

Priority Bus Transit in the National Capital Region

A Proposal for Bus Transit, Bike-Sharing and Intermodal Connections for Metropolitan Washington



September 15, 2009

Application for Funding from the Transportation Investments Generating Economic Recovery (TIGER) Competitive Grant Program Administered by the U.S. Department of Transportation

Submitted by:

Metropolitan Washington Council of Governments

on behalf of

National Capital Region Transportation Planning Board



Local governments working together for a better metropolitan region

September 15, 2009

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

*Adjunct member

TIGER Grants Program Manager
via e-mail: TIGER@dot.gov

To Whom It May Concern:

The Metropolitan Washington Council of Governments is pleased to formally submit the attached application for grant funding under the provisions of *Transportation Investments Generating Economic Recovery (TIGER)* Competitive Grant Program administered by the U.S. Department of Transportation. This application is being submitted on behalf of the National Capital Region Transportation Planning Board (TPB), the metropolitan planning organization (MPO) for the Washington region, which will serve as the lead agency for this application.

The proposed project in this application is composed of an interconnected system of multimodal transportation options enabling travelers to make complete door-to-door trips efficiently, sustainably and affordably. It was developed through a regional collaborative planning process involving the District of Columbia, Maryland and Virginia, as well as transit agencies and local governments in the region. This approach and the innovative project that resulted for this application exemplify the Washington metropolitan area's ability to develop and implement a critically-needed multimodal solution to our region's transportation challenges.

Should you or your staff have any questions regarding our application, please contact Ronald Kirby, Director, Department of Transportation Planning, at (202) 962-3310 or by e-mail at rkirby@mwkog.org.

Sincerely,

David J. Robertson
Executive Director

Attachment: Grant Application

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Project Summary

1. PROJECT TYPE

The proposed project is composed of several modal components, including highway improvements, bicycle facilities, and transit-supporting improvements. As a result, it is considered a regional, integrated multimodal effort. For purposes of this grant application, the proposed project is designated as a highway project because it is primarily composed of highway improvements necessary to accomplish project objectives.

2. PROJECT LOCATION

As a regional initiative, the proposed project, is located in multiple jurisdictions of the Washington, DC, metropolitan area, including the District of Columbia, the State of Maryland and the Commonwealth of Virginia, and various cities and counties in Maryland and Virginia.

3. URBAN / RURAL CLASSIFICATION

Because it is located within the Washington, DC metropolitan area, the proposed project is considered to be **urban** in nature. The project is fully contained within the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area, as defined by the Office of Management Budget (OMB) (OMB Bulletin No. 09-01, November 2008, accessed August 23, 2009 from <http://www.whitehouse.gov/omb/assets/omb/bulletins/fy2009/09-01.pdf>)

4. PROPOSED FUNDING

Total project funding requested for this grant is \$266,718,500. The total project funding requested is divided into three packages, as noted in Table 1.

TABLE 1

Project Package	City / County	Congressional Districts	Proposed TIGER Funding
Package 1: Priority Bus Corridors	District of Columbia Maryland: Montgomery and Prince George's Counties Virginia: Cities of Alexandria and Fairfax, and Arlington County	DC-At Large MD-4, 5 and 8 VA-1, 8 and 11	\$204,038,000
Package 2: Regional Bicycle Sharing and Intermodal Smart Hubs	District of Columbia Maryland: Montgomery and Prince George's Counties Virginia: Cities of Alexandria and Fairfax, and Arlington County	DC-At Large MD-4, 5 and 8 VA-8 and 11	\$13,380,500
Package 3: Regional Transit Centers	Maryland: Montgomery and Prince George's Counties Virginia: Arlington Co.	MD-8 VA-8	\$ 47,300,000
Program Management			\$2,000,000
GRAND TOTAL			\$266,718,500



Background

1. REGIONAL CONTEXT

The Washington, DC, metropolitan area encompasses the District of Columbia and the surrounding suburbs in Northern Virginia and Suburban Maryland. The region is home to more than 5 million residents and nearly 3.5 million jobs, making it the 9th largest metropolitan area in the nation, according to 2008 census population estimates¹. The seat of the national government, the District of Columbia alone receives 22 million visitors annually. Transportation planning at the regional level is coordinated by the National Capital Region Transportation Planning Board (TPB). The TPB is composed of representatives of the transportation agencies of the State of Maryland, the Commonwealth of Virginia, and the District of Columbia, local governments, the Washington Metropolitan Area Transit Authority (WMATA), the Maryland and Virginia General Assemblies, and members from the Metropolitan Washington Airports Authority and federal agencies. Established in 1965, the TPB is the official Metropolitan Planning Organization (MPO) designated by the federal government to carry out the comprehensive regional transportation planning process under the authority of the Federal-Aid Highway Act of 1962, as amended.

2. PROJECT OVERVIEW

The proposed project is an interconnected system of multimodal transportation options enabling travelers to make complete door-to-door trips efficiently, sustainably and affordably. By focusing on the rider's experience and providing significant service improvements, we will be able to attract more riders and offer more choices for traveling in our region that do not require a personal automobile. This project can serve as a demonstration of successfully and efficiently expanding a transit network in a rapidly growing urban metropolitan region, and showcase to Members of Congress, their constituents and the millions of visitors to our region a wide array of modern, convenient transportation choices and an excellent rider experience.

As a region, we have recognized that developing a premium surface transit system with connections to bike facilities and our extensive Metrorail system will have the greatest potential to efficiently move the most people. To further the development of such a system, this project consists of three packages, separated by mode: bus, bike and transit areas. The first is a package of priority bus corridors. Next is a package that includes a regional bicycle sharing program and the creation of intermodal "smart" hubs. The final package is a set of three transit centers that improve intermodal access to major transit services. Figure 1 illustrates the proposed project components and their interaction with the existing high-quality Metrorail and commuter rail systems.

Together, these three packages form a proposed project that is the next step in achieving the regional vision adopted by the TPB in 1998 and explored through the TPB CLRP Aspirations Scenario developed in 2008. The Vision describes, and the scenario evaluates, a region with an accessible and reasonably-priced interconnected transportation system that enhances the quality of life, provides additional economic resilience and supports a growing economy throughout the entire region. This project is the first and necessary step toward wholly fulfilling the TPB's vision and is part of a long-term strategy. This first phase includes regional mobility and accessibility improvements to and from the central city, the District of Columbia, which is a federally defined Economically Distressed Area.

The project will also result in long-term benefits as well as short-term construction jobs, permanent jobs administering and operating these programs and facilities, and induced jobs created by the capital expenditures. The section on immediate economic benefit later in this application addresses increases in new jobs expected from the project in more detail. Table 3 provides the number of jobs to be generated by the proposed action, as well as other anticipated benefits.



The Proposed Regional Multimodal Transit System

Completion, February 2012



K Street Transitway

Priority Arterial Corridors

- 2 16th St, Downtown to Wheaton
- 3 Georgia Ave from Archives to Silver Spring
- DC 4 H St / Benning Road, Minn. Ave to Franklin Sq.
- 5 Wisconsin Ave, Naylor Rd to Friendship Heights
- 6 Addison Rd, Southern Ave to Addison Rd station
- MD 7 University Blvd, Bethesda to College Park
- 8 US 1, Laurel to Rhode Island Ave. station
- 9 Veirs Mill Rd, Shady Grove to Silver Spring
- 10 US 1 Transitway, Potomac Yard
- VA 11 VA 7, Alexandria to Tysons Corner
- 12 Van Dorn-Pentagon, via Shirlington

Transit Center Projects

- Express Bus on Bridges and Arterials
- 13 Theodore Roosevelt Bridge, I-66 to K Street
- 14 14th St Bridge, I-395 to K Street

- Express Bus on Freeways
- 15 I-66, Gainesville to Rosslyn
- 16 I-95/395, Pentagon to Dale City

Existing Metrorail

Bus/Rail Transfers

Bike-sharing locations (generalized)
3250 bicycles at 325 stations located in DC, Arlington, Alexandria, City of Fairfax, Bethesda, Silver Spring, Hyattsville, College Park, & National Harbor



5. CONTACT INFORMATION

All inquiries, grant decisions and/or other official correspondences concerning this application should be directed as noted:

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Project Need

1. A WORLD CLASS MULTIMODAL TRANSPORTATION SYSTEM The National Capital Region has an extensive, transit-supportive highway network and the second largest public transit system in the country. Through a history of multi-state and multi-jurisdictional cooperation, the greater Washington region was able to build a vast heavy rail network (Metrorail), complimented by an even more extensive connector system of local and regional bus routes and commuter rail lines. The completion of the Metrorail system truly united the region and enabled all parts of the region to prosper through more advantageous and convenient connections to the central business district and suburban centers.

As a testament to the success of the region's partnership in the past, transit demand throughout the region has grown tremendously over the past decade. Metrorail ridership has increased by 42% between 1996 and 2006, and is projected to continue to rise annually at around 4%². Metrobus ridership has also grown immensely at an average of 2% a year, while local circulator and feeder systems have grown 7% per year since 1996. These ridership increases highlight the necessity of transit to support growth and livability in the Washington region. The system provided an essential, affordable service to the region's residents, evidenced by spikes in service during times of soaring gas prices and economic uncertainty, and has also provided a viable alternative for travelers as the roadways have become increasingly more congested. We seek to equip this already successful system with an even greater ability to provide increasing numbers of residents, particularly those in need, with affordable and high quality travel options.

2. KEEPING OUR ASSETS FROM TURNING INTO LIABILITIES While the region has and continues to benefit from a world-class transit system, this system faces considerable challenges that endanger the future prosperity of the region. Continued metropolitan growth will in many cases exert more pressure on the surface transportation system than it can manage, requiring regional foresight to maintain an efficient and equitable system in the face of coming challenges. This project thus seeks to enhance the resiliency of the current system by improving its efficiency. Prioritizing the movement of people over vehicles, encouraging alternative modes of transportation and increasing capacity at major transit bottlenecks will allow the region to meet future challenges more effectively and with greater ease.

Many of the transportation challenges that lay ahead are rooted in the amount and patterns of residential and commercial growth expected. Catherine Hudgins, former TPB Chair stated, "In the next 25 years the Washington metropolitan region is forecast to grow by 1.6 million people. That's like adding the City of Philadelphia or the entire region surrounding Columbus, Ohio to our existing population of 5 million.



Where will all these people live and work? How will they get around?”³

This question has been exacerbated by increasing congestion and the resulting loss of accessibility and efficiency for all modes using both highway and fixed guideway infrastructure. Although highway congestion is a major problem today, it is projected to be prevalent throughout the entire region by 2030, due in part to the region’s current single occupancy mode share of around 75%. Similarly, while Metrorail already experiences heavy congestion in some core locations, by 2025 the rail system is projected to reach capacity for trips to and through the regional core unless a major funding gap is filled. Local and regional bus systems also face congestion-related challenges. As road congestion worsens, most if not all bus systems will experience increased difficulty with schedule adherence, reliability and overcrowding.

3. READING THE GLOBAL TEA LEAVES Beyond direct challenges to the provision of public transit, the region is facing the same global problems that impact sustainability and livelihoods of regions everywhere. This region has suffered through the current economic downturn with high rates of foreclosure, rises in unemployment, and sharp declines in access to credit, resulting in sharper household/transportation affordability challenges for the region’s residents. For this reason, the region wishes to expand its low-cost transportation options, through reliable transit and facilities to allow bicyclists and pedestrians to travel safely and conveniently. Providing these essential services in an environment of scarce funding has inspired public agencies throughout the region to innovate with solutions that are quick to implement and require less capital and operating funds.

In addition to the global economic climate, the region’s future environmental quality is also a major factor in the region’s long-term planning strategy. The region has been an official ozone nonattainment area since 1968, a PM2.5 nonattainment area since 2005 and is projected to experience steadily rising greenhouse gas emissions⁴. In response, the National Capital Region is now among the leading regions on climate change, with a goal of reducing emissions 80% by 2050, which relies heavily on increasing transportation efficiency. The shared solution to these environmental problems and our funding crisis is to connect increasing numbers of people to vital services, affordable housing and jobs, while reducing our overall resource consumption, and thus lessening our dependence on oil and our impact on the environment.

4. DOING MORE WITH LESS The TPB has made increasing the extent and quality of our transportation options a policy priority for decades and has worked toward this aim through ongoing vision planning and long-range studies. The most recent study, including the CLRP Aspirations Scenario, is intended to act as a blueprint for the region for 2030. It was developed with intensive regional input and lays the groundwork for a long-term regional rapid bus network operating on new or converted managed lanes. This plan is complemented by another regional initiative to do more with less: the WMATA Priority Corridors Network (PCN) plan, which will implement high-quality bus transit along 24 existing bus corridors that currently provide service to more than half of the current Metrobus ridership.

Although these plans are long-term in nature, there are clear strategies that can be implemented now and build the foundation for an extensive, multi-layered transit network that meets regional goals, yet is feasible given current challenges and funding constraints. These strategies all seek to enhance the efficiency of the existing system, thereby building transit capacity in innovative ways, including:

1. Increase the level and quality of service of existing bus services through priority treatments and running-way improvements, such as transit signal priority (TSP), queue jump lanes, or dedicated bus or bus/HOV lanes
2. Capitalize on cheaper, more sustainable modes of transit service through promoting bicycling for short trips less than 3 miles (17% of all commute trips, and 30% of non-work trips) and for the “last mile” of longer transit trips.



These strategies taken together help jump start the next phase of transit planning in the National Capital Region and are critical to the region’s long term plans for a comprehensive network of premium transit services.

Proposed Project

This application includes three modal packages that would collectively enhance the region’s interconnected, multimodal transportation system and allow the region’s residents and visitors to make complete door-to-door trips efficiently, sustainably and affordably. Each package focuses on one specific mode and is supported by the other two; yet each can stand alone and therefore be funded and implemented individually. Similarly, the ‘sub-packages’ contained within Package 1 (described next) can also stand alone, and therefore be funded and implemented individually.

PACKAGE 1: PRIORITY BUS CORRIDORS This package is a network of fourteen connected bus priority corridors in Maryland, Virginia and the District of Columbia, running on both arterials and managed lanes (high occupancy vehicle, HOV) on freeways, as well as two bridge and arterial connections that tie the region together.

Nine of the components here are runningway improvements along nine of WMATA’s Priority Corridor Network. WMATA has outlined a plan that focuses investment dollars on 24 corridors in the region. These corridors account for more than half the daily bus ridership, with more than 250,000 daily unlinked trips. Service enhancements, such as express service and stop consolidation, have been implemented on several of the WMATA-sponsored corridors in this application, and unfunded running way improvements have also been identified. This package proposes to make these initial running way improvements that will build a foundation for WMATA’s larger bus priority network.

K Street Transitway Sub-package

1 This corridor is the centerpiece of the priority bus network because of its immense regional significance as a major transit corridor, circulating people within the regional core and connecting commuters to downtown jobs. The corridor moves remarkable amounts of workers by providing runningway for over 20 WMATA and commuter bus routes. The project includes reconstructing and reconfiguring K Street, NW between 9th Street, NW and 23rd Street, NW to create a dedicated transitway with two-lanes and a third passing lane option, as well as two or three general purpose lanes in each direction and bicycle facilities. The improvements will also create a “Great Street” that is high-performing and safe for all modes: pedestrians, bicyclists, transit, and automobiles and a “Green Street,” featuring highly inventive ways of achieving greater environmental and financial sustainability.

Priority Corridors Enhancements Sub-package

A major focus of this project is to provide more efficient bus service along existing and future corridors. Nine of the thirteen components below are corridors from the WMATA Priority Corridors Network described above, and listed in the table below. The other four components are local priority corridors originating in the City of Alexandria (US 1 Transitway and Van Dorn-Pentagon Rapid Bus) or connections between the K Street Transitway and the Bus Priority on Managed Lanes Sub-Package. These components are shown here in table format. For a more detailed description of the corridors, please see the Appendix 1: Detailed Information for Project Components.



#	Component Name	State	WMATA Priority Corridor	Bus/HOV Lanes	Queue Jump Lanes	Transit Signal Priority	Super-stops	Bus Stops / NextBus *
2	16th Street Bus Priority Improvements	DC	yes		1	20		30
3	Georgia Avenue Bus Priority Improvements	DC	yes	1				36
4	H Street/Benning Road Bus Priority Improvements	DC	yes		1			22
5	Wisconsin Avenue Bus Priority Improvements	DC	yes			20		54
6	Addison Road Improvements	MD	yes					10
7	University Boulevard Bus Priority Improvements	MD	yes		4	20		40
8	US Route 1 (MD) Bus Priority Improvements	MD	yes		8	7		
9	Veirs Mill Bus Priority Improvements	MD	yes		1			30
10	US I Transitway (VA)	VA		1				
11	VA 7 (Leesburg Pike) Bus Priority Improvements	VA	yes			40		31
12	Van Dorn-Pentagon Rapid Bus	VA			2	5	2	
13	Theodore Roosevelt Bridge to K Street Bus Priority Improvements	DC				yes		
14	14th Street Bus Priority Improvements	DC				yes		

* Specific number to be determined by further engineering work.

Bus Priority on Managed Lanes Sub-package

15 I-66 Multimodal Improvements This component will provide direct access to and from the Vienna/Fairfax-GMU Metrorail station from the HOV lanes in the center of I-66. This new ramp will eliminate the delays and collision risks associated with buses weaving across I-66 between the center HOV lanes and the Metrorail station exit ramp. This new ramp will be complemented by the addition of new park-and-ride lots and information technology components shared with item 16 below.

16 I-95/395 Multimodal Improvements This component will provide station improvements at Pentagon and Franconia/Springfield Metrorail Stations, including bus bays, real time bus information, and traffic circulation/access/security improvements. Major technology improvements include a mobile web application for real-time bus information, bus information display, cameras outfitted on 40 buses, computer-aided dispatch and automatic vehicle location technology. Finally, this component includes the retirement of 13 buses, replacing them with state-of-the-art clean-fuel technology.

PACKAGE 2: REGIONAL BICYCLE SHARING AND INTERMODAL SMART HUBS

A regional bicycle-sharing system with a large number of bikes (3,250 bikes) placed at strategic locations (325 bicycle stations), such as transit stations, points of major activity, and major residential locations, increases connectivity and feasibility of using transit throughout the region.

17 Regional Bike-sharing The grant request includes capital for 2,250 bicycles, 225 stations, and administration of the service for 1000 bikes in the District of Columbia, 750 bikes in Arlington County, 200 bikes in the City of Alexandria, and 300 bikes that will be dispersed throughout the City of Fairfax in Virginia and College Park, Hyattsville, Bethesda, Silver Spring, and National Harbor in Maryland. The District is using additional federal funds for 1000 additional bikes and 100 stations. The system will provide a low-cost transit service that is conceptually similar to car-sharing, such as ZipCar, where members pay a fee and have access to any available bike throughout the regional system; however, bike-sharing allows one-way trips allowing for greater user flexibility. The program builds off of the success of the District's pilot bike-sharing program of 500 bikes, which sparked interest in local jurisdictions



throughout the region, underscoring the applicability of a connected, regional system of bike-sharing.

Intermodal Smart Hubs The system will be supplemented with 20 “smart hubs” at intermodal transfer points, such as metro stations that are also home to a bike-sharing station, car-sharing, and bus stops. At these hubs, users will be able to see which modes are available near them by using free wireless internet to access a regional website of transportation information created under this proposal. Additionally, high-tech “smart displays” with information such as real-time bus arrivals and expanded wayfinding will be placed at each hub. The hubs will have strong branding and signage to increase visibility and legibility of the region’s many transportation options.

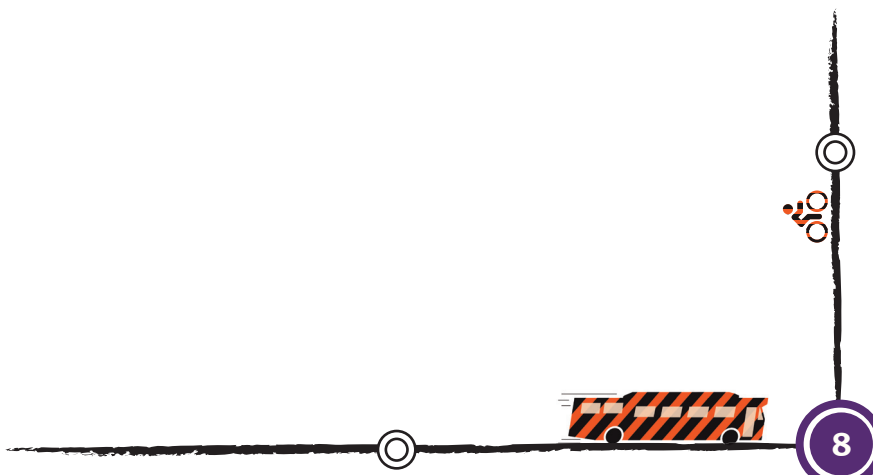
PACKAGE 3: REGIONAL TRANSIT CENTERS

The third and final package of projects creates an additional layer of access for users of the regional transportation system by making capacity and safety improvements to transit centers.

18 Takoma/Langley Transit Center This transit center will be located at the intersection of University Boulevard and New Hampshire Avenue on the border of Montgomery and Prince George’s Counties in Maryland. The new transit center will consolidate currently scattered bus stops at this heavily used bus transfer point into one facility, eliminating the need for dangerous and time-consuming transfers. Through new bus bays, pedestrian walkways, a full canopy, restrooms, lighting, and bus information, the transit center will provide a safe, attractive, comfortable and efficient facility for passengers and bus transfer activities in an area that is largely low income and transit dependent.

19 Rosslyn Metrorail Station Access Improvements: The Rosslyn Metrorail station in Arlington, VA, is among the busiest access and transfer points in the entire transit system and currently experiences capacity constraints. This project will improve access to and increase capacity within the Rosslyn Metrorail station by creating a new entrance consisting of three new high speed, high capacity elevators, a mezzanine at train platform level, emergency stairs from the train platform to street level, and related systems and infrastructure. This project is being completed in conjunction with and partially funded by the JBG Central Place site plan development and thus supports major land use developments planned for the area.

20 Medical Center Metrorail Station Access Improvement: A major driver of land use changes in the region is the 2005 Base Realignment and Closure (BRAC) decision, which has expanded regional activity centers. One such location is proximate to the Medical Center Metrorail Station, where BRAC construction at the National Naval Medical Center (NNMC) will place significant demands on the current rail system that cannot be met efficiently through the current station access points. Therefore, the project will include construction of an ADA-compliant pedestrian tunnel to connect the existing Medical Center Metrorail Station and Transit Center to the NNMC. The tunnel will have a wide footprint to eventually include a grade-separated vehicular roadway with a sidewalk and bikeway.



Project Parties

This project application is the result of six months of regional collaboration and cooperation among numerous partners who understand that the entire region will benefit from this project, even though its components may or may not be specifically located in their jurisdiction. These partners have registered their support for this regional project, which is documented in numerous letters of support. Please see Appendix 8, Letters of Support from Project Owners and Other Partners, or <http://www.mwcog.org/transportation/TIGER/> (Select “Project Support Letters”). Underpinning these letters is TPB Resolution R5-2010 that was unanimously adopted July 15, 2009 and approved the submission of this application, signaling broad regional support the proposed project. Several of the project partners will also play more formal roles with respect to their status of applicant/grant recipients. These are noted in the following sections. Note: All project parties are identified with each component in Section 6.0, Proposed Project and in Table 2, Project Information.

1. PRIMARY APPLICANT

As the MPO for the Washington Metropolitan Area, the TPB is an eligible applicant for this grant. The Metropolitan Washington Council of Governments (COG), which is a non-profit organization selected by the TPB to be its administrative agent, will be the lead applicant for this grant. Since 2007, COG has administered the Federal Transit Administration’s (FTA) JARC and New Freedom transit programs for the TPB when it became the FTA-designated recipient for grants under these programs. COG will administer the grant program proposed in this application in a similar manner on behalf of TPB.

2. PROJECT OWNERS

COG is joined by other parties as project owners, which are composed of local governments, state departments of transportation, and transit agencies located and operating in the Washington metropolitan region. These include:

The District of Columbia

District of Columbia Department of Transportation (DDOT)

The State of Maryland

Maryland Department of Transportation (MDOT)

Montgomery County

Prince George’s County

The Commonwealth of Virginia

Virginia Department of Transportation (VDOT)

Virginia Department of Rail and Public Transportation (VDRPT)

Potomac and Rappahannock Transportation Commission (PRTC)

Arlington County

City of Alexandria

Washington Metropolitan Area Transit Agency (WMATA)

Project owners will be direct recipients of grant funds and will be responsible for administering these funds and implementing the projects in accordance with the grant provisions. Project owners have registered their support for this application, understand the obligation this role confers upon them, and will cooperate at all levels in carrying out the activities to be supported by the TIGER Discretionary Grant. Table 2 identifies project owners for each of the project components.

Several other parties play an important role in the development and success of the projects proposed in this application. Although they will not own or implement projects, these other partner organizations have registered their support for specific projects. Partners include the City of Fairfax, and Fairfax County in the Commonwealth of Virginia; and the cities of College Park and Hyattsville, Montgomery and Prince George’s Counties and National Harbor in the State of Maryland.



TABLE 2

ID	Project Name	Location	Project Owners	Project Parties	Project Cost	TIGER Grant Request	% TIGER
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Package 1: Priority Corridors Network

K Street Transitway Sub-package

1	K Street Transitway	District of Columbia	DDOT	District DOT (DDOT)	139,000,000	139,000,000	100%
K Street Transitway Subtotal					139,000,000	139,000,000	100%

Priority Corridor Enhancements Sub-package

2	16th Street	District of Columbia	DDOT	WMATA/DDOT	1,295,000	1,295,000	100%
3	Georgia Avenue	District of Columbia	DDOT	WMATA/DDOT	4,111,000	4,111,000	100%
4	H Street/Benning Road	District of Columbia	DDOT	WMATA/DDOT	415,000	415,000	100%
5	Wisconsin Avenue	District of Columbia	DDOT	WMATA/DDOT	745,000	745,000	100%
6	Addison Road	Prince George's Co. (MD)	WMATA	WMATA / MD State Hwy Admin (SHA)/Prince George's Co.	200,000	200,000	100%
7	University Boulevard	Montgomery and Prince George's Co's. (MD)	MD State Hwy Admin (SHA)	WMATA/SHA/Montgomery Co./Prince George's Co.	1,262,000	1,262,000	100%
8	US 1 (MD)	Prince George's Co. (MD)	SHA	WMATA/SHA/Prince George's Co.	805,000	805,000	100%
9	Veirs Mill Road	Montgomery Co. (MD)	SHA	WMATA/SHA/Montgomery Co.	265,000	265,000	100%
10	US 1 Transitway (VA)	City of Alexandria (VA)	Alexandria	Alexandria	20,500,000	8,500,000	71%
11	VA 7 Leesburg Pike	Cities of Alexandria Falls Church and Fairfax Co. (VA)	VDOT/WMATA	WMATA/VDOT	1,340,000	1,340,000	100%
12	Van Dorn-Pentagon BRT	City of Alexandria and Arlington Co. (VA)	Alexandria	Alexandria	670,000	670,000	100%
13	T.R. Bridge to K Street	Washington DC	DDOT	DDOT	1,800,000	1,800,000	100%
14	14th Street to K Street	Washington DC	DDOT	DDOT	5,200,000	5,200,000	100%
Priority Corridors Enhancements Subtotal					38,608,000	26,608,000	88%

Bus Priority on Managed Lanes Sub-package

15	I-66 Multimodal Improvements	Fairfax and Prince William Counties (VA)	VDOT	VDOT	44,500,000	18,500,000	42%
16	I-95/395 Multimodal Improvements	City of Alexandria and Fairfax and Prince William Counties (VA)	WMATA / PRTC / Alexandria	WMATA/PRTC/Alexandria	19,930,000	19,930,000	100%
Bus Priority on Managed Lanes Subtotal					64,430,000	38,430,000	60%
Priority Corridors Subtotal					\$242,038,000	\$204,038,000	87%

Package 2: Regional Bike-sharing

17	Regional Bike-sharing and Intermodal Technology Service	District of Columbia, Arlington Co., Cities of Alexandria and Fairfax (VA), Montgomery and Prince George's Counties (MD)	COG	District of Columbia; Arlington Co.; Cities of Alexandria and Fairfax; Montgomery Co.; Cities of Hyattsville and College Park; and National Harbor	18,580,500	13,380,500	70%
Bike Sharing Subtotal					\$18,580,500	\$13,380,500	70%

Package 3: Transit Centers

18	Takoma/Langley Transit Center	Prince George's Co. (MD)	MTA	MTA	24,600,000	12,300,000	50%
19	Rosslyn Metrorail Station Access	Arlington Co. (VA)	Arlington County	Arlington DOT	42,000,000	15,000,000	36%
20	Medical Center Station Access	Montgomery Co. (MD)	Montgomery County	Montgomery Co./MDOT/ WMATA	40,000,000	20,000,000	50%
Transit Centers Subtotal					\$106,600,000	\$47,300,000	44%

Grant Program Management

21	Program Management		COG	COG	2,000,000	2,000,000	100%
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PROJECT TOTAL					\$369,218,500	\$266,718,500	74%
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Grant Funding Allocation By State

District of Columbia	158,473,506
Maryland	36,338,414
Virginia	69,906,581
Program Mgmt (not allocated to states)	2,000,000
PROJECT TOTAL	\$266,718,500

Note: State allocation may not sum due to rounding.



3. GRANT ADMINISTRATION

COG will be the lead applicant and responsible for managing the grant on behalf of TPB to ensure that the entire project is delivered as scheduled. To accomplish this, COG will execute a grant agreement with the Cognizant Modal Administration to receive up to \$2 million for over all project management. To manage and integrate the project components into an effective system and deliver the entire project as timely and effectively as possible, COG will issue a request for qualifications (RFQ) for a management team promptly upon notice that the project grant will be awarded. Within 90 days, COG will hire a team of qualified consulting firms with appropriate staff and skills to coordinate, manage, and administer the implementation and integration of the project components, as well as to prepare all required documentation on the project grant implementation, project benefits, and financial reports. This team will also prepare a detailed and comprehensive plan for evaluating the success of the project that TPB will implement beginning in 2012. The budget for the two-year general project management contract will be up to \$2 million and COG will a nominal percentage for administrative expenses. The \$2 million identified for program management will be proportionally lower if grants are awarded at lower amounts than proposed in this application.

It is anticipated that the public agencies that own and/or operate their specific priority corridor project components or transit centers will execute specific grant agreements as first-tier sub-awardees with the Cognizant Modal Administration. These agencies are denoted as project owners above.

COG will also be responsible for the implementation of the regional bike-sharing system. In that role, COG will execute a grant agreement to be the direct recipient of \$13.4 million, issue an RFP for a contract to purchase the bicycles and install the stations, and retain a percentage sufficient to cover administrative expenses. COG will execute agreements with the participating jurisdictions to direct the contractor to provide them each a specific number of bikes and install their bike stations and bus and bicycle user information hubs at specified locations.

4. GRANT FUNDS AND SOURCES AND USES OF PROJECT FUNDS

Table 2 provides a listing of all components that collectively form the packages constituting the proposed project. The table includes the financial information including the amount of grant funding requested, total project costs, percentage of project costs that would be paid for with TIGER Discretionary Grant funds, and TIGER Grant amounts requested by State. Sources and uses of all project funds, and the identity and percentage shares of all parties providing funds for the project (including Federal funds provided under other programs) can be found in Section 8.1.3, Leverages Outside Funding.

Selection Criteria

GENERAL PRIORITIES

Regional Significance

Although the project directly impacts the regional core and much of the region's inner suburbs, its benefits penetrate the entire National Capital Region. The project proposes improvements to bus services across the metropolitan Washington region that both complement and provide alternatives to the existing Metrorail system. The K Street Transitway, the centerpiece of the project, provides much-needed congestion relief and priority to buses operated by not only the District of Columbia and WMATA, the regional transit operator, but also by commuter bus services from both Maryland and Virginia. The WMATA Priority Corridors components provide increased bus service levels and reliability to six jurisdictions on both sides of the Potomac River, while transit priority at the two river crossings will provide significant benefits to inter-jurisdictional and interstate commuters. Local, regional and inter-jurisdictional bus services will also benefit



greatly from the improvements along the two freeway corridors in Virginia.

The bike sharing component will provide new transportation options to travelers to and through the Washington, D.C. core; the City of Alexandria and Arlington County and the City of Fairfax in Virginia; and Bethesda, Silver Spring, College Park, Hyattsville, and National Harbor in suburban Maryland. Both the Rosslyn and Takoma Langley transit centers increase capacity and convenience at two major transit access points very proximate to jurisdictional borders, thus facilitating regional travel. All project components will support the economic health of communities throughout the region, by lowering household expenditures and decreasing dependence on the private auto.

The project also bears national significance by providing increased mobility to thousands of federal workers in the region and transit support for BRAC job site relocations in the region, such as the Mark Center in the City of Alexandria in Virginia and the National Naval Medical Center in Bethesda, Maryland.

Completion by February 2012

Nearly all the components of the project can be completed by the two-year deadline of February 2012. This grant application identifies one component of the Priority Bus Corridors package that will be substantially underway by this date but not yet completed within the preferred timeframe. For a more detailed description of the project components completion dates, see the project schedule shown in section 8.2.9.

Leverages Outside Funding

The requested \$267 million in TIGER grant funds will be used to leverage an additional \$94 million from a variety of federal, state and local sources. For a detailed description of project funding sources, see Section 7.4. A short discussion of additional funding that has been or will be leveraged is below.

The physical component of the K Street Transitway is only one part of the larger project to provide a new cross-town transit service connecting Georgetown to Union Station. The other component is the actual rolling stock and operating funds. While the capital funds needed to construct the transitway have not yet been allocated, the District worked with WMATA and the local business-improvement districts to purchase the vehicles and operate the service, which has been in place since 2005. Completion of the transitway will increase the efficiency of this service, and complement the existing multi million dollar investment in transit vehicles and service operations.

TIGER grant funds will complement and leverage funding for six other project components. The US 1 Transitway in the City of Alexandria component includes \$12 million in non-TIGER capital funding, including FTA, FHWA and WMATA money. The Rosslyn Metrorail station improvements include \$13.6 million in local funding, a \$9.2 million state contribution, and \$4.5 million in additional federal funding. The Takoma/Langley Transit Center will combine \$5 million in county funds with \$7.2 million in tax-increment financing revenue from WMATA to cover half of the project's capital costs. The Medical Center project \$20 million in DoD Defense Access Roads funding in addition to the \$20 million in TIGER funding. The I-66 multimodal improvements will leverage \$26 million in funding from federal, state and local sources. Lastly, the bike-sharing project includes additional federal funding for the 1000 additional bikes in the District of Columbia, as well as local operating funding.

PRIMARY CRITERIA

Jurisdictions within the National Capital Region have a history of working together to envision a prosperous and livable future. Through the TPB's planning process, regional leaders have developed policy principles, land use and transportation scenarios, and most recently voluntary regional agreements to achieve regional



goals and targets. Nevertheless, for the first time since the implementation of the Metrorail system, the region has come together to begin implementing a long-term transportation vision that has been developed not through disparate, parochial interests, but a regional plan for success. This project is a first phase of this long-term vision that includes a web of multimodal transit options connecting the region's 58 major residential and employment activity centers. This proposal, therefore, is inherently regional and long-term in nature, with wide-reaching benefits across time, demography, and geography.

The following is a specific discussion of how the first phase of the TPB's multimodal vision will not only provide a step toward broader long-term outcomes, but will also achieve a multitude of long-term benefits resulting specifically from this first phase alone.

State of Good Repair

Upgrading existing infrastructure

Both the bus priority package and the transit centers package upgrade and, in some cases, reconstruct, existing infrastructure that currently hampers future economic growth and stability.

Restructuring existing roadways to ensure the highest person throughput

The current congested conditions of roadways threaten the viability of bus transit. Although the priority treatments provided in this package are not traditional reconstruction projects, they restructure roadways to provide bus priority treatments, such as exclusive bus right of way (as in the K Street and Virginia US 1 transitways), bus/HOV-only ramps (as in the I-66 multimodal improvements component) or transit signal priority, which eliminate costly delays and ensure the most efficient person throughput.

Creating capacity by upgrading transit access points

The transit center package upgrades current transit access/egress and transfer points to eliminate current and future transit capacity constraints, costly auto delays, and time-consuming and dangerous transfers between transit vehicles. For instance, to ensure continued transit-oriented growth in the nationally recognized Rosslyn-Ballston corridor, current Rosslyn Metrorail station capacity constraints must be solved. Rosslyn largely developed as a result of Metrorail access, but current access points are increasingly failing to meet high demand. This has directly constrained the area's potential land use development, and as a result the new entrance in this application is a condition of the Central Place mixed use development in Rosslyn—which could simply not be supported without the new entrance.

Sustainable sources of revenue for O&M costs

The projects put forward in the TPB's grant application were all included with an acute understanding of the grim financial future, particularly for transportation, and therefore all minimize dependency on public funding for operations and maintenance (O&M) costs.

Bike-sharing can be sustained by user fees and advertising revenue

Each participating local jurisdiction has committed to providing necessary operating costs. However, revenues are expected from user fees and advertising revenue. User fees are paid by members who pay a relatively small yearly fee or by non-members who pay for a day pass. Each bike will also have advertising space, which is projected to sell for a similar fee as space on other transit vehicles in the region. It is projected that annual revenues will exceed annual O&M costs.

Bus corridors save operating dollars by improving current service

The bus corridors improve service efficiency rather than adding capacity, allowing the same number of buses to achieve faster, more reliable service. Therefore, additional operating expenses will not be needed. In fact, most routes are able to generate operating savings because buses are able to adhere to schedules and shave off



actual daily operating time otherwise spent in congestion. All new priority treatments are simply restructuring existing roadways and signals and therefore are expected to help reduce operating costs.

Transit centers will require WMATA support, largely met by additional fare revenue

Both the Rosslyn and Medical Center Metrorail stations will require yearly O&M funds provided by WMATA. Rosslyn will require ten new WMATA employees and between \$25,000 and \$50,000 per year in non-personnel costs. However, WMATA will also save a considerable amount on O&M expenses from the addition of another elevator, which will eliminate the need to operate a shuttle to another Metrorail station when the current elevator is out of service. Additionally, Metrorail currently operates at an 80% farebox recovery rate and it is expected that a large share of the additional operating expenses will be covered by the additional fare revenue that the new entrance allows. The Medical Center pedestrian tunnel will require an additional \$50,000 per year in operating costs, which will be borne by WMATA. The state of Maryland has pledged to identify a sustainable source of operating revenue for the Takoma/Langley Transit Center.

Improving the performance of the system

Overall, the project aims to improve the performance of the existing system, rather than adding a great deal of expensive new capacity.

Current projections indicate serious capacity constraints, solved through increasing access to the current system

For the Rosslyn station, ridership projections show that the existing station will require 4 fare gates and 6 ticket vending machines to serve year 2020 usage levels. The new entrance will provide 4 new gates and 7 new machines. Additionally, the existing elevator is WMATA's busiest with over 68,000 uses per month. The elevator capacity is not adequate, resulting in frequent back-ups and frequent use of expensive-to-operate shuttle buses during elevator maintenance and repair.

The bus priority treatments will improve average on-time performance rates

The WMATA priority corridors included in the bus package have an average on-time performance rate (the ability of the buses to run on schedule) of 76%, with some lines exhibiting on-time performance rates as low as 63%. WMATA currently predicts a 15% improvement in on-time performance due to service and running-way improvements. The I-66 bus/HOV ramp is predicted to reduce round-trip travel times by 5 minutes as well as reduce variability in travel time due to nonrecurring congestion.

Economic Competitiveness

Prioritizing efficient movement of people, not vehicles

This project serves as a first step toward regionally prioritizing efficient people movement rather than vehicle movement, allowing more people traveling by various modes to get to work faster, cheaper, and more comfortably. It does this without negatively affecting the region's economic future by focusing improvements upon the existing system, as discussed in the previous section.

All of the bus corridors provide faster access to major regional employment centers

The K Street corridor, the region's primary employment center, is currently congested, resulting in potential loss of jobs in the regional core. The transitway will help unlock access to emerging areas in the District, enabling the location of approximately 141,000 new jobs closer to a large base of currently economically distressed employees. Other components enhance transit service to major BRAC sites, including the Mark Center in Alexandria and the National Naval Medical Center. The Priority Corridors components alone provide access to approximately one-third of the region's activity centers, which make up a large percentage of the region's employment areas. The K Street Transitway and five of the WMATA priority corridors will provide enhanced local transit service to the population of the District of Columbia, a federally defined Economically Distressed Area.



Bike-sharing increases transit accessibility to 500,000 jobs and 1 million workers

Bike-sharing extends the current reach of high quality transit to almost 1.5 million people who currently must drive or take a local bus trip to access a rail station or rapid bus route. The bike-sharing system will allow these riders to use transit for a door-to-door journey to work, opening up newly accessible jobs to more than one million workers. Bike-sharing also generates more than 80 million trips previously not taken over the 20 year period. These new trips will certainly generate economic activity that likely would not have occurred in the region otherwise.

Transit center improvements make higher transit shares possible with future land use growth

Each of the transit centers allows for faster and safer transfers, faster and safer access to transit, and/or faster travel times for road users, thereby allowing more people to get to work in a timely and affordable fashion. However, the transit center projects also make it possible for increased land use development to use existing transit amenities. The Rosslyn station, described earlier, is one example. Additionally, the Medical Center tunnel also expected to support Montgomery County's policy goal of a 30% transit share for new Medical Center employees by improving access to the current station.

The project supports long-term job creation and training

The K Street Transitway will also support job creation and training: DDOT implements an On-the-Job training program in compliance with federal civil rights regulations at 23 CFR Part 230. The purpose of this program is to train and upgrade minorities and women toward journeyman status.

The bike-sharing system will likely include an innovative apprenticeship program, including a potential partnership with local bike shop and community organization, Phoenix Bikes, in Arlington County. This shop provides business leadership and hands-on bike repair skills to at-risk youth. The regional bike-sharing system in Arlington County would partner with Phoenix Bikes to give at-risk youth work experience by employing their repair skills on bike-share bikes, with a professional bike mechanic overseeing the youths' work.

Livability

The scope of impact for the project is regional

The project positively affects the livability of the entire core of the Washington region, as well as all of the inner suburbs and even parts of our outer suburbs. The benefits will be directly and indirectly felt throughout the region, allowing millions of people to access the region's amenities more quickly, more comfortably and conveniently, and more affordably.

Tens of bus lines and thousands of transit and bicycle trips will be affected

The bus package will decrease travel time and improve quality of bus service on approximately 75 bus lines throughout the region, providing benefit to over 260,000 current daily riders, and up to over 400,000 riders by 2030.

Bike-sharing adds tens of thousands of bikers to the region's streets every day

The bike-sharing system will generate almost 1 trillion additional bicycle trips over the 20 year period in 5 major urban and suburban jurisdictions, with almost 150,000 using the system every day by 2030.

The transit centers projects will make it easier for thousands of people to access the region's transit system

Each of the transit center projects were developed to satisfy demand that is currently evident and therefore all will exhibit high levels of usage. The Takoma-Langley transit center will facilitate approximately 5,000 boardings and transfers per day and eliminate 750 potentially dangerous road crossings. Similarly, the Medical Center pedestrian tunnel will take 2,000 people off of a busy intersection by allowing safe, grade-



separated access to the rail station. The new Rosslyn station entrance will facilitate an additional 12,000 trips per day, allowing the station to accommodate the total projected ridership for 2020 and beyond.

Improves and adds more affordable transportation options for millions of residents in need

The region suffers from a current lack of housing and transportation affordability

According to the Center for Neighborhood Technology’s online Housing and Transportation Affordability Index, virtually the entire region except the eastern portion of Washington DC is marked by housing and transportation costs that are more 45% of area median income ⁵. This need for affordable options is also highlighted by the dependency of the region’s residents upon non-auto forms of transport. Around 12% of the residents of the Baltimore-Washington region are without an automobile, while in the District this number jumps to 37%. More than 30% of the riders that the Takoma-Langley transit center will serve are transit dependent. According to the 2008 TPB Regional Bus Survey, 52% of the bus passengers on the WMATA Priority Corridor routes included in this project are transit dependent.

Bike-sharing provides the lowest cost transit possible and increases access to other low-cost transit

The bike-sharing package will allow more than 2.5 million people to either replace short auto or transit trips with a low-cost, healthy option and save money, or to replace current walk trips with new bicycling trips and save time. Bike-sharing provides the lowest per mile cost of any available mode by far, creating a regional consumer fuel savings of around \$1800 per day. Bike-sharing also extends the current reach of high quality transit to almost 1.5 million people who currently must drive or take a local bus trip to access a rail station or rapid bus route. With bike-sharing, these riders will be able to more quickly and cheaply access transit, which in itself has a cheaper owner/operating cost than the private automobile.

Improves mobility and accessibility to the region’s services, jobs, and amenities

Bus transit corridors provide connections between residential and commercial areas.

All of the components in the bus package provide improved connections between residential and commercial areas. The K Street Transitway connects residential areas on the east and west sides of the core to the employment center of downtown. The priority corridor and express bus components connect residential areas of all three jurisdictions with activity centers, Metrorail stations and the regional core.

Bike-sharing increases quick, convenient access

The bike-sharing system will saturate regional core locations with a low-cost, healthy transit option that will allow riders to make short trips quickly or to access areas that are currently not served by transit. As mentioned in the previous section, over 80 million new trips by 2030 will be made possible with bike-sharing. The system also provides bikes at Metrorail stations and major points of activity, which will allow riders to access parts of the region that were previously inaccessible by transit. Bike-sharing also further opens up the region to non-drivers, such as the youth population.

Transit centers improve accessibility for all, including persons with disabilities

Major accessibility gains will also be made for persons with disabilities who rely on elevator access to the Rosslyn Metrorail station: the second elevator will obviate costly and slow shuttle-bus transfers when the current station elevator is out of service. The Takoma-Langley transit center will benefit persons with physical mobility constraints, who currently find it difficult to walk long distances to make bus transfers.

Enhances regional intermodal connections

Increases bus access to Metrorail stations

The Bus Priority on Managed Lanes subpackage includes improvements in access for bus services to three Metrorail stations, decreasing total travel time and making both bus and Metrorail more attractive.



Increases bus capacity at rail stations by improving bus waiting areas

The bus corridors package includes new bus bays at two Metrorail stations, facilitating faster, more reliable bus-rail transfers.

Improves public information to make possible intermodal connections clear and easy

The technology component of the bike-sharing system includes a regional website of transportation information, including bike-sharing, car-sharing, taxi., bus and rail, coupled with wi-fi enabled hot spots at major hubs of current intermodal transfer. The effect will be to make available transfer opportunities clearer to the public to ensure that when a door-to-door transit option is possible and convenient, riders know to take advantage.

Increases cycling, which reduces accident risk, and improves regional public health

The bike-sharing program is expected to achieve higher cyclist rates by significantly increasing the visibility of cyclists, which has proven to decrease accident risk, as discussed later in the Safety section

Increased cycling results in measurable health care cost savings

The CDC finds that 25% of the population reports no physical activity at all and therefore do not meet their recommended 30 minutes of physical activity per day⁶. It has been found that there is a measurable health care cost differential between those that do meet the activity requirement and those that do not by between \$20 and \$330 per year. In aggregate, the bike-sharing system is estimated to save the region more than \$5 million in health care costs over the 20 year period.

Planned with the understanding that land use is a primary driver of transportation need

Each component included in the project was the result of a planning process that coordinated transportation and land-use planning decisions and encouraged community participation, when possible.

Transit centers were planned in response to future growth

The Medical Center project has been developed in order to manage immense BRAC-related growth that will depend on Metrorail. The Rosslyn station improvements have been proposed to accommodate major developments in the near and long-term future that would otherwise be met with transit capacity constraints. The Takoma-Langley center is currently the largest bus transfer site in the region and is only projected to grow as commercial and residential uses expand.

Ideal bike-sharing locations have been determined based on land use

The specific bike-sharing locations are currently being decided based on both transportation services and land use, such residential and employment densities, bike infrastructure (such as bike lanes) and proximate transit facilities. For a map of ideal bike-sharing locations, please see Appendix 6 or <http://www.mwco.org/transportation/TIGER/>.

Bus corridors have been developed with land use plans and anticipated growth in mind

The K Street component, in conjunction with the network of priority corridors connecting to it, has been developed to support a large list of District plans for land use, culture, arts and transportation. The project has also been designed to support a variety of redevelopment projects in K Street area.

Planned with the understanding that community buy-in is necessary for success

Each set of recommendations for the WMATA priority corridors is the result of an extensive outreach process, where engaged community groups and transit riders developed a comprehensive set of service and running-way improvements. The K Street Transitway has also been developed with robust community participation, most recently through the Environmental Assessment process when public meetings were held.

Sustainability

Increases per passenger fuel efficiency and reduces air pollution and GHG emissions

Bus priority treatments improve bus reliability and attractiveness

All bus package components work to prioritize bus transit over auto modes, and as such would reduce fuel consumption and greenhouse gas emissions as they encourage new transit trips and make existing transit trips faster and more efficient. Additionally, increased operating speeds of buses translates directly to lower operating costs, including reduction of fuel use. Specific reductions in fuel consumption and GHG emissions are documented in the benefit-cost analysis.

Bike-sharing promotes a zero emissions, non-motorized mode and reduces emissions

The bike-sharing system provides environmental benefits primarily from shifting trips that were previously made by automobile to bike and by increasing transit ridership. In aggregate, the system is estimated to reduce more than 50,000 daily VMT by the end of the 20 year horizon. This translates into more than 65,000 tons of CO₂, 60 tons of PM_{2.5}, 60 tons of NO_x, and 110 tons of VOCs over the 20 year period.

Transit centers support small area transit mode shares well above the regional average

The transit centers do not solely increase transit ridership, however, they support projected increases in transit capacity. Therefore, without Rosslyn's second entrance, or the pedestrian tunnel across MD 355, it is unlikely that all of the projected growth around those two stations would be able to be accommodated by the rail system. It is therefore likely that those trips would be diverted to other modes, such as bus and private automobile.

Improves service without building resource-intensive new infrastructure

A major environmental benefit of this project that should not be overlooked is that it seeks to improve service and increase transit capacity without building new infrastructure. This eliminates the need to take more land for travel lanes, run more buses to improve reliability, or build and/or operate new transit lines to extend the current reach of transit.

Safety

Transit centers aim to provide safer transit access and egress

The pedestrian tunnel removes pedestrian-auto conflicts and eliminates 23 potential accidents over the 20 year horizon. The new Takoma-Langley transit center will reduce time and risk pedestrians assume from crossing an extremely busy and currently not-walkable intersection, eliminating more than 200 potential accidents over the 20 year period. Please see Appendix 7 for an image of the current bus stops. The Rosslyn station improvements will provide significantly enhanced emergency access to/from the platforms. The new entrance elevators will be the fastest way into/out of the station and will therefore be instrumental to EMS personnel in the case of emergency. A new stairwell will provide access in case the elevators and escalators are out of service. Additionally, over 15,000 people are accommodated on trains using Rosslyn in the peak hour in the peak direction, so the additional capacity will be crucial to any evacuation events. Finally, the new entrance will also include a new mezzanine area that will serve as a refuge in the case of evacuation.

Bike-sharing makes biking safer for all cyclists by putting more cyclists on the road, replacing cars

By inducing a mode shift from private cars to bicycles, the number of cars and VMT will be reduced, thus reducing overall accident risk. Additionally, there is empirical evidence that simply increasing the number of cyclists on the roads makes cycling a safer mode of travel for all users. For instance, in a study of American and European cities, it was found that while the number of cyclists can double, the number of accidents



would only increase by 32%⁷. This is evidenced by a steadily decreasing crash rate as overall bicycle ridership, including bike-sharing, increases.

Some bus priority treatments also serve to reduce the probability of private vehicle-bus conflicts

The K Street project will include left turn restrictions, which will reduce conflict points, and enforcement mechanisms. The I-66 bus/HOV ramp will remove a dangerous weaving motion from many bus trips per day, reducing potential conflicts between buses and cars. Lastly, similarly to the bike-sharing, enhanced bus transit leads to increased transit ridership, some of whom are switching from the private automobile.

Benefit-Cost Analysis

The benefits and costs of the three packages of the project were evaluated and are presented in this section. The following table provides a summary of this analysis and is followed by a description of benefits not quantified in the analysis and a description of the methodology and limitations of the data available. The benefit-cost analysis, including a full description of input data, methodologies and data limitations are included in Appendix 3 and Appendix 4, available for download from <http://www.mwcog.org/transportation/TIGER/>.

TABLE 2

7% Discount Rate, dollars in millions, 2009\$	Priority Bus	Bike Sharing	Transit Centers	Rosslyn	Takoma-Langley	Medical Center	Total
NPV - \$	\$ 1,600	\$ 400	\$ 443	\$ 260	\$ 150	\$ 33	\$ 2,443
IRR	66.1%	77.5%		51.5%	56.6%	16.1%	
Total Costs - \$	(184.5)	(236.7)	(34.3)	(46.4)	(24.1)	36.3	(455.4)
Capital	184.5	16.4	96.4	38.0	22.2	36.2	297.2
Operating	-	74.9	10.4	8.5	1.9	0.1	85.4
Accident Costs	-	145.4	-	-	-	-	
Total Benefits - \$	1,781.1	632.2	594.1	309.7	214.7	69.6	3,007.5
Household \$	89.1	197.3	-	-	-	-	286.4
Travel Time	1,672.0	377.7	159.4	28.9	64.7	65.8	2,209.2
Increased Access	8.0	38.2	-	-	-	-	46.2
Bus Operating Cost	0.4	-	-	-	-	-	0.4
Environmental	2.3	9.0	-	-	-	-	11.3
Accident Reduction	2.8	2.2	114.5	-	110.7	3.8	119.5
Congestion Reduction	6.5	5.8	-	-	-	-	12.4
Public Health	-	2.0	-	-	-	-	2.0
Economic Development	-	-	320.1	280.9	39.3	-	320.1
Jobs							
Direct/Indirect	1419	93	329	104	86	139	1841
Induced	798	52	185	59	48	78	1035

Additional, Unquantified Benefits

The following is a summary of qualitative benefits not included in the benefit-cost analysis.

Priority Bus Package

First and foremost, the land use benefits of significant infrastructure expenditures are not factored into this analysis. The K Street Transitway will increase accessibility to properties located along the corridor, which would result in higher rents for existing properties as well as potential redevelopment of currently underused parcels. Similarly, likely increases in tax revenue from increased land values are not quantified in this assessment.



Another benefit not quantified is the bus stop improvements applied to the majority of the local bus routes operating on arterial roadways. These improvements (such as bulb-outs, shelters and other amenities) should result in increases comfort and safety of riders, helping justify the increase in ridership due to the corridor improvements assumed in the analysis.

The benefit of the new rolling stock requested as part of the buses-on-freeways component is not quantified in the analysis. The replacement of 13 buses in revenue service from 11-year-old vehicles to modern, clean vehicles will result in annual reductions of VOCs and NOx (2.4 tons and 5.1 tons respectively) and a reduction of nearly \$1 million in maintenance costs over a five-year period.

It is not currently known how many of the new trips resulting from the bus running-way improvements would be shifted from Metrorail, and more specifically the core of the Metrorail system. However, any trip shifted would relieve pressure on the downtown segments of the system, which are currently nearing capacity and, without change in the status quo, will reach capacity by 2020. The K Street Transitway, as well as three of the WMATA priority corridor routes, could possibly take passengers off the overburdened subway onto surface buses.

Bike-Sharing

First, most mode shifts will represent shifting short trips made by auto or transit. Many of the short transit trips shifted to bicycle will have been within the District core, where there is considerable Metrorail congestion. Shifting these trips from transit to bike will help relieve some of this pressure

The bike-sharing system has also created cultural shifts in other cities where it has been implemented, such as Paris. The act of returning a bike and sometimes handing it off to another user, presents the opportunity for social interaction, such as tips on issues with that particular bike. Such interactions amplify the cultural and social benefits of a tight urban fabric, adding to the livability of communities. The prevalence of the system throughout the region will also make biking more visible and conceptually accessible to people who may not have otherwise considered a bicycle for a non-recreation trip.

Transit Centers

The Takoma-Langley center provides a comfortable location for people to wait that does not currently exist, making transit more attractive to choice riders. Additionally, the center will serve a largely low-income, transit-dependent community. All of the transit centers will facilitate transit ridership and better integrate connectivity between rail, bus, car/vanpool, and pedestrian and bicycle commuters.

Input data and methodological standards used

Bus Priority Package

The basis for the cost-benefits assessment of the bus package is travel time savings and quality of service enhancements along the approximately 75 bus routes impacted by the improvements. Time savings benefits are experienced by the transit operators as well as bus passengers. Running-way improvements and real-time bus arrival information will greatly improve the quality of the bus riding experience, which can be translated into a reduction of perceived wait time that transit riders find much more onerous than travel time.

The bus component's analysis is broken out into five different bus transit modes, each with different operating characteristics including average fares and average trip lengths. The bus routes in each mode are then assigned a number of travel time savings in minutes based on the project components with which they interact. These travel time savings per bus route were used as the basis for determining the following quantifiable benefits:

- Travel time and wait time savings for existing riders



- Total travel cost reductions for new riders, including household savings
- Reductions in operating costs for transit operators
- Reductions in GHG and other emissions from both private and transit vehicles
- Reductions in auto-related accidents due to decreased auto travel

The analysis uses values of travel time specified in the regulations. Nevertheless, this analysis assumes that waiting and transfer time for bus transit is especially onerous without real-time bus arrival information. Therefore, a perceived waiting time is assumed to be double the actual expected waiting time. Project components that provide real-time bus arrival information assume that the perceived and expected wait time are the same.

The analysis captures the increased reliability due to the proposed bus by calculating expected bus wait times. For bus routes that can assume random arrivals (headways of 10 minutes or lower) a value is used that represents half the headway plus the standard deviation of the headway as the expected wait time. The expected wait time of buses that run less frequently is simply the standard deviation of the wait time. A value of 5 minutes has been agreed upon in this region as a realistic value for this parameter, as the region's commuter bus operators recommend to their passengers to arrive 5 minutes before buses schedule departure times.

Bus Priority Package Data Limitations

The primary data source for this analysis is the 2009 Constrained Long Range Plan transit network for the year 2010, which includes average travel time and distance for all bus routes impacted by the improvements. Ridership averages were solicited from the individual transit operators who provided the latest data available, generally June or July of 2009. Local and regional transit operators in the region provided assumptions for potential mode shifts, average trip lengths, regional average fares, and operating costs. Values for transit travel time elasticities, average auto speeds and annual growth rates of transit ridership were taken from the regional travel demand model or from regional studies.

The primary limitations of the data are the lack of specificity and the need to average different assumptions into one regionally representative figure.

Bike-sharing Package

The benefit-cost model for the bike-sharing package is based on a relatively simple framework of three major sources of costs and seven major sources of benefits and a set of basic and complex assumptions. The following is a summary of the methodology. A more detailed methodology is available in Appendix 5.

The foundation of the model is in several basic assumptions regarding ridership, capital and ridership increases over time, revenue generation, and mode shifts, all of which were based on other existing bike-sharing models, such as the Montreal, Barcelona, Paris, and Lyon systems. Major assumptions regarding bike trip characteristics, such as average trip lengths, were taken from COG Household Travel Survey (HHTS) 2007/2008.

The major costs in the model are capital, O&M, and increased accidents. Capital costs include initial system set-up, such as bicycles, bike racks, and card-readers, and replacement costs every 6 years. The operating cost includes system operations, maintenance labor, and an 8% theft and vandalism rate. Accident costs reflect the possible increase in accidents from adding more cyclists to the road. This is based on the current accident rate, bicycle ridership, and an accident increase factor per new cyclist added to the road, taken from Jacobsen's "Safety in Numbers" (2003).



The major benefits are: user cost savings, travel time savings, increased access, congestion reduction, emissions reduction, improved public health, and accident reduction. All benefits apply to new riders only as this is an entirely new system, therefore a consumer surplus model was applied to time cost, user cost, and increased access benefits. User cost savings are a determination of the change in the direct per mile user fees paid by travelers based on mode shifts, which in this case are shifts to bike from auto, taxi, transit, and walk or personal bike. Travel time savings are a similar determination of the time difference for a bike trip shifted from another source. Increased access benefits were determined for trips that previously were not possible or worth the time or cost by finding the difference between the user/time cost of the next cheapest possible mode (assumed to be bus transit) and the new bike-sharing option.

Benefits were also assumed from reducing VMT, such as congestion reduction, emissions reductions, and accident reduction. VMT reductions were assumed to come from trips shifted from auto and taxi to bike and trips shifted from auto to transit resulting from an increase in transit trips due to the technology component and increased transit access from bike-sharing.

Lastly benefits were assumed from increasing the number of people meeting the CDC's recommended daily physical activity. Improved public health is quantified by determining the defrayed health care costs from an increase in cycling and relies heavily on the recent Rails to Trails report on active transportation.

Bike-sharing Data Limitations:

The major data limitation was the lack of sufficient data points from other bike-sharing models, which would allow more accuracy in mode shift, ridership, and transit generation predictions. The models used were in operation for only 2 years or less. There was also limited data on the specific relationship between increased bicycle ridership and accident rates for the Washington region in particular. The exact bike-sharing locations within the local jurisdictions have not fully been determined, which eliminated the possibility for a detailed analysis of the affected demographic. This could have allowed for greater accuracy in determining the public health benefits, ridership, transit generation, and mode shifts

Transit Centers Package

The cost-benefit model for the transit centers package is based on a relatively simple framework of two major sources of costs and three major sources of benefits. The major costs are: capital and O&M. O&M costs include non-personnel costs and new employees. The major benefits are: economic development, travel time savings (for auto, bus riders, and bus access), and safety. The assumptions behind these benefits are as follows:

Economic development was determined for the Rosslyn and Takoma-Langley stations by estimating the increase in property value within a quarter mile around the stations. Property value was determined using tax assessment data. Increase in property value was assumed to be 1%, based on cost-benefit guidance from HDR Decision Economics.

Travel time savings were developed in three different ways for each transit center, but all applying to existing riders only. For the Rosslyn center, time savings are assumed to be gained existing riders who will be able to use a closer entrance. For the Takoma-Langley transit center, time savings were determined for both existing bus riders and those transferring between buses, using MDOT estimates of travel time savings, bus ridership, trip lengths between bus stops, and transfers by bus route from the HHTS 2007/2008. Assumptions of likelihood of transferring from one particular bus route to another were determined based on individual routes and common paths. For the Medical Center station, time savings for autos was determined by applying MDOT estimates of AM and PM peak period per auto time savings to the total volume of peak period auto traffic.

Accident reductions were determined based on the current accident rate, which is based on fatalities and



injuries and pedestrian crossings. It was assumed for both the Medical Center and Takoma-Langley centers that all transfer-related street crossing would be eliminated.

Transit centers Data Limitations

A precise understanding of the number of transfers to be positively affected by the Takoma-Langley center are not known, therefore requiring a series of assumptions to be applied to the total transfers at the intersection.

Evaluation of Project Performance

As part of the overall grant program management, the TPB, as lead applicant, will develop a performance monitoring system to evaluate the success and effectiveness of the project and its components. This is a critical step needed to assist USDOT determine the return on investment and honor its fiduciary responsibility to the American people, ensuring federal stimulus funding served the economic recovery purposes for which it was intended. Working with the consulting firms to be hired to administer the grant and its various requirements, TPB will develop a suite of performance metrics that will be used to grade the performance of the project and its components. Using a score card approach such as this will promote transparency, fostering public understanding of the progress of the project and accountability of grantees. This score card of performance metrics will include both short- and long-term indicators of success for the project and its components. The score card will be developed by TPB and its partners within the first six months of grant award and will feature indicator metrics that can be tracked over time to monitor and evaluate the success of the project. Types of indicators will include, among others, (1) financial performance of the project (i.e. is it implemented within budget), (2) measures to indicate if the project meets transportation performance objectives, and (3) indicators of how the project is contributing to both short- and long-term economic recovery. Once developed and operational, metrics will be updated on a regular basis and results will be included in required program reporting documentation as well as be made available to the general public.

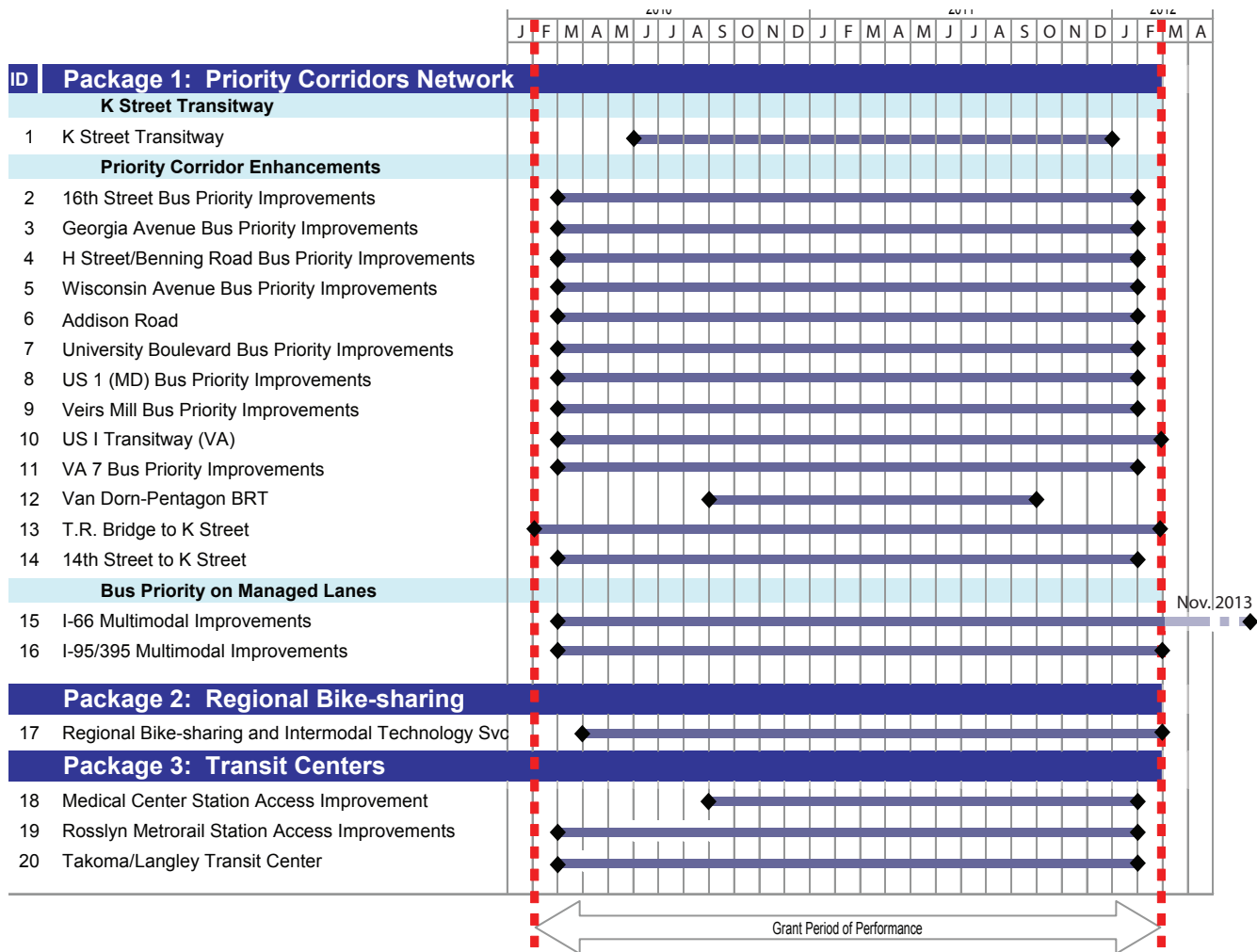
Immediate economic benefit

Investment of grant funds in the project and its components will result in economic benefits to the region. These benefits include both jobs and increases in economic activity. Economic activity itself will generate induced jobs, which are not jobs that directly result from the infused spending; rather, they result from the increases in economic activity that result from these overall increases. The number of jobs created by each project component is included in Table 3. Because the vast majority of project components will be implemented immediately upon award (See Section 8.2.9, Project Schedule, most of the jobs will be added in a corresponding immediate manner as a result. A factor of 1 new job per \$92,000 of government spending was used to estimate the number of new jobs. Of this, 64% of the new jobs were direct and indirect jobs, while 36% was induced jobs. This is based on the May 2009 memorandum, Estimates of Job Creation from the American Recovery and Reinvestment Act of 2009, issued by The Executive Office of the President, Council of Economic Advisors. The total number of new jobs estimated to occur as a result of implementation of the entire project is 2,877. Of these, 1,842 are direct/indirect jobs, and 1,036 are induced jobs. These jobs result exclusively from the capital investment in the proposed projects. In addition to these jobs, some components will yield long-term jobs required to either operate the program or facilities, as well as jobs that may result from increased economic activity prompted by the components. These long-term jobs are addressed earlier in Economic Competitiveness portion of the Primary Criteria discussion

Project Schedule

The project schedule below shows how the various components and packages constituting the proposed project will be implemented over the period of performance of the grant. Nearly all components will start immediately upon grant award, and the remainder will start within a few months of award, underscoring the readiness of the proposed project to be implemented promptly.





SECONDARY CRITERIA

Innovation

This proposal contains a variety of innovative strategies aimed at prioritizing bus transit and increasing the efficiency of existing operations.

Advanced Technology

Many of the project components include advanced technology solutions. All of the bus corridors in all three sub-packages will implement advanced Intelligent Transportation Systems technology, such as transit signal priority and real-time arrival prediction technology. The Takoma/Langley transit center also includes real-time arrival prediction services.

The bike-sharing system includes several innovative, advanced technology components. The bike sharing component relies on solar-powered, wireless-enabled bicycle docking stations that provide secure storage and easy check-out of bicycles. At places of high intermodal transfer, “smart” hubs are also proposed to create mobility hot-spots that will combine bike stations, car sharing, transit information terminals and wireless internet hot-spots, from which a new and innovative transportation information website will be accessible.

Innovative Road Use Policies

Through the process of developing this grant proposal, the state DOTs in the metropolitan Washington



region have begun to adopt a philosophy of optimizing roads for person throughput instead of simply vehicle throughput. This shift is made possible by considering ways to provide priority to high-capacity bus transit vehicles over single-occupant vehicles on arterials and freeways. This consideration has resulted in the inclusion of several policies that prioritize buses over private vehicles, including transit signal priority, queue jump lanes and exclusive bus lanes, all of which are incorporated into the arterial priority corridor component.

Partnership

TPB staff developed this project proposal after over 6 months of regional coordination, cooperation, planning and consensus building. Staff consistently met with state and jurisdictional agencies to refine the proposal, and in the process developed a first draft regional long-range bus transit plan. This project proposal is thus the result of a very extensive collaborative and cooperative process. Decision-makers from throughout the region have stated that this exercise alone has provided the region with a great benefit, in making connections between local governments, transit agencies, state DOTs, and regional planners.

Additionally, several of the components of the project were developed through public processes that engaged many stakeholders. The WMATA priority corridor improvement recommendations are all the result of innovative corridor studies that fully engaged the public in the planning process. The process of developing the K Street Transitway included the downtown business improvement districts from the project's inception. The Takoma/Langley Transit Center project planning process involved many non-profit human service agencies that work to support the low-income and immigrant communities in the Langley Park area of Montgomery and Prince George's Counties.

Regulatory Compliance

NATIONAL ENVIRONMENTAL POLICY ACT REQUIREMENT

Components of the proposed project may be subject to the provisions of the National Environmental Policy Act of 1969, as amended (NEPA). Two components are currently preparing Environmental Assessments (EA): the K Street Transitway and the Medical Center Station Access Improvements. The EA for K Street is expected to be completed in October 2009 and the Medical Center EA is expected to be completed by January 2010, both prior to February 2010. A Categorical Exclusion (CE) has been completed for the Rosslyn Metrorail Station Improvements and has received concurrence from FTA. A CE has been completed and submitted to FTA for the Takoma-Langley Transit Center. Documentation is available in Appendix 9. A determination from FTA is anticipated shortly. For all other components in the proposed project, NEPA analysis has not been completed, but it is anticipated that they will meet the criteria standards for a CE. These projects do not entail construction or other surface disturbing activities or they are confined to existing rights-of-way. For all project components, the appropriate level of NEPA analysis will be completed in time for project implementation and completion, in accordance with the project schedule provided in the previous section.

ENVIRONMENTALLY-RELATED FEDERAL, STATE AND LOCAL ACTIONS

As part of project implementation, all project applicants and owners will comply with all applicable Federal, State and local permitting requirements. Permits required for both the construction and operation of these proposed projects will be obtained. As is the case with all capital improvement projects implemented by any of the parties identified in this application, all applicable Federal, State and local permits will be identified and obtained in accordance with standard construction management procedures carried by the applicants.



FEDERAL WAGE RATE REQUIREMENT

As the signatory to this application, the Metropolitan Washington Council of Governments certifies it will, in its role as administrative agent for the TPB and lead applicant for this TIGER grant application comply with all wage rate requirements and other applicable provisions of the United States Code, Subchapter IV of Chapter 31 of Title 40.

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- 1 (U.S. Bureau of the Census, Metropolitan and Micropolitan Statistical Area Estimates: April 1, 2000 to July 1, 2008, accessed from <http://www.census.gov/popest/metro/CBSA-est2008-annual.html>, accessed August 20, 2009).
 - 2 Status Report on the Bus Systems in the National Capital Region <http://www.mwcog.org/uploads/pub-documents/zldbWg20080611161227.pdf>
 - 3 Hudgins, Catherine, Facing the Pressures of Growth, *The Region Magazine*, vol. 47, 2008, p. 3, accessed from <http://www.mwcog.org/uploads/pub-documents/z1dYXg20080911085045.pdf>, August 10, 2009.
 - 4 MWCOC Overview of Air Quality Issues in the National Capital Region: <http://www.mwcog.org/environment/air/>
 - 5 CNT Housing and Transportation Affordability Index http://htaindex.cnt.org/mapping_tool.php?region=Washington--Baltimore,%20DC--MD--VA--WV
 - 6 CDC Physical Activity and Health Report, 1999. <http://www.cdc.gov/NCCDPHP/SGR/concl5.htm>
Jacobsen, PL. "Safety in Numbers" *Inj. Prev.* 2003;9;205-209

