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**SOLICITATION DOCUMENT FOR
THE YEAR 2005 CONSTRAINED LONG-RANGE PLAN
AND
THE TRANSPORTATION IMPROVEMENT PROGRAM FOR
FY 2006-2011**

January 7, 2005

**METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS
NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD**

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PROPOSED YEAR 2005 CLRP AND FY 2006-2011 TIP AIR QUALITY CONFORMITY SCHEDULE

- *December 15, 2004 TPB Reviews Draft Solicitation Document
- *January 19, 2005 TPB Releases Final Solicitation Document
- February 4, 2005 DEADLINE: Implementing Agencies Complete Electronic Submissions of Project Information to staff --including CMS, CLRP, and TIP Data.
- February 10, 2005 CLRP and TIP Project Submissions for inclusion in the Air Quality Conformity Analysis and Draft Scope of Work Released for Public Comment and Inter-Agency Review
- *February 16, 2005 TPB Reviews Project Submissions and Scope of Work
- March 13, 2005 Public Comment Period Ends for Project Submissions and Scope of Work
- *March 16, 2005 TPB Reviews Public Comments, Approves Project Submissions for inclusion in the Air Quality Conformity Analysis for CLRP and TIP and Scope of Work
- *June 15, 2005 TPB Receives Briefing on Draft Air Quality Conformity Determination, CLRP and TIP Documents
- *July 20, 2005 TPB Releases Draft Air Quality Conformity Determination, Draft Year 2005 CLRP, and Draft FY 2006-2011 TIP for Public Comment and Inter-Agency Review
- September 9, 2005 Public Comment Period Ends for Draft Documents
- *September 21, 2005 TPB Reviews Public Comments on Draft Documents, Approves Responses to Comments, and Adopts the Air Quality Conformity Determination, the Year 2005 CLRP and FY 2006-2011 TIP
- *TPB Meeting

INTRODUCTION

The National Capital Region Transportation Planning Board (TPB), the designated Metropolitan Planning Organization (MPO) for the Washington region, has responsibilities for both long-term transportation planning covering the next two to three decades (the financially Constrained Long Range Plan or CLRP) and short-term programming of projects covering the next six years (the Transportation Improvement Program or TIP). The planning horizon for the 2005 CLRP is from 2005 to 2030. The CLRP identifies transportation projects and strategies that can be implemented by 2030, within financial resources “reasonably expected to be available.”

In accordance with federal planning regulations, the TPB conducts and publishes a comprehensive update to the region’s CLRP every three years. (Amendments to the CLRP are made in intervening years, usually in conjunction with the annual adoption of the Transportation Improvement Program (TIP), but occasionally at other times.) The first three-year update under the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) provisions was adopted by the TPB in September of 1994. Subsequent three-year updates were adopted by the TPB in July 1997, October 2000 and December 2003. These updates are documented in published reports and are summarized in the 1995, 1997 and 2001, and 2004 Region magazines.

The 2003 CLRP adopted in December 2003, reflect the provisions of the 1998 Transportation Equity Act for the 21st Century (TEA-21). The plan also reflects the TPB Vision adopted in October 1998. The Vision statement, goals, objectives and strategies of the TPB Vision are the policy elements, replacing the previous policy element.

Purpose

Each year, the TPB issues a broad solicitation for proposals of projects and strategies to be included in the CLRP and TIP that will meet the goals in the TPB Vision as well as federal requirements. Individual counties, municipalities and state and federal agencies with the fiscal authority to fund transportation projects, as well as public groups and individuals, respond. The purpose of this document is: 1) to describe the policy framework for implementing agencies to use in deciding which projects to submit for inclusion in the plan; and 2) to review federal regulations related to the CLRP and TIP, and 3) to describe the project submission process for the CLRP and the TIP.

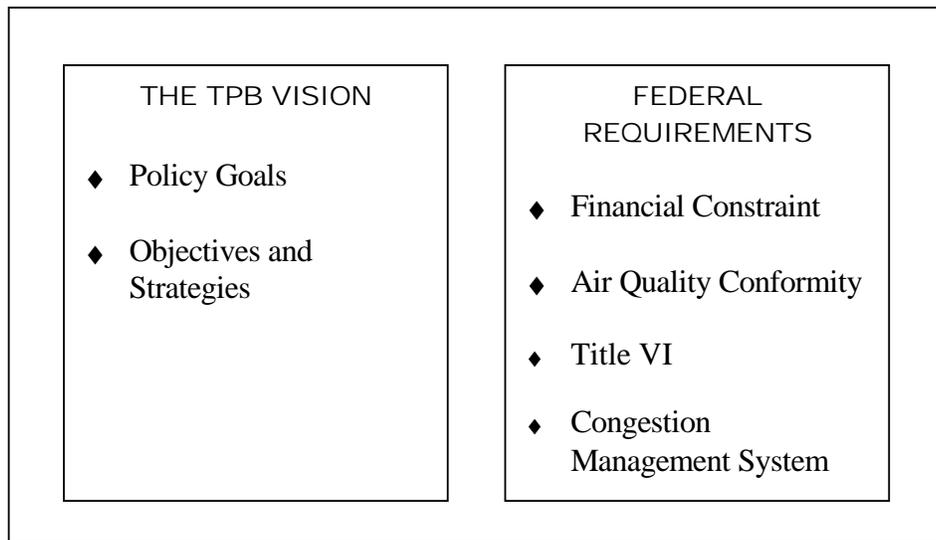
The TPB Vision and Federal Requirements

The CLRP and TIP will be developed to address the TPB Vision and federal requirements, and the key criteria are summarized in Figure 1. The Vision serves as the policy framework to guide the formation of the CLRP and TIP. The TPB adopted the Vision in October 1998 after an extensive public involvement process which considered creative new approaches to the region's transportation future without having to limit the discussion to measures that can be paid for with existing funds. Representatives of a broad range of viewpoints were involved in the process to consider innovative ways to assure the future sustainability of the region's infrastructure,

environment, air quality, economic development, and quality of life.

The CLRP and TIP must meet federal regulations involving financial constraint, air quality conformity, environmental justice, and other requirements including a Congestion Management System (CMS). A financial plan must show how the updated long-range plan can be implemented with expected revenues. The CLRP and TIP need to demonstrate conformity with national air quality standards. Environmental justice guidance issued in 1998 and 1999 provides additional requirements for the long-range plan, some of which were previously addressed on a project level.

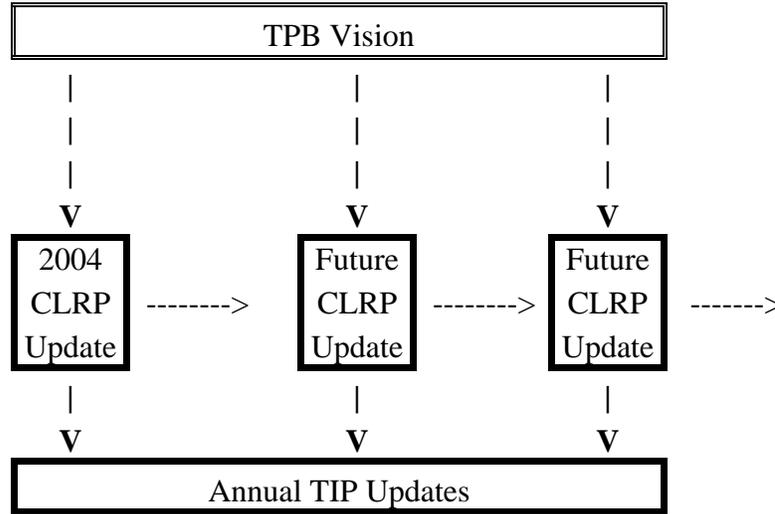
**Figure 1:
Key Criteria for Developing the Constrained Long-Range Plan (CLRP) and Transportation Improvement Program (TIP)**



Relationship Between the CLRP and TIP

Every year the TPB prepares a program for implementing the CLRP using federal, state, and local funds. This document, known as the TIP, provides detailed information showing how portions of the CLRP will be implemented over a six-year period. Like the CLRP, the TIP needs to address the TPB Vision and federal requirements. The TIP includes portions, or phases, of projects selected for implementation from the CLRP. While the entire project is described in the CLRP, in many instances only a portion of the project is included in the six-year TIP. The CLRP is reviewed every year and under federal regulations must be updated at least every three years. This overall process is illustrated in Figure 2.

Figure 2: The Process of Updating the Financially Constrained Long-Range Plan and Annual TIP



Key Dates in the Update Process

The first major step in the process of developing the CLRP and TIP occurs in February when the project submissions are released for public comment. In March, the TPB is scheduled to approve the project submissions for inclusion in the Air Quality Conformity analysis for the CLRP and TIP. The draft updated plan is assessed to ensure that it meets Air Quality Conformity and other federal planning requirements between April and June. The CLRP amendments, TIP, and Air Quality Conformity Determination are released for public comment in July. At the September meeting, the TPB responds to public comments and is scheduled to adopt the Air Quality Conformity Determination, the CLRP amendments, and TIP. The key dates for the update process this year are shown on page v.

SECTION 1: POLICY FRAMEWORK

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THE TPB VISION

To guide the planning and implementation of transportation strategies, actions, and projects for the National Capital Region the TPB adopted a Vision in October 1998 that is a comprehensive set of policy goals, objectives, and strategies. The federal Transportation Efficiency Act for the 21st Century (TEA-21) was enacted in 1998 and the seven TEA-21 planning factors are incorporated in the Vision. The Vision and TEA-21 will guide the development of the CLRP and TIP.

The Vision includes:

- , a statement; and
- , eight policy goals with numerous objectives and strategies.

These components of the TPB Vision will be used to review and assess the strategies and projects under consideration for inclusion in the CLRP and TIP. **In developing proposed projects and strategies in the CLRP, or for inclusion in the TIP, each agency must consider their contributions to meeting the Vision's policy goals and objectives set by the TPB.** In this way, the TPB will be able to ensure and document that consideration of the required planning factors has taken place. Consideration of regional goals and objectives may also prove useful to agencies in selecting among proposed projects or actions when the desired level of investment exceeds the projected available revenues. Especially important are projects and strategies that contribute to meeting the required emission reductions and achieving air quality conformity.

The policy goals, objectives, and strategies are provided in the following pages.

Policy Goals, Objectives, and Strategies

Vision Statement

In the 21st Century, the Washington metropolitan region remains a vibrant world capital, with a transportation system that provides efficient movement of people and goods. This system promotes the region's economy and environmental quality, and operates in an attractive and safe setting—it is a system that serves everyone. The system is fiscally sustainable, promotes areas of concentrated growth, manages both demand and capacity, employs the best technology, and joins rail, roadway, bus, air, water, pedestrian and bicycle facilities into a fully interconnected network.

Policy Goal 1: The Washington metropolitan region's transportation system will provide reasonable access at reasonable cost to everyone in the region.

Objectives:

1. A comprehensive range of choices for users of the region's transportation system.
2. Accurate, up-to-date and understandable transportation system information which is available to everyone in real time, and is user-friendly for first-time visitor and residents, regardless of mode of travel or language of the traveler.
3. Fair and reasonable opportunities for access and mobility for persons with special accessibility needs.
4. Convenient bicycle and pedestrian access.

Strategies:

1. Plan, implement, and maintain a truly integrated, multi-modal regional transportation system.
2. Plan and implement a tourist-friendly system that encourages the use of transit and provides international signage and information.
3. Make the region's transportation facilities safer, more accessible, and less intimidating for pedestrians, bicyclists, and persons with special needs.
4. Plan and implement a uniform fare system for transit and commuter rail.
5. Adopt a regional transit planning process and plan, with priority to uniformity, connectivity, equity, cost effectiveness and reasonable fares.

Policy Goal 2: The Washington metropolitan region will develop, implement, and maintain an interconnected transportation system that enhances quality of life and promotes a strong and growing economy throughout the entire region, including a healthy regional core and dynamic regional activity centers with a mix of jobs, housing and services in a walkable environment.

Objectives:

1. Economically strong regional core.
2. Economically strong regional activity centers with a mix of jobs, housing, services, and recreation in a walkable environment.
3. A web of multi-modal transportation connections which provide convenient access (including improved mobility with reduced reliance on the automobile) between the regional core

and regional activity centers, reinforcing existing transportation connections and creating new connections where appropriate.

4. Improved internal mobility with reduced reliance on the automobile within the regional core and within regional activity centers.
5. Efficient and safe movement of people, goods, and information, with minimal adverse impacts on residents and the environment.

Strategies:

1. Define and identify existing and proposed regional activity centers, taking full advantage of existing infrastructure, for the growth and prosperity of each jurisdiction in the region.
2. Encourage local jurisdictions to provide incentives for concentrations of residential and commercial development along transportation/transit corridors within and near the regional core and regional activity centers, such as zoning, financial incentives, transfer of development rights, priority infrastructure financing, and other measures.
3. Encourage the federal government to locate employment in the regional core and in existing and/or planned regional activity centers.
4. Give high priority to regional planning and funding for transportation facilities that serve the regional core and regional activity centers, including expanded rail service and transit centers where passengers can switch easily from one transportation mode to another.
5. Identify and develop additional highway

and transit circumferential facilities and capacity, including Potomac River crossings where necessary and appropriate, that improve mobility and accessibility between and among regional activity centers and the regional core.

6. Intercept automotive traffic at key locations, encouraging "park once," and provide excellent alternatives to driving in the regional core and in regional activity centers.
7. Develop a system of water taxis serving key points along the Potomac and Anacostia Rivers.

Policy Goal 3: The Washington metropolitan region's transportation system will give priority to management, performance, maintenance, and safety of all modes and facilities.

Objectives:

1. Adequate maintenance, preservation, rehabilitation, and replacement of existing infrastructure.
2. Enhanced system safety through effective enforcement of all traffic laws and motor carrier safety regulations, achievement of national targets for seatbelt use, and appropriate safety features in facility design.

Strategies:

1. Factor life-cycle costs into the transportation system planning and decision process.
2. Identify and secure reliable sources of funding to ensure adequate maintenance, preservation, and rehabilitation of the region's transportation system.

3. Support the implementation of effective safety measures, including red light camera enforcement, skid-resistant pavements, elimination of roadside hazards, and better intersection controls.

Policy Goal 4: The Washington metropolitan region will use the best available technology to maximize system effectiveness.

Objectives:

1. Reduction in regional congestion and congestion-related incidents.
2. A user-friendly, seamless system with on-demand, timely travel information to users, and a simplified method of payment.
3. Improved management of weather emergencies and major incidents.
4. Improved reliability and predictability of operating conditions on the region's transportation facilities.
5. Full utilization of future advancements in transportation technology.

Strategies:

1. Deploy technologically advanced systems to monitor and manage traffic, and to control and coordinate traffic control devices, such as traffic signals, including providing priority to transit vehicles where appropriate.
2. Improve incident management capabilities in the region through enhanced detection technologies and improved incident response.
3. Improve highway lighting, lane markings, and other roadway delineation through the use of advanced and

emerging technologies.

4. Establish a unified, technology-based method of payment for all transit fares, public parking fees, and toll roads in the region.
5. Utilize public/private partnerships to provide travelers with comprehensive, timely, and accurate information on traffic and transit conditions and available alternatives.
6. Use technology to manage and coordinate snow plowing, road salting operations, and other responses to extreme weather conditions, and to share with the public assessments of road conditions and how much time it will take to clear roadways.
7. Use advanced communications and real-time scheduling methods to improve time transfers between transit services.
8. Develop operating strategies and supporting systems to smooth the flow of traffic and transit vehicles, reduce variances in traffic speed, and balance capacity and demand.
9. Maintain international leadership in taking advantage of new technologies for transportation, such as automated highway systems and personal rapid transit.

Policy Goal 5: The Washington metropolitan region will plan and develop a transportation system that enhances and protects the region's natural environmental quality, cultural and historic resources, and communities.

Objectives:

1. The Washington region becomes a model for protection and enhancement

of natural, cultural, and historical resources.

2. Reduction in reliance on the single-occupant vehicle (SOV) by offering attractive, efficient and affordable alternatives.
3. Increased transit, ridesharing, bicycling and walking mode shares.
4. Compliance with federal clean air, clean water and energy conservation requirements, including reductions in 1999 levels of mobile source pollutants.
5. Reduction of per capita vehicle miles traveled (VMT).
6. Protection of sensitive environmental, cultural, historical and neighborhood locations from negative traffic and developmental impacts through focusing of development in selected areas consistent with adopted jurisdictional plans.

Strategies:

1. Implement a regional congestion management program, including coordinated regional bus service, traffic operations improvements, transit, ridesharing, and telecommuting incentives, and pricing strategies.
2. Develop a transportation system supportive of multiple use and higher density (commercial and residential) in the regional core and regional activity centers as a means of preserving land; natural, cultural and historic resources; and existing communities.
3. Support regional, state and federal programs which promote a cost-effective combination of technological improvements and transportation strategies to reduce air

pollution, including promoting use of transit options, financial incentives, and voluntary emissions reduction measures.

4. Develop a regional tourism initiative to encourage air and train arrival in the region, and additional transit access and automobile parking at the termini of Metrorail/rail services.
5. Provide equivalent employer subsidies to employees with the intent of "leveling the playing field" between automobile and transit/ridesharing.
6. Plan and implement transportation and related facilities that are aesthetically pleasing.
7. Implement a regional bicycle/trail/pedestrian plan and include bicycle and pedestrian facilities in new transportation projects and improvements.
8. Reduce energy consumption per unit of travel, taking maximum advantage of technology options.

Policy Goal 6: The Washington metropolitan region will achieve better inter-jurisdictional coordination of transportation and land use planning.

Objectives:

1. A composite general land use and transportation map of the region that identifies the key elements needed for regional transportation planning--regional activity centers, principal transportation corridors and facilities, and designated "green space."
2. Region-wide coordination of land use and transportation planning in accordance with the recommendations of the Partnership for Regional Excellence report approved by the COG

Board of Directors in 1993.

Strategies:

1. Develop a regional process to notify local governments formally of regional growth and transportation policy issues, and encourage local governments to specifically address such issues in their comprehensive plans.
2. Identify an agreed-upon set of definitions and assumptions to facilitate regional cooperation.
3. Ensure that major corridor studies include options that serve the regional core and regional activity centers shown on the regional map.
4. Develop, in cooperation with local governments, model zoning and land use guidelines that encourage multiple use development patterns and reduce non-work automobile dependency.
5. Plan for development to be located where it can be served by existing or planned infrastructure.

Policy Goal 7: The Washington metropolitan region will achieve an enhanced funding mechanism(s) for regional and local transportation system priorities that cannot be implemented with current and forecasted federal, state, and local funding.

Objectives:

1. Consensus on a set of critical transportation projects and a funding mechanism(s) to address the region's growing mobility and accessibility needs.
2. A fiscally sustainable transportation system.

3. Users of all modes pay an equitable share of costs.

Strategies:

1. Conduct outreach and education activities to promote public participation.
2. Develop public support and approval for a specific set of regional and local transportation priorities and a funding mechanism(s) to supplement (and not supplant) priorities to be implemented with current and forecasted federal, state, and local funding.

Policy Goal 8: The Washington metropolitan region will support options for international and inter-regional travel and commerce.

Objectives:

1. The Washington region will be among the most accessible in the nation for international and inter-regional passenger and goods movements.
2. Continued growth in passenger and goods movements between the Washington region and other nearby regions in the mid-Atlantic area.
3. Connectivity to and between Washington Dulles International, National, and Baltimore-Washington International airports.

Strategies:

1. Maintain convenient access to all of the region's major airports for both people and goods.
2. Support efficient, fast, cost-effective operation of inter-regional passenger and freight rail services.
3. Support the development of a seamless regional transportation system.
4. Support coordinated ticketing and scheduling among Amtrak, MARC, VRE, WMATA, local bus and inter-city bus service.
5. Develop a regional plan for freight movement.

The Regional Activity Centers and Clusters

Background

Policy Goal 6 in the TPB Vision calls for “a composite map that identifies key elements needed for regional transportation planning—regional activity centers, principal transportation corridors and facilities, and designated ‘green space.’” In response to the TPB Vision, a regional committee of planning directors from the local jurisdictions undertook the task of developing composite regional maps. The two-year process produced six maps and a set of data tables describing 58 Regional Activity Centers and the 24 Regional Activity Clusters. “Green space” layers have not yet been developed, due to challenges in identifying a common set of regional definitions for green space.

On April 17, 2002, the TPB passed a resolution regarding the Regional Activity Centers and in the “resolved” clause stated that the TPB accepts the six maps and data, acknowledges and respects each local jurisdiction's authority to determine it's own future pursuant to powers, and that the maps have been developed for use by local jurisdictions to encourages mixed-use development and to significantly increase the percentage of jobs and households that are found in regional activity centers.

Definitions of Centers and Clusters

The 58 Regional Activity Centers are based on local government growth forecasts and categorized according to similar employment, residential, and growth pattern characteristics. Recognizing that significant concentrations of residential and commercial development exist immediately adjacent to the tightly defined Activity Centers along the region's transportation facilities, the committee also designated 24 Regional Activity Clusters. The Clusters tend to be groupings of Centers and are a more conceptual, stylized depiction of development than the Centers. On the following pages, three figures are provided: Figure 3 shows the locations of the Regional Activity Centers; Figure 4 shows the locations of the Regional Activity *Clusters*; and Figure 5 shows the employment in the Clusters in 2005 and 2030¹. The Regional Activity Centers and Clusters will be reviewed and amended following the adoption of the Round 7.0 cooperative forecasts which is anticipated in the fall of 2005.

Forecast Growth and the Regional Activity Clusters

The 24 Regional Activity Clusters comprise about 455 square miles (13 percent) of the region's total land area and capture 71 percent of the region's employment and 40 percent of the region's households in both 2000 and 2030, based on Round 6.4a forecasts.

¹For more information and additional maps on the Regional Activity Centers and Clusters, see <http://www.mwcog.org/planning/planning/activitycenters/>

The percent of regional growth in employment and households that will occur within Regional Activity Clusters differs between jurisdictions. For some jurisdictions, such as the District of Columbia, Arlington County in Virginia, and Montgomery County in Maryland, a large majority of the growth will occur within Regional Activity Clusters. For other jurisdictions, such as Prince William County in Virginia and Prince George's County in Maryland, much of the growth will occur outside regional activity clusters.

It should be noted that the Regional Activity Clusters contain significant concentrations of both residential and commercial development, but the 58 Activity Centers include less development. Therefore, the percentage of growth captured by the Regional Activity Centers will be less than that captured by the Clusters. Figures on the growth captured in the Regional Activity Centers for Round 6.4a forecasts are not available, but estimates are under development². The Activity Centers were first developed with Round 6.2 forecasts, and based on these forecasts the centers capture 55% of the employment and 11% of households in 2025.

²The COG Planning Department updated the growth figures for the Regional Activity Clusters for the 2004 CLRP, but not the Centers. Estimates for the Centers are under development. The Center boundaries were created by the local jurisdictions and do not match up with the transportation analysis zones as well as the Cluster boundaries.

Figure 3: Regional Activity Centers

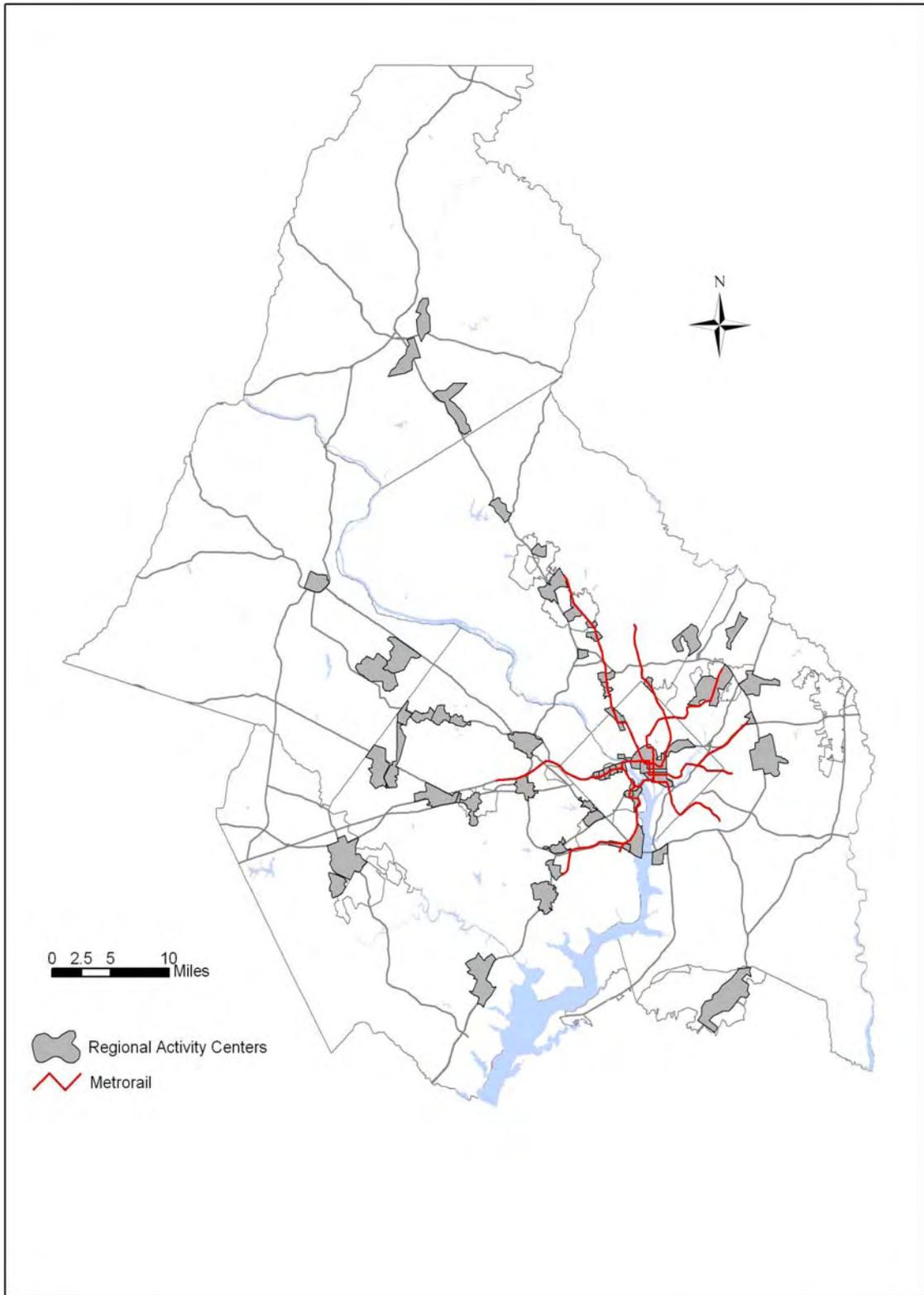


Figure 4: Regional Activity Clusters

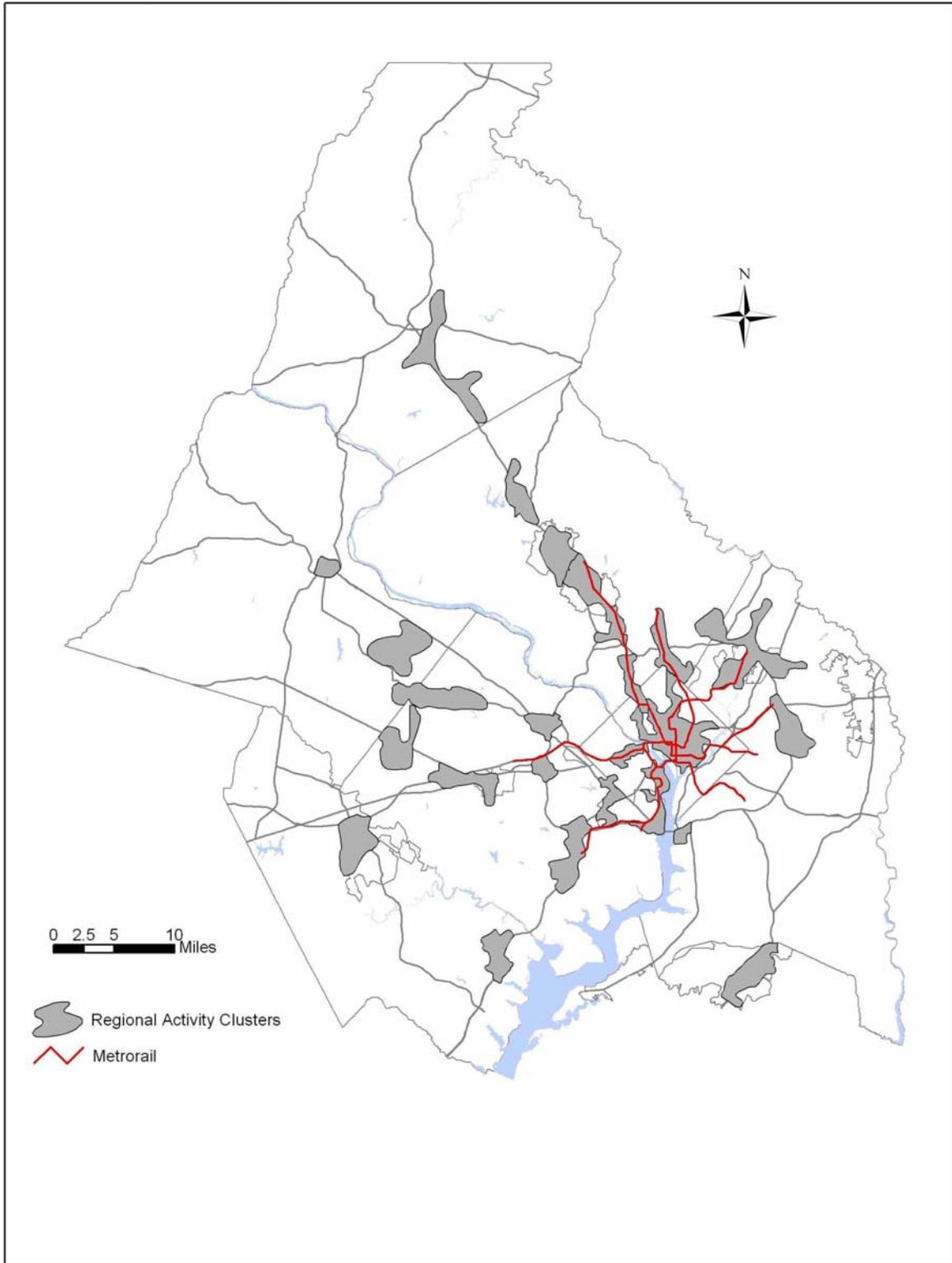
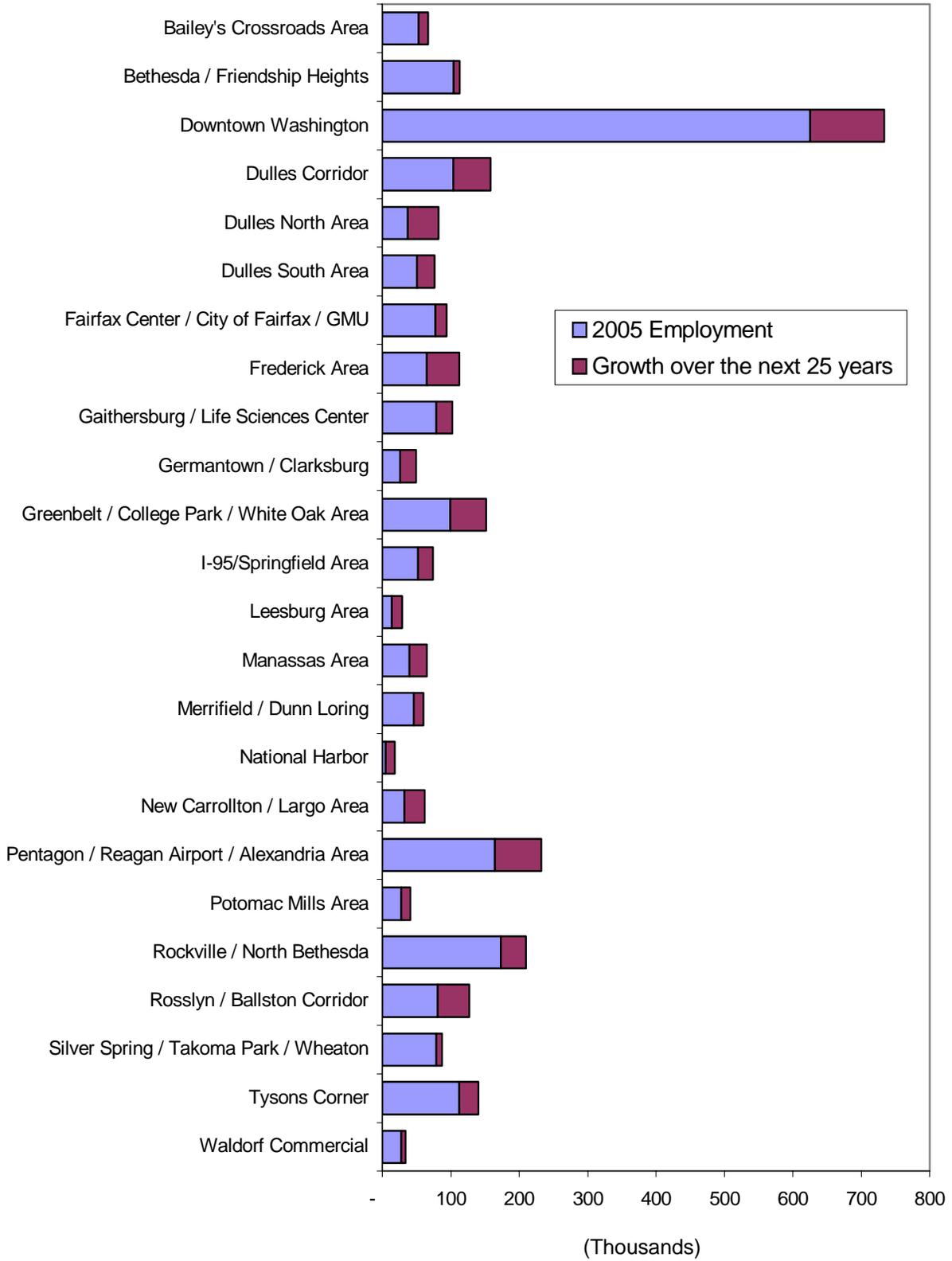


Figure 5: Employment in the Regional Activity Clusters, 2005 and 2030



THE PERFORMANCE OF THE CLRP AND THE TPB VISION

This section presents a brief overview of how the 2004 plan performs based on all the projects submitted to the CLRP and TIP, and relates the performance to TPB Vision goals. A similar, more extensive assessment of the last major three-year update to the plan, the 2003 CLRP, can be found in Chapter 5 of the 2003 CLRP document which can be found on the TPB website (www.mwcog.org).

Table 1: A Summary of the 2004 Plan Performance and Related TPB Vision Goal

| Performance of the 2004 CLRP (Forecasts for 2005 to 2030³) | Related TPB Vision Goal |
|---|--|
| <p>-The highway system’s capacity, measured in roadway lane-miles, will expand about 13 percent, while use of the highway system, measured in vehicle miles traveled (VMT), will increase 30 percent.</p> <p>-Transit trips for both work and non-work purposes will increase by approximately 30 percent, and Metrorail miles will expand by 24 percent.</p> <p>-The percentage of forecast jobs and households captured by the Regional Activity Clusters (71 percent and 40 percent, respectively) will remain constant⁴.</p> | <p><i>Policy Goal 2- Interconnected Transportation System and Dynamic Regional Activity Centers with a mix of jobs, housing and services in a walkable environment</i></p> |

³Forecasts are for the Washington, DC-MD-VA Metropolitan Statistical Area (MSA) which includes the District of Columbia; the counties of Arlington, Fairfax, Loudoun, Prince William, and Stafford and the cities of Fairfax, Falls Church and Alexandria in Virginia; and the counties Montgomery, Prince George's, Frederick, Calvert and Charles in Maryland.

⁴The COG Planning Department updated the growth figures for the Regional Activity Clusters for the 2004 CLRP, but not the Centers. Estimates for the Centers are under development. The Regional Activity Centers were first developed with Round 6.2 forecasts and based on these forecasts the Centers capture 55% of the employment and 11% of households in 2025. The Clusters are a more conceptual, stylized depiction of development than the centers and tend to be groupings of Center. Therefore, the percentage of growth captured by the Centers will be less than that captured by the Clusters. The Center boundaries were created by the local jurisdictions and do not match up with the transportation analysis zones as closely as the Cluster boundaries. The Regional Activity Centers and Clusters will be reviewed and amended following the adoption of the Round 7.0 cooperative forecasts anticipated in the fall of 2005.

(Table 1 Continued)

| Performance of the 2004 CLRP (Forecasts for 2005 to 2030) | Related TPB Vision Goal |
|--|--|
| <p>-In its “Time to Act” brochure, the TPB identified short-term critical funding needs for rehabilitation, maintenance, and preservation of buses, rail, and bridges⁵.</p> <p>-WMATA and the state and local governments reached agreement on commitments for “Metro Matters” consisting of \$3.3 billion in local, state, and federal funding for WMATA’s near-term rehabilitation, preservation, and access and capacity needs through 2010.</p> | <p><i>Policy Goal 3-Priority to Management, Performance, Maintenance and Safety</i></p> |
| <p>-Vehicle miles traveled (VMT) per capita will increase from 23 in 2005 to 25 in 2030.</p> <p>-The share of commuting trips by single-occupancy vehicles is forecast to remain unchanged between 2005 and 2030.</p> <p>-Transit mode share for work trips will increase from 16% in 2005 to 17% in 2030.</p> <p>-Average auto occupancy will remain steady.</p> <p>-Vehicle ownership will increase at a faster rate than population, employment, and vehicle miles of travel (VMT).</p> | <p><i>Policy Goal 5 -Enhance and Protect the Region's Natural Environmental Quality, Cultural and Historic Resources and Communities</i></p> |
| <p>-The TPB has undertaken several activities to inform local, state, and federal representatives and the general public about the region’s short and longer term transportation funding needs but to date funding for transportation has not been significantly increased.</p> <p>-The COG Board, along with the Greater Washington Board of Trade and the Federal City Council, appointed 13 experts to serve on a panel established to research funding options for the region’s public transit system.</p> | <p><i>Policy Goal 7-Achieve an Enhanced Funding Mechanism(s) for Regional and Local Priorities</i></p> |

⁵The “Time to Act” brochure is at www.mwcog.org under transportation publications and then planning documents.

Funding Limitations

As part of the 2003 CLRP financial analysis, WMATA identified a need for a substantial ramp-up in preservation funding of \$1.5 billion beginning in 2006. To address short-term critical funding needs that involve cash flow and ramp-up issues, in fall of 2003 the TPB conducted a six-month study to quantify highway and transit funding needs and recommend specific sources of revenue over the period from 2004 to 2010. The study found that the region must double its anticipated transportation revenues in the next six years in order to fund key transportation priorities. This analysis was compiled in a brochure called "Time to Act." Released by the TPB in February 2004, this brochure was covered by major newspapers and the media and informed federal, state and local funding partners on critical regional transportation needs⁶.

In 2001, the TPB identified a long-term funding gap of \$43 billion over 25 years based on the projected revenues available for the 2000 CLRP. This gap was publicized in a brochure "A System in Crisis," which described regional unfunded transit and highway needs and identified a \$1.74 billion per year revenue gap. Also in 2001, the TPB passed a resolution that declared "unmet preservation, rehabilitation, and capacity expansion for the existing Metrorail system to be a regional priority" and urged that reliable sources of funding be identified by the federal, state, and local governments at the earliest possible time to address the unmet needs.

Resolutions adopted by the TPB on funding limitations related to regional priorities and emergency coordination and communication are summarized in Table 2 below. These resolutions were adopted by the TPB between October 2000 and November 2004.

⁶To view the TPB brochure, go to http://www.mwcog.org/publications/departmental.asp?CLASSIFICATION_ID=3, and then "Planning Documents"

Table 2: TPB Resolutions Related to Funding Limitations

| Resolution | Summary of Resolve Clause (Therefore be it resolved that:) | Date of TPB Adoption |
|---|---|-----------------------------|
| Funding Challenges in Meeting the Goals of the TPB Vision with the 2000 Update to the Financially Constrained Long-range Transportation Plan | The TPB commits to an in-depth dialogue and discussion on regional transportation needs, an outreach program to education and build consensus and to ensuring that air quality conformity requirements are met. | October 18, 2000 |
| Recognizing the Tremendous Success of Metrorail on its 25th Anniversary, and Declaring Preservation, Rehabilitation, and Capacity Expansion for the Existing Metrorail System to Be a Regional Priority | The TPB urges that reliable sources of funding be identified by the federal, state, and local governments at the earliest possible time to address unmet needs. | April 18, 2001 |
| Declaring Proposed Actions to Strengthen Transportation Emergency Response Policies and Procedures to Be Regional Transportation Priorities | The TPB adopts the concept and actions for improving emergency coordination and communication; and urges that reliable sources of funding be identified by federal, state, and local governments to address vital actions. | November 21, 2001 |
| Declaring Funding must be Identified to Meet Preservation, Rehabilitation, and Capacity Expansion Needs of the Metrorail and Metrobus System | The TPB supports the efforts of the new panel to address dedicated funding sources for WMATA, and urges that dedicated and reliable sources of funding be identified by the federal, state, and local governments at the earliest possible time to address the unmet needs. | October 20, 2004 |
| Declaring Funding must Be Identified to Meet Preservation, Rehabilitation, and Capacity Expansion Needs of the Region's Highways, Local Transit, and Commuter Rail System | Declares that funding must be identified to meet \$11 billion in unfunded preservation, rehabilitation, safety, security, and capacity expansion near-term needs of the region's transportation system and urges that dedicated and reliable sources of funding be committed by the federal, state, and local governments at the earliest possible time to address the unmet needs. | November 17, 2004 |

2005 PRIORITY AREAS FOR PROJECT SUBMISSIONS

At the December 15, 2004 TPB meeting the incoming chair of the TPB, Phil Mendelson, asked that the Solicitation Document highlight three specific priority areas related to the TPB Vision for consideration by the implementing agencies when submitting projects, proposals and strategies to be included in the 2005 CLRP and FY 2006-2011 TIP:

1. **Implement traffic signal optimization** as stated as part of Goal 3, Strategy 3 in the TPB Vision: *“Support the implementation of effective safety measures, including red light camera enforcement, skid-resistant pavements, elimination of roadside hazards, and better intersection controls”*, and Goal 4, Strategy 1: *“Deploy technologically advanced systems to monitor and manage traffic, and to control and coordinate traffic control devices, such as traffic signals, including providing priority to transit vehicles where appropriate”*.

In 2002, the TPB adopted the traffic signal "optimization" program as a Transportation Emissions Reduction Measure (TERM) as well as a goal of optimizing 856 signals by 2005. Nearly 600 traffic signals had been re-timed and coordinated by 2003 as part of this regional program. In addition to cutting emissions, signal optimization has been recommended as a cost-effective way to reduce congestion.

2. **Further improve interagency coordination for incident management**, as stated in Goal 4, Objective 3: *“Improved management of weather emergencies and major incidences”* and Goal 4, Strategy 2: *“Improve incident management capabilities in the region through enhanced detection technologies and improved incident response”*.

On November 17, 2004, the TPB endorsed a concept for strengthening regional transportation coordination during incidents. The concept would build upon the existing partnership for the Capital Wireless Integrated Network (CapWIN). Although individual agencies would continue to be the responders to incidents, the “enhanced CapWIN” would keep transportation, police and other agencies across the region in the information loop so that they could make quick decisions to manage sudden transportation system surges or other effects from major incidences.

3. **Identify how projects or proposals support the regional core and regional activity centers**, as stated in Goal 2, Strategy 4 of the Vision: *“Give high priority to regional planning and funding for transportation facilities that serve the regional core and regional activity centers, including expanded rail service and transit centers where passengers can switch easily from one transportation mode to another”*.

In 2002, the TPB accepted the maps and data depicting the regional activity centers as a tool for linking land use and transportation planning. Maps of the regional activity centers and clusters are shown on pages 1-10 and 1-11. The resolution adopted by the TPB in 2002 stated that the maps and data “have been developed for use by local jurisdictions, the TPB and other regional bodies to encourage mixed-use development and to significantly increase the percentage of jobs and households that are found in regional activity centers”.

DEVELOPMENT OF CIRCULATION SYSTEMS AND GREEN SPACE

The TPB was awarded a Transportation and Community and Systems Preservation (TCSP) grant in May 1999 to assist in the implementation of two key components of the adopted Vision for transportation in the Washington region:

- , circulation systems within the regional core and regional activity centers;
- , and integration of green space into a regional greenways system.

TCSP funding provided the resources and level of attention needed to advance these program areas, including involvement of key agencies, officials and stakeholders and the identification of financial resources for project implementation. The TCSP funding was used to design comprehensive regional programs for each of these two components, to identify priority projects which need to be implemented within each of the programs, and to encourage the inclusion of these priority projects into the Constrained Long Range Plan (CLRP) and Transportation Improvement Program (TIP).

The TPB appointed representatives from government, non-profit, and business groups to serve on the Circulation Systems and Green Space/Greenways Advisory Committees to guide the implementation of the TCSP grant in September 1999. The committees completed their work in September 2000. The TPB was briefed on their comprehensive reports and recommended priority projects on December 20, 2000. On February 21, 2001, the TPB adopted resolutions receiving the reports and encouraging their use in future planning. The two reports, "Priorities 2000: Metropolitan Washington Greenways" and "Priorities 2000: Metropolitan Washington Circulation Systems" can be found at www.mwcog.org under "Transportation" and "Featured Publications".

REGIONAL BICYCLE AND PEDESTRIAN PRIORITIES

The TPB endorsed nine unfunded pedestrian and bicycle projects as regional priorities in December 2002 which were developed by the Bicycle and Pedestrian Technical Subcommittee and reflect the growing regional emphasis on pedestrian safety. The TPB will be presented an updated list of unfunded projects developed by the Subcommittee at its January 19, 2005 meeting⁷.

The nine projects endorsed by the TPB in December 2002 are estimated to cost \$26.2 million over six years and range from new trail construction to safety improvements.. In addition to pedestrian safety, key criteria in selecting the projects included transit access and bicycle network connectivity. The projects can all be completed by 2009 and are considered priorities by the jurisdictions where they are located. Although some projects have already been funded for study, none has received a full funding commitment. The biggest project is the Metropolitan Branch Trail, which would run nearly eight miles from Union Station to Silver Spring, where it would connect with the Capital Crescent Trail and create a complete arc around the District of Columbia. At Fort Totten, the trail would connect with the Prince George's Connector Trail. The TPB forwarded the list of priority projects to local and state jurisdictions with the recommendation that they should be funded in the region's Transportation Improvement Program (TIP).

The nine priority projects are the following:

- Metropolitan Branch Trail (D.C.) stretching 7.7 miles from Union Station to Silver Spring, parallel to the Metro's Red Line.
- Matthew Henson Trail (Montgomery County) running four miles from Rock Creek Trail to the Northwest Branch Park.
- Henson Creek Trail (Prince George's County) extending north and south of the existing trail.
- Holmes Run Stream Crossing (Alexandria) connecting the north and south ends of Chambliss Street at the Holmes Run Trail. Regionally, the trail crossing will connect to Fairfax County's Stream Valley Trail system.
- Pentagon Area Bicycle Access Improvements (Arlington County) including the East Wall of Arlington Cemetery. The improvements would provide access to the Route 110 Trail, the Washington Boulevard Trail, the Mount Vernon Trail, and Boundary Drive.
- Route 1 Pedestrian and Bicycle Safety Improvements (Fairfax County) including sidewalks, pedestrian crossing, and other pedestrian safety improvements.

⁷The updated priority list of unfunded bicycle and pedestrian projects can be found at <http://www.mwcog.org/transportation/committee/> under "Bicycle and Pedestrian Subcommittee".

- Centreville Road Underpass at Dulles Airport Access Road (Herndon) connecting the existing sidewalk networks in Fairfax County and the Town of Herndon.
- Trail construction parallel to Loudoun County Parkway (Loudoun County) from Route 7 to Waxpool Road, a distance of 4.4 miles.
- Trail construction along Dumfries Road (Prince William County), 1.2 miles, from the Lake Jackson Drive intersection to the Prince William Parkway West intersection.

The Subcommittee's previous set of priorities, developed in 2000, has been more than 90 percent funded. A total of \$17.6 million, out of \$19.3 million requested, has been spent on eight out of the 11 projects on the 2000 list. The subcommittee emphasized that many other worthy projects deserve funding. In the fall of 2004, the Subcommittee will develop a new list of priority projects for the TPB's endorsement and will report on the progress of the nine priority projects listed above.

SECTION 2: FEDERAL REGULATIONS

DRAFT

AIR QUALITY CONFORMITY REQUIREMENTS

The Clean Air Act Amendments (CAAA) of 1990 require that the transportation actions and projects in the CLRP and TIP support the attainment of the federal health standard for ozone, which was violated two times last year for the 1-hour standard, and seven times last year for the newly designated 8-hour standard. The CLRP and the TIP have to meet air quality conformity requirements as specified in the amended Environmental Protection Agency (EPA) regulations issued in August 1997 and in supplemental guidance issued periodically thereafter.

Background

Since EPA designated the Washington area as nonattainment for the 1-hour ozone standard in the 1990 CAAA, the Metropolitan Washington Air Quality Committee (MWAQC) and the state air management agencies have developed state air quality implementation plans (SIP)s to achieve EPA's emissions reduction requirements. These work efforts included the development and submittal to EPA of a 'severe' area ozone attainment SIP in 2003, which, following EPA's 'adequacy determination' for conformity, established mobile source emissions budgets for volatile organic compounds (VOC) and nitrogen oxides (NO_x). The current CLRP and TIP adhere to those emissions budget levels.

Current Status

On April 15, 2004 the Environmental Protection Agency (EPA) designated the Washington, DC-MD-VA area, 'moderate' nonattainment for the 8-hour ozone standard. The 8-hour ozone standard, 0.08 parts per million (ppm), averaged over eight hours, replaces the 1-hour standard of 0.12 ppm, measured in hourly increments, that has been in place since 1979. On July 1, 2004 the EPA published the final rule for transportation conformity under the new 8-hour ozone standard. For the Washington, DC-MD-VA region, the 8-hour non-attainment boundary is smaller than the 1-hour boundary, as Stafford County has been removed. Since new emissions budgets under the 8-hour standards will not be available for some time, in the interim EPA's conformity rule provides for conducting a conformity analysis by using the existing 1-hour budgets. (Stafford County is retained in both the budgets and mobile emissions estimates to enable a consistent analysis.)

As part of the conformity assessment, projected emissions for the actions and projects expected to be completed in the 2010, 2020 and 2030 analysis years need to be estimated. If the analysis of mobile source emissions for any of these years shows an increase in NO_x or VOC above what is allowed in the budget, it will be necessary for the TPB to define and program transportation emission reduction measures (TERMs) to mitigate the 'excess' emissions, as has been done in the past. The TPB Technical Committee's Travel Management Subcommittee is developing a schedule for submittal and analysis of TERMS for potential inclusion in the 2005 CLRP and FY 2006-11 TIP for the purpose of NO_x or VOC mitigation. Should emissions analysis for any forecast year estimate excess emissions which cannot be mitigated, TPB's programming actions would become limited to those projects which are exempt from conformity.

Air Quality Standards For Fine Particulate Matter (PM2.5)

In the near future EPA is expected to designate the Washington area as nonattainment for fine particulate matter (particles less than 2.5 microns in diameter). At this time it is not known what the exact boundaries of the nonattainment area will be, or what the air quality conformity requirements will be. EPA has indicated that new conformity requirements will be imposed, therefore, the TPB's conformity activities will be affected as these new standards become effective. However, it is still too early to tell just how the region will be affected and whether such additional actions will apply to the 2005 CLRP / FY2006-11 TIP, or subsequent conformity assessments. Staff will provide such information as soon as it becomes available.

FINANCIAL REQUIREMENTS

Amending the CLRP

The following financial requirements for the CLRP are provided in the federal planning regulations.

The CLRP "must include a financial plan that demonstrates the consistency of proposed transportation investments with already available and projected sources of revenues. The plan shall compare the estimated revenue from existing and proposed funding sources that can reasonably be expected to be available for transportation use, and the estimated costs of constructing, maintaining and operating the total (existing plus planned) transportation system over the period of the plan.

The estimated revenue by existing revenue source (local, State, and Federal and private) available for transportation projects shall be determined and any shortfalls shall be identified. Proposed new revenue and/or revenue sources to cover shortfalls shall be identified, including strategies for ensuring their availability for proposed investments. Existing and proposed revenues shall cover all forecasted capital, operating, and maintenance costs."

The 2003 CLRP update was developed to meet these requirements. Agencies should review the timing, costs and funding for the actions and projects in the CLRP, ensuring that they are consistent with the "already available and projected sources of revenues." Significant changes to the projects or actions in the current plan should be identified. New projects and strategies, specifically addressing regional air quality conformity needs also should be identified. If new funding sources are to be utilized for a project or action, agencies should describe the strategies for ensuring that the funding will be available.

TEA-21 has a provision allowing "illustrative" projects in the CLRP above and beyond those projects for which funds can reasonably be expected to be available. Illustrative projects may be included in the CLRP for analysis or vision planning purposes. A change in project status from illustrative to full status would require a CLRP amendment.

If new funding sources are to be utilized for a project or action, agencies should describe the strategies for ensuring that the funding will be available. Finally, other projects or actions above and beyond those for which funds are available or committed may be submitted to the CLRP under illustrative status. Illustrative projects will not be assumed in the air quality conformity determination of the CLRP.

Developing Inputs for the FY 2006-2011 TIP

The following financial requirements for the TIP are provided in the federal planning regulations.

"The TIP shall be financially constrained by year and include a financial plan that demonstrates which projects can be implemented using current revenue sources and which projects are to be implemented using proposed revenue sources (while the existing transportation system is being adequately operated and maintained).

The financial plan shall be developed by the MPO in cooperation with the State and the transit operator. The State and transit operator must provide MPOs with estimates of available Federal and State funds which the MPOs shall utilize in developing financial plans. It is

expected that the State would develop this information as part of the STIP development process and that the estimates would be refined through this process.

Only projects for which construction and operating funds can reasonably be expected to be available may be included under full status in the CLRP. In the case of new funding sources, strategies for ensuring their availability shall be identified. In developing the financial analysis, the MPO shall take into account all projects and strategies funded under Title 23, USC and the Federal Transit Act, other Federal funds, local sources, state assistance, and private participation.

In non-attainment areas, projects included for the first two years of the current TIP shall be limited to those for which funds are available or committed."

To develop a financially constrained TIP, agencies should begin with the projects and actions committed in the previous TIP. After reviewing the estimates of available state and federal funds for the period, agencies can identify the actions and projects as inputs for the TIP, ensuring that projects for the first two years are "limited to those for which funds are available or committed."

TITLE VI AND ENVIRONMENTAL JUSTICE REQUIREMENTS

Background

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations, dated February 11, 1994, requires Federal agencies to identify and address disproportionately high and adverse human health and environmental effects, including interrelated social and economic effects of their programs, policies, and activities on minority and low-income populations.

In December of 1998 the US Department of Transportation/Federal Highway Administration released Order 6640.23 "FHWA Actions to Address Environmental Justice In Minority and Low-Income Populations." Order 6640.23 "establishes policies and procedures for the Federal Highway Administration (FHWA) to use in complying with Executive Order 12898". The document states that Executive Order 12898 is "primarily a reaffirmation of the principles of Title VI of the Civil Rights Act of 1964 (Title VI) and related statutes, the National Environmental Policy Act (NEPA), 23 U.S.C. 109(h), and other Federal environmental laws, emphasizing the incorporation of those provisions with the environmental and transportation decision-making processes."

Furthermore, "these requirements will be administered to identify the risk of discrimination, early in the development of FHWA's programs, policies, and activities so that positive corrective action can be taken. In implementing these requirements, the following information should be obtained where relevant, appropriate, and practical:

- (1) population served and/or affected by race, or national origin, and income level;
- (2) proposed steps to guard against disproportionately high and adverse effects on persons on the basis of race, or national origin; and,
- (3) present and proposed membership by race, or national origin, in any planning or advisory body that is part of the program."

Activities Related to the CLRP

The TPB's Unified Planning Work Program for FY 2003 described several activities to address the social, economic, and environmental impacts of candidate projects and actions on minority and low-income populations for the 2003 update of the CLRP.

For the first time, the TPB undertook a special study in 1999 to assess how the long-range plan impacted low-income and minority populations. The study, titled "A Regional Accessibility Analysis of the 1999 Constrained Long-Range Plan (CLRP) and Impacts on Low-Income and Minority Populations", measured the number of jobs in the year 2020 that will be accessible within 45 minutes by auto and transit. Accessibility for low-income and minority citizens was compared with accessibility for the population at large. The study found that high levels of congestion on the major interstates and arterials are expected to contribute to a significant loss in accessibility to jobs by auto for the regional population at large. Accessibility to jobs by transit will generally increase. In general, these trends were roughly the same for low-income and minority groups as for the entire regional population. The results of this study were used as an input to the development of the 2003 CLRP.

To ensure on-going participation from low-income and minority communities and persons with disabilities in 2001 the TPB created the Access for All Advisory (AF) Committee to advise the Board on transportation issues, programs, policies, and services that are important to these communities and individuals. The

committee is chaired by a TPB member, currently Mayor Kathy Porter from Takoma Park, MD. The mission of this committee is to identify concerns of low-income and minority populations and persons with disabilities, and to determine whether and how these issues might be addressed within the TPB process. The committee membership is composed of TPB-appointed community leaders from around the region. The committee also includes ex-officio representation from five key transportation agencies that are active in the TPB process- the District Department of Transportation, the Maryland Department of Transportation, the Virginia Department of Transportation, the Washington Metropolitan Area Transit Authority, the Federal Transit Administration, and the Federal Highway Administration.

A review of the 2003 CLRP projects and the spatial distribution of low-income and minority communities was conducted in the fall of 2003 (and a review of the 2004 CLRP was conducted, and the AFA comments are below). The review did not attempt to quantify or identify disproportionate or adverse impacts; this type of analysis occurs at the project planning level and during the environmental assessment process. Maps of the CLRP projects and Census data showing concentrations of Asian, African-American, and Hispanic/Latino as well as the population below the poverty line were reviewed by the AFA committee. These maps are included in the 2003 CLRP document, in Appendix A which can be found on the website at <http://www.mwcog.org/transportation>.

In 2003, the committee detailed its recommendations in a report to the TPB. The four main categories of recommendations included 1) develop more effective communication of regional transit information; 2) prioritize regional and local transportation services for low-income populations; 3) improve transit services for people with disabilities; and 4) promote more development around transit stations, but take care of the community that is already there. The AFA committee report can be found on the committee's web page at <http://www.mwcog.org/transportation/committee>.

Committee Perspective

The following comments are based on the AFA committee's review of maps of the draft 2004 CLRP major improvements with 2000 Census demographic data. These comments were presented to the TPB at its October 20, 2004 meeting by Chair Kathy Porter and are pertinent to remind implementing agencies to be thoughtful of as project inputs are developed.

Continued Concern that More Transportation Improvements in the CLRP are on the Western Side of the Region

In reviewing the maps of major improvements in the plan, committee members observed that there are more transportation improvements on the western side of the region than on the eastern side. The committee is concerned about the transportation burdens faced by residents of the eastern side of the region, particularly commuters who must grapple with long commutes to job-rich western jurisdictions. The committee believes these impacts deserve additional attention, discussion and analysis.

More Transit is Needed For Transit-Dependent Communities

Committee members observed that transit improvements in the 2004 CLRP do not adequately target low-income communities, which tend to be transit dependent. Although transit-dependent communities are dispersed throughout the area, they are more likely to be concentrated in inner parts of the region.

Concerns continue to be raised about the lack of planned transit improvements or studies in Prince George's County. Committee members are disappointed that the Bi-County Transitway (the Purple Line) between Silver Spring and New Carrollton is included in the CLRP only as a study, which means that anticipated funding has not yet been identified. Further, the committee believes the Bi-County Transitway study should extend beyond New Carrollton further south into Prince George's County, including new rail service across the Woodrow Wilson Bridge.

Current Transit Services Need to be Maintained and Improved in the Short-Term

Although the expansion of the Metrorail system is very important, low-income communities and persons with disabilities rely upon the services provided by MetroAccess, Metrobus, and local, community-based bus services.

Reverse Commute. Many low-income workers hold more than one job and have jobs that do not follow traditional nine-to-five work hours. The region needs more transit service in the reverse commute direction and expanded levels of transit service to allow these workers access to employment opportunities.

Non-English Transit Information. Transit information for people who have limited English proficiency (LEP) needs to be improved and widely available for a significant part of the population dependent on transit.

Transit Services for People with Disabilities. The 2003 AFA Report to the TPB identified recommendations for improving transit services for people with disabilities, including:

- Improve the dependability of the bus and rail systems to attract and retain riders with disabilities;
- Coordinate efforts to encourage more people with disabilities to use bus and rail with regional and local transit providers; and
- Conduct a comprehensive study of the curb-to-curb service for the most cost-effective ways to serve the greatest number of people.

Promote More Development Around Transit Stations, But Take Care Of The Community That's Already There

The AFA committee would like to see more development around transit stations, especially on the eastern side of the region. However, states and localities should make provisions to mitigate potentially negative impacts from such development, in the short- and long-term, such as increased housing costs and displacement.

CONGESTION MANAGEMENT DOCUMENTATION

A Congestion Management System (CMS) is an integral part of the transportation planning process of the Washington metropolitan area, and is a component of the metropolitan area's Constrained Long Range Plan (CLRP). The CMS component of the CLRP provides information on transportation system performance, usage, and efficiency, and provides information on the potential impact of proposed strategies to alleviate congestion. The CMS component of the CLRP will document that serious consideration has been given to strategies that provide the most efficient and effective use of existing and future transportation facilities, including alternatives to highway capacity increases for single-occupant-vehicles (SOVs).

CMS requirements are addressed in both ISTEA and TEA-21; federal regulations published in the *Federal Register* on December 19, 1996 are in effect. Federal regulations require consideration of congestion management strategies in cases where single-occupant-vehicle capacity is proposed. Thus the congestion management documentation form needs to be filled out for any project to be included in the CLRP or Transportation Improvement Program (TIP) that significantly increases the single occupant vehicle carrying capacity of a highway. Non-highway projects do not need a form. Certain highway projects may also be exempt from needing a form. It is recommended to complete a form in association with all submitted, non-exempt projects to ensure compliance with federal regulations and with regional goals.

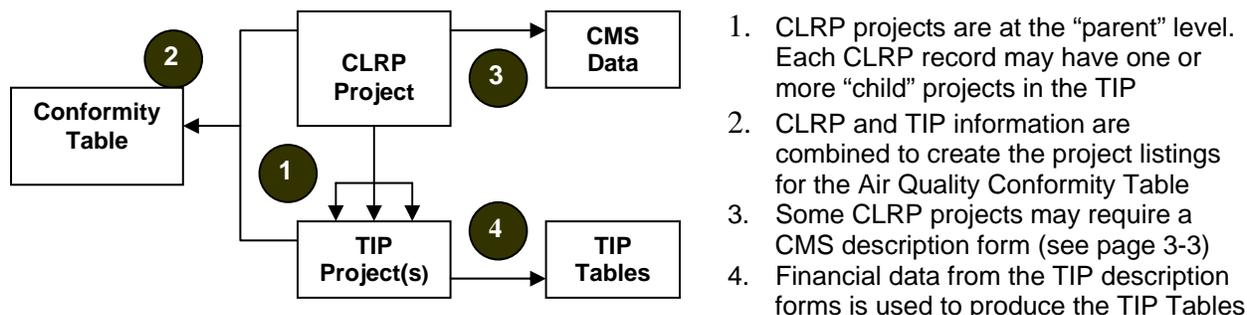
**SECTION 3:
PROJECT SUBMISSION
INSTRUCTIONS**

DRAFT

INTRODUCTION

This section describes the process to be used by the transportation implementing agencies in preparing the inputs for updating the region's Constrained Long Range Transportation Plan (CLRPP) for the year 2030 and the Transportation Improvement Program (TIP). The CLRPP, TIP, and Congestion Management System (CMS) Project Description Forms are designed to elicit information to enable policy makers, citizens and other interested parties and segments of the community affected by transportation plans, programs and projects to understand and review them. Description Forms must be completed for all projects to be included in the CLRPP and the TIP. All regionally significant projects, *regardless of funding source*, must be included in the CLRPP for Air Quality Conformity information purposes. A Congestion Management Documentation Form must be completed for all projects meeting the requirements described on page 3-3 of the instructions. The relationship between the CLRPP, TIP, CMS, and Conformity information is shown in Figure 4. The end products of this process will remain the same as in past years; CLRPP and TIP Project Description Forms with CMS Documentation Forms, TIP Funding Tables, and Air Quality Conformity Tables. Examples of CLRPP and TIP Description Forms are shown on pages 3-4 and 3-5. The TERM analysis and reporting are not addressed here; see Section 4 for those instructions.

Figure 6: Relationship Between CLRPP, TIP, CMS, and Conformity Information



Agencies can access an updated version of the **ETIP** database application to update and submit project information from the COG website.¹ **ETIP** allows users to enter all data for the CLRPP, TIP, Air Quality Conformity Analysis, and CMS Documentation in one integrated platform, rather than an array of word processing and spreadsheet formats. The intent is to eliminate the need for entering redundant information, save time for the user, and reduce errors and inconsistencies within the data. The database will contain all project information submitted in the previous year’s returns along with any updates received prior to approval by the TPB in October of the current year.

The user manual and form instructions previously included in this section will be provided to application agency staff in an electronic format along with the application. The remainder of this section will cover the purpose of the forms, changes in the new version, means of distribution and some sample output reports.

¹ For assistance with electronic project submissions, please contact Andrew Austin at (202) 962-3353 or aaustin@mwcog.org.

PURPOSE OF PROJECT DESCRIPTION FORMS

CLRP Description Form

Each submission should describe the project in sufficient detail to facilitate review by the TPB and the public. Specific information is needed on the project location and physical characteristics, purpose, projected completion date, total estimated costs, proposed sources of revenues, and other characteristics. Submissions for studies (formerly major investment studies) should indicate those cases where the design concept and scope (mode and alignment) have not been fully determined and will require further analysis. TERM projects or actions should be identified. CLRP Project Description Forms should be used to describe the full scope of a facility's improvements. Each phase of the project (even if there is only one) should be described under the "Project Phasing". The Air Quality Conformity Analysis is based on the information in these listings, so all CLRP and sub-projects thereof need to be included. A project phase, whether completed for Conformity Analysis or inclusion in the TIP, is based on the same record (i.e., one Conformity Phase = one TIP Phase).

TIP Description Form

A TIP Project Description Form should be completed for each project intended for programming in the current TIP. Every TIP project record must have a "parent" CLRP record. Any projects that do not have funding associated with them between last fiscal year's annual element and the out year of the TIP will not be listed in the published TIP Tables. Projects that are noted as having funding included under another project listing are exempt from this.

CMS Documentation Form

A Congestion Management Documentation Form should be completed for each project or action intended for the CLRP or the current TIP that involves a significant increase in single-occupant vehicle (SOV) carrying capacity of a highway. Below are the criteria to determine whether a project needs a form. Congestion Management Documentation Forms are also included in the electronic database format (see appendix for additional instructions).

The following categories of projects **REQUIRE** a congestion management form (mark "YES" on Item 7 of the CLRP Project Description Form), except if they fall under one or more of the exemption criteria listed subsequently.

- ▶ New limited access or other principal arterial roadways on new rights-of-way
- ▶ Additional through lanes on existing limited access or other principal arterial roadways
- ▶ Construction of grade-separated interchanges on limited access highways where previously there had not been an interchange.

Exemption criteria for the above categories (mark "NO" for item 7 on the CLRP Project Description Form, and note the reason(s) the project is exempt - these criteria are also provided electronically by clicking on the "criteria" hyperlink under item 7):

- ▶ The number of lane-miles added to the highway system by the project totals less than one lane-mile
- ▶ The project is an intersection reconstruction or other traffic engineering improvements, including replacement of an at-grade intersection with an interchange
- ▶ The project will not allow motor vehicles, such as bicycle or pedestrian facilities
- ▶ The project consists of preliminary studies or engineering only, and is not funded for construction
- ▶ Any project that received NEPA approval on or before April 6, 1992
- ▶ Any project that was already under construction on or before September 30, 1997, or for which construction funds were committed in the FY98-03 TIP. Note that funds being committed in the FY99-04 TIP does not exempt a project.
- ▶ Any project whose construction cost is less than \$5 million.

Brief and complete answers to all questions are recommended. A reference to an external document or an attachment without further explanation on the form itself is not recommended; findings of studies, Major Investment Studies, for example, should be summarized on the form itself. References to other documents can be made if desired *in addition to* the answer provided on the form.

As a rule of thumb, the scale and detail in the responses to the questions should be in proportion to the scale of the project. For example, a relatively minor project needs less information than a major, multi-lane-mile roadway construction project.

The form can summarize the results of EISs or other studies completed in association with the project, and can also summarize the impact or regional studies or programs. It allows the submitting agency to explain the context of the project in the region's already-adopted and implemented programs, such as the Commuter Connections program, and to go on to explain what new and additional strategies were considered for the project or corridor in question.

DISTRIBUTION OF ETIP APPLICATION

The eTIP will be available to download from the COG website at <http://www.mwcog.org/transportation/activities/clrp/online/etip.asp>. For assistance or more information, please contact Andrew Austin at (202) 962-3353 or aaustin@mwcog.org.

SAMPLE FORMS

The following pages are samples for the CLRP and TIP Project Description Forms. These samples were printed using data from previous project submissions and are provided for illustrative purposes only.

Figure 7: CLRP Description Form

| | | | | | | | |
|---|--|--|--|-------------|----------------|------------------------------|----------|
| 1. Agency and Project ID | | Record Number: 328 | | | | | |
| Submitting Agency: | MDOT/State Highway Administration | Sort Order: 5 | | | | | |
| Secondary Agency: | | Agency Project ID: | | | | | |
| Project Category: | Primary | Last Modified On: 2/11/2004 | | | | | |
| 2. Location and Jurisdiction | | | | | | | |
| Facility: | MD 4, Pennsylvania Avenue | | | | | | |
| From/At: | MD 223 | | | | | | |
| To: | I-95/I-495 | | | | | | |
| Jurisdiction: | Prince George's County | | | | | | |
| 3. Project Type and Description | | | | | | | |
| <input checked="" type="checkbox"/> Construction | Description of project or action: | | | | | | |
| <input type="checkbox"/> Maintenance and Operations | MD 4 west of MD 223 is currently a four-lane divided principal arterial with partial access controls. This project will eliminate all at-grade intersections, widen the existing MD 4 to a six-lane freeway. | | | | | | |
| <input type="checkbox"/> Transportation Emissions Reduction Measure (TERM) | | | | | | | |
| <input type="checkbox"/> Study | | | | | | | |
| <input type="checkbox"/> Other Action or Strategy | | | | | | | |
| Bicycle/Pedestrian Accommodations: | Bicycle/pedestrian accommodations included | | | | | | |
| 4. Project Phasing | | | | | | | |
| List all project phases for Conformity and TIP purposes here. | | Add New Phase | | | | | |
| Sort | 22 | Facility | MD 4 (Pennsylvania Avenue) | Improvement | Construct | Environ. Review | Approved |
| Agency ID | | From/At | Interchanges at Westphalia Rd., Suitland P | Facility | From /To 2 / 5 | Under Const. or ROW Acquired | No |
| In TIP | <input checked="" type="checkbox"/> | To | | # Lanes | From /To 4 / 4 | Completion Date | 2015 |
| Sort | 21 | Facility | MD 4 | Improvement | Upgrade/Alid | Environ. Review | Approved |
| Agency ID | | From/At | MD 223 | Facility | From /To 5 / 5 | Under Const. or ROW Acquired | No |
| In TIP | <input checked="" type="checkbox"/> | To | I-95/I-495 | # Lanes | From /To 4 / 6 | Completion Date | 2015 |
| Sort | | Facility | | Improvement | | Environ. Review | |
| Agency ID | | From/At | | Facility | From /To | Under Const. or ROW Acquired | |
| In TIP | <input type="checkbox"/> | To | | # Lanes | From /To | Completion Date | |
| 5. Purpose/contribution to regional goals : | | | | | | | |
| This project would eliminate existing congestion and accommodate projected development in the corridor. This project is consistent with local land-use plans, including the Master Plan for Melwood-Westphalia and the Master Plan for Subregion V. | | | | | | | |
| 6. Funding and Schedule Information | | | | | | | |
| Date of completion or implementation: | 2015 | Cost: \$180,455 (In Thousands) | | | | | |
| <input type="checkbox"/> Project was complete as of December 31, 2003: | Source: Federal, State, | Federal State Local Private Bonds Other | | | | | |
| <input type="checkbox"/> Project is being withdrawn from CLRP as of | | | | | | | |
| Cost and schedule remarks: | | | | | | | |
| | | | | | | | |
| 7. Congestion Management System (CMS) Documentation | | | | | | | |
| Is this a capacity-increasing project on a limited access highway or other arterial highway of a functional class higher than minor arterial? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| If yes, does this project require a CMS Documentation form under the given criteria? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| Click on the EDIT button to edit an existing CMS Form or click NEW to create a new one. | | <input type="button" value="EDIT"/> <input type="button" value="NEW"/> | | | | | |
| If not, please identify the criteria that exempt the project here: | | | | | | | |
| CMS requirements was addressed as part of project planning in 1996 (See Congestion Management Document Form). | | | | | | | |

Figure 8: TIP Description Form

| | | | | | | | |
|---|--|---------------------------------------|--------------|--------|---------|-------|-------|
| 1. Agency and Project ID | | TIP Record Number: 1076420202 | | | | | |
| Submitting Agency: | DDOT | Sort Order: | | | | | |
| Secondary Agency: | | Agency Project ID: | SR0/28 | | | | |
| Project Category: | Primary | Last Modified On: | 3/9/2004 | | | | |
| 2. Location and Jurisdiction | | | | | | | |
| Facility: | Street Rehabilitation Program | | | | | | |
| From/At: | K Street Transit Way Implementation | | | | | | |
| To: | | | | | | | |
| Jurisdiction: | District of Columbia | | | | | | |
| 3. Description of project or action: | | | | | | | |
| <p>This project is also listed under the Transit element. This project will provide for the redesign and reconstruction of a major east/west arterial roadway serving the downtown area. The new roadway will provide improved transit and vehicular mobility, reduce congestion and air pollution and improve transportation safety. The reconstruction of K Street</p> | | | | | | | |
| Bicycle/Pedestrian Accomodations: | Bicycle/pedestrian accommodations included | | | | | | |
| 4. Project Status: | | | | | | | |
| In previous TIP, proceeding as scheduled | | Year of Completion or Implementation: | | | | | |
| 5. Environmental Review: | | | | | | | |
| Type: | Status: | | | | | | |
| 6. Capital Costs (In \$1,000s): | | | | | | | |
| | FY | Amount | Phase | Source | Federal | State | Local |
| ▶ | 2005 | \$2,100 | P.E. | STP | \$0 | 20 | |
| | 2004 | \$625 | P.E. | STP | \$0 | 20 | |
| | 2006 | \$15,000 | Construction | SP | \$0 | 20 | |
| | 2007 | \$20,000 | Construction | SP | \$0 | 20 | |
| * | | | | | | | |
| 7. Remarks: | | | | | | | |
| <p>This project is also listed under the Transit element.</p> | | | | | | | |

**APPENDIX A:
TRANSPORTATION EMISSION
REDUCTION MEASURE (TERM)
ANALYSIS INSTRUCTIONS**

TERM EMISSIONS REDUCTION CALCULATIONS

This section of the solicitation document contains instructions for analyzing transportation emissions reduction measure (TERM) projects. Table 1 provides an overview of the three emissions components, namely Start-up (Cold Start), Running, and Hot Soak. The methodology that will be used to analyze TERMS for the 2005 CLRP and FY 2006 - 2011 TIP utilizes the latest travel demand results from the Version 2.1D model and emissions data from the Mobile 6.2 emissions model.

The introduction of the Mobile 6 emissions model offered the potential for a more disaggregate emissions reduction analysis of TERMS. Instead of the 8 different vehicle classes used in the Mobile 5b model, the Mobile 6 model utilizes 28 vehicle classes. Four categories of TERMS have been developed utilizing the disaggregate nature of the vehicle classes. The four categories are:

- TERMS impacting the traffic stream (all vehicle types), such as the Signal Optimization TERM, will continue to be analyzed using a regional composite vehicle emissions factor. Tables 2, 3 and 4 display emissions factors for analysis years 2010, 2020 and 2030.
- TERMS impacting commuting vehicle trips, such as the Employer Outreach and Telework Resources Center TERM (item # 75 and # 90 on the TERM tracking sheet, page 1-2), will be analyzed using an average light duty vehicle emissions factor composed of emissions factors for several classes of light duty vehicles and for motorcycles. Tables 5, 6, and 7 display emissions factors for commuting vehicle trips for analysis years 2010, 2020 and 2030.
- TERMS impacting all types of heavy duty diesel vehicles, such as a Diesel Fuel Additive TERM, are the next category.
- TERMS impacting an individual heavy duty vehicle type of a specific weight class, are categorized as a specific vehicle type, such as school buses, transit buses, tractor trailers. Emissions rates for 2010 heavy duty diesel transit, and school buses are shown in Table 8; rates for other specific weight classes can be generated as needed.

TERMs impacting vehicle idling such as roundabouts in place of traffic signals can be analyzed using the individual vehicle type 2005 idling emissions factors or the traffic stream 2005 idling emissions factors shown in Table 9.

Table 2 through 7 shows Cold Start, Running, Hot Soak emissions factors for VOC and NO_x for the analysis years 2010, 2020 and 2030 to be used for analyzing “Traffic Stream” and Commute Vehicle” TERMS. Table 8 shows 2010 emissions factors for school and transit buses (heavy duty diesel vehicles). Table 9 shows the 2005 idling emissions factors for the different vehicle types. Table 10 shows the 2005 regional average speeds generated by the post-processor which is used to compute hourly speeds for emissions calculations; use specific speeds for each

application, where available. Table 11 provides the Mobile 6 vehicle classifications.

The cost effectiveness calculation methodology is explained following the emissions factors tables and is a primary criteria used to select TERMS. The final section provides an example of a commuting vehicle TERM analysis using the emissions factors included in the tables.

For purpose of determining emissions reductions, the start-up, running, and hot soak portions of each trip must be considered. Table 1 shows the procedure to use in the analysis.

Table 1: Mobile Source Emissions Overview

EMISSIONS=TRAVEL X EMISSIONS RATE

Start-up=Trip Origins X Grams/Trip

Running=VMT X Grams/Mile

Hot Soak=Trip Destins X Grams/Trip

Emissions factors were obtained from the Mobile 6 model and are contained herein. NOx emissions do not occur in the hot soak portion of the trip, therefore only VOC factors are shown for this category.

It may be noted that the running factors and cold start/hot soak factors shown in the attached tables were generated using the Mobile 6.2 emissions model with the latest VMT and vehicle registration data as input to the model. These are the factors that will be used in the conformity analysis of the 2005 CLRP and FY 2006-2011 TIP. Running emissions factors for speed range 1 to 65 mph are shown in the emissions factor tables. If the actual speed for a TERM is known, use the appropriate emissions factors, otherwise use emissions factors for average travel speed.

Table 2: 2010 Running, Cold Start, and Hot Soak Average Emissions Factors for "Traffic Stream"
TERMs
(Mobile 6.2)

| Emission Type | Speed (mph) | Average 2010 Running Emission Factor (g/mi) | | | | | |
|----------------|-------------|---|---------|------------------------------|----------|---------|------------------------------|
| | | Arterial | Freeway | Weighted Factor VOC | Arterial | Freeway | Weighted Factor NOx |
| | | VOC | | Arterial - 60%, Freeway- 40% | NOx | | Arterial - 60%, Freeway- 40% |
| Running (g/mi) | 1 | 3.0024 | 3.0023 | 3.0024 | 1.4188 | 1.4514 | 1.4318 |
| Running (g/mi) | 2 | 3.0024 | 3.0023 | 3.0024 | 1.4188 | 1.4514 | 1.4318 |
| Running (g/mi) | 3 | 2.3501 | 2.3500 | 2.3501 | 1.3597 | 1.3922 | 1.3727 |
| Running (g/mi) | 4 | 1.5345 | 1.5345 | 1.5345 | 1.2855 | 1.3180 | 1.2985 |
| Running (g/mi) | 5 | 1.0454 | 1.0454 | 1.0454 | 1.2410 | 1.2738 | 1.2541 |
| Running (g/mi) | 6 | 0.8658 | 0.8573 | 0.8624 | 1.1620 | 1.1644 | 1.1630 |
| Running (g/mi) | 7 | 0.7378 | 0.7229 | 0.7318 | 1.1056 | 1.0868 | 1.0981 |
| Running (g/mi) | 8 | 0.6415 | 0.6220 | 0.6337 | 1.0632 | 1.0283 | 1.0492 |
| Running (g/mi) | 9 | 0.5667 | 0.5438 | 0.5575 | 1.0302 | 0.9828 | 1.0112 |
| Running (g/mi) | 10 | 0.5071 | 0.4811 | 0.4967 | 1.0039 | 0.9463 | 0.9809 |
| Running (g/mi) | 11 | 0.4671 | 0.4395 | 0.4561 | 0.9628 | 0.8997 | 0.9376 |
| Running (g/mi) | 12 | 0.4339 | 0.4053 | 0.4225 | 0.9284 | 0.8605 | 0.9012 |
| Running (g/mi) | 13 | 0.4059 | 0.3761 | 0.3940 | 0.8996 | 0.8276 | 0.8708 |
| Running (g/mi) | 14 | 0.3817 | 0.3512 | 0.3695 | 0.8748 | 0.7992 | 0.8446 |
| Running (g/mi) | 15 | 0.3610 | 0.3296 | 0.3484 | 0.8533 | 0.7748 | 0.8219 |
| Running (g/mi) | 16 | 0.3404 | 0.3131 | 0.3295 | 0.8319 | 0.7667 | 0.8058 |
| Running (g/mi) | 17 | 0.3224 | 0.2984 | 0.3128 | 0.8133 | 0.7593 | 0.7917 |
| Running (g/mi) | 18 | 0.3060 | 0.2855 | 0.2978 | 0.7966 | 0.7529 | 0.7791 |
| Running (g/mi) | 19 | 0.2918 | 0.2741 | 0.2847 | 0.7814 | 0.7471 | 0.7677 |
| Running (g/mi) | 20 | 0.2788 | 0.2635 | 0.2727 | 0.7682 | 0.7419 | 0.7577 |
| Running (g/mi) | 21 | 0.2680 | 0.2552 | 0.2629 | 0.7558 | 0.7369 | 0.7482 |
| Running (g/mi) | 22 | 0.2583 | 0.2476 | 0.2540 | 0.7446 | 0.7326 | 0.7398 |
| Running (g/mi) | 23 | 0.2493 | 0.2406 | 0.2458 | 0.7342 | 0.7284 | 0.7319 |
| Running (g/mi) | 24 | 0.2415 | 0.2344 | 0.2387 | 0.7246 | 0.7247 | 0.7246 |
| Running (g/mi) | 25 | 0.2337 | 0.2284 | 0.2316 | 0.7161 | 0.7211 | 0.7181 |
| Running (g/mi) | 26 | 0.2269 | 0.2224 | 0.2251 | 0.7089 | 0.7187 | 0.7128 |
| Running (g/mi) | 27 | 0.2207 | 0.2171 | 0.2193 | 0.7023 | 0.7162 | 0.7079 |
| Running (g/mi) | 28 | 0.2150 | 0.2125 | 0.2140 | 0.6963 | 0.7142 | 0.7035 |
| Running (g/mi) | 29 | 0.2096 | 0.2076 | 0.2088 | 0.6905 | 0.7123 | 0.6992 |
| Running (g/mi) | 30 | 0.2048 | 0.2034 | 0.2042 | 0.6853 | 0.7105 | 0.6954 |
| Running (g/mi) | 31 | 0.1999 | 0.1990 | 0.1995 | 0.6827 | 0.7097 | 0.6935 |
| Running (g/mi) | 32 | 0.1952 | 0.1946 | 0.1950 | 0.6806 | 0.7088 | 0.6919 |
| Running (g/mi) | 33 | 0.1911 | 0.1906 | 0.1909 | 0.6785 | 0.7084 | 0.6905 |
| Running (g/mi) | 34 | 0.1869 | 0.1868 | 0.1869 | 0.6764 | 0.7076 | 0.6889 |
| Running (g/mi) | 35 | 0.1832 | 0.1832 | 0.1832 | 0.6746 | 0.7071 | 0.6876 |
| Running (g/mi) | 36 | 0.1802 | 0.1802 | 0.1802 | 0.6777 | 0.7106 | 0.6909 |
| Running (g/mi) | 37 | 0.1776 | 0.1776 | 0.1776 | 0.6808 | 0.7136 | 0.6939 |
| Running (g/mi) | 38 | 0.1750 | 0.1750 | 0.1750 | 0.6838 | 0.7163 | 0.6968 |
| Running (g/mi) | 39 | 0.1723 | 0.1723 | 0.1723 | 0.6867 | 0.7193 | 0.6997 |
| Running (g/mi) | 40 | 0.1704 | 0.1704 | 0.1704 | 0.6892 | 0.7219 | 0.7023 |
| Running (g/mi) | 41 | 0.1679 | 0.1679 | 0.1679 | 0.6953 | 0.7280 | 0.7084 |
| Running (g/mi) | 42 | 0.1658 | 0.1658 | 0.1658 | 0.7012 | 0.7338 | 0.7142 |
| Running (g/mi) | 43 | 0.1637 | 0.1637 | 0.1637 | 0.7068 | 0.7393 | 0.7198 |
| Running (g/mi) | 44 | 0.1617 | 0.1617 | 0.1617 | 0.7121 | 0.7449 | 0.7252 |
| Running (g/mi) | 45 | 0.1598 | 0.1598 | 0.1598 | 0.7171 | 0.7497 | 0.7301 |
| Running (g/mi) | 46 | 0.1577 | 0.1577 | 0.1577 | 0.7262 | 0.7587 | 0.7392 |
| Running (g/mi) | 47 | 0.1557 | 0.1557 | 0.1557 | 0.7347 | 0.7671 | 0.7477 |
| Running (g/mi) | 48 | 0.1540 | 0.1540 | 0.1540 | 0.7428 | 0.7753 | 0.7558 |
| Running (g/mi) | 49 | 0.1524 | 0.1524 | 0.1524 | 0.7506 | 0.7831 | 0.7636 |
| Running (g/mi) | 50 | 0.1508 | 0.1508 | 0.1508 | 0.7582 | 0.7908 | 0.7712 |
| Running (g/mi) | 51 | 0.1492 | 0.1492 | 0.1492 | 0.7706 | 0.8033 | 0.7837 |
| Running (g/mi) | 52 | 0.1479 | 0.1479 | 0.1479 | 0.7827 | 0.8152 | 0.7957 |
| Running (g/mi) | 53 | 0.1464 | 0.1464 | 0.1464 | 0.7942 | 0.8268 | 0.8072 |
| Running (g/mi) | 54 | 0.1452 | 0.1452 | 0.1452 | 0.8054 | 0.8378 | 0.8184 |
| Running (g/mi) | 55 | 0.1437 | 0.1437 | 0.1437 | 0.8160 | 0.8486 | 0.8290 |
| Running (g/mi) | 56 | 0.1429 | 0.1429 | 0.1429 | 0.8333 | 0.8660 | 0.8464 |
| Running (g/mi) | 57 | 0.1422 | 0.1422 | 0.1422 | 0.8498 | 0.8828 | 0.8630 |
| Running (g/mi) | 58 | 0.1415 | 0.1415 | 0.1415 | 0.8663 | 0.8986 | 0.8792 |
| Running (g/mi) | 59 | 0.1411 | 0.1411 | 0.1411 | 0.8817 | 0.9141 | 0.8947 |
| Running (g/mi) | 60 | 0.1403 | 0.1403 | 0.1403 | 0.8966 | 0.9292 | 0.9096 |
| Running (g/mi) | 61 | 0.1398 | 0.1398 | 0.1398 | 0.9206 | 0.9533 | 0.9337 |
| Running (g/mi) | 62 | 0.1394 | 0.1394 | 0.1394 | 0.9439 | 0.9763 | 0.9569 |
| Running (g/mi) | 63 | 0.1388 | 0.1388 | 0.1388 | 0.9663 | 0.9988 | 0.9793 |
| Running (g/mi) | 64 | 0.1387 | 0.1387 | 0.1387 | 0.9882 | 1.0208 | 1.0012 |
| Running (g/mi) | 65 | 0.1383 | 0.1383 | 0.1383 | 1.0091 | 1.0418 | 1.0222 |

| Emission Type | VOC | NOx |
|----------------------------------|--------|--------|
| Cold Start (g/trip start, Total) | 0.8802 | 0.5334 |
| Hot Soak Loss (g/trip end) | 0.5741 | 0 |

Table 3: 2020 Running, Cold Start, and Hot Soak Average Emissions Factors for "Traffic Stream"
TERMs
(Mobile 6.2)

| Emission Type | Speed (mph) | Average 2020 Network Running Emission Factor (g/mi) | | | | | |
|----------------|-------------|---|---------|------------------------------|----------|---------|------------------------------|
| | | Arterial | Freeway | Weighted Factor VOC | Arterial | Freeway | Weighted Factor NOx |
| | | VOC | | Arterial - 60%, Freeway- 40% | NOx | | Arterial - 60%, Freeway- 40% |
| Running (g/mi) | 1 | 2.0083 | 2.0083 | 2.0083 | 0.7321 | 0.7437 | 0.7367 |
| Running (g/mi) | 2 | 2.0083 | 2.0083 | 2.0083 | 0.7321 | 0.7437 | 0.7367 |
| Running (g/mi) | 3 | 1.5804 | 1.5804 | 1.5804 | 0.7004 | 0.7119 | 0.7050 |
| Running (g/mi) | 4 | 1.0450 | 1.0450 | 1.0450 | 0.6606 | 0.6721 | 0.6652 |
| Running (g/mi) | 5 | 0.7241 | 0.7241 | 0.7241 | 0.6367 | 0.6483 | 0.6413 |
| Running (g/mi) | 6 | 0.6031 | 0.5969 | 0.6006 | 0.5946 | 0.5880 | 0.5920 |
| Running (g/mi) | 7 | 0.5166 | 0.5060 | 0.5123 | 0.5645 | 0.5453 | 0.5569 |
| Running (g/mi) | 8 | 0.4518 | 0.4378 | 0.4462 | 0.5419 | 0.5130 | 0.5304 |
| Running (g/mi) | 9 | 0.4014 | 0.3849 | 0.3948 | 0.5243 | 0.4881 | 0.5098 |
| Running (g/mi) | 10 | 0.3610 | 0.3425 | 0.3536 | 0.5103 | 0.4680 | 0.4934 |
| Running (g/mi) | 11 | 0.3331 | 0.3134 | 0.3252 | 0.4885 | 0.4429 | 0.4703 |
| Running (g/mi) | 12 | 0.3099 | 0.2894 | 0.3017 | 0.4705 | 0.4220 | 0.4511 |
| Running (g/mi) | 13 | 0.2902 | 0.2688 | 0.2816 | 0.4552 | 0.4042 | 0.4348 |
| Running (g/mi) | 14 | 0.2734 | 0.2515 | 0.2646 | 0.4421 | 0.3891 | 0.4209 |
| Running (g/mi) | 15 | 0.2587 | 0.2361 | 0.2497 | 0.4306 | 0.3759 | 0.4087 |
| Running (g/mi) | 16 | 0.2439 | 0.2242 | 0.2361 | 0.4196 | 0.3728 | 0.4008 |
| Running (g/mi) | 17 | 0.2310 | 0.2137 | 0.2241 | 0.4100 | 0.3699 | 0.3939 |
| Running (g/mi) | 18 | 0.2193 | 0.2043 | 0.2133 | 0.4013 | 0.3674 | 0.3877 |
| Running (g/mi) | 19 | 0.2088 | 0.1959 | 0.2036 | 0.3935 | 0.3651 | 0.3821 |
| Running (g/mi) | 20 | 0.1994 | 0.1882 | 0.1949 | 0.3866 | 0.3630 | 0.3772 |
| Running (g/mi) | 21 | 0.1919 | 0.1824 | 0.1881 | 0.3803 | 0.3610 | 0.3726 |
| Running (g/mi) | 22 | 0.1852 | 0.1771 | 0.1820 | 0.3744 | 0.3593 | 0.3683 |
| Running (g/mi) | 23 | 0.1789 | 0.1723 | 0.1762 | 0.3691 | 0.3577 | 0.3645 |
| Running (g/mi) | 24 | 0.1734 | 0.1677 | 0.1711 | 0.3642 | 0.3561 | 0.3610 |
| Running (g/mi) | 25 | 0.1678 | 0.1637 | 0.1662 | 0.3598 | 0.3547 | 0.3577 |
| Running (g/mi) | 26 | 0.1630 | 0.1595 | 0.1616 | 0.3560 | 0.3538 | 0.3551 |
| Running (g/mi) | 27 | 0.1586 | 0.1557 | 0.1574 | 0.3524 | 0.3527 | 0.3526 |
| Running (g/mi) | 28 | 0.1545 | 0.1523 | 0.1536 | 0.3492 | 0.3519 | 0.3503 |
| Running (g/mi) | 29 | 0.1505 | 0.1489 | 0.1499 | 0.3462 | 0.3511 | 0.3481 |
| Running (g/mi) | 30 | 0.1469 | 0.1458 | 0.1465 | 0.3435 | 0.3504 | 0.3463 |
| Running (g/mi) | 31 | 0.1435 | 0.1426 | 0.1431 | 0.3421 | 0.3500 | 0.3453 |
| Running (g/mi) | 32 | 0.1402 | 0.1397 | 0.1400 | 0.3407 | 0.3495 | 0.3442 |
| Running (g/mi) | 33 | 0.1372 | 0.1369 | 0.1371 | 0.3394 | 0.3491 | 0.3433 |
| Running (g/mi) | 34 | 0.1343 | 0.1341 | 0.1342 | 0.3381 | 0.3488 | 0.3424 |
| Running (g/mi) | 35 | 0.1315 | 0.1315 | 0.1315 | 0.3371 | 0.3486 | 0.3417 |
| Running (g/mi) | 36 | 0.1295 | 0.1295 | 0.1295 | 0.3386 | 0.3503 | 0.3432 |
| Running (g/mi) | 37 | 0.1278 | 0.1278 | 0.1278 | 0.3402 | 0.3518 | 0.3448 |
| Running (g/mi) | 38 | 0.1259 | 0.1259 | 0.1259 | 0.3417 | 0.3532 | 0.3463 |
| Running (g/mi) | 39 | 0.1240 | 0.1240 | 0.1240 | 0.3432 | 0.3546 | 0.3478 |
| Running (g/mi) | 40 | 0.1225 | 0.1225 | 0.1225 | 0.3445 | 0.3559 | 0.3490 |
| Running (g/mi) | 41 | 0.1208 | 0.1208 | 0.1208 | 0.3472 | 0.3589 | 0.3519 |
| Running (g/mi) | 42 | 0.1193 | 0.1193 | 0.1193 | 0.3503 | 0.3617 | 0.3548 |
| Running (g/mi) | 43 | 0.1178 | 0.1178 | 0.1178 | 0.3529 | 0.3642 | 0.3574 |
| Running (g/mi) | 44 | 0.1164 | 0.1164 | 0.1164 | 0.3553 | 0.3668 | 0.3599 |
| Running (g/mi) | 45 | 0.1151 | 0.1151 | 0.1151 | 0.3577 | 0.3692 | 0.3623 |
| Running (g/mi) | 46 | 0.1138 | 0.1138 | 0.1138 | 0.3619 | 0.3733 | 0.3665 |
| Running (g/mi) | 47 | 0.1125 | 0.1125 | 0.1125 | 0.3658 | 0.3772 | 0.3704 |
| Running (g/mi) | 48 | 0.1113 | 0.1113 | 0.1113 | 0.3695 | 0.3810 | 0.3741 |
| Running (g/mi) | 49 | 0.1101 | 0.1101 | 0.1101 | 0.3731 | 0.3846 | 0.3777 |
| Running (g/mi) | 50 | 0.1091 | 0.1091 | 0.1091 | 0.3767 | 0.3882 | 0.3813 |
| Running (g/mi) | 51 | 0.1081 | 0.1081 | 0.1081 | 0.3823 | 0.3938 | 0.3869 |
| Running (g/mi) | 52 | 0.1073 | 0.1073 | 0.1073 | 0.3877 | 0.3993 | 0.3923 |
| Running (g/mi) | 53 | 0.1064 | 0.1064 | 0.1064 | 0.3929 | 0.4045 | 0.3975 |
| Running (g/mi) | 54 | 0.1057 | 0.1057 | 0.1057 | 0.3980 | 0.4095 | 0.4026 |
| Running (g/mi) | 55 | 0.1049 | 0.1049 | 0.1049 | 0.4029 | 0.4143 | 0.4075 |
| Running (g/mi) | 56 | 0.1046 | 0.1046 | 0.1046 | 0.4106 | 0.4221 | 0.4152 |
| Running (g/mi) | 57 | 0.1044 | 0.1044 | 0.1044 | 0.4179 | 0.4295 | 0.4225 |
| Running (g/mi) | 58 | 0.1041 | 0.1041 | 0.1041 | 0.4251 | 0.4367 | 0.4298 |
| Running (g/mi) | 59 | 0.1038 | 0.1038 | 0.1038 | 0.4321 | 0.4434 | 0.4366 |
| Running (g/mi) | 60 | 0.1036 | 0.1036 | 0.1036 | 0.4387 | 0.4501 | 0.4433 |
| Running (g/mi) | 61 | 0.1035 | 0.1035 | 0.1035 | 0.4492 | 0.4606 | 0.4538 |
| Running (g/mi) | 62 | 0.1035 | 0.1035 | 0.1035 | 0.4593 | 0.4708 | 0.4639 |
| Running (g/mi) | 63 | 0.1034 | 0.1034 | 0.1034 | 0.4693 | 0.4805 | 0.4738 |
| Running (g/mi) | 64 | 0.1034 | 0.1034 | 0.1034 | 0.4787 | 0.4902 | 0.4833 |
| Running (g/mi) | 65 | 0.1033 | 0.1033 | 0.1033 | 0.4879 | 0.4995 | 0.4925 |

| Emission Type | VOC | NOx |
|-----------------------|--------|--------|
| Cold Start (g/trip) | 0.5901 | 0.2946 |
| Hot Soak Loss (g/tri) | 0.3254 | 0.0000 |

Note: 2020 factors derived from interpolation of 2025 Mobile 6 factors and 2010 Mobile 6.2 factors

Table 4: 2030 Running, Cold Start, and Hot Soak Average Emissions Factors for "Traffic Stream"

**TERMS
(Mobile 6.2)**

| Average 2030 Emission Factors (gm/mi) | | | | | | | |
|---------------------------------------|-------------|----------|---------|-------------------------------|----------|---------|-------------------------------|
| Emission Type | Speed (mph) | Arterial | Freeway | Weighted Factor VOC | Arterial | Freeway | Weighted Factor NOx |
| | | VOC | | Arterial - 60% Freeway 40% | NOx | | Arterial - 60% Freeway 40% |
| Running (g/mi) | 1 | 1.4958 | 1.4958 | 1.4958 | 0.3599 | 0.3599 | 0.3599 |
| Running (g/mi) | 2 | 1.4958 | 1.4958 | 1.4958 | 0.3599 | 0.3599 | 0.3599 |
| Running (g/mi) | 3 | 1.1832 | 1.1832 | 1.1832 | 0.3430 | 0.3430 | 0.3430 |
| Running (g/mi) | 4 | 0.7914 | 0.7914 | 0.7914 | 0.3218 | 0.3218 | 0.3218 |
| Running (g/mi) | 5 | 0.5568 | 0.5567 | 0.5568 | 0.3090 | 0.3090 | 0.3090 |
| Running (g/mi) | 6 | 0.4662 | 0.4614 | 0.4643 | 0.2868 | 0.2756 | 0.2823 |
| Running (g/mi) | 7 | 0.4015 | 0.3930 | 0.3981 | 0.2710 | 0.2515 | 0.2632 |
| Running (g/mi) | 8 | 0.3527 | 0.3421 | 0.3485 | 0.2590 | 0.2337 | 0.2489 |
| Running (g/mi) | 9 | 0.3150 | 0.3020 | 0.3098 | 0.2499 | 0.2197 | 0.2378 |
| Running (g/mi) | 10 | 0.2847 | 0.2701 | 0.2789 | 0.2424 | 0.2084 | 0.2288 |
| Running (g/mi) | 11 | 0.2632 | 0.2479 | 0.2571 | 0.2312 | 0.1949 | 0.2167 |
| Running (g/mi) | 12 | 0.2452 | 0.2288 | 0.2386 | 0.2217 | 0.1837 | 0.2065 |
| Running (g/mi) | 13 | 0.2298 | 0.2130 | 0.2231 | 0.2139 | 0.1743 | 0.1981 |
| Running (g/mi) | 14 | 0.2168 | 0.1994 | 0.2098 | 0.2072 | 0.1662 | 0.1908 |
| Running (g/mi) | 15 | 0.2052 | 0.1875 | 0.1981 | 0.2011 | 0.1591 | 0.1843 |
| Running (g/mi) | 16 | 0.1937 | 0.1781 | 0.1875 | 0.1956 | 0.1588 | 0.1809 |
| Running (g/mi) | 17 | 0.1831 | 0.1696 | 0.1777 | 0.1908 | 0.1581 | 0.1777 |
| Running (g/mi) | 18 | 0.1738 | 0.1620 | 0.1691 | 0.1864 | 0.1578 | 0.1750 |
| Running (g/mi) | 19 | 0.1656 | 0.1553 | 0.1615 | 0.1827 | 0.1575 | 0.1726 |
| Running (g/mi) | 20 | 0.1580 | 0.1493 | 0.1545 | 0.1791 | 0.1571 | 0.1703 |
| Running (g/mi) | 21 | 0.1522 | 0.1444 | 0.1491 | 0.1760 | 0.1568 | 0.1683 |
| Running (g/mi) | 22 | 0.1468 | 0.1404 | 0.1442 | 0.1732 | 0.1563 | 0.1664 |
| Running (g/mi) | 23 | 0.1419 | 0.1365 | 0.1397 | 0.1706 | 0.1560 | 0.1648 |
| Running (g/mi) | 24 | 0.1374 | 0.1332 | 0.1357 | 0.1681 | 0.1558 | 0.1632 |
| Running (g/mi) | 25 | 0.1334 | 0.1298 | 0.1320 | 0.1659 | 0.1555 | 0.1617 |
| Running (g/mi) | 26 | 0.1294 | 0.1265 | 0.1282 | 0.1639 | 0.1552 | 0.1604 |
| Running (g/mi) | 27 | 0.1260 | 0.1236 | 0.1250 | 0.1622 | 0.1549 | 0.1593 |
| Running (g/mi) | 28 | 0.1227 | 0.1208 | 0.1219 | 0.1606 | 0.1548 | 0.1583 |
| Running (g/mi) | 29 | 0.1195 | 0.1181 | 0.1189 | 0.1588 | 0.1546 | 0.1571 |
| Running (g/mi) | 30 | 0.1166 | 0.1156 | 0.1162 | 0.1575 | 0.1545 | 0.1563 |
| Running (g/mi) | 31 | 0.1139 | 0.1131 | 0.1136 | 0.1565 | 0.1543 | 0.1556 |
| Running (g/mi) | 32 | 0.1114 | 0.1109 | 0.1112 | 0.1556 | 0.1539 | 0.1549 |
| Running (g/mi) | 33 | 0.1090 | 0.1087 | 0.1089 | 0.1549 | 0.1538 | 0.1545 |
| Running (g/mi) | 34 | 0.1066 | 0.1065 | 0.1066 | 0.1540 | 0.1535 | 0.1538 |
| Running (g/mi) | 35 | 0.1046 | 0.1046 | 0.1046 | 0.1535 | 0.1535 | 0.1535 |
| Running (g/mi) | 36 | 0.1028 | 0.1028 | 0.1028 | 0.1541 | 0.1541 | 0.1541 |
| Running (g/mi) | 37 | 0.1014 | 0.1014 | 0.1014 | 0.1549 | 0.1549 | 0.1549 |
| Running (g/mi) | 38 | 0.1000 | 0.1000 | 0.1000 | 0.1555 | 0.1555 | 0.1555 |
| Running (g/mi) | 39 | 0.0986 | 0.0986 | 0.0986 | 0.1561 | 0.1561 | 0.1561 |
| Running (g/mi) | 40 | 0.0973 | 0.0973 | 0.0973 | 0.1568 | 0.1568 | 0.1568 |
| Running (g/mi) | 41 | 0.0960 | 0.0960 | 0.0960 | 0.1579 | 0.1579 | 0.1579 |
| Running (g/mi) | 42 | 0.0947 | 0.0947 | 0.0947 | 0.1591 | 0.1591 | 0.1591 |
| Running (g/mi) | 43 | 0.0937 | 0.0937 | 0.0937 | 0.1601 | 0.1601 | 0.1601 |
| Running (g/mi) | 44 | 0.0924 | 0.0924 | 0.0924 | 0.1611 | 0.1611 | 0.1611 |
| Running (g/mi) | 45 | 0.0912 | 0.0912 | 0.0912 | 0.1621 | 0.1621 | 0.1621 |
| Running (g/mi) | 46 | 0.0903 | 0.0903 | 0.0903 | 0.1637 | 0.1637 | 0.1637 |
| Running (g/mi) | 47 | 0.0896 | 0.0896 | 0.0896 | 0.1650 | 0.1650 | 0.1650 |
| Running (g/mi) | 48 | 0.0886 | 0.0886 | 0.0886 | 0.1665 | 0.1665 | 0.1665 |
| Running (g/mi) | 49 | 0.0877 | 0.0877 | 0.0877 | 0.1679 | 0.1679 | 0.1679 |
| Running (g/mi) | 50 | 0.0870 | 0.0870 | 0.0870 | 0.1690 | 0.1690 | 0.1690 |
| Running (g/mi) | 51 | 0.0863 | 0.0863 | 0.0863 | 0.1710 | 0.1710 | 0.1710 |
| Running (g/mi) | 52 | 0.0858 | 0.0858 | 0.0858 | 0.1730 | 0.1730 | 0.1730 |
| Running (g/mi) | 53 | 0.0853 | 0.0853 | 0.0853 | 0.1749 | 0.1749 | 0.1749 |
| Running (g/mi) | 54 | 0.0848 | 0.0848 | 0.0848 | 0.1766 | 0.1766 | 0.1766 |
| Running (g/mi) | 55 | 0.0842 | 0.0842 | 0.0842 | 0.1781 | 0.1781 | 0.1781 |
| Running (g/mi) | 56 | 0.0841 | 0.0841 | 0.0841 | 0.1807 | 0.1807 | 0.1807 |
| Running (g/mi) | 57 | 0.0842 | 0.0842 | 0.0842 | 0.1831 | 0.1831 | 0.1831 |
| Running (g/mi) | 58 | 0.0841 | 0.0841 | 0.0841 | 0.1854 | 0.1854 | 0.1854 |
| Running (g/mi) | 59 | 0.0840 | 0.0840 | 0.0840 | 0.1877 | 0.1877 | 0.1877 |
| Running (g/mi) | 60 | 0.0839 | 0.0839 | 0.0839 | 0.1898 | 0.1898 | 0.1898 |
| Running (g/mi) | 61 | 0.0842 | 0.0842 | 0.0842 | 0.1930 | 0.1930 | 0.1930 |
| Running (g/mi) | 62 | 0.0841 | 0.0841 | 0.0841 | 0.1961 | 0.1961 | 0.1961 |
| Running (g/mi) | 63 | 0.0845 | 0.0845 | 0.0845 | 0.1991 | 0.1991 | 0.1991 |
| Running (g/mi) | 64 | 0.0843 | 0.0843 | 0.0843 | 0.2020 | 0.2020 | 0.2020 |
| Running (g/mi) | 65 | 0.0845 | 0.0845 | 0.0845 | 0.2048 | 0.2048 | 0.2048 |

| Emission Type | VOC | NOx |
|-----------------------|--------|--------|
| Cold Start (g/trip) | 0.4272 | 0.1552 |
| Hot Soak (g/trip end) | 0.202 | 0 |

Exhibit - 1
VOC MOBILE6 RUNNING EMISSION RATES
TRAFFIC STREAM
FOR 2010, 2020 AND 2030
WEIGHTED AVERAGE of ARTERIAL & FREEWAY

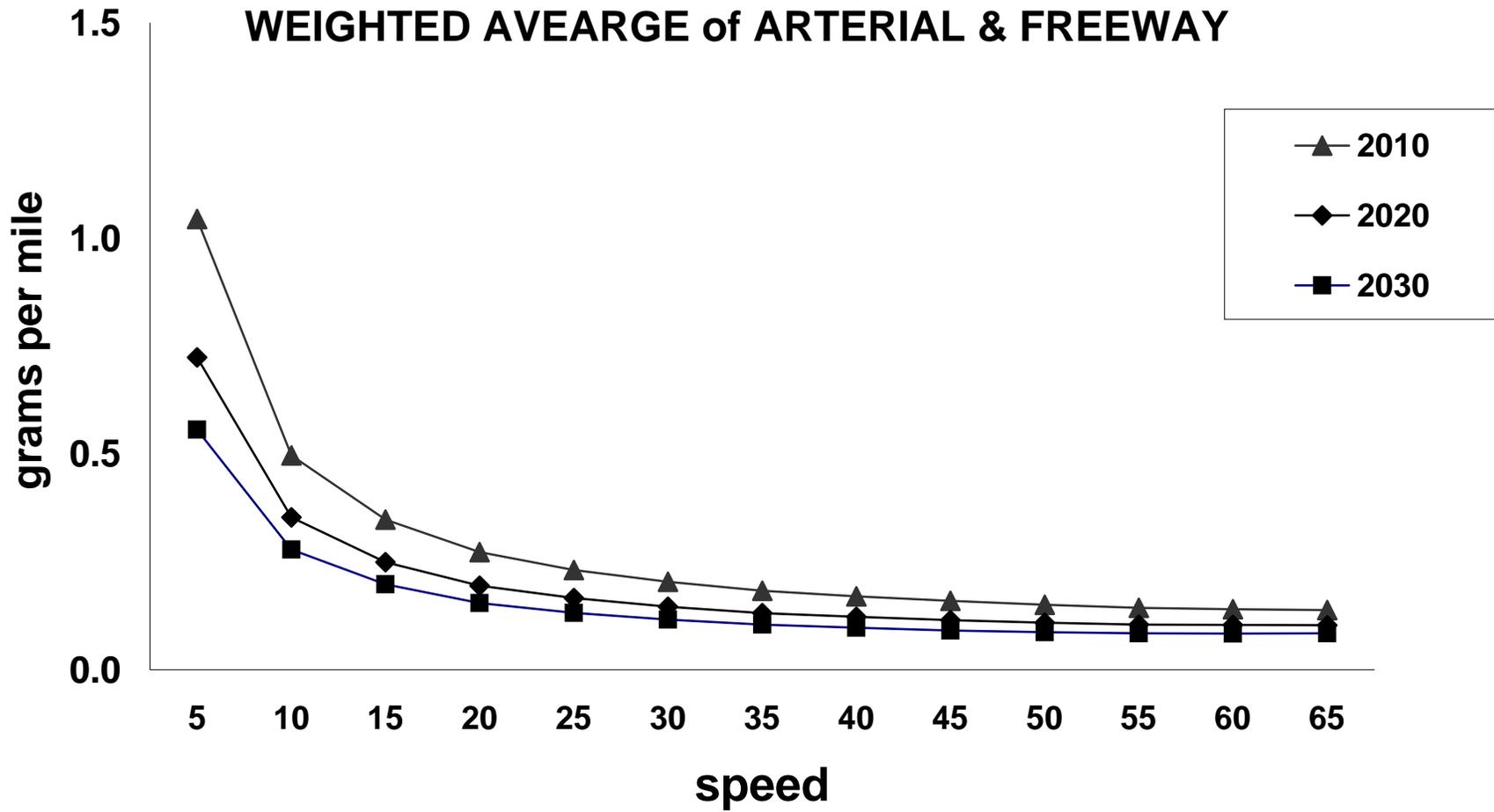


Exhibit - 2
NOx MOBILE6 RUNNING EMISSION RATES
TRAFFIC STREAM
FOR 2010, 2020 AND 2030
WEIGHTED AVERAGE of ARTERIAL & FREEWAY

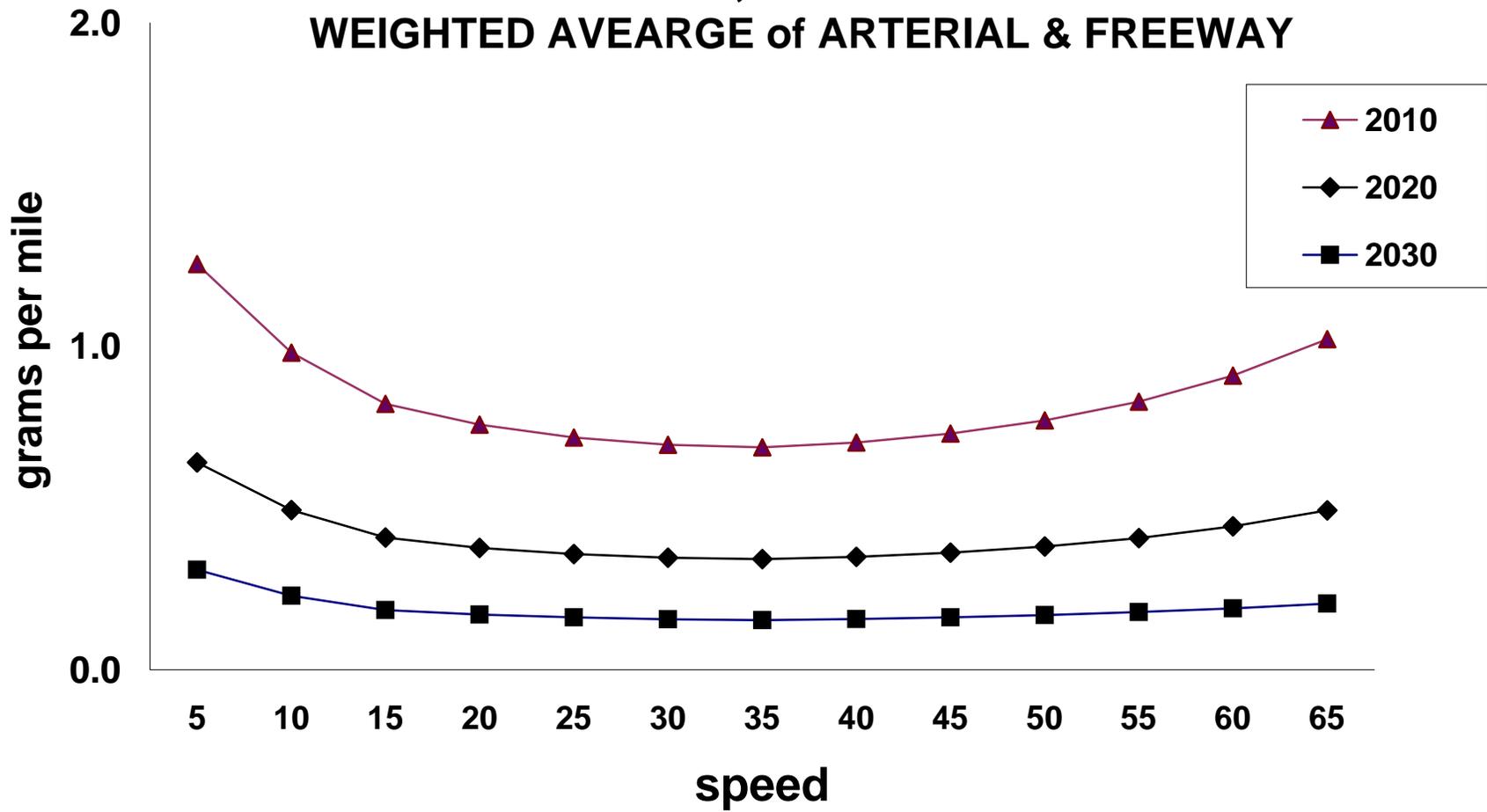


Table 5: 2010 Running, Cold Start, and Hot Soak Average Emissions Factors for "Commuter Vehicle"
TERMS
(Mobile 6.2)

| Emission Type | Speed (mph) | Average 2010 Running Emission Factor (g/mi) | | | | | |
|----------------|-------------|---|---------|------------------------------|----------|---------|------------------------------|
| | | Arterial | Freeway | Weighted Factor VOC | Arterial | Freeway | Weighted Factor NOx |
| | | VOC | | Arterial - 60%, Freeway- 40% | NOx | | Arterial - 60%, Freeway- 40% |
| Running (g/mi) | 1 | 3.0842 | 3.0842 | 3.0842 | 0.9005 | 0.9003 | 0.9004 |
| Running (g/mi) | 2 | 3.0842 | 3.0842 | 3.0842 | 0.9005 | 0.9003 | 0.9004 |
| Running (g/mi) | 3 | 2.3988 | 2.3988 | 2.3988 | 0.8557 | 0.8556 | 0.8557 |
| Running (g/mi) | 4 | 1.5423 | 1.5422 | 1.5423 | 0.7997 | 0.7997 | 0.7997 |
| Running (g/mi) | 5 | 1.0281 | 1.0281 | 1.0281 | 0.7660 | 0.7660 | 0.7660 |
| Running (g/mi) | 6 | 0.8446 | 0.8351 | 0.8408 | 0.7098 | 0.6769 | 0.6966 |
| Running (g/mi) | 7 | 0.7136 | 0.6976 | 0.7072 | 0.6693 | 0.6133 | 0.6469 |
| Running (g/mi) | 8 | 0.6151 | 0.5939 | 0.6066 | 0.6393 | 0.5655 | 0.6098 |
| Running (g/mi) | 9 | 0.5385 | 0.5136 | 0.5285 | 0.6158 | 0.5284 | 0.5808 |
| Running (g/mi) | 10 | 0.4773 | 0.4494 | 0.4661 | 0.5969 | 0.4988 | 0.5577 |
| Running (g/mi) | 11 | 0.4390 | 0.4091 | 0.4270 | 0.5686 | 0.4643 | 0.5269 |
| Running (g/mi) | 12 | 0.4068 | 0.3757 | 0.3944 | 0.5450 | 0.4355 | 0.5012 |
| Running (g/mi) | 13 | 0.3797 | 0.3473 | 0.3667 | 0.5252 | 0.4113 | 0.4796 |
| Running (g/mi) | 14 | 0.3565 | 0.3230 | 0.3431 | 0.5080 | 0.3902 | 0.4609 |
| Running (g/mi) | 15 | 0.3364 | 0.3020 | 0.3226 | 0.4931 | 0.3720 | 0.4447 |
| Running (g/mi) | 16 | 0.3169 | 0.2873 | 0.3051 | 0.4800 | 0.3730 | 0.4372 |
| Running (g/mi) | 17 | 0.2998 | 0.2739 | 0.2894 | 0.4682 | 0.3739 | 0.4305 |
| Running (g/mi) | 18 | 0.2846 | 0.2622 | 0.2756 | 0.4580 | 0.3749 | 0.4248 |
| Running (g/mi) | 19 | 0.2709 | 0.2518 | 0.2633 | 0.4487 | 0.3757 | 0.4195 |
| Running (g/mi) | 20 | 0.2587 | 0.2423 | 0.2521 | 0.4402 | 0.3764 | 0.4147 |
| Running (g/mi) | 21 | 0.2490 | 0.2352 | 0.2435 | 0.4325 | 0.3768 | 0.4102 |
| Running (g/mi) | 22 | 0.2402 | 0.2285 | 0.2355 | 0.4257 | 0.3768 | 0.4061 |
| Running (g/mi) | 23 | 0.2320 | 0.2225 | 0.2282 | 0.4191 | 0.3773 | 0.4024 |
| Running (g/mi) | 24 | 0.2248 | 0.2171 | 0.2217 | 0.4132 | 0.3776 | 0.3990 |
| Running (g/mi) | 25 | 0.2180 | 0.2120 | 0.2156 | 0.4080 | 0.3778 | 0.3959 |
| Running (g/mi) | 26 | 0.2118 | 0.2069 | 0.2098 | 0.4029 | 0.3778 | 0.3929 |
| Running (g/mi) | 27 | 0.2063 | 0.2024 | 0.2047 | 0.3982 | 0.3778 | 0.3900 |
| Running (g/mi) | 28 | 0.2013 | 0.1984 | 0.2001 | 0.3938 | 0.3778 | 0.3874 |
| Running (g/mi) | 29 | 0.1962 | 0.1942 | 0.1954 | 0.3899 | 0.3778 | 0.3851 |
| Running (g/mi) | 30 | 0.1923 | 0.1908 | 0.1917 | 0.3860 | 0.3778 | 0.3827 |
| Running (g/mi) | 31 | 0.1876 | 0.1866 | 0.1872 | 0.3835 | 0.3773 | 0.3810 |
| Running (g/mi) | 32 | 0.1837 | 0.1828 | 0.1833 | 0.3812 | 0.3766 | 0.3794 |
| Running (g/mi) | 33 | 0.1800 | 0.1793 | 0.1797 | 0.3790 | 0.3762 | 0.3779 |
| Running (g/mi) | 34 | 0.1762 | 0.1762 | 0.1762 | 0.3771 | 0.3755 | 0.3765 |
| Running (g/mi) | 35 | 0.1727 | 0.1727 | 0.1727 | 0.3752 | 0.3752 | 0.3752 |
| Running (g/mi) | 36 | 0.1703 | 0.1703 | 0.1703 | 0.3763 | 0.3763 | 0.3763 |
| Running (g/mi) | 37 | 0.1681 | 0.1681 | 0.1681 | 0.3777 | 0.3777 | 0.3777 |
| Running (g/mi) | 38 | 0.1657 | 0.1657 | 0.1657 | 0.3790 | 0.3790 | 0.3790 |
| Running (g/mi) | 39 | 0.1636 | 0.1636 | 0.1636 | 0.3801 | 0.3801 | 0.3801 |
| Running (g/mi) | 40 | 0.1617 | 0.1617 | 0.1617 | 0.3811 | 0.3811 | 0.3811 |
| Running (g/mi) | 41 | 0.1597 | 0.1597 | 0.1597 | 0.3830 | 0.3830 | 0.3830 |
| Running (g/mi) | 42 | 0.1579 | 0.1579 | 0.1579 | 0.3848 | 0.3848 | 0.3848 |
| Running (g/mi) | 43 | 0.1561 | 0.1561 | 0.1561 | 0.3867 | 0.3867 | 0.3867 |
| Running (g/mi) | 44 | 0.1544 | 0.1544 | 0.1544 | 0.3885 | 0.3885 | 0.3885 |
| Running (g/mi) | 45 | 0.1526 | 0.1526 | 0.1526 | 0.3901 | 0.3901 | 0.3901 |
| Running (g/mi) | 46 | 0.1508 | 0.1508 | 0.1508 | 0.3922 | 0.3922 | 0.3922 |
| Running (g/mi) | 47 | 0.1490 | 0.1490 | 0.1490 | 0.3942 | 0.3942 | 0.3942 |
| Running (g/mi) | 48 | 0.1474 | 0.1474 | 0.1474 | 0.3959 | 0.3959 | 0.3959 |
| Running (g/mi) | 49 | 0.1459 | 0.1459 | 0.1459 | 0.3977 | 0.3977 | 0.3977 |
| Running (g/mi) | 50 | 0.1447 | 0.1447 | 0.1447 | 0.3994 | 0.3994 | 0.3994 |
| Running (g/mi) | 51 | 0.1431 | 0.1431 | 0.1431 | 0.4014 | 0.4014 | 0.4014 |
| Running (g/mi) | 52 | 0.1418 | 0.1418 | 0.1418 | 0.4038 | 0.4038 | 0.4038 |
| Running (g/mi) | 53 | 0.1404 | 0.1404 | 0.1404 | 0.4058 | 0.4058 | 0.4058 |
| Running (g/mi) | 54 | 0.1391 | 0.1391 | 0.1391 | 0.4078 | 0.4078 | 0.4078 |
| Running (g/mi) | 55 | 0.1377 | 0.1377 | 0.1377 | 0.4097 | 0.4097 | 0.4097 |
| Running (g/mi) | 56 | 0.1372 | 0.1372 | 0.1372 | 0.4118 | 0.4118 | 0.4118 |
| Running (g/mi) | 57 | 0.1363 | 0.1363 | 0.1363 | 0.4140 | 0.4140 | 0.4140 |
| Running (g/mi) | 58 | 0.1358 | 0.1358 | 0.1358 | 0.4162 | 0.4162 | 0.4162 |
| Running (g/mi) | 59 | 0.1350 | 0.1350 | 0.1350 | 0.4182 | 0.4182 | 0.4182 |
| Running (g/mi) | 60 | 0.1347 | 0.1347 | 0.1347 | 0.4203 | 0.4203 | 0.4203 |
| Running (g/mi) | 61 | 0.1339 | 0.1339 | 0.1339 | 0.4225 | 0.4225 | 0.4225 |
| Running (g/mi) | 62 | 0.1338 | 0.1338 | 0.1338 | 0.4248 | 0.4248 | 0.4248 |
| Running (g/mi) | 63 | 0.1331 | 0.1331 | 0.1331 | 0.4269 | 0.4269 | 0.4269 |
| Running (g/mi) | 64 | 0.1330 | 0.1330 | 0.1330 | 0.4291 | 0.4291 | 0.4291 |
| Running (g/mi) | 65 | 0.1323 | 0.1323 | 0.1323 | 0.4313 | 0.4313 | 0.4313 |

| Emission Type | VOC | NOx |
|----------------------------------|--------|--------|
| Cold Start (g/trip start, Total) | 0.9599 | 0.5811 |
| Hot Soak Loss (g/trip end) | 0.5661 | 0 |

**Table 6: 2020 Running, Cold Start, and Hot Soak Average Emissions Factors for "Commuter Vehicle" TERMs
(Mobile 6.2)**

| Emission Type | Speed (mph) | Average 2020 Running Emission Factor (g/mi) | | | | | Weighted Factor NOx Arterial - 60%, Freeway- 40% |
|----------------|-------------|---|---------|---------------------------------|----------|---------|--|
| | | Arterial | Freeway | Weighted Factor VOC | Arterial | Freeway | |
| | | VOC | | Arterial - 60%, Freeway- 40% | NOx | | |
| Running (g/mi) | 1 | 2.0623 | 2.0623 | 2.0623 | 0.5288 | 0.5287 | 0.5287 |
| Running (g/mi) | 2 | 2.0623 | 2.0623 | 2.0623 | 0.5288 | 0.5287 | 0.5287 |
| Running (g/mi) | 3 | 1.6113 | 1.6113 | 1.6113 | 0.5024 | 0.5023 | 0.5024 |
| Running (g/mi) | 4 | 1.0473 | 1.0473 | 1.0473 | 0.4692 | 0.4692 | 0.4692 |
| Running (g/mi) | 5 | 0.7088 | 0.7088 | 0.7088 | 0.4493 | 0.4493 | 0.4493 |
| Running (g/mi) | 6 | 0.5851 | 0.5784 | 0.5824 | 0.4159 | 0.3962 | 0.4080 |
| Running (g/mi) | 7 | 0.4968 | 0.4850 | 0.4921 | 0.3918 | 0.3582 | 0.3784 |
| Running (g/mi) | 8 | 0.4304 | 0.4150 | 0.4243 | 0.3740 | 0.3297 | 0.3563 |
| Running (g/mi) | 9 | 0.3788 | 0.3605 | 0.3715 | 0.3600 | 0.3077 | 0.3391 |
| Running (g/mi) | 10 | 0.3374 | 0.3171 | 0.3292 | 0.3486 | 0.2899 | 0.3251 |
| Running (g/mi) | 11 | 0.3106 | 0.2892 | 0.3021 | 0.3319 | 0.2694 | 0.3069 |
| Running (g/mi) | 12 | 0.2881 | 0.2656 | 0.2791 | 0.3179 | 0.2522 | 0.2916 |
| Running (g/mi) | 13 | 0.2692 | 0.2457 | 0.2598 | 0.3062 | 0.2378 | 0.2788 |
| Running (g/mi) | 14 | 0.2530 | 0.2287 | 0.2433 | 0.2959 | 0.2253 | 0.2676 |
| Running (g/mi) | 15 | 0.2387 | 0.2139 | 0.2288 | 0.2870 | 0.2145 | 0.2580 |
| Running (g/mi) | 16 | 0.2249 | 0.2033 | 0.2163 | 0.2793 | 0.2152 | 0.2537 |
| Running (g/mi) | 17 | 0.2127 | 0.1937 | 0.2051 | 0.2722 | 0.2158 | 0.2497 |
| Running (g/mi) | 18 | 0.2017 | 0.1853 | 0.1951 | 0.2661 | 0.2165 | 0.2463 |
| Running (g/mi) | 19 | 0.1917 | 0.1777 | 0.1861 | 0.2607 | 0.2170 | 0.2432 |
| Running (g/mi) | 20 | 0.1831 | 0.1708 | 0.1782 | 0.2557 | 0.2174 | 0.2404 |
| Running (g/mi) | 21 | 0.1762 | 0.1659 | 0.1721 | 0.2512 | 0.2178 | 0.2378 |
| Running (g/mi) | 22 | 0.1702 | 0.1614 | 0.1667 | 0.2470 | 0.2178 | 0.2353 |
| Running (g/mi) | 23 | 0.1644 | 0.1572 | 0.1615 | 0.2432 | 0.2182 | 0.2332 |
| Running (g/mi) | 24 | 0.1594 | 0.1535 | 0.1570 | 0.2397 | 0.2183 | 0.2311 |
| Running (g/mi) | 25 | 0.1547 | 0.1499 | 0.1528 | 0.2366 | 0.2185 | 0.2293 |
| Running (g/mi) | 26 | 0.1503 | 0.1465 | 0.1488 | 0.2336 | 0.2185 | 0.2276 |
| Running (g/mi) | 27 | 0.1465 | 0.1432 | 0.1452 | 0.2309 | 0.2185 | 0.2259 |
| Running (g/mi) | 28 | 0.1428 | 0.1405 | 0.1419 | 0.2283 | 0.2187 | 0.2244 |
| Running (g/mi) | 29 | 0.1393 | 0.1375 | 0.1385 | 0.2259 | 0.2188 | 0.2231 |
| Running (g/mi) | 30 | 0.1363 | 0.1351 | 0.1358 | 0.2237 | 0.2188 | 0.2218 |
| Running (g/mi) | 31 | 0.1331 | 0.1322 | 0.1328 | 0.2222 | 0.2183 | 0.2207 |
| Running (g/mi) | 32 | 0.1304 | 0.1296 | 0.1301 | 0.2208 | 0.2179 | 0.2197 |
| Running (g/mi) | 33 | 0.1277 | 0.1272 | 0.1275 | 0.2194 | 0.2177 | 0.2187 |
| Running (g/mi) | 34 | 0.1251 | 0.1250 | 0.1250 | 0.2182 | 0.2174 | 0.2179 |
| Running (g/mi) | 35 | 0.1228 | 0.1228 | 0.1228 | 0.2171 | 0.2171 | 0.2171 |
| Running (g/mi) | 36 | 0.1210 | 0.1210 | 0.1210 | 0.2178 | 0.2178 | 0.2178 |
| Running (g/mi) | 37 | 0.1196 | 0.1196 | 0.1196 | 0.2188 | 0.2188 | 0.2188 |
| Running (g/mi) | 38 | 0.1178 | 0.1178 | 0.1178 | 0.2194 | 0.2194 | 0.2194 |
| Running (g/mi) | 39 | 0.1165 | 0.1165 | 0.1165 | 0.2202 | 0.2202 | 0.2202 |
| Running (g/mi) | 40 | 0.1150 | 0.1150 | 0.1150 | 0.2209 | 0.2209 | 0.2209 |
| Running (g/mi) | 41 | 0.1137 | 0.1137 | 0.1137 | 0.2221 | 0.2221 | 0.2221 |
| Running (g/mi) | 42 | 0.1124 | 0.1124 | 0.1124 | 0.2231 | 0.2231 | 0.2231 |
| Running (g/mi) | 43 | 0.1112 | 0.1112 | 0.1112 | 0.2243 | 0.2243 | 0.2243 |
| Running (g/mi) | 44 | 0.1099 | 0.1099 | 0.1099 | 0.2254 | 0.2254 | 0.2254 |
| Running (g/mi) | 45 | 0.1087 | 0.1087 | 0.1087 | 0.2264 | 0.2264 | 0.2264 |
| Running (g/mi) | 46 | 0.1075 | 0.1075 | 0.1075 | 0.2276 | 0.2276 | 0.2276 |
| Running (g/mi) | 47 | 0.1065 | 0.1065 | 0.1065 | 0.2288 | 0.2288 | 0.2288 |
| Running (g/mi) | 48 | 0.1055 | 0.1055 | 0.1055 | 0.2298 | 0.2298 | 0.2298 |
| Running (g/mi) | 49 | 0.1044 | 0.1044 | 0.1044 | 0.2311 | 0.2311 | 0.2311 |
| Running (g/mi) | 50 | 0.1036 | 0.1036 | 0.1036 | 0.2321 | 0.2321 | 0.2321 |
| Running (g/mi) | 51 | 0.1026 | 0.1026 | 0.1026 | 0.2333 | 0.2333 | 0.2333 |
| Running (g/mi) | 52 | 0.1020 | 0.1020 | 0.1020 | 0.2348 | 0.2348 | 0.2348 |
| Running (g/mi) | 53 | 0.1011 | 0.1011 | 0.1011 | 0.2360 | 0.2360 | 0.2360 |
| Running (g/mi) | 54 | 0.1005 | 0.1005 | 0.1005 | 0.2372 | 0.2372 | 0.2372 |
| Running (g/mi) | 55 | 0.0996 | 0.0996 | 0.0996 | 0.2384 | 0.2384 | 0.2384 |
| Running (g/mi) | 56 | 0.0995 | 0.0995 | 0.0995 | 0.2398 | 0.2398 | 0.2398 |
| Running (g/mi) | 57 | 0.0991 | 0.0991 | 0.0991 | 0.2411 | 0.2411 | 0.2411 |
| Running (g/mi) | 58 | 0.0991 | 0.0991 | 0.0991 | 0.2424 | 0.2424 | 0.2424 |
| Running (g/mi) | 59 | 0.0989 | 0.0989 | 0.0989 | 0.2436 | 0.2436 | 0.2436 |
| Running (g/mi) | 60 | 0.0988 | 0.0988 | 0.0988 | 0.2449 | 0.2449 | 0.2449 |
| Running (g/mi) | 61 | 0.0986 | 0.0986 | 0.0986 | 0.2463 | 0.2463 | 0.2463 |
| Running (g/mi) | 62 | 0.0986 | 0.0986 | 0.0986 | 0.2477 | 0.2477 | 0.2477 |
| Running (g/mi) | 63 | 0.0986 | 0.0986 | 0.0986 | 0.2490 | 0.2490 | 0.2490 |
| Running (g/mi) | 64 | 0.0985 | 0.0985 | 0.0985 | 0.2502 | 0.2502 | 0.2502 |
| Running (g/mi) | 65 | 0.0984 | 0.0984 | 0.0984 | 0.2516 | 0.2516 | 0.2516 |

| Emission Type | VOC | NOx |
|----------------------------|--------|--------|
| Cold Start (g/trip) | 0.6468 | 0.3223 |
| Hot Soak Loss (g/trip end) | 0.3208 | 0.0000 |

Note: 2020 factors derived from interpolation of 2025 Mobile 6 factors and 2010 Mobile 6.2 factors

Table 7: 2030 Running, Cold Start, and Hot Soak Average Emissions Factors for "Commuter Vehicle" TERMS (Mobile 6.2)

| Average 2030 Emission Factors (gm/mi) | | | | | | | |
|---------------------------------------|-------------|----------|---------|-------------------------------|----------|---------|-------------------------------|
| Emission Type | Speed (mph) | Arterial | Freeway | Weighted Factor VOC | Arterial | Freeway | Weighted Factor NOx |
| | | VOC | | Arterial - 60% Freeway 40% | NOx | | Arterial - 60% Freeway 40% |
| Running (g/mi) | 1 | 1.5376 | 1.5376 | 1.5376 | 0.3283 | 0.3283 | 0.3283 |
| Running (g/mi) | 2 | 1.5376 | 1.5376 | 1.5376 | 0.3283 | 0.3283 | 0.3283 |
| Running (g/mi) | 3 | 1.2062 | 1.2062 | 1.2062 | 0.3117 | 0.3117 | 0.3117 |
| Running (g/mi) | 4 | 0.7917 | 0.7917 | 0.7917 | 0.2910 | 0.2910 | 0.2910 |
| Running (g/mi) | 5 | 0.5431 | 0.5431 | 0.5431 | 0.2788 | 0.2788 | 0.2788 |
| Running (g/mi) | 6 | 0.4501 | 0.4448 | 0.4480 | 0.2573 | 0.2448 | 0.2523 |
| Running (g/mi) | 7 | 0.3836 | 0.3745 | 0.3800 | 0.2420 | 0.2206 | 0.2334 |
| Running (g/mi) | 8 | 0.3338 | 0.3219 | 0.3290 | 0.2306 | 0.2025 | 0.2194 |
| Running (g/mi) | 9 | 0.2950 | 0.2810 | 0.2894 | 0.2219 | 0.1883 | 0.2085 |
| Running (g/mi) | 10 | 0.2641 | 0.2480 | 0.2577 | 0.2146 | 0.1772 | 0.1996 |
| Running (g/mi) | 11 | 0.2435 | 0.2265 | 0.2367 | 0.2041 | 0.1642 | 0.1881 |
| Running (g/mi) | 12 | 0.2260 | 0.2081 | 0.2188 | 0.1952 | 0.1534 | 0.1785 |
| Running (g/mi) | 13 | 0.2113 | 0.1929 | 0.2039 | 0.1878 | 0.1441 | 0.1703 |
| Running (g/mi) | 14 | 0.1988 | 0.1796 | 0.1911 | 0.1813 | 0.1363 | 0.1633 |
| Running (g/mi) | 15 | 0.1877 | 0.1681 | 0.1799 | 0.1757 | 0.1295 | 0.1572 |
| Running (g/mi) | 16 | 0.1768 | 0.1594 | 0.1698 | 0.1707 | 0.1298 | 0.1543 |
| Running (g/mi) | 17 | 0.1671 | 0.1520 | 0.1611 | 0.1665 | 0.1305 | 0.1521 |
| Running (g/mi) | 18 | 0.1579 | 0.1451 | 0.1528 | 0.1625 | 0.1308 | 0.1498 |
| Running (g/mi) | 19 | 0.1504 | 0.1390 | 0.1458 | 0.1590 | 0.1311 | 0.1478 |
| Running (g/mi) | 20 | 0.1432 | 0.1336 | 0.1394 | 0.1559 | 0.1316 | 0.1462 |
| Running (g/mi) | 21 | 0.1382 | 0.1296 | 0.1348 | 0.1530 | 0.1318 | 0.1445 |
| Running (g/mi) | 22 | 0.1334 | 0.1262 | 0.1305 | 0.1503 | 0.1318 | 0.1429 |
| Running (g/mi) | 23 | 0.1290 | 0.1229 | 0.1266 | 0.1481 | 0.1319 | 0.1416 |
| Running (g/mi) | 24 | 0.1251 | 0.1202 | 0.1231 | 0.1461 | 0.1321 | 0.1405 |
| Running (g/mi) | 25 | 0.1213 | 0.1174 | 0.1197 | 0.1441 | 0.1324 | 0.1394 |
| Running (g/mi) | 26 | 0.1181 | 0.1149 | 0.1168 | 0.1422 | 0.1324 | 0.1383 |
| Running (g/mi) | 27 | 0.1150 | 0.1123 | 0.1139 | 0.1403 | 0.1324 | 0.1371 |
| Running (g/mi) | 28 | 0.1122 | 0.1100 | 0.1113 | 0.1388 | 0.1325 | 0.1363 |
| Running (g/mi) | 29 | 0.1094 | 0.1076 | 0.1087 | 0.1372 | 0.1325 | 0.1353 |
| Running (g/mi) | 30 | 0.1069 | 0.1059 | 0.1065 | 0.1358 | 0.1327 | 0.1346 |
| Running (g/mi) | 31 | 0.1044 | 0.1037 | 0.1041 | 0.1348 | 0.1324 | 0.1338 |
| Running (g/mi) | 32 | 0.1023 | 0.1016 | 0.1020 | 0.1339 | 0.1321 | 0.1332 |
| Running (g/mi) | 33 | 0.1001 | 0.0998 | 0.1000 | 0.1331 | 0.1318 | 0.1326 |
| Running (g/mi) | 34 | 0.0982 | 0.0979 | 0.0981 | 0.1323 | 0.1318 | 0.1321 |
| Running (g/mi) | 35 | 0.0963 | 0.0963 | 0.0963 | 0.1314 | 0.1314 | 0.1314 |
| Running (g/mi) | 36 | 0.0950 | 0.0950 | 0.0950 | 0.1321 | 0.1321 | 0.1321 |
| Running (g/mi) | 37 | 0.0938 | 0.0938 | 0.0938 | 0.1328 | 0.1328 | 0.1328 |
| Running (g/mi) | 38 | 0.0926 | 0.0926 | 0.0926 | 0.1333 | 0.1333 | 0.1333 |
| Running (g/mi) | 39 | 0.0915 | 0.0915 | 0.0915 | 0.1338 | 0.1338 | 0.1338 |
| Running (g/mi) | 40 | 0.0905 | 0.0905 | 0.0905 | 0.1343 | 0.1343 | 0.1343 |
| Running (g/mi) | 41 | 0.0893 | 0.0893 | 0.0893 | 0.1349 | 0.1349 | 0.1349 |
| Running (g/mi) | 42 | 0.0882 | 0.0882 | 0.0882 | 0.1358 | 0.1358 | 0.1358 |
| Running (g/mi) | 43 | 0.0873 | 0.0873 | 0.0873 | 0.1364 | 0.1364 | 0.1364 |
| Running (g/mi) | 44 | 0.0864 | 0.0864 | 0.0864 | 0.1371 | 0.1371 | 0.1371 |
| Running (g/mi) | 45 | 0.0853 | 0.0853 | 0.0853 | 0.1378 | 0.1378 | 0.1378 |
| Running (g/mi) | 46 | 0.0846 | 0.0846 | 0.0846 | 0.1387 | 0.1387 | 0.1387 |
| Running (g/mi) | 47 | 0.0838 | 0.0838 | 0.0838 | 0.1394 | 0.1394 | 0.1394 |
| Running (g/mi) | 48 | 0.0832 | 0.0832 | 0.0832 | 0.1403 | 0.1403 | 0.1403 |
| Running (g/mi) | 49 | 0.0823 | 0.0823 | 0.0823 | 0.1408 | 0.1408 | 0.1408 |
| Running (g/mi) | 50 | 0.0817 | 0.0817 | 0.0817 | 0.1417 | 0.1417 | 0.1417 |
| Running (g/mi) | 51 | 0.0811 | 0.0811 | 0.0811 | 0.1427 | 0.1427 | 0.1427 |
| Running (g/mi) | 52 | 0.0807 | 0.0807 | 0.0807 | 0.1436 | 0.1436 | 0.1436 |
| Running (g/mi) | 53 | 0.0803 | 0.0803 | 0.0803 | 0.1443 | 0.1443 | 0.1443 |
| Running (g/mi) | 54 | 0.0798 | 0.0798 | 0.0798 | 0.1451 | 0.1451 | 0.1451 |
| Running (g/mi) | 55 | 0.0793 | 0.0793 | 0.0793 | 0.1458 | 0.1458 | 0.1458 |
| Running (g/mi) | 56 | 0.0794 | 0.0794 | 0.0794 | 0.1468 | 0.1468 | 0.1468 |
| Running (g/mi) | 57 | 0.0793 | 0.0793 | 0.0793 | 0.1478 | 0.1478 | 0.1478 |
| Running (g/mi) | 58 | 0.0795 | 0.0795 | 0.0795 | 0.1486 | 0.1486 | 0.1486 |
| Running (g/mi) | 59 | 0.0794 | 0.0794 | 0.0794 | 0.1494 | 0.1494 | 0.1494 |
| Running (g/mi) | 60 | 0.0795 | 0.0795 | 0.0795 | 0.1503 | 0.1503 | 0.1503 |
| Running (g/mi) | 61 | 0.0797 | 0.0797 | 0.0797 | 0.1512 | 0.1512 | 0.1512 |
| Running (g/mi) | 62 | 0.0797 | 0.0797 | 0.0797 | 0.1522 | 0.1522 | 0.1522 |
| Running (g/mi) | 63 | 0.0800 | 0.0800 | 0.0800 | 0.1530 | 0.1530 | 0.1530 |
| Running (g/mi) | 64 | 0.0800 | 0.0800 | 0.0800 | 0.1538 | 0.1538 | 0.1538 |
| Running (g/mi) | 65 | 0.0801 | 0.0801 | 0.0801 | 0.1547 | 0.1547 | 0.1547 |

| Emission Type | VOC | NOx |
|----------------------------|--------|--------|
| Cold Start (g/trip) | 0.4718 | 0.1714 |
| Hot Soak Loss (g/trip end) | 0.1992 | 0 |

Exhibit - 3
VOC MOBILE6 RUNNING EMISSION RATES
COMMUTE STREAM
FOR 2010, 2020 AND 2030
WEIGHTED AVERAGE of ARTERIAL & FREEWAY

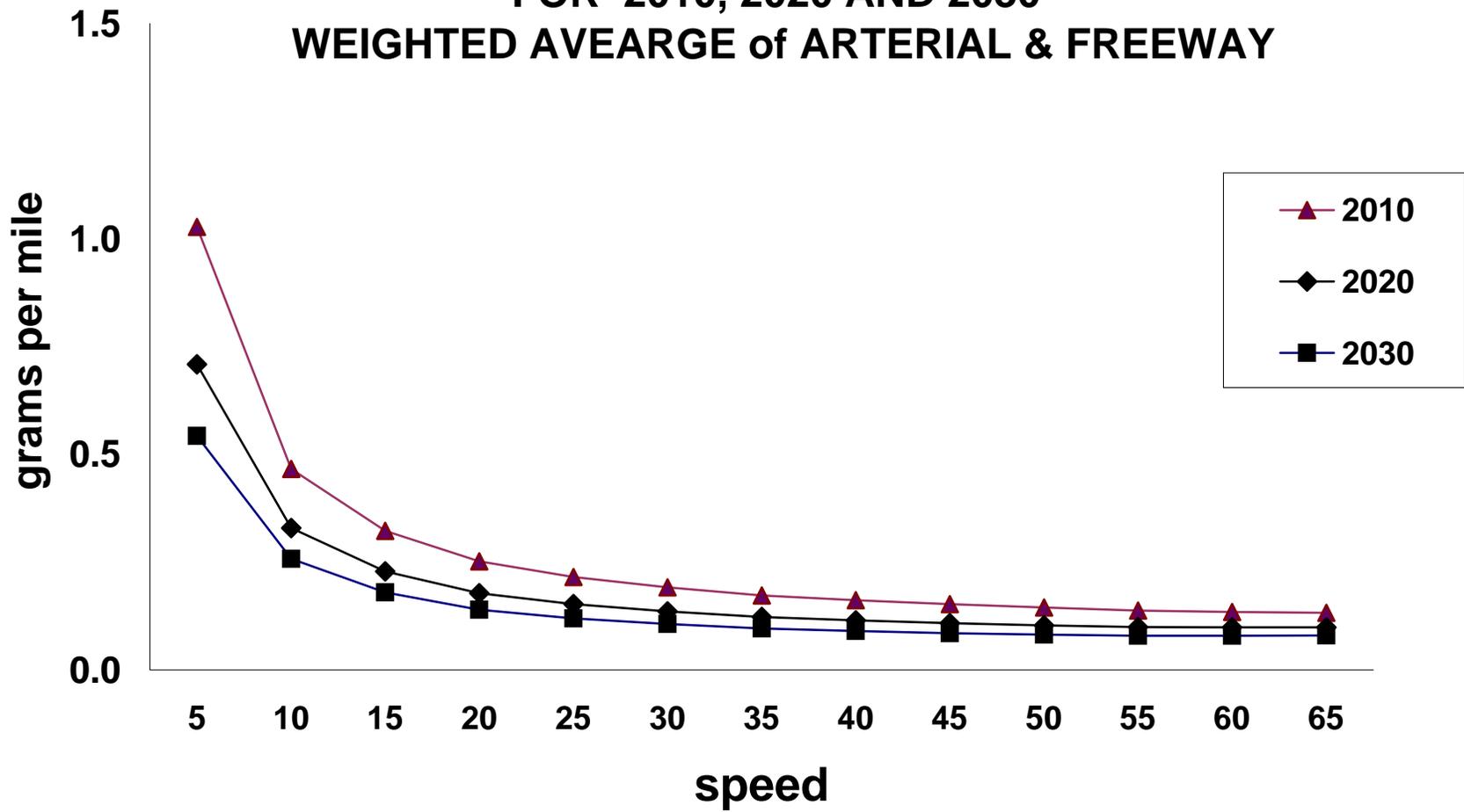


Exhibit - 4
NOx MOBILE6 RUNNING EMISSION RATES
COMMUTE STREAM
FOR 2010, 2020 AND 2030
WEIGHTED AVERAGE of ARTERIAL & FREEWAY

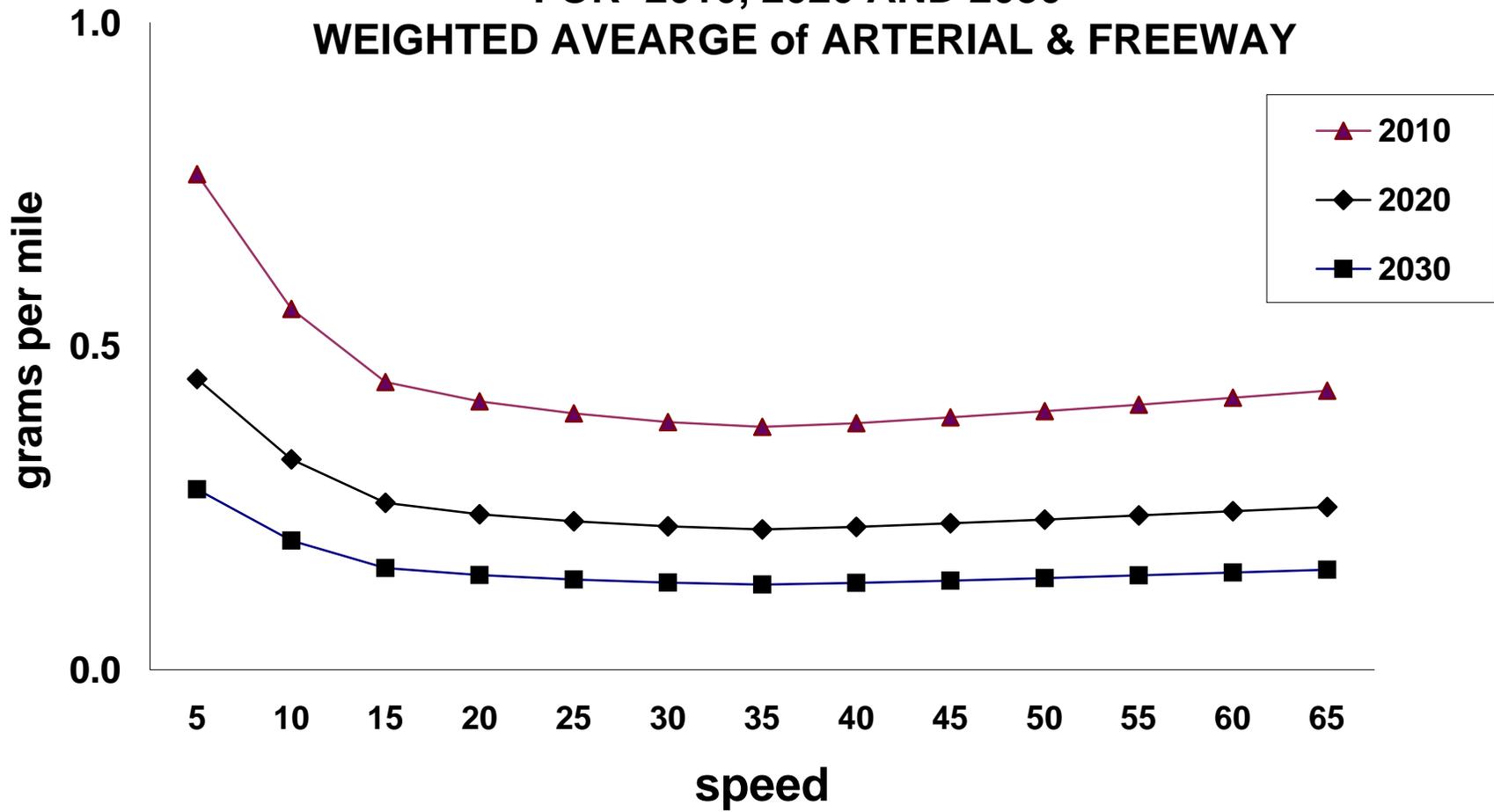


Table 8: Regional Diesel Bus Emission Factors (2010)

| Road Type | Diesel Bus Emission Factors (grams/mile) | | | | |
|------------------|--|------------|---------|-------------|---------|
| | Speed (mph) | School Bus | | Transit Bus | |
| | | VOC | NOx | VOC | NOx |
| Arterial/Freeway | 1 | 1.4820 | 13.2320 | 0.7460 | 19.7040 |
| Arterial/Freeway | 2 | 1.4820 | 13.2320 | 0.7460 | 19.7040 |
| Arterial/Freeway | 3 | 1.4220 | 12.7790 | 0.7160 | 19.0290 |
| Arterial/Freeway | 4 | 1.3470 | 12.2120 | 0.6780 | 18.1860 |
| Arterial/Freeway | 5 | 1.3020 | 11.8720 | 0.6560 | 17.6800 |
| Arterial/Freeway | 6 | 1.2090 | 11.1860 | 0.6090 | 16.6600 |
| Arterial/Freeway | 7 | 1.1420 | 10.6970 | 0.5750 | 15.9310 |
| Arterial/Freeway | 8 | 1.0920 | 10.3290 | 0.5500 | 15.3840 |
| Arterial/Freeway | 9 | 1.0530 | 10.0440 | 0.5300 | 14.9590 |
| Arterial/Freeway | 10 | 1.0220 | 9.8150 | 0.5150 | 14.6190 |
| Arterial/Freeway | 11 | 0.9670 | 9.4310 | 0.4870 | 14.0480 |
| Arterial/Freeway | 12 | 0.9210 | 9.1120 | 0.4640 | 13.5720 |
| Arterial/Freeway | 13 | 0.8820 | 8.8410 | 0.4440 | 13.1700 |
| Arterial/Freeway | 14 | 0.8490 | 8.6090 | 0.4280 | 12.8240 |
| Arterial/Freeway | 15 | 0.8200 | 8.4090 | 0.4130 | 12.5250 |
| Arterial/Freeway | 16 | 0.7840 | 8.1730 | 0.3950 | 12.1750 |
| Arterial/Freeway | 17 | 0.7510 | 7.9660 | 0.3780 | 11.8660 |
| Arterial/Freeway | 18 | 0.7220 | 7.7810 | 0.3640 | 11.5910 |
| Arterial/Freeway | 19 | 0.6960 | 7.6160 | 0.3510 | 11.3460 |
| Arterial/Freeway | 20 | 0.6730 | 7.4670 | 0.3390 | 11.1240 |
| Arterial/Freeway | 21 | 0.6470 | 7.3260 | 0.3260 | 10.9150 |
| Arterial/Freeway | 22 | 0.6240 | 7.1980 | 0.3140 | 10.7240 |
| Arterial/Freeway | 23 | 0.6020 | 7.0810 | 0.3030 | 10.5500 |
| Arterial/Freeway | 24 | 0.5820 | 6.9740 | 0.2930 | 10.3910 |
| Arterial/Freeway | 25 | 0.5640 | 6.8760 | 0.2840 | 10.2440 |
| Arterial/Freeway | 26 | 0.5460 | 6.8040 | 0.2750 | 10.1380 |
| Arterial/Freeway | 27 | 0.5290 | 6.7380 | 0.2660 | 10.0390 |
| Arterial/Freeway | 28 | 0.5130 | 6.6760 | 0.2580 | 9.9480 |
| Arterial/Freeway | 29 | 0.4980 | 6.6190 | 0.2510 | 9.8620 |
| Arterial/Freeway | 30 | 0.4840 | 6.5660 | 0.2440 | 9.7830 |
| Arterial/Freeway | 31 | 0.4700 | 6.5200 | 0.2370 | 9.7120 |
| Arterial/Freeway | 32 | 0.4580 | 6.4780 | 0.2300 | 9.6480 |
| Arterial/Freeway | 33 | 0.4460 | 6.4400 | 0.2240 | 9.5900 |
| Arterial/Freeway | 34 | 0.4350 | 6.4060 | 0.2190 | 9.5380 |
| Arterial/Freeway | 35 | 0.4240 | 6.3760 | 0.2140 | 9.4900 |
| Arterial/Freeway | 36 | 0.4140 | 6.3490 | 0.2090 | 9.4460 |
| Arterial/Freeway | 37 | 0.4050 | 6.3240 | 0.2040 | 9.4050 |
| Arterial/Freeway | 38 | 0.3960 | 6.3010 | 0.1990 | 9.3660 |
| Arterial/Freeway | 39 | 0.3880 | 6.2800 | 0.1950 | 9.3280 |
| Arterial/Freeway | 40 | 0.3800 | 6.2600 | 0.1910 | 9.2920 |
| Arterial/Freeway | 41 | 0.3730 | 6.2420 | 0.1880 | 9.2570 |
| Arterial/Freeway | 42 | 0.3660 | 6.2250 | 0.1840 | 9.2230 |
| Arterial/Freeway | 43 | 0.3600 | 6.2100 | 0.1810 | 9.1900 |
| Arterial/Freeway | 44 | 0.3540 | 6.1960 | 0.1780 | 9.1580 |
| Arterial/Freeway | 45 | 0.3480 | 6.1830 | 0.1750 | 9.1270 |
| Arterial/Freeway | 46 | 0.3430 | 6.1710 | 0.1730 | 9.0970 |
| Arterial/Freeway | 47 | 0.3380 | 6.1600 | 0.1700 | 9.0680 |
| Arterial/Freeway | 48 | 0.3340 | 6.1500 | 0.1680 | 9.0400 |
| Arterial/Freeway | 49 | 0.3300 | 6.1410 | 0.1660 | 9.0130 |
| Arterial/Freeway | 50 | 0.3260 | 6.1330 | 0.1640 | 8.9870 |
| Arterial/Freeway | 51 | 0.3230 | 6.1250 | 0.1620 | 8.9620 |
| Arterial/Freeway | 52 | 0.3200 | 6.1180 | 0.1610 | 8.9380 |
| Arterial/Freeway | 53 | 0.3170 | 6.1110 | 0.1600 | 8.9140 |
| Arterial/Freeway | 54 | 0.3140 | 6.1050 | 0.1580 | 8.8910 |
| Arterial/Freeway | 55 | 0.3120 | 6.1000 | 0.1570 | 8.8680 |
| Arterial/Freeway | 56 | 0.3100 | 6.0950 | 0.1560 | 8.8460 |
| Arterial/Freeway | 57 | 0.3090 | 6.0900 | 0.1550 | 8.8240 |
| Arterial/Freeway | 58 | 0.3070 | 6.0860 | 0.1550 | 8.8020 |
| Arterial/Freeway | 59 | 0.3060 | 6.0820 | 0.1540 | 8.7800 |
| Arterial/Freeway | 60 | 0.3050 | 6.0780 | 0.1540 | 8.7580 |
| Arterial/Freeway | 61 | 0.3050 | 6.0740 | 0.1540 | 8.7360 |
| Arterial/Freeway | 62 | 0.3050 | 6.0700 | 0.1540 | 8.7140 |
| Arterial/Freeway | 63 | 0.3050 | 6.0660 | 0.1540 | 8.6920 |
| Arterial/Freeway | 64 | 0.3050 | 6.0620 | 0.1540 | 8.6700 |
| Arterial/Freeway | 65 | 0.3050 | 6.0580 | 0.1540 | 8.6480 |
| Ramp | 34.6 | 0.428 | 6.704 | 0.216 | 9.977 |
| Local | 12.9 | 0.897 | 8.934 | 0.452 | 13.307 |

Table - 9 2005 Idling emissions Factors

| Vehicle Type | VOC | CO | NOx |
|---------------------|---------------|----------------|---------------|
| | g/hr | g/hr | g/hr |
| LDGV | 1.0544 | 28.6808 | 2.1500 |
| LDGT12 | 0.9947 | 19.1190 | 1.6118 |
| LDGT34 | 0.6311 | 9.3070 | 0.7173 |
| HDGV | 0.1429 | 2.2557 | 0.1789 |
| LDDV | 0.0016 | 0.0056 | 0.0034 |
| LDDT | 0.0067 | 0.0147 | 0.0100 |
| HDDV | 0.2243 | 1.6404 | 2.5930 |
| MC | 0.1088 | 1.4214 | 0.0082 |
| All Veh | 3.1644 | 62.4447 | 7.2725 |

Also for use in the emissions reduction calculations are average weighted speed by time period for 2005, shown in Table 10 below. The 24 hour average weighted speed for 2005 is 41 miles per hour and would be used for TERMS affecting the entire traffic stream, where site-specific speed data are not available. For commute vehicle TERMS, 40 mph peak period average speed will be used. Please express reductions of VOC and NOX for all years in both kilograms per day and tons per day using a conversion factor of .0011 (# of kg reduced X .0011 = # of tons reduced).

Table 10 : 2005 Average Weighted Speed by Time Period

| Time | 2005 |
|-------------|-------------|
| 12-1 | 48 |
| 1-2 | 49 |
| 2-3 | 49 |
| 3-4 | 49 |
| 4-5 | 48 |
| 5-6 | 45 |
| 6-7 | 41 |
| 7-8 | 38 |
| 8-9 | 39 |
| 9-10 | 41 |
| 10-11 | 43 |
| 11-12 | 42 |
| 12-1 PM | 40 |
| 1-2 PM | 42 |
| 2-3 PM | 42 |
| 3-4 PM | 41 |
| 4-5 PM | 40 |
| 5-6 PM | 39 |
| 6-7 PM | 40 |
| 7-8 PM | 42 |
| 8-9 PM | 43 |
| 9-10 PM | 44 |
| 10-11 PM | 45 |
| 11-12 MID | 45 |
| 24 Hour Avg | 41 |

Table 11: Mobile 6 Vehicle Classifications

| <i>Number</i> | <i>Abbreviation</i> | <i>Description</i> |
|---------------|---------------------|---|
| 1 | LDGV | Light-Duty Gasoline Vehicles (Passenger Cars) |
| 2 | LDGT1 | Light-Duty Gasoline Trucks 1 (0-6,000 lbs. GVWR, 0-3,750 lbs. LVW) |
| 3 | LDGT2 | Light-Duty Gasoline Trucks 2 (0-6,000 lbs. GVWR, 3,751-5,750 lbs. LVW) |
| 4 | LDGT3 | Light-Duty Gasoline Trucks 3 (6,001-8,500 lbs. GVWR, 0-5,750 lbs. ALVW) |
| 5 | LDGT4 | Light-Duty Gasoline Trucks 4 (6,001-8,500 lbs. GVWR, 5,751 lbs. and greater ALVW) |
| 6 | HdGV2b | Class 2b Heavy-Duty Gasoline Vehicles (8,501-10,000 lbs. GVWR) |
| 7 | HdGV3 | Class 3 Heavy-Duty Gasoline Vehicles (10,001-14,000 lbs. GVWR) |
| 8 | HdGV4 | Class 4 Heavy-Duty Gasoline Vehicles (14,001-16,000 lbs. GVWR) |
| 9 | HdGV5 | Class 5 Heavy-Duty Gasoline Vehicles (16,001-19,500 lbs. GVWR) |
| 10 | HdGV6 | Class 6 Heavy-Duty Gasoline Vehicles (19,501-26,000 lbs. GVWR) |
| 11 | HdGV7 | Class 7 Heavy-Duty Gasoline Vehicles (26,001-33,000 lbs. GVWR) |
| 12 | HdGV8a | Class 8a Heavy-Duty Gasoline Vehicles (33,001-60,000 lbs. GVWR) |
| 13 | HdGV8b | Class 8b Heavy-Duty Gasoline Vehicles (>60,000 lbs. GVWR) |
| 14 | LDDV | Light-Duty Diesel Vehicles (Passenger Cars) |
| 15 | LDDT12 | Light-Duty Diesel Trucks 1 and 2 (0-6,000 lbs. GVWR) |
| 16 | HDDV2b | Class 2b Heavy-Duty Diesel Vehicles (8,501-10,000 lbs. GVWR) |
| 17 | HDDV3 | Class 3 Heavy-Duty Diesel Vehicles (10,001-14,000 lbs. GVWR) |
| 18 | HDDV4 | Class 4 Heavy-Duty Diesel Vehicles (14,001-16,000 lbs. GVWR) |
| 19 | HDDV5 | Class 5 Heavy-Duty Diesel Vehicles (16,001-19,500 lbs. GVWR) |
| 20 | HDDV6 | Class 6 Heavy-Duty Diesel Vehicles (19,501-26,000 lbs. GVWR) |
| 21 | HDDV7 | Class 7 Heavy-Duty Diesel Vehicles (26,001-33,000 lbs. GVWR) |
| 22 | HDDV8a | Class 8a Heavy-Duty Diesel Vehicles (33,001-60,000 lbs. GVWR) |
| 23 | HDDV8b | Class 8b Heavy-Duty Diesel Vehicles (>60,000 lbs. GVWR) |
| 24 | MC | Motorcycles (Gasoline) |
| 25 | HDGB | Gasoline Buses (School, Transit and Urban) |
| 26 | HDDBT | Diesel Transit and Urban Buses |
| 27 | HDDBS | Diesel School Buses |
| 28 | LDDT34 | Light-Duty Diesel Trucks 3 and 4 (6,001-8,500 lbs. GVWR) |

COST EFFECTIVENESS ESTIMATION PROCEDURES

Consistency between programming agencies in assumptions and methodology for effectiveness estimations is critical for meaningful comparison of different projects around the region. Therefore, please use the following guidelines when calculating the cost effectiveness of your TERM projects. When determining the cost effectiveness, capital costs, operating costs, and revenues should be considered. Projects should be expressed in dollars per ton of reduction for both VOC and NOX. Please use the following series of formulas to compute cost effectiveness:

$$\text{A. Total Project Cost} = \text{Capital Costs} + \text{Operating Costs} - (\text{Revenues} + \text{Resale Value}) \text{ (if relevant/significant)}$$

$$\text{B. Cost Per Day} = \frac{\text{Total Project Cost}}{\text{Benefit Days Per Year} \times \text{Lifespan}}$$

$$\text{C. Cost Per Ton} = \text{Cost Per Day} / \text{Tons VOC or NOX Reduced Per Day}$$

Where:

Benefit Days Per Year = 250 for projects mostly related to work travel (i.e., commuter lots, ridesharing)

365 for projects relating to all travel (e.g. roadway signal systems)

Lifespan¹ = 30 years for park and ride lot (construction)
100years for park and ride lot land (right-of-way)
20 years for roadways
30 years for bridges
12 years for roadway signal systems
20 years for rail signalization
35 years for structures (i.e., garages)
12 years for buses
35 years for railcars
30 years for locomotives
10 years for sidewalks

¹ These lifespan values were provided by various transit and highway agencies and consultants. If lifespan values necessary for the cost/benefit calculation of any TERM projects are not provided, please contact Daivamani Sivasailam at (202) 962-3226.

EXAMPLE OF A COMMUTING VEHICLE TRIP TERM ANALYSIS

Construction of 1300 additional Parking Spaces at a Metro Station

(example of “Commuting Vehicle Trips” TERM analysis)

Description: 1,300 parking spaces will be constructed at Grosvenor Metro station. The garages at Metrorail stations are currently experiencing full utilization of all existing parking capacity on a daily basis.

Analysis Tool: Sketch Planning

Assumptions:

- Montgomery County will build 1,300 additional parking spaces at Grosvenor Metro station to increase capacity at the station. Funding is estimated at \$2.117 million dollars.
- New trips generated due to additional parking spaces will be 2/3 of new spaces.
- Average one-way trip length reduced will be 15.5 miles.
- No cold start benefit, as autos will drive to station.
- NOx & VOC estimation using Mobile 6 Emissions factors.

Summary Impacts for 4 Parking Garages at Metrorail Stations (2005):

| | | |
|-----------------------|--------|----------|
| Daily VT Reduction: | - | VT |
| Daily VMT Reduction: | 26,846 | VMT |
| Daily NOx Reductions: | 0.0207 | tons/day |
| Daily VOC Reductions: | 0.0080 | tons/day |

Emission Impacts for (2005):

1,300 additional spaces

Trip length: 15.5 mile x 2 = 31 mi round trip

2/3 new trips = 866 trips

866 x 31 miles = 26,846 VMT

Daily NOx & VOC emission reductions (2005):

| | | | | | | | |
|------------|--------|---|---|---|---|---|--------------|
| Cold Start | 0 | x | $\frac{0.9905 \text{ grs}}{1 \text{ mi}}$ | x | $\frac{1 \text{ ton}}{907,185 \text{ grs}}$ | = | 0.00000 tons |
| Running | 26,846 | x | $\frac{0.6995 \text{ grs}}{1 \text{ mi}}$ | x | $\frac{1 \text{ ton}}{907,185 \text{ grs}}$ | = | 0.0207 tons |

| | | | | | | | | |
|------------|--------|---|---|------|---|---------|--------------|-------------|
| | | | | 1 mi | | 907,185 | | 0.0207 tons |
| | | | | | | Total | | |
| VOC | | | | | | | | |
| Cold Start | 0 | x | $\frac{2.3454 \text{ grs}}{1 \text{ mi}}$ | x | $\frac{1 \text{ ton}}{907,185 \text{ grs}}$ | = | 0.00000 tons | |
| Running | 26,846 | x | $\frac{0.2717 \text{ grs}}{1 \text{ mi}}$ | x | $\frac{1 \text{ ton}}{907,185}$ | = | 0.0080 tons | |
| | | | | | | Total | | 0.0080 tons |

Cost for garages \$2.177 million

Lifespan: 30 years

Cost Effectiveness (2005):

$$\text{NOx} = \frac{\$2.177 \text{ million}}{250 \text{ days} \times 30 \text{ yr} \times 0.0207 \text{ t/d}} = \$14,022/ \text{ ton}$$

$$\text{VOC} = \frac{\$2.177 \text{ million}}{250 \text{ days} \times 30 \text{ yr} \times 0.008 \text{ t/d}} = \$36,283/ \text{ ton}$$

**APPENDIX B:
TRANSPORTATION EMISSION
REDUCTION MEASURE (TERM)
REPORTING**

TERM REPORTING

Federal regulations require the timely implementation of TERMS (CMAQ funded, non-CMAQ funded and NOx mitigation measures). If the implementation of programmed TERMS falls behind schedule, the regulations state "that all State and local agencies with influence over approvals of funding for TERMS [should give] maximum priority to approval or funding of TERMS over other projects within their control". To address these requirements, please provide a brief statement describing the status of each TERM programmed in previous TIPs. This applies to those projects not yet fully implemented and reported as such in the TERM tracking sheet developed as part of the CLRP and TIP. Include any changes in the scheduling or implementation of these TERMS. Your submissions will be used to update the "TERM Tracking Sheet" for analysis years 2010, 2020 and 2030. For information purposes, last year's "TERM Tracking Sheet" is attached.

TERM TRACKING SHEET - CURRENT MEASURES
IMPLEMENTATION: YEAR 2000 AND LATER
Credits are taken in Air Quality Conformity Analysis FY 2005-10

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

| NOs | CREDIT TAKEN | TIP CREDITED | AGENCY | PROJECT | IMPLEMENTATION STATUS | | | | ORIGINAL COMPLETION DATE | ACTUAL COMPLETION DATE | TONS/DAY REDUCTION CREDITED | | | | | | | | | | Project Category * |
|-----|--------------|--------------|--------|---|-----------------------|-------------|-----------|-----|--------------------------|------------------------|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------------|
| | | | | | FULL | SCALED-BACK | UNDER-WAY | REM | | | 2005 | | 2010 | | 2015 | | 2025 | | 2030 | | |
| | | | | | | | | | | | VOC | NOX | VOC | NOX | VOC | NOX | VOC | NOX | VOC | NOX | |
| 9 | X | 1994-99 | MDOT | Park & Ride Lot - MD 210/ MD 373 | X | | | | 2000 | 2003 | 0.001 | 0.003 | 0.0006 | 0.0014 | 0.0005 | 0.0013 | 0.0004 | 0.0006 | 0.0004 | 0.0006 | C |
| 19 | | 1994-99 | PRTC | VRE Woodbridge Parking Expansion (add 500 spaces) | X | | | | | 2002-2003 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | - |
| 20 | X | 1994-99 | ALEX | King St. Metrorail access improvements | | | X | | | 2002, '04, '05 | 0.0018 | 0.0026 | 0.0011 | 0.0014 | 0.0009 | 0.0013 | 0.0008 | 0.0009 | 0.0008 | 0.0009 | C |
| 38 | X | 1995-00 | MDOT | Signal Systems - MD 85 Executive Way to MD 355 | X | | | | 1996 | Pre 2000 | | | 0.0000 | 0.0000 | | | | | 0.0000 | 0.0000 | TR |
| 39 | X | 1995-00 | MDOT | Signal Systems - MD 355 .I-70 ramps to Grove Rd. | X | | | | 1996 | n/a | | | 0.0000 | 0.0000 | | | | | 0.0000 | 0.0000 | TR |
| 44 | | 1995-00 | MDOT | Signal Systems - MD 410, 62nd Ave. to Riverdale Rd. | | | X | | 1996 | 2002 | | | 0.0000 | 0.0000 | | | | | 0.0000 | 0.0000 | TR |
| 48 | X | 1995-00 | MDOT | MARC Replacement Coaches | X | | | | 1999 | 2004 | 0.001 | 0.003 | 0.0006 | 0.0014 | 0.0009 | 0.0027 | 0.0012 | 0.0019 | 0.0012 | 0.0018 | C (TCM) |
| 49 | X | 1995-00 | MDOT | MARC Expansion Coaches | X | | | | 1999 | 2004 | 0.008 | 0.024 | 0.0051 | 0.0132 | 0.0074 | 0.0242 | 0.0055 | 0.0153 | 0.0054 | 0.0145 | C (TCM) |
| 51 | X | 1995-00 | VDOT | Alexandria Telecommuting Pilot Program | X | | | | | 2000 & 2001 | | | 0.0000 | 0.0000 | | | | | | | C |
| 52 | X | 1995-00 | VDOT | Fairfax County Bus Shelter (Fairfax Co. TDM program) | | | X | | 2000 | 2001 | | | 0.0000 | 0.0000 | | | | | | | C |
| 54 | X | 1995-00 | VDOT | City of Fairfax Bus Shelters | | | X | | 1999 | 2004 | 0.0000 | 0.0009 | 0.0000 | 0.0005 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | C (TCM) |
| 56 | X | 1995-00 | VDOT | Cherry Hill VRE Access | | | X | | | 2007 | 0.0065 | 0.0206 | 0.0040 | 0.0113 | 0.0033 | 0.0090 | 0.0024 | 0.0050 | 0.0023 | 0.0047 | C (TCM) |
| 58 | X | 1995-00 | WMATA | Bus Replacement (172 buses) | X | | | | 1998 | 1998 | 0.0690 | 0.2520 | 0.0690 | 0.2520 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 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 | 0.0045 | 0.0000 | 0.0031 | 0.0000 | 0.0030 | C |
| 60 | X | 1995-00 | MCG | White Oak Park and Ride | | | X | | 2010 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0090 | 0.0000 | 0.0062 | 0.0000 | 0.0059 | C |
| 61 | X | 1995-00 | MCG | Bicycle Facilities | | | X | | FY99 | | 0.0028 | 0.0017 | 0.0017 | 0.0009 | 0.0014 | 0.0009 | 0.0012 | 0.0006 | 0.0012 | 0.0006 | C |
| 62 | X | 1995-00 | MCG | Pedestrian Facilities to Metrorail | | | X | | | | 0.0046 | 0.0069 | 0.0028 | 0.0038 | 0.0019 | 0.0031 | 0.0016 | 0.0022 | 0.0015 | 0.0021 | C |
| 63 | X | 1995-00 | MDOT | MARC Replacement Coaches | X | | | | 1999 | 2004 | 0.0037 | 0.0103 | 0.0023 | 0.0057 | 0.0033 | 0.0099 | 0.0031 | 0.0062 | 0.0031 | 0.0059 | C |
| 64 | X | 1995-00 | MDOT | MARC Expansion Coaches | X | | | | 1999 | 2004 | 0.0296 | 0.0894 | 0.0182 | 0.0490 | 0.0284 | 0.0636 | 0.0287 | 0.0508 | 0.0283 | 0.0482 | C (TCM) |
| 66 | X | 1995-00 | VDOT | Commuter Lots - District Wide | | | X | | varies | 1995, 2000 | 0.0102 | 0.0284 | 0.0062 | 0.0156 | 0.0065 | 0.0193 | 0.0063 | 0.0165 | 0.0062 | 0.0157 | C |
| 67 | X | 1995-00 | VDOT | I-66 and Stringfellow Rd. Park and Ride | X | | | | 2000 | 2000 end | 0.0092 | 0.0172 | 0.0057 | 0.0094 | 0.0047 | 0.0090 | 0.0039 | 0.0062 | 0.0039 | 0.0059 | C |
| 68 | X | 1995-00 | VDOT | Lake Ridge Park and Ride (now called Tacketts Mill lot) | X | | | | | 1999/2000 | 0.0000 | 0.0086 | 0.0000 | 0.0047 | 0.0000 | 0.0045 | 0.0000 | 0.0031 | 0.0000 | 0.0030 | C |
| 69 | X | 1995-00 | VDOT | Bicycle Trails and Facilities | | | X | | varies | varies | 0.0018 | 0.0146 | 0.0011 | 0.0080 | 0.0093 | 0.0076 | 0.0075 | 0.0056 | 0.0074 | 0.0053 | C |
| 70 | X | 1995-00 | VDOT | Improved Access to Metrorail Stations | | | X | | varies | 2000-2010 | 0.0005 | 0.0009 | 0.0003 | 0.0005 | 0.0005 | 0.0009 | 0.0004 | 0.0006 | 0.0004 | 0.0006 | C |
| 71 | X | 1995-00 | VDOT | I-66 HOV access at Monument Dr. | X | | | | | 1997 | 0.0092 | 0.0172 | 0.0057 | 0.0094 | 0.0047 | 0.0090 | 0.0004 | 0.0062 | 0.0004 | 0.0059 | C |
| 72 | | 1995-00 | DC | Bicycle Facilities | | X | | | | | 0.0222 | 0.0172 | 0.0136 | 0.0094 | 0.0116 | 0.0094 | 0.0094 | 0.0069 | 0.0093 | 0.0065 | C |
| 73 | X | 1995-00 | REGION | COG Regional Ridesharing Support | X | | | | | on-going | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | C |
| 74 | X | 1995-00 | REGION | M-47 Integrated Ridesharing | X | | | | | on-going | 0.0431 | 0.0897 | 0.0265 | 0.0492 | 0.0180 | 0.0295 | 0.0141 | 0.0180 | 0.0139 | 0.0172 | C |
| 75 | X | 1995-00 | REGION | M-92 Telecommuting Support | X | | | | | on-going | 0.2886 | 0.6135 | 0.1775 | 0.3364 | 0.1794 | 0.3002 | 0.1788 | 0.2327 | 0.1889 | 0.2374 | C |

TERM TRACKING SHEET - CURRENT MEASURES
IMPLEMENTATION: YEAR 2000 AND LATER
Credits are taken in Air Quality Conformity Analysis FY 2005-10

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

| NOs | CREDIT TAKEN | TIP CREDITED | AGENCY | PROJECT | IMPLEMENTATION STATUS | | | | ORIGINAL COMPLETION DATE | ACTUAL COMPLETION DATE | TONS/DAY REDUCTION CREDITED | | | | | | | | | | Project Category * | | |
|-----|--------------|--------------|--------|--|------------------------|-------------|-----------|-----|--------------------------|------------------------|--------------------------------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------------------|---------|----------|
| | | | | | FULL | SCALED-BACK | UNDER-WAY | REM | | | 2005 | | 2010 | | 2015 | | 2025 | | 2030 | | | | |
| | | | | | | | | | | | VOC | NOX | VOC | NOX | VOC | NOX | VOC | NOX | VOC | NOX | | | |
| 77 | | 1996-01 | VDOT | Duke Street Pedestrian Bridge | | | | | 2005 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | - | |
| 79 | X | 1996-01 | VDOT | Fairfax County Bus Shelters (30 shelters with project #85) | | | X | | 1999 | Summer 2001 | 0.0018 | 0.0026 | 0.0011 | 0.0014 | 0.0009 | 0.0013 | 0.0008 | 0.0009 | 0.0008 | 0.0009 | 0.0008 | 0.0009 | C |
| 81 | X | 1996-01 | VDOT | Arlington County Metrocheck Program | X | | | | 1997 | 1997 Onwards | 0.0018 | 0.0026 | 0.0011 | 0.0014 | 0.0010 | 0.0030 | 0.0010 | 0.0030 | 0.0004 | 0.0009 | 0.0004 | 0.0009 | C |
| 82 | X | 1996-01 | VDOT | Old Dominion Drive Bike Trail | | | X | | 2000 | 2004 | 0.0009 | 0.0009 | 0.0006 | 0.0005 | 0.0005 | 0.0004 | 0.0004 | 0.0003 | 0.0004 | 0.0003 | 0.0004 | 0.0003 | C |
| 83 | X | 1996-01 | WMATA | Bus Replacement (see line 58, above) | X | | | | | 1998 | Credit taken in line 58, above | | | | | | | | | | SP | | |
| 85 | X | 1996-01 | VDOT | Fairfax County Bus Shelters (30 shelters with project #79) | | | X | | 1999 | 2001 | 0.0009 | 0.0009 | 0.0006 | 0.0005 | 0.0005 | 0.0013 | 0.0004 | 0.0009 | 0.0004 | 0.0009 | 0.0004 | 0.0009 | C |
| 90 | X | 1996-01 | REGION | M-47c Employer Outreach / Guaranteed Ride Home | X | | | | | on-going | 0.5595 | 1.0434 | 0.3440 | 0.5721 | 0.2347 | 0.3449 | 0.1807 | 0.2095 | 0.1777 | 0.1989 | 0.1777 | 0.1989 | C |
| 91 | X | 1996-01 | REGION | M-70a Bicycle Parking | | | X | | 1999 | | 0.0065 | 0.0060 | 0.0040 | 0.0033 | 0.0047 | 0.0045 | 0.0039 | 0.0031 | 0.0039 | 0.0030 | 0.0039 | 0.0030 | C |
| 92 | X | | | M-92 Telecommuting Support | Combined with item #75 | | | | | | | | | | | | | | | | | | C |
| 95 | X | 1997-02 | MCG | Germantown Transit Center | | | X | | 2004 | | 0.0046 | 0.0163 | 0.0028 | 0.0090 | 0.0023 | 0.0085 | 0.0020 | 0.0056 | 0.0019 | 0.0053 | 0.0019 | 0.0053 | C (TCM) |
| 102 | X | 1997-02 | PG | Prince George's County Bus Replacement | X | | | | 1998 | 1998 | 0.0030 | 0.0090 | 0.0030 | 0.0090 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | SP (TCM) |
| 106 | X | 1997-02 | VDOT | PRTC Employer Commuting Outreach Program | X | | | | | 1977 on-going | 0.0018 | 0.0004 | 0.0011 | 0.0002 | 0.0009 | 0.0000 | 0.0008 | 0.0000 | 0.0008 | 0.0000 | 0.0008 | 0.0000 | C |
| 107 | X | 1997-02 | VDOT | PRTC Multimodal Strategic Marketing Implementation Plan | X | | | | | 1977 on-going | 0.0000 | 0.0004 | 0.0000 | 0.0002 | 0.0000 | 0.0004 | 0.0000 | 0.0003 | 0.0000 | 0.0003 | 0.0000 | 0.0003 | C |
| 108 | X | 1997-02 | MDOT | M-103 Taxicab Replacement in Maryland | | | X | | 1999 | on-going | 0.0797 | 0.2675 | 0.0797 | 0.2675 | 0.1453 | 0.2155 | 0.1228 | 0.1498 | 0.3120 | 0.4810 | 0.3120 | 0.4810 | SP |
| 109 | X | 1997-02 | REGION | M-70b Employer Outreach for Bicycles | X | | | | 1998 | on going | 0.0011 | 0.0013 | 0.0007 | 0.0007 | 0.0005 | 0.0004 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0002 | C |
| 110 | X | 1997-02 | VDOT | M-77b Vanpool Incentive Programs in Virginia | | | X | | 1999 | delayed | n/a | n/a | | | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | C |
| 111 | X | 1998-03 | WMATA | Bus Replacement (108 buses) | X | | | | 1999 | 1999 | 0.0450 | 0.1617 | 0.0450 | 0.1617 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | SP |
| 112 | X | 1998-03 | MCG | Montgomery County Bus Replacement | X | | | | | | 0.0080 | 0.0270 | 0.0080 | 0.0270 | 0.0020 | 0.0070 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | SP |
| 113 | X | 1998-03 | PG | Prince George's County Bus Replacement | X | | | | 1998 | 1998 | 0.0010 | 0.0020 | 0.0010 | 0.0020 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | SP |
| 114 | X | 1998-03 | FDC | Frederick County Bus Replacement | X | | | | | | 0.0010 | 0.0000 | 0.0010 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | SP |
| 117 | X | 1998-03 | VDOT | Arlington County Four Mile Run Bike Trail | | | X | | 1999 | delayed | 0.0009 | 0.0009 | 0.0006 | 0.0005 | 0.0005 | 0.0004 | 0.0004 | 0.0003 | 0.0004 | 0.0003 | 0.0004 | 0.0003 | C |
| 118 | X | 1998-03 | VDOT | Northern Virginia Turn Bays | X | | | | 2000 | 1998 | 0.0009 | 0.0015 | 0.0006 | 0.0008 | 0.0009 | 0.0007 | 0.0008 | 0.0004 | 0.0008 | 0.0004 | 0.0008 | 0.0003 | TR |
| 119 | X | 1998-03 | VDOT | Fairfax City Bus Replacement | | | X | | 2001 | 2003 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | SP |
| 121 | X | 1998-03 | WMATA | WMATA Bus Replacement (252 buses) | X | | | | 2001 | 2001 | 0.1060 | 0.3860 | 0.1060 | 0.3860 | 0.0900 | 0.3420 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | SP |
| 122 | X | 97 & 98 TIP | REGION | M-101a Mass Marketing Campaign (Consumer) | | | X | | | Underway | 0.1191 | 0.2119 | 0.0732 | 0.1162 | 0.1015 | 0.1594 | 0.0980 | 0.1069 | 0.0752 | 0.0807 | 0.0752 | 0.0807 | C |
| 123 | X | 1999-04 | MDOT | Various Park and Ride Lots (I-270/MD124, 450 & I-170/MD-75, 54 spaces) | X | | | | 2001/1999 | 2001 | 0.0074 | 0.0310 | 0.0045 | 0.0170 | 0.0047 | 0.0188 | 0.0039 | 0.0143 | 0.0039 | 0.0136 | 0.0039 | 0.0136 | C |
| 124 | X | 1999-04 | MDOT | Signal Systems (197/MD-198, MD-382 TO US-301,US301) | X | | | | 2000 | 2002 | 0.0110 | -0.0030 | 0.0070 | -0.0017 | 0.0061 | -0.0021 | 0.0080 | -0.0015 | 0.0079 | -0.0014 | 0.0079 | -0.0014 | TR |
| 125 | X | 1999-04 | VDOT | Transit Center at 7 Corners | X | | | | 2002 | | 0.0009 | 0.0017 | 0.0006 | 0.0009 | 0.0005 | 0.0009 | 0.0004 | 0.0006 | 0.0004 | 0.0006 | 0.0004 | 0.0006 | C |

TERM TRACKING SHEET - CURRENT MEASURES
IMPLEMENTATION: YEAR 2000 AND LATER
Credits are taken in Air Quality Conformity Analysis FY 2005-10

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

| NOs | CREDIT TAKEN | TIP CREDITED | AGENCY | PROJECT | IMPLEMENTATION STATUS | | | | ORIGINAL COMPLETION DATE | ACTUAL COMPLETION DATE | TONS/DAY REDUCTION CREDITED | | | | | | | | | | Project Category * | | | | | |
|-----|--------------|--------------|--------|--|-----------------------|-------------|-----------|-----|--------------------------|------------------------|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------------|--------|--------|--------|--------|----------|
| | | | | | FULL | SCALED-BACK | UNDER-WAY | REM | | | 2005 | | 2010 | | 2015 | | 2025 | | 2030 | | | | | | | |
| | | | | | | | | | | | VOC | NOX | VOC | NOX | VOC | NOX | VOC | NOX | VOC | NOX | | | | | | |
| 126 | X | 1999-04 | VDOT | Falls Church Clean Diesel Bus Service | X | | | | 2000 | 2003 | 0.0040 | 0.0050 | 0.0040 | 0.0050 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | SP |
| 127 | | 1999-04 | VDOT | VA 234 Bike Trail | | | X | | 2001 | 2007 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 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 | 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 | 0.0231 | 0.0473 | 0.0142 | 0.0259 | 0.0102 | 0.0206 | 0.0083 | 0.0131 | 0.0081 | 0.0124 | | | | | | C |
| 131 | X | 2000-05 | MDOT | Various park and Ride Lots | x | | | | 2002 | 2003 | 0.0064 | 0.0280 | 0.0039 | 0.0153 | 0.0043 | 0.0175 | 0.0038 | 0.0140 | 0.0038 | 0.0119 | | | | | | C |
| 132 | X | 2000-05 | MDOT | Signal Systems | X | | | | Varies | on-going | 0.0028 | 0.0000 | 0.0017 | 0.0000 | 0.0012 | 0.0000 | 0.0007 | 0.0000 | 0.0007 | 0.0000 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | TR |
| 133 | X | 2000-05 | VDOT | 450 Spaces at Gambrill/Hoos Rds. Park and Ride | | | X | | 2002 | 2004 | 0.0065 | 0.0155 | 0.0040 | 0.0085 | 0.0028 | 0.0069 | 0.0022 | 0.0043 | 0.0021 | 0.0041 | | | | | | C |
| 134 | X | 2000-05 | VDOT | 300 Spaces at Backlick Rd | | | X | | 2003 | 2006 | 0.0046 | 0.0112 | 0.0028 | 0.0061 | 0.0021 | 0.0049 | 0.0015 | 0.0031 | 0.0015 | 0.0030 | | | | | | C |
| 135 | X | 2000-05 | VDOT | Accotink-Gateway Connector Trail | | | X | | 2002 | 2005 | 0.0065 | 0.0086 | 0.0040 | 0.0047 | 0.0028 | 0.0038 | 0.0019 | 0.0021 | 0.0018 | 0.0020 | | | | | | C |
| 136 | X | 2000-05 | VDOT | Columbia Pike Trail | | | X | | 2000 | 2001, 2005 | 0.0055 | 0.0069 | 0.0034 | 0.0038 | 0.0023 | 0.0029 | 0.0015 | 0.0016 | 0.0014 | 0.0015 | | | | | | C |
| 137 | X | 2000-05 | VDOT | Lee Highway trail | | | X | | 2000 | 2005 | 0.0028 | 0.0034 | 0.0017 | 0.0019 | 0.0012 | 0.0016 | 0.0006 | 0.0008 | 0.0006 | 0.0008 | | | | | | C |
| 138 | X | 2000-05 | VDOT | Arlington Bus Shelter Improvements | | | X | | 2005 | 2005 | 0.0009 | 0.0009 | 0.0006 | 0.0005 | 0.0005 | 0.0004 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | C |
| 139 | X | 2000-05 | VDOT | Pentagon Metrostation Improvements | X | | | | | 2003 | 0.0074 | 0.0146 | 0.0045 | 0.0080 | 0.0033 | 0.0063 | 0.0022 | 0.0035 | 0.0022 | 0.0033 | | | | | | C |
| 140 | X | 2000-05 | MDOT | East/West Intersection Improvements | | | x | | 2005 | 2006 Expect. | 0.0379 | 0.0215 | 0.0233 | 0.0118 | 0.0640 | 0.0327 | 0.0874 | 0.0355 | 0.0859 | 0.0337 | | | | | | C |
| 141 | X | 2001-06 | Feds | Federal Transit/Ridesharing subsidy | X | | | | on-going | | 0.0942 | 0.1642 | 0.0579 | 0.0901 | 0.0386 | 0.0555 | 0.0291 | 0.0330 | 0.0286 | 0.0313 | | | | | | C |
| 142 | X | 2002-07 | WMATA | 100 CNG buses | X | | | | 2002 | | 0.0000 | 0.1358 | 0.0000 | 0.1358 | 0.0000 | 0.1358 | | | | | | | | | | SP (TCM) |
| 143 | X | 2002-07 | WMATA | ULSD with CRT filters | | | X | | on-going | | 0.2100 | 0.0000 | 0.2100 | 0.0000 | 0.4300 | 0.0000 | 0.4300 | 0.0000 | 0.4300 | 0.0000 | 0.4300 | 0.0000 | 0.4300 | 0.0000 | 0.4300 | H (TCM) |
| 144 | X | 2003-08 | DC | Replace 23 12 Taxicabs with CNG cabs | | | X | | 2005 | 2006 | 0.0089 | 0.0157 | 0.0089 | 0.0157 | | | | | | | | | | | | H |
| 145 | X | 2003-08 | DC | D.C. Incident Response & Traffic Management System | x | | | | 2005 | 2004 | 0.0254 | 0.0746 | 0.0161 | 0.0414 | - | 0.0341 | - | 0.0185 | - | 0.0168 | | | | | | TR |
| 146 | X | 2003-08 | DC | Bicycle Lane in D. C. (35 Mile) * | | | X | | 2005 | 2006 | 0.0154 | 0.0153 | 0.0094 | 0.0084 | 0.0065 | 0.0053 | 0.0047 | 0.0031 | 0.0046 | 0.0029 | | | | | | C (TCM) |
| 147 | X | 2003-08 | DC | Bicycle Racks in D. C. (500) * | x | | | | 2005 | 2004 | 0.0021 | 0.0017 | 0.0013 | 0.0009 | 0.0009 | 0.0006 | 0.0006 | 0.0003 | 0.0006 | 0.0003 | 0.0006 | 0.0003 | 0.0006 | 0.0003 | 0.0003 | C (TCM) |
| 148 | X | 2003-08 | DC | External Bicycle Racks on WMATA Buses in D. C. (600) * | x | | | | 2005 | 2003 | 0.0031 | 0.0056 | 0.0019 | 0.0031 | 0.0013 | 0.0019 | 0.0010 | 0.0011 | 0.0010 | 0.0011 | 0.0010 | 0.0011 | 0.0010 | 0.0011 | 0.0011 | C (TCM) |
| 149 | X | 2003-08 | DC | CNG Rental Cars (18) * | | | | x | 2005 | | 0.0000 | 0.0002 | 0.0000 | 0.0002 | | | | | | | | | | | | SP |
| 150 | X | 2003-08 | DC | Sidewalks in D.C. (\$ 5 million) | x | | | | 2005 | 2004 | 0.0578 | 0.1008 | 0.0355 | 0.0552 | 0.0243 | 0.0334 | 0.0185 | 0.0202 | 0.0182 | 0.0192 | | | | | | C |
| 151 | X | 2003-08 | DC | CNG Refuse Haulers (2) * | x | | | | 2005 | 2004 | 0.0001 | 0.0020 | 0.0001 | 0.0020 | 0.0001 | 0.0020 | | | | | | | | | | H (TCM) |
| 152 | X | 2003-08 | DC | Circulator /Feeder Bus Routes | x | | | | 2005 | 2003 | 0.0211 | 0.0363 | 0.0129 | 0.0199 | 0.0089 | 0.0121 | 0.0067 | 0.0073 | 0.0066 | 0.0069 | | | | | | C |
| 153 | X | 2003-08 | MDOT | Commuter Tax Credit | | | x | | 2005 | n/a | 0.1262 | 0.2219 | 0.0776 | 0.1217 | 0.0530 | 0.0736 | 0.0405 | 0.0445 | 0.0398 | 0.0422 | | | | | | C |
| 155 | X | 2003-08 | MDOT | Employer Vanpool Program (WWB) | | | | x | 2005 | | 0.0030 | 0.0075 | 0.0018 | 0.0041 | | | | | | | | | | | | C |

TERM TRACKING SHEET - CURRENT MEASURES
IMPLEMENTATION: YEAR 2000 AND LATER
Credits are taken in Air Quality Conformity Analysis FY 2005-10

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

| NOs | CREDIT TAKEN | TIP CREDITED | AGENCY | PROJECT | IMPLEMENTATION STATUS | | | | ORIGINAL COMPLETION DATE | ACTUAL COMPLETION DATE | TONS/DAY REDUCTION CREDITED | | | | | | | | | | Project Category * |
|-----|--------------|--------------|----------|---|-----------------------|-------------|-----------|-----|--------------------------|------------------------|-----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------------|
| | | | | | FULL | SCALED-BACK | UNDER-WAY | REM | | | 2005 | | 2010 | | 2015 | | 2025 | | 2030 | | |
| | | | | | | | | | | | VOC | NOX | VOC | NOX | VOC | NOX | VOC | NOX | VOC | NOX | |
| 156 | X | 2003-08 | MDOT | Green Line Link | | | x | | 2005 | n/a | 0.0041 | 0.0085 | 0.0025 | 0.0047 | 0.0017 | 0.0028 | 0.0013 | 0.0017 | 0.0013 | 0.0016 | C |
| 157 | X | 2003-08 | MDOT | Park & Ride Lots - Southern Maryland * | | | x | | 2005 | 2003/2005 | 0.0080 | 0.0197 | 0.0049 | 0.0108 | 0.0033 | 0.0064 | 0.0027 | 0.0040 | 0.0026 | 0.0038 | C |
| 158 | X | 2003-08 | MDOT | Prince George's County- Bus Exp | | | x | | 2005 | n/a | 0.0578 | 0.1191 | 0.0356 | 0.0653 | 0.0242 | 0.0392 | 0.0189 | 0.0239 | 0.0186 | 0.0228 | C |
| 159 | X | 2003-08 | MDOT | MTA - Bus Service Expansion | | | x | | 2005 | n/a | 0.0131 | 0.0285 | 0.0080 | 0.0156 | 0.0055 | 0.0093 | 0.0043 | 0.0057 | 0.0042 | 0.0054 | C |
| 160 | X | 2003-08 | MDOT | Ride- On - Super Discount | | | x | | 2005 | n/a | 0.0015 | 0.0026 | 0.0009 | 0.0014 | 0.0006 | 0.0009 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | C |
| 161 | X | 2003-08 | Regional | Regional Traveler Information Systems | | | X | | 2005 | | 0.1596 | 0.9730 | 0.1012 | 0.5401 | 0.0816 | 0.4451 | 0.0697 | 0.2418 | 0.0686 | 0.2195 | TR |
| 162 | X | 2003-08 | MDOT | Universal Transportation Access (MD + WMATA) | | | x | | 2005 | n/a | 0.0259 | 0.0452 | 0.0159 | 0.0248 | 0.0109 | 0.0150 | 0.0083 | 0.0091 | 0.0082 | 0.0086 | C |
| 163 | X | 2003-08 | MCG | Construction of 1300 additional Parking Spaces at Grosvenor Metro Garage | x | | | | 2004 | | 0.0074 | 0.0189 | 0.0045 | 0.0104 | 0.0030 | 0.0062 | 0.0025 | 0.0038 | 0.0025 | 0.0036 | C (TCM) |
| 164 | X | 2003-08 | MCG | Bethesda Shuttle Bus Services | x | | | | 2004 | | 0.0050 | 0.0087 | 0.0031 | 0.0047 | 0.0021 | 0.0029 | 0.0016 | 0.0017 | 0.0016 | 0.0016 | C |
| 165 | X | 2003-08 | MCG | External Bicycle Racks on Ride-On Buses in Montgomery County | x | | | | 2004 | | 0.0010 | 0.0017 | 0.0006 | 0.0010 | 0.0004 | 0.0006 | 0.0003 | 0.0004 | 0.0003 | 0.0003 | C |
| 166 | X | 2003-08 | MCG | New CNG Powered Light Duty Vehicle fleet in the County | x | | | | 2004 | | 0.0000 | 0.0001 | 0.0000 | 0.0001 | | | | | | | SP |
| 167 | X | 2003-08 | MCG | Free Bus Service on Selected Routes on I-270 | x | | | | 2004 | | 0.0017 | 0.0030 | 0.0011 | 0.0016 | 0.0007 | 0.0010 | 0.0006 | 0.0006 | 0.0005 | 0.0006 | C |
| 168 | X | 2003-08 | MCG | Annual Sidewalk Program | x | | | | 2004 | | 0.0275 | 0.0480 | 0.0169 | 0.0263 | 0.0116 | 0.0159 | 0.0088 | 0.0096 | 0.0087 | 0.0091 | C |
| 169 | X | 2003-08 | MDOT | Bethesda Breeze/International Express Metrobus | | | x | | 2005 | n/a | 0.0060 | 0.0097 | 0.0037 | 0.0053 | 0.0025 | 0.0032 | 0.0019 | 0.0019 | 0.0019 | 0.0018 | C |
| 170 | X | 2003-08 | MDOT | Bethesda-8, Silver Spring Downtown Dasher and Prince Georges Co. Shuttles at 3 PNR lot | | | x | | 2005 | n/a | 0.0142 | 0.0189 | 0.0087 | 0.0104 | 0.0060 | 0.0064 | 0.0044 | 0.0038 | 0.0043 | 0.0036 | C |
| 171 | X | 2003-08 | MDOT | Proposed Transportation Management District in Montgomery County (Rockville and Gaithersburg) | | | | X | 2005 | n/a | 0.0093 | 0.0142 | 0.0057 | 0.0078 | 0.0039 | 0.0047 | 0.0029 | 0.0028 | 0.0029 | 0.0027 | C |
| 172 | X | 2003-08 | MDOT | Sidewalks (Bikes/Pedestrian) at / near Rail Stations | x | | | | 2005 | 2002 | 0.0150 | 0.0267 | 0.0092 | 0.0146 | 0.0063 | 0.0088 | 0.0048 | 0.0054 | 0.0047 | 0.0051 | C |
| 173 | X | 2003-08 | MDOT | Neighborhood Sidewalks Improvements (Bike/Pedestrian) | X | | | | 2005 | 2004 | 0.0052 | 0.0030 | 0.0032 | 0.0016 | 0.0023 | 0.0011 | 0.0016 | 0.0006 | 0.0015 | 0.0005 | C |
| 174 | X | 2003-08 | MDOT | Neighborhood Conservation Program - Neighborhood Sidewalks Improvements (Bikes/Pedestrian) | | X | | | 2005 | n/a | 0.0046 | 0.0026 | 0.0028 | 0.0014 | 0.0020 | 0.0010 | 0.0014 | 0.0005 | 0.0013 | 0.0005 | C |
| 175 | X | 2003-08 | MDOT | Maryland bus Transit Service Expansion | X | | | | 2005 | 2004 | 0.0228 | 0.0586 | 0.0140 | 0.0321 | 0.0094 | 0.0191 | 0.0077 | 0.0118 | 0.0076 | 0.0112 | C |
| 176 | X | 2003-08 | VDOT | Universal Transportation Access Program | | | X | | 2005 | 2005 | 0.0019 | 0.0034 | 0.0012 | 0.0019 | 0.0008 | 0.0011 | 0.0006 | 0.0007 | 0.0006 | 0.0006 | C |
| 177 | X | 2003-08 | VDOT | Interactive Rideshare & Kiosk Initiative | | | X | | 2005 | | 0.0006 | 0.0013 | 0.0004 | 0.0007 | 0.0003 | 0.0004 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | C |
| 178 | X | 2003-08 | VDOT | Mobile Commuter Stores | | | X | | 2005 | | 0.0035 | 0.0071 | 0.0021 | 0.0039 | 0.0014 | 0.0023 | 0.0011 | 0.0014 | 0.0011 | 0.0014 | C |
| 179 | X | 2003-08 | VDOT | Telework Incentive Program (Telework VA) | | | | X | 2005 | 2001 | 0.0012 | 0.0022 | 0.0007 | 0.0012 | 0.0005 | 0.0007 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | C |
| 180 | X | 2003-08 | VDOT | Commuter Choice | | | X | | 2005 | | 0.0015 | 0.0025 | 0.0010 | 0.0014 | 0.0007 | 0.0008 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | C |
| 181 | X | 2003-08 | VDOT | Employer Shuttle Services | | | X | | 2005 | | 0.0184 | 0.0301 | 0.0113 | 0.0165 | 0.0077 | 0.0100 | 0.0058 | 0.0060 | 0.0057 | 0.0057 | C |
| 184 | X | 2003-08 | VDOT | Van Start / Van Save | | | X | | 2005 | till 2006 | 0.0022 | 0.0047 | 0.0014 | 0.0026 | | | | | | | C |
| 185 | X | 2003-08 | VDOT | Metro Shuttle Bus | | | X | | 2005 | 1999-2005 | 0.0019 | 0.0047 | 0.0012 | 0.0026 | 0.0008 | 0.0015 | 0.0006 | 0.0009 | 0.0006 | 0.0009 | C |

TERM TRACKING SHEET - CURRENT MEASURES
IMPLEMENTATION: YEAR 2000 AND LATER
Credits are taken in Air Quality Conformity Analysis FY 2005-10

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

| NOs | CREDIT TAKEN | TIP CREDITED | AGENCY | PROJECT | IMPLEMENTATION STATUS | | | | ORIGINAL COMPLETION DATE | ACTUAL COMPLETION DATE | TONS/DAY REDUCTION CREDITED | | | | | | | | | | Project Category * |
|------------------------------------|--------------|--------------|--------|---|-----------------------|-------------|-----------|-----|--------------------------|------------------------|-----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------------|
| | | | | | FULL | SCALED-BACK | UNDER-WAY | REM | | | 2005 | | 2010 | | 2015 | | 2025 | | 2030 | | |
| | | | | | | | | | | | VOC | NOX | VOC | NOX | VOC | NOX | VOC | NOX | VOC | NOX | |
| 187 | X | 2003-08 | VDOT | VRE Mid-Day Train Service | X | | | | 2005 | 2002 | 0.0025 | 0.0053 | 0.0016 | 0.0029 | 0.0011 | 0.0017 | 0.0008 | 0.0011 | 0.0008 | 0.0010 | C |
| 190 | X | 2003-08 | VDOT | Employer Vanpool Program (Bridge deck) | | | X | | 2005 | 2004 - 2008 | 0.0015 | 0.0034 | 0.0009 | 0.0019 | | | | | | | C |
| 191 | X | 2003-08 | VDOT | Town of Leesburg P&R Lot | | | X | | 2005 | 2004 | 0.0031 | 0.0071 | 0.0019 | 0.0039 | 0.0013 | 0.0023 | 0.0010 | 0.0014 | 0.0010 | 0.0014 | C |
| 192 | X | 2003-08 | VDOT | District-wide P&R Lots | X | | X | | 2005 | 2001-2005 | 0.0182 | 0.0406 | 0.0112 | 0.0222 | 0.0076 | 0.0133 | 0.0060 | 0.0082 | 0.0059 | 0.0078 | C |
| 193 | X | 2003-08 | VDOT | Additional Parking at 4 Metro stations | | | X | | 2005 | 2001, 2005 | 0.0235 | 0.0604 | 0.0144 | 0.0331 | 0.0097 | 0.0197 | 0.0079 | 0.0122 | 0.0078 | 0.0116 | C |
| 196 | X | 2003-08 | WMATA | 64 CNG Buses (Purchased in 2001) | X | | | | 2005 | 2004 | 0.0021 | 0.0870 | 0.0021 | 0.0870 | 0.0021 | 0.0870 | | | | | SP (TCM) |
| 197 | X | 2003-08 | WMATA | 250 CNG Buses (175 buses by Dec. 2004; 75 buses by mid 2006) | | | X | | 2005 | 2004-2006 | 0.0083 | 0.3400 | 0.0083 | 0.3400 | 0.0083 | 0.3400 | | | | | SP |
| 198 | X | 2003-08 | WMATA | 60 Engine Replacement (MY 1992 & 1993 MY buses) | X | | | | 2004 | 2004 | 0.0138 | 0.0755 | 0.0138 | 0.0755 | 0.0138 | 0.0755 | | | | | SP |
| 199 | X | 2003-08 | WMATA | Car Sharing Program | X | | | | 2005 | 2004 | 0.0013 | 0.0033 | 0.0008 | 0.0018 | 0.0005 | 0.0011 | 0.0004 | 0.0007 | 0.0004 | 0.0006 | C |
| 200 | X | 2003-08 | WMATA | Bikes Racks on WMATA Buses in VA (372 Bike Racks) | X | | | | 2005 | 2004 | 0.0020 | 0.0035 | 0.0012 | 0.0019 | 0.0008 | 0.0012 | 0.0006 | 0.0007 | 0.0006 | 0.0007 | C (TCM) |
| 202 | | 2003-08 | MDOT | Fleet Replacement (state auto fleet, gas to hybrid, 250 vehicles) | | | | x | 2005 | | 0.0055 | 0.013 | 0.0055 | 0.0133 | 0.0055 | 0.013 | | | | | SP |
| 203 | X | 2003-08 | MDOT | Replace 55 Montgomery County 10 yr. old buses w/ new CNG buses | | | x | | 2005 | n/a | | 0.2861 | 0.0000 | 0.2861 | | 0.2861 | | | | | SP |
| 204 | | 2003-08 | MDOT | Neighborhood Bus Shuttle (5 circulator routes) | | | | x | 2005 | | 0.0121 | 0.0221 | 0.0074 | 0.0121 | 0.0051 | 0.007 | 0.00 | 0.004 | 0.0038 | 0.0042 | C |
| 205 | X | 2003-08 | MDOT | New Surface Parking at Transit Centers (500 spaces) | | | x | | 2005 | n/a | 0.0042 | 0.0108 | 0.0026 | 0.0059 | 0.0017 | 0.0035 | 0.0014 | 0.0022 | 0.0014 | 0.0021 | C |
| 206 | X | 2003-08 | MDOT | Additional Bike Lockers at Metro-Stations | | | | x | 2005 | n/a | 0.0213 | 0.0379 | 0.0131 | 0.0208 | 0.0090 | 0.0125 | 0.0068 | 0.0076 | 0.0067 | 0.0072 | C |
| 207 | X | 2003-08 | MDOT | Bike Facilities at PnR Lots or other similar location | | | x | | 2005 | n/a | 0.0150 | 0.0300 | 0.0092 | 0.0165 | 0.0063 | 0.0099 | 0.0049 | 0.0060 | 0.0048 | 0.0057 | C |
| 208 | X | 2003-08 | MDOT | CNG Fueling Stations | | | | x | 2005 | n/a | 0.1270 | 0.1170 | 0.1270 | 0.1170 | | | | | | | SP |
| 209 | | 2003-08 | MDOT | Gas cap replacements (ROP Credit) | | | | x | 2005 | | N/A | N/A | N/A | N/A | | - | | - | | - | SP |
| 210 | | 2003-08 | MDOT | Gas can turnover (ROP Credit) | | | | x | 2005 | | N/A | N/A | N/A | N/A | | - | | - | | - | SP |
| 211 | X | 2003-08 | MDOT | External Bicycle Racks on WMATA Buses (486 MD buses) | x | | | | 2005 | 2002 | 0.0023 | 0.0040 | 0.0014 | 0.0022 | 0.0009 | 0.0013 | 0.0007 | 0.0008 | 0.0007 | 0.0008 | C (TCM) |
| 212 | X | 2003-08 | MDOT | Bike \ Pedestrian Trail - Anacostia River Walk | | | X | | 2005 | n/a | 0.0009 | 0.0008 | 0.0006 | 0.0005 | 0.0004 | 0.0003 | 0.0003 | 0.0002 | 0.0003 | 0.0002 | C |
| 213 | | 2003-08 | MDOT | Transit Prioritization - Queue Jumps | | | | x | 2005 | | 0.0050 | 0.0068 | 0.0031 | 0.0037 | 0.0021 | 0.002 | 0.002 | 0.001 | 0.0015 | 0.0013 | C |
| 214 | X | 2003-08 | MDOT | Commuter Choice Benefit/Tax Credit - Marketing Expansion | | | x | | 2005 | n/a | 0.0881 | 0.1559 | 0.0542 | 0.0855 | 0.0370 | 0.0517 | 0.0283 | 0.0313 | 0.0278 | 0.0297 | C |
| 215 | X | 2003-08 | MDOT | Improvements to Pedestrian Access in TOD areas (4 locations) | | | x | | 2005 | n/a | 0.0096 | 0.0158 | 0.0059 | 0.0087 | 0.0040 | 0.0053 | 0.0031 | 0.0032 | 0.0030 | 0.0030 | C |
| 216 | X | 2003-08 | MDOT | Telecommuting Expansion | | | | X | 2005 | n/a | 0.1041 | 0.2192 | 0.0640 | 0.1202 | 0.0435 | 0.0721 | 0.0341 | 0.0441 | 0.0336 | 0.0419 | C |
| 217 | X | 2003-08 | MDOT | Replace older Diesel Engine in Public Sector vehicles | | | | x | 2005 | n/a | 0.0237 | 0.1300 | 0.0237 | 0.1300 | 0.0237 | 0.1300 | | | | | H |
| 218 | X | 2003-08 | VDOT | MV-92 Telecommuting Program - Expanded ¹ | | | | X | 2005 | 2003 | 0.1112 | 0.2341 | 0.0684 | 0.1283 | 0.0464 | 0.0769 | 0.0365 | 0.0471 | 0.0359 | 0.0447 | C |
| 219 | X | 2003-08 | VDOT | MV-123 Employer Outreach for Public Sector Employees ¹ | | | | X | 2005 | 2003 | 0.0247 | 0.0430 | 0.0152 | 0.0236 | 0.0104 | 0.0143 | 0.0079 | 0.0086 | 0.0078 | 0.0082 | C |
| 220 | X | 2003-08 | REGION | Signal System Optimization | | | X | | 2005 | 2005 | 0.6737 | 0.2720 | 0.4272 | 0.1510 | 0.3447 | 0.1244 | 0.2945 | 0.0676 | 0.2896 | 0.0613 | TR |
| Available Emissions Credits | | | | | | | | | | | 3.670 | 7.680 | 2.489 | 5.147 | 2.164 | 3.704 | 1.832 | 1.562 | 1.991 | 1.800 | |

TRANSPORTATION EMISSION REDUCTION MEASURES (CLRP Projects Only)

Credited in Air Quality Conformity Analyses (calendar years 1993-2004)
(TRACKING SHEET)

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

| | CREDIT TAKEN | TIP CREDITED | AGENCY | PROJECT | IMPLEMENTATION STATUS | | | | PROJECTED | ACTUAL | TONS/DAY REDUCTION CREDITED | | | | | | Project Category |
|-----|--------------|------------------|--------|---|-----------------------|-------------|-----------|---------|------------|------------|-----------------------------|--------|--------|--------|--------|--------|------------------|
| | | | | | FULL | SCALED-BACK | UNDER-WAY | REMOVED | COMPLETION | COMPLETION | 2015 | | 2025 | | 2030 | | |
| | | | | | | | | | DATE | DATE | VOC | NOX | VOC | NOX | VOC | NOX | |
| 221 | X | 1995-00 TIP | REGION | M-24 Speed Limit Adherence | | | | | | | 0.1129 | 0.8376 | 0.1285 | 0.5905 | 0.0495 | 0.1828 | TR |
| 222 | | 1996-01 TIP | MGC | Rock Spring Park Pedestrian Amenities | | | | X | | | 0.0010 | 0.0040 | n/a | n/a | n/a | n/a | - |
| 223 | X | 1996-01 TIP | MGC | Olney Transit Center Park and Ride | | | | | | | 0.0009 | 0.0036 | 0.0008 | 0.0025 | 0.0003 | 0.0007 | C |
| 224 | X | 1996-01 TIP | MGC | Damascus Park and Ride | | | | | | | 0.0005 | 0.0018 | 0.0004 | 0.0012 | 0.0001 | 0.0003 | C |
| 225 | X | 1996-01 TIP | DC | M-103 Taxicab Replacement | | | | | | | | | 0.3490 | 0.6000 | 0.3490 | 0.6000 | H |
| 226 | X | STADIUM ANALYSIS | | Taxicab Replacement | | | | | | | | | 0.1560 | 0.2400 | 0.1560 | 0.2400 | H |
| 227 | X | 1997-02 TIP | MDOT | Shady Grove West Transit Center Park and Ride | | | | | | | 0.0000 | 0.0045 | 0.0000 | 0.0031 | 0.0000 | 0.0009 | C |
| 228 | X | 1997-02 TIP | MGC | Olney Transit Center Park and Ride | | | | | | | | | 0.0008 | 0.0025 | 0.0003 | 0.0007 | C |
| 229 | X | 1997-02 TIP | MGC | White Oak Park and Ride | | | | | | | 0.0000 | 0.0090 | 0.0000 | 0.0062 | 0.0000 | 0.0017 | C |
| 230 | X | 1997-02 TIP | MGC | Damascus Park and Ride | | | | | | | | | 0.0004 | 0.0009 | 0.0001 | 0.0003 | C |
| 231 | X | 1997-02 TIP | MGC | Four Corners Transit Center | | | | | | | 0.0000 | 0.0004 | 0.0000 | 0.0003 | 0.0000 | 0.0001 | C |
| 232 | | 1997-02 TIP | MGC | Burtonsville Transit Center | | | | X | | | | | n/a | n/a | n/a | n/a | - |
| 233 | X | 1997-02 TIP | MGC | Silver Spring Transit Access | | | | | | | | | | 0.0006 | | 0.0002 | C |
| 234 | X | 1997-02 TIP | MGC | Shady Grove Parking Construction | | | | | | | 0.0023 | 0.0085 | 0.0020 | 0.0059 | 0.0007 | 0.0017 | C |

| | | | | | | | | | | | | | | | | |
|-------------------|--|--|--|--|--|--|--|--|--|--|-------|-------|-------|-------|-------|-------|
| PLAN TOTAL | | | | | | | | | | | 0.117 | 0.865 | 0.638 | 1.454 | 0.556 | 1.029 |
|-------------------|--|--|--|--|--|--|--|--|--|--|-------|-------|-------|-------|-------|-------|

| | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|-------|-------|-------|-------|-------|-------|
| GRAND TOTAL (Current Measures-past 2000 + plan) | | | | | | | | | | | 2.281 | 4.569 | 2.470 | 3.016 | 2.547 | 2.829 |
|--|--|--|--|--|--|--|--|--|--|--|-------|-------|-------|-------|-------|-------|

Note: 2010 Emissions benefit estimated using ratios between 2005 and 2010 emissions factors

DEFINITIONS:

CREDIT TAKEN (X means emissions reduction credits taken):

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

IMPLEMENTATION STATUS:

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

COMPLETION DATE:

- PROJECTED = project completion date originally expected (i.e., at time of emissions analysis)
- ACTUAL = actual year project was open for use, or expected to be open for use if under construction

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