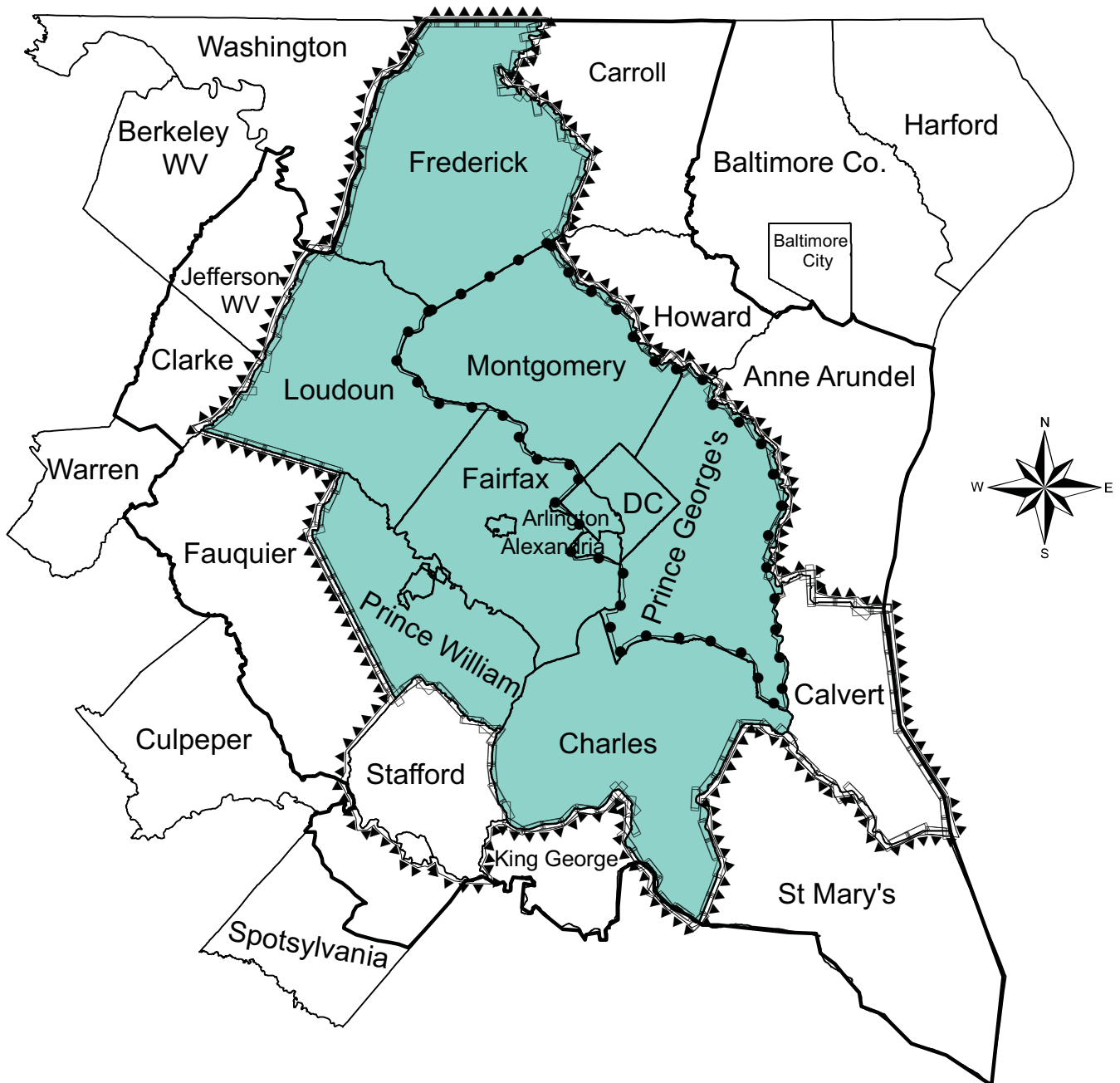
## **SUMMARY**

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

Following: Exhibits 1-9  
Attachments A - D

# EXHIBIT 1

## Washington, D.C.- Maryland - Virginia Planning Areas



**Exhibit 2**  
**Travel Demand Summary**  
**Modeled Area Trips and Vehicle Miles Traveled (000's)**  
**Average Weekday Traffic (AWDT)**

|                      | <u>2002</u> | <u>2016</u> | <u>2020</u> | <u>2030</u> | <u>2040</u> |
|----------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Transit Trips</b> | 1,093.2     | 1,308.1     | 1,418.3     | 1,538.8     | 1,634.6     |
| <b>Vehicle Trips</b> | 14,882.3    | 17,629.1    | 18,373.3    | 20,029.1    | 21,366.4    |
| <b>VMT</b>           | 150,749.5   | 178,691.9   | 186,431.9   | 203,867.2   | 219,161.9   |

**Adjustment Factors to Convert AAWDT to Appropriate Season:**

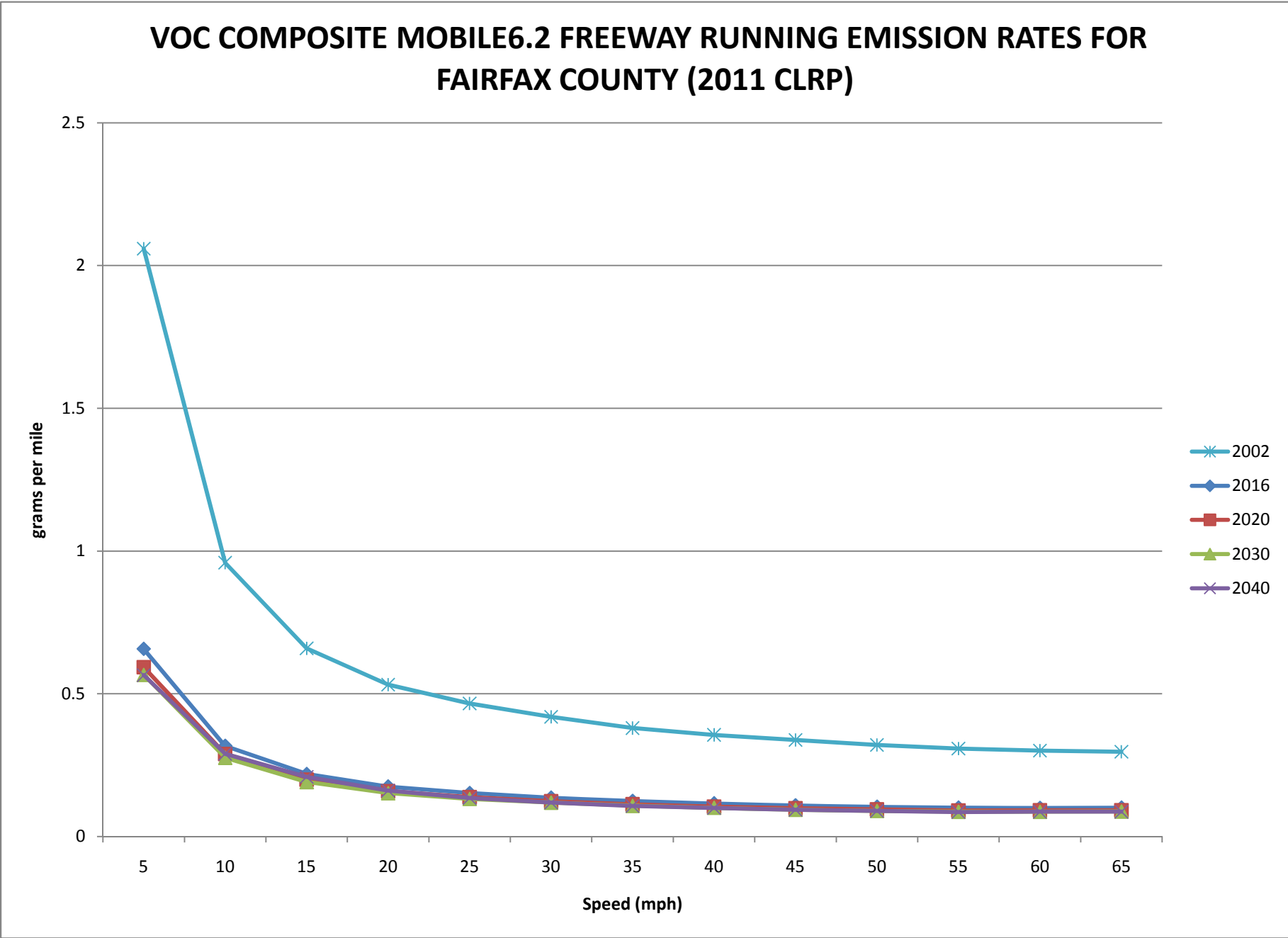
**Ozone Season AWDT: 1.03**

**Winter Season AWDT: 0.96**

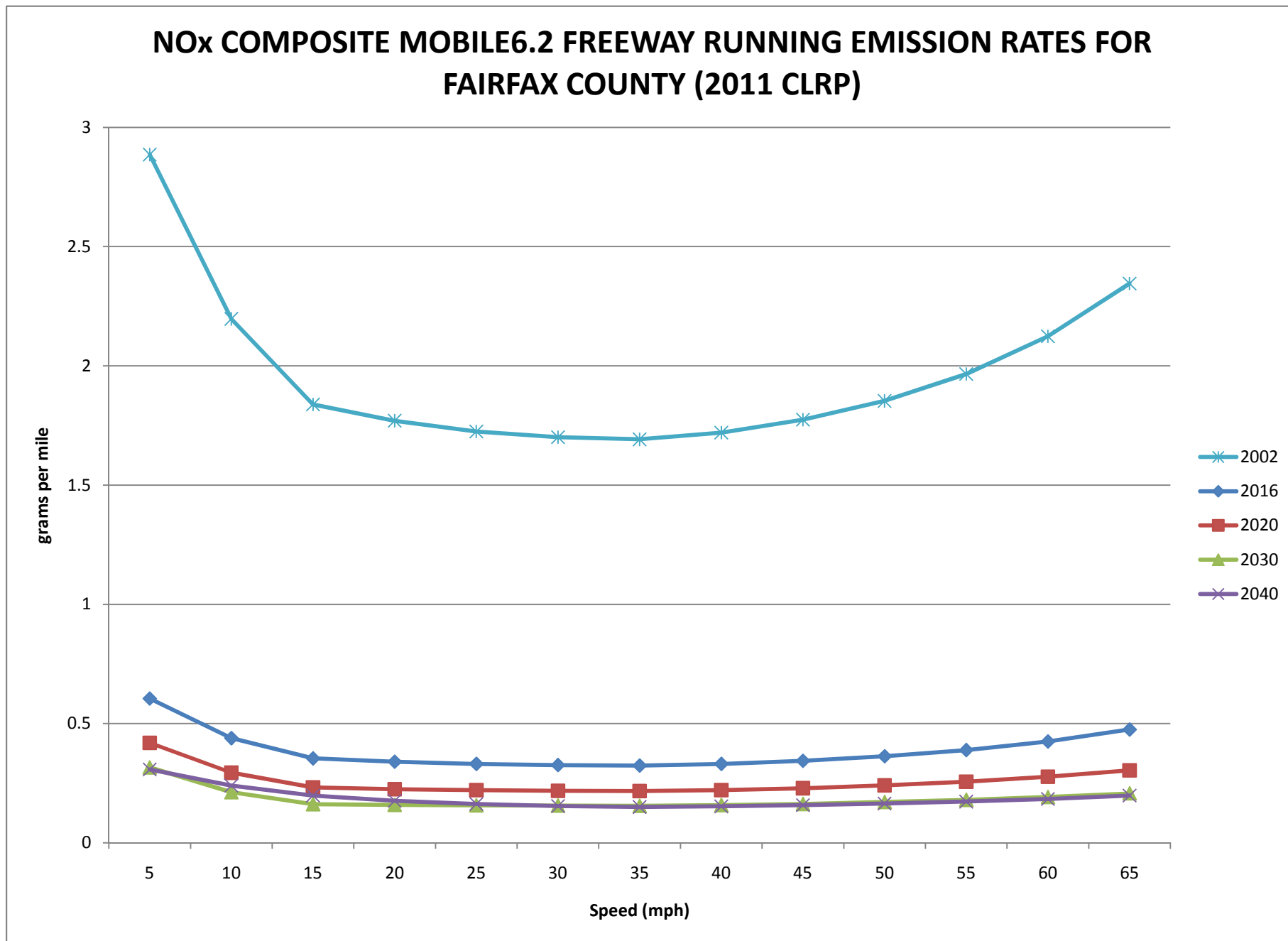
**PM2.5 Annual:**

| <b>Season (ADT)</b>  | <b>Factor</b> |
|----------------------|---------------|
| Season 1 (Jan- Apr)  | 0.9177        |
| Season 2 (May- Sept) | 0.9751        |
| Season 3 (Oct- Dec)  | 0.9212        |

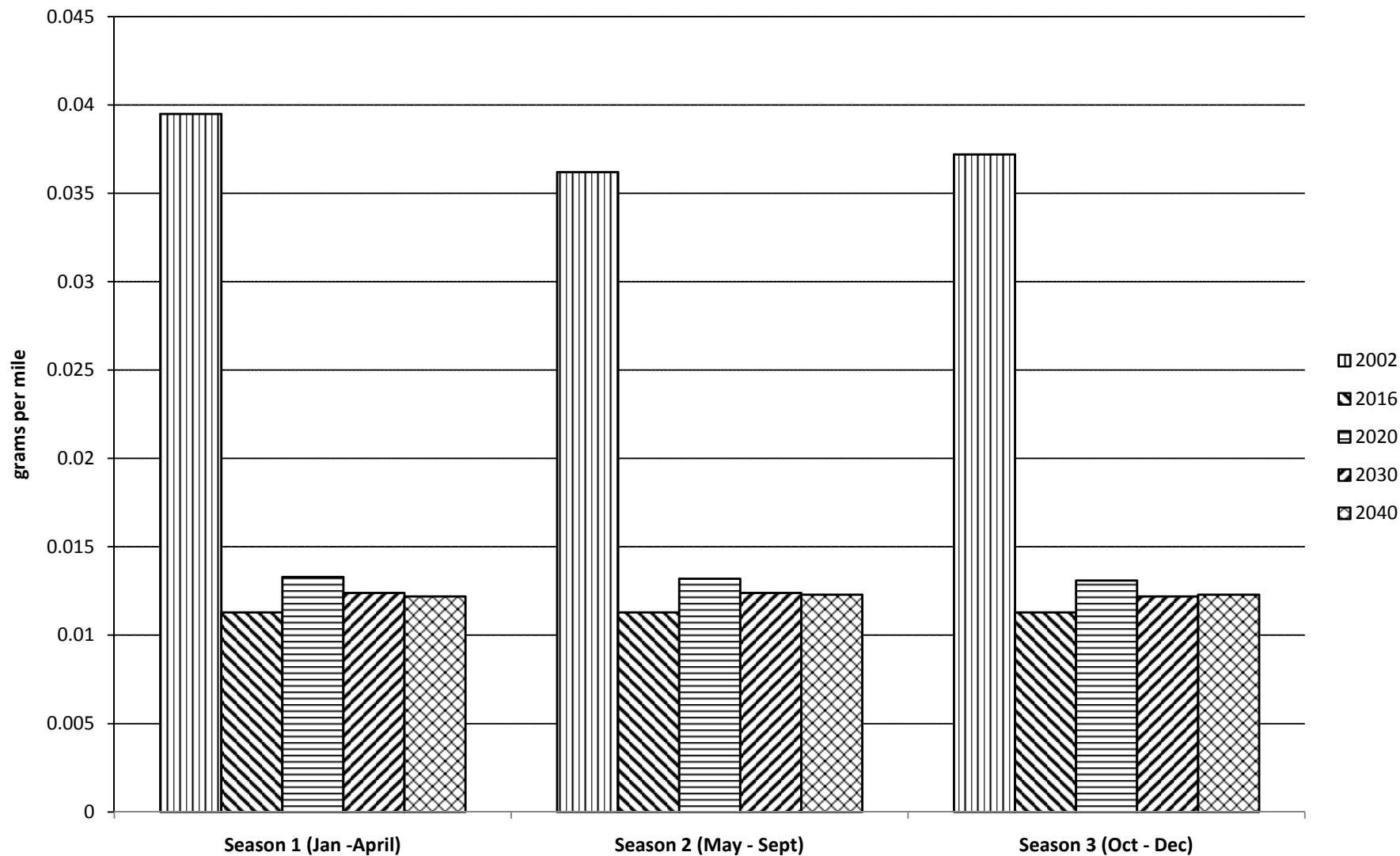
**NOTE:** AWDT reflects a five day average  
ADT reflects a seven day average





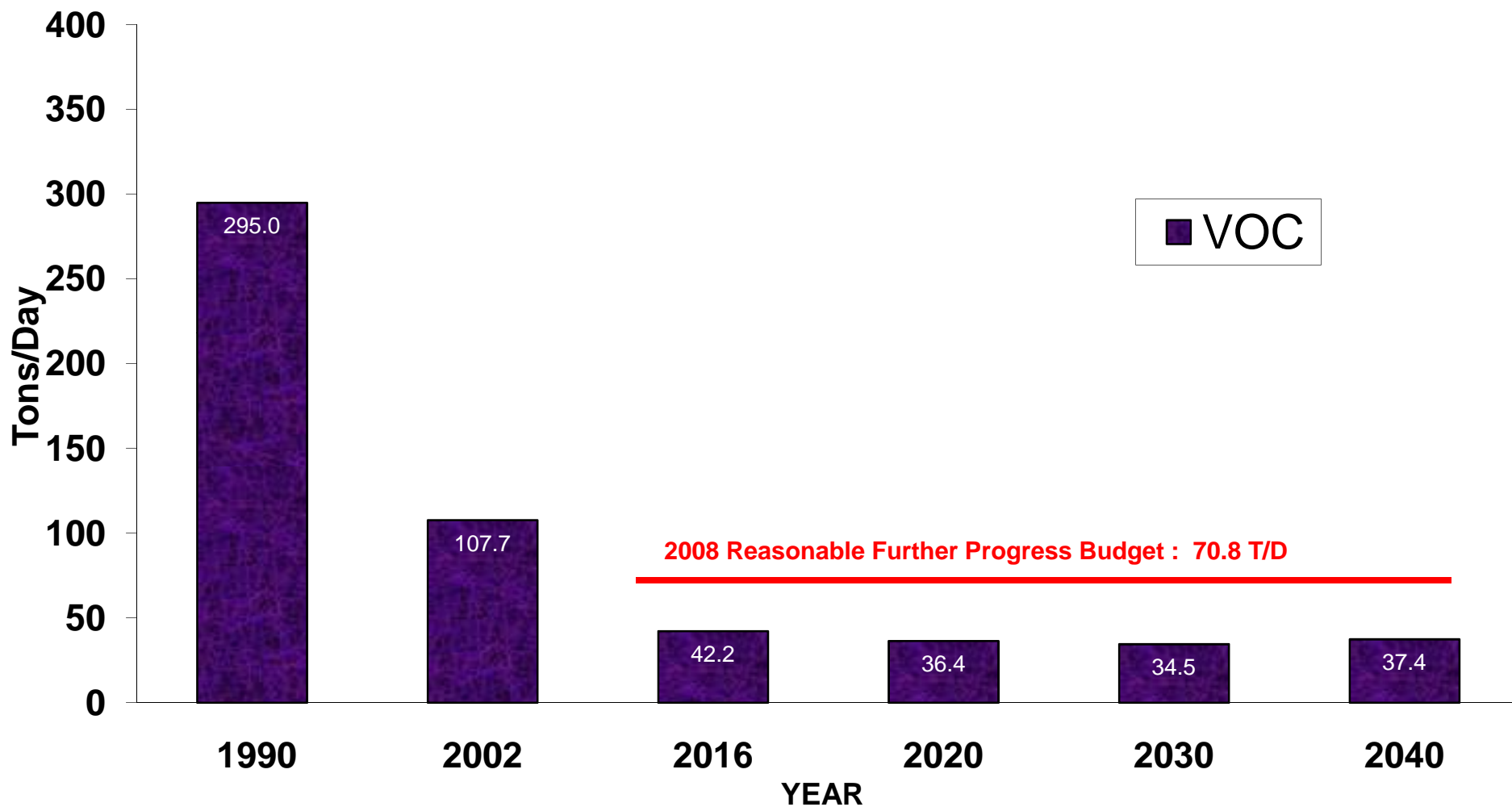


### Exhibit 5 DIRECT PM<sub>2.5</sub> EMISSION RATES FOR FAIRFAX COUNTY (MAJOR ROADS NETWORK)



# EXHIBIT 6

## Mobile Source VOC Emissions for the 8-Hour Ozone Nonattainment Area 2011 CLRP



# EXHIBIT 7

## Mobile Source NOx Emissions for the 8-Hour Ozone Nonattainment Area 2011 CLRP

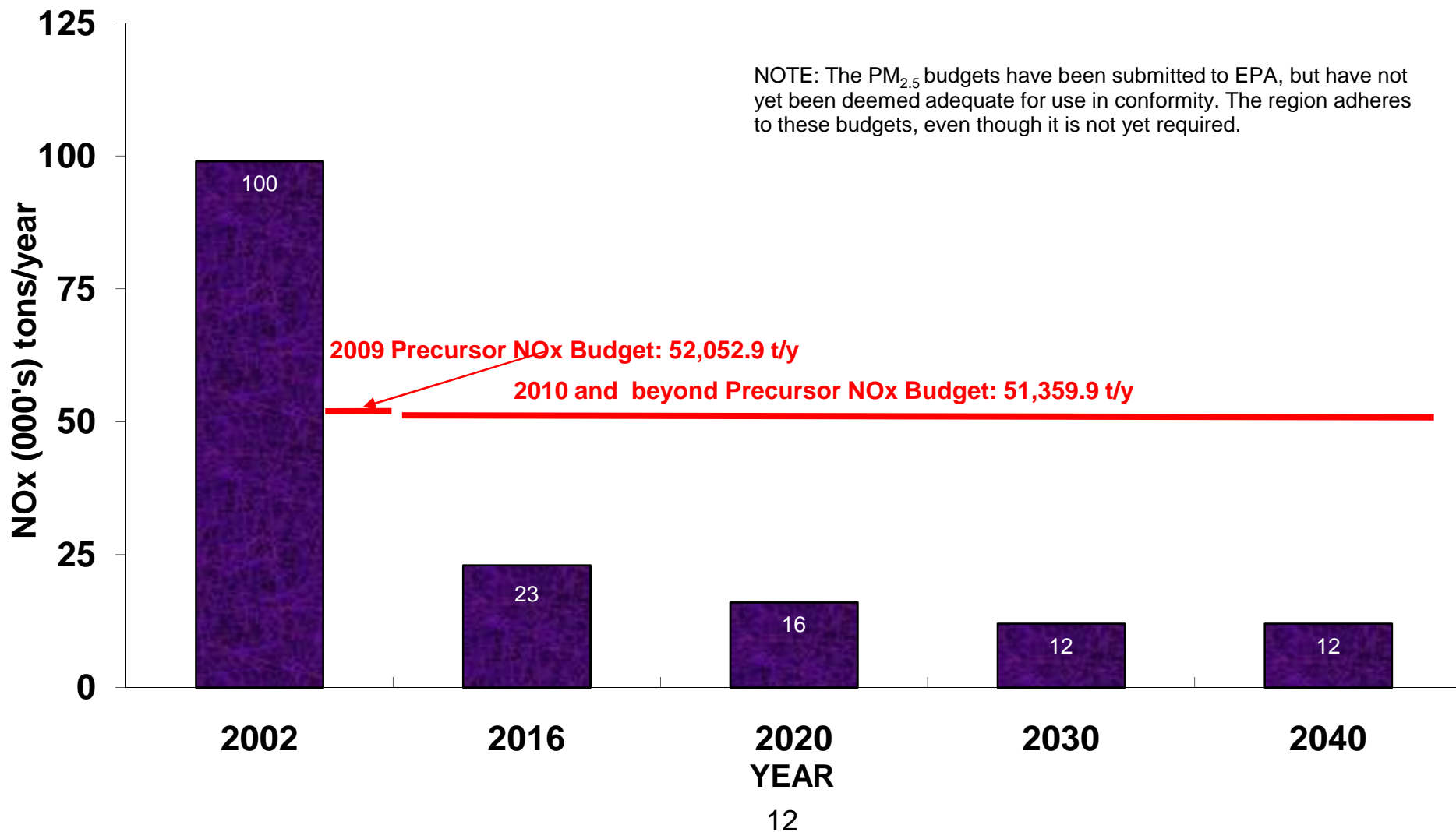


# EXHIBIT 8

## Mobile Source Emissions

### 2011 CLRP Precursor NOx

NOTE: The PM<sub>2.5</sub> budgets have been submitted to EPA, but have not yet been deemed adequate for use in conformity. The region adheres to these budgets, even though it is not yet required.

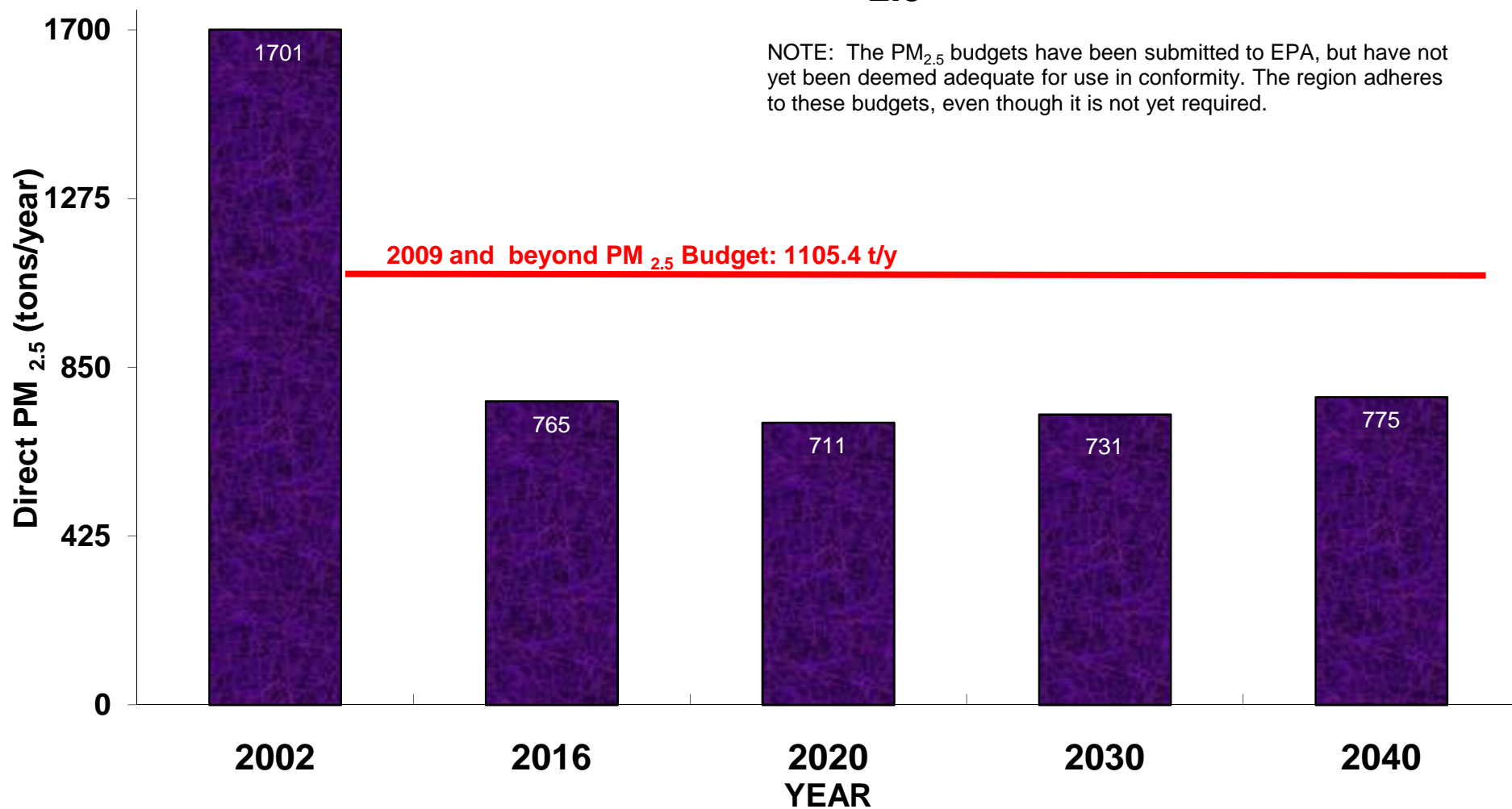


# EXHIBIT 9

## Mobile Source Emissions

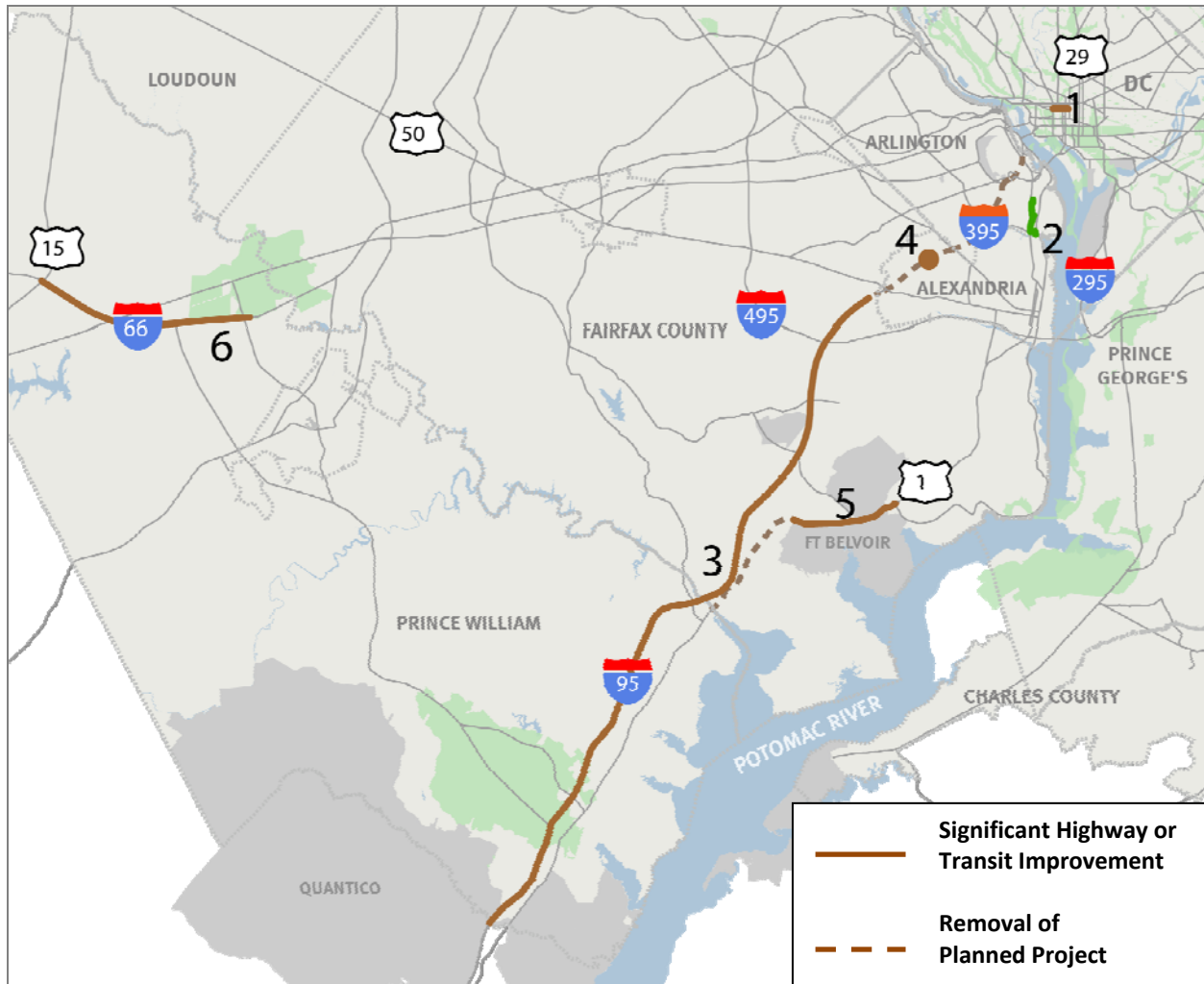
### 2011 CLRP

#### Direct PM<sub>2.5</sub>



# **ATTACHMENT A**

# Significant Additions and Changes to The 2011 Update to the Financially Constrained Long-Range Transportation Plan



## Significant Additions and Changes to the CLRP

1. H STREET, NW PEAK PERIOD BUS-ONLY LANE
2. CRYSTAL CITY – POTOMAC YARD STREETCAR
3. I-395/I-95 HOV AND HOT LANES PROJECT LIMIT CHANGES \*
4. I-395 HOV LANES REVERSIBLE RAMP FROM/TO SEMINARY ROAD\*
5. WIDENING OF US 1 PROJECT LIMIT CHANGE
6. WIDEN I-66 GENERAL PURPOSE AND HOV LANES\*

\* These projects were approved as amendments to the 2010 Update to the CLRP on July 18, 2011.



## DISTRICT OF COLUMBIA

### 1. H Street, NW Peak Period Bus-Only Lane from 17<sup>th</sup> St. to New York Ave.

H Street NW is one-way, running eastbound between 17<sup>th</sup> Street and New York Avenue. Parking restrictions are in effect on both sides of the street during morning (7:00 – 9:30 a.m.) and evening (4:00 – 6:30 p.m.) peak periods, allowing for five lanes of traffic. This project proposes to use one of those five lanes as a bus-only lane during the peak periods.

Complete: 2012  
Length: 0.5 mile  
Cost: \$250,000  
Funding: Local



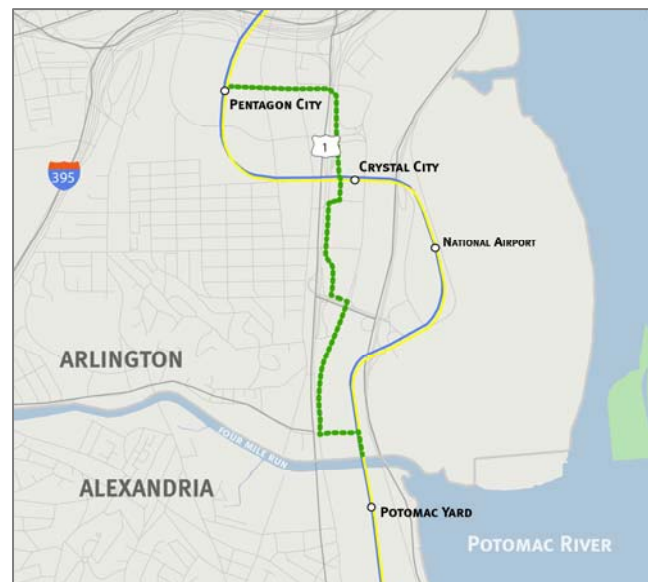
See the project description in Attachment A for more information.

## VIRGINIA

### 2. Crystal City – Potomac Yard Streetcar in Arlington County

This project will construct and operate a streetcar system that runs parallel to US 1 (Jefferson Davis Highway) from the Pentagon City Metro station to Four Mile Run at the city limit of Alexandria. The CLRP currently includes an exclusive bus transitway project along most of the same route that is scheduled to open in 2013. The streetcar system will replace the bus service in 2018.

Complete: 2018  
Length: 2.25 miles  
Cost: \$160 million  
Funding: Federal, state and local

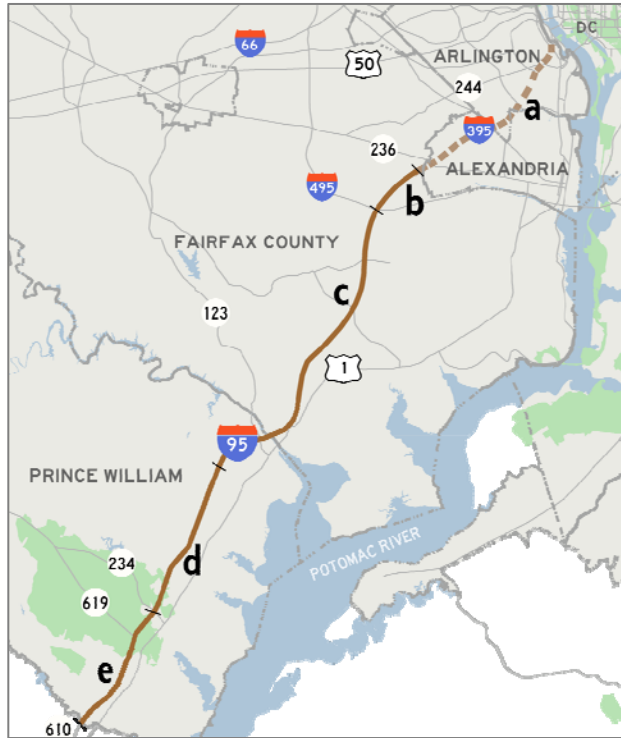


See the project description in Attachment A for more information.

The completion date of the Potomac Yard Metro Station is also being advanced from 2030 to 2017.

**3. I-395/I-95 HOV and HOT Lanes from 2 miles north of I-495 to VA 610**

This project is currently included in the CLRP as a system of High-Occupancy Toll, or HOT lanes between Eads Street in Arlington County and VA 610 (Garrisonville Road) in Stafford County. HOT lanes will be available to HOV-3, transit and emergency response vehicles free of charge. Other vehicles may use the facility by paying an electronic toll. Tolls will vary based on time of day, day of week, and level of congestion in order to maintain free-flow conditions. VDOT is proposing to reconfigure the project, including the elimination of the implementation of HOT lanes on I-395 inside the Capital Beltway. The changes are summarized in the table below:



| Map Index | Current CLRP Project Includes | VDOT Proposed Change to Current CLRP Project | Description of Proposed Configuration   |
|-----------|-------------------------------|--|---|
| a         | 3 HOT Lanes                   | 2 HOV Lanes                                  | Eliminate the implementation of HOT lanes on I-395 inside the Capital Beltway   |
| b         | 3 HOT Lanes                   | 3 HOT Lanes (no change)                      | Widen the existing HOV facility from 2 to 3 lanes on I-395 from I-495 (Capital Beltway) to approximately 2 miles north, in the vicinity of Turkeycock Run and convert to HOT lanes  |
| c         | 3 HOT Lanes                   | 3 HOT Lanes                                  | Widen the existing HOV facility from 2 to 3 lanes on I-95 from I-495 to VA 3000, Prince William Parkway and convert to HOT lanes  |
| d         | 3 HOT Lanes                   | 2 HOT Lanes                                  | Convert the existing 2-lane HOV facility from VA 3000, Prince William Parkway to VA 234 (Dumfries Road) into HOT lanes  |
| e         | 2 HOT Lanes                   | 2 HOT Lanes (no change)                      | Construct 2 new HOT lanes from VA 234 (Dumfries Rd.) to VA 610 (Garrisonville Rd.)  |
| f         | 2 HOT Lanes                   | 2 HOT Lanes (no change)                      | Two HOT lanes will continue 10 miles south to the VA 17/US 1 Massaponax exit in Spotsylvania County. This portion of the project is outside the TPB's planning area and will be coordinated with the Fredericksburg area MPO (FAMPO). |

## I-395/I-95 HOV and HOT Lanes (continued)

### Transit Service Plan

At this time, VDOT is also proposing to remove the elements of the transit service plan that had previously been included in the CLRP as a part of the I-95/I-395 HOV/Bus/HOT Lanes project. VDOT is working with local jurisdictions and transit agencies to develop a revised set of transit and transportation demand management (TDM) improvements for the corridor. These transit and TDM measures will be proposed as a separate project for inclusion in the CLRP at a later date. Please see the table that follows the CLRP project description form in Attachment A for a full listing of the elements from transit service plan being removed.

Complete: 2015  
Length: 27 miles (not including southern portion from VA 610 to VA17/US 1)  
Cost: \$1.01 billion  
Funding: Federal, state, local and private

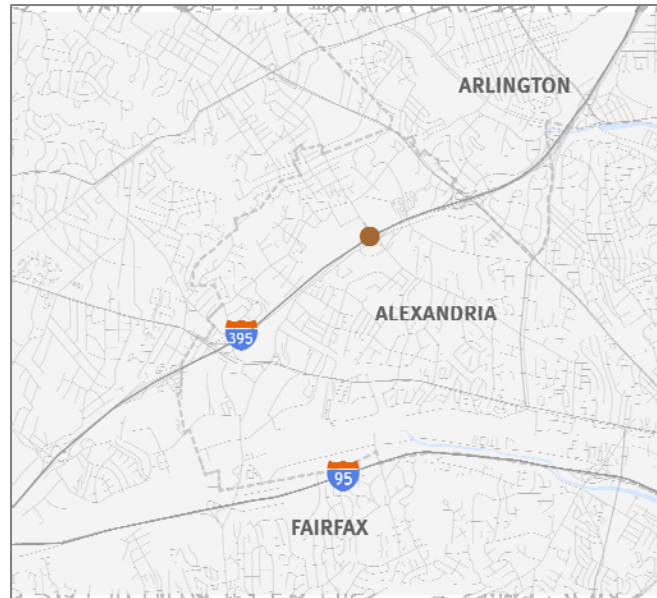
See the project description in Attachment A for more information.

*Note: This project was included as an amendment to the CLRP on July 18, 2011.*

#### 4. I-395 HOV Lanes Reversible Ramp from/to Seminary Road

VDOT is proposing to construct a new reversible on/off ramp that connects Seminary Road and the I-395 HOV lanes to and from the south. This project adds HOV and transit access to accommodate the expected increase in travel generated by Department of Defense employees at the nearby Mark Center.

Complete: 2015  
Cost: \$80 million  
Funding: Federal and state



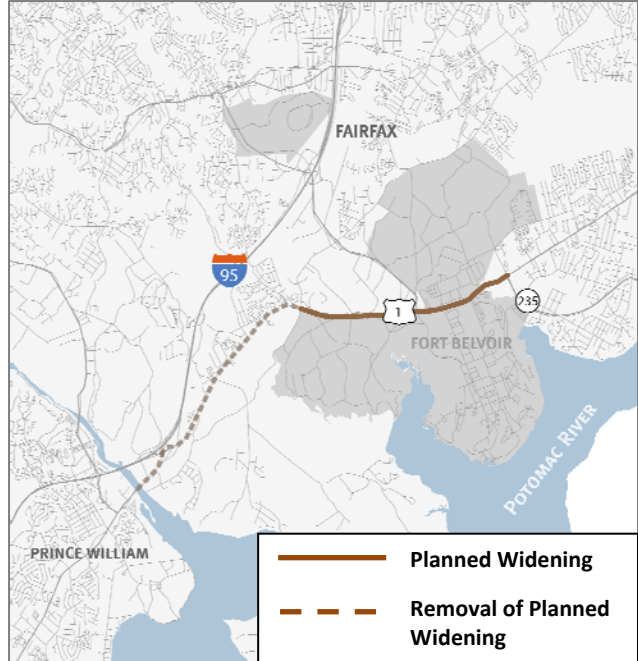
See the project description in Attachment A for more information.

*Note: This project was included as an amendment to the CLRP on July 18, 2011.*

**5. Widening of US 1 – Project Limit Change from VA 235 South to VA 611**

This project is currently included in the CLRP as a widening of US 1 (Richmond Highway) from 4 to 6 lanes from VA 235 South (Mt. Vernon Memorial Highway) to the Occoquan River/Prince William County Line. VDOT is proposing to remove approximately 4 miles of widening from the southern end of the project and change the southern limit to VA 611 (Telegraph Road).

Complete: 2020  
Length: 3.5 miles  
Funding: Federal and state

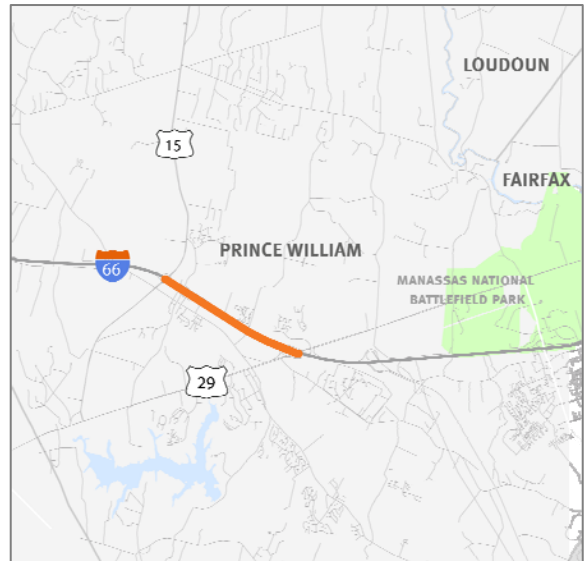


See the project description in Attachment A for more information.

**6. Widen I-66 General Purpose and HOV Lanes from US 15 to US 29 (near Gainesville)**

This project is currently included in the CLRP as a widening to construct HOV Lanes on I-66 between US 15 (James Madison Highway) and US 29 (Lee Highway) in Gainesville. VDOT is proposing to also add an additional general purpose lane in each direction to I-66 within the same limits. The completion date of the project is advancing from 2020 to 2018.

Length: 2.5 miles  
Complete: 2018  
Cost: \$131.9 million  
Funding: Federal



See the project description in Attachment A for more information.

*Note: This project was included as an amendment to the CLRP on July 18, 2011.*

# **ATTACHMENT B**

## HOUSEHOLD DATA

| <b>MSA:</b>                 | <b>2002</b>      | <b>2016</b>      | <b>2020</b>      | <b>2030</b>      | <b>2040</b>      | <b>2040/2002</b> |
|-----------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| <b>D.C.</b>                 | 250368           | 289210           | 296765           | 317235           | 338980           | 1.35             |
| <b>MONTGOMERY</b>           | 333721           | 381202           | 398000           | 438000           | 463000           | 1.39             |
| <b>PR.GEORGES</b>           | 293125           | 321489           | 331066           | 348806           | 360110           | 1.23             |
| <b>ARLINGTON</b>            | 89022            | 109350           | 114382           | 121341           | 124207           | 1.40             |
| <b>ALEXANDRIA</b>           | 63658            | 69544            | 73678            | 82884            | 90555            | 1.42             |
| <b>FAIRFAX</b>              | 373857           | 423440           | 442272           | 479839           | 502041           | 1.34             |
| <b>LOUDOUN</b>              | 70936            | 115614           | 127409           | 150209           | 158299           | 2.23             |
| <b>PR. WILLIAM</b>          | 120216           | 175818           | 188801           | 214454           | 231495           | 1.93             |
| <b>FREDERICK</b>            | 73839            | 97562            | 104139           | 123125           | 147529           | 2.00             |
| <b>CHARLES</b>              | 43963            | 58877            | 64299            | 75847            | 85901            | 1.95             |
| <b>STAFFORD</b>             | 31991            | 53467            | 59037            | 72712            | 86205            | 2.69             |
| <b>CALVERT</b>              | 27231            | 34648            | 36027            | 38348            | 40301            | 1.48             |
| <b>SUBTOTAL</b>             | <b>1,771,927</b> | <b>2,130,221</b> | <b>2,235,875</b> | <b>2,462,800</b> | <b>2,628,623</b> | <b>1.48</b>      |
| <b>ADDITIONAL COUNTIES:</b> |                  |                  |                  |                  |                  |                  |
| <b>HOWARD</b>               | 94669            | 119279           | 125600           | 135486           | 137773           | 1.46             |
| <b>ANNE ARUNDEL</b>         | 184157           | 212270           | 217782           | 229371           | 234332           | 1.27             |
| <b>CARROLL</b>              | 55264            | 66475            | 69614            | 76111            | 81464            | 1.47             |
| <b>FREDERICKSBURG (VA)</b>  | 8372             | 11852            | 12462            | 13971            | 15469            | 1.85             |
| <b>JEFFERSON</b>            | 17015            | 23743            | 25957            | 33075            | 41527            | 2.44             |
| <b>N. SPOTSYLVANIA</b>      | 26738            | 44243            | 48536            | 58796            | 68631            | 2.57             |
| <b>FAUQUIER</b>             | 21446            | 31932            | 35730            | 47502            | 63154            | 2.94             |
| <b>CLARKE</b>               | 5162             | 6483             | 6722             | 7487             | 8308             | 1.61             |
| <b>K. GEORGE</b>            | 6698             | 10358            | 11411            | 14030            | 16659            | 2.49             |
| <b>ST. MARY'S</b>           | 32358            | 45406            | 49352            | 58143            | 66509            | 2.06             |
| <b>SUBTOTAL</b>             | <b>451,879</b>   | <b>572,041</b>   | <b>603,166</b>   | <b>673,972</b>   | <b>733,826</b>   | <b>1.62</b>      |
| <b>TOTAL</b>                | <b>2,223,806</b> | <b>2,702,262</b> | <b>2,839,041</b> | <b>3,136,772</b> | <b>3,362,449</b> | <b>1.51</b>      |

**SOURCE:**

MWCOG Round 8.0a Cooperative Forecasts

BMC Round 7-C Cooperative Forecasts

GWRC/FAMPO Regional Demographic Control Forecasts for 2035 CLRP, June 2008

Tri-County Council for Southern Maryland data for Calvert, Charles and St. Mary's

## EMPLOYMENT DATA

| MSA:                        | 2002      | 2016      | 2020      | 2030      | 2040      | 2040/2002 |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>D.C.</b>                 | 746305    | 831978    | 868256    | 923988    | 977163    | 1.31      |
| <b>MONTGOMERY</b>           | 483874    | 548995    | 585000    | 673000    | 723000    | 1.49      |
| <b>PR.GEORGES</b>           | 342830    | 372836    | 383635    | 419635    | 474635    | 1.38      |
| <b>ARLINGTON</b>            | 187611    | 223332    | 243835    | 268606    | 281120    | 1.50      |
| <b>ALEXANDRIA</b>           | 95861     | 118958    | 124115    | 142257    | 160447    | 1.67      |
| <b>FAIRFAX</b>              | 624887    | 738102    | 788508    | 863803    | 917484    | 1.47      |
| <b>LOUDOUN</b>              | 104548    | 175340    | 206458    | 257195    | 285415    | 2.73      |
| <b>PR. WILLIAM</b>          | 127700    | 171087    | 188769    | 232597    | 280697    | 2.20      |
| <b>FREDERICK</b>            | 106624    | 152823    | 158278    | 167257    | 175109    | 1.64      |
| <b>CHARLES</b>              | 48557     | 69099     | 71731     | 77537     | 83138     | 1.71      |
| <b>STAFFORD</b>             | 32668     | 49828     | 54627     | 65101     | 74224     | 2.27      |
| <b>CALVERT</b>              | 26637     | 41736     | 44457     | 47159     | 48955     | 1.84      |
| <b>SUBTOTAL</b>             | 2,928,102 | 3,494,114 | 3,717,669 | 4,138,135 | 4,481,387 | 1.53      |
| <b>ADDITIONAL COUNTIES:</b> |           |           |           |           |           |           |
| <b>HOWARD</b>               | 140776    | 183911    | 194977    | 221168    | 231902    | 1.65      |
| <b>ANNE ARUNDEL</b>         | 260720    | 313692    | 329042    | 358320    | 370904    | 1.42      |
| <b>CARROLL</b>              | 57356     | 69854     | 70813     | 72456     | 74090     | 1.29      |
| <b>FREDERICKSBURG (VA)</b>  | 23746     | 32013     | 34848     | 41034     | 46360     | 1.95      |
| <b>JEFFERSON</b>            | 17010     | 24093     | 26115     | 30675     | 35780     | 2.10      |
| <b>N. SPOTSYLVANIA</b>      | 29775     | 39756     | 43578     | 51966     | 59240     | 1.99      |
| <b>FAUQUIER</b>             | 22308     | 31551     | 35762     | 43360     | 52578     | 2.36      |
| <b>CLARKE</b>               | 6077      | 7328      | 7685      | 8550      | 9518      | 1.57      |
| <b>K. GEORGE</b>            | 9345      | 11732     | 13150     | 16390     | 19339     | 2.07      |
| <b>ST. MARY'S</b>           | 49613     | 64715     | 67268     | 71969     | 75862     | 1.53      |
| <b>SUBTOTAL</b>             | 616,726   | 778,645   | 823,238   | 915,888   | 975,573   | 1.58      |
| <b>TOTAL</b>                | 3,544,828 | 4,272,759 | 4,540,907 | 5,054,023 | 5,456,960 | 1.54      |

**SOURCE:**

MWCOG Round 8.0a Cooperative Forecasts  
 BMC Round 7-C Cooperative Forecasts  
 GWRC/FAMPO Regional Demographic Control Forecasts for 2035 CLRP, June 2008  
 Tri-County Council for Southern Maryland data for Calvert, Charles and St. Mary's

NOTE: Includes Census Adjustment

# **ATTACHMENT C**



**National Capital Region Transportation Planning Board**

777 North Capitol Street, N.E., Suite 300, Washington, D.C. 20002-4290 (202) 962-3310 Fax: (202) 962-3202

October 6, 2011

**MEMORANDUM**

**TO:** TPB Technical Committee

**FROM:** Jane A. Posey  
Transportation Engineer

**SUBJECT:** Defining Regional Significance for Conformity

Transportation projects that are defined as “regionally significant” must be included in an air quality conformity analysis before they may be included in the Constrained Long Range Plan (CLRP) or Transportation Improvement Program (TIP). Currently, any project that changes a link in the regional highway or transit network is considered “regionally significant”. With the recent development of a finer-grain zone system, including a more detailed street base and splitting of links to add new connectors to zone centroids, it is necessary to redefine “regionally significant” in order to maintain the same threshold for “regionally significant” as in the past conformity procedures. The conformity regulations define regional significance as follows:

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

The following proposed new definition of a “regionally significant” project has been developed to meet the requirements of the conformity regulations while maintaining the same threshold for “regional significance” as in past conformity procedures:

- 1) Any project on a facility that is included in the coded regional network that adds or removes at least one continuous vehicular lane from one major road to the next, or adds a new access/egress location or capacity; or
- 2) Any transit project that adds or modifies fixed-guideway transit facilities (heavy rail, light rail, streetcar, bus rapid transit)

The new definition will be used for all future air quality conformity analysis, starting with the conformity analysis of the 2011 CLRP.

# **ATTACHMENT D**



TERM TRACKING SHEET  
TRANSPORTATION EMISSION REDUCTION MEASURES  
Part A - Daily Ozone Precursor Emissions

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

Table with columns: CREDIT TAKEN, TIP CREDITED, AGENCY, PROJECT, IMPLEMENTATION STATUS (FULL, SCALED-BACK, UNDERWAY, REM), ORIGINAL COMPLETION DATE, ACTUAL COMPLETION DATE, and VOC/NOX emissions for years 2005-2040. Includes rows 114 to 166.



**TERM TRACKING SHEET**  
**TRANSPORTATION EMISSION REDUCTION MEASURES**  
**Part A - Daily Ozone Precursor Emissions**

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

| NOs                                | CREDIT TAKEN | TIP CREDITED | AGENCY | PROJECT   | IMPLEMENTATION STATUS |             |           |     | ORIGINAL COMPLETION DATE | ACTUAL COMPLETION DATE | 2005         |              | 2008         |              | 2009         |              | 2010         |              | 2015         |              | 2016   |              | 2020         |              | 2030         |              | 2040         |              | Project Category * |     |     |  |  |  |  |
|------------------------------------|--------------|--------------|--------|---|-----------------------|-------------|-----------|-----|--------------------------|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------|-----|-----|--|--|--|--|
|                                    |              |              |        |   | FULL                  | SCALED-BACK | UNDER-WAY | REM |                          |                        | VOC          | NOX          | VOC          | NOX          | VOC          | NOX          | VOC          | NOX          | VOC          | NOX          | VOC  | NOX          | VOC          | NOX          | VOC          | NOX          | VOC          | NOX          |                    | VOC | NOX |  |  |  |  |
|                                    |              |              |        |   |                       |             |           |     |                          |                        |              |              |              |              |              |              |              |              |              |              |  |              |              |              |              |              |              |              |                    |     |     |  |  |  |  |
| 223                                | X            | 2008-13      | MDOT   | MCG/MDOT P & R Lots at US 340 & Mt Zion Rd. (37 spaces)             | X                     |             |           |     | 2008                     | 2008                   |              |              |              |              |              |              | 0.0007       | 0.0013       |              |              | 0.0004   | 0.0007       | 0.0004       | 0.0005       | 0.0003       | 0.0004       | 0.0003       | 0.0004       |                    |     |     |  |  |  |  |
| 224                                | X            | 2008-13      | MDOT   | MCG/MDOT P & R Lots at US 340 & Mt Zion Rd. - expansion (39 spaces) |                       |             |           | X   | 2011                     | 2011                   |              |              |              |              |              |              |              |              |              |              | Credits included in TS 224 (for 37+ 39 spaces) |              |              |              |              |              |              |              |                    |     |     |  |  |  |  |
| 225                                | X            | 2008-13      | MDOT   | MCG/MDOT P & R Lots at I 70 & MD 355 (100 spaces)                   |                       |             |           | X   | 2010                     | 2010                   |              |              |              |              |              |              | 0.0009       | 0.0017       |              |              | 0.0006   | 0.0009       | 0.0005       | 0.0007       | 0.0005       | 0.0006       | 0.0005       | 0.0006       |                    |     |     |  |  |  |  |
| 226                                | X            | 2008-13      | MDOT   | MCG/MDOT P & R Lots at I 270 & MD 80 (164 spaces)                   | X                     |             |           |     | 2009                     | 2009                   |              |              |              |              |              |              | 0.0014       | 0.0028       |              |              | 0.0010   | 0.0015       | 0.0008       | 0.0011       | 0.0007       | 0.0009       | 0.0007       | 0.0009       |                    |     |     |  |  |  |  |
| 227                                | X            | 2008-13      | MDOT   | MDOT Signal System Reviewing  |                       |             |           | X   | 2010                     | on-going               |              |              |              |              |              |              |              |              |              |              | Credits shown in Regional signal TERM - TS 220 |              |              |              |              |              |              |              |                    |     |     |  |  |  |  |
| 228                                | X            | 2008-13      | MDOT   | MDOT Takoma Langely Transit Center                                  |                       |             |           | X   | 2012                     | 2012                   |              |              |              |              |              |              | 0.0000       | 0.0000       |              |              | 0.0000   | 0.0000       | 0.0000       | 0.0000       | 0.0000       | 0.0000       | 0.0000       | 0.0000       |                    |     |     |  |  |  |  |
| <b>Available Emissions Credits</b> |              |              |        |   |                       |             |           |     |                          |                        | <b>3.716</b> | <b>7.556</b> | <b>2.752</b> | <b>5.400</b> | <b>2.471</b> | <b>4.856</b> | <b>2.456</b> | <b>4.797</b> | <b>2.164</b> | <b>3.704</b> | <b>1.639</b>                                   | <b>2.505</b> | <b>1.430</b> | <b>1.113</b> | <b>1.284</b> | <b>0.747</b> | <b>1.271</b> | <b>0.744</b> |                    |     |     |  |  |  |  |

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

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

| NOs | CREDIT TAKEN | TIP CREDITED     | AGENCY | PROJECT                                       | IMPLEMENTATION STATUS |             |           |     | PROJECTED COMPLETION DATE | ACTUAL COMPLETION DATE | TONS/DAY REDUCTION CREDITED |         |        |         |        |        |        |        | Project Category |    |
|-----|--------------|------------------|--------|---|-----------------------|-------------|-----------|-----|---------------------------|------------------------|-----------------------------|---------|--------|---------|--------|--------|--------|--------|------------------|----|
|     |              |                  |        |   | FULL                  | SCALED-BACK | UNDER-WAY | REM |                           |                        | 2016                        |         | 2020   |         | 2030   |        | 2040   |        |                  |    |
|     |              |                  |        |   |                       |             |           |     |                           |                        | VOC                         | NOx     | VOC    | NOx     | VOC    | NOx    | VOC    | NOx    |                  |    |
| 221 | X            | 1995-00 TIP      | REGION | M-24 Speed Limit Adherence                    | X                     |             |           |     | 2010                      |                        |                             | -0.0050 | 0.1437 | -0.0021 | 0.1206 | 0.0005 | 0.0377 | 0.0005 | 0.0376           | TR |
| 222 |              | 1996-01 TIP      | MGC    | Rock Spring Park Pedestrian Amenities         |                       |             |           | X   |                           |                        |                             | 0.0007  | 0.0021 | 0.0000  | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000           | -  |
| 223 | X            | 1996-01 TIP      | MGC    | Olney Transit Center Park and Ride            |                       |             |           |     | 2015                      |                        |                             | 0.0013  | 0.0042 | 0.0009  | 0.0030 | 0.0003 | 0.0007 | 0.0003 | 0.0007           | C  |
| 224 | X            | 1996-01 TIP      | MGC    | Damascus Park and Ride                        |                       |             |           |     |                           | 2003                   |                             | 0.0007  | 0.0021 | 0.0004  | 0.0015 | 0.0001 | 0.0003 | 0.0001 | 0.0003           | C  |
| 225 | X            | 1996-01 TIP      | DC     | M-103 Taxicab Replacement (DC)                |                       |             |           | X   | 2015                      |                        |                             | 0.0000  | 0.0000 | 0.1745  | 0.3000 | 0.3490 | 0.6000 | 0.3467 | 0.5984           | H  |
| 226 | X            | STADIUM ANALYSIS |        | M-103 Taxicab Replacement (MD)                |                       |             |           | X   | 2008                      |                        |                             | 0.0000  | 0.0000 | 0.1560  | 0.2400 | 0.1560 | 0.2400 | 0.1550 | 0.2394           | H  |
| 227 | X            | 1997-02 TIP      | MDOT   | Shady Grove West Transit Center Park and Ride |                       |             |           | X   |                           |                        |                             | 0.0000  | 0.0053 | 0.0000  | 0.0038 | 0.0000 | 0.0009 | 0.0000 | 0.0009           | C  |
| 228 | X            | 1997-02 TIP      | MGC    | Olney Transit Center Park and Ride            |                       |             |           |     | 2015                      |                        |                             | 0.0000  | 0.0000 | 0.0004  | 0.0012 | 0.0003 | 0.0007 | 0.0003 | 0.0007           | C  |
| 229 | X            | 1997-02 TIP      | MGC    | White Oak Park and Ride                       |                       |             |           |     | 2008                      |                        |                             | 0.0000  | 0.0105 | 0.0000  | 0.0076 | 0.0000 | 0.0017 | 0.0000 | 0.0017           | C  |
| 230 | X            | 1997-02 TIP      | MGC    | Damascus Park and Ride                        |                       |             |           |     |                           | 2003                   |                             | 0.0000  | 0.0000 | 0.0002  | 0.0005 | 0.0001 | 0.0003 | 0.0001 | 0.0003           | C  |
| 231 | X            | 1997-02 TIP      | MGC    | Four Corners Transit Center                   |                       |             |           |     | 2015                      |                        |                             | 0.0000  | 0.0005 | 0.0000  | 0.0004 | 0.0000 | 0.0001 | 0.0000 | 0.0001           | C  |
| 232 |              | 1997-02 TIP      | MGC    | Burtonsville Transit Center                   |                       |             |           | X   |                           |                        |                             | 0.0000  | 0.0000 | 0.0000  | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000           | -  |
| 233 | X            | 1997-02 TIP      | MGC    | Silver Spring Transit Access                  |                       |             |           |     |                           |                        |                             | 0.0000  | 0.0005 | 0.0000  | 0.0003 | 0.0000 | 0.0002 | 0.0000 | 0.0002           | C  |
| 234 | X            | 1997-02 TIP      | MGC    | Shady Grove Parking Construction              |                       |             |           |     |                           | 2003                   |                             | 0.0033  | 0.0100 | 0.0021  | 0.0072 | 0.0007 | 0.0017 | 0.0007 | 0.0017           | C  |

|            |        |        |        |        |        |        |        |        |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|
| PLAN TOTAL | 0.0004 | 0.1715 | 0.0019 | 0.1424 | 0.0022 | 0.0434 | 0.0021 | 0.0432 |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|

|  |       |       |       |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| GRAND TOTAL (Current Measures + CLRP plan) | 1.639 | 2.676 | 1.432 | 1.255 | 1.286 | 0.791 | 1.274 | 0.787 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|

DEFINITIONS: Project Numbers implemented fully prior to 2000 were removed from the TERM Tracking Sheet

CREDIT TAKEN ( X means emissions reduction credits taken):

TIP - Emissions credits are taken for projects being implemented, according to the progress reporting schedules provided by the implementing agencies (contained in Appendix J of Conformity Document ). No credit has been taken for projects in which only some components of the measure have been implemented.

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

IMPLEMENTATION STATUS:

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

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

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

REMOVED = project no longer expected to be implemented or constructed

COMPLETION DATE:

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

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

REMOVED

projects Emissions credits are not counted in total available emissions credits

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

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

**TERM TRACKING SHEET**  
**TRANSPORTATION EMISSION REDUCTION MEASURES**  
**Part B - Yearly PM 2.5 and Precursor NOx Emissions**

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

| NOs | CREDIT TAKEN | TIP CREDITED | AGENCY | PROJECT  | IMPLEMENTATION STATUS  |             |           |     | ORIGINAL COMPLETION DATE | ACTUAL COMPLETION DATE | 2016                           |               | 2020   |               | 2030   |               | 2040   |               | Project Category * |  |  |  |    |
|-----|--------------|--------------|--------|--|------------------------|-------------|-----------|-----|--------------------------|------------------------|--------------------------------|---------------|--------|---------------|--------|---------------|--------|---------------|--------------------|--|--|--|----|
|     |              |              |        |  | FULL                   | SCALED-BACK | UNDER-WAY | REM |                          |                        | PM2.6                          | Precursor NOx | PM2.5  | Precursor NOx | PM2.5  | Precursor NOx | PM2.6  | Precursor NOx |                    |  |  |  |    |
|     |              |              |        |  |                        |             |           |     |                          |                        |                                |               |        |               |        |               |        |               |                    |  |  |  |    |
| 9   | X            | 1994-99      | MDOT   | Park & Ride Lot - MD 210/ MD 373                                     | X                      |             |           |     | 2000                     | 2003                   | 0.0095                         | 0.1374        | 0.0095 | 0.1000        | 0.0095 | 0.0830        | 0.0095 | 0.0689        | c                  |  |  |  |    |
| 19  | X            | 1994-99      | PRTC   | VRE Woodbridge Parking Expansion (add 500 spaces)                    | X                      |             |           |     |                          | 2002-2003              | n/a                            | n/a           | n/a    | n/a           | n/a    | n/a           |        |               | -                  |  |  |  |    |
| 20  | X            | 1994-99      | ALEX   | King St. Metrorail access improvements                               | X                      |             |           |     |                          | 2006                   | 0.0095                         | 0.1374        | 0.0095 | 0.1000        | 0.0095 | 0.0830        | 0.0095 | 0.0689        | c                  |  |  |  |    |
| 38  | X            | 1995-00      | MDOT   | Signal Systems - MD 85 Executive Way to MD 355                       | X                      |             |           |     | 1996                     | Pre 2000               | 0.0000                         | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | TR                 |  |  |  |    |
| 39  | X            | 1995-00      | MDOT   | Signal Systems - MD 355 J-70 ramps to Grove Rd.                      | X                      |             |           |     | 1996                     | n/a                    | 0.0000                         | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | TR                 |  |  |  |    |
| 44  | X            | 1995-00      | MDOT   | Signal Systems - MD 410, 62nd Ave. to Riverdale Rd.                  | X                      |             |           |     | 1996                     | 2002                   | 0.0000                         | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | TR                 |  |  |  |    |
| 48  | X            | 1995-00      | MDOT   | MARC Replacement Coaches   | X                      |             |           |     | 1999                     | 2004                   | 0.0095                         | 0.1374        | 0.0095 | 0.1000        | 0.0095 | 0.0830        | 0.0095 | 0.0689        | c (TCM)            |  |  |  |    |
| 49  | X            | 1995-00      | MDOT   | MARC Expansion Coaches   | X                      |             |           |     | 1999                     | 2004                   | 0.0891                         | 1.2820        | 0.0891 | 0.9332        | 0.0891 | 0.7745        | 0.0891 | 0.6428        | c (TCM)            |  |  |  |    |
| 51  | X            | 1995-00      | VDOT   | Alexandria Telecommuting Pilot Program                               | X                      |             |           |     |                          | 2000 & 2001            | 0.0000                         | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | c                  |  |  |  |    |
| 52  | X            | 1995-00      | VDOT   | Fairfax County Bus Shelter (Fairfax Co. TDM program)                 |                        |             | X         |     | 2000                     | 2001                   | 0.0000                         | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | c                  |  |  |  |    |
| 54  | X            | 1995-00      | VDOT   | City of Fairfax Bus Shelters   | X                      |             |           |     | 1999                     | 2004                   | 0.0032                         | 0.0458        | 0.0032 | 0.0333        | 0.0032 | 0.0277        | 0.0032 | 0.0230        | c (TCM)            |  |  |  |    |
| 56  | X            | 1995-00      | VDOT   | Cherry Hill VRE Access   |                        |             | X         |     |                          | Jul-08                 | 0.0764                         | 1.0988        | 0.0764 | 0.7999        | 0.0764 | 0.6639        | 0.0764 | 0.5510        | c (TCM)            |  |  |  |    |
| 58  | X            | 1995-00      | WMATA  | Bus Replacement (172 buses)  | X                      |             |           |     | 1998                     | 1998                   |                                |               |        |               |        |               |        |               | SP (TCM)           |  |  |  |    |
| 59  | X            | 1995-00      | MCG    | Shady Grove West Park and Ride                                       |                        |             | X         |     | 2010                     |                        | 0.0000                         | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | c                  |  |  |  |    |
| 60  | X            | 1995-00      | MCG    | White Oak Park and Ride  |                        |             | X         |     | 2010                     |                        | 0.0000                         | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | 0.0000 | 0.0000        | c                  |  |  |  |    |
| 61  | X            | 1995-00      | MCG    | Bicycle Facilities   |                        |             | X         |     | FY99                     |                        | 0.0064                         | 0.0916        | 0.0064 | 0.0667        | 0.0064 | 0.0553        | 0.0064 | 0.0459        | c                  |  |  |  |    |
| 62  | X            | 1995-00      | MCG    | Pedestrian Facilities to Metrorail                                   |                        |             | X         |     |                          |                        | 0.0255                         | 0.3663        | 0.0255 | 0.2666        | 0.0255 | 0.2213        | 0.0255 | 0.1837        | c                  |  |  |  |    |
| 63  | X            | 1995-00      | MDOT   | MARC Replacement Coaches   | X                      |             |           |     | 1999                     | 2004                   | 0.0382                         | 0.5494        | 0.0382 | 0.4000        | 0.0382 | 0.3319        | 0.0382 | 0.2755        | c                  |  |  |  |    |
| 64  | X            | 1995-00      | MDOT   | MARC Expansion Coaches   | X                      |             |           |     | 1999                     | 2004                   | 0.3309                         | 4.7617        | 0.3309 | 3.4663        | 0.3309 | 2.8768        | 0.3309 | 2.3875        | c (TCM)            |  |  |  |    |
| 66  | X            | 1995-00      | VDOT   | Commuter Lots - District Wide  |                        |             | X         |     | varies                   | 1995, 2001             | 0.1050                         | 1.5109        | 0.1050 | 1.0999        | 0.1050 | 0.9128        | 0.1050 | 0.7576        | c                  |  |  |  |    |
| 67  | X            | 1995-00      | VDOT   | I-66 and Stringfellow Rd. Park and Ride                              | X                      |             |           |     | 2000                     | 2000 end               | 0.0636                         | 0.9157        | 0.0636 | 0.6666        | 0.0636 | 0.5532        | 0.0636 | 0.4591        | c                  |  |  |  |    |
| 68  | X            | 1995-00      | VDOT   | Lake Ridge Park and Ride (now called Tacketts Mill lot)              | X                      |             |           |     |                          | 1999/2000              | 0.0318                         | 0.4579        | 0.0318 | 0.3333        | 0.0318 | 0.2766        | 0.0318 | 0.2296        | c                  |  |  |  |    |
| 69  | X            | 1995-00      | VDOT   | Bicycle Trails and Facilities (Arlington & Fairfax Co - 7 locations) |                        |             | X         |     | varies                   | 2010-12                | 0.0541                         | 0.7783        | 0.0541 | 0.5666        | 0.0541 | 0.4702        | 0.0541 | 0.3903        | c                  |  |  |  |    |
| 70  | X            | 1995-00      | VDOT   | Improved Access to Metrorail Stations (VRE 2 Stn)                    |                        |             | X         |     | varies                   | 2000-2012              | 0.0032                         | 0.0458        | 0.0032 | 0.0333        | 0.0032 | 0.0277        | 0.0032 | 0.0230        | c                  |  |  |  |    |
| 71  | X            | 1995-00      | VDOT   | I-66 HOV access at Monument Dr.                                      | X                      |             |           |     | 1997                     |                        | 0.0636                         | 0.9157        | 0.0636 | 0.6666        | 0.0636 | 0.5532        | 0.0636 | 0.4591        | c                  |  |  |  |    |
| 72  | X            | 1995-00      | DC     | Bicycle Facilities   | X                      |             |           |     |                          |                        | 0.0636                         | 0.9157        | 0.0636 | 0.6666        | 0.0636 | 0.5532        | 0.0636 | 0.4591        | c                  |  |  |  |    |
| 73  | X            | 1995-00      | REGION | COG Regional Ridesharing Support                                     | X                      |             |           |     | on-going                 |                        | 1.7913                         | 24.4149       | 1.7913 | 17.8484       | 1.7913 | 14.9204       | 1.7913 | 12.3829       | c                  |  |  |  |    |
| 74  | X            | 1995-00      | REGION | M-47 Integrated Ridesharing  | X                      |             |           |     | on-going                 |                        | 0.6199                         | 8.5312        | 0.6199 | 6.2319        | 0.6199 | 5.2028        | 0.6199 | 4.3180        | c                  |  |  |  |    |
| 75  | X            | 1995-00      | REGION | M-92 Telecommuting Support   | X                      |             |           |     | on-going                 |                        | 1.2883                         | 18.1945       | 1.2883 | 13.2638       | 1.2883 | 11.0351       | 1.2883 | 9.1583        | c                  |  |  |  |    |
| 77  | X            | 1996-01      | VDOT   | Duke Street Pedestrian Bridge  | X                      |             |           |     | 2005                     | 2007                   | n/a                            | n/a           | n/a    | n/a           | n/a    | n/a           |        |               | -                  |  |  |  |    |
| 79  | X            | 1996-01      | VDOT   | Fairfax County Bus Shelters (30 shelters with project #85)           |                        |             | X         |     | 1999                     | Summer 2001            | 0.0095                         | 0.1374        | 0.0095 | 0.1000        | 0.0095 | 0.0830        | 0.0095 | 0.0689        | c                  |  |  |  |    |
| 81  | X            | 1996-01      | VDOT   | Arlington County Metrocheck Program                                  | X                      |             |           |     | 1997                     | 1997 Onwards           | 0.0095                         | 0.1374        | 0.0095 | 0.1000        | 0.0095 | 0.0830        | 0.0095 | 0.0689        | c                  |  |  |  |    |
| 82  | X            | 1996-01      | VDOT   | Old Dominion Drive Bike Trail  |                        |             | X         |     | 2000                     | 2010-11                | 0.0032                         | 0.0458        | 0.0032 | 0.0333        | 0.0032 | 0.0277        | 0.0032 | 0.0230        | c                  |  |  |  |    |
| 83  | X            | 1996-01      | WMATA  | Bus Replacement (see line 58, above)                                 | X                      |             |           |     |                          | 1998                   | Credit taken in line 58, above |               |        |               |        |               |        |               |                    |  |  |  | SP |
| 85  | X            | 1996-01      | VDOT   | Fairfax County Bus Shelters (30 shelters with project #79)           | X                      |             |           |     | 1999                     | 2001                   | 0.0032                         | 0.0458        | 0.0032 | 0.0333        | 0.0032 | 0.0277        | 0.0032 | 0.0230        | c                  |  |  |  |    |
| 90  | X            | 1996-01      | REGION | M-47c Employer Outreach / Guaranteed Ride Home                       | X                      |             |           |     | on-going                 |                        | 3.7262                         | 52.9524       | 3.7262 | 38.5840       | 3.7262 | 32.0744       | 3.7262 | 26.6195       | c                  |  |  |  |    |
| 91  | X            | 1996-01      | REGION | M-70a Bicycle Parking  |                        |             | X         |     | 1999                     |                        | 0.0223                         | 0.3205        | 0.0223 | 0.2333        | 0.0223 | 0.1936        | 0.0223 | 0.1607        | c                  |  |  |  |    |
| 92  | X            |              |        | M-92 Telecommuting Support <sup>1</sup>                              | Combined with item #75 |             |           |     |                          |                        |                                |               |        |               |        |               |        |               | c                  |  |  |  |    |
| 95  | X            | 1997-02      | MCG    | Germantown Transit Center  | X                      |             |           |     | 2005                     |                        | 0.0605                         | 0.8699        | 0.0605 | 0.6333        | 0.0605 | 0.5256        | 0.0605 | 0.4362        | c (TCM)            |  |  |  |    |
| 102 | X            | 1997-02      | PG     | Prince George's County Bus Replacement                               | X                      |             |           |     | 1998                     | 1998                   |                                |               |        |               |        |               |        |               | SP (TCM)           |  |  |  |    |



**TERM TRACKING SHEET**  
**TRANSPORTATION EMISSION REDUCTION MEASURES**  
**Part B - Yearly PM 2.5 and Precursor NOx Emissions**

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

| NOs | CREDIT TAKEN | TIP CREDITED | AGENCY | PROJECT   | IMPLEMENTATION STATUS |             |          |           | ORIGINAL COMPLETION DATE | ACTUAL COMPLETION DATE | 2016    |               | 2020    |               | 2030    |               | 2040    |               | Project Category * |
|-----|--------------|--------------|--------|---|-----------------------|-------------|----------|-----------|--------------------------|------------------------|---------|---------------|---------|---------------|---------|---------------|---------|---------------|--------------------|
|     |              |              |        |   | FULL                  | SCALED BACK | UNDERWAY | REM       |                          |                        | PM2.6   | Precursor NOx | PM2.5   | Precursor NOx | PM2.5   | Precursor NOx | PM2.6   | Precursor NOx |                    |
|     |              |              |        |   |                       |             |          |           |                          |                        |         |               |         |               |         |               |         |               |                    |
| 106 | X            | 1997-02      | VDOT   | PRTC Employer Commuting Outreach Program                              | X                     |             |          |           |                          | 1977 on-going          | 0.0016  | 0.0229        | 0.0016  | 0.0167        | 0.0016  | 0.0138        | 0.0016  | 0.0115        | C                  |
| 107 | X            | 1997-02      | VDOT   | PRTC Multimodal Strategic Marketing Implementation Plan               | X                     |             |          |           |                          | 1977 on-going          | 0.0016  | 0.0229        | 0.0016  | 0.0167        | 0.0016  | 0.0138        | 0.0016  | 0.0115        | C                  |
| 108 | X            | 1997-02      | MDOT   | M-103 Taxicab Replacement in Maryland <sup>2</sup>                    | X                     |             |          | 2005      | Stopped                  |                        |         |               |         |               |         |               |         |               | SP                 |
| 109 | X            | 1997-02      | REGION | M-70b Employer Outreach for Bicycles                                  | X                     |             |          | 1998      | on going                 | 0.0035                 | 0.0587  | 0.0035        | 0.0423  | 0.0035        | 0.0344  | 0.0035        | 0.0286  | C             |                    |
| 110 |              | 1997-02      | VDOT   | M-77b Vanpool Incentive Programs in Virginia                          |                       |             |          | X 1999    | delayed                  | n/a                    | n/a     | n/a           | n/a     | n/a           | n/a     |               |         |               | C                  |
| 111 | X            | 1998-03      | WMATA  | Bus Replacement (108 buses)   | X                     |             |          | 1999      | 1999                     |                        |         |               |         |               |         |               |         |               | SP                 |
| 112 | X            | 1998-03      | MCG    | Montgomery County Bus Replacement                                     | X                     |             |          |           | Ongoing                  |                        |         |               |         |               |         |               |         |               | SP                 |
| 113 | X            | 1998-03      | PG     | Prince George's County Bus Replacement                                | X                     |             |          | 1998      | Ongoing                  |                        |         |               |         |               |         |               |         |               | SP                 |
| 114 | X            | 1998-03      | FDC    | Frederick County Bus Replacement                                      | X                     |             |          |           |                          |                        |         |               |         |               |         |               |         |               | SP                 |
| 117 | X            | 1998-03      | VDOT   | Arlington County Four Mile Run Bike Trail                             | X                     |             |          | 1999      | 2009                     | 0.0032                 | 0.0458  | 0.0032        | 0.0333  | 0.0032        | 0.0277  | 0.0032        | 0.0230  | C             |                    |
| 118 | X            | 1998-03      | VDOT   | Northern Virginia Turn Bays   | X                     |             |          | 2000      | 1998                     | 0.0056                 | 0.0806  | 0.0056        | 0.0587  | 0.0056        | 0.0487  | 0.0056        | 0.0404  | TR            |                    |
| 119 | X            | 1998-03      | VDOT   | Fairfax City Bus Replacement  | X                     |             |          | 2001      | 2003                     |                        |         |               |         |               |         |               |         |               | SP                 |
| 121 | X            | 1998-03      | WMATA  | WMATA Bus Replacement (252 buses)                                     | X                     |             |          | 2001      | 2001                     |                        |         |               |         |               |         |               |         |               | SP                 |
| 122 | X            | 97 & 98 TIP  | REGION | M-101a Mass Marketing Campaign (Consumer)                             |                       |             |          |           | 2005                     | 0.21571884             | 2.9697  | 0.2157        | 2.1692  | 0.2157        | 1.8109  | 0.2157        | 1.5029  | C             |                    |
| 123 | X            | 1999-04      | MDOT   | Various Park and Ride Lots(I-270/MD124, 450 & I-170/MD-75, 54 spaces) |                       | X           |          | 2001/1999 | 2001                     | 0.1146                 | 1.6483  | 0.1146        | 1.1999  | 0.1146        | 0.9958  | 0.1146        | 0.8265  | C             |                    |
| 124 | X            | 1999-04      | MDOT   | Signal Systems (197/MD-198, MD-382 TO US-301, US301)                  | X                     |             |          | 2000      | 2002                     | -0.0112                | -0.1612 | -0.0112       | -0.1173 | -0.0112       | -0.0974 | -0.0112       | -0.0808 | TR            |                    |
| 125 | X            | 1999-04      | VDOT   | Transit Center at 7 Corners   | X                     |             |          | 2002      | 2001                     | 0.0064                 | 0.0916  | 0.0064        | 0.0667  | 0.0064        | 0.0553  | 0.0064        | 0.0459  | C             |                    |
| 126 | X            | 1999-04      | VDOT   | Falls Church Clean Diesel Bus Service                                 | X                     |             |          | 2000      | 2003                     |                        |         |               |         |               |         |               |         |               | SP                 |
| 127 | X            | 1999-04      | VDOT   | VA 234 Bike Trail   |                       |             |          | 2001      | 2010                     | 0.0000                 | 0.0000  | 0.0000        | 0.0000  | 0.0000        | 0.0000  | 0.0000        | 0.0000  | C             |                    |
| 128 | X            | 1999-04      | VDOT   | PRTC Ridesharing  | X                     |             |          | on-going  | 2000 ongoing             | 0.0000                 | 0.0000  | 0.0000        | 0.0000  | 0.0000        | 0.0000  | 0.0000        | 0.0000  | C             |                    |
| 130 | X            | 1996-01      | VDOT   | M-14: I-66 Feeder Bus Fare Buy Down                                   | X                     |             |          |           | 1998 onward              | 0.1750                 | 2.5182  | 0.1750        | 1.8331  | 0.1750        | 1.5214  | 0.1750        | 1.2626  | C             |                    |
| 131 | X            | 2000-05      | MDOT   | Various park and Ride Lots  | X                     |             |          | 2002      | 2003                     | 0.1035                 | 1.4885  | 0.1035        | 1.0836  | 0.1035        | 0.8993  | 0.1035        | 0.7464  | C             |                    |
| 132 | X            | 2000-05      | MDOT   | Signal Systems  | X                     |             |          | Varies    | on-going                 | 0.0000                 | 0.0000  | 0.0000        | 0.0000  | 0.0000        | 0.0000  | 0.0000        | 0.0000  | TR            |                    |
| 133 | X            | 2000-05      | VDOT   | 250 Spaces at Gambrell/Hoopes Rds. Park and Ride                      | X                     |             |          | 2002      | 2004                     | 0.0573                 | 0.8241  | 0.0573        | 0.5999  | 0.0573        | 0.4979  | 0.0573        | 0.4132  | C             |                    |
| 134 | X            | 2000-05      | VDOT   | 300 Spaces at Backlick Rd   | X                     |             |          | 2003      | 2007                     | 0.0414                 | 0.5952  | 0.0414        | 0.4333  | 0.0414        | 0.3596  | 0.0414        | 0.2984  | C             |                    |
| 135 | X            | 2000-05      | VDOT   | Accotink-Gateway Connector Trail                                      | X                     |             |          | 2002      | 2005                     | 0.0318                 | 0.4579  | 0.0318        | 0.3333  | 0.0318        | 0.2766  | 0.0318        | 0.2296  | C             |                    |
| 136 | X            | 2000-05      | VDOT   | Columbia Pike Trail   |                       |             | X        | 2000      | 2009                     | 0.0255                 | 0.3663  | 0.0255        | 0.2666  | 0.0255        | 0.2213  | 0.0255        | 0.1837  | C             |                    |
| 137 | X            | 2000-05      | VDOT   | Lee Highway trail   | X                     |             |          | 2000      | 2007                     | 0.0127                 | 0.1831  | 0.0127        | 0.1333  | 0.0127        | 0.1106  | 0.0127        | 0.0918  | C             |                    |
| 138 | X            | 2000-05      | VDOT   | Arlington Bus Shelter Improvements                                    | X                     |             |          | 2005      | 2005                     | 0.0032                 | 0.0458  | 0.0032        | 0.0333  | 0.0032        | 0.0277  | 0.0032        | 0.0230  | C             |                    |
| 139 | X            | 2000-05      | VDOT   | Pentagon Metrostation Improvements                                    | X                     |             |          |           | 2003                     | 0.0541                 | 0.7783  | 0.0541        | 0.5666  | 0.0541        | 0.4702  | 0.0541        | 0.3903  | C             |                    |
| 140 | X            | 2000-05      | MDOT   | East/West Intersection Improvements                                   |                       |             | X        | 2005      | 2005                     | 0.0795                 | 1.1446  | 0.0795        | 0.8332  | 0.0795        | 0.6915  | 0.0795        | 0.5739  | C             |                    |
| 141 | X            | 2001-06      | Feds   | Federal Transit/Ridesharing subsidy                                   | X                     |             |          | on-going  |                          | 0.6078                 | 8.7450  | 0.6078        | 6.3660  | 0.6078        | 5.2833  | 0.6078        | 4.3848  | C             |                    |
| 142 | X            | 2002-07      | WMATA  | 100 CNG buses   | X                     |             |          | 2002      |                          |                        |         |               |         |               |         |               |         |               | SP (TCM)           |
| 143 | X            | 2002-07      | WMATA  | ULSD with CRT filters   | X                     |             |          | 2006      | Jun-06                   | 0.0000                 | 0.0000  | 0.0000        | 0.0000  | 0.0000        | 0.0000  | 0.0000        | 0.0000  |               | H (TCM)            |
| 144 |              | 2003-08      | DC     | Replace 23 12 Taxicabs with CNG cabs                                  |                       |             |          | X 2005    | 2006                     |                        |         |               |         |               |         |               |         |               | H                  |
| 145 | X            | 2003-08      | DC     | D.C.Incident Response & TrafficManagement System                      | X                     |             |          | 2005      | 2004                     | 0.2761                 | 3.9730  | 0.2761        | 2.8922  | 0.2761        | 2.4003  | 0.2761        | 1.9921  | TR            |                    |
| 146 | X            | 2003-08      | DC     | Bicycle Lane in D. C. (35 Mile)                                       | X                     |             |          | 2005      | 2008                     | 0.0428                 | 0.8392  | 0.0428        | 0.6134  | 0.0428        | 0.4896  | 0.0428        | 0.4064  | C (TCM)       |                    |
| 147 | X            | 2003-08      | DC     | Bicycle Racks in D. C. (500)  | X                     |             |          | 2005      | 2004                     | 0.0040                 | 0.0955  | 0.0040        | 0.0699  | 0.0040        | 0.0547  | 0.0040        | 0.0454  | C (TCM)       |                    |
| 148 | X            | 2003-08      | DC     | External Bicycle Racks on WMATA Buses in D. C. (600)                  | X                     |             |          | 2005      | 2003                     | 0.0206                 | 0.2982  | 0.0206        | 0.2171  | 0.0206        | 0.1800  | 0.0206        | 0.1494  | C (TCM)       |                    |
| 149 |              | 2003-08      | DC     | CNG Rental Cars (18)  |                       |             |          | X 2005    |                          |                        |         |               |         |               |         |               |         |               | SP                 |

**TERM TRACKING SHEET**  
**TRANSPORTATION EMISSION REDUCTION MEASURES**  
**Part B - Yearly PM 2.5 and Precursor NOx Emissions**

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

| NOs | CREDIT TAKEN | TIP CREDITED | AGENCY   | PROJECT   | IMPLEMENTATION STATUS |             |          |     | ORIGINAL COMPLETION DATE | ACTUAL COMPLETION DATE | 2016   |               | 2020   |               | 2030   |               | 2040   |               | Project Category * |
|-----|--------------|--------------|----------|---|-----------------------|-------------|----------|-----|--------------------------|------------------------|--------|---------------|--------|---------------|--------|---------------|--------|---------------|--------------------|
|     |              |              |          |   | FULL                  | SCALED BACK | UNDERWAY | REM |                          |                        | PM2.6  | Precursor NOx | PM2.5  | Precursor NOx | PM2.5  | Precursor NOx | PM2.6  | Precursor NOx |                    |
|     |              |              |          |   |                       |             |          |     |                          |                        |        |               |        |               |        |               |        |               |                    |
| 150 | X            | 2003-08      | DC       | Sidewalks in D.C. (\$ 5 million)  | X                     |             |          |     | 2005                     | 2004                   | 0.3688 | 5.3710        | 0.3688 | 3.9106        | 0.3688 | 3.2400        | 0.3688 | 2.6889        | C                  |
| 151 | X            | 2003-08      | DC       | CNG Refuse Haulers (2)  | X                     |             |          |     | 2005                     | 2004                   |        |               |        |               |        |               |        |               | H (TCM)            |
| 152 | X            | 2003-08      | DC       | Circulator /Feeder Bus Routes   | X                     |             |          |     | 2005                     | 2003                   | 0.1325 | 1.9373        | 0.1325 | 1.4106        | 0.1325 | 1.1681        | 0.1325 | 0.9694        | C                  |
| 153 | X            | 2003-08      | MDOT     | Commuter Tax Credit   | X                     |             |          |     | 2005                     | n/a                    | 0.8145 | 11.8243       | 0.8145 | 8.6087        | 0.8145 | 7.1356        | 0.8145 | 5.9220        | C                  |
| 155 |              | 2003-08      | MDOT     | Employer Vanpool Program (WWB)  |                       |             |          | X   | 2005                     |                        |        |               |        |               |        |               |        |               | C                  |
| 156 | X            | 2003-08      | MDOT     | Green Line Link   |                       |             | X        |     | 2005                     | n/a                    | 0.0326 | 0.4503        | 0.0326 | 0.3276        | 0.0326 | 0.2735        | 0.0326 | 0.2270        | C                  |
| 157 | X            | 2003-08      | MDOT     | Park & Ride Lots - Southern Maryland  |                       |             | X        |     | 2005                     | 2005                   | 0.0704 | 0.9256        | 0.0704 | 0.6728        | 0.0704 | 0.5660        | 0.0704 | 0.4697        | C                  |
| 158 | X            | 2003-08      | MDOT     | Prince George's County- Bus Exp   |                       |             | X        |     | 2005                     | n/a                    | 0.4574 | 6.3152        | 0.4574 | 4.5942        | 0.4574 | 3.8360        | 0.4574 | 3.1836        | C                  |
| 159 | X            | 2003-08      | MDOT     | MTA - Bus Service Expansion   |                       |             | X        |     | 2005                     | n/a                    | 0.1108 | 1.5063        | 0.1108 | 1.0955        | 0.1108 | 0.9168        | 0.1108 | 0.7609        | C                  |
| 160 | X            | 2003-08      | MDOT     | Ride- On - Super Discount   |                       |             | X        |     | 2005                     | n/a                    | 0.0094 | 0.1366        | 0.0094 | 0.0995        | 0.0094 | 0.0824        | 0.0094 | 0.0684        | C                  |
| 161 | X            | 2003-08      | Regional | Regional Traveler Information Systems   |                       |             | X        |     | 2005                     |                        | 3.6007 | 51.8103       | 3.6007 | 37.7158       | 3.6007 | 31.3014       | 3.6007 | 25.9780       | TR                 |
| 162 | X            | 2003-08      | MDOT     | Universal Transportation Access (MD + WMATA)  |                       |             | X        |     | 2005                     | n/a                    | 0.1654 | 2.4082        | 0.1654 | 1.7534        | 0.1654 | 1.4527        | 0.1654 | 1.2056        | C                  |
| 163 | X            | 2003-08      | MCG      | Construction of 1300 additional Parking Spaces at Grosvenor Metro Garage                      | X                     |             |          |     | 2004                     |                        | 0.0765 | 0.9986        | 0.0765 | 0.7258        | 0.0765 | 0.6113        | 0.0765 | 0.5073        | C (TCM)            |
| 164 | X            | 2003-08      | MCG      | Bethesda Shuttle Bus Services   | X                     |             |          |     | 2004                     |                        | 0.0316 | 0.4617        | 0.0316 | 0.3362        | 0.0316 | 0.2784        | 0.0316 | 0.2310        | C                  |
| 165 | X            | 2003-08      | MCG      | External Bicycle Racks on Ride-On Buses in Montgomery County                                  | X                     |             |          |     | 2004                     |                        | 0.0064 | 0.0930        | 0.0064 | 0.0677        | 0.0064 | 0.0561        | 0.0064 | 0.0466        | C                  |
| 166 | X            | 2003-08      | MCG      | New CNG Powered Light Duty Vehicle fleet in the County  | X                     |             |          |     | 2004                     |                        |        |               |        |               |        |               |        |               | SP                 |
| 167 | X            | 2003-08      | MCG      | Free Bus Service on Selected Routes on I-270  | X                     |             |          |     | 2004                     |                        | 0.0110 | 0.1599        | 0.0110 | 0.1164        | 0.0110 | 0.0965        | 0.0110 | 0.0801        | C                  |
| 168 | X            | 2003-08      | MCG      | Annual Sidewalk Program   | X                     |             |          |     | 2004                     |                        | 0.1756 | 2.5576        | 0.1756 | 1.8622        | 0.1756 | 1.5428        | 0.1756 | 1.2804        | C                  |
| 169 |              | 2003-08      | MDOT     | Bethesda Breeze/International Express Metrobus  |                       |             |          | X   | 2005                     | Removed                | 0.0345 | 0.5169        | 0.0345 | 0.3765        | 0.0345 | 0.3107        | 0.0345 | 0.2579        | C                  |
| 170 |              | 2003-08      | MDOT     | Bethesda-8, Silver Spring Downtown Dasher and Prince Georges Co. Shuttles at 3 PNR lot        |                       |             |          | X   | 2005                     | Removed                | 0.0623 | 1.0184        | 0.0623 | 0.7427        | 0.0623 | 0.6058        | 0.0623 | 0.5028        | C                  |
| 171 |              | 2003-08      | MDOT     | Proposed Transportation Management District in Montgomery County (Rockville and Gaithersburg) |                       |             |          | X   | 2005                     | Removed                | 0.0496 | 0.7591        | 0.0496 | 0.5531        | 0.0496 | 0.4550        | 0.0496 | 0.3776        | C                  |
| 172 | X            | 2003-08      | MDOT     | Sidewalks (Bikes/Pedestrian) at / near Rail Stations  | X                     |             |          |     | 2005                     | 2002                   | 0.0983 | 1.4213        | 0.0983 | 1.0347        | 0.0983 | 0.8581        | 0.0983 | 0.7122        | C                  |
| 173 | X            | 2003-08      | MDOT     | Neighborhood Sidewalks Improvements (Bike/Pedestrian)   | X                     |             |          |     | 2005                     | 2004                   | 0.0038 | 0.1712        | 0.0038 | 0.1259        | 0.0038 | 0.0944        | 0.0038 | 0.0783        | C                  |
| 174 | X            | 2003-08      | MDOT     | Neighborhood Conservation Program - Neighborhood Sidewalks Improvements (Bikes/Pedestrian)    |                       |             | X        |     | 2005                     | Ongoing                | 0.0033 | 0.1498        | 0.0033 | 0.1102        | 0.0033 | 0.0826        | 0.0033 | 0.0685        | C                  |
| 175 | X            | 2003-08      | MDOT     | Maryland bus Transit Service Expansion  | X                     |             |          |     | 2005                     | 2004                   | 0.2366 | 3.0876        | 0.2366 | 2.2442        | 0.2366 | 1.8900        | 0.2366 | 1.5685        | C                  |
| 176 | X            | 2003-08      | VDOT     | Universal Transportation Access Program   | X                     |             |          |     | 2005                     | 2005-07                | 0.0124 | 0.1806        | 0.0124 | 0.1315        | 0.0124 | 0.1090        | 0.0124 | 0.0904        | C                  |
| 177 | X            | 2003-08      | VDOT     | Interactive Rideshare & Kiosk Initiative  |                       |             | X        |     | 2008 onward              |                        | 0.0049 | 0.0682        | 0.0049 | 0.0496        | 0.0049 | 0.0414        | 0.0049 | 0.0344        | C                  |
| 178 | X            | 2003-08      | VDOT     | Mobile Commuter Stores  | X                     |             |          |     | 2005                     | 2005                   | 0.0273 | 0.3772        | 0.0273 | 0.2744        | 0.0273 | 0.2291        | 0.0273 | 0.1901        | C                  |
| 179 | X            | 2003-08      | VDOT     | Telework Incentive Program (Telework VA) <sup>1</sup>   | X                     |             |          |     | 2005                     | Fall 2006              | 0.0080 | 0.1153        | 0.0080 | 0.0839        | 0.0080 | 0.0696        | 0.0080 | 0.0578        | C                  |
| 180 | X            | 2003-08      | VDOT     | Commuter Choice   | X                     |             |          |     | 2005                     |                        | 0.0091 | 0.1356        | 0.0091 | 0.0988        | 0.0091 | 0.0816        | 0.0091 | 0.0677        | C                  |
| 181 | X            | 2003-08      | VDOT     | Employer Shuttle Services   |                       |             |          | X   | 2005                     |                        | 0.1081 | 1.6096        | 0.1081 | 1.1723        | 0.1081 | 0.9682        | 0.1081 | 0.8035        | C                  |
| 184 | X            | 2003-08      | VDOT     | Van Start / Van Save  | X                     |             |          |     | 2005                     | till 2006              |        |               |        |               |        |               |        |               | C                  |
| 185 | X            | 2003-08      | VDOT     | Metro Shuttle Bus   |                       |             | X        |     | 2005                     | 1999-2005              | 0.0188 | 0.2468        | 0.0188 | 0.1794        | 0.0188 | 0.1509        | 0.0188 | 0.1253        | C                  |
| 187 | X            | 2003-08      | VDOT     | VRE Mid-Day Train Service   | X                     |             |          |     | 2005                     | 2002                   | 0.0204 | 0.2804        | 0.0204 | 0.2040        | 0.0204 | 0.1704        | 0.0204 | 0.1414        | C                  |
| 190 | X            | 2003-08      | VDOT     | Employer Vanpool Program (Bridge deck)  | X                     |             |          |     | 2005                     | 2004 - 2008            |        |               |        |               |        |               |        |               | C                  |
| 191 | X            | 2003-08      | VDOT     | Town of Leesburg P&R Lot  | X                     |             |          |     | 2005                     | 2010                   | 0.0280 | 0.3755        | 0.0280 | 0.2730        | 0.0280 | 0.2289        | 0.0280 | 0.1900        | C                  |
| 192 | X            | 2003-08      | VDOT     | District-wide P&R Lots  | X                     |             |          |     | 2005                     | 2001-2005              | 0.1589 | 2.1456        | 0.1589 | 1.5604        | 0.1589 | 1.3072        | 0.1589 | 1.0848        | C                  |
| 193 | X            | 2003-08      | VDOT     | Additional Parking at 4 Metro stations  | X                     |             |          |     | 2005                     | 2005                   | 0.2440 | 3.1849        | 0.2440 | 2.3149        | 0.2440 | 1.9495        | 0.2440 | 1.6180        | C                  |
| 196 | X            | 2003-08      | WMATA    | 64 CNG Buses (Purchased in 2001)  | X                     |             |          |     | 2005                     | 2004                   |        |               |        |               |        |               |        |               | SP (TCM)           |
| 197 | X            | 2003-08      | WMATA    | 250 CNG Buses (175 buses by Dec. 2004; 75 buses by mid 2006)                                  | X                     |             |          |     | 2005                     | Jun-06                 |        |               |        |               |        |               |        |               | SP                 |

**TERM TRACKING SHEET**  
**TRANSPORTATION EMISSION REDUCTION MEASURES**  
**Part B - Yearly PM 2.5 and Precursor NOx Emissions**

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

| NOs                                | CREDIT TAKEN | TIP CREDITED | AGENCY | PROJECT   | IMPLEMENTATION STATUS |             |           |     | ORIGINAL COMPLETION DATE | ACTUAL COMPLETION DATE | 2016          |                | 2020          |                | 2030          |                | 2040          |                | Project Category * |
|------------------------------------|--------------|--------------|--------|---|-----------------------|-------------|-----------|-----|--------------------------|------------------------|---------------|----------------|---------------|----------------|---------------|----------------|---------------|----------------|--------------------|
|                                    |              |              |        |   | FULL                  | SCALED-BACK | UNDER-WAY | REM |                          |                        | PM2.6         | Precursor NOx  | PM2.5         | Precursor NOx  | PM2.5         | Precursor NOx  | PM2.6         | Precursor NOx  |                    |
|                                    |              |              |        |   |                       |             |           |     |                          |                        |               |                |               |                |               |                |               |                |                    |
| 198                                | X            | 2003-08      | WMATA  | 60 Engine Replacement (MY 1992 & 1993 MY buses)                     | X                     |             |           |     | 2004                     | 2004                   |               |                |               |                |               |                |               |                | SP                 |
| 199                                | X            | 2003-08      | WMATA  | Car Sharing Program   | X                     |             |           |     | 2005                     | 2004                   | 0.0133        | 0.1732         | 0.0133        | 0.1259         | 0.0133        | 0.1060         | 0.0133        | 0.0880         | C                  |
| 200                                | X            | 2003-08      | WMATA  | Bikes Racks on WMATA Buses in VA (372 Bike Racks)                   | X                     |             |           |     | 2005                     | 2004                   | 0.0128        | 0.1854         | 0.0128        | 0.1350         | 0.0128        | 0.1119         | 0.0128        | 0.0929         | C (TCM)            |
| 202                                |              | 2003-08      | MDOT   | Fleet Replacement (state auto fleet, gas to hybrid, 250 vehicles)   |                       |             |           | X   | 2005                     |                        | 0.0492        | 0.7082         | 0.0492        | 0.5155         |               |                |               |                | SP                 |
| 203                                | X            | 2003-08      | MDOT   | Replace 55 Montgomery County 10 yr. old buses w/ new CNG buses      |                       |             | X         |     | 2005                     | Ongoing                | 0.6024        | 8.6685         | 0.6024        | 6.3103         |               |                |               |                | SP                 |
| 204                                |              | 2003-08      | MDOT   | Neighborhood Bus Shuttle (5 circulator routes)                      |                       |             |           | X   | 2005                     |                        | 0.0824        | 1.1787         | 0.0824        | 0.8580         | 0.0824        | 0.7126         | 0.0824        | 0.5914         | C                  |
| 205                                | X            | 2003-08      | MDOT   | New Surface Parking at Transit Centers (500 spaces)                 |                       |             | X         |     | 2005                     | 2005                   | 0.0436        | 0.5700         | 0.0436        | 0.4143         | 0.0436        | 0.3488         | 0.0436        | 0.2895         | C                  |
| 206                                |              | 2003-08      | MDOT   | Additional Bike Lockers at Metro-Stations                           |                       |             |           | X   | 2005                     |                        | 0.1395        | 2.0172         | 0.1395        | 1.4685         | 0.1395        | 1.2179         | 0.1395        | 1.0107         | C                  |
| 207                                | X            | 2003-08      | MDOT   | Bike Facilities at PnR Lots or other similar location               |                       |             | X         |     | 2005                     | 2005                   | 0.1144        | 1.5933         | 0.1144        | 1.1592         | 0.1144        | 0.9667         | 0.1144        | 0.8023         | C                  |
| 208                                |              | 2003-08      | MDOT   | CNG Fueling Stations  |                       |             |           | X   | 2005                     |                        |               |                |               |                |               |                |               |                | SP                 |
| 209                                |              | 2003-08      | MDOT   | Gas cap replacements (ROP Credit)                                   |                       |             |           | X   | 2005                     |                        | N/A           | N/A            | N/A           | N/A            | N/A           | N/A            |               |                | SP                 |
| 210                                |              | 2003-08      | MDOT   | Gas can turnover (ROP Credit)                                       |                       |             |           | X   | 2005                     |                        | N/A           | N/A            | N/A           | N/A            | N/A           | N/A            |               |                | SP                 |
| 211                                | X            | 2003-08      | MDOT   | External Bicycle Racks on WMATA Buses (486 MD buses)                | X                     |             |           |     | 2005                     | 2002                   | 0.0148        | 0.2137         | 0.0148        | 0.1556         | 0.0148        | 0.1290         | 0.0148        | 0.1071         | C (TCM)            |
| 212                                | X            | 2003-08      | MDOT   | Bike \ Pedestrian Trail - Anacostia River Walk                      |                       |             | X         |     | 2005                     | Ongoing                | 0.0022        | 0.0463         | 0.0022        | 0.0339         | 0.0022        | 0.0268         | 0.0022        | 0.0223         | C                  |
| 213                                |              | 2003-08      | MDOT   | Transit Prioritization - Queue Jumps                                |                       |             |           | X   | 2005                     |                        | 0.0225        | 0.3639         | 0.0225        | 0.2654         | 0.0225        | 0.2168         | 0.0225        | 0.1799         | C                  |
| 214                                | X            | 2003-08      | MDOT   | Commuter Choice Benefit/Tax Credit - Marketing Expansion            | X                     |             |           |     | 2005                     | Ongoing                | 0.5732        | 8.3042         | 0.5732        | 6.0457         | 0.5732        | 5.0126         | 0.5732        | 4.1601         | C                  |
| 215                                | X            | 2003-08      | MDOT   | Improvements to Pedestrian Access in TOD areas (4 locations)        |                       |             | X         |     | 2005                     | Ongoing                | 0.0567        | 0.8434         | 0.0567        | 0.6142         | 0.0567        | 0.5074         | 0.0567        | 0.4211         | C                  |
| 216                                | X            | 2003-08      | MDOT   | Telecommuting Expansion <sup>1</sup>                                | X                     |             |           |     | 2005                     | Ongoing                | 0.8466        | 11.6148        | 0.8466        | 8.4488         | 0.8466        | 7.0611         | 0.8466        | 5.8602         | C                  |
| 217                                |              | 2003-08      | MDOT   | Replace older Diesel Engine in Public Sector vehicles               |                       |             |           | X   | 2005                     |                        |               |                |               |                |               |                |               |                | H                  |
| 218                                | X            | 2003-08      | VDOT   | MV-92 Telecommuting Program - Expanded <sup>1</sup>                 | X                     |             |           |     | 2005                     | 2005                   | 0.9041        | 12.4039        | 0.9041        | 9.0228         | 0.9041        | 7.5408         | 0.9041        | 6.2584         | C                  |
| 219                                | X            | 2003-08      | VDOT   | MV-123 Employer Outreach for Public Sector Employees <sup>2</sup>   | X                     |             |           |     | 2005                     | 2003                   | 0.1574        | 2.2923         | 0.1574        | 1.6690         | 0.1574        | 1.3828         | 0.1574        | 1.1476         | C                  |
| 220                                | X            | 2003-08      | REGION | Signal System Optimization  | X                     |             |           |     | 2005                     | 2005                   | 1.0065        | 14.4817        | 1.0065        | 10.5421        | 1.0065        | 8.7492         | 1.0065        | 7.2612         | TR                 |
| 221                                | X            | 2007-12      | MDOT   | Two P & R Lots in Frederick County (99 spaces)                      | X                     |             |           |     | 2007                     | 2008                   | 0.0121        | 0.1636         | 0.0086        | 0.0831         | 0.0086        | 0.0709         | 0.0086        | 0.0589         | C                  |
| 222                                | X            | 2007-12      | MDOT   | MDOT P & R Lots at US 340 ( 66-99 spaces, Frederick Co.)            | X                     |             |           |     | 2007                     | 2007                   |               |                |               |                |               |                |               |                |                    |
| 223                                | X            | 2008-13      | MDOT   | MCG/MDOT P & R Lots at US 340 & Mt Zion Rd. (37 spaces)             | X                     |             |           |     | 2008                     | 2008                   | 0.0093        | 0.1256         | 0.0093        | 0.0913         | 0.0093        | 0.0765         | 0.0093        | 0.0635         |                    |
| 224                                | X            | 2008-13      | MDOT   | MCG/MDOT P & R Lots at US 340 & Mt Zion Rd. - expansion (39 spaces) |                       |             | X         |     | 2011                     | 2011                   |               |                |               |                |               |                |               |                |                    |
| 225                                | X            | 2008-13      | MDOT   | MCG/MDOT P & R Lots at I 70 & MD 355 (100 spaces)                   |                       |             | X         |     | 2010                     | 2010                   | 0.0123        | 0.1653         | 0.0123        | 0.1202         | 0.0123        | 0.1007         | 0.0123        | 0.0836         |                    |
| 226                                | X            | 2008-13      | MDOT   | MCG/MDOT P & R Lots at I 270 & MD 80 (164 spaces)                   | X                     |             |           |     | 2009                     | 2009                   | 0.0201        | 0.2710         | 0.0201        | 0.1971         | 0.0201        | 0.1652         | 0.0201        | 0.1371         |                    |
| 227                                | X            | 2008-13      | MDOT   | MDOT Syglal System Reviewing  |                       |             | X         |     | 2010                     | on-going               |               |                |               |                |               |                |               |                |                    |
| 228                                | X            | 2008-13      | MDOT   | MDOT Takoma Langely Transit Center                                  |                       |             | X         |     | 2012                     | 2012                   | 0.0000        | 0.0000         | 0.0000        | 0.0000         | 0.0000        | 0.0000         | 0.0000        | 0.0000         |                    |
| <b>Available Emissions Credits</b> |              |              |        |   |                       |             |           |     |                          |                        | <b>17.655</b> | <b>283.411</b> | <b>15.744</b> | <b>187.199</b> | <b>15.141</b> | <b>150.310</b> | <b>15.141</b> | <b>124.747</b> |                    |

**TRANSPORTATION EMISSION REDUCTION MEASURES (CLRP Projects Only)  
Part B - Yearly PM 2.5 and Precursor NOx Emissions**

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

| NOS | CREDIT TAKEN | TIP CREDITED     | AGENCY | PROJECT                                       | IMPLEMENTATION STATUS |             |          |         | PROJECTED COMPLETION DATE | ACTUAL COMPLETION DATE | TONS/ANNUM REDUCTION CREDITED |               |        |               |         |               |         |               | Project Category |
|-----|--------------|------------------|--------|---|-----------------------|-------------|----------|---------|---------------------------|------------------------|-------------------------------|---------------|--------|---------------|---------|---------------|---------|---------------|------------------|
|     |              |                  |        |   | FULL                  | SCALED-BACK | UNDERWAY | REMOVED |                           |                        | 2016                          |               | 2020   |               | 2030    |               | 2040    |               |                  |
|     |              |                  |        |   |                       |             |          |         |                           |                        | PM2.5                         | Precursor NOx | PM2.5  | Precursor NOx | PM2.5   | Precursor NOx | PM2.6   | Precursor NOx |                  |
| 221 | X            | 1995-00 TIP      | REGION | M-24 Speed Limit Adherence                    |                       |             |          |         | 2010                      |                        | 1.8471                        | 26.5777       | 2.1072 | 22.0719       | 0.7941  | 6.9030        | 0.7941  | 5.7290        | TR               |
| 222 |              | 1996-01 TIP      | MGC    | Rock Spring Park Pedestrian Amenities         |                       |             |          | X       |                           |                        | 0.0270                        | 0.3886        | 0.0000 | 0.0000        | 0.0000  | 0.0000        | 0.0000  | 0.0000        | -                |
| 223 | X            | 1996-01 TIP      | MGC    | Olney Transit Center Park and Ride            |                       |             |          |         | 2015                      |                        | 0.0540                        | 0.7772        | 0.0531 | 0.5559        | 0.0147  | 0.1279        | 0.0147  | 0.1062        | C                |
| 224 | X            | 1996-01 TIP      | MGC    | Damascus Park and Ride                        |                       |             |          |         | 2003                      |                        | 0.0270                        | 0.3886        | 0.0265 | 0.2780        | 0.0074  | 0.0640        | 0.0074  | 0.0531        | C                |
| 225 | X            | 1996-01 TIP      | DC     | M-103 Taxicab Replacement (DC)                |                       |             |          | X       | 2015                      |                        | 0.0000                        | 0.0000        | 5.2412 | 54.8984       | 12.6415 | 109.8936      | 12.6415 | 91.2039       | H                |
| 226 | X            | STADIUM ANALYSIS |        | M-103 Taxicab Replacement (MD)                |                       |             |          | X       | 2008                      |                        | 0.0000                        | 0.0000        | 4.1929 | 43.9187       | 5.0566  | 43.9574       | 5.0566  | 36.4816       | H                |
| 227 | X            | 1997-02 TIP      | MDOT   | Shady Grove West Transit Center Park and Ride |                       |             |          | X       |                           |                        | 0.0675                        | 0.9715        | 0.0663 | 0.6949        | 0.0184  | 0.1599        | 0.0184  | 0.1327        | C                |
| 228 | X            | 1997-02 TIP      | MGC    | Olney Transit Center Park and Ride            |                       |             |          |         | 2015                      |                        | 0.0000                        | 0.0000        | 0.0218 | 0.2280        | 0.0147  | 0.1279        | 0.0147  | 0.1062        | C                |
| 229 | X            | 1997-02 TIP      | MGC    | White Oak Park and Ride                       |                       |             |          |         | 2008                      |                        | 0.1350                        | 1.9431        | 0.1327 | 1.3898        | 0.0368  | 0.3199        | 0.0368  | 0.2655        | C                |
| 230 | X            | 1997-02 TIP      | MGC    | Damascus Park and Ride                        |                       |             |          |         | 2003                      |                        | 0.0000                        | 0.0000        | 0.0082 | 0.0855        | 0.0055  | 0.0480        | 0.0055  | 0.0398        | C                |
| 231 | X            | 1997-02 TIP      | MGC    | Four Corners Transit Center                   |                       |             |          |         | 2015                      |                        | 0.0068                        | 0.0972        | 0.0066 | 0.0695        | 0.0018  | 0.0160        | 0.0018  | 0.0133        | C                |
| 232 |              | 1997-02 TIP      | MGC    | Burtonsville Transit Center                   |                       |             |          | X       |                           |                        | 0.0000                        | 0.0000        | 0.0000 | 0.0000        | 0.0000  | 0.0000        | 0.0000  | 0.0000        | -                |
| 233 | X            | 1997-02 TIP      | MGC    | Silver Spring Transit Access                  |                       |             |          |         |                           |                        | 0.0068                        | 0.0972        | 0.0054 | 0.0570        | 0.0037  | 0.0320        | 0.0037  | 0.0265        | C                |
| 234 | X            | 1997-02 TIP      | MGC    | Shady Grove Parking Construction              |                       |             |          |         | 2003                      |                        | 0.1283                        | 1.8459        | 0.1261 | 1.3204        | 0.0350  | 0.3039        | 0.0350  | 0.2522        | C                |

|                   |  |  |  |  |  |  |  |  |  |  |        |         |        |         |        |        |        |        |  |
|-------------------|--|--|--|--|--|--|--|--|--|--|--------|---------|--------|---------|--------|--------|--------|--------|--|
| <b>PLAN TOTAL</b> |  |  |  |  |  |  |  |  |  |  | 0.3579 | 31.7268 | 0.3804 | 26.0561 | 0.1196 | 7.9425 | 0.1196 | 6.5917 |  |
|-------------------|--|--|--|--|--|--|--|--|--|--|--------|---------|--------|---------|--------|--------|--------|--------|--|

|   |  |  |  |  |  |  |  |  |  |  |        |         |        |         |        |         |        |         |  |
|---|--|--|--|--|--|--|--|--|--|--|--------|---------|--------|---------|--------|---------|--------|---------|--|
| <b>GRAND TOTAL (Current Measures + CLRP plan)</b> |  |  |  |  |  |  |  |  |  |  | 18.013 | 315.138 | 16.124 | 213.255 | 15.261 | 158.252 | 15.261 | 131.338 |  |
|---|--|--|--|--|--|--|--|--|--|--|--------|---------|--------|---------|--------|---------|--------|---------|--|

DEFINITIONS: Project Numbers implemented fully prior to 2000 were removed from the TERM Tracking Sheet

CREDIT TAKEN ( X means emissions reduction credits taken):

TIP - Emissions credits are taken for projects being implemented, according to the progress reporting schedules provided by the implementing agencies (contained in Appendix J of Conformity Document ). No credit has been taken for projects in which only some components of the measure have been implemented.

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

IMPLEMENTATION STATUS:

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

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

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

REMOVED = project no longer expected to be implemented or constructed

COMPLETION DATE:

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

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

REMOVED

projects Emissions credits are not counted in total available emissions credits

- 1 Line items 218, 216, 179, 92 are all credited as part of M-92 Regional Telecommute Support TERM, line item # 75
- 2 Line item 108 & 219 credits are taken only for year 2010