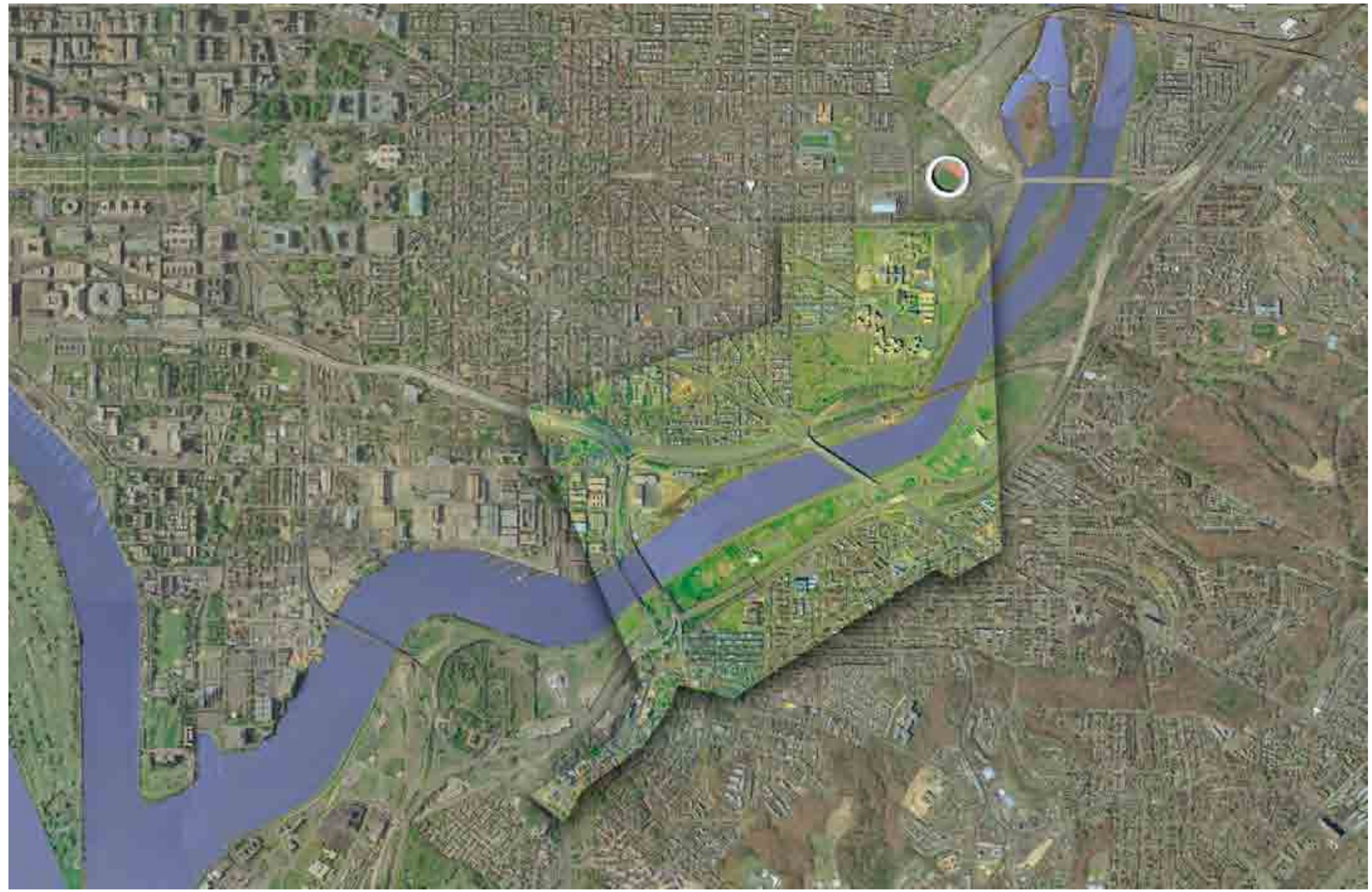
Anacostia Waterfront

Middle Anacostia River Crossings Transportation Study



FINAL REPORT • JUNE 2005

District Department of Transportation

Anacostia Waterfront Initiative

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**** CD includes all relevant data and traffic analyses completed for each condition***

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The Middle Anacostia River Crossings Transportation Study evaluated the current and future needs for vehicular, transit, pedestrian, and bicycle mobility and safety, as well as existing access problems caused or ignored by past transportation investment in the study area. The findings of this evaluation resulted in six basic project goals.

Study Findings

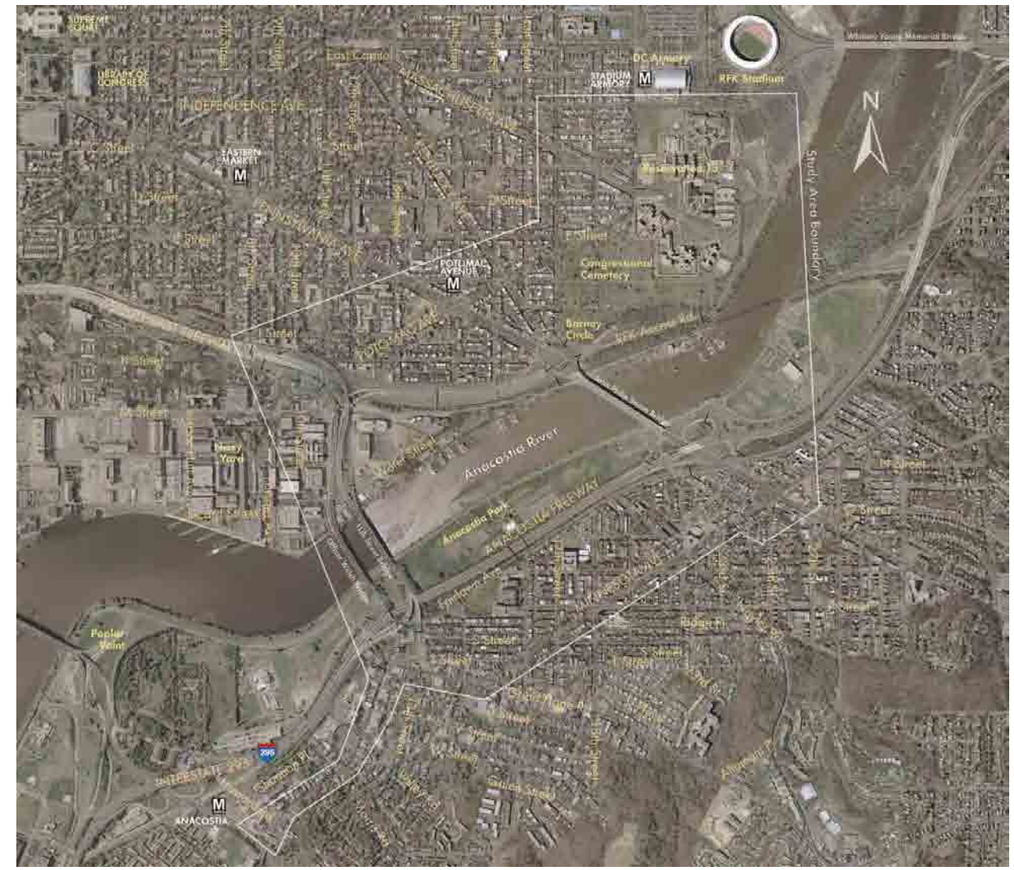
- **Provide a more balanced transportation system by adding the missing movements to the major interchanges.**
- **Maximize the connectivity between the light rail demonstration line, the Anacostia Riverwalk Trail, and the existing and proposed road network.**
- **Remove the unneeded and obsolete pavement (I-395, RFK ramps) and restore vital greenspace along the river.**
- **Separate the local and regional traffic where feasible.**
- **Provide better access to parklands, neighborhoods, riverfront, and other cultural amenities.**
- **Restore Barney Circle as an actual traffic circle to achieve benefits to local mobility and traffic congestion.**

Overview of Improvements

The Middle Anacostia River Crossings Transportation Study identified three general types of improvements: near-term (seven proposed projects), mid-term (eight proposed projects), and long-term (20 proposed options).

While the near-term and mid-term projects focus on immediate improvements, the long-term projects will require more engineering design effort with a much higher construction cost and a longer timeframe. However, the three improvement timeframes share common goals and objectives for enhancing the transportation network within the Middle Anacostia River region. Some of the common themes of many of the improvements, regardless of project size or timeframe, were improving safety and accessibility for all travel modes, enhancing mobility, reducing demand on neighborhood streets, and providing redevelopment opportunities on unneeded right-of-way.

The Middle Anacostia River Crossings Study Area



Overview of Improvement Categories for the Middle Anacostia River Crossings Transportation Study

	Safety	Accessibility	Mobility and Operations	Park and Waterfront Connectivity	Neighborhood Traffic Relief	Redevelopment of Transportation Right-of-Way	Transit Infrastructure
Goals	• Improve safety for all travelers at all identified conflict points. • Improve existing pedestrian and bicycle facilities. • Maintain favorable conditions by providing safe travel for one type of travel mode without reducing the safety of another. • Improve safety at high accident locations.	• Improve access between all major roadways. • Improve access between neighborhoods. • Improve access across the Anacostia River waterfront. • Improve visual accessibility for neighborhoods near the Anacostia Park and waterfront. • Minimize visual impairments caused by transportation system.	• Improve how the existing roadway network functions. • Improve existing pedestrian and bicycle routes.	• Improve access and connections to Anacostia Park. • Improve access to the Anacostia River waterfront on both sides of the river.	• Improve existing signal timings in areas with severe congestion. • Remove unsafe connections. • Direct traffic to appropriate roadways. • Discourage cut-through traffic on neighborhood streets. • Separate regional traffic from local traffic.	• Maximize use of current transportation system. • Replace underused roadways with green space or more appropriate use.	• Improve the existing features at bus stops. • Increase visibility of bus stops and transit services. • Improve connections to key destinations such as Metro Stations and bus stops.
Objectives	• Install appropriate amenities to ensure safe conditions. • Replace deficient pedestrian and bicycle amenities. • Eliminate gaps in the sidewalk network. • Connect gaps in the existing bicycle paths. • Replace inadequate signs and markings for all travelers.	• Install signing to eliminate confusing or conflicting directions for all travelers. • Create safe merge and diverge areas at conflict points. • Provide missing movements. • Evaluate use of tunnels or similar design elements to complete interchanges. • Remove transportation features that create barriers to views of the city and the waterfront.	• Replace deficient signing and pavement markings. • Install new connections to enhance travel. • Accommodate pedestrians at signalized intersections. • Coordinate signal timings along corridors with signal timing of major movements.	• Connect existing infrastructure with the Anacostia Park waterfront facilities. • Create or reestablish connections to Anacostia Park and the waterfront. • Improve visibility and safety of existing connections to the Anacostia Park. • Provide signing for key destinations inside and outside the study area.	• Prioritize pedestrian and vehicular movements to reflect surrounding land uses. • Rehabilitate roadway surfaces. • Establish appropriate routes for regional and local traffic.	• Eliminate unused portions of roadway. • Reallocate transportation right-of-way to more aesthetically pleasing uses such as landscaping or monuments.	• Replace deficient amenities within the study area. • Provide adequate amenities at stops with significant ridership.

Core Areas of the Middle Anacostia River Region

The Middle Anacostia River Crossings Transportation Study focused on identifying and developing improvements in the following core areas within the study area:

- Anacostia Park and Waterfront,
- Anacostia Freeway and River Crossings,
- Martin Luther King, Jr. Avenue/Anacostia Neighborhood,
- Barney Circle and the Southeast Freeway, and
- Pennsylvania Avenue Corridor.

Core Areas within the Middle Anacostia River Region

Future Conditions Overview

Traffic conditions for the Middle Anacostia River region were analyzed by applying design and engineering guidelines set by DDOT, the American Association of State Highway and Transportation Officials (AASHTO), the Manual of Uniform Traffic Control Devices (MUTCD) and methodologies from the Highway Capacity Manual. To be consistent with the latest Metropolitan Washington Council of Governments (MWCOG) regional transportation model, the horizon year of 2030 was selected for the base condition of land use and traffic demand. Travel demand data for the year 2030 were determined, and comparisons were made for the control situation in 2030 (the No Build Condition) in order to analyze how traffic conditions could be improved with major transportation improvements. These analyses also showed that current deficiencies will increase if no improvements are made on major roadways such as Pennsylvania Avenue, the Anacostia Freeway, and other major links in the system. The impact of future traffic on the transportation network was compared with the 2030 Build conditions in which major interchange modifications were considered. The levels of service and average speed data were used as tools to evaluate the changes made.

Improvement projects were grouped as near-term, mid-term and long-term, based on their construction and implementation timeframe. The near-term projects are defined as relatively minor, spot-specific improvements that can be implemented with minimal negative impact, little or no environmental assessment, minimal design, and low costs. These immediate improvements focus on pedestrian, vehicular and transit issues while creating a more aesthetically pleasing environment. The mid-term and long-term improvements will require more planning, design and cost, and were developed with the intention of fixing past planning mistakes and addressing anticipated land uses and future traffic demand.

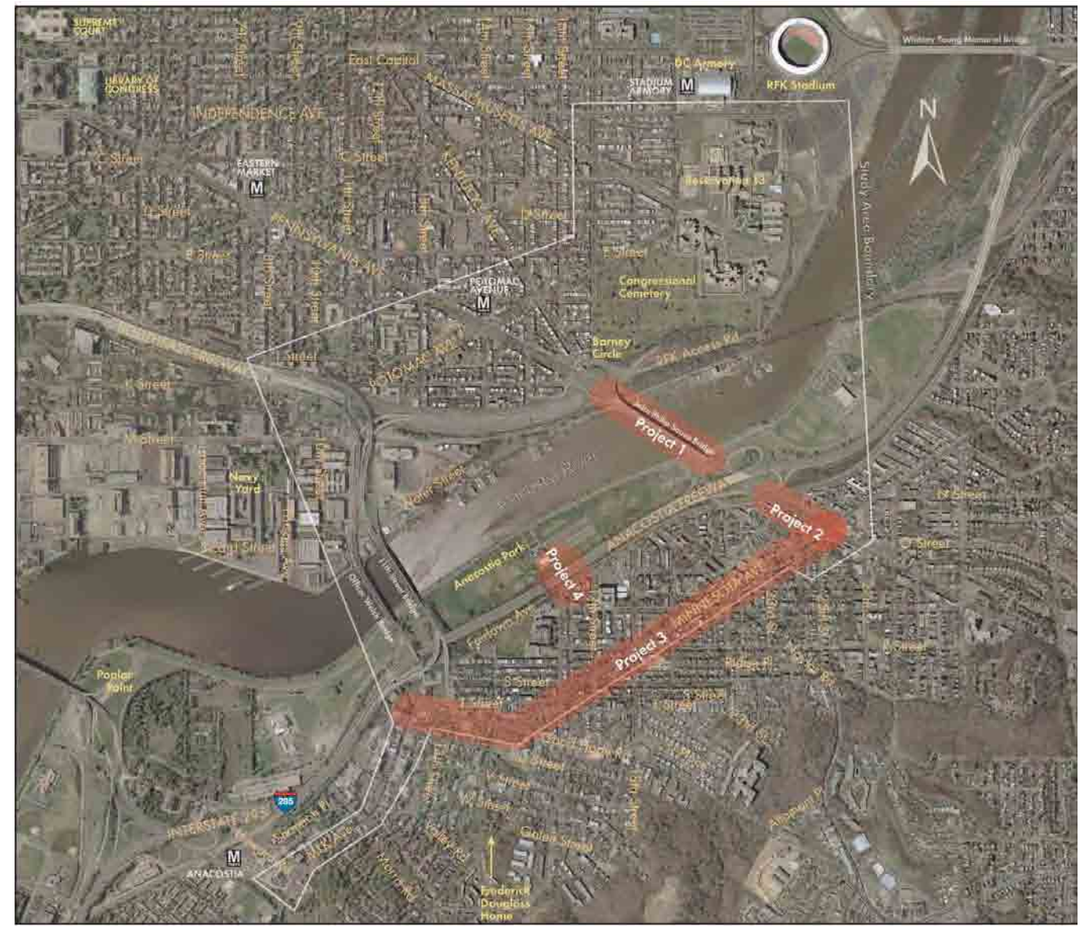
Near-Term Projects

Seven near-term projects focus on improvements that may provide some immediate mobility enhancements for residents and commuters in the study area. These improvements can be implemented within three to nine months from 2005 to 2006, depending on available funding.

Summary of Near-Term Project Benefits and Costs

Project	Description	Benefits	Cost
1	**Signing and Pavement Marking Improvements along the Sousa Bridge and the Ramp to the Southeast Freeway**	• Improves vehicular mobility • Improves motor vehicle safety • Provides more clear direction for pedestrians and bicyclists • Increases pedestrian and bicycle safety	**$152,000**
2	**Signal Timing Optimization along Pennsylvania Avenue, east of the Anacostia River**	• Improves vehicular mobility	**Minimal**
3	**Roadway Resurfacing and Pavement Marking Replacement**	• Improves vehicular mobility • Improves on-street bicycle mobility • Improves connectivity to Anacostia Park	**$900,000**
4	**Pedestrian Bridge and Anacostia Park Connectivity Improvements**	• Improves pedestrian accessibility to Anacostia Park • Improves pedestrian safety	**$625,000**
5	**Near-term Pedestrian Spot Improvements (Areawide)**	• Improves pedestrian mobility, safety, and accessibility	**$322,500**
6	**Bicycle Network Improvements (Areawide)**	• Improves bicycle mobility, safety, and accessibility	**$77,000**
7	**Bus Stop Amenities Improvements (Areawide)**	• Improves the quality of transit services for patrons • Makes transit stops more visible and inviting	**$276,000**
		Total	**$2,352,500**

Near-Term Improvement Project Locations



Mid-Term Projects

Eight mid-term projects were developed that build on the benefits of the near-term improvements and provide further relief for residents and commuters. The mid-term improvements have an estimated implementation schedule of two to five years from 2006-2010, depending on available funding. These projects require more detailed engineering and permitting and generally have a higher cost than the near-term projects.

Summary of Mid-Term Project Benefits and Costs

Project	Description	Benefits	Cost
8	**Upgrade the Service Road between Barney Circle and the RFK Access Road**	• Improves access to and from the Southeast Freeway • Safely accommodates u-turning vehicles along Pennsylvania Avenue • Improves access to the Anacostia Park and waterfront for pedestrians and bicyclists	**$9,274,000**
9	**RFK Stadium Access Road Resurfacing/Rehabilitation Considerations**	• Improves vehicular mobility • Improves access to Anacostia Park	**N.A.**
10	**Anacostia Park and Frederick Douglass Home Wayfinding Improvements**	• Improves awareness of recreational and cultural destinations • Improves connectivity to Anacostia Park	**$12,000**
11	**Minnesota Avenue Pedestrian Safety Improvements**	• Improves safety for all users • Improves aesthetics of roadway	**$1,528,000**
12	**Conversion of Martin Luther King, Jr. Avenue and 13th Street to Two-Way Traffic**	• Improves land use opportunities to revitalize community Enhances vehicular circulations	**$859,000**
13	**M Street Ramp Connection to Southbound Welsh Memorial Bridge**	• Improves separation of local and regional traffic on Welsh Memorial Bridge • Reduces weaving between transit vehicles and through traffic	**$15,528,000**
14	**Pennsylvania Avenue/Potomac Avenue Intersection Improvements**	• Improves safety for pedestrians • Provides better connection to Potomac Avenue Metro Station • Simplifies traffic operations	**$2,623,000**
15	**Northbound D.C. 295 Ramp Improvements Accommodating Traffic from Eastbound and Westbound Pennsylvania Avenue**	• Improves vehicle safety • Improves traffic flow along Anacostia Freeway and Pennsylvania Avenue	**$3,364,000**
		Total	**$33,188,000**

Mid-Term Improvement Project Locations

Long-Term Projects

The long-term projects focused on addressing the missing movements at six key interchanges and major roadways, and would provide the most congestion relief and improvement to overall mobility and connectivity. Although environmental analysis and engineering design of the long-term improvement options could commence at any time, construction is expected to start in 2010 or later with construction completion expected by 2025. In all, there are twenty options among the six locations identified.

Long-Term Project: Pennsylvania Avenue/Anacostia Freeway Interchange

Six options **(P-1 through P-6)** have been developed for Pennsylvania Avenue at the Anacostia Freeway. All options provide full movement access between Pennsylvania Avenue and the Anacostia Freeway. No modifications are proposed to the Sousa Bridge and no impacts are anticipated to the existing CSX railroad tracks between the interchange and L'Enfant Square under any of these options. Option P-1 represents a full "D.C.-type" circle with traffic signals on all approaches into the circle. Option P-2 is a modification of P-1, providing an oval shaped design instead of a circular one.

Option P-1

Option P-2

Options P-3, P-4, and P-6 provide a combination of flyover ramps and/or loop ramps to accommodate all the movements at this interchange.

Option P-3

Option P-4

Option P-6

Option P-5 is a single-point diamond interchange with the signalized intersection located on Pennsylvania Avenue, above the Anacostia Freeway. As with P-1 and P-2, this option proposes to lower the existing grade of Anacostia Freeway and create a tunnel underneath Pennsylvania Avenue. All other options maintain the existing grade of Anacostia Freeway above Pennsylvania Avenue.

Option P-5

Long-Term Project: Barney Circle Improvements

Barney Circle currently does not operate as a true traffic circle. Grade-separated ramp movements to the Southeast Freeway from Pennsylvania Avenue, combined with the fact that several movements are not accommodated, make Barney Circle more of a barrier than a traffic mover. Two options **(BC-1 and BC-2)** at Barney Circle would provide for a full range of movements. A basic assumption of both options is the conversion of the existing Southeast Freeway to a local connector, boulevard-type roadway.

Option BC-1 proposes that the converted Southeast Freeway (boulevard) tie into the existing tunnel under Barney Circle. In Option BC-2, the new boulevard would connect directly into the newly configured circle at the same elevation as the other local streets. All five approaches to Barney Circle would be signalized, allowing it to operate like DuPont Circle or other comparable locations within Washington, D.C. Signal control would provide safe, well-defined pedestrian crossings, while effectively calming traffic flows on Pennsylvania Avenue.

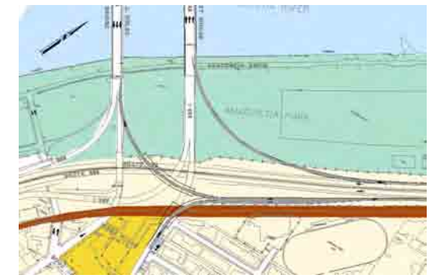
Option BC-1

Option BC-2

Long-Term Project: 11th Street Bridges/Anacostia Freeway Interchange

This interchange, like the Pennsylvania Avenue/Anacostia Freeway interchange, does not currently provide several movements and acts as a barrier for residents and commuters alike on both sides of the Anacostia River. Four options **(A-1 through A-4)** have been considered at this location.

Option A-1 was explored as it adds movements that can be easily accommodated without major reconstruction of the existing interchange. It provides three additional movements to the existing interchange: a southbound ramp from the Welsh Bridge to northbound Anacostia Freeway, a northbound ramp from southbound Anacostia Freeway to the 11th Street Bridge, and a northbound ramp from 13th Street to northbound Anacostia Freeway.



Option A-1

In Option A-2, both the 11th Street Bridge and Welsh Memorial Bridge are converted to accommodate two-way traffic. By accommodating two-way traffic, the 11th Street Bridge would serve as the regional connection between the Anacostia Freeway and the Southeast Freeway. Similarly, the Welsh Memorial Bridge would serve as the local connection between the neighborhoods on both the west side and east side of the Anacostia River. Option A-3 builds on the premise of Option A-2 but expands the proposed interchange to include some local-to-freeway connections as well as some freeway-to-local connections.

Option A-2

Option A-3

Option A-4 reflects the ultimate build condition for the 11th Street Bridges/Anacostia Freeway interchange in that all local-to-freeway and freeway-to-local movements are accommodated. Access is also provided from the proposed D.C. Government Center and AEDC Building to the area between the two bridges and Anacostia Park on the east side of the Anacostia River. All options account for the removal and replacement of the current 11th Street Bridges.

Option A-4

Long-Term Project: 11th Street/Southeast Freeway Interchange

The 11th Street/Southeast Freeway interchange is located on the west side of the Anacostia River. This is another incomplete interchange within the study area that does not provide all the movements for local and regional connections. In addition, the Southeast Freeway currently creates a barrier between neighborhood streets and the waterfront.

Three options **(SE-1 through SE-3)** have been developed at this location. In these options, it is proposed that the two-way 11th Street Bridge act as the regional connection between the Southeast Freeway (west of 11th Street) and the Anacostia Freeway. The proposed two-way Welsh Memorial Bridge would have no direct connection to the Southeast Freeway; rather, it would maintain its role as a local connection on the west side of the Anacostia River. To improve local traffic circulation between neighborhoods, a “D.C.-type” traffic circle is proposed to link Potomac Avenue, 11th Street, and the proposed boulevard along the section of the Southeast Freeway between 11th Street and Barney Circle. Depending on whether the proposed 11th Street Bridge is carried above or below the proposed circle, impacts may result to the CSX railroad line in this area. Options SE-1 and SE-3 show a proposed tunnel underneath the at-grade circle, while Option SE-2 shows a bridge over the circle.

Option SE-1

Option SE-2

Option SE-3

Long-Term Project: Boulevard along the Southeast Freeway

This project proposes a boulevard on the right-of-way of the Southeast Freeway section between 11th Street and Barney Circle in place of the underused, dead-end section of the Southeast Freeway, including the RFK Stadium access ramps. To maintain flexibility in land use, plans allow the redevelopment of the Southeast Freeway right-of-way with a boulevard design. Four boulevard options **(Boulevard 1 through Boulevard 4)** have been considered for this section of the Southeast Freeway.

The boulevard would be a four-lane, divided minor arterial. Pedestrian and bicycle accessibility would be provided adjacent to the roadway by a shared-use trail. In addition, enhanced landscaping would be applied to medians, buffer zones and all other areas where existing pavement is removed. This would provide a better connection between the neighborhoods and the waterfront by creating a park-like environment, accessible by all modes of travel. Boulevard Option 1 proposes a redevelopment of L Street while providing a direct connection to Barney Circle and the newly developed circle under the 11th Street/Southeast Freeway improvements.

Boulevard Option 1

Other boulevard options, such as Options 2 and 3, provide the opportunity to extend the local street network beyond L Street out to the new roadway.

Boulevard Option 2

Boulevard Option 3

Boulevard Option 4 provides a separated roadway, independent of the existing neighborhood streets such as 15th Street and 13th Street.

Boulevard Option 4

Long-Term Project: Park Drive Connector Road

The Park Drive alignment is identified in the Anacostia Waterfront Initiative (AWI) framework plan as a proposed roadway that will connect Independence Avenue to Barney Circle and work in conjunction with the redevelopment of Public Reservation 13. The proposed Park Drive option **(R-1)** has been planned as a two-lane, low-speed roadway. Associated with this concept is the extension of Massachusetts Avenue from 19th Street to a traffic circle that would also accommodate Park Drive and help maintain lower travel speeds. This extension is part of an overall plan to redevelop the land uses and traffic circulation for Reservation 13. As a result of this redevelopment, the existing RFK Access Road would be removed and a continuous park access road or trail would be provided along the riverfront.

Option R-1

The long-term projects provide a vision of the future transportation network in the Middle Anacostia River region. While these improvements may require significant funding support and further design and environmental evaluation, they form a basis for realizing the goals of the AWI Framework Plan.

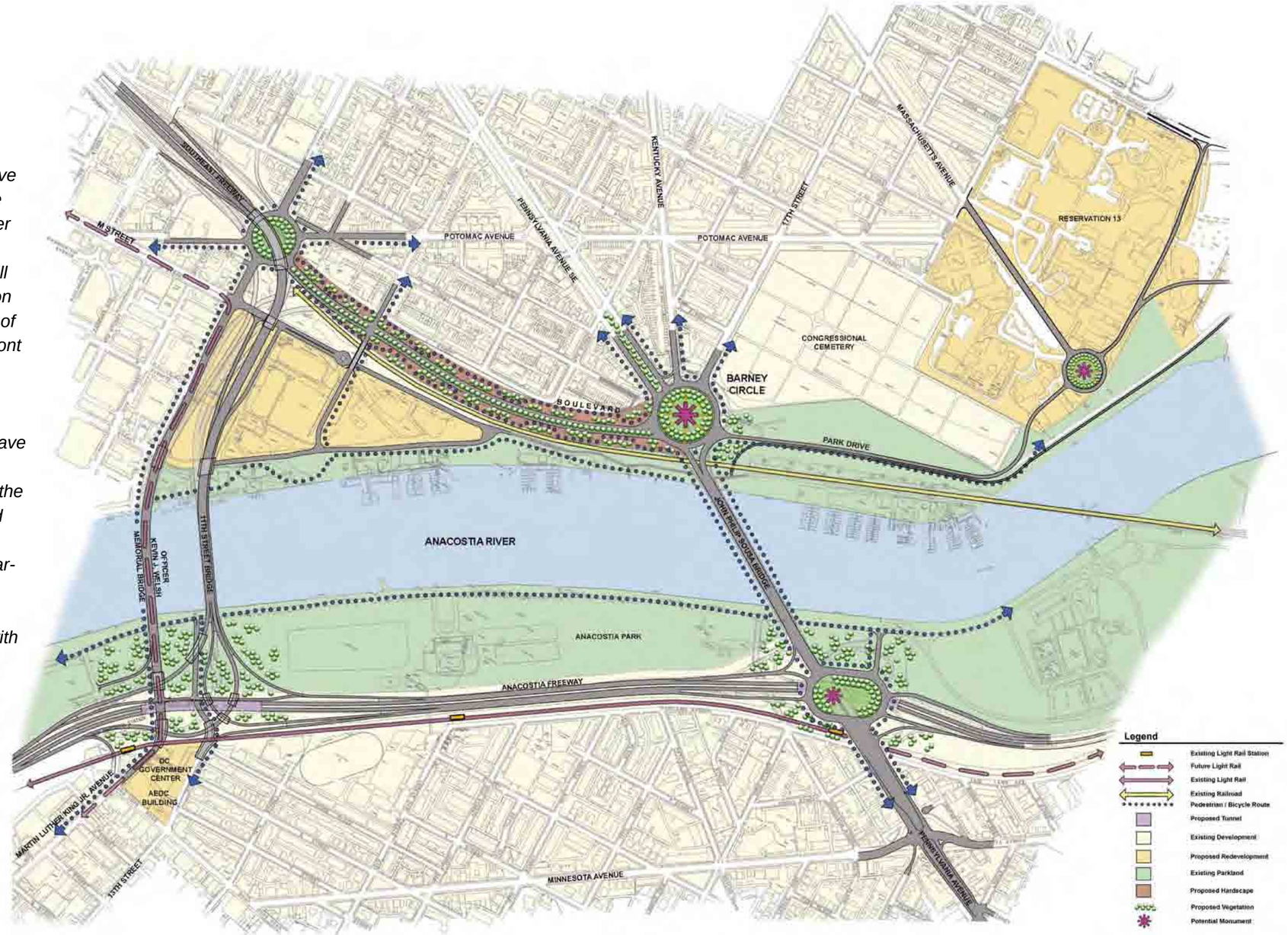
Summary of Long-Term Improvement Options

Location	Option	Cost Estimate	General Benefits	Potential Impacts
Pennsylvania Avenue/ Anacostia Freeway	P-1	$94.3 million	• Provides all movements at interchange • Provides aesthetic improvements and possible opportunities for a monument • May provide less obstruction to Anacostia Park and waterfront	• Park Impacts • Utilities • Visual obstructions in some options
	P-2	$95.3 million		
	P-3	$68.6 million		
	P-4	$59.5 million		
	P-5	$93.2 million		
	P-6	$59.5 million		
Barney Circle	BC-1	$23.6 million	• Provides direct access to all adjacent roadways • Provides aesthetic improvements and possible opportunities for a monument	• Utilities
	BC-2	$21.3 million		
11th Street Bridges/ Anacostia Freeway	A-1	$193.0 million	• Provides full movements • Provides separation of local and regional traffic • May provide less obstruction to Anacostia Park and Waterfront	• Park Impacts • Utilities • Visual obstructions in some options
	A-2	$230.6 million		
	A-3	$279.1 million		
	A-4	$310.3 million		
11th Street/ Southeast Freeway	SE-1	$138.6 million	• Provides better connection of local street network • Separates local and regional traffic • Provides aesthetic improvements	• Residential Impacts • Potential CSX Railroad Impacts • Utilities • Visual impacts in some options
	SE-2	$99.5 million		
	SE-3	$136.8 million		
Boulevard along the Southeast Freeway	Boulevard 1 (Typical Section 1)	$22.4 million	• Develops underused transportation right-of-way • Improves connectivity between adjacent neighborhoods and the Anacostia Park and waterfront • May provide future land use opportunities	• Utilities
	Boulevard 2 (Typical Section 3)	$121.0 million		
	Boulevard 3 (Typical Section 1)	$18.3 million		
	Boulevard 3 (Typical Section 2)	$175.0 million		
	Boulevard 4 (Typical Section 3)	$20.9 million		
Park Drive Connector Road	R-1	$4.8 million	• Provides better connectivity to Anacostia Park and Reservation 13	• Park Impacts • Utilities

A Look at the Future of the Middle Anacostia River Region

As illustrated in this long-term transportation vision, the proposed improvements would have a profound impact to both the physical nature and social fabric of the Middle Anacostia River region. The implementation of long-term improvements at each of the key locations will lead to not only a more effective transportation system, but will enable many other elements of the AWI to be realized. These include riverfront enhancements, recreation, and the opportunities for monumental gateways.

The Anacostia River and its adjacent lands have been neglected or underused for too long. Because of this neglect and past oversights, the transportation network that services local and regional traffic alike is also in need of improvement. The implementation of the near-term, mid-term, and long-term improvements identified by the Middle Anacostia River Crossings Transportation Study, in concert with other related studies and investments, will revitalize the waterfront and adjacent communities and help achieve the great visions of the Anacostia Waterfront Initiative.



Implementation, Achievability, Performance, and Future Outlook

Making the major transportation improvements in the Middle Anacostia River region a reality will require a project development strategy that includes:

- Environmental Assessments and/or Environmental Impact Statements (primarily for the long-term improvement projects),
- Establishment of funding mechanisms,
- Acquisition of funding,
- Design engineering,
- Permitting and approvals, and
- Right-of-way acquisition.

Each of the three improvement timeframes will have its own specific considerations for constructability, phasing, and cost. The projects under the near-term and mid-term designations may provide opportunities for expedited construction through innovative contracting such as a design-build or fast-tracked design-bid-build. Long-term improvements are generally much more complex than the other projects and will have to involve all of the developmental steps listed above.

Overall Improvement Recommendations

Numerous improvement projects and options have been presented for implementation in this study. The seven **near-term projects** and eight **mid-term projects** should all be implemented as soon as funding is secured. In comparison to the long-term improvements, the near-term and mid-term projects are relatively low in cost and should not require much, if any, additional engineering or evaluation. These projects will help establish the foundation for the more significant long-term improvements.

The various **long-term projects** and their options have a high degree of interchangeability. In other words, there is no one and only correct construction sequence, nor does selecting one option at one location necessarily preclude any options for a neighboring project. Such interchangeability could be valuable in initiating projects as monies become available or as local priorities shift over the coming years. However, if available funding were of no consideration, the following would be a logical progression of initiating the long-term projects, recognizing that each project does not need to be completed before advancing the next:

1. 11th Street/Anacostia Freeway – *Option A-4*
2. Pennsylvania Avenue/Anacostia Freeway – *Option P-2, P-3 or P-5*
3. Barney Circle Improvements – *Option BC-2*
4. Park Drive Connector Road – *Option R-1*
5. Boulevard along the Southeast Freeway – *Option BLVD-3*
6. 11th Street/Southeast Freeway – *Option SE-2*

As the first project to be initiated, the 11th Street Bridges/Anacostia Freeway interchange would immediately help reduce volumes on the Sousa Bridge and other connecting local streets, enhancing overall mobility. Construction of this option could take approximately eight years. Specifically, it is recommended that funding be sought for **Option A-4**, the ultimate build interchange.

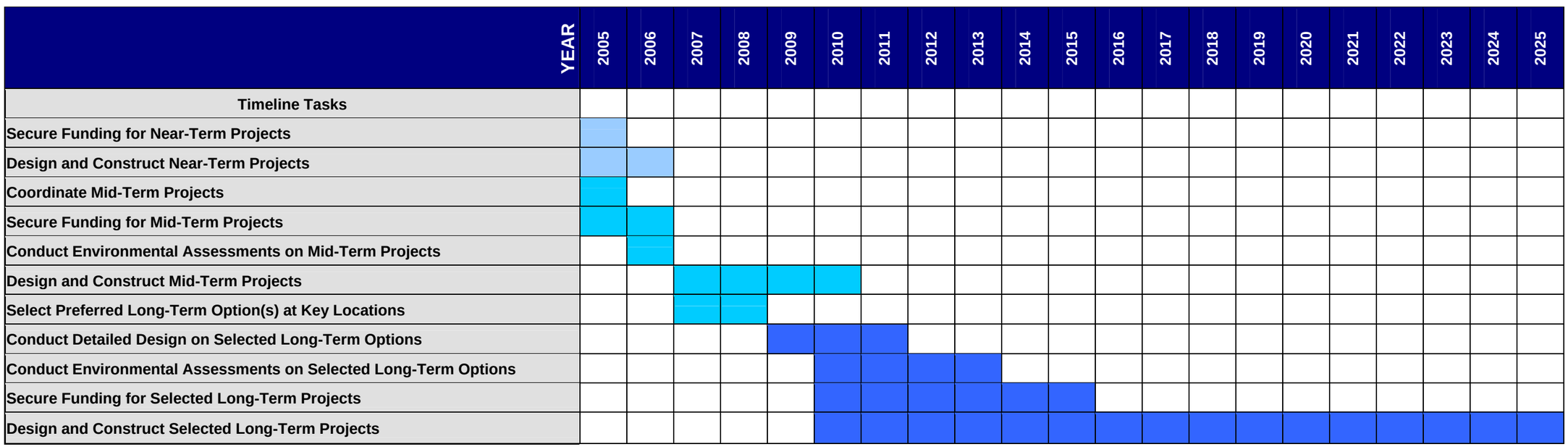
To further address the congestion on the Sousa Bridge, the reconstruction of the Pennsylvania Avenue/Anacostia Freeway interchange is recommended as the next major project to be implemented. It is recommended that **Option P-2** be considered for this interchange. The major benefits of implementing this option include the lowering of the Anacostia Freeway into a tunnel, increased opportunities for aesthetic treatments, and provisions for a full movement interchange between Pennsylvania Avenue and the freeway. This improvement could take approximately three years to complete.

Improvements at Barney Circle are slightly higher in priority than the remaining long-term projects because of their relationship to the Sousa Bridge and traffic along Pennsylvania Avenue. **Option BC-2** is recommended for implementation to achieve a true "D.C. circle." The development of a complete circle at this location would also improve neighborhood accessibility. This improvement could take approximately two years to complete.

The development of the boulevard and Park Drive **(Option R-1)** are of equal importance or priority in terms of completing the new Barney Circle. **Boulevard Option 3** is recommended for implementation along the section of the Southeast Freeway between 11th Street and Barney Circle. Funding availability and the status of other developments may clarify which of these locations should be constructed first. Option R-1 could take approximately two years to complete, while the completion of the boulevard could take approximately three years to complete.

Finally, it is recommended that the 11th Street/Southeast Freeway interchange be considered for major reconstruction. **Option SE-2** is recommended for this location because it would allow the existing CSX railroad tracks to remain in place. If future developments lead to a change in the need for this rail system, the other options at this location would become more feasible. This location is recommended as the final major long-term improvement area in part because of the impacts to existing residential properties resulting from the required at-grade circle. It is likely that the completion of these improvements could take approximately four years.

General Project Implementation Timeline



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Chapter 1: INTRODUCTION

Anacostia Waterfront Initiative Overview

The Anacostia Waterfront Initiative (AWI) is a partnership between federal and District government agencies formed to shape a once neglected area and national resource, the Anacostia River, into a thriving waterfront. The District Department of Transportation (DDOT) envisions the Anacostia River corridor as a central feature that will one day unite Washington, D.C. economically, socially and physically. The AWI Framework Plan states the following:

"Growth must be refocused on the resources of the river: its parks and natural environment and its transportation links and surrounding neighborhoods and commercial areas."

The Middle Anacostia River region (looking southwest towards the Potomac River).

While the existing aging transportation infrastructure has fostered the division of east and west, in the future, the river needs to be a resource to link communities, transportation and services. The new waterfront will attract visitors from local neighborhoods as well as the metropolitan region and will serve as a tribute to the Nation's capital.

The AWI seeks to bring together newly developed and/or newly accessible waterfront amenities into a new civic identity and image on par with other world-renowned cities with vibrant waterfronts. The AWI Framework Plan provides the five themes to guide the creation of a great waterfront along the River.

1. **Restore**: A Clean and Active River

The AWI charts the course for environmental healing and the rejuvenation of water- dependent activities on the Anacostia River.

2. **Connect**: Eliminating Barriers and Gaining Access

The AWI reconsiders the design of transportation infrastructure in order to gain access to waterfront lands and better serve neighborhoods.

3. **Play**: A Great Riverfront Park System

The AWI envisions a system of interconnected parks that will be linked by the Anacostia Riverwalk Trail.

4. **Celebrate**: Cultural Destinations of Distinct Character

The AWI enhances and protects the distinct character of regional destinations along the waterfront.

5. **Live**: Building Strong Waterfront Neighborhoods

The AWI promotes sustainable economic development and reconnects the city to the river through new neighborhoods and the waterfront park system by creating opportunities to live, work and play along the river.

Middle Anacostia River Crossings Transportation Study Overview

This report presents the findings of the **Middle Anacostia River Crossings Transportation Study**, which focused on **Theme 2. Connect**, of the AWI. The study covered the area southeast of M Street and South Capitol Street, between Historic Anacostia and Pennsylvania Avenue and along Minnesota Avenue (**Figure 1**). Major components of the study area include parts of the Anacostia River, Barney Circle, Fairlawn, Capitol Hill East and associated neighborhoods, significant sections of the National Park Service's Anacostia Park, the Congressional Cemetery, and Reservation 13.

In response to the AWI, DDOT has initiated a series of major transportation studies. These studies began with an analysis of the South Capitol Street corridor, which includes the southernmost river crossing, the Frederick Douglass Bridge. The Middle Anacostia River Crossings Transportation Study is the second of the series. The recently initiated Kenilworth Avenue Corridor Study examines the area from Pennsylvania Avenue northward.

The mission of the Middle Anacostia River Crossings Transportation Study was to evaluate the current and future needs regarding vehicular, transit, pedestrian, and bicycle mobility and safety as well as redress access problems either caused by or ignored by past transportation investment. Specific goals included enhancing mobility and connectivity, enhancing safety, providing an urban design, and providing solutions for all transportation modes. Questions explored by the study included:

- **How can we provide a more balanced transportation system by adding the missing movements to the major interchanges?**
- **How do we maximize the connectivity between the light rail demonstration line, the Anacostia Riverwalk Trail, and existing and proposed road network?**
- **Can we look in the longer term to remove unneeded pavement (I-395, RFK ramps) and restore vital greenspace along the river?**
- **How do we provide better access to parklands and other cultural amenities both in the near and longer term?**
- **How would restoring the Barney Circle affect local mobility and traffic congestion?**
- **What can we do in the study area in the immediate time frame to meet some of the study's goals of enhanced mobility, connectivity, and safety?**

To answer these questions, the DDOT study team analyzed existing traffic conditions and modeled future conditions. The team developed a series of improvement options that would address immediate issues (near-term and mid-term projects) as well as contribute to the overall vision of the AWI (long-term improvements).

DDOT developed a series of near-term and mid-term improvement projects that would address immediate safety, accessibility and mobility problems for pedestrians, bicyclists, and motor vehicles alike. The proposed near- and mid-term improvements address transportation deficiencies that could be implemented in the immediate future at low cost and with minimal impact.

These proposed near-term and mid-term improvements include:

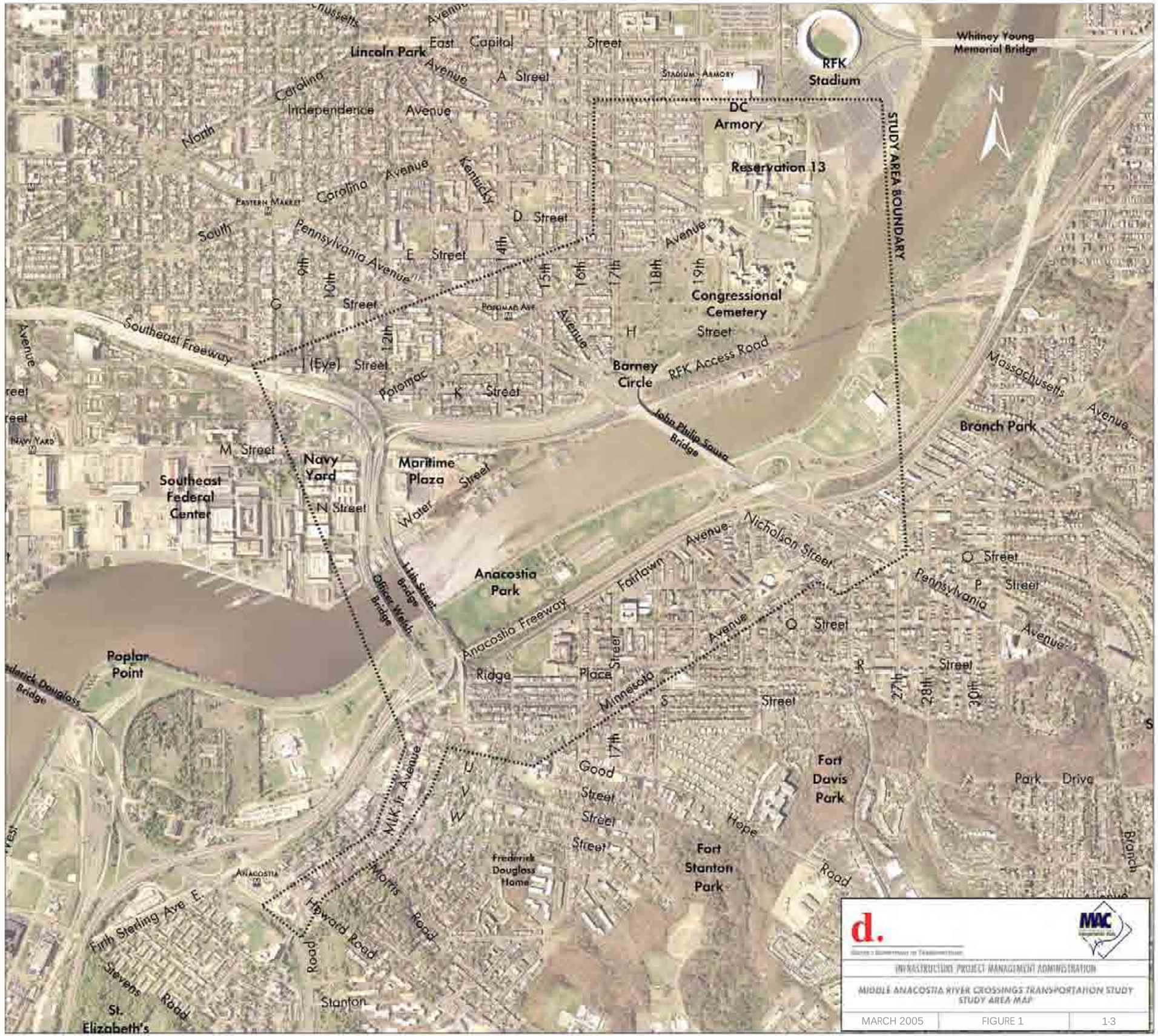
- Better signing along commuter routes to ease local gridlock,
- Removal of unused ramps,
- Better crosswalks and bus stop amenities, and
- Improved access to Anacostia Park.

For the longer term, DDOT developed concepts for the missing interchange movements on the Anacostia Freeway (I-295) at both Pennsylvania Avenue and 11th Street, the Southeast/Southwest Freeway at 11th Street interchange, and Barney Circle. The team also developed concepts showing how the section of the Southeast Freeway, between 11th Street and Barney Circle, could be transformed into a pedestrian friendly boulevard with access to the river. Finally, a long-term consideration for improving the transportation system between Barney Circle and Independence Avenue, was developed.

MIDDLE ANACOSTIA RIVER CROSSINGS TRANSPORTATION STUDY

Regional View and Study Area Map

JANUARY 2005



Study Goals and Objectives

Many issues exist with the current transportation network and land uses of the Middle Anacostia River region. DDOT attempted to identify each transportation deficiency and explore possible solutions. Valuable existing features and future projects in the region were noted so that they could be built on, if applied in different ways in the future. Seven improvement categories were identified:

- Safety,
- Accessibility,
- Mobility and Operations,
- Park and Waterfront Connectivity,
- Neighborhood Traffic Relief,
- Redevelopment of Transportation Right of Way, and
- Transit Infrastructure.

Table 1 shows seven categories of improvements proposed by this study. The goals and objectives of these categories form the basis of justification for the projects proposed under the near-term, mid-term, and long-term timeframes. These categories represent the many transportation needs of the Middle Anacostia River region. The combination of near-term, mid-term, and long-term improvements seek to improve on existing transportation conditions and assist in accommodating future land uses.

Table 1. Overview of Improvement Categories for the Middle Anacostia River Crossings Transportation Study

	Safety	Accessibility	Mobility and Operations	Park and Waterfront Connectivity	Neighborhood Traffic Relief	Redevelopment of Transportation Right-of-Way	Transit Infrastructure
Goals	• Improve safety for all travelers at all identified conflict points. • Improve existing pedestrian and bicycle facilities. • Maintain favorable conditions providing safe travel for one type of travel mode without reducing the safety of another. • Improve safety at high accident locations.	• Improve access between all major roadways. • Improve access between neighborhoods. • Improve access across the Anacostia River waterfront. • Improve visual accessibility for neighborhoods near the Anacostia Park and waterfront. • Minimize visual impairments caused by transportation system	• Improve how the existing roadway network functions. • Improve existing pedestrian and bicycle routes.	• Improve access and connections to Anacostia Park. • Improve access to the Anacostia River waterfront on both sides of the river.	• Improve existing signal timings in areas with severe congestion. • Remove unsafe connections. • Direct traffic to appropriate roadways. • Discourage cut-through traffic on neighborhood streets. • Separate regional traffic from local traffic.	• Maximize use of current transportation system. • Replace underused roadways with green space or more appropriate use.	• Improve the existing features at bus stops. • Increase visibility of bus stops and transit services. • Improve connections to key destinations such as Metro Stations and bus stops.
Objectives	• Install appropriate amenities to ensure safe conditions. • Replace deficient pedestrian and bicycle amenities within the study area. • Eliminate gaps in the sidewalk network • Connect gaps in the existing bicycle paths. • Replace inadequate signs and markings for all travelers.	• Install signing to eliminate confusing or conflicting directions for all travelers. • Create safe merge and diverge areas at conflict points. • Provide missing movements. • Evaluate use of tunnels or similar design elements to complete interchanges. • Remove transportation features that create barriers to views of the city and the waterfront.	• Replace deficient signing and pavement markings. • Install new connections to enhance travel. • Accommodate pedestrians at signalized intersections. • Coordinate signal timings along corridors with signal timing of major movements.	• Connect existing infrastructure with the Anacostia Park waterfront facilities. • Create or reestablish connections to Anacostia Park and the waterfront. • Improve visibility and safety of existing connections to the Anacostia Park. • Provide signing for key destinations inside and outside the study area.	• Prioritize pedestrian and vehicular movements to reflect surrounding land uses. • Rehabilitate roadway surfaces. • Establish appropriate routes for regional and local traffic.	• Eliminate unused portions of roadway. • Reallocate transportation right-of-way to more aesthetically pleasing uses such as landscaping or monuments.	• Replace deficient amenities within the study area. • Provide adequate amenities at stops with significant ridership.

Public and Agency Involvement Overview

Throughout the study, DDOT maintained open communication with area residents and other stakeholders. At strategic times during the study, DDOT met with its technical assistance group that was created specifically for the study and held public meetings to present findings and elicit opinions from the public. The project website (http://www.macstudy.com) provides project team contact information, study area maps, meeting presentations and other project information.

Between March and December of 2004, DDOT held five Technical Assistance Group (TAG) sessions and four public meetings. Prior to each public meeting, DDOT met with a special Technical Assistance Group and often reshaped or added improvement options based on the group's recommendations. The TAG was comprised of community leaders and stakeholders, representing various interests of the study area.

Question and answer session at Public Meeting #3 – Benjamin Orr Elementary School – Fairlawn

During the first public meeting (held on April 22, 2004), DDOT and its partnering agencies introduced the project to the public. At the second public meeting (held on June 1, 2004), a Panel Discussion format was used to present diverse views on the existing and future challenges to improving transportation in the study area. Civic leaders, DDOT, DCOP and National Park Service representatives were on the panel. The third public meeting was held on September 30, 2004. At this meeting, DDOT presented its recommended near-term and mid-term improvement projects to the public. On December 2, 2004, the fourth and final public meeting, DDOT presented its long-term improvement options.

Additional information about the Middle Anacostia River Crossings Transportation Study Public Involvement process is included in **Appendix A**.

DDOT has maintained close coordination with local, regional and federal agencies by presenting methods and interim findings at monthly coordination meetings. The following agencies attended these meetings.

- Anacostia Waterfront Corporation (AWC)
- Architect of the Capitol (AOC)
- Commission of Fine Arts (CFA)
- Department of Health (DOH)
- D.C. Office of Parks and Recreation
- D.C. Office of Planning (OP)
- D.C. Office of Property Management
- D.C. Sports and Entertainment Commission
- D.C. Water and Sewer Authority (WASA)
- Environmental Protection Agency (EPA)
- Federal Highway Administration (FHWA)
- General Services Administration (GSA)
- Maryland Department of Transportation (MDOT)
- National Capital Planning Commission (NCPC)
- National Park Service (NPS)
- Washington Metropolitan Transit Authority (WMATA)
- U.S. Army Corps of Engineers (USCOE)
- U.S. Navy

Mayor Williams's goal is to increase Washington D.C.'s population by 100,000 people over the next 10 years with 20% of this growth targeted at the Anacostia waterfront. The AWI Framework Plan concluded that correcting existing transportation deficiencies in the Middle Anacostia River region are vital to enabling many of the other goals of the AWI as well as meeting the Mayor's goal to revitalize this area. The improvement options presented in this report are an integral part of the AWI Framework Plan and the Mayor's goals.

This report begins with a profile of the existing conditions (**Chapter 2**) of the Middle Anacostia River region by examining existing land uses within the study area, its neighborhoods and community features, historic resources and its natural features. **Chapter 2** also describes the existing roadway network, traffic and safety issues, and transit services. **Chapter 3** describes what projects are in progress within and adjacent to this study area. **Chapter 4** presents the projected future conditions of the region and provides an overview of the recommended improvements. **Chapters 5 through 7** present improvement projects and options in detail, grouped as near-term, mid-term, and long-term. An environmental and regulatory analysis of the various improvements is included in **Chapter 8**. **Chapter 9** concludes with a discussion on implementation and includes an overall summary matrix for each timeframe. Existing and future traffic data, accident summary data, cost estimates, and select public involvement materials are included in the **Appendices** for reference.

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Chapter 2: EXISTING CONDITIONS

Land Use Planning in the District

Growth in the District is expanding to the eastern portion of the city. Residential growth and complementary commercial growth is occurring on both sides of the Anacostia River. Mayor Williams has directed District agencies to support growth while providing services requested by the city's citizens. District planning initiatives direct agencies to provide needed services and support to create stable neighborhoods and create new places for existing and new residents to live, work and play.

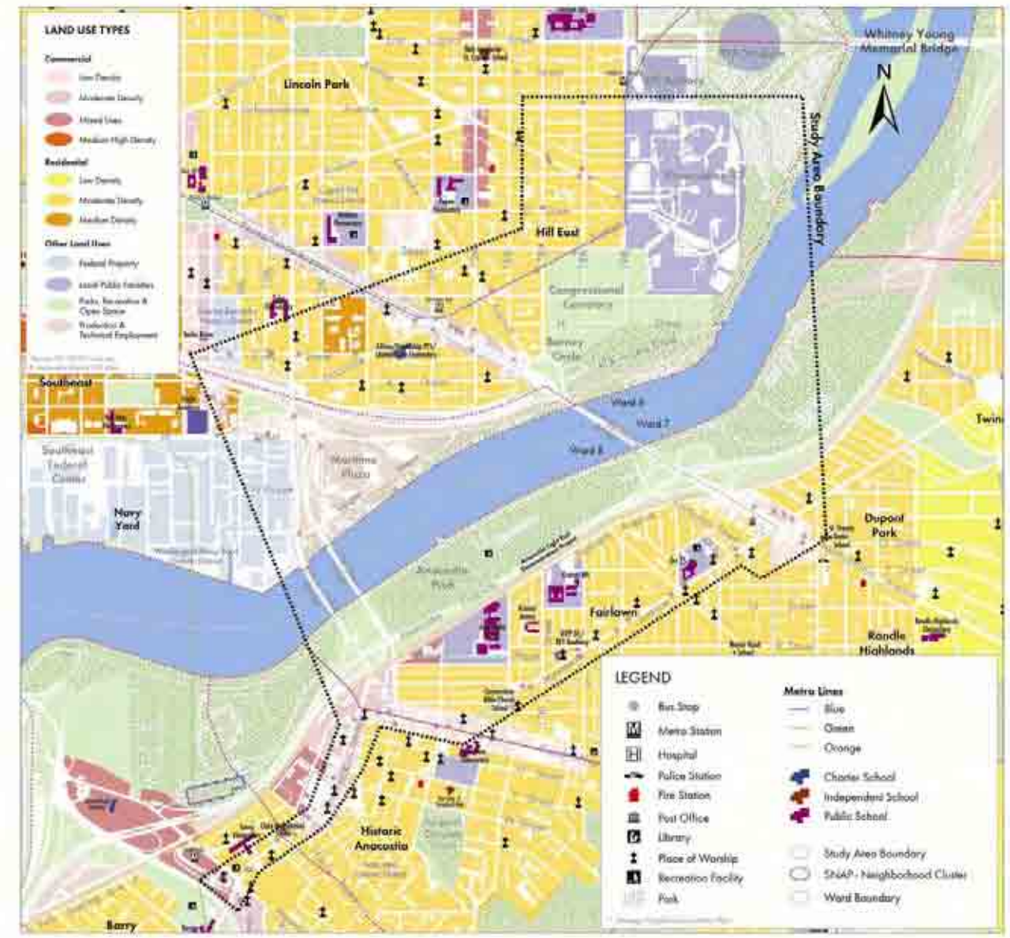
The Anacostia Waterfront Initiative (AWI) Framework Plan strives to connect the city's core attractions - downtown, the Mall, Georgetown, and Capitol Hill - with neighborhoods on the east and west side of the river and make the waterfront accessible to everyone. Building on the natural amenities of the waterfront and the scenic Anacostia River, the AWI seeks to "bring the city to the river" by redeveloping underutilized waterfront areas into mixed-use and mixed-income waterfront neighborhoods with supporting recreational and commercial uses.

Land Uses in the Study Area

The study area lies in the heart of the AWI Plan area. On the west side of the river, moving clockwise, the study area includes Near Southeast (Maritime Plaza), Pennsylvania Avenue, from G Street to Minnesota Avenue, Hill East and RFK area, Reservation 13 and the Congressional Cemetery. Fairlawn and Historic Anacostia lie on the east side of the Anacostia River. In the past the river has been viewed as a dividing line. However, Mayor Williams has suggested that the river is actually common ground between the two.

The District of Columbia Generalized Land Use Map (Office of Planning, 1995) and 2000 digital land use map from the Office of the Chief Technology Officer were used to evaluate how land is used in the study area. **Figure 2** shows areas classified by color as neighborhoods, supporting commercial corridors, local parks and open space areas, public facilities, government complexes, and areas of production and technical employment. **Figure 2** also shows the location of the commercial corridors along Pennsylvania Avenue, Good Hope Road and Martin Luther King Jr. Avenue that provide a limited number of retail services to adjacent neighborhoods.

Figure 2. Land Uses in the Study Area



Data Source: D.C. Office of the Chief Technology Officer.

The amount of each type of use within the study area, shown in **Table 2** gives some idea of what features might be overabundant or lacking. Parks, recreation and open space represent 27 percent of the study area but access to the Anacostia National Park is limited by the presence of the railroad (identified as production and technical employment), along the waterfront on the west side and along Fairlawn Avenue on the east side. Access to Anacostia National Park from neighborhoods east of the river is limited to two locations by the railroad and Anacostia Freeway. Commercial areas, mostly small scale retail services, make up roughly seven percent of the study area and support the residential neighborhoods that make up about 30 percent of the study area. The lack of housing choices is also reflected in the table.

The majority of existing housing is characterized as Moderate Density, mid-rise apartments and multi-unit housing (28.6%). Higher density housing is absent and medium density housing characterizes one percent of the study area.

Table 2. Breakdown of Land Use Types within the Study Area

Type	Acreage within Study Area (acres)	Land Use Description
Low Density Commercial	2.7% (26)	• Includes small-scale retail and service businesses.
Moderate Density Commercial	3.8% (36)	• Includes grocery stores, chain drug stores, department stores, specialty retailers and personal service establishments.
Medium Density Residential	1.2% (11)	• Consists of garden apartments and row houses and may include some low-density housing.
Mixed Use Commercial	0.7% (7)	• Existing commercial areas and areas where a significant change in land use is proposed. •
Moderate Density Residential	28.6% (272)	• Consists of mid-rise apartments and multiple-unit housing and may include some low and moderate density housing.
Parks, Recreation, and Open Space	27.3% (259)	• Includes cemeteries, parks and recreational centers owned by the District and lands included in the National Capital Open Space System.
Anacostia River	14.3% (136)	• Major waterway within the study area.
Local Public Facilities	10.2% (97)	• Includes buildings and lands owned by the District of Columbia and includes office buildings, maintenance facilities, hospitals, and school properties and associated playgrounds.
Federal Property	2.2% (21)	• Includes federal government buildings and office complexes but does not include federally-owned parks and lands.
Production and Technical Employment	9% (85)	• Types of industries best suited for this land use include office support systems, printing and publishing, communications, wholesaling, transportation services, food services and warehousing. • Includes commercial activities other than those described in the commercial land use categories, i.e. shopping and services.
Total	100% (950)	

Planned Land Use Changes

Mayor Williams has established a community-based process to find out what citizens would like to change to make their neighborhoods more vibrant and safe places to live. Citizens responded by saying they want appealing and affordable housing, more places to shop and gather, and easy access to those places.

To plan for the needs of neighborhoods in the District, the Office of Planning has divided the city into 39 neighborhood clusters and developed a Strategic Neighborhood Action Plan for each. The Middle Anacostia River Crossings Transportation Study area is comprised of portions of five neighborhood clusters; 26, 27, 28, 34, and 37. **Figure 3** shows these neighborhood clusters and the locations of community resources such as schools, places of worship, emergency services, and recreational centers within each cluster. Because the MAC Study is part of the AWI, **Table 3** shows the neighborhood clusters in the study area as they relate to AWI's Target Areas (AWI Target Areas and Table of Initiatives are shown in **Appendix B**).

The AWI will create more housing choices, remove barriers to park access, create more employment opportunities and retail shopping choices, and create better access to these areas for pedestrians, bicyclists, public transit users and drivers. District planners recognized that communities within the study area are isolated from each other by highways and the railroad. The existing regional highway system, built nearly fifty years ago to enable quick access into and out of the city, now functions as deteriorating over-scaled roadways that are barriers to local residents carrying out daily activities- trips to work and schools, shops, places of worship and other gathering places.

At present, the federal government owns 70 percent of the shoreline along the Anacostia River. To transform these lands into areas that benefit the city and local communities, former government installations are being converted into residential neighborhoods and vacant natural areas will be made accessible to the public. The role of the AWI is to combine urban development with natural resource conservation and ensure that these projects do not displace, but rather, support existing residents by providing needed amenities.

The District Department of Transportation (DDOT) and the DC Office of Planning (DCOP) are working with private investors and community stakeholders to create more public facilities and institutions, along with housing and retail space, thereby strengthening ties within the community. Creating public parks, community centers, schools, libraries, and post offices in underserved areas will transform overlooked communities into create vibrant, safe community-oriented neighborhoods.

Figure 3. Neighborhood Clusters and Community Features

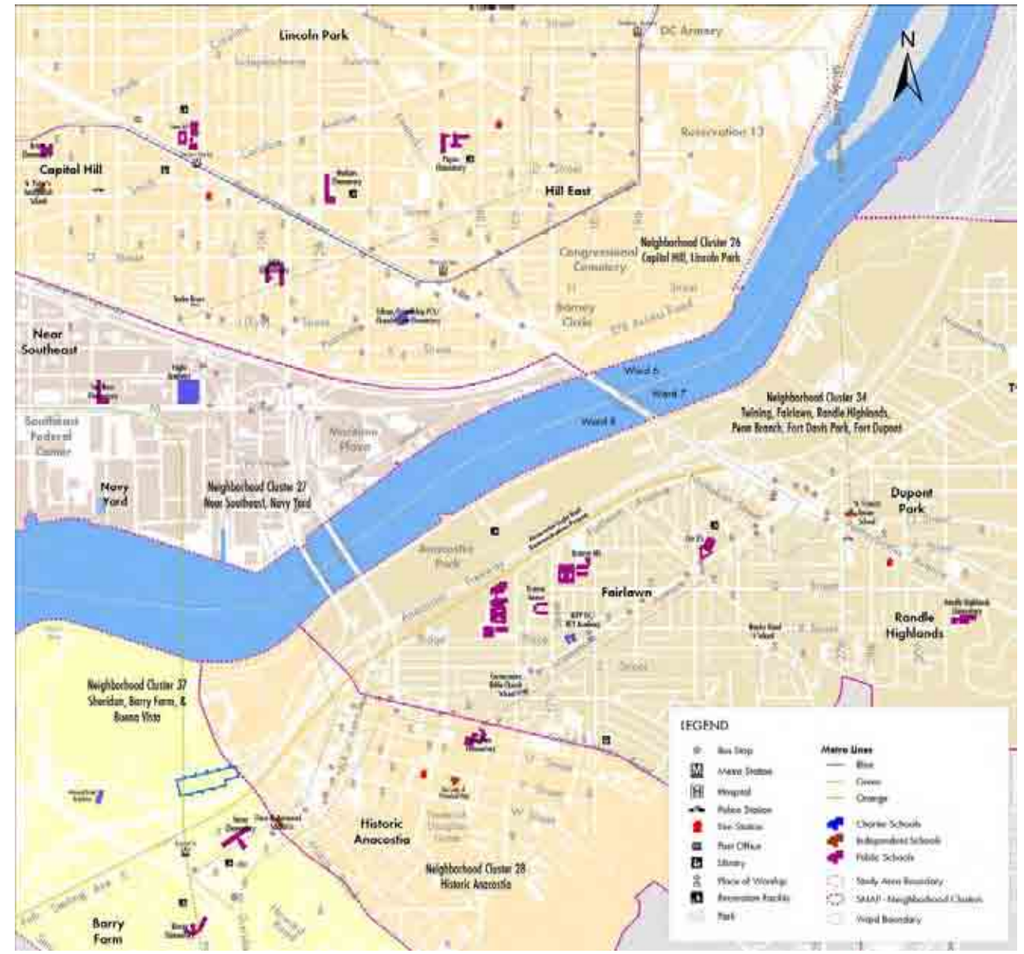


Table 3. Neighborhood Clusters related to AWI Initiative Areas

AWI Target Areas	Anacostia Park	Hill East (RFK Area)	Poplar Point	East of the River Gateways	Near Southeast Waterfront
Neighborhood Cluster	**28**	**26**	**37**	**34**	**27**
Neighborhoods within the study area	Historic Anacostia	Barney Circle, Hill East, Stadium Armory	Barry Farm	Fairlawn	Near Southeast Washington, Navy Yard
Residential	East of MLK Jr. Avenue	North of Southeast Freeway	East of Howard Road	South of Fairlawn Avenue	None
Parks and Open Space	Anacostia Park Congressional Cemetery	Anacostia Park	Anacostia Park	Anacostia Park	Anacostia Park
Mixed Use	West of MLK Jr. Avenue	None	I-295 and Howard Road Interchange	Ridge Place	None
Local Public Facilities	Clara Muhammad School Our Lady of Perpetual Help Church Ketcham ES	RFK Stadium, DC Armory, Reservation 13, D.C. General Hospital Site Edison/Friendship PCS/ Chamberlain ES Tyler ES	Howard Road Academy Savoy ES Birney ES	St. Francis Xavier School Kramer MS KIPP DC/KEY Academy Cornerstone Bible Church Anacostia SHS Benjamin Orr ES Randle Highlands ES	Van Ness ES Eagle Academy
Production and Technical Employment	Railroad	Railroad	Railroad	Railroad	Railroad, Maritime Plaza
Low and Moderate Density Commercial	Good Hope Road MLK Jr. Avenue	Pennsylvania Ave south to Barney Circle	Sheridan Road	Pennsylvania Avenue south of Anacostia	None

Data Sources: DC OCTO GIS Layers and DC Office of Planning Neighborhood Cluster SNAPs.

Table 4 provides existing amenities, and community groups identified in their neighborhood cluster. The driving forces behind revitalization efforts will be capitalizing on the uniqueness of each cluster and building relationships with local stakeholders.

Table 4. Characteristics of Neighborhood Clusters within the Study Area

Community / Cluster	Location Assets	Community Partners
Hill East, Capitol Hill, Lincoln Park, Barney Circle, Stadium Armory ***26***	• Proximity to waterfront, U.S. Capitol, downtown areas • Excellent public transportation system • Parks and community gardens • Historic setting • Thriving commercial area in northwest end of Pennsylvania Avenue	• Washington Navy Yard • U.S. Marine Corps • Barracks Row Main Street
Near Southeast, Arthur Capper, Carrollsburg, Washington Navy Yard ***27***	• Proximity to Historic 8th Street & Barracks Row Main Street • Readily accessible public transportation system • Redevelopment opportunities	• Washington Navy Yard • U.S. Marine Corps • Barracks Row Main Street • Maritime Plaza • Southeast Federal Center
Historic Anacostia ***28***	• New housing construction • Readily accessible public transportation system • Transportation Enhancement Program by DDOT	• Anacostia Waterfront Initiative • AEDC Government Building • National Park Service • America Block-by-Block financing, • Bank of America
Dupont Park, Fort Davis Park, Fairlawn, Penn Branch, Randle Highlands, Twining ***34***	• 3 primary commercial areas on Pennsylvania Avenue • Attractive neighborhood setting • Strong housing market • Federal Fort Circle Park System • Readily accessible public transportation system	• Anacostia Waterfront Initiative • National Park Service
Barry Farm, Fort Stanton, Hillsdale ***37***	• Prime residential setting, panoramic views & quality housing • Expected market growth along Martin Luther King, Jr. Avenue and Good Hope Road as commercial corridors • Readily accessible public transportation system	• Anacostia Waterfront Initiative • Anacostia Gateway Government Center • Smithsonian Anacostia Neighborhood Museum • East of the River Community Development Corporation

Table 5 shows a disparity between average income of District residents as a whole and the incomes of residents in Neighborhood Clusters 27 (Near Southeast), 28 (Historic Anacostia) and 37 (Poplar Point and Barry Farms). Home ownership in these same clusters is much lower than the District average as well, reflecting the need for more mixed-income housing.

Table 5. Demographic Comparison of Study Area Neighborhoods

	Population	% of District Population	Race (%)	Median Income	Home Ownership
District	572,089	100	African American: 60 Hispanic: 8 White: 31	$43,001	41%
Cluster 26	18,480	3.3	African American: 49 Hispanic: 3 White: 46	$67,835	51%
Cluster 27	4,640	0.8	African American: 89 Hispanic: 2 White: 6	$15,071	19%
Cluster 28	4,900	0.3	African American: 96 Hispanic: 1 White: 3	$23,658	25%
Cluster 34	14,567	2.5	African American: 96 Hispanic: 1 White: 2	$42,493	49%
Cluster 37	8,600	1.5	African American:98 Hispanic: 0 White: 1	$24,854	15%

Comparison of demographic, income and home ownership characteristics of these neighborhood clusters to the District average. U.S. Census Bureau, 1990 and 2000 Census data as presented in Neighborhood Cluster 26, 27, 28, 34, and 37 District of Columbia Strategic Neighborhood Action Plans. (No publication dates)

Community Features

General community features within the Middle Anacostia River study area include numerous schools and churches, vital components to the local neighborhood fabric. **Table 6** and **Table 7** list churches and schools in the study area, respectively.

Table 6. Churches within the Study Area

Place of Worship	Address
Ambassador Baptist	1412 Minnesota Ave., SE
Anacostia Bible Church	1610 T St., SE
Bethlehem Baptist	2616 Martin Luther King, Jr. Ave.
Calvary Christian	909 11th St., SE
Christ Our Shepherd Church	801 N Carolina Ave., SE
Church of God in Christ Apostolic	2204 Martin Luther King, Jr Ave., SE
Church of God of SE Washington	2512 Sheridan Rd., SE
First Angelic Missionary Baptist Church	1337 Pennsylvania Ave., SE
Full Gospel American Zion Church	1810 Minnesota Ave., SE
Garden Memorial Presbyterian	2407 Minnesota Ave., SE
Grace Memorial Baptist	2407 Minnesota Ave., SE
Greater Apostolic Holy Temple	2203 Minnesota Ave., SE
Liberty Baptist	527 Kentucky Ave., SE
Mount Paran Baptist	1341 K St., SE
Nationwide Unity Holy Church Of God	2021 Martin Luther King Jr Ave., SE
New Covenant Baptist (Galilee)	2252 Minnesota Ave., SE
New Hope Freewill Baptist	754 11th St., SE
Olive Grove Baptist	1912 Q St., SE
Prayer Temple Apostolic Church	1259 K St., SE
Providence Baptist	526 15th St., SE
Southern Friendship Baptist	2600 Minnesota Ave., SE
St John Christian Power	2220 Martin Luther King, Jr Ave., SE
United House Of Prayer	1355 Okie St., SE
Word Of God Baptist	930 15th St., SE

Views of Main Street in Anacostia at Good Hope Road and Martin Luther King, Jr. Avenue. The AWI promotes the creation of areas where residential and commercial uses are mixed, to encourage a variety of activities for local neighborhoods.

Table 7. Schools within the Study Area

School Name	School Type
Anacostia Senior High School	Public
Benjamin Orr Elementary School	Public
Clara Muhammed School	Independent
Cornerstone Bible Church School	Independent
Edison/Friendship PCS/Chamberlain Elementary School	Charter
Ketcham Elementary School	Public
KIPP/DC Key Academy	Charter
Kramer MS and Kramer Annex	Public
Our Lady of Perpetual Help	Independent
St. Francis Xavier School	Independent
Sasha Bruce	Charter
Savoy Elementary School	Public
Tyler Elementary School	Public

In addition to the schools and churches, several larger cultural institutions and parks exist as resources to communities within the study area. These features are grouped by AWI Target Area and by neighborhood cluster and described below.

Anacostia Park (Clusters 28 and 34)

The Anacostia Park encompasses 11 miles of shoreline, on both sides of the Anacostia River, as it stretches from the Frederick Douglass Bridge to the District boundary with Maryland. Anacostia Park, consisting of about 1,200 acres, is owned and managed by the National Park Service. Community facilities within the park include a swimming pool, field house, pavilion and picnic area, and boat ramps on the east side of the river adjacent to Anacostia Freeway.

View of Water Street in Anacostia Park West. The poor accessibility and undeveloped nature of the park in certain areas are perceived as unwelcoming and even unsafe to park visitors.

View from a waterfront marina in Anacostia Park West.

East of the River Gateways (Cluster 34)

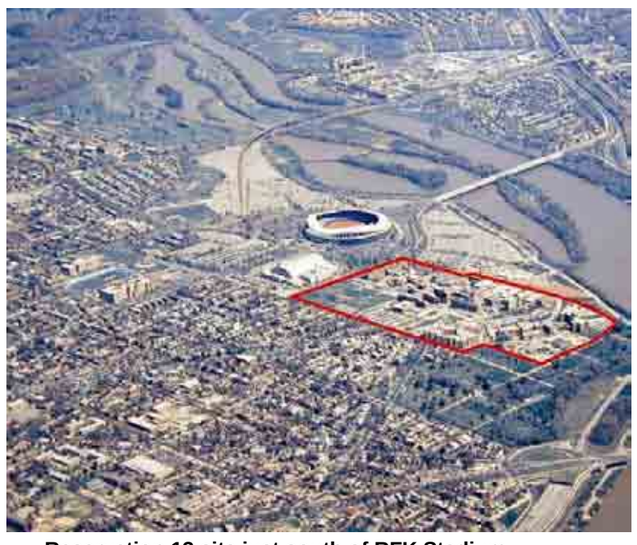
Improvement efforts will direct resources to several core areas - Howard Road, Historic Anacostia, Pennsylvania Avenue, Randle Circle, Benning and Watts Branch – so that this focused rejuvenation will spark economic growth in adjacent neighborhoods.

View of residential housing along 17th Street, SE.

Hill East and RFK Area (Cluster 26)

Part of this area is known as Reservation 13, a 67-acre property now owned by the District of Columbia. The property includes the DC Jail (built in the 1980's) and the former DC General Hospital. Reservation 13 is recognized as an area that has the potential to be a gateway to parkland along the Anacostia River waterfront though it is now isolated from the city and the waterfront (Draft Master Plan, 2002). The site has undergone little change in the past seventy years and its institutional-style buildings require significant repairs. Redevelopment of the site will occur in coordination with the Reservation 13 Draft Master Plan, the Strategic Neighborhood Action Plans (SNAP) and the Anacostia Waterfront Initiative (AWI).

Reservation 13 will become the Hill East Waterfront and RFK Area, a pedestrian oriented community with a mixed-income residential community and supporting services such as health care, community facilities, and civic and educational centers. A primary objective of this project is to reconnect the city with the waterfront.



Reservation 13 sits just south of RFK Stadium (Image referenced from www.publicspaceforum.com).

Congressional Cemetery

The Congressional Cemetery is located south of E Street between 17th Street and the Anacostia River. In 1997, the National Trust for Historic Preservation designated the cemetery as one of the 11 Most Endangered Places. Since then, organized volunteer efforts, grants and private funds enabled restoration of the cemetery. The cemetery contains more than 60,000 burial sites including Indian tribal chiefs, Revolutionary War heroes, city architect Benjamin Latrobe and composer John Philip Sousa.

Marine Barracks

Planned development at the Marine Barracks includes new housing for Marine personnel, a public park and recreational facilities.

Poplar Point (Cluster 37)

Poplar Point, a 110-acre property, is located on the east side of the Anacostia River across the river from the Washington Navy Yard. A US Park Police headquarters building, National Park Service complex, the Anacostia Metro station, a WMATA parking garage and a 60-acre managed meadow currently occupy the site. The site is isolated from neighborhoods by the Frederick Douglass Bridge, the 11th Street bridges, Anacostia Freeway and Suitland Parkway.
Poplar Point has the potential to be a premier waterfront park and gateway to the Anacostia River and the RiverParks system. The park will be developed into a cultural park that will serve the adjacent Historic Anacostia community. The AWI plan will create a visitors center for the Anacostia RiverParks and Riverwalk and Trail, a place for outdoor performances and a major cultural institution. The development will include 1,000 residential units that will be supported by transit and inter-modal access. The plan will restore Stickfoot Creek and wetlands, and improve existing recreational fields.

Near Southeast Waterfront (Cluster 27)

Boathouse Row
The OARS Boathouse, a community-rowing club, is a small rowing and canoeing facility located under the 11th Street bridges near the Maritime Plaza. East of the Maritime Plaza along Water Street, several small marinas have established along the Anacostia River. Few public access points exist along the river in this area.

Maritime Plaza
Formerly the Washington Gas site, located south of M Street and east of 11th street, this area is being developed into Maritime Plaza, a center consisting of office space and hotel related uses.

Southeast Federal Center
The Southeast Federal Center is located west of the Washington Navy Yard and adjacent to the west bank of the Anacostia River. An urban waterfront development with plazas, retail space and a riverfront drive is planned for this 55-acre site and the new home of the U.S Department of Transportation headquarters.

Washington Navy Yard
Located within the area between 5th and 11th Streets along the Anacostia River, the historic Washington Navy Yard is a business center of Navy employees and private contractors. Visitors are drawn to Naval Museum attractions and the historic waterfront facade and retail expansion is expected. Historic 8th Street, a neighborhood commercial corridor, connects Near Southeast with Capitol Hill and terminates at the Navy Yard.

Historic Resources

Buildings, landscapes and districts that reflect the city's cultural, social, economic, political and architectural history are protected by District and Federal legislation. These features are protected because they represent the historic, aesthetic and cultural heritage of the citizens of the District of Columbia. The legislation has created a review board and initiates a public process that protects neighborhoods from unmanaged change and solicits the opinions of residents regarding proposed changes in their neighborhoods.

The Historic Preservation Review Board oversees the process of designating sites, buildings, structures and districts as historic and reviews proposed construction projects within Historic Districts, as authorized by the Historic Landmark and Historic District Act of 1978 (DC Law 2-144) and Municipal Code 12. Archaeological sites, engineering structures, sculpture, or landscape features may also be designated as historic. The board also reviews exterior repairs and alterations to privately owned buildings within Historic Districts. The Historic Preservation Division, now housed in the Office of Planning, conducts the supporting work necessary to preserve historic resources.

Federally funded projects must report the effects on properties that are in the National Register of Historic Places or have been determined eligible for the National Register as specified in Section 106 of the National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470f (NHPA). The DC Inventory of Historic Sites consists of buildings, landmarks and districts designated as historic by the Historic Preservation Review Board or its predecessor agency. The National Register of Historic Places is a list of landmarks and districts that have been so designated by the National Park Service, as authorized by the National Historic Preservation Act of 1966. National Historic Landmarks are designated by the Secretary of the U.S. Department of the Interior. Refer to **Figure 4** for an illustration of the Historic Boundaries in the Middle Anacostia River Region. Historic districts preserve the unique character of communities but also present challenges to new development. The following section describes the historic districts**.**

Figure 4. Historic Districts within the Study Area

Data Source: Orthophotos and Historic District boundaries from DC OCTO.

Anacostia Historic District

The Anacostia Historic District lies within the area bounded by Good Hope Road to the north; Fendall Place, to the east; Morris Road to the south and Martin Luther King Jr. Boulevard, to the west. Much of this single-family residential area was constructed between 1854 and 1890. Anacostia is identified as one of the District's first suburbs and the houses that reflect this period are of a style that is only found in the District. These houses are noted for their porch style and architectural details. After being designated as historic by the District in 1973, Historic Anacostia was listed on the National Register of Historic Places in 1978.

Within the Anacostia Historic District is the Frederick Douglass National Historic Site, also known as Cedar Hill. This historic site is located on W Street between 14th and 15th Streets and is operated and maintained by the National Park Service. It is the former home of Frederick Douglass, a 19th-Century African American abolitionist, writer, and statesman. Douglass lived in the home from 1877 to 1895 and left the home to the American public.

Capitol Hill Historic District

The Capitol Hill Historic District is the largest in the District of Columbia. This district is bounded by the Capitol to the west; F Street to the north; 14th Street to the east, and the Southeast Freeway to the south. The district is known for its row houses that reflect architectural styles from the Victorian era. These row houses are recognized for their ornamentation, building materials and scale. Distinctive iron steps and fences are noted historic features within the Capitol Hill Historic District.

Washington Navy Yard Historic District

The Washington Navy Yard, which includes the U.S. Navy administration facility, is a 66-acre historic site that includes the city blocks between 5th Street and 11th Street. The Navy Yard is a walled enclave of houses, historic buildings, grand homes, and renovated armaments factories and warehouses. The Navy Yard is an active military complex that is secure but open to the public. The Naval Museum is located within the Navy Yard complex. The Latrobe Gate of the Navy Yard is designated as an historic feature. Historic 8th Street is a neighborhood commercial corridor that connects Near Southeast with Capitol Hill and the Navy Yard, where the street terminates.

Marine Barracks Historic District

The Marine Barracks was listed on the District Register of Historic Places in 1964 and the National Register in 1972. The Marine Barracks, the oldest continuous and active use Corps post, served as Marine Corps Headquarters from 1801 to 1901. Located in Southeast Washington, DC and bounded by G, I, 8th and 9th Streets, the Barracks was designated as a National Historic Landmark in 1976. The Barracks is home to the US Marine band, which has performed for the presidential inauguration of Thomas Jefferson and every president since and is considered the "President's own." The band was lead by John Philip Sousa from 1880 to 1892. Within the Barracks, the Home of the Commandants is the oldest public building in continuous use within the nation's capital and is designated as a National Historic Landmark.

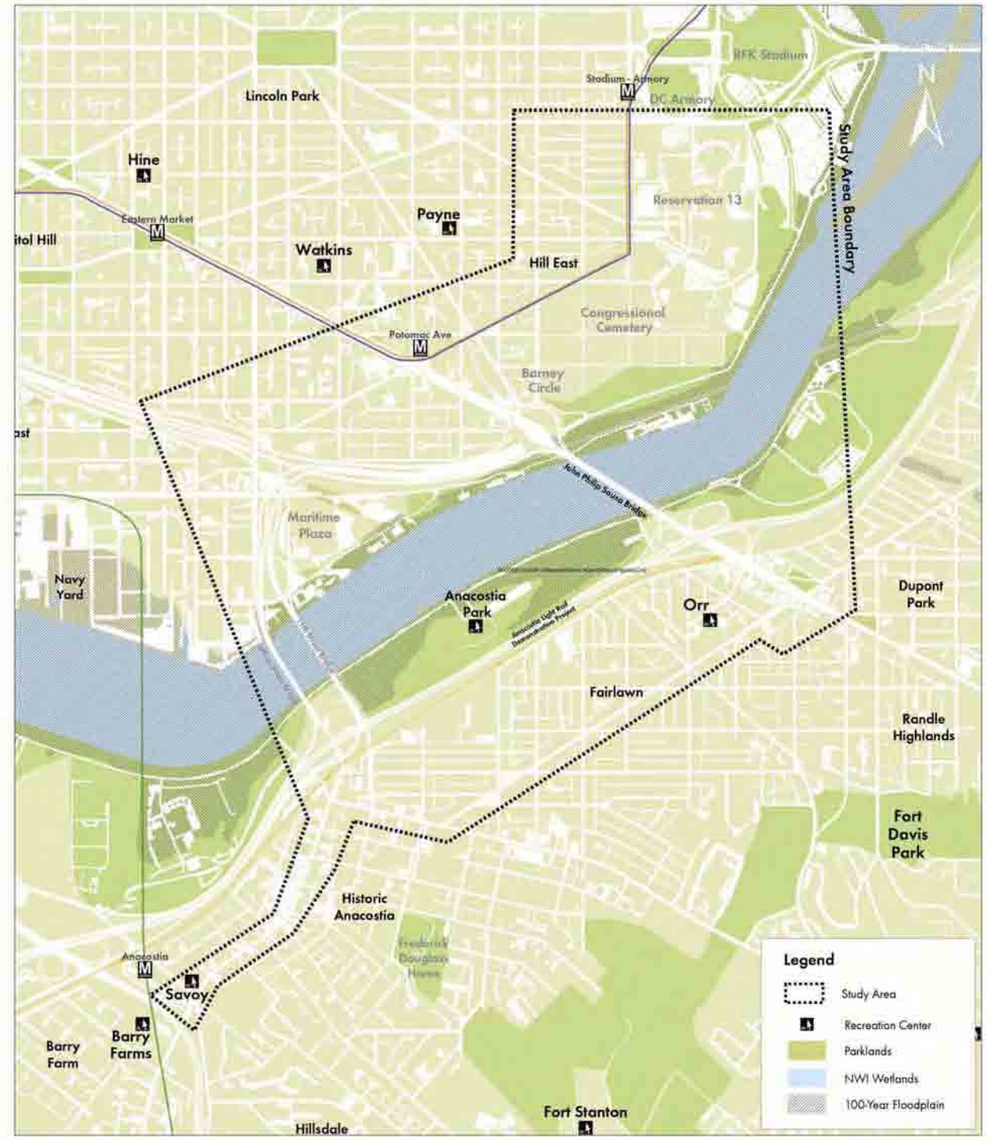
Environmental Features in the Middle Anacostia River Region

Wetlands and Floodplains

The digital National Wetland Inventory (NWI) map was used to identify wetlands within the study area. **Figure 5** shows that one wetland, the open water of the Anacostia River, exists within the study area. More specific, vegetated wetlands also exist in conjunction with the riverfront, however, field delineation is required to define their boundaries. The historical existence of wetlands along the river is described in the Anacostia River Watershed section below.

Digital Federal Emergency Management Administration (FEMA) Flood Insurance Rate Maps were used to identify 100-year floodplain within the study area. Along the west side of the Anacostia River, floodplains exist along the waterfront of the Anacostia River at the Navy Yard, from the 11th Street bridges east toward the Whitney Young Memorial Bridge. Parts of the access roads along the waterfront, including the RFK Access Road, lie within the floodplain. Along the east side of the river, the National Park Service Headquarters facility (near Poplar Point), and the park access road that follows the waterfront lie within the 100-year floodplain. Portions of Anacostia Park located west of the Anacostia Freeway, between the 11th Street Bridge and the Sousa Bridge lie within the floodplain.

Figure 5. Existing Environmental Features



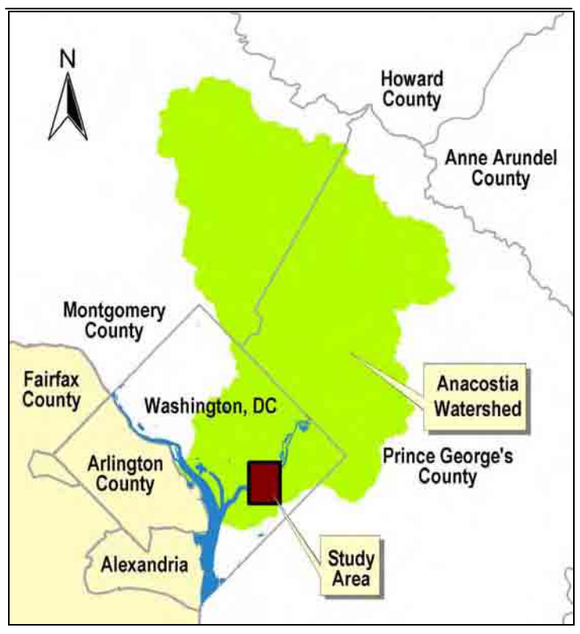
Data Source: GIS data layers from D.C. OCTO.

Anacostia River Watershed

The health of the Anacostia River has been severely degraded by three hundred years of intense human activities on lands that drain into the river. The causes and possible corrective actions have been studied in depth by agencies and organizations that have joined to restore this potential national treasure and neighborhood resource. So while the following description of this resource seems rather negative, there is cause for hope for the Anacostia River, its watershed and waterfront in the future.

The Anacostia River empties into the Potomac River, which then empties into the Chesapeake Bay. The Anacostia watershed (176 square miles) is more populated than any other watershed that drains into the bay. Subsequently, the Anacostia River is the most polluted river in the Chesapeake Bay drainage system. The D.C. Department of Health advises against swimming in the river. **Figure 6** illustrates the Anacostia Watershed.

Figure 6. Anacostia Watershed and Jurisdictional Boundaries



Over eighty percent of the land within the Anacostia watershed lies in Montgomery and Prince George's Counties in Maryland, the remaining portion lies within the District. The majority of pollutants that enter the river originate from lands upstream of the District.

Once completely forested by hardwoods, remaining forested areas, less than 25 percent, are primarily located in the northern headwaters of the watershed. It is reported that less than 15 percent of existing forested areas are large enough to support the diversity of avian, animal and reptile species that are native to the area. The watershed has also experienced a significant loss of its historical tidal wetlands; about 180 acres of such wetlands remain from approximately 2,700 acres (US Army Corps of Engineers estimates).

Land uses within the watershed have a significant impact on the quality of waters and habitat within and adjacent to the river. Vegetated lands absorb rainwater and capture surface runoff while developed areas; buildings, streets and parking lots are designed to quickly convey runoff into storm sewers. More than 80 percent of the Anacostia watershed is developed: predominantly residential, with commercial and industrial uses. About 10 percent of the land within the watershed is defined as a parkland or open space land use. However much of these lands are not forested areas that absorb and filter pollutants. Rather they are golf courses, cemeteries and developed parks that do not fully provide these traditional water quality benefits to the river.

About 8.4 miles of the Anacostia River lie within the District. Within the District, almost all of the lateral tributaries to the river have been channelized, piped or diverted into storm sewer systems. Stormwater runoff contains pollutants such as gas, oil, car exhaust contaminants, chemical wastes, sediment, trash and debris. Sewers adjacent to the Anacostia River are part of the combined sewer system that carries stormwater runoff and sanitary sewage to the Blue Plains Wastewater Treatment Plant, which treats the effluent before it is discharged into the Anacostia and Potomac Rivers. However, during rainfall events stormwater from the land overwhelms this system and this excess or Combined Sewer Overflow (CSO) is released directly into these rivers and tributary streams. Seventeen CSO outfalls empty into the Anacostia River.

The Anacostia River watershed consists of 13 subwatersheds. The Middle Anacostia River Crossings Transportation Study area lies within three of these subwatersheds: the Northwest Bank, Tidal Anacostia and the Southeast Bank. **Table 8** shows the size of these subwatersheds, the physical condition of streams within the subwatershed, and the amounts of imperviousness, wetland cover and forest cover within these subwatersheds, as reported by the Anacostia Watershed Network.

Table 8. Subwatersheds within the Middle Anacostia River Study Area

Subwatershed	Area (Sq. Mi.)	Streams	Percent Impervious	Wetland Cover includes open water (percent)	Forest Cover (percent)
Northwest Bank	11.4	Enclosed systems empty into tidal river	48	0.7	1.1
Tidal Anacostia	7.1	Lateral stream systems are within storm drain systems or combined storm/sanitary sewer systems	27	18.4	6.5
Southeast Bank	7.5	Streams extensively altered by channelization and piping	32	<0.1	14.5

Data obtained from the Anacostia Watershed Network website, 2004.

Government agencies, non-profit organizations and community groups have been working together to restore the Anacostia River and its watershed since the 1980s. Today there are three separate initiatives to restore the river: the Chesapeake Bay Program, the Anacostia Watershed Restoration Agreement, and the Anacostia Watershed Toxics Alliance.

The Chesapeake Bay Program seeks to restore water quality and natural ecosystems of the Chesapeake Bay. Members of the Chesapeake Bay Program include the District of Columbia, Virginia, Maryland, Pennsylvania, the Chesapeake Bay Commission, and the U.S. Environmental Protection Agency.

The Anacostia Watershed Restoration Agreement established a framework to coordinate and monitor restoration efforts. Stakeholders in the agreement include:

- District of Columbia,
- National Park Service,
- State of Maryland,
- Interstate Commission on the Potomac River Basin,
- Metropolitan Washington Council of Governments,
- D.C. Water and Sewer Authority,
- Maryland-National Capital Park and Planning Commission,
- Montgomery County, MD,
- Prince George's County, MD,
- U.S. Army Corps of Engineers,
- U.S. Department of Agriculture, and
- U.S. Environmental Protection Agency (EPA).

The Anacostia Watershed Toxics Alliance was formed to evaluate the effects of chemical contaminants on the Anacostia River and identify ways to restore the river to the benefit of the natural ecosystems of the river and the citizens that live near and visit the river. The Alliance has more than 25 public and private volunteer members including the National Oceanic and Atmospheric Administration (NOAA), the U.S. Fish and Wildlife Service, Army Corps of Engineers and EPA, the National Park Service and the District of Columbia's Department of Health and Water and Sewer Authority.

Transportation Network of the Middle Anacostia River Region

Existing Roadway Network

The Middle Anacostia River region is comprised of several major roadways that carry significant amounts of traffic to and from the Southeast quadrant of Washington, D.C. The study area for the Middle Anacostia River Crossings Transportation Study contains a mix of residential (local), collector, arterial, and expressway facilities. Speed limits within the study area range from as low as 25 miles per hour (mph) for most local streets to 50 mph on parts of the Anacostia Freeway and the Southeast/Southwest Freeway. **Table 9** summarizes the functional classifications of select major roadways within the area.

One of the major roadways within the study area in terms of its functional classification, amount of traffic, and interaction with many key areas of the Middle Anacostia River region is the Anacostia Freeway. The designation of this road is somewhat confusing in that it changes names at several points:

- North of the Pennsylvania Avenue interchange, it is referred to as D.C. 295 or Kenilworth Avenue.
- Between the 11th Street Bridges and Pennsylvania Avenue, it is referred to as the Anacostia Freeway.
- South of the 11th Street Bridges, it is referred to as Interstate 295.

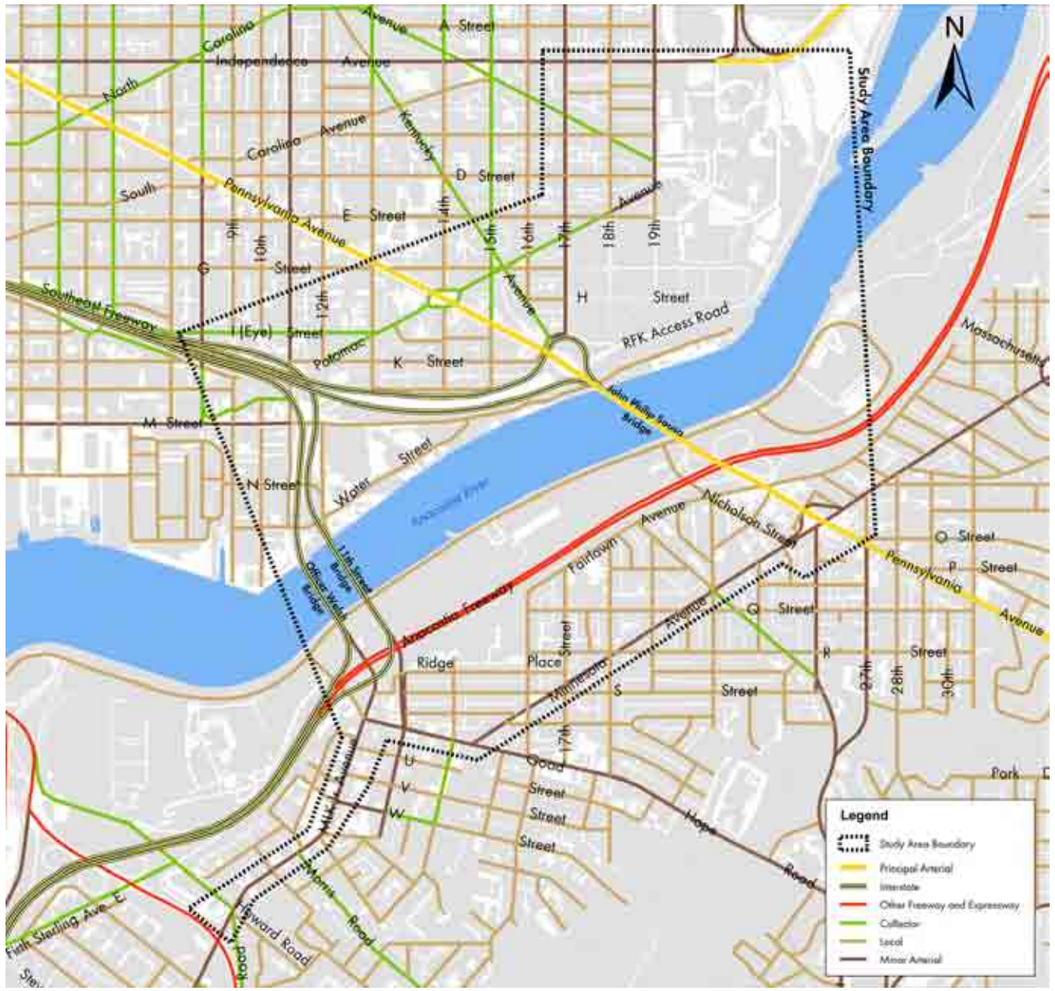
To avoid confusion throughout the report, the name “Anacostia Freeway” will be used to describe all segments of this facility.

Table 9. Summary of Select Major Roadways in the Study Area

Roadway	DDOT Functional Classification	General Parameters
Pennsylvania Avenue	Principal Arterial	6-lane divided, closed section, with on-street parking west of the Sousa Bridge
Minnesota Avenue	Minor Arterial	2-lane undivided, with on-street parking
Martin Luther King, Jr. Avenue	Minor Arterial	4-lane undivided (W Street to Howard Road), with on-street parking 3-lanes one-way southbound (Good Hope Road to W Street), with on-street parking
Good Hope Road	Minor Arterial	2-lane undivided, closed section, with on-street parking
Anacostia Freeway	Other Freeway and Expressway	4-lane divided, open section
Southeast/Southwest Freeway	Interstate	6-lane divided, open section
Potomac Avenue	Collector	2-lane undivided, closed section, with on-street parking
Independence Avenue	Minor Arterial	3-lane, undivided, close section; one-way eastbound, with on-street parking
M Street	Minor Arterial – 9th Street to 10th Street Local Street – 10th Street to 12th Street	4-lane, mix of divided and undivided sections, with on-street parking
11th Street	Minor Arterial – I (Eye) Street to K Street Local Street – M Street to Welsh Bridge	4-lane undivided, closed section, no on-street parking
13th Street	Minor Arterial	3-lane, undivided, closed section, one-way northbound, with on-street parking
17th Street	Minor Arterial	One-way southbound, with on-street parking (Independence Avenue to Potomac Avenue) 2-lane, undivided (Potomac Avenue to Barney Circle)

Figure 7 shows the functional classifications of roadways within the study area.

Figure 7. Roadway Functional Classifications within the Study Area



The Southeast Freeway, located on the west side of the Anacostia River also garners multiple name designations. The section west of the 11th Street Bridge connections is commonly referred to as Interstate 395 (I-395). This section is also known as the Southeast/Southwest Freeway since it connects these two sections of the District. The section between the 11th Street Bridges and Barney Circle is sometimes referred to as Interstate 695. As with the reasoning provided for using one name for the Anacostia Freeway, this section of roadway within the study area will be referred to solely as the Southeast Freeway.

Within the study area, there are three bridge crossings over the Anacostia River: the John Philip Sousa Bridge, the 11th Street Bridge, and the Officer Kevin J. Welsh Memorial Bridge. The Sousa Bridge, carrying Pennsylvania Avenue is a six-lane facility with pedestrian and bicycle pathways on each side of the bridge, separated by metal railings and barrier. The 11th Street Bridge and Welsh Memorial Bridge form a one-way pair for travelers going between the Southeast Freeway and Anacostia Freeway. The 11th Street Bridge is a four-lane bridge that carries northbound traffic from northbound Anacostia Freeway to the Southeast Freeway. The Welsh Memorial Bridge is a four-lane bridge that carries traffic from the Southeast Freeway to southbound Anacostia Freeway.

The majority of roadways within the Middle Anacostia River region fall under the ownership of DDOT. However, there are a few roads that are owned by other entities such as the National Parks Service, the Military Reservation, the Architect of the Capitol, and other District agencies. Anacostia Drive and the RFK Stadium Access Road are both owned by the National Park Service (NPS).

Existing Pedestrian Network

Pedestrian accessibility is a critical element of the Middle Anacostia River region if a rebirth of the Anacostia waterfront is to be realized. The existing pedestrian amenities within the study area are mostly favorable in terms of providing connectivity for neighborhoods on both the east and west sides of the Anacostia River. Sidewalks, wheelchair ramps, crosswalks (both striped and brick), and pedestrian signals are generally provided throughout the study area, where applicable. However, there are some spots within the study area that do not meet the needs of pedestrians, and connectivity for through trips is lacking in many areas. **Table 10** provides a general summary of the locations with missing amenities.

Table 10. Overview of Missing Pedestrian Amenities

Missing Amenities	Locations
Sidewalk	• M Street/11th Street (north side) • Minnesota Avenue/R Street • Potomac Avenue/G Street/15th Street
Crosswalks	• Minnesota Avenue/23rd Street • Pennsylvania Avenue/Potomac Avenue • Pennsylvania Avenue/Ramps to/from the Anacostia Freeway • Potomac Avenue/17th Street • Potomac Avenue/G Street/15th Street
ADA-compliant wheelchair ramps	• Minnesota Avenue/Good Hope Road • Minnesota Avenue/White Place • Pennsylvania Avenue/Potomac Avenue
Pedestrian Signals	• Independence Avenue/17th Street • M Street/11th Street • Minnesota Avenue/Pennsylvania Avenue • Minnesota Avenue/23rd Street • Pennsylvania Avenue/Barney Circle • Pennsylvania Avenue/D.C. 295 Northbound Ramp • Potomac Avenue/17th Street

Regarding accessibility to the Anacostia Park and Anacostia River on both sides of the study, there are a few key roadways that are perceived as barriers to the nearby communities. The Anacostia Freeway, located on the east side of the Anacostia River, is considered the major roadway traversing the study area. A pedestrian overpass exists that provides a connection from the Fairlawn community to Anacostia Park. One access point of the pedestrian facility is located near the Anacostia High School, while the other is located near the recreational center in Anacostia Park. This structure is in need of some minor repairs that are discussed in the near-term improvement section of this report. The 11th Street Bridges and Sousa Bridge provide both vehicular access and pedestrian access across the River, but not directly to the waterfront or Park areas. Considerations for providing these connections are included in both the near-term and mid-term improvements.

Brick crosswalks at Good Hope Road and Martin Luther King, Jr. Avenue

Specific to pedestrian crossings at signalized intersections, the District of Columbia is in the process of replacing several existing pedestrian signals with countdown signals. It is estimated that nearly 100 countdown pedestrian signals are in operation within Washington, D.C. A second contract had recently been approved to increase this total to approximately 125 intersections. At the time of the field investigations, the only location within the study area to have these devices present was Martin Luther King, Jr. Avenue/Howard Road and Sheridan Road intersection. Additional study area intersections scheduled to receive the countdown pedestrian signals include:

Countdown pedestrian signal

- Good Hope Road/Martin Luther King, Jr. Avenue,
- Pennsylvania Avenue/Fairlawn Avenue (Ramp to northbound Anacostia Freeway),
- Pennsylvania Avenue/L'Enfant Square, and
- Pennsylvania Avenue/Minnesota Avenue.

While no standard formula is currently in place for determining candidate intersections for countdown pedestrian signals, locations near Metro stations and schools, locations having high pedestrian activity, or locations having an accident history reflecting pedestrian safety issues appear to rank the highest on the priority list.

Existing Bicycle Network

Bicycle facilities and amenities within the Middle Anacostia River region are generally not widespread, considering a large portion of the Anacostia Park is included in this study area. Specifically, the amount of bicycle trails and walkways connecting neighborhoods to neighborhoods as well to the Park and Anacostia River are sparse in relation to the size of the study area.

General barriers to biking in the study area include:

- Inadequate space for bicycling on downtown streets,
- No visible bike facilities on most roadways,
- Complex intersections with vehicles turning in many directions,
- Freeway ramp crossings,
- Conflict with transit services,
- Unmarked bike routes, and
- Curbside management issues.

In reference to the Washington, D.C. Regional Bicycle Map, there are several roadways within the Middle Anacostia River region that are relevant to bicycle activity. On-road bike routes refer to those routes that are preferred by experienced bicyclists for their scenic quality and their relationship to other such routes. Portions of the roadways identified as on-road bike routes in the study area include:

- Minnesota Avenue,
- Good Hope Road,
- Martin Luther King, Jr. Avenue,
- Anacostia Drive,
- Water Street,
- Potomac Avenue,
- K Street,
- 11th Street,
- Kentucky Avenue,
- Massachusetts Avenue,
- 18th Street, and
- M Street.

On-street bicycle lanes refer to a portion of the roadway designated by striping, signing, and pavement markings for the preferential use of bicycles. In comparison to on-road bike routes, on-street bicycle lanes are less prevalent in the study area. The following roadway sections are striped to accommodate on-street bicycle use:

- 14th Street (from Kentucky Avenue to Independence Avenue), and
- 15th Street (from Kentucky Avenue to Independence Avenue).

View of on-street bicycle lane along 15th Street, SE.

Shared-use paths are defined as any paved or hard-surfaced trail separated from traffic, for bicycles and other non-motorized users. Within the Middle Anacostia River region, shared-use paths are used along many of the bridges crossing the Anacostia River. The following locations provide a shared-use path for non-motorized travel:

- Sousa Bridge (Eastbound and Westbound directions), and
- Welsh Memorial Bridge.

View of narrow sidewalk separated by guardrail along the Welsh Memorial Bridge.

Bicycle racks are available at many Metro Stations.

In terms of accommodating bicycles on transit services, Metrorail accommodates bicycles at any time except on weekdays from 7:00 AM to 10:00 AM and 4:00 PM to 7:00 PM. Bicycle users have some opportunity to store their bicycles at Metro stations, where lockers and racks are available. Bicycles are prohibited on the Fourth of July. Specific to the study area, the Anacostia Station has some bicycle lockers and racks available, while the Stadium-Armory Station has only bike lockers available for Metrorail patrons. The Potomac Avenue Station does not have bicycle racks or lockers available at this time.

Mode sharing: WMATA buses accommodating a bicyclist.

Metrobuses all have racks on the front that carry up to two bicycles at a time. These rack areas are available for use without any time or day restrictions.

The major pedestrian and bicycle improvement planned for the Middle Anacostia River region is the Anacostia Riverwalk Trail. The Riverwalk Trail, a major project that originated from the AWI Framework Plan, will bring more options for non-motorized travel to the area as well as make both the Anacostia Park and Anacostia River more accessible to the surrounding neighborhoods of the study area. More information regarding the Anacostia Riverwalk and Trail may be found in **Chapter 3** of this report.

Existing Transit Services and Amenities

The Middle Anacostia River Crossings Transportation Study encompasses numerous transit services, including both D.C. Metro rail and bus lines. Eleven Metrobus lines covering over 20 bus routes span the study area, with the heaviest concentration of routes running along Pennsylvania Avenue, the 11th Street Bridges, Martin Luther King, Jr. Avenue, Minnesota Avenue, and M Street. **Figure 8** represents the existing transit routes relevant to the project.

The majority of these bus routes provide services along the roadway network to and from the following Metrorail stations:

- DC Stadium-Armory (Services the Orange Line and Blue Line),
- Potomac Avenue (Services the Orange Line and Blue Line), and
- Anacostia (Services the Green Line).

Within the study area, there are 79 bus stop locations to accommodate transit patrons. Roadways such as Minnesota Avenue, Pennsylvania Avenue, and Martin Luther King, Jr. Avenue are heavily concentrated with approximately half of the total bus stops. Throughout the study area, bus stops vary in ridership and available amenities. **Appendix C** summarizes transit ridership data for many of the pertinent routes and bus stop locations for the time period of January 2000 through December 2003.

One other component of the transit services includes light rail services. While not in place at this time, a large section the Anacostia Light Rail Demonstration Project will fall within the study area. The Anacostia Line is a small-scale project in a much larger plan titled, “The DC Transit Alternatives Analysis”, to introduce light rail as a transit service to Washington, D.C. The Anacostia line will use the existing CSX railroad right-of-way along the east side of the Anacostia River. Groundbreaking for the project took place on November 13, 2004. An expanded overview of the Anacostia Corridor Light Rail Demonstration Project may be found **Chapter 3** of this report.

Transit Infrastructure

Middle Anacostia River Crossings Transportation Study

BUS LINE	BUS ROUTE
Anacostia/Congress Heights	A42, A46, A48
Bladensburg Rd/Anacostia	B2
Minnesota Ave/Anacostia	U2
U Street/Garfield	90, 92, 93
Navy Yard Shuttle	N22
Pennsylvania Ave	30, 32, 34, 35, 36
Anacostia/Eckington	P1, P2, P6
East Capitol/Cardozo	96
Minnesota Ave/M Street	V7, V8, V9
Fairfax Village/L'Enfant Plaza	V5

Light Rail Tracks (future considerations)

Light Rail Tracks (funded for construction)

Light Rail Station Locations

M6 Route (Fairfax Village Route)

Metro Lines

Existing Freight Rail Services

A railroad track system exists along both sides of the Anacostia River, creating a barrier between the communities, the parklands, and the waterfront. An active CSX Railroad line currently traverses the study area on the west side of the Anacostia River. The tracks pass along the south side of the Southeast Freeway and cross the Anacostia River in the vicinity of the Congressional Cemetery.

Active CSX tracks on the west side of the Anacostia River

The CSX Blue Plains spur line parallels the Anacostia Freeway and the entire length of the east side of the Anacostia River. Currently, this CSX line is inactive. The right-of-way for this line is being leased by The Washington Metropolitan Area Transit Authority (WMATA) to construct the Anacostia Corridor Light Rail Demonstration project. The right-of-way is also planned to accommodate trail connections to the Anacostia Riverwalk Trail project. Refer to **Chapter 3** for more information on these projects.

Inactive CSX tracks located on the east side of the Anacostia River, planned for the Light Rail Demonstration Project

Existing Traffic Conditions

Several data collection points were chosen to ensure representation of both sides of the Anacostia River. Thirty-seven Automatic Traffic Recorder (ATR) locations were selected within the study area. ATR locations were selected to account for all major corridors within the study area. The ATR data consisted of 48-hour vehicular counts and where feasible, the collection of speed and vehicle classification data. These data were obtained in the months of March and June in 2004.

Similarly, 33 intersections were selected within the study area for 13-hour turning movement count (TMC) data collection between 6:00 AM and 7:00 PM. These data were also collected in March and June 2004. The data collected included vehicle movements, pedestrian crossings, and in some instances, bicycle activity. The study intersections were chosen according to key corridors, typical congested areas, and by key features within the study area. The 33 intersections represent a mix of stop-control and signal-control. One intersection selected for turning movement counts was yield-control (Barney Circle/Kentucky Avenue). The locations of all TMC intersections as well as the ATR locations may be found on **Figure 9**. Lane configurations for the 33 study intersections may be found in **Figure 10**. **Appendix D** contains a summary of the ATR and TMC data for this project.

MIDDLE ANACOSTIA RIVER CROSSINGS TRANSPORTATION STUDY

Traffic Data Collection Sites

Legend

TRAFFIC STUDY INTERSECTIONS

AUTOMATIC TRAFFIC RECORDER LOCATIONS

AUTOMATIC TRAFFIC RECORDER LOCATIONS

1. Anacostia Freeway (I-295) between 11th Street and Pennsylvania Avenue
2. Southeast Freeway between 11th Street and Barney Circle
3. Ramp from WB Pennsylvania Avenue to SB Anacostia Freeway
4. Ramp from NB Anacostia Freeway to WB Pennsylvania Avenue
5. Ramp from Pennsylvania Avenue to NB Anacostia Freeway
6. Ramp from NB Anacostia Freeway to EB Pennsylvania Avenue
7. Ramp from SB Anacostia Freeway to EB Pennsylvania Avenue
8. Ramp from EB Pennsylvania Avenue to SB Anacostia Freeway
9. 13th Street Ramp onto NB 11th Street Bridge
10. Ramp from NB Anacostia Freeway to NB 11th Street Bridge
11. Ramp from SB Officer Welsh Bridge to Martin Luther King Jr. Avenue
12. Ramp from SB Officer Welsh Bridge to SB Anacostia Freeway
13. Ramp from NB 11th Street Bridge to EB Southeast Freeway
14. Ramp from WB Southeast Freeway to SB Officer Welsh Bridge
15. Ramp from NB 11th Street Bridge to 12th Street and N Street
16. Ramp from NB 11th Street Bridge to 10th Street at I (Eye) Street
17. Ramp from NB 11th Street Bridge to WB Southeast Freeway
18. Ramp from WB Southeast Freeway to 9th Street at I (Eye) Street
19. Ramp from 8th Street to SB Officer Welsh Bridge
20. Ramp from EB Southeast Freeway to SB Officer Welsh Bridge
21. Ramp from 11th Street to SB Officer Welsh Bridge
22. Ramp from WB Pennsylvania Avenue to WB Southeast Freeway
23. NB Pennsylvania Avenue at Barney Circle
24. SB Pennsylvania Avenue at Barney Circle
25. Ramp from WB Southeast Freeway to EB Pennsylvania Avenue
26. 17th Street north of Barney Circle
27. Kentucky Avenue north of Barney Circle
28. 11th Street between M Street and N Street
29. Potomac Avenue between 16th Street and 17th Street
30. 19th Street between Potomac Avenue and C Street
31. RFK Access Road from Barney Circle to RFK Stadium
32. Minnesota Avenue between Nicholson Place and Pennsylvania Avenue
33. Minnesota Avenue between Good Hope Road and T Street
34. MLK Jr. Avenue between Good Hope Road and Ridge Place
35. MLK Jr. Avenue between Howard Street and Talbert Street
36. 18th Street between Massachusetts Avenue and Independence Avenue
37. Ramp at Barney Circle from RFK Access Road to 17th Street

STUDY INTERSECTIONS

1. Barney Circle at 17th Street
2. Barney Circle at Kentucky Avenue
3. Barney Circle at Pennsylvania Avenue
4. I (Eye) Street at 11th Street
5. I (Eye) Street at 10th Street/Ramp from NB 11th Street Bridge
6. I (Eye) Street at 9th Street/Ramp from WB Southeast Freeway
7. 11th Street at M Street
8. 11th Street at N Street/Ramp from NB 11th Street Bridge
9. 12th Street at M Street
10. 17th Street at Potomac Avenue
11. 17th Street at Massachusetts Avenue
12. 17th Street at Independence Avenue
13. 19th Street at Potomac Avenue
14. 19th Street at Independence Avenue
15. Potomac Avenue at Kentucky Avenue
16. Potomac Avenue at Pennsylvania Avenue (East)
17. Potomac Avenue at Pennsylvania Avenue (West)
18. K Street at 15th Street
19. 8th Street at Ramp to SB Officer Welsh Bridge
20. 18th Street at Potomac Avenue
21. Good Hope Road at Martin Luther King Avenue
22. Good Hope Road at 13th Street
23. Pennsylvania Avenue at Ramp to NB DC-295
24. Pennsylvania Avenue at Minnesota Avenue
25. Pennsylvania Avenue at EB I-295 Ramp
26. Pennsylvania Avenue at L'Enfant Square
27. Minnesota Avenue at Good Hope Road
28. Minnesota Avenue at 18th Street and R Street
29. Minnesota Avenue at Naylor Road and 22nd Street
30. Minnesota Avenue at Nicholson Street and White Place
31. MLK Jr. Avenue at W Street
32. MLK Jr. Avenue at Howard Road
33. 18th Street at Independence Avenue

d.

INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

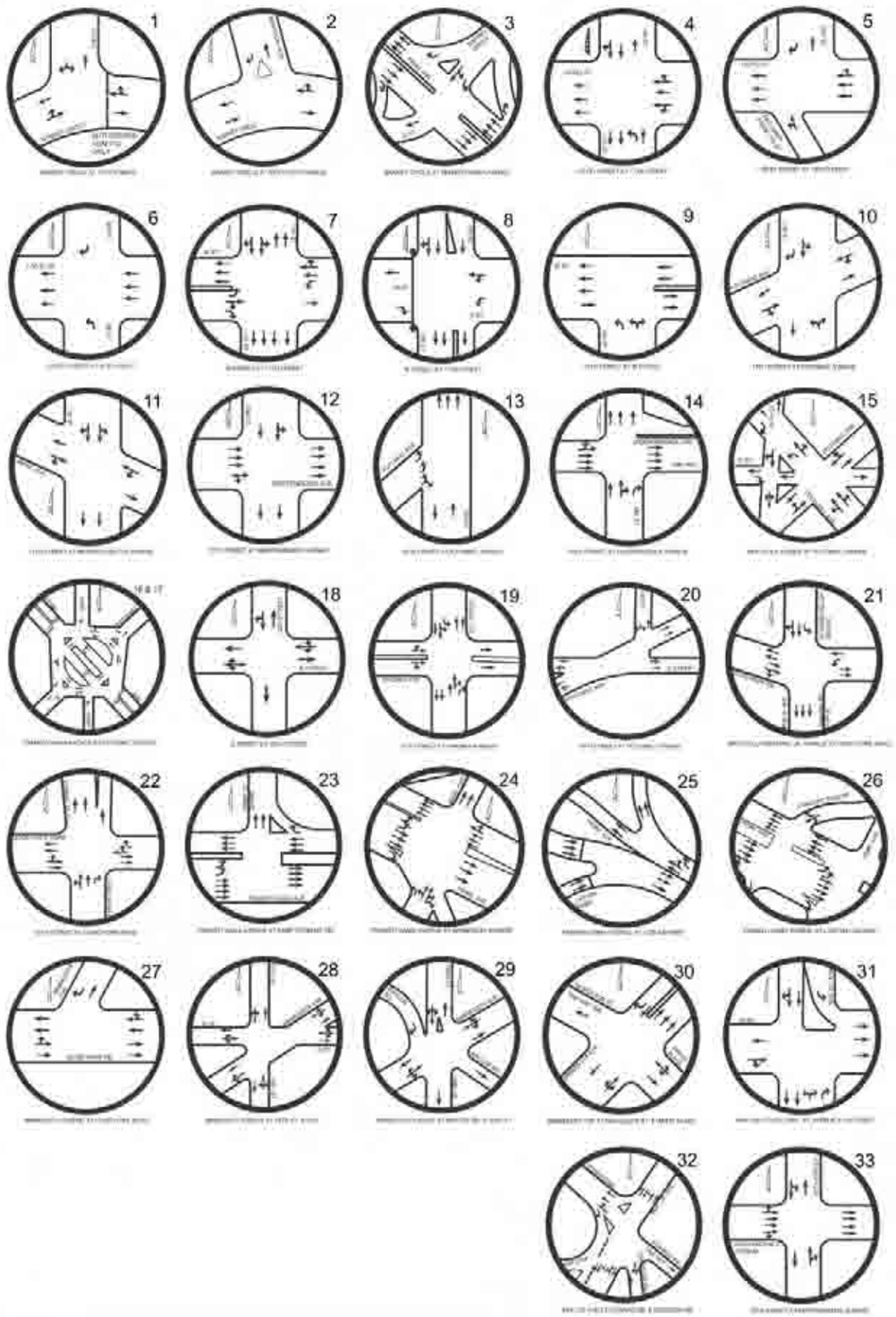
MIDDLE ANACOSTIA RIVER CROSSINGS TRANSPORTATION STUDY

Traffic Data Collection Sites

MARCH 2005	FIGURE 9	2-26

MIDDLE ANACOSTIA RIVER CROSSINGS TRANSPORTATION STUDY

Intersection Configuration



Existing Traffic Volumes

Throughout the study area, there are specific roadway segments carrying significant amounts of traffic. Average daily traffic volumes are illustrated on **Figure 11**. As shown, the Pennsylvania Avenue corridor east of the Anacostia River along with the Sousa Bridge carries over 30,000 vehicles per day. During peak periods, this section of the study area is heavily congested. Much of this congestion can be attributed to the incomplete interchanges that are the focus of long-term improvements for this project. The other major roadways in the study area, including the Anacostia Freeway, the 11th Street Bridges, and the Southeast Freeway (west of 11th Street) also are carrying the most traffic for the region.

Traffic Trends

The AM peak period occurs from 6:00 AM to 9:00 AM on most roads within the study area. Some roads carry heavier traffic slightly earlier that 6:00 AM or slightly later than 9:00 AM from time to time.

During the AM peak period, congestion is very heavy along eastbound Pennsylvania Avenue into the core of the City. This trend fits the profile of many commuters living outside the area and entering the District for the numerous employment centers. Pennsylvania Avenue is one of the major routes into the heart of District for Maryland commuters as well as D.C. residents living east of the Anacostia River. The trend is reversed for the evening rush as traffic returns home from the workday.

MIDDLE ANACOSTIA RIVER CROSSINGS TRANSPORTATION STUDY

Existing Traffic Volumes

VEHICLES PER DAY

Vehicles per day	
0 - 2,000	(blue)
2,001 - 5,000	(green)
5,001 - 15,000	(yellow)
15,001 - 30,000	(orange)
>30,000	(red)

Automatic Traffic Recorder Locations

1. Anacostia Freeway (I-295) between 11th Street and Pennsylvania Avenue
2. Southeast Freeway between 11th Street and Barney Circle
3. Ramp from WB Pennsylvania Avenue to SB Anacostia Freeway
4. Ramp from NB Anacostia Freeway to WB Pennsylvania Avenue
5. Ramp from Pennsylvania Avenue to NB Anacostia Freeway
6. Ramp from NB Anacostia Freeway to EB Pennsylvania Avenue
7. Ramp from SB Anacostia Freeway to EB Pennsylvania Avenue
8. Ramp from EB Pennsylvania Avenue to SB Anacostia Freeway
9. 11th Street Ramp onto NB 11th Street Bridge
10. Ramp from NB Anacostia Freeway to NB 11th Street Bridge
11. Ramp from SB Officer Welsh Bridge to MLK Jr. Avenue
12. Ramp from SB Officer Welsh Bridge to SB Anacostia Freeway
13. Ramp from NB 11th Street Bridge to EB Southeast Freeway
14. Ramp from WB Southeast Freeway to SB Officer Welsh Bridge
15. Ramp from NB 11th Street Bridge to 12th Street and N Street
16. Ramp from NB 11th Street Bridge to 10th Street at I (Eye) Street
17. Ramp from NB 11th Street Bridge to WB Southeast Freeway
18. Ramp from WB Southeast Freeway to 9th Street at I (Eye) Street
19. Ramp from 6th Street to SB Officer Welsh Bridge
20. Ramp from EB Southeast Freeway to SB Officer Welsh Bridge
21. Ramp from 11th Street Bridge to SB Officer Welsh Bridge
22. Ramp from WB Pennsylvania Avenue to WB Southeast Freeway
23. NB Pennsylvania Avenue at Barney Circle
24. SB Pennsylvania Avenue at Barney Circle
25. Ramp from WB Southeast Freeway to EB Pennsylvania Avenue
26. 17th Street north of Barney Circle
27. Kentucky Avenue north of Barney Circle
28. 11th Street between M Street and N Street
29. Potomac Avenue between 16th Street and 17th Street
30. 11th Street between Potomac Avenue and C Street
31. Access road from Barney Circle to RFK Stadium
32. Minnesota Avenue between Nicholson Avenue and Pennsylvania Avenue
33. Minnesota Avenue between Good Hope Road and T Street
34. MLK Jr. Avenue between Good Hope Road and Ridge Place
35. MLK Jr. Avenue between Howard Road and Talbot Street
36. 18th Street between Massachusetts Avenue and Independence Avenue
37. Service Road of Barney Circle from RFK Access Road to 17th Street

DISTRICT DEPARTMENT OF TRANSPORTATION

MAC Transportation Study

INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

Middle Anacostia River Crossings Transportation Study

Existing (2004) Traffic Volumes

MARCH 2005	FIGURE 11	2-29

Intersection Level of Service (LOS) Analysis

The 33 intersections identified for turning movement counts were analyzed to determine the level of service results for peak period conditions. Level of Service (LOS) is a qualitative measure describing operational traffic conditions, taking into account factors such as speed and travel time, comfort and convenience, and safety. By combining the count data along with signal timing plans (where applicable), a more accurate depiction of congested locations was achieved. **Figure 12** summarizes the AM and PM peak LOS results at the study interactions along with identifying the type of intersection control. Existing peak volumes at key locations within the study area may be found in **Appendix E.**

From the illustration, it can be seen that there are a few failing intersections during the AM peak, PM peak, or both within the study area. Failing intersection are prevalent along Pennsylvania Avenue, and Martin Luther King, Jr. Avenue, with other locations scattered throughout the study area.

In addition to intersection analysis, other key segments of the transportation network such as ramps, weaving sections, corridors, and freeways were analyzed.

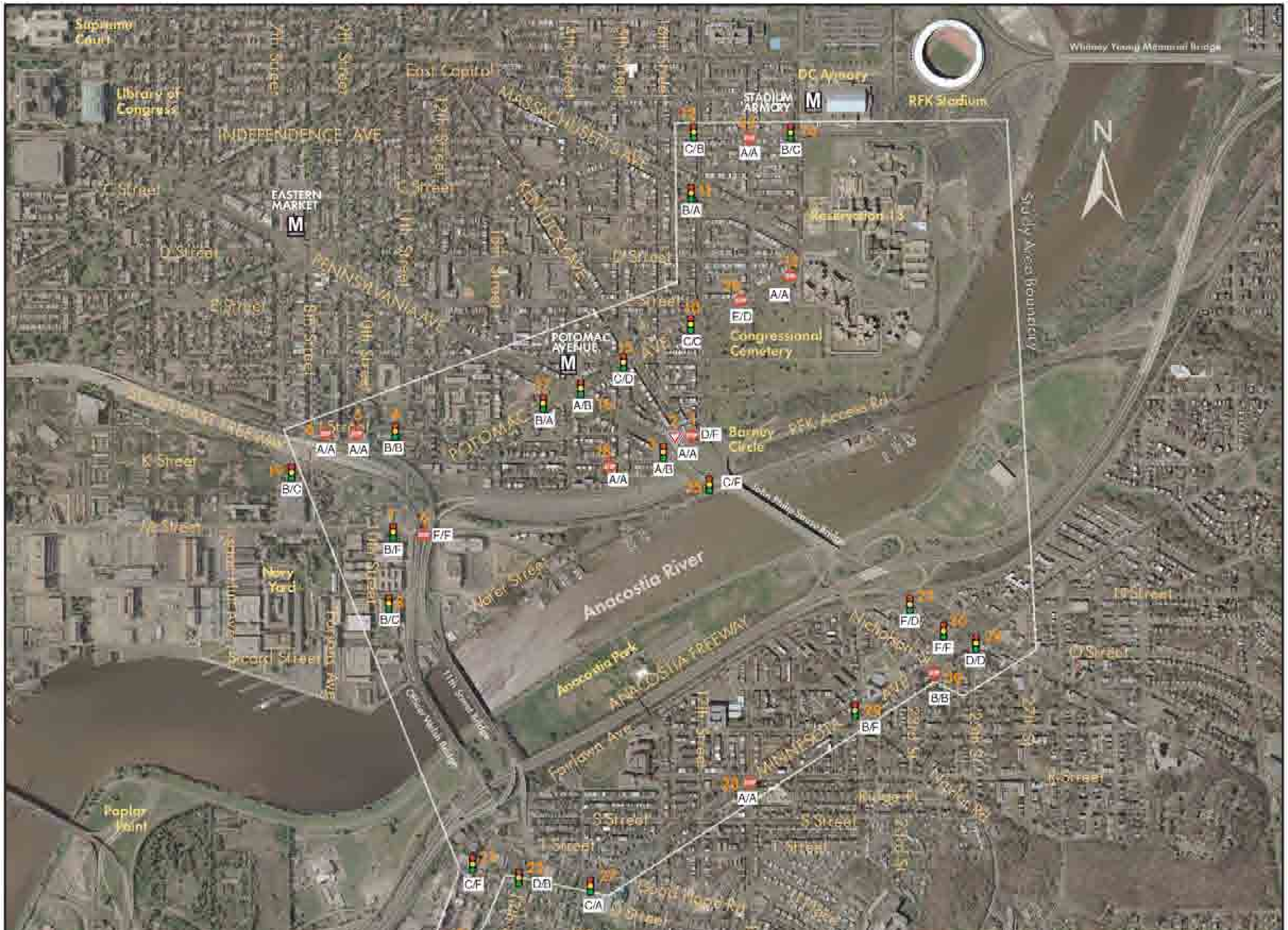
MIDDLE ANACOSTIA RIVER CROSSINGS TRANSPORTATION STUDY

Study Area Intersections
Existing Traffic Control & Level of Service

- Signalized
- Unsignalized (Stop Controlled)
- Unsignalized (Yield Condition)
- B/A AM and PM Level of Service

Study Intersections

1. Barney Circle at 17th Street
2. Barney Circle at Kentucky Avenue
3. Barney Circle at Pennsylvania Avenue
4. I (Eye) Street at 11th Street
5. I (Eye) Street at 10th Street/Ramp from NB 11th Street Bridge
6. I (Eye) Street at 9th Street/Ramp from WB Southeast Freeway
7. 11th Street at M Street
8. 11th Street at N Street/Ramp from NB 11th Street Bridge
9. 12th Street at M Street
10. 17th Street at Potomac Avenue
11. 17th Street at Massachusetts Avenue
12. 17th Street at Independence Avenue
13. 19th Street at Potomac Avenue
14. 19th Street at Independence Avenue
15. Potomac Avenue at Kentucky Avenue
16. Potomac Avenue at Pennsylvania Avenue (East)
17. Potomac Avenue at Pennsylvania Avenue (West)
18. K Street at 15th Street
19. 8th Street at Ramp to SB Officer Welsh Bridge
20. 18th Street/E Street at Potomac Avenue
21. Good Hope Road at MLK Jr. Avenue
22. Good Hope Road at 13th Street
23. Pennsylvania Avenue at Ramp to NB DC 295
24. Pennsylvania Avenue at Minnesota Avenue
25. Pennsylvania Avenue at EB I-395 Ramp
26. Pennsylvania Ave. at L'Enfant Square
27. Minnesota Avenue at Good Hope Road
28. Minnesota Avenue at 18th Street and R Street
29. Minnesota Avenue at Naylor Road and 22nd Street
30. Minnesota Avenue at Nicholson Street and White Place
31. MLK Jr. Avenue at W Street
32. MLK Jr. Avenue at Howard Road
33. 18th Street at Independence Avenue



District Department of Transportation

INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

Middle Anacostia River Crossings Transportation Study
Study Area Intersections - Existing Traffic Control and Level of Service

MARCH 2005	FIGURE 12	2-31

Regional Safety Overview

Accident data covering the three-year time period of January 2000 to December 2002 were gathered from the DDOT Traffic Services Administration and evaluated for the project. Accident data were analyzed for the 33 study intersections as well as at other key intersections and interchanges along major corridors in the study area. Accident data were summarized for a total of 66 locations within the study area. Accident rates were established for these locations as well as for major corridors, such as the Anacostia Freeway, Southeast Freeway, and Pennsylvania Avenue. The accident rate was calculated using the following formula:

$$\text{RSP} = \frac{\text{A} \times 1{,}000{,}000}{365 \text{ days/year} \times \text{ADT}} \quad \text{where,}$$

RSP = Accident rate for the spot (intersection)
A = number of reported accidents
ADT = average daily traffic

In addition, an accident severity rating was established for these locations to better understand safety problems. Accident severity takes into account the following three types of accidents: property-damage only (PDO), injury-related, or fatality. By evaluating the accident severity, more insight may be gathered into the perceived safety or deficiency in safety conditions at a particular intersection. A rating scale is then applied to the different accident types to produce a value at each location that will account for the occurrence of injuries and deaths. The accident severity rate was calculated using the following formula:

$$\text{Accident Severity Rate} = (\text{PDO accidents} \times 1) + (\text{Injury accidents} \times 3) + (\text{Fatality accidents} \times 8)$$

Refer to **Figure 13** for a summary of the total accidents, severity rates, and accident rates (by ADT). The entire Pennsylvania Avenue/Anacostia Freeway interchange had the largest accident total (150) from January 2000 to December 2002, as well as the highest accident severity rating (266). These numbers are difficult to compare against isolated intersections within the study area because there are multiple conflict points and intersections at this location. The accident data did not call out specific ramp locations or conflict points to further evaluate this location. **Table 11** summarizes the five worst intersections in terms of the highest severity ratings. In summary, Pennsylvania Avenue/Minnesota Avenue had the highest total number of accidents (144) and accident severity rating (238) of any intersection within the study area. Good Hope Road/11th Street Bridge/13th Street had the highest accident rate (3.57) of all intersections, where data were gathered. Within the study area, a total of five accidents resulted in fatalities during this time period. Three fatal accidents were reported along the Anacostia Freeway between Howard Road and Pennsylvania Avenue. One fatal accident was reported at each of the intersections of Martin Luther King, Jr. Avenue/Good Hope Road and Massachusetts Avenue/19th Street. Specific to pedestrian and bicycle accidents that resulted in injuries, the intersection of Martin Luther King, Jr. Avenue/Howard Road had the largest number (8) of reported incidents in the study area.

Table 11. Summary of Five Highest Accident Severity Intersections within the Study Area

Intersection	Accident Type			Accident Severity Rate
	PDO Accidents	Injury-Related Accidents	Fatality Accidents	
Pennsylvania Avenue / Minnesota Avenue	97	47	0	238
Pennsylvania Avenue / Barney Circle	48	29	0	135
Pennsylvania Avenue / Fairlawn Avenue	48	19	0	105
Pennsylvania Avenue / Potomac Avenue / 14th Street	17	21	0	80
Pennsylvania Avenue /Ramp from EB SE Freeway	31	16	0	79

A summary of pedestrian and bicycle-related injuries is included in the accident data summary provided in **Appendix F**.

MIDDLE ANACOSTIA RIVER CROSSINGS TRANSPORTATION STUDY

Accident Data Overview

JANUARY 2000 TO DECEMBER 2002

Traffic Accidents

- 0-15
- 16-55
- 56-75
- >75

Study Intersections

Site	Location	Total Accidents (2000 - 2002)	Estimated Accident Severity Rate	Estimated Accident Rate (MEV)
1	11th Street/Barney Circle	9	29	0.59
2	Kentucky Avenue/Barney Circle	3	3	0.22
3	Pennsylvania Avenue/Barney Circle	77	136	0.66
4	I (Eye) Street/11th Street	1	1	0.19
5	I (Eye) Street/10th Street	3	8	0.32
6	I (Eye) Street/9th Street	0	0	0.00
7	M Street/11th Street	4	5	0.65
8	M Street/11th Street	0	0	0.00
9	M Street/12th Street	2	2	0.34
10	Potomac Avenue/17th Street	13	23	0.91
11	Massachusetts Avenue/17th Street	1	1	0.07
12	Independence Avenue/17th Street	26	49	1.68
13	Potomac Avenue/19th Street	0	0	0.00
14	Independence Avenue/19th Street	31	58	2.55
15	Potomac Avenue/Kentucky Avenue	3	7	0.22
16/17	Pennsylvania Avenue/Potomac Avenue/14th Street	36	80	1.01
18	K Street/18th Street	3	3	0.33
19	6th Street/Ramp to 11th Washington Bridge	0	0	0.00
20	Potomac Avenue/18th Street	4	5	0.46
21	Martin Luther King, Jr. Avenue/Good Hope Road	22	41	1.25
22	Good Hope Road/13th Street/NB 11th St. On-ramp	54	48	3.57
23	PA Avenue/Ramp to NB DC 295	*	*	*
24	Pennsylvania Avenue/Minnesota Avenue	144	208	2.10
25	Pennsylvania Avenue/EB SE Freeway Ramp	47	76	1.42
26	Pennsylvania Avenue/ Eastern Square	34	54	0.51
27	Minnesota Avenue/Good Hope Road	14	20	1.19
28	Minnesota Avenue/18th Street & B Street	16	33	1.68
29	Minnesota Avenue/22nd Street & Naylor Road	9	17	0.67
30	Minnesota Avenue/Nannie Street & White Place	13	20	0.83
31	Martin Luther King, Jr. Avenue/W Street	17	18	0.88
32	Martin Luther King, Jr. Avenue/Mount Rural	39	78	1.86
33	Independence Avenue/19th Street	10	18	0.61

* See PA Ave/I-295 Interchange

Additional Locations

Site	Location	Total Accidents (2000 - 2002)	Estimated Accident Severity Rate	Estimated Accident Rate (MEV)
34	Potomac Avenue/4th Street	10	18	0.58
35	Potomac Avenue/13th Street	7	11	0.65
36	Pennsylvania Avenue/19th Street	13	19	0.58
37	K Street/12th Street	2	2	0.31
38	K Street/13th Street	8	12	1.04
39	K Street/14th Street	6	6	0.57
40	I (Eye) Street/6th Street	4	4	0.45
41	I (Eye) Street/12th Street	3	3	0.47
42	M Street/9th Street	5	5	0.81
43	Southeast Freeway/11th Street Bridge Interchange	13	20	NA
44	Massachusetts Avenue/18th Street & C Street	11	23	0.73
45	Massachusetts Avenue/19th Street	2	10	0.31
46	C Street/17th Street	19	37	1.25
47	D Street/18th Street	1	1	0.20
48	C Street/19th Street	1	1	0.08
49	D Street/17th Street	6	9	0.40
50	D Street/18th Street	3	4	0.42
51	D Street/19th Street	2	2	0.17
52	E Street/17th Street	4	6	0.38
53	E Street/18th Street	2	4	0.19
54	Martin Luther King, Jr. Avenue/U Street	5	5	0.26
55	Martin Luther King, Jr. Avenue/V Street	8	9	0.28
56	Martin Luther King, Jr. Avenue/Morris Rd. & Chicago St.	9	11	0.51
57	Martin Luther King, Jr. Avenue/Minnesota Avenue	25	40	1.29
58	Good Hope Road/13th Street	18	30	1.68
59	11th Street Bridge/I-295 Interchange	34	82	NA
60	11th Street Bridge (NB)/M Street (at Near Navy Yard)	11	19	NA
61	Minnesota Avenue/22nd Street	18	32	1.19
62	Minnesota Avenue/19th Street	10	14	1.12
63	Minnesota Avenue/17th Street	6	11	1.03
64	Minnesota Avenue/16th Street	4	6	0.45
65	Pennsylvania Avenue/Fairlawn Avenue	67	108	1.00
66	Pennsylvania Avenue/I-295 Interchange	150	286	NA

NOTE: The Sun Intersection is indicated on the map.

Existing Utilities

Although a full-scale inventory of existing utilities was not part of the original tasks for the Middle Anacostia River Crossings Transportation Study, there was a need to determine the locations of various underground utilities in the area of the Anacostia Freeway. This inventory became necessary as the development of long-term improvements evolved into considerations for lowering the grade of the interstate near the 11th Street bridges, Pennsylvania Avenue, and possibly between the two interchanges. Tied in to the utility research was the fact that part of the AWI framework plan included discussions on stormwater and sewer line separation.

Utility plans were obtained from the District of Columbia's Water and Sewer Administration (WASA) for the area along the Anacostia Freeway from just north of the Pennsylvania Avenue interchange to just south of the 11th Street Bridges interchange. **Appendix G** contains mapping that depicts an overview of the WASA utilities identified for this project.

Chapter 3: CORE AREAS OF THE MIDDLE ANACOSTIA RIVER REGION

The Middle Anacostia River Crossings Transportation Study is not alone in its efforts of evaluating transportation and land use improvements in Washington, D.C. Many other exemplary projects or studies have been completed in the Southwest section of the City. Within the Southeast section, projects and studies are ongoing, or will be initiated in the near future. Most of these projects or studies have origin from the regional legislation, known as the Anacostia Waterfront Initiative (AWI), and seek to revitalize the Southeast section of Washington, D.C. The AWI Framework Plan was finalized in 2003 as the initial step to launching many of these projects and studies. The Middle Anacostia River Crossings Transportation Study is one of many of these projects that originated from the AWI Framework Plan. This chapter briefly describes several "core areas" within the Middle Anacostia River region that are subject to many of these ongoing projects or studies. These core areas form the basis for achieving the goals sought in general by the AWI Framework Plan and then more specifically by each individual project or study. The purpose of the Middle Anacostia River Crossings Transportation Study is best explained within a comprehensive overview of overlapping and relevant projects. The core areas of importance include:

- Anacostia Park and Waterfront,
- Anacostia Freeway and River Crossings,
- Martin Luther King, Jr. Avenue/Anacostia Neighborhood,
- Barney Circle and the Southeast Freeway, and
- Pennsylvania Avenue Corridor

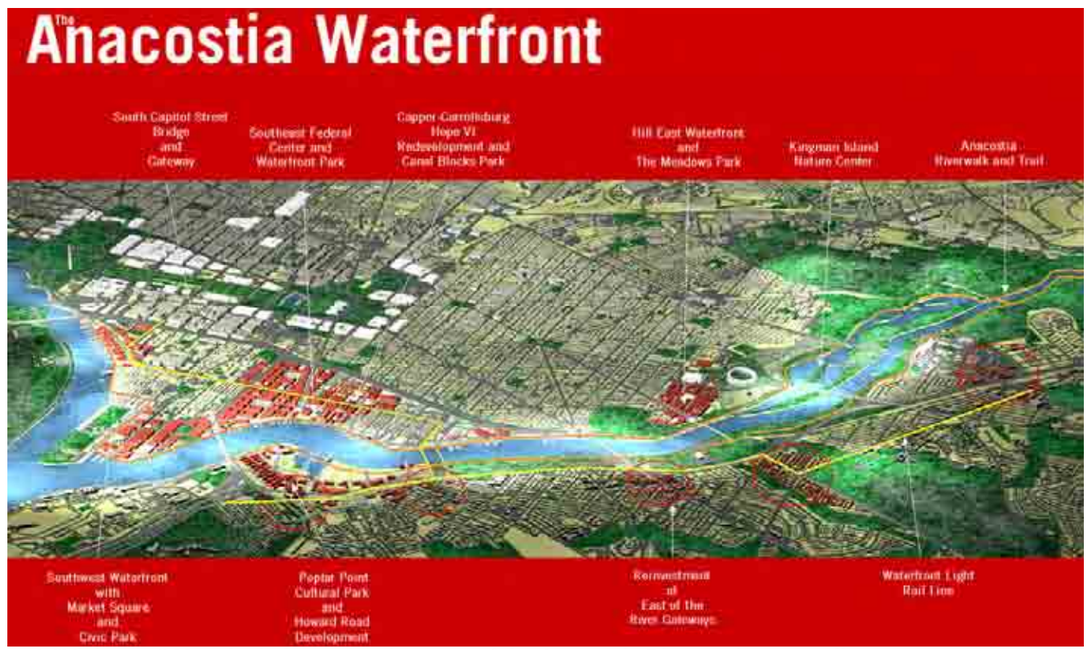
Figure 14 shows a regional perspective to the location of the studies and projects discussed in this chapter.

Prior to discussing each core area in more detail, it is important to provide an understanding of the broader scope of the region. The overview of the AWI Framework Plan serves as a foundation for the improvements being considered at each of the core areas.

Figure 14. Core Areas within the Middle Anacostia River Region

The Anacostia Waterfront Initiative and Framework Plan

The Anacostia Waterfront Initiative (AWI) is a partnership between federal and District government agencies formed to shape a once neglected area and national resource, the Anacostia River, into a thriving waterfront. AWI seeks to improve the water quality of the river, enhance and protect parklands along the river, create broad access to the river and parks, and revitalize southeast neighborhoods. The project will include restoration of wetlands, reconstruction of bridges for pedestrian and bicycle access, creation of the Anacostia Riverwalk Trail to connect park areas, and revitalization of cultural destinations and waterfront neighborhoods.



A "Visionary" Map depicting redevelopment of the Anacostia River and surrounding areas.

Goals sought by the AWI include:

- Charter a course for the environmental healing and rejuvenation of water-dependent activities on the Anacostia River.
- Reconstruct transportation infrastructure to improve access to waterfront lands and better serve waterfront neighborhoods.
- Create a system of interconnected and continuous waterfront parks, joined together by a trail system along the River.
- Enliven the waterfront to celebrate and explore the cultural heritage of both Washington, D.C. and the United States of America.
- Promote sustainable economic development by reconnecting the city across the Anacostia River to a vital waterfront that offers residential, recreational, and employment opportunities.

The Anacostia's renewal is part of a growing trend across the United States to re-energize abandoned or improperly utilized riverfronts. Several examples across America show that success can be achieved if the right plan and initiatives are set forth. Boston, Providence, and San Francisco are just a few examples of recent waterfront redevelopments that have brought new life and tremendous opportunities to sections of these cities that were thought to have no meaningful use anymore. Careful planning and the proper mix of land use and transportation improvements are slowly bringing a promising future to the Anacostia waterfront as well.

Many important areas targeted for improvement through the AWI are at the forefront of issues in the Middle Anacostia River Crossings Transportation Study and many other studies. The following case studies look at the blend of activities that are planned or have been completed for the five core areas.

Core Area: Anacostia Park and Waterfront

The Anacostia Park and waterfront act both as the symbol for an area battling decay as well as a sense of hope for the future. The AWI Framework Plan's revitalization efforts focus solely on these two resources as the means to realize the grand visions for the Middle Anacostia River region. Improvements to transportation and land uses throughout the area need to be supported by the upgrade to access, awareness, and usefulness of the park and river.

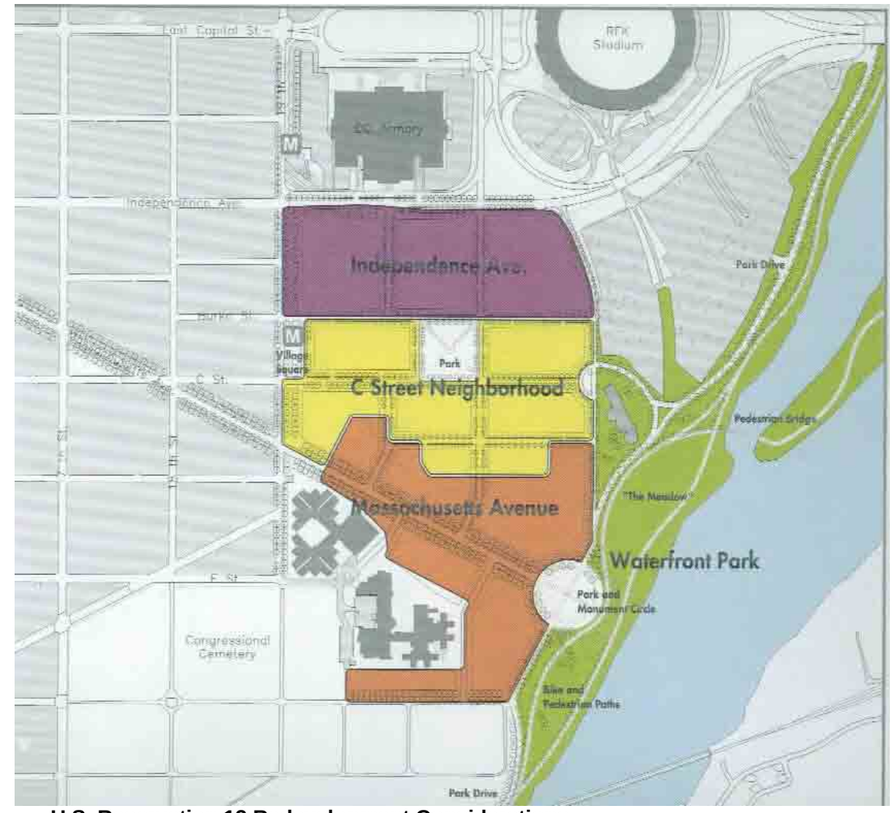
The AWI envisions an interconnected system of parks adjacent to the river within and beyond the Middle Anacostia River region. The hope is to make the park areas a unified place for all communities within the region and visitors to go and enjoy the recreational features of our Nation's capital.

By reclaiming an interest in the park system along the Anacostia River, people would be drawn closer to the most vital and most apparent resource of the Southeast, the River itself. Urban development and revitalization efforts near neglected waterfronts have proven successful in cities such as Boston, Charleston, and Providence. Washington, D.C. can one day join these other cities as an example of reclaiming precious resources for benefits that stretch far beyond the District boundary.

The AWI Framework Plan was the initial motivation behind many unique projects and studies looking to improve the Anacostia Park and its waterfront. Two key projects in which the Middle Anacostia River Crossings Transportation Study examined when considering additional improvements were the Public Reservation 13 redevelopment and the Anacostia Riverwalk Trail.

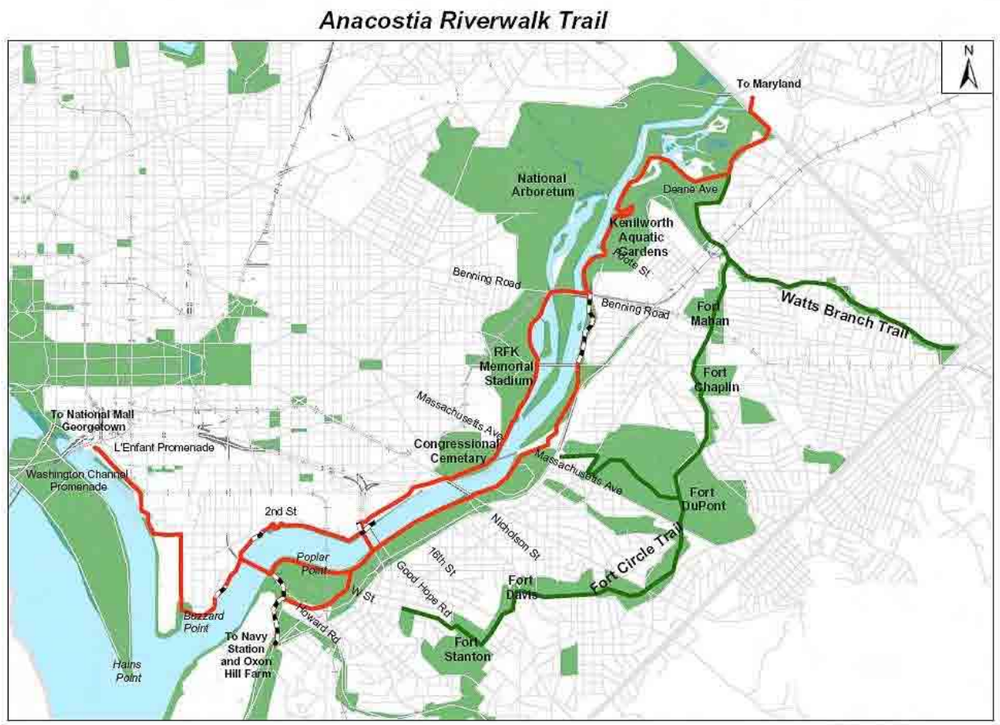
The Reservation 13 public land, located south of RFK Stadium, is a 67-acre parcel that is home to the DC Jail and the DC General Hospital. The major initiatives planned for this property are to reconnect it with the rest of the District and the Anacostia waterfront. Specific to the transportation network of the Middle Anacostia River region, the following represent a few of the many core goals for the site's redevelopment:

- Extend the existing pattern of local streets to and through the site to create simple well-organized city blocks to compliment appropriately scaled development.
- Connect the Hill East neighborhood and the District at large to the waterfront through tree-lined streets, recreational trails, and improved access to waterfront parklands.



U.S. Reservation 13 Redevelopment Considerations.

Another key component of the revitalization of the Anacostia waterfront is the Riverwalk Trail. The 11-mile trail network will extend from the Potomac River to the Maryland border, enhancing recreation, transportation, and economic development in the Anacostia corridor.



Proposed Anacostia Riverwalk and Trail System.

As the design and construction of a permanent trail takes place, an interim trail and signed route of existing facilities is in place that follows streets along the proposed trail corridor.

At the top of the recreation and transportation agendas of the Anacostia Waterfront Initiative is the establishment of a continuous Anacostia Riverwalk and Trail along the east and west banks of the Anacostia River. The proposed Riverwalk is both a recreational amenity and a transportation alternative for Washington-area commuters, connecting neighborhoods to each other and to the greater Anacostia River Parks system.

Interim Riverwalk Trail sign near Barney Circle.

Considerations of the Middle Anacostia River Crossings Transportation Study

Under the Middle Anacostia River Crossings Transportation Study, the Anacostia Park and its waterfront are among the priorities directly addressed by the project's main categories of improvements. Improving the access to Anacostia Park on both the east side and west side of the Anacostia River is an important element being considered for all modes of travel. The current transportation system acts a barrier to these natural resources, making them undesirable and unreachable.

The Public Reservation 13 redevelopment and expansion of pedestrian and bicycle trails are very good improvements to build on. The Middle Anacostia River Crossings Transportation Study has looked at making a connection between a variety of new improvements and these two projects.

Access improvements that have been studied and addressed in this report include:

- Developing direct connections from a bridge or roadway into the park.
- Improving basic pedestrian and bicycle amenities in or near the park.
- Promoting the use of the Park through wayfinding signs near existing Park entrances.
- Removing or replacing existing structures with less obstructive alternatives to bring the Anacostia Park and waterfront closer to the neighborhoods.

These improvements vary in the extent of effort required to make the Anacostia Park and waterfront more inviting on a local and regional scale. For that reason, improvements associated with this core area span across the near-term, mid-term, and long-term timeframes.

Core Area: Anacostia Freeway and River Crossings

The Anacostia Freeway is also known by travelers as I-295, D.C. 295, and Kenilworth Avenue, depending on stretch of the road being discussed. It is located entirely on the east side of the Anacostia River, separated from the river mainly by the Anacostia Park. This major route may be seen as the equivalent of the Anacostia River in terms of its significance to the Middle Anacostia River region, when compared to other major roadways within the study area. The Anacostia Freeway operates today just as its name: a freeway. It carries nearly 100,000 vehicles per day within the study area and resonates more congestion on the connecting roadways.

Bridge crossings occur at five major points in the Middle Anacostia River Region:

- South Capitol Street (Frederick Douglass Memorial Bridge),
- 11th Street (A one-way pair of bridges),
  - 11th Street Bridge (northbound),
  - Welsh Memorial Bridge (southbound),
- Pennsylvania Avenue (John Philip Sousa Bridge),
- East Capitol Street (Whitney Young Memorial Bridge), and
- Benning Road (Benning Road Bridge).

Each roadway associated with these bridges has some connection to the Anacostia Freeway. However, it is the incompleteness of these interchanges that reduces the safety and mobility for local and regional travelers alike. The congestion associated with the Anacostia Freeway and the missing movements at key interchanges has a negative impact on the livability of local communities within the Middle Anacostia River region. As traffic congestion builds and drivers seek alternate routes to the deficient interchanges, neighborhoods and their associated streets become the new choice for travelers.

A depiction of the new 11th Street Bridges (AWI).

Three major studies based on the AWI Framework Plan look to reestablish the Anacostia Freeway and its associated River crossings. In combination, the South Capitol Street Gateway Study, the Middle Anacostia River Crossings Transportation Study, and the Kenilworth Avenue Corridor study all look at unique segments of the Anacostia Freeway and its relevant river crossings. The goals are to improve the mobility at interchanges, address the scale of the freeway to act more like a parkway, and to strengthen the connection between the communities east of the River with the rest of Washington, D.C.

The **South Capitol Gateway and Corridor Improvement Study** identified improvements to South Capitol Street, the Frederick Douglass Memorial Bridge, and New Jersey Avenue. Transit, bicycle, pedestrian, and intermodal facilities were the major transportation components targeted for improvements contributing to a transformation of the Anacostia waterfront.

This study evaluated existing land uses, transportation and urban design within the corridor. The study recommended mixed-use development, improving local neighborhood access, encouraging multi-modal traffic and enhancing the aesthetic qualities of the corridor. The major finding of this study was the consideration for construction of a tunnel below the Anacostia River and along South Capitol Street to eventually connect with the Southeast/Southwest Freeway. The development of a tunnel would allow South Capitol Street to become a grand gateway once again that would insure proper access for the region.

The Kenilworth Avenue Corridor Study is the third major transportation study of the AWI. Because the facility has been neglected for many years, design features of the existing roadway need to be improved through repairs or redesign to support the current and future needs of the area. Problems that have been identified with the highway include access, lack of important connections, interchange geometry, limited horizontal clearances, poor pedestrian crossings, vehicle safety hazards, inadequate drainage, deteriorated service road connections, and substandard median areas.

The study area includes the entire Kenilworth Avenue (D.C. 295) mainline with the southern limits at the interchange of Kenilworth Avenue, excluding access from Pennsylvania Avenue. The northern limits are at the District Boundary line at the interchange of Kenilworth Avenue and at Eastern Avenue. The study will also include the ramps for Eastern Avenue to and from Kenilworth Avenue, located in Maryland. The study area also includes the study of a potential additional river crossing at Massachusetts Avenue.

The western boundary is the western bank of the Anacostia River; however, the planned development for Reservation 13 and the proposed crossing for Massachusetts Avenue will be included in this study. The eastern boundary approximately follows Minnesota Avenue and extends one-third of a mile east of Kenilworth Avenue.

Considerations of the Middle Anacostia River Crossings Transportation Study

The section of the Anacostia Freeway associated with the Middle Anacostia River Crossings Transportation Study includes the 11th Street bridges interchange and the Pennsylvania Avenue interchange.

As with the other two projects, the goals of this study focused on completing the interchanges, improving the separation of local and regional traffic, removing the freeway as a barrier to parkland and the river, and alleviating burdens placed on neighborhood streets by cut-through traffic. Specific to the river crossings, evaluations were focused on addressing the deficient movements and giving a stronger sense of connection between the both sides of the Anacostia River.

Some very specific safety improvements have been addressed at these locations during the near-term and mid-term timeframes. In general, however, the majority of large-scale improvements necessary to achieve the goals mentioned above could only be feasible during the long-term.

Core Area: Martin Luther King, Jr. Avenue / Anacostia Neighborhood

The Anacostia Historic District and adjacent neighborhoods are on the verge of new land use revitalization that will significantly expand the residential and commercial activities east of the Anacostia River. One of the gateway corridors for Anacostia, Martin Luther King, Jr. Avenue, will be directly impacted with new developments. One of the most significant developments planned for the area is a new D.C. Government Center, located on the corner of Martin Luther King, Jr. Avenue and Good Hope Road.

Martin Luther King, Jr. Avenue and the adjacent Anacostia neighborhood are somewhat of a capsule of a forgotten section of our nation's capital. Poor access, cut-through traffic, and neglected properties all exist in an area rich in history and potential.

Through the Anacostia Waterfront Initiative, several project improvements and studies have taken a closer look at what is needed to recapture this section of the Southeast as a treasure of Washington, D.C. Improvements focusing on transit, retail, residential, and commercial development, streetscapes, and other initiatives are all working for the common goal of revitalizing Martin Luther King, Jr. Avenue and its surrounding areas.

The D.C. Government Center is the major development planned for the near future that will have a lasting effect on changing Martin Luther King, Jr. Avenue. This facility, combined with a new economic development center for Anacostia, will be a part of the Government Centers Initiative and will include the headquarters for this plan. The Government Center alone will be an approximately 300,000 square-foot development for office and light commercial uses. The building is estimated to provide jobs for 540 people.

The Anacostia Northern Gateway Project is a private office building being developed by the Anacostia Economic Development Corp (AEDC) and a private partner. Located on the corner of Martin Luther King Jr. Avenue and Good Hope Road, this mixed-use complex will offer one-story commercial storefronts, office space on upper floors and will be the new location of District Department of Transportation (DDOT). The project is part of the "Redevelopment Main Street Anacostia" that is part of the Mayor's *DC MAIN STREETS* program.

Rendering of the Proposed Government Center, looking south down Martin Luther King, Jr. Avenue.

With attention towards finding alternative means of travel to the automobile, DDOT, in cooperation with the Washington Metropolitan Area Transit Authority (WMATA), is currently developing a demonstration line for light rail service in the CSX right-of-way along the east side of the Anacostia River. The proposed 2.7 mile light rail line would start at the foot of the Sousa Bridge on the south side of Pennsylvania Avenue, SE and run southwest to the Bolling Air Force Base. The goal of this project is to spark the interest of expanding light rail service to a much larger 33-mile network that District officials hope to build. Visions for the overall network form the basis of the District of Columbia Transit Alternative Analysis.

Four stops are proposed along the Demonstration Line within the Middle Anacostia River Crossings Transportation Study area. These stops are proposed at:

- Pennsylvania Avenue,
- Fairlawn Avenue (north of the pedestrian bridge over the Anacostia Freeway),
- Old Anacostia (near Good Hope Road /Martin Luther King, Jr. Avenue), and
- Anacostia (near the Anacostia Metro Station).

The Demonstration Project is proposed for a three-year evaluation period. Upon completion of this time period, service may be discontinued or removed if the system is not used as projected. If the demonstration line is a success, it will become the first step in developing a permanent commitment to passenger rail in and around Anacostia. A groundbreaking ceremony was held on November 13, 2004. Service is anticipated to begin in late 2005-early 2006.

As part of improving the streetscape and livability of the community, the Anacostia Gateway Transportation Study developed a multi-modal transportation design and management plan that would support efficient multi-modal movement while encouraging mixed residential and commercial development. This study identified short-term, mid-term and long-term options that would create gateways and improve pedestrian, bicycle, and transit access as well as parking and traffic flow, while promoting the historic qualities of the Anacostia Historic District.

Goals of the study included:

- Reinforces and/or defines the sense of place and uniqueness of the Anacostia Gateway/Community.
- Recognizes the role of the roadways, transit linkages, and bike and pedestrian pathways within the study area as an integral component in the overall city and regional transportation system and maintains or improves their function and efficiency as a part of the system.
- Investigates and balances safe and efficient pedestrian, bicycle, transit, and auto movement through and within the neighborhood center.
- Establishes a flexible, demand-management based parking strategy and implementation plan that supports both new and existing retail and residential uses.
- Encourages explicitly the use of transit and enhances transit efficiency.
- Creates a safe, inviting, and interesting public realm that supports a diversity of uses and activities.

The Skyland Transportation Study is another effort that looks to improve land development and streetscape qualities in and around the Anacostia neighborhood. The study will investigate transportation management and truck management improvements Southeast section of Washington, D.C. along Alabama Avenue, Naylor Road, and Good Hope Road neighborhood commercial area. The focus of the study is to identify existing and future traffic conditions in the study area and to determine short-term and long-term traffic management improvements that will achieve the following:

- Reduce traffic congestion,
- Improve traffic and pedestrian safety, and
- Improve access to local businesses.

The study area encompasses Alabama Avenue from Branch Avenue to 25th Street, Naylor Road from T Street to Southern Avenue, and Good Hope Road from 14th Street to 25th Street. Recommendations being developed for this study area are aimed at improving the streetscape appearance while improving vehicle, pedestrian, bicycle, and transit mobility.

A broader-based study looking at the market analysis of opportunities for investments in the Anacostia area, the Anacostia Transit Area Framework Plan evaluated what was necessary to strengthen the Martin Luther King, Jr., Avenue corridor through the provision of two-way traffic, locating active retail uses at the ground floor along the sidewalk, improving pedestrian quality and streetscape elements, and attracting additional retail to the corridor. Other goals of the plan include:

- Serving the pedestrian,
- Taking advantage of transit services,
- Strengthening land uses,
- Connecting neighborhoods,
- Celebrating the past, while welcoming the future, and
- Enhancing green spaces.

There are four nodes targeted as areas of implementation for these various goals. These nodes include: Poplar Point node, Metro node, W Street node, and the Gateway node.

Considerations of the Middle Anacostia River Crossings Transportation Study

The major consideration that the Middle Anacostia River Crossings Transportation study evaluated for this area was the conversion of the one-way portion of Martin Luther King, Jr. Avenue to accommodate two-way flow. By making the entire corridor two-way, the hope is that new developments and emerging land uses would be drawn to what is already an active corridor. The conversion to two-way traffic would provide opportunities not only for land use, but also for alternative means of transportation such as light rail. Access and mobility would be improved for the adjacent neighborhood and complement the incoming developments at Martin Luther King, Jr. Avenue and Good Hope Road

Core Area: Barney Circle and the Southeast Freeway

Barney Circle sits at the west end of the Sousa Bridge and in part, acts as a "mixing bowl" of traffic for the Southeast/Southwest Freeway, Pennsylvania Avenue, and local neighborhood streets. Barney Circle, however, is not a true circle by definition or by design. Connections with varying speeds make the circle more detrimental than helpful to the traffic flow of the Middle Anacostia River region. The disconnection between neighborhoods also is cause for frustration for local and regional commuters.

The section of the Southeast/Southwest Freeway between 11th Street and Barney Circle is unique in the sense it does not act as its given functional classification. Although the available transportation right-of-way suggests this facility is a heavily-utilized freeway, the termination of the roadway just under Barney Circle limits its use. The heaviest movements within this section of the Southeast Freeway occur on the eastbound and westbound ramps servicing Pennsylvania Avenue traffic.

The dynamics of Barney Circle and the Southeast Freeway today and its potential for the future make this yet another important core area of the Middle Anacostia River region. Initiatives such as the Capitol Hill Transportation Study and Memorials and Museums Master Plan have a direct influence on how Barney Circle will change for the future.

DDOT proposes to investigate transportation management improvements in the Capitol Hill area. These efforts are in response to citizen concerns regarding the speed and volume of vehicular traffic, including trucks, on streets in the Capitol Hill area. The purpose of the study is to examine existing transportation conditions in the study area and projected future transportation conditions related to proposed development, and to develop short-, mid- and long-term transportation management and infrastructure improvements. The study will also consider changing the existing one-way street pairs within the area to accommodate two-way directional traffic.

The study area for this project is bounded by:

- G Street, NE to the north,
- Pennsylvania Avenue, SE to the south,
- 1st Street, NE/SE to the west, and
- 19th Street, NE/SE to the east, as well as RFK Stadium, NE area.

The Memorials and Museums Master Plan identifies 100 potential sites for future memorials and museums and provides guidelines for their development throughout the District. Authorizing commemorative works is the responsibility of Congress with the funding usually carried out by private sponsoring organizations. There are two designations for identifying the 100 potential sites; a prime site and a non-prime site (all other candidate sites).

A prime site represents those sites of the highest order because of their high visibility and strong axial relationships with the US Capitol and the White House. A candidate site that is not identified as "prime" also considered important sites due to their linear visual connections to key existing and future commemorative features, their role in reinforcing the overall design structure of the Nation's Capital, or the support they could provide to federal and local planning or development objectives.

Considerations of the Middle Anacostia River Crossings Transportation Study

Relevant to the Middle Anacostia study area, there is one prime location and three non-prime locations. The prime candidate site is located at the west end of the Sousa Bridge on Pennsylvania Avenue, which is now referred to as Barney Circle. The three non-prime candidate locations include:

- Circle at the intersection of Pennsylvania Avenue and Potomac Avenue,
- Anacostia River north shoreline east of 11th Street (between the 11th Street Bridge and the Sousa Bridge), and
- Pennsylvania Avenue east of the Sousa Bridge (east intersection with the Anacostia Freeway on the Anacostia River).

Core Area: Pennsylvania Avenue Corridor

Pennsylvania Avenue is one of the main arteries into and out of the heart of the Nation's Capital. From the Southeast section of Washington, D.C., this major corridor carries over 30,000 vehicles per day from Maryland and surrounding communities and across the Anacostia River. This roadway is one of the major facilities that requires attention in the Middle Anacostia River region.

As a result of the Anacostia Waterfront Initiative, many projects and studies have been initiated or completed with Pennsylvania Avenue as the focal point for improvements.

The Pennsylvania Avenue, SE Transportation Study investigated the traffic movements along Pennsylvania Avenue, documented the traffic volumes along the corridor, and made recommendations for improvements to the existing conditions. The boundaries of the study are from the foot of the Sousa Bridge to the Maryland line at Southern Avenue, SE.

This study examined ways to improve traffic, pedestrian, bicycle and transit access and public safety within the Pennsylvania Avenue SE corridor. The limits of this study extended from the D.C./Prince George's County line to just beyond the interchange of Pennsylvania Avenue and the Anacostia Freeway. Among its many recommendations were short-term and long-term options based on needs identified by citizens and DDOT. Upon completion of the study in November 2003, 26 short-term options and 11 long-term options were recommended for implementation along this section of Pennsylvania Avenue. The short-term improvements focused mainly on safety and the general flow of traffic between intersections to provide better accessibility and alleviate restricted access to the corridor. The long-term improvements' main focus was on seeking improvements to the interchange with the Anacostia Freeway.

The Scenic Byways Program is a regional program that provides for the maintenance and protection of community resources along designated byways within the District. The byways program seeks to promote the intrinsic characteristics of a byway for the benefit of residents and visitors. The Pennsylvania Avenue Scenic Byway Corridor Management Plan was conducted to implement the District's Scenic Byways Program criteria to all recommended improvements within the Pennsylvania Avenue Corridor.

Considerations of the Middle Anacostia River Crossings Transportation Study

Under the Middle Anacostia River Crossings Transportation Study, Pennsylvania Avenue is seen as a vital component to the success or failure of an improved transportation network. This corridor crosses not only the Anacostia Freeway within the study area, but it also crosses the Anacostia River as the Sousa Bridge. Safety, mobility, and accessibility, are major issues that need to be addressed to improve Pennsylvania Avenue in the grand scheme of the Middle Anacostia River region.

Building from the short-term recommendations established under the Pennsylvania Avenue, SE Transportation Study, this study looks to optimize improvements on both the east side and west side of the Anacostia River. From Minnesota Avenue, to just beyond Potomac Avenue, near-term, mid-term, and long-term improvements are being evaluated to address current problems and achieve the long-term visions of the AWI Framework Plan.

The following are some of the goals being sought to help improve the Pennsylvania Avenue corridor and its place in the Middle Anacostia River region:

- Provide more greenspace,
- Improve access to and from the Anacostia Freeway,
- Improve access to and from the Anacostia Park and waterfront on both sides of the Anacostia River, and
- Reduce congestion across the Sousa Bridge.

Table 12 summarizes the core areas of interest within the Middle Anacostia River region by highlighting key existing features, identifying relevant projects and studies, and improvements being considered for these areas under this study.

Table 12. Overview of Core Areas within the Middle Anacostia River Region

	Anacostia Park and Waterfront	Anacostia Freeway and River Crossings	Martin Luther King, Jr. Avenue / Anacostia Neighborhood	Barney Circle and the Southeast Freeway	Pennsylvania Avenue Corridor
Existing Features	• Minimal access points available to the Park and Waterfront • River has been neglected in the past and is not suitable for recreation at this time	• Bridges lack aesthetic quality for signifying grand entrance in Downtown Washington, D.C. • Freeway acts as a barrier between neighborhoods, Anacostia Park, the Anacostia River, and other neighborhoods	• One-way southbound from Good Hope Road to W Street • Worn streetscape design	• Not a "true" circle • Neighborhood Cut Through Issues • Does not Accommodate nearby communities • Misuse of Transportation Right-of-Way	• Heavy Congestion • Poor mobility at key intersections and interchange • Safety Concerns
Relevant Projects/Studies	• Public Reservation 13 (Hill East Waterfront) Master Plan • Anacostia Riverwalk Trail	• Kenilworth Avenue Corridor Study • Anacostia Access and South Capitol Street Studies	• Anacostia Corridor Light Rail Demonstration Project • D.C. Government Center & AEDC Building Developments • Anacostia Gateway Transportation Study • Anacostia Transit Area Strategic • Investment and Development Plan Skyland Streetscape Project	• Capitol Hill Transportation Study • RFK Stadium Access • Major League Baseball in Washington, D.C. • Memorials and Museums Master Plan • Development considerations along SE Freeway	• Pennsylvania Avenue Corridor Study • Pennsylvania Avenue Scenic Byway Master Plan • Memorials and Museums Master Plan
Middle Anacostia River Crossings Transportation Study Considerations	• Near-Term and Mid-Term Improvements to tie in to Anacostia Riverwalk and provide easier connections to the Park and waterfront	• Mid-term Improvements to Enhance Local Traffic Movement • Long-Term Improvements to Address Incomplete Interchanges	• Mid-Term improvements to convert one-way section to two-way • Long-term considerations to encourage commercial development which would revitalize the Anacostia neighborhood	• Near-Term Improvements (Pedestrian and Bicycle safety/mobility improvements) • Mid-Term Improvements to the Adjacent Service Road • Long-Term Reconfiguration of Barney Circle and Re-Use of the Freeway Right-of-Way	• Near-Term Improvements (Signing, Pavement Markings, and other spot improvements) • Mid-Term Improvements at intersections west of the River • Long-Term Improvements at the Pennsylvania Avenue/Anacostia Freeway interchange

Chapter 4: FUTURE CONDITIONS AND OVERVIEW OF IMPROVEMENTS

The Future of the Middle Anacostia River Region

The Southeast quadrant, and more specifically, the Anacostia River region, is the focus for one of the last major revitalization efforts for Washington, D.C. This revitalization has been a long time in the making and the District recognizes this through the numerous projects that have initiated from the Anacostia Waterfront Initiative (AWI). The AWI has spawned many projects, including the Middle Anacostia River Crossings Transportation Study, to make the revitalization of this area a reality. Several projects from the AWI Framework Plan are currently underway and others are in the initial stages of planning. The growth of these studies into eventual construction projects makes the Anacostia River region an area on the cusp of tremendous change and rebirth. As land uses change, so must its transportation infrastructure.

Planned developments such as the Public Reservation 13 property, the introduction of light rail service to the east side of the River, streetscape projects, pedestrian and bicycle improvements, gateway enhancements, and many other projects demonstrate that the District Department of Transportation (DDOT) and partnering agencies are committed to revitalizing the area for the betterment of citizens and commuters alike.

The rebirth of the Anacostia River, the Anacostia Park and its surrounding lands will not be an easy change. Past decisions made regarding land uses and transportation have made the rebirth a challenge; one that DDOT expects to meet only with the support and input of the communities it looks to serve. One compelling argument for implementing improvements from the AWI studies is to see the predicted results of little or no change to the existing transportation network in the future. Specifically, the future traffic volumes alone show that the existing transportation network will be in need of immediate and lasting changes.

The Middle Anacostia River region is experiencing many revitalization efforts that are attributed to the AWI.

Evaluation of Future Traffic Conditions

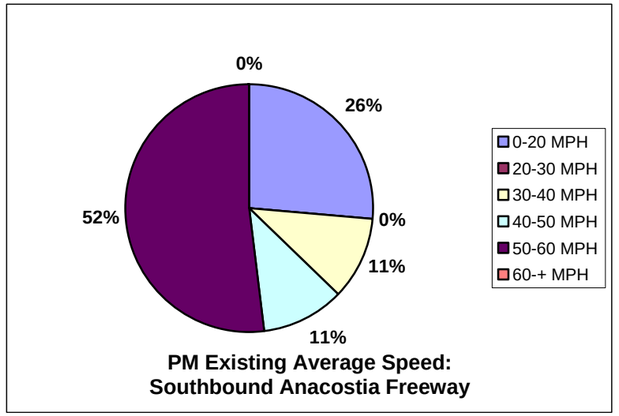
As part of the traffic analysis completed for this study, 2030 was selected as the design year for gauging the magnitude of traffic impacts for the Middle Anacostia River study area because of the timing of this study with respect to the future considerations taken into account by the regional traffic model. The Metropolitan Washington Council of Governments (MWCOG) Travel Forecasting Model was used to provide estimates of future traffic demand for the transportation facilities within the study area. These projected volumes were also used as a guide to help determine how profound the improvements would need to be during the long-term timeframe. Analysis of future conditions were evaluated under two scenarios; the No Build Condition, and the Build Condition.

2030 No Build Traffic Conditions

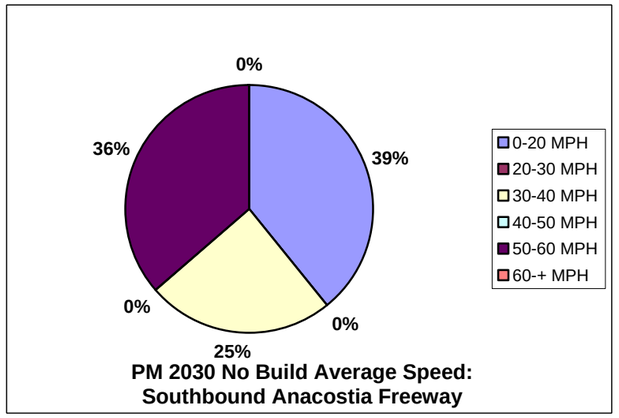
Traffic operational analyses for the 2030 No Build conditions were conducted for the existing transportation network combined with 2030 traffic volume projections. The purpose of the No Build condition was to evaluate the existing transportation network nearly 25 years from now, with consideration to maintaining existing conditions throughout the study area's transportation network. As with the evaluation of existing conditions, the 2030 No Build condition included analysis of the 33 study intersections as well as the numerous roadway segments that complete the transportation network. The travel forecasting model took into account any significant planned growth and land use development that would be independent of any changes to the transportation network. **Appendix I** contains the 2030 No Build peak traffic volume schematics for key intersections, and various roadway segments within the study area.

Figure 15 represents the 2030 No Build Levels of Service at the 33 study area intersections. Overall, the conditions worsen based on the increase in vehicles on the Middle Anacostia River region's transportation network. As illustrated below, one example of the effect on the study area is the change in average speeds along the Anacostia Freeway when compared to existing conditions.

Average Speed Comparison
(Existing vs. 2030 No Build)
along Southbound Anacostia Freeway



PM Existing Average Speed:
Southbound Anacostia Freeway



PM 2030 No Build Average Speed:
Southbound Anacostia Freeway

MIDDLE ANACOSTIA RIVER CROSSINGS TRANSPORTATION STUDY

Study Area Intersections

2030 No Build Level of Service and Existing Traffic Control

Signalized

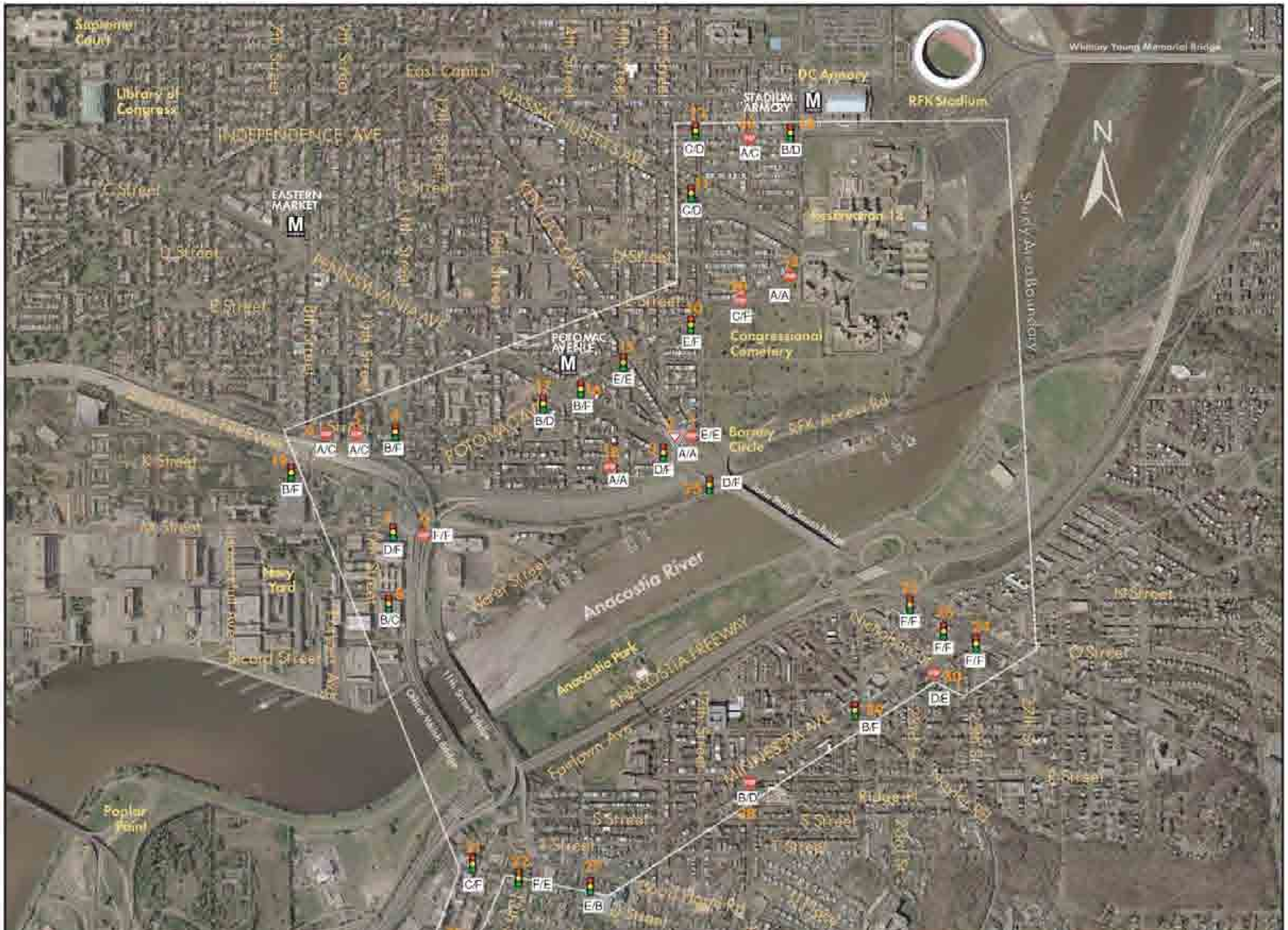
Unsignalized (Stop Controlled)

Unsignalized (Yield Controlled)

B/A AM and PM Level of Service

Study Intersections

1. Barney Circle at 17th Street
2. Barney Circle at Kentucky Avenue
3. Barney Circle at Pennsylvania Avenue
4. I (Eye) Street at 11th Street
5. I (Eye) Street at 10th Street/Ramp from NB 11th Street Bridge
6. I (Eye) Street at 9th Street/Ramp from WB Southeast Freeway
7. 11th Street at M Street
8. 11th Street at N Street/Ramp from NB 11th Street Bridge
9. 12th Street at M Street
10. 17th Street at Potomac Avenue
11. 17th Street at Massachusetts Avenue
12. 17th Street at Independence Avenue
13. 19th Street at Potomac Avenue
14. 19th Street at Independence Avenue
15. Potomac Avenue at Kentucky Avenue
16. Potomac Avenue at Pennsylvania Avenue (East)
17. Potomac Avenue at Pennsylvania Avenue (West)
18. K Street at 15th Street
19. 8th Street at Ramp to SB Officer Welsh Bridge
20. 18th Street/E Street at Potomac Avenue
21. Good Hope Road at MLK Jr. Avenue
22. Good Hope Road at 13th Street
23. Pennsylvania Avenue at Ramp to NB DC 295
24. Pennsylvania Avenue at Minnesota Avenue
25. Pennsylvania Avenue at EB I-295 Ramp
26. Pennsylvania Ave. at L'Enfant Square
27. Minnesota Avenue at Good Hope Road
28. Minnesota Avenue at 18th Street and R Street
29. Minnesota Avenue at Naylor Road and 22nd Street
30. Minnesota Avenue at Nicholson Street and White Place
31. MLK Jr. Avenue at W Street
32. MLK Jr. Avenue at Howard Road
33. 18th Street at Independence Avenue



INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

Middle Anacostia River Crossings Transportation Study

Study Area Intersections - 2030 No Build Level of Service and Existing Traffic Control

MARCH 2005 | FIGURE 15 | 3-3

2030 Build Traffic Conditions

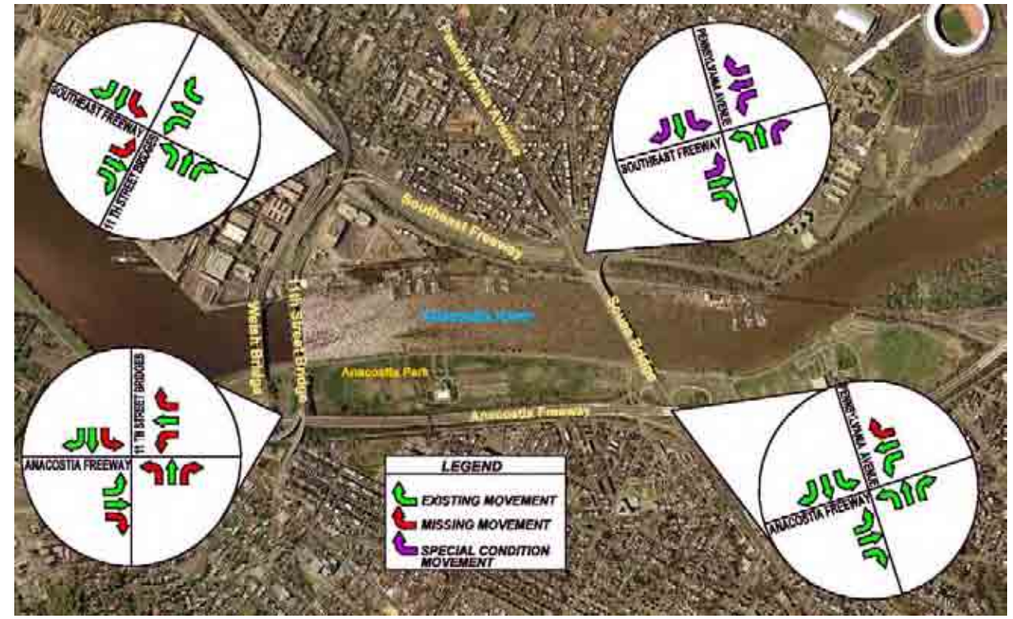
The 2030 Build Condition focuses on providing the missing movements at several key locations within the study area. In particular, the future build conditions assume full movement interchanges will be available at the following interchanges, as well as other specific missing connections:

- A full interchange at Pennsylvania Avenue and the Anacostia Freeway,
- A full interchange at 11th Street and the Anacostia Freeway,
- A full interchange at 11th Street and the Southeast Freeway,
- A full movement, at-grade circle at Barney Circle connecting Pennsylvania Avenue, 17th Street, Kentucky Avenue, M Street Extended from the west and M Street Extended to the east,
- The development of the Reservation 13 Road from east of Barney Circle to Independence Avenue, and
- The redevelopment of the Southeast Freeway between 11th Street Bridge and John Philip Sousa Bridge to be a boulevard.

The missing movements of the interchanges and Barney Circle are shown in **Figure 16**.

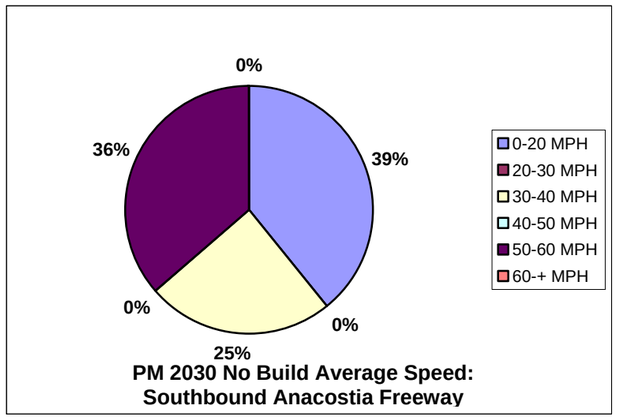
With the addition of full movement interchanges for the Build Condition, traffic patterns adjust to reduce some of the problems that exist today. By providing a full movement interchange at Pennsylvania Avenue/Anacostia Freeway, the need for travelers from southbound Anacostia Freeway making a U-turn maneuver on eastbound Pennsylvania Avenue to travel westbound is eliminated. By providing full movement access at Barney Circle, travelers can better use the portion of the Southeast Freeway between Barney Circle and 11th Street. The creation of a full interchange at the 11th Street Bridges and the Anacostia Freeway allows motorists to travel freely between the Southeast Freeway and the Anacostia Freeway. In addition to these vehicular benefits, pedestrians, bicyclists, and transit would realize mobility and connectivity benefits by the completion of these critical interchanges.

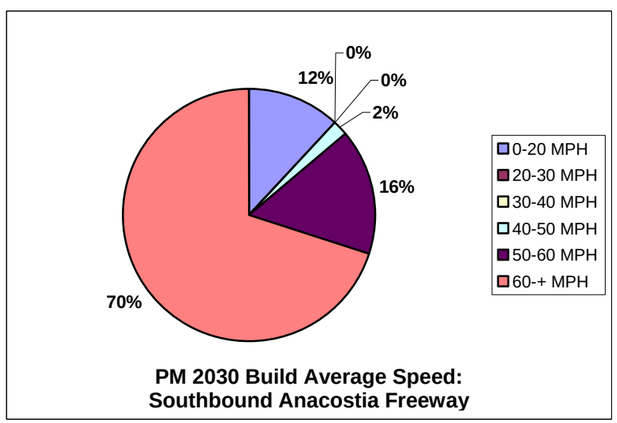
Figure 16. Traffic Movement Overview at Key Study Area Locations



One example of how the completed interchanges impacts the area is the change in average speeds along the Anacostia Freeway when compared to existing conditions, as seen in the following comparison:

Average Speed Comparison between 2030 No Build and 2030 Build





Overview of Future Improvements

There are three categories of improvements being considered for the Middle Anacostia River Crossings Transportation Study. These include:

- Near-Term Improvements,
- Mid-Term Improvements, and
- Long-Term Improvements.

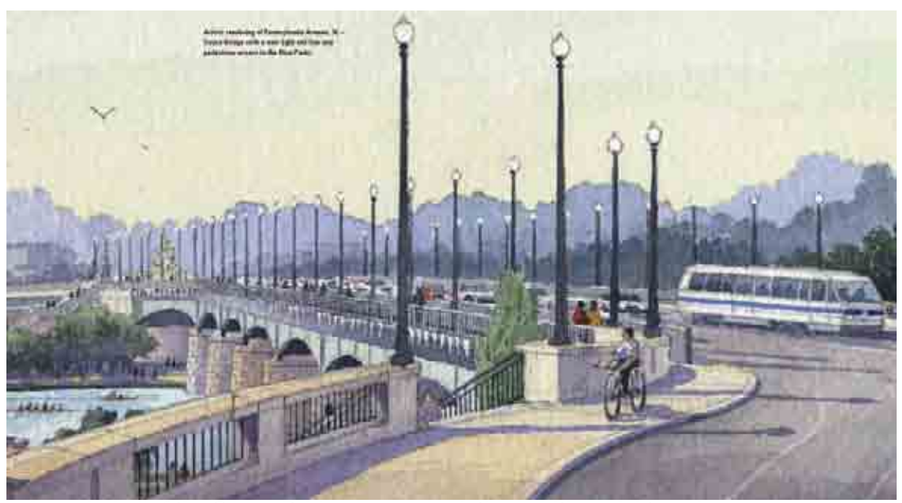
Near-Term Improvement Projects (Chapter 5)
The near-term improvements focus on various **immediate action improvement options** that may act as relief for residents and commuters of the Middle Anacostia River study area. These improvements are immediate actions recommended for the study area, with an estimated implementation schedule ranging from three to nine months time. The timeframe for implementation of these projects ranges from 2005 to 2006. A total of seven near-term improvements are presented for the study.

Mid-Term Improvement Projects (Chapter 6)
The mid-term improvements focus on **additional projects** that may act as further relief for residents and commuters of the Middle Anacostia River study area, prior to the implementation of long-term improvements. The mid-term improvements have an estimated implementation schedule ranging from two to five years and may require some more detailed engineering and permitting. The timeframe for implementation of these projects ranges from 2005 to 2010. A total of eight mid-term improvements have been proposed.

Long-Term Improvements (Chapter 7)

The long-term improvements mainly address the missing movements at the key interchanges within the study area, while attempting to correct past mistakes in transportation planning and land development of the Middle Anacostia River region. These options look to improve accessibility, safety, and mobility within the study area and possibly beyond. Additional environmental analyses and more detailed design engineering would be required before implementation of these improvement options. **Appendix J** contains the 2030 Build traffic data and analyses. Because of continued evaluation and funding requirements, the complexity of these efforts would likely result in a construction start date of 2010 or later. Overall, the timeframe established for long-term improvements ranges from 2005 to 2025. Unlike the near-term and mid-term projects, these improvements address the future growth in traffic projected for the year 2030. Long-term improvements focus on the following interchanges and roadways within the Middle Anacostia River region:

- Pennsylvania Avenue/Anacostia Freeway Interchange,
- Barney Circle improvements,
- 11th Street Bridges/Anacostia Freeway Interchange,
- 11th Street/Southeast Freeway Interchange,
- Boulevard along Southeast Freeway, and
- Reservation 13 Road.



A rendering of the Sousa Bridge accommodating multi-modal travel.

General Design Guidelines Associated with the Improvements and Options

Design guidelines, taken from the American Association of State Highway Transportation Officials (AASHTO), the DDOT Design and Engineering Manual, and the AWI Draft Architectural Design Standards were used to develop various elements such as lane widths, sidewalk widths, acceleration and deceleration lane lengths, tapers, medians, and other relevant geometric design features. Specific to the horizontal and vertical curve data for the long-term improvements, please refer to **Appendix M**. For traffic-related improvements associated with signing and pavement markings, the Manual on Uniform Traffic Control Devices (MUTCD) was used. For all other traffic operational analysis and concept development, the Highway Capacity Manual was referenced.

Cost Estimating Procedures

Planning-level cost estimates have been prepared for all near-term, mid-term, and long-term projects/options. The estimates have taken into account all major quantities anticipated for construction. Unit costs are based on 2004 prices and do not include a growth factor or escalation rate. Any project undergoing a cost reevaluation for design or construction funding will likely need to revisit the unit prices included in these estimates.

Impacts to existing utilities are likely to occur under some of the mid-term and long-term improvement options. For the purposes of this study, utility costs have been estimated using a percentage of the total construction cost for each improvement. Additionally, if the project appears to create impacts to large utilities, i.e., 48-inch pipes, overhead power lines, fiber optics lines, etc., the percentage was increased appropriately.

Items that could have a bearing on the feasibility of construction such as project planning, preliminary engineering, and right-of-way have not been taken into account. For the near-term projects, it is not anticipated that much follow-up design would be required. An evaluation of right-of-way would still be required, however, to ensure timely implementation. Mid-term and long-term projects will likely require some additional funding to account for final design. As with the near-term projects, an evaluation of right-of-way requirements should be conducted to ensure proper implementation. Cost estimates for the near-term project improvements have been included in **Appendix K**. Cost estimates for the mid-term project improvements have been included in **Appendix L**. Cost estimates for the long-term improvement options have been included in **Appendix N**.

Goals and Objectives

Several improvement categories relevant to the transportation network have been addressed through the development of the near-term, mid-term, and long-term improvements. The following categories, along with their associated goals and objectives, form the basis of justification for the projects proposed under the near-term, mid-term, and long-term time frame. One or more of these categories may be applicable to each improvement presented in Chapters 5, 6, and 7 of this report:

Category: Safety

Goals:

- Improve the safety for pedestrians, bicyclists, and vehicles at conflict points in the study area.
- Improve the existing pedestrian and bicycle facilities.
- Maintain favorable conditions in areas that currently provide safe travel for a particular travel mode without compromising the safety of another.
- Increase safety at high accident locations.

Objectives:

- Install appropriate amenities to ensure safe conditions.
- Replace deficient pedestrian and bicycle amenities within the study area.
- Eliminate gaps in the sidewalk network, where feasible.
- Address gaps in the existing bicycle paths.
- Replace inadequate signs and markings for pedestrians, bicycles, and vehicles.

Category: Accessibility

Goals:

- Improve access to and from all major roadways.
- Improve the accessibility among neighborhoods.
- Improve access across the Anacostia River waterfront.
- Improve visual accessibility for neighborhoods adjacent to the Anacostia Park and waterfront.
- Minimize visual impairments caused by interchanges along the Anacostia Freeway.

Objectives:

- Install signing to eliminate confusion or conflicting directions for motorists, pedestrians, and bicyclists.
- Adjust traffic junctions to have safe merge and diverge areas.
- Provide missing movements.
- Consider development of tunnels or other similar design elements when completing interchange movements.
- Open vistas of the waterfront and the center of the city by removing infrastructure-related visual barriers.

Category: Mobility and Operations

Goals:

- Improve the operations of the existing roadway network.
- Improve the existing routes used by pedestrians and bicyclists.

Objectives:

- Replace deficient signing and pavement markings on all roads in the study area.
- Install new network connections to facilitate better movement throughout the study area.
- Accommodate pedestrians at all signalized intersections.
- Coordinate adjustments along corridors to provide adequate traffic signal timing for the major movements.

Category: Park and Waterfront Connectivity

Goals:

- Improve access to Anacostia Park.
- Improve access to the waterfront on both sides of the Anacostia River.

Objectives:

- Evaluate new opportunities to connect existing infrastructure with the Anacostia Park and facilities along the waterfront.
- Develop and/or reestablish connections to Anacostia Park and the Anacostia River waterfront.
- Improve visibility and safety of existing connections to the Anacostia Park.
- Develop signing to direct travelers to key destinations inside and outside the study area.

Category: Neighborhood Traffic Relief

Goals:

- Improve the existing signal timings in areas with severe congestion.
- Remove unsafe connections.
- Direct traffic to appropriate roadways.
- Discourage cut-through traffic on neighborhood streets.
- Separate regional traffic from local traffic.

Objectives:

- Prioritize pedestrian and vehicular movements to reflect surrounding land uses.
- Rehabilitate roadway surfaces.
- Establish appropriate routes for regional and local traffic.

Category: Redevelopment of Transportation Right-of-Way

Goals:

- Maximize use of current transportation system.
- Replace underused roadways with green space or more appropriate use.
- "Rightsize" transportation facilities.

Objectives:

- Eliminate unused portions of roadways.
- Reallocate transportation right-of-way to more aesthetically pleasing uses such as landscaping or monuments.

Category: Transit Infrastructure

Goals:

- Improve the existing features at bus stops within the study area.
- Increase visibility of bus stops and transit services.
- Improve connections to key destinations such as Metro Stations and bus stops.

Objectives:

- Replace deficient amenities within the study area.
- Provide adequate amenities at stops with significant ridership.

These categories represent the many needs of the Middle Anacostia River region. The combination of near-term, mid-term, and long-term improvements is this study's effort to improve on existing transportation conditions within the study area.

Chapter 5: NEAR-TERM IMPROVEMENTS (2005 – 2006)

The near-term improvements for the Middle Anacostia River study area focus on various immediate-action improvement options that may provide relief for residents and commuters alike. These improvements have an estimated implementation schedule ranging from three to nine months, based on funding availability. For discussion purposes, the timeframe associated with the near-term projects has been set from 2005 to 2006. The near-term projects refer to minor, spot specific improvements that may be implemented with relatively minimal impacts, little or no environmental assessment, minimal design, and low costs. A total of seven (7) near-term improvement projects have been proposed within the study area.

Near-Term Projects

This chapter provides a brief description of each project, improvement categories addressed by each project, an estimated cost for construction, and reference to any related projects being considered under the Middle Anacostia River Crossings Transportation Study. The locations of the near-term projects recommended for immediate implementation are shown in **Figure 17**. These projects include:

Project 1: Signing and Pavement Marking Improvements along the Sousa Bridge and the Ramp to the Southeast Freeway.

Project 2: Signal Timing Optimization along Pennsylvania Avenue, east of the Anacostia River.

Project 3: Roadway Resurfacing and Pavement Marking Replacement.

Project 4: Pedestrian Bridge and Anacostia Park Connectivity Improvements.

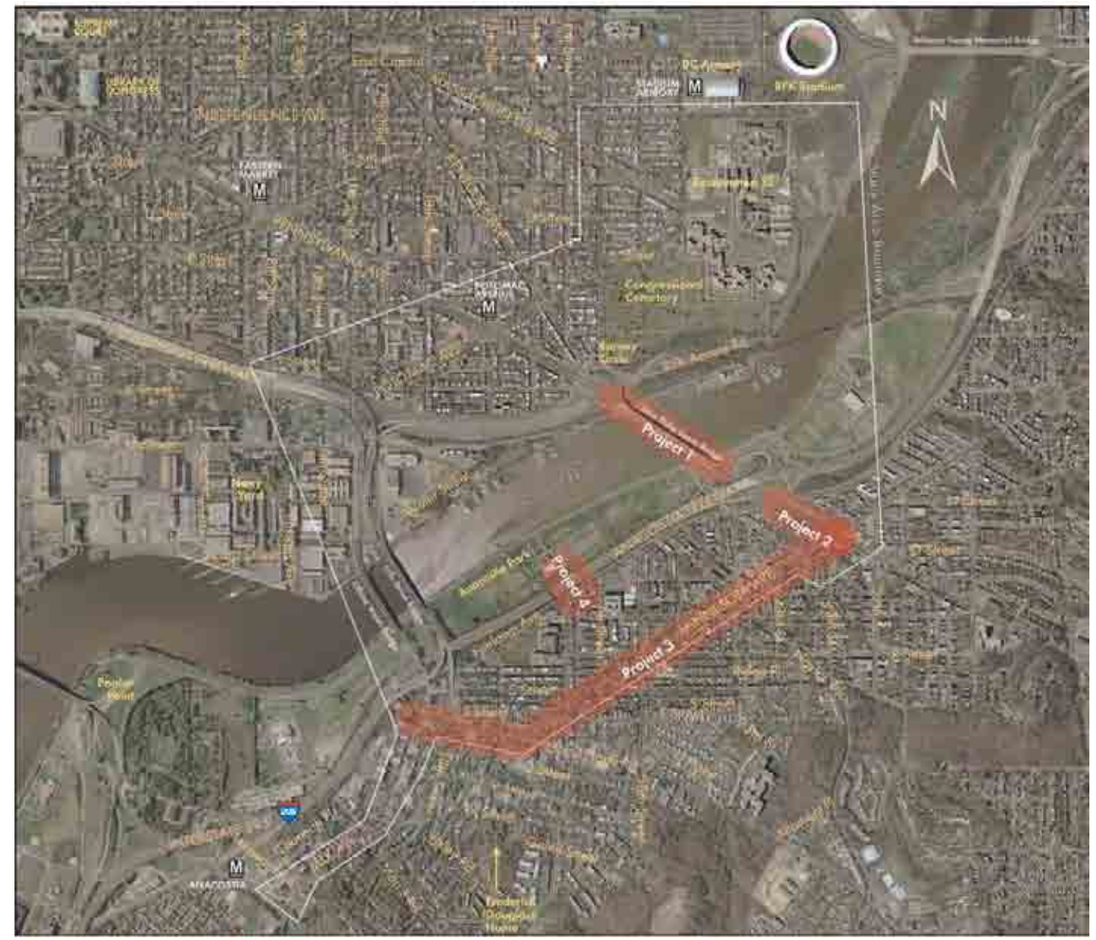
Project 5: Near-term Pedestrian Spot Improvements.

Project 6: Bicycle Network Improvements.

Project 7: Bus Stop Amenities Improvements.

Note that Projects 5, 6, and 7 represent improvements throughout the study area are not highlighted in one specific location in **Figure 17**.

Figure 17. Near-Term Improvement Project Locations



Project 1 - Signing and Pavement Marking Improvements along the Sousa Bridge and the Ramp to the Southeast Freeway

Categories: Safety, Accessibility, Mobility and Operations

Throughout the public involvement process, concerns were raised regarding congestion and safety along both directions of the Sousa Bridge. Field observations also determined several operational problems that could be resolved with minimal funding and minor impacts. **Figure 18** (on page 5-5) depicts the various signing and pavement marking improvements to improve the conditions along the Sousa Bridge for all users.

Westbound Pennsylvania Avenue along the Sousa Bridge

The safety and mobility of pedestrians, bicyclists, and motor vehicles has been a concern along Pennsylvania Avenue, specifically on the Sousa Bridge and ramp to the Southeast Freeway. It has been stated that some vehicles traveling westbound along Pennsylvania Avenue in the outermost lanes (intended for access to westbound Southeast Freeway) are attempting to switch lanes just after the Sousa Bridge and continue traveling westbound. Some vehicles are utilizing the gore area to make this transition, which in some cases is leading to collisions with light poles and other fixed objects located in the gore area. The placement of crashworthy impact attenuators to shield the light poles and other fixed objects had initially been considered to address this safety problem.

Presence of Washington Globe lighting in the gore area without breakaway bases.

Lighting, overhead signing, and pavement markings along the Sousa Bridge were closely evaluated to address safety at this location. Accident data for the time period of January 2000 to December 2002 did not indicate a safety concern with vehicles crossing through the gore area and colliding with fixed objects such as light poles. In addition, current conditions did not indicate any damage to the light poles or raised curb within the gore area. The cobra head roadway light poles found within the gore area have breakaway bases associated with them. However, the Washington Globe ornamental light poles do not have breakaway bases and should be replaced with a crashworthy system.

The overhead guide signs and pavement markings along westbound Sousa Bridge do not meet the standard progression outlined in the Manual of Uniform Traffic Control Devices (MUTCD). Providing the appropriate overhead signing and updating the pavement markings should allow travelers to make more informed decisions prior to arriving at the gore area.

The first existing overhead guide sign for motorists traveling westbound on Sousa Bridge.

The second existing overhead guide sign for motorists traveling westbound on Sousa Bridge.

It is recommended that the following adjustments be made to improve the safety and circulation of motor vehicles traveling westbound along Pennsylvania Avenue along the Sousa Bridge:

- Adjust the sequence of overhead signing along the westbound approach of the Sousa Bridge to be in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).
- Replace the existing pavement markings along the bridge approaching the gore in accordance with the MUTCD.
- Place a double arrow (W12-1) warning sign at the gore area to enforce the separation of movements from mainline Pennsylvania Avenue (Sousa Bridge) and the ramp for Westbound Southeast Freeway traffic. The MUTCD states that this sign is applicable for this condition. Replace all existing Washington Globe light poles located within the gore area with breakaway bases.
- Place post-mounted delineators in the approach area of the gore to discourage motorists from changing lanes prior to the separation of traffic flow along westbound Pennsylvania Avenue and the traffic wishing to utilize the ramp to westbound Southeast Freeway.

Ramp from the Sousa Bridge to westbound Southeast Freeway

The loop ramp that exists near Barney Circle and provides access to westbound Southeast Freeway acts as a barrier to pedestrians and bicyclists wishing to continue their travels along westbound Pennsylvania Avenue. The initial consideration was to develop a crosswalk along the ramp to allow for continued westbound travel for walkers and bikes. However, two important items lead to the conclusion that this is not the best solution. First, the guardrail that separates the pedestrians and bicycles from vehicular traffic on westbound Sousa Bridge would need to be opened. This would introduce an unsafe crossing for pedestrians and bicyclists because of the vehicle speeds on the Sousa Bridge. Secondly, the ramp movement is on a curve and would create safety problems due to poor sight distance from the bridge for vehicles and pedestrians or bicyclists. Ultimately, the improvement recommended along the ramp to the Southeast Freeway was:

- Install wayfinding signs along the Bridge and the ramp for pedestrians and bicyclists traveling westbound and wanting to continue westbound on Pennsylvania Avenue.

Eastbound Pennsylvania Avenue along the Sousa Bridge
The issue raised most frequently with regard to vehicular travel along eastbound Pennsylvania Avenue was the weaving of traffic from the eastbound Southeast Freeway ramp to the innermost lanes along Sousa Bridge. This movement is heavily congested as a result of the lack of movements at interchanges within the study area.

Much of this traffic is destined to northbound D.C. 295 and will turn left at the signalized intersection of Pennsylvania Avenue at the ramp to northbound D.C. 295. This heavy weaving movement essentially blocks through traffic on eastbound Pennsylvania Avenue destined for Fairlawn and other locations east of the river.

Existing overhead signing along eastbound Sousa Bridge.

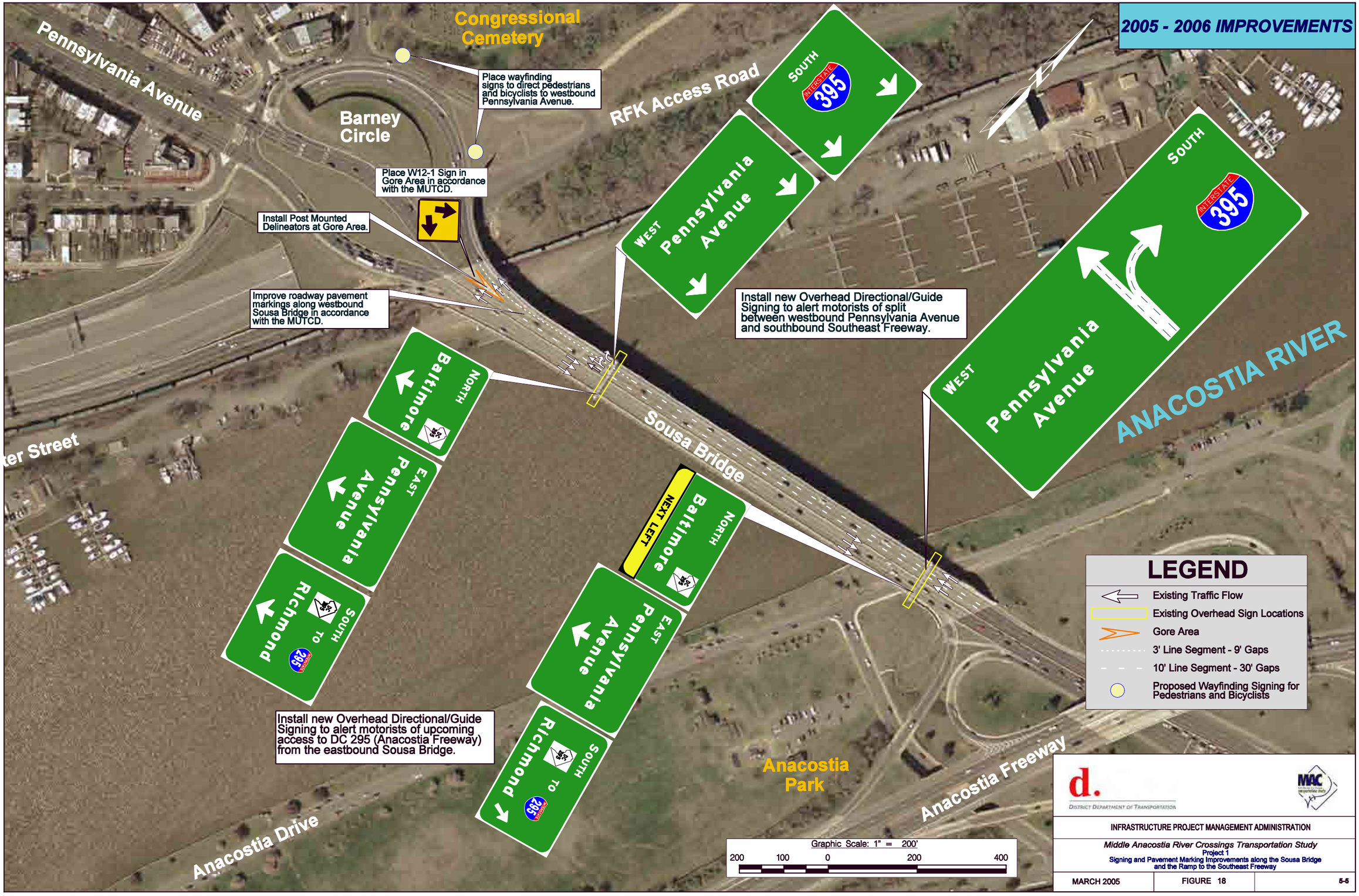
Initially, it was suggested to have these innermost lanes physically separated with barrier from the other through lanes along eastbound Pennsylvania Avenue to remove the weaving and queuing problems. While it was determined impracticable to physically separate traffic flows while maintaining all existing traffic movements, the following improvement has been recommended:

- Install new overhead signs along the eastbound Sousa Bridge to alert motorists of the preferred lane assignments for:
  - Northbound Anacostia Freeway,
  - Eastbound Pennsylvania Avenue, and
  - Southbound Anacostia Freeway.

All existing overhead sign structures will need to be evaluated to verify that they can accommodate the proposed signs.

Cost Estimate
The estimated cost for these improvements is **$152,000**.

Related project improvements
- Near-term Pedestrian Spot Improvements (Project 5 – Near-Term)
- Upgrades of the Service Road connecting Barney Circle and the Southeast Freeway (Project 8 – Mid-Term)


2005 - 2006 IMPROVEMENTS
Congressional Cemetery
Pennsylvania Avenue
Barney Circle
RFK Access Road
Place wayfinding signs to direct pedestrians and bicyclists to westbound Pennsylvania Avenue.
Place W12-1 Sign in Gore Area in accordance with the MUTCD.
Install Post Mounted Delineators at Gore Area.
Improve roadway pavement markings along westbound Sousa Bridge in accordance with the MUTCD.
Install new Overhead Directional/Guide Signing to alert motorists of split between westbound Pennsylvania Avenue and southbound Southeast Freeway.
SOUTH INTERSTATE 395
WEST Pennsylvania Avenue
SOUTH INTERSTATE 395
WEST Pennsylvania Avenue
ANACOSTIA RIVER
Sousa Bridge
NORTH Baltimore
EAST Pennsylvania Avenue
SOUTH TO Richmond 295
NEXT LEFT
NORTH Baltimore
EAST Pennsylvania Avenue
SOUTH TO Richmond 295
Install new Overhead Directional/Guide Signing to alert motorists of upcoming access to DC 295 (Anacostia Freeway) from the eastbound Sousa Bridge.
Anacostia Park
Anacostia Freeway
Anacostia Drive
LEGEND
Existing Traffic Flow
Existing Overhead Sign Locations
Gore Area
3' Line Segment - 9' Gaps
10' Line Segment - 30' Gaps
Proposed Wayfinding Signing for Pedestrians and Bicyclists
Graphic Scale: 1" = 200'
200 100 0 200 400
d. DISTRICT DEPARTMENT OF TRANSPORTATION
MAC
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 1
Signing and Pavement Marking Improvements along the Sousa Bridge and the Ramp to the Southeast Freeway
MARCH 2005
FIGURE 18
5-5

Project 2 - Signal Timing Optimization along Pennsylvania Avenue, east of the Anacostia River

Category: Mobility and Operations

Pennsylvania Avenue is a major commuter corridor within the study area, carrying over 30,000 vehicles per day, east of the Anacostia River. During the AM peak period, the following two signalized intersections currently experience failing levels of service:

- Pennsylvania Avenue/Ramp to Northbound D.C. 295, and
- Pennsylvania Avenue/L'Enfant Square.

The Pennsylvania Avenue/L'Enfant Square intersection also experiences a failing level of service in the PM peak period. In addition, the Pennsylvania Avenue/Minnesota Avenue intersection is in close proximity to L'Enfant Square and the traffic operations at each location strongly influence one another. **Figure 19** shows the locations of these intersections along the Pennsylvania Avenue Corridor. Overall, it is recommended to apply signal optimization to all three intersections to help reduce the delay that vehicles experience in this section of Pennsylvania Avenue. **Table 13** summarizes the results of applying signal optimization for this section of Pennsylvania Avenue in comparison to the existing conditions.

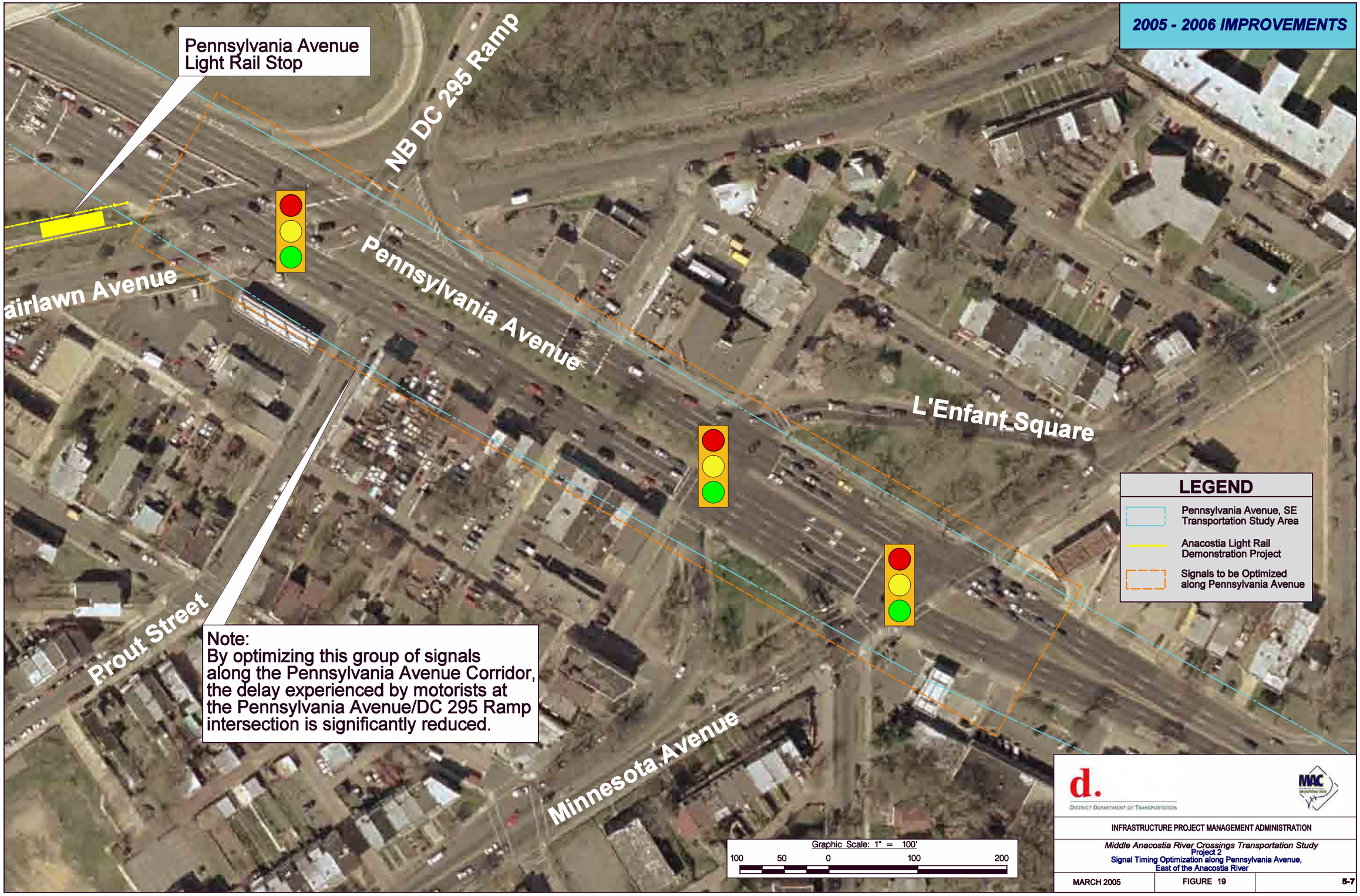
Cost Estimate
Costs associated with any changes to signal timings at these intersections are considered negligible.

Related project improvements
- Near-term Pedestrian Spot Improvements (Project 5 – Near-Term)
- Bus stop amenities improvements (Project 7 – Near-Term)
- Anacostia Park and Frederick Douglass Home Wayfinding Signing (Project 10 – Mid-Term)

Table 13. Signal Timing Optimization along Pennsylvania Avenue*

Pennsylvania Avenue at:	AM PEAK				PM PEAK			
	Existing Conditions		Signal Optimization		Existing Conditions		Signal Optimization	
	LOS	Control Delay	LOS	Control Delay	LOS	Control Delay	LOS	Control Delay
DC 295 NB Ramp	F	139.7	F	142.6	D	40.6	**C**	**33.6**
L'Enfant Square	F	195.6	**E**	**76.4**	F	300.6	F	**175.6**
Minnesota Avenue	D	49.6	D	51.1	D	43.6	**C**	**27.5**

Note – All results are based on Highway Capacity Manual methodology. **Bold** results reflect delay and in some instances, level of service improvements
* Signal optimization has been implemented as a recommendation of the Pennsylvania Avenue, SE Transportation Study. The analyses summarized in this table did not take into account the latest signal timing plans, as they were not available at the time of this report.


2005 - 2006 IMPROVEMENTS
Pennsylvania Avenue
Light Rail Stop
NB DC 295 Ramp
airlawn Avenue
Pennsylvania Avenue
L'Enfant Square
Prout Street
Minnesota Avenue
Note:
By optimizing this group of signals along the Pennsylvania Avenue Corridor, the delay experienced by motorists at the Pennsylvania Avenue/DC 295 Ramp intersection is significantly reduced.
LEGEND
Pennsylvania Avenue, SE Transportation Study Area
Anacostia Light Rail Demonstration Project
Signals to be Optimized along Pennsylvania Avenue
Graphic Scale: 1" = 100'
100 50 0 100 200
d.
District Department of Transportation
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 2
Signal Timing Optimization along Pennsylvania Avenue, East of the Anacostia River
MARCH 2005
FIGURE 19
5-7

Project 3 - Roadway Resurfacing and Pavement Marking Replacement

Categories: Mobility and Operations, Neighborhood Traffic Relief

The majority of the roadway improvements necessary to address the operational and geometric deficiencies in the area are more suited to mid-term and long-term improvements. However, there are some opportunities to improve the current conditions within the study area without introducing major impacts to the surrounding communities. The following locations should be considered for immediate improvements:

- Resurface Good Hope Road from Minnesota Avenue to Martin Luther King, Jr. Avenue,
- Resurface Minnesota Avenue from Good Hope Road to Pennsylvania Avenue, and
- Replace the pavement markings along Minnesota Avenue and Good Hope Road.

The current condition of these roadway surfaces is very poor and may be a contributing factor to the reduced flow of traffic in these sections of the study area. In addition to roadway resurfacing, these sections of roadway would require new pavement markings. Refer to **Figure 20** for the location and limits of these improvements.

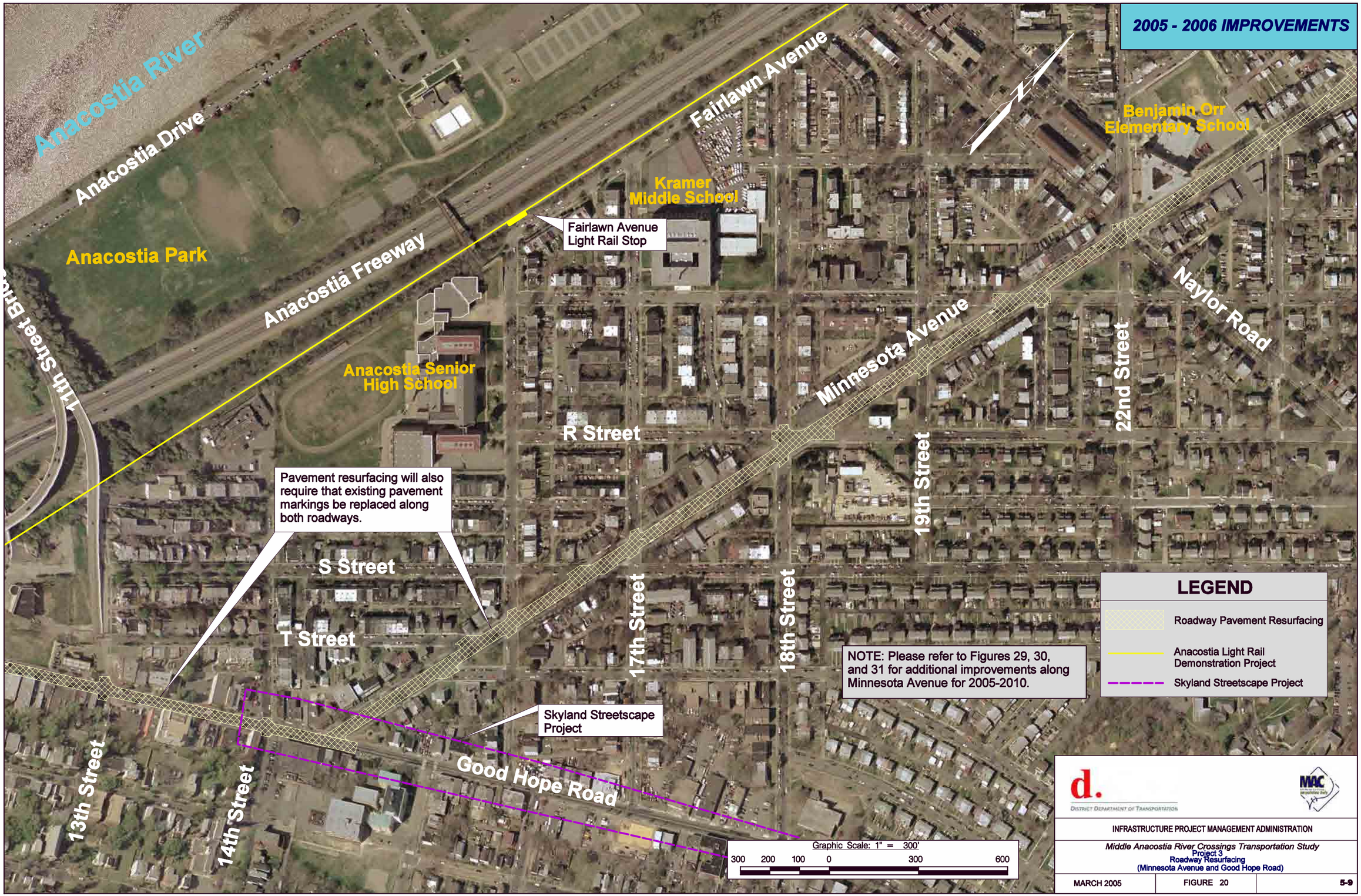
Pavement rutting and several surface cracks exist along Good Hope Road near Minnesota Avenue.

Cost Estimate

The estimated cost for these improvements is approximately **$900,000**. This cost includes the milling of the existing pavement along both Good Hope Road and Minnesota Avenue and replacing it with a new pavement surface. The cost also accounts for the replacement of pavement markings along both roadways.

Related project improvements

- Near-term Pedestrian Spot Improvements (Project 5 – Near-Term)
- Bus Stop Amenities Improvements (Project 7 – Near-Term)
- Anacostia Park and Frederick Douglass Home Wayfinding Signing (Project 10 – Mid-Term)
- Minnesota Avenue Pedestrian Safety Improvements (Project 11 – Mid-Term)


2005 - 2006 IMPROVEMENTS
Anacostia River
Anacostia Drive
Anacostia Park
Anacostia Freeway
11th Street Bridge
Fairlawn Avenue
Kramer Middle School
Fairlawn Avenue Light Rail Stop
Benjamin Orr Elementary School
Naylor Road
Minnesota Avenue
22nd Street
19th Street
18th Street
17th Street
Anacostia Senior High School
R Street
S Street
T Street
Pavement resurfacing will also require that existing pavement markings be replaced along both roadways.
NOTE: Please refer to Figures 29, 30, and 31 for additional improvements along Minnesota Avenue for 2005-2010.
LEGEND
Roadway Pavement Resurfacing
Anacostia Light Rail Demonstration Project
Skyland Streetscape Project
Skyland Streetscape Project
Good Hope Road
13th Street
14th Street
Graphic Scale: 1" = 300'
300 200 100 0 300 600
d.
District Department of Transportation
MAC
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 3
Roadway Resurfacing
(Minnesota Avenue and Good Hope Road)
MARCH 2005
FIGURE 20
5-9

Project 4 - Pedestrian Bridge and Anacostia Park Connectivity Improvements

Categories: Safety, Accessibility, Mobility and Operations, Park and Waterfront Connectivity

In part to address community input, it is recommended that the pedestrian bridge over the Anacostia Freeway from the Anacostia High School to the Anacostia Park (east side of the Anacostia River) be upgraded to enhance safety and accessibility. New fencing, railings, lighting, and deck resurfacing are needed to ensure a higher quality facility for pedestrians traveling to and from the Park. Currently, the existing access ramps to the bridge are not ADA compliant.

The surface of the walkway should be treated with a skid-resistant material for improved footing for all users. Sidewalks are also proposed near the bridge landing within the Anacostia Park to enhance pedestrian mobility to the nearby swimming pool. The following recommendations have also been proposed based on the 2003 Bridge Inspection Report:

- Seal all cracks on the concrete deck.
- Replace all joint material between girders.
- Replace all existing fencing
- Repair failed patched areas along the fence.
- Replace all missing railings for the steps and ramp into Anacostia Park.

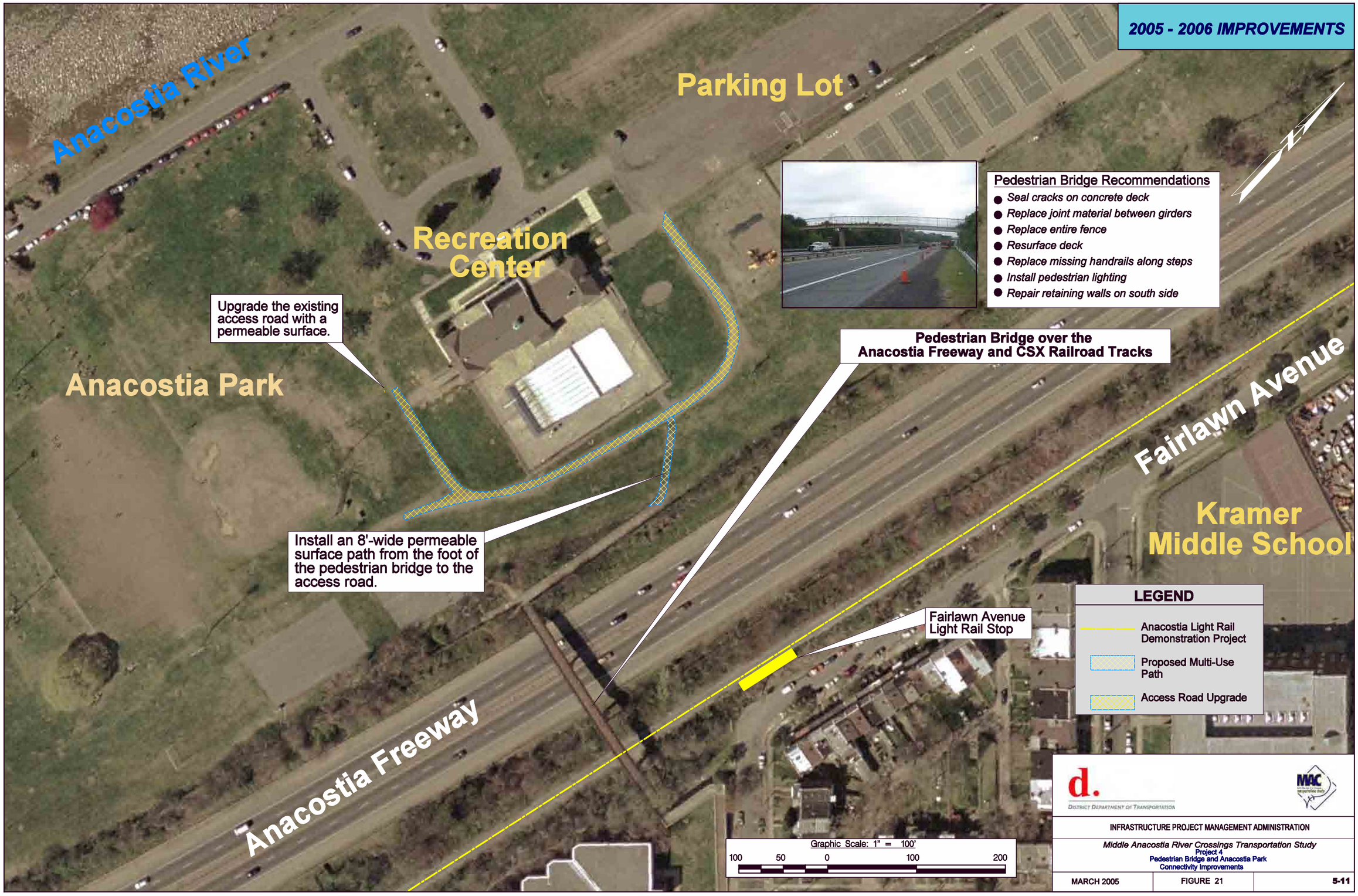
Pedestrian bridge over I-295, looking north.

Typical section of bridge deck and fencing.

It is also recommended to install a pedestrian path from the base of the bridge to the adjacent recreation center. The pavement surface of the existing access road surrounding the recreation center is also recommended for an upgrade. Consistent with "Low Impact Development" concepts, the pedestrian path and the access road could be constructed with a permeable surface. This will assist in completing the pedestrian connectivity from the nearby neighborhoods to the main facility within the Park. Refer to **Figure 21** for a graphical depiction of the improvements.

Cost Estimate
The estimated cost for these improvements is **$625,000**.

Related project improvements
- Anacostia Park and Frederick Douglass Home Wayfinding Signing (Project 10 – Mid-Term)
- Possible impacts to the pedestrian bridge may result from various long-term improvement options at the Pennsylvania Avenue/Anacostia Freeway interchange and the 11th Street Bridges/Anacostia Freeway interchange


2005 - 2006 IMPROVEMENTS
Anacostia River
Parking Lot
Recreation Center
Anacostia Park
Upgrade the existing access road with a permeable surface.
Install an 8'-wide permeable surface path from the foot of the pedestrian bridge to the access road.
Pedestrian Bridge Recommendations
Seal cracks on concrete deck
Replace joint material between girders
Replace entire fence
Resurface deck
Replace missing handrails along steps
Install pedestrian lighting
Repair retaining walls on south side
Pedestrian Bridge over the Anacostia Freeway and CSX Railroad Tracks
Fairlawn Avenue
Kramer Middle School
Fairlawn Avenue Light Rail Stop
Anacostia Freeway
LEGEND
Anacostia Light Rail Demonstration Project
Proposed Multi-Use Path
Access Road Upgrade
Graphic Scale: 1" = 100'
100 50 0 100 200
d.
District Department of Transportation
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 4
Pedestrian Bridge and Anacostia Park
Connectivity Improvements
MARCH 2005
FIGURE 21
5-11

Project 5 - Near-Term Pedestrian Spot Improvements

Categories: Safety, Accessibility, Mobility and Operations

The majority of the study area has the necessary pedestrian amenities for safe and efficient mobility. However, there are some specific locations where improvements are needed. Improvements considered during the near-term timeframe include minor roadwork, adjustment and installation of pedestrian signals, sidewalk repairs or new installation, and re-striping of appropriate pavement markings to clearly identify pedestrian movements. **Figure 22** (on page 5-15) identifies 16 locations requiring some type of pedestrian-related improvement. The following is a list of improvements recommended for the specific locations within the study area:

Location A**: Pennsylvania Avenue/Anacostia Freeway Interchange**

- Install crosswalks at the following approaches:
  - Northbound entrance ramp from westbound Pennsylvania Avenue to northbound Anacostia Freeway.
    - Install pedestrian signals to assist pedestrian mobility across this ramp.
  - Northbound exit ramp from northbound Anacostia Freeway to westbound Pennsylvania Avenue.
  - Southbound exit ramp from southbound Anacostia Freeway to eastbound Pennsylvania Avenue.
  - Northbound exit ramp from northbound Anacostia Freeway to eastbound Pennsylvania Avenue.

Cost Estimate
The estimated cost for these improvements is **$2,300**.

Location B**: Pennsylvania Avenue/Barney Circle**

- Install missing pedestrian signals on the eastbound approach of Pennsylvania Avenue.

Cost Estimate
The estimated cost for these improvements is **$1,900**.

Location C: **Minnesota Avenue/Pennsylvania Avenue**

- Install pedestrian signals at each corner of the intersection to accommodate each crossing movement.

Cost Estimate
The estimated cost for these improvements is **$7,500**.

Location D**: Good Hope Road/Minnesota Avenue**

- Replace the existing crosswalks on all approaches at the intersection.
- Adjust the angle of all pedestrian signal heads to be better aligned with the crosswalks.
- Install an ADA-compliant wheelchair ramp on the south side of Good Hope Road along the westbound approach.

Cost Estimate
The estimated cost for these improvements is **$3,200**.

Location E*:* **Minnesota Avenue/Nicholson Street & White Place and Minnesota Avenue/23rd Street**

- Install an ADA-compliant wheelchair ramp on the east side of Minnesota Avenue along the northbound approach at Nicholson Street and White Place.
- Install a crosswalk along the southbound approach of Minnesota Avenue at the intersection with 23rd Street.
  - Install a pedestrian signal for this approach once a crosswalk is in place.

Cost Estimate
The estimated cost for these improvements is **$3,000**.

Location F*:* **Minnesota Avenue/Naylor Road/22nd Street**

- Restripe all crosswalks at this intersection.

Cost Estimate

The estimated cost for these improvements is **$1,100**.

Location G: **Minnesota Avenue/18th Street/R Street**

- Restripe all crosswalks at this intersection.
- Install a sidewalk along the north side of the westbound approach of R Street.

Cost Estimate

The estimated cost for these improvements is **$14,100**.

Location H*:* **Minnesota Avenue/16th Street**

- Restripe the crosswalk on the westbound approach of 16th Street.

Cost Estimate

The estimated cost for these improvements is **$200**.

Location I**: Martin Luther King, Jr. Avenue/Howard Road/Sheridan Road**

- Restripe the crosswalk between the channelized island of westbound Howard Road and the southwest corner of the intersection.

Cost Estimate

The estimated cost for these improvements is **$200.**

Location J: **M Street/12th Street and M Street/11th Street**

- Install a sidewalk along the north side of M Street east of the M Street/11th Street intersection.
- Install lighting along both sides of M Street to the west and east of the M Street/11th Street intersection.
- Install missing pedestrian signals for movements crossing 11th Street from the Navy Yard and the Exxon Station along the eastbound approach.

Cost Estimate

The estimated cost for these improvements is **$105,800**.

Location K*:* **Potomac Avenue/18th Street/E Street**

- Repair the overgrown brick sidewalk along the south side of E Street. This sidewalk is adjacent to the Congressional Cemetery.

Cost Estimate

The estimated cost for these improvements is **$56,200**.

Location L*:* **Potomac Avenue/17th Street**

- Restripe the crosswalk on the northbound approach of 17th Street.
- Install pedestrian signals for all approaches of Potomac Avenue/17th Street.

Cost Estimate

The estimated cost for these improvements is **$7,700**.

Location M*:* **Potomac Avenue/Kentucky Avenue/15th Street/G Street**

- Restripe all crosswalks at the Kentucky Avenue/15th Street intersection.
- Adjust the angle of the pedestrian signal head along the westbound approach of G Street to be better aligned with the crosswalks.
- Repair the sidewalk on the south side of Kentucky Avenue along the eastbound approach.

Cost Estimate
The estimated cost for these improvements is **$38,800**.

Location N*:* **I (Eye) Street/11th Street**

- Repair the sidewalk along I (Eye) Street.

Cost Estimate
The estimated cost for these improvements is **$70,200**.

Location O: **17th Street/Independence Avenue**

- Install pedestrian signals for all approaches of this intersection.

Cost Estimate
The estimated cost for these improvements is **$7,500**.

Location P**:** **Potomac Avenue/Pennsylvania Avenue**

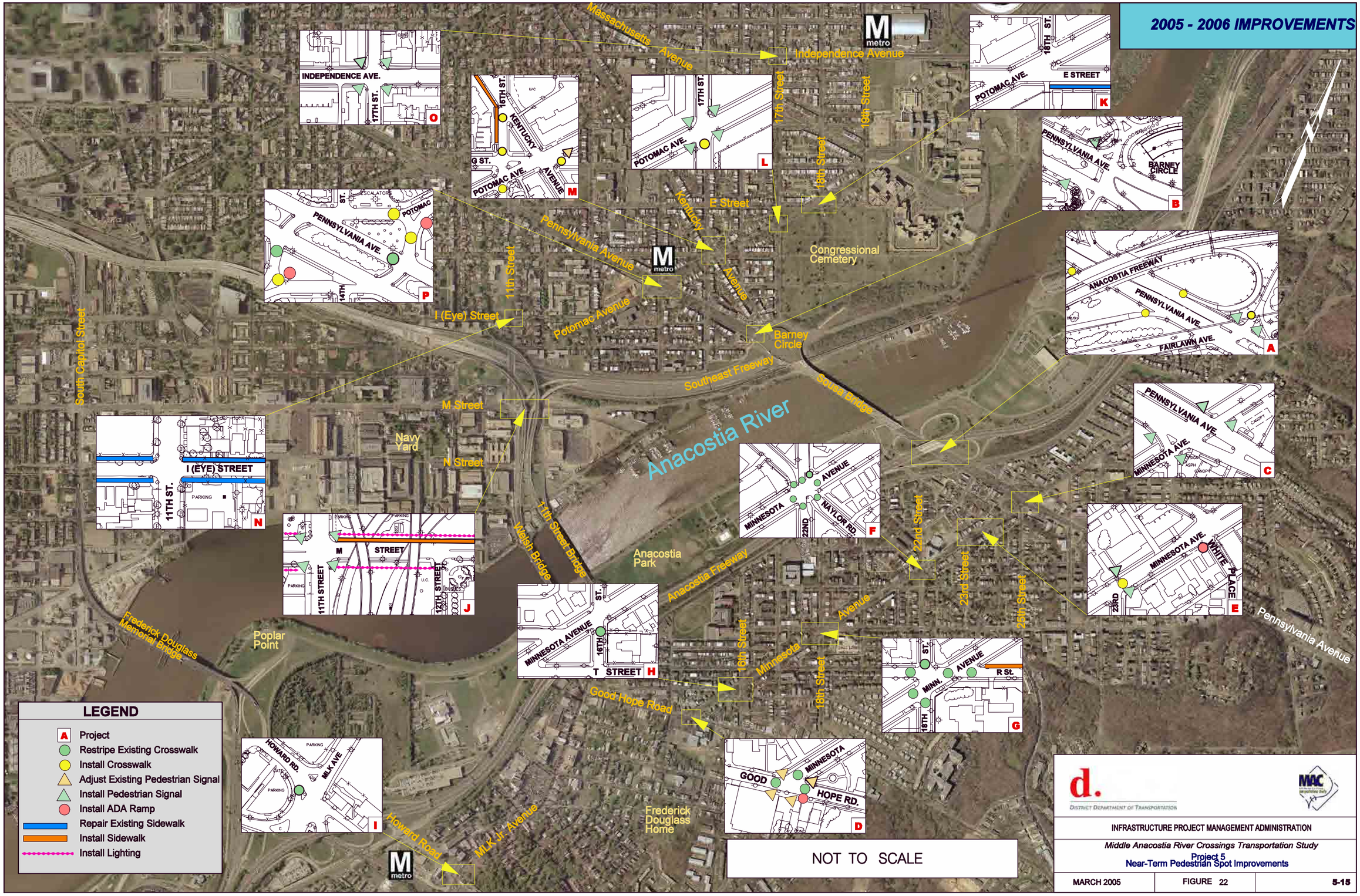
- Installation of two ADA-compliant wheelchair ramps.
- Restripe existing crosswalks.
- Install new crosswalks.

Cost Estimate
The estimated cost for these improvements is **$2,800**.

The total cost for all near-term pedestrian spot improvement projects is **$322,500**. **Table 14** summarizes the cost of all projects and their specific relationship to other proposed improvements for the Middle Anacostia River Crossings Transportation Study.

Table 14. Summary of Costs and Related Projects of Near-Term Pedestrian Spot Improvements

Project 5 Locations	Cost Estimate	Related Middle Anacostia Projects/Options		
		Near-Term	Mid-Term	Long-Term
A	$2,300	2	15	P-1 through P-6
B	$1,900	NA	8	BC-1, BC-2
C	$7,500	2	NA	NA
D	$3,200	3	11	NA
E	$3,000	3	11	NA
F	$1,100	3, 7	11	NA
G	$14,100	3	11	NA
H	$200	3	11	NA
I	$200	NA	NA	NA
J	$105,800	7	13	SE-1 through SE-3
K	$56,200	NA	NA	NA
L	$7,700	NA	NA	NA
M	$38,800	NA	NA	NA
N	$70,200	NA	NA	SE-1 through SE-3
O	$7,500	NA	NA	NA
P	$2,800	7	14	NA
Total Cost	**$322,500**			


2005 - 2006 IMPROVEMENTS
Massachusetts Avenue
Independence Avenue
17th Street
19th Street
18th Street
Kentucky Avenue
P Street
Pennsylvania Avenue
11th Street
Potomac Avenue
I (Eye) Street
Congressional Cemetery
Barney Circle
Southeast Freeway
Sousa Bridge
South Capitol Street
M Street
Navy Yard
N Street
Anacostia River
Welsh Bridge
11th Street Bridge
Anacostia Park
Anacostia Freeway
22nd Street
23rd Street
25th Street
Minnesota Avenue
16th Street
Pennsylvania Avenue
Frederick Douglass Memorial Bridge
Poplar Point
Good Hope Road
Howard Road
MLK Jr. Avenue
Frederick Douglass Home
INDEPENDENCE AVE.
17TH ST.
O
16TH ST.
KENTUCKY AVENUE
G ST.
POTOMAC AVE.
M
17TH ST.
POTOMAC AVE.
L
18TH ST.
E STREET
POTOMAC AVE.
K
PENNSYLVANIA AVE.
BARNEY CIRCLE
B
ESCALATOR
POTOMAC
PENNSYLVANIA AVE.
14TH
P
ANACOSTIA FREEWAY
PENNSYLVANIA AVE.
FAIRLAWN AVE.
A
PENNSYLVANIA AVE
MINNESOTA AVE.
CANOPY
C
I (EYE) STREET
11TH ST.
PARKING
N
PARKING
M STREET
11TH STREET
12TH STREET
J
AVENUE
MINNESOTA
NAYLOR RD.
22ND
F
MINNESOTA AVE.
WHITE PLACE
23RD
E
MINNESOTA AVENUE
16TH
ST.
T STREET
H
ST.
AVENUE
MINN.
R St.
16TH
G
GOOD
MINNESOTA
HOPE RD.
D
HOWARD RD.
MLK AVE
PARKING
I
NOT TO SCALE
LEGEND
Project
Restripe Existing Crosswalk
Install Crosswalk
Adjust Existing Pedestrian Signal
Install Pedestrian Signal
Install ADA Ramp
Repair Existing Sidewalk
Install Sidewalk
Install Lighting
DISTRICT DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 5
Near-Term Pedestrian Spot Improvements
MARCH 2005
FIGURE 22
5-15

Project 6 - Bicycle Network Improvements

Categories: Safety, Accessibility, Mobility and Operations, Park and Waterfront Connectivity

The major bicycle network enhancement planned for the Middle Anacostia River region is associated with another AWI project, the Anacostia Riverwalk Trail. This project is part of the overall AWI Framework Plan and its improvements will focus on several loops and trails providing more accessibility to the Anacostia Park and waterfront of the Anacostia River. As part of the interim Riverwalk Trail improvements, it is recommended that the RFK Access Road be opened to bicycle traffic in conjunction with appropriate amenities (bike racks, proper signing) along the roadway. This roadway could be linked with the trail that currently exists across the Sousa Bridge. The upgrade of the RFK Access Road for non-motorists is currently being considered as an interim route to the ultimate Anacostia Riverwalk Trail.

As part of the near-term opportunities for bicycle improvements, the following recommendations are provided:

- Installation of bicycle racks at the Stadium Armory Metro Station and Potomac Avenue Metro Station.
- Install pavement markings along 11th Street for on-street bicycle access in order to improve the connection to the existing pedestrian/bicycle path along the Welsh Memorial Bridge.
- Install a connecting pervious path from the terminus of the Welsh Memorial Bridge to Anacostia Drive on the east side of the Anacostia River.
- Rehabilitate the RFK Access Road to allow for safe passage of bicycles and improve the accessibility to and from the Stadium Armory Metro Station.

The locations of these specific bicycle improvements are illustrated in **Figure 23**.

Cost Estimate
The estimated cost for these improvements is **$77,000**.

Related project improvements
- Bus Stop Amenities Improvements (Project 7 – Near-Term)
- RFK Access Road Resurfacing/Rehabilitation Considerations (Project 9 – Mid-term)
- M Street Ramp to Southbound Welsh Memorial Bridge (Project 13 – Mid-Term)

2005 - 2006 IMPROVEMENTS
DC Stadium Armory Metro Station
Place additional bike racks at the Stadium Armory Metro Station.
Upgrade the RFK Access Road for bicycle accommodation. Utilizing this road would help improve connection to the Stadium Armory Metro Station.
Place additional bike racks at the Potomac Avenue Metro Station.
Stripe 11th Street for bicycle access to improve connection to the existing facility along the SB Welsh Bridge.
Develop a path from the SB Welsh Bridge to connect to existing bicycle route along Anacostia Drive.
Independence Avenue
Pennsylvania Avenue
Massachusetts Avenue
Potomac Avenue
I (Eye) Street
K Street
M Street
RFK Access Road
Southeast Freeway
Sousa Bridge
Anacostia River
Anacostia Drive
Anacostia Freeway
Fairlawn Avenue
Massachusetts
South Capitol Street
4th Street
6th Street
11th Street
13th Street
14th Street
15th Street
Welsh Bridge
11th Street Bridge
Anacostia Park
Minnesota Avenue
Good Hope Road
MLK Jr. Avenue
Howard Road
Anacostia
Poplar Point
Frederick Douglass Memorial Bridge
omac Avenue
LEGEND
Existing On-Street Bicycle Lanes*
Signed Bicycle Route*
Interim Anacostia Riverwalk Trail**
Proposed Short-Term Bicycle Facilities
Note: A Multi-Use Trail also exists through the Anacostia Park from north to south.
* - Referenced from the District of Columbia Bicycle Master Plan (Draft July 2004)
** - Referenced from DDOT AWI Framework Plan for the Anacostia Riverwalk Trail.
NOT TO SCALE
DISTRICT DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 6
Bicycle Network Improvements (Areawide)
MARCH 2005
FIGURE 23
5-17

Project 7 – Bus Stop Amenities Improvements

Category: Transit Infrastructure

Field investigations and office research identified approximately 75 bus stops on the following major corridors in the Middle Anacostia study area:

- Pennsylvania Avenue
- Minnesota Avenue
- Good Hope Road
- Martin Luther King, Jr. Avenue
- Potomac Avenue
- Kentucky Avenue
- 15th Street
- 17th Street
- 19th Street
- M Street
- Massachusetts Avenue
- Independence Avenue

Figure 24 (on page 5-21) identifies the locations of all bus stops in the study area and notes those in need of improvements. Ridership data from January 2000 through December 2003 were evaluated for this study. A summary of the requirements for transit stop amenities based on guidelines set forth in the *WMATA Regional Bus Study: Final Report (September 2003)* for boardings per day at each stop is as follows:

All bus stops should have:

- Up-to-date route information signs.
- Level concrete pad.
- Adequate lighting.
- Reasonable pedestrian access.

Stops with more than **50 Boardings/day** should also have:

- Standard bus shelter.
- Trash receptacle.

Stops with more than **100 Boardings/day** should have:

- All amenities for 50 boardings/day plus:
  - Consideration for a larger shelter or two standard shelters.
  - Detailed schedule information.
  - A bench within the shelter.

Stops with more than **300 Boardings/day** should have:

- All amenities for 100 boardings/day plus:
  - System Map.
  - Real time travel information (long-term).

Stops with over **500 Boardings/day** should receive:

- Consideration for conversion of the bus stop to a transit center.

A transit center is defined as a multi-functional bus facility that may include off-street layover space to aid the transfer of patrons from automobiles to transit. A transit center facility may include simple bus pullouts, shelters, and detailed system information. Large-scale transit centers may even consist of parking lots or structures and be candidates for future joint development.

According to the District Department of Transportation (DDOT), Design and Engineering Guidelines for transit stops, it is also recommended that each bus stop include one bike rack to accommodate bicycle users in the study area. Costs have included provision for one inverted U bike rack at all bus stops in need of other amenity improvements. Near-term improvement recommendations for all bus stops are found in **Tables 15** and **16**. **Table 15** summarizes the amenities recommended for stops servicing northbound and westbound routes. **Table 16** does the same for the southbound and eastbound routes.

Table 15. Recommended Amenities for Bus Stops Servicing Northbound and Westbound Routes

Bus Stop Location (On Road at Side Road)	Estimated Boardings/Day	Recommended Amenities*
Martin Luther King, Jr. Avenue at Sheridan Road	576	• Shelters • Benches • Trash Receptacle • Consideration for a Transit Center
Martin Luther King, Jr. Avenue at Morris Road	195	• Shelter • Bench
Martin Luther King, Jr. Avenue at W Street	224	• Shelter • Bench
Good Hope Road at 14th Street	387	• Shelters • Benches • System Map
Pennsylvania Avenue at L'Enfant Square	1027	• An additional shelter • Consideration for a Transit Center
Minnesota Avenue at S Street	131	• Shelter • Bench
Minnesota Avenue at 18th Street	168	• Shelter • Bench
Minnesota Avenue at 19th Street	108	• Shelter • Bench
Minnesota Avenue at 22nd Street	101	• Shelter • Bench
Minnesota Avenue at White Place	209	• Shelter • Bench
Minnesota Avenue at Pennsylvania Avenue	309	• Shelter • Bench • System Map
M Street at 11th Street	137	• Shelter • Bench

* Recommended amenities are based on the guidelines set forth in the WMATA Regional Bus Study, September 2003.
Note: At Pennsylvania Avenue/13th Street (76 boardings/day), M Street/ 9th Street (59 boardings/day), and 19th Street/C Street (53 boardings/day), adequate amenities are provided according to current ridership numbers.

Table 16. Recommended Amenities for Bus Stops Servicing Southbound and Eastbound Routes

Bus Stop Location (On Road at Side Road)	Estimated Boardings/Day	Recommended Amenities
Martin Luther King, Jr. Avenue at U Street	171	• Shelter • Bench
Martin Luther King, Jr. Avenue at W Street	170	• Shelter
Good Hope Road at 14th Street	267	• Bench
Pennsylvania Avenue at 14th Street	53	• Shelter
Pennsylvania Avenue at 15th Street	425	• Shelters • Benches • System Map
Pennsylvania Avenue at L'Enfant Square	786	• Shelters • Benches; • Consideration for a Transit Center
Potomac Avenue at 14th Street	313	• Shelters • Benches • System Map
Potomac Avenue at 14th Street (North Roadway)	712	• Consideration for a Transit Center
Minnesota Avenue at Pennsylvania Avenue	337	• Two Shelters • Benches, • System Map
Minnesota Avenue at Nicholson Street	70	• Shelter
Minnesota Avenue at 22nd Street	93	• Shelter
Minnesota Avenue at 18th Street	85	• Shelter
Minnesota Avenue at S Street	142	• Shelter • Relocate an existing bench closer to bus stop to improve patron accessibility
M Street at 9th Street	81	• Shelter
15th Street at Pennsylvania Avenue	267	• Shelter • Bench

* Recommended amenities are based on the guidelines set forth in the WMATA Regional Bus Study, September 2003.

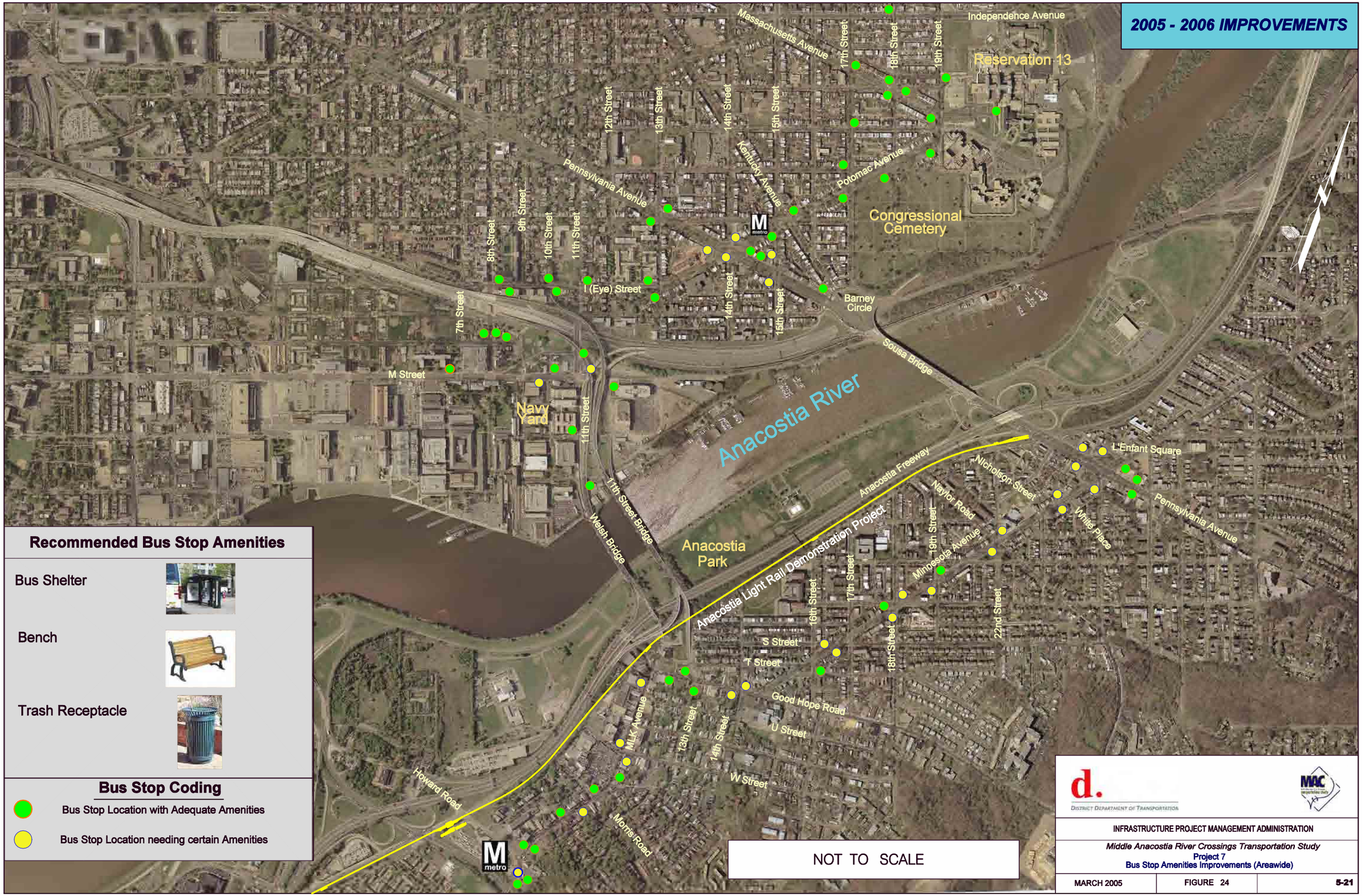
In general, Martin Luther King, Jr. Avenue, Minnesota Avenue, and Pennsylvania Avenue have heavy transit use due to the locations of Metro Stations (Anacostia Metro Station and Potomac Avenue Metro Stations) in the study area. These corridors should be evaluated in more detail to determine if more priority is needed for transit to better accommodate the large number of patrons using this service.

Based on public input, since not all amenities are considered desirable community features, it is recommended to review specific transit stop improvements with the local neighborhoods.

Cost Estimate
The estimated cost for these improvements is **$276,000**.

Related project improvements

- Roadway Resurfacing along Good Hope Road and Minnesota Avenue (Project 3 – Near-Term)
- Near-term Pedestrian Spot Improvements (Project 5 – Near-Term)
- Minnesota Avenue Pedestrian Safety improvements (Project 11 – Mid-Term)
- Conversion of Martin Luther King, Jr. Avenue and 13th Street to two-way traffic (Project 12 – Mid-Term)
- Pennsylvania Avenue/Potomac Avenue Intersection Improvements – (Project 14 – Mid-Term)


2005 - 2006 IMPROVEMENTS
Massachusetts Avenue
Independence Avenue
Reservation 13
17th Street
18th Street
19th Street
12th Street
13th Street
14th Street
15th Street
Kentucky Avenue
Potomac Avenue
Pennsylvania Avenue
Congressional Cemetery
8th Street
9th Street
10th Street
11th Street
I (Eye) Street
7th Street
M Street
Barney Circle
Sousa Bridge
Navy Yard
Anacostia River
11th Street Bridge
Welsh Bridge
Anacostia Park
Anacostia Freeway
Anacostia Light Rail Demonstration Project
Nicholson Street
Naylor Road
L'Enfant Square
White Place
Minnesota Avenue
16th Street
17th Street
18th Street
19th Street
22nd Street
S Street
T Street
Good Hope Road
U Street
W Street
MLK Avenue
13th Street
14th Street
Howard Road
Morris Road
Recommended Bus Stop Amenities
Bus Shelter
Bench
Trash Receptacle
Bus Stop Coding
Bus Stop Location with Adequate Amenities
Bus Stop Location needing certain Amenities
NOT TO SCALE
d.
District Department of Transportation
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 7
Bus Stop Amenities Improvements (Areawide)
MARCH 2005
FIGURE 24
5-21

Summary of Near-Term Projects

The near-term projects should help the Middle Anacostia River region almost immediately. With minimal impacts and little to no follow-up design engineering, these projects have the opportunity to be in place by the end of 2006, as long as funding is available. While the significance of these improvements may not be as noticeable as an interchange project or other large-scale project, the near-term projects will set the foundation for improvements to follow during the mid-term and long-term timeframes. **Table 17** summarizes each near-term project, the associated benefits, and estimated costs. Cost estimates for the near-term projects are provided in **Appendix K**.

Table 17. Summary of Near-Term Project Benefits and Costs

Project	Description	Benefits	Cost Estimate
1	Signing and Pavement Marking Improvements along the Sousa Bridge and the Ramp to the Southeast Freeway	• Improves vehicular mobility • Improves motor vehicle safety • Provides more clear direction for pedestrians and bicyclists • Increases pedestrian and bicycle safety	**$152,000**
2	Signal Timing Optimization along Pennsylvania Avenue, east of the Anacostia River	• Improves vehicular mobility	**N.A.**
3	Roadway Resurfacing and Pavement Marking Replacement	• Improves vehicular mobility • Improves on-street bicycle mobility • Improves connectivity to Anacostia Park	**$900,000**
4	Pedestrian Bridge and Anacostia Park Connectivity Improvements	• Improves pedestrian accessibility to Anacostia Park • Improves pedestrian safety	**$625,000**
5	Near-term Pedestrian Spot Improvements*	• Improves pedestrian mobility, safety, and accessibility	**$322,500**
6	Bicycle Network Improvements (Areawide)	• Improves bicycle mobility, safety, and accessibility	**$77,000**
7	Bus Stop Amenities Improvements (Areawide)	• Improves the quality of transit services for patrons • Makes transit stops more visible and inviting	**$276,000**
		Total	**$2,352,500**

* Project 5 represents all pedestrian spot improvement projects throughout the study area.

Chapter 6: MID-TERM IMPROVEMENTS (2005 – 2010)

The mid-term improvements focus on various recommendations that may provide further relief for residents and commuters of the Middle Anacostia River study area, prior to the availability of funding and resources required for long-term improvements. Mid-term projects reflect those improvements that would require additional funding and engineering when compared to the near-term projects. These projects have an estimated implementation schedule ranging from one to five years. For discussion purposes, the timeframe associated with the mid-term projects has been set from 2005 to 2010. A total of eight mid-term projects (Projects 8 through 15) have been proposed for the Middle Anacostia River region.

Mid-Term Projects

The locations of the eight projects recommended for implementation over the next five years are shown in **Figure 25**. This report provides a brief description of each project, category(s) addressed by each project, an estimated cost for construction, and reference to any related projects being considered under the Middle Anacostia River Crossings Transportation Study. These projects include:

Project 8: Upgrade the Service Road between Barney Circle and the RFK Access Road**.**

Project 9: RFK Stadium Access Road Resurfacing/Rehabilitation.

Project 10: Anacostia Park and Frederick Douglass Home Wayfinding Improvements.

Project 11: Minnesota Avenue Pedestrian Safety Improvements.

Project 12: Conversion of Martin Luther King, Jr. Avenue and 13th Street to Two-Way Traffic.

Project 13: M Street Ramp Connection to Southbound Welsh Memorial Bridge.

Project 14: Pennsylvania Avenue/Potomac Avenue Intersection Improvements.

Project 15: Northbound DC 295 Ramp Improvements Accommodating Traffic from Eastbound and Westbound Pennsylvania Avenue

Figure 25. Mid-Term Improvement Project Locations

Project 8 - Upgrade the Service Road between Barney Circle and the RFK Access Road

Categories: Safety, Accessibility, Mobility and Operations, Park and Waterfront Connectivity

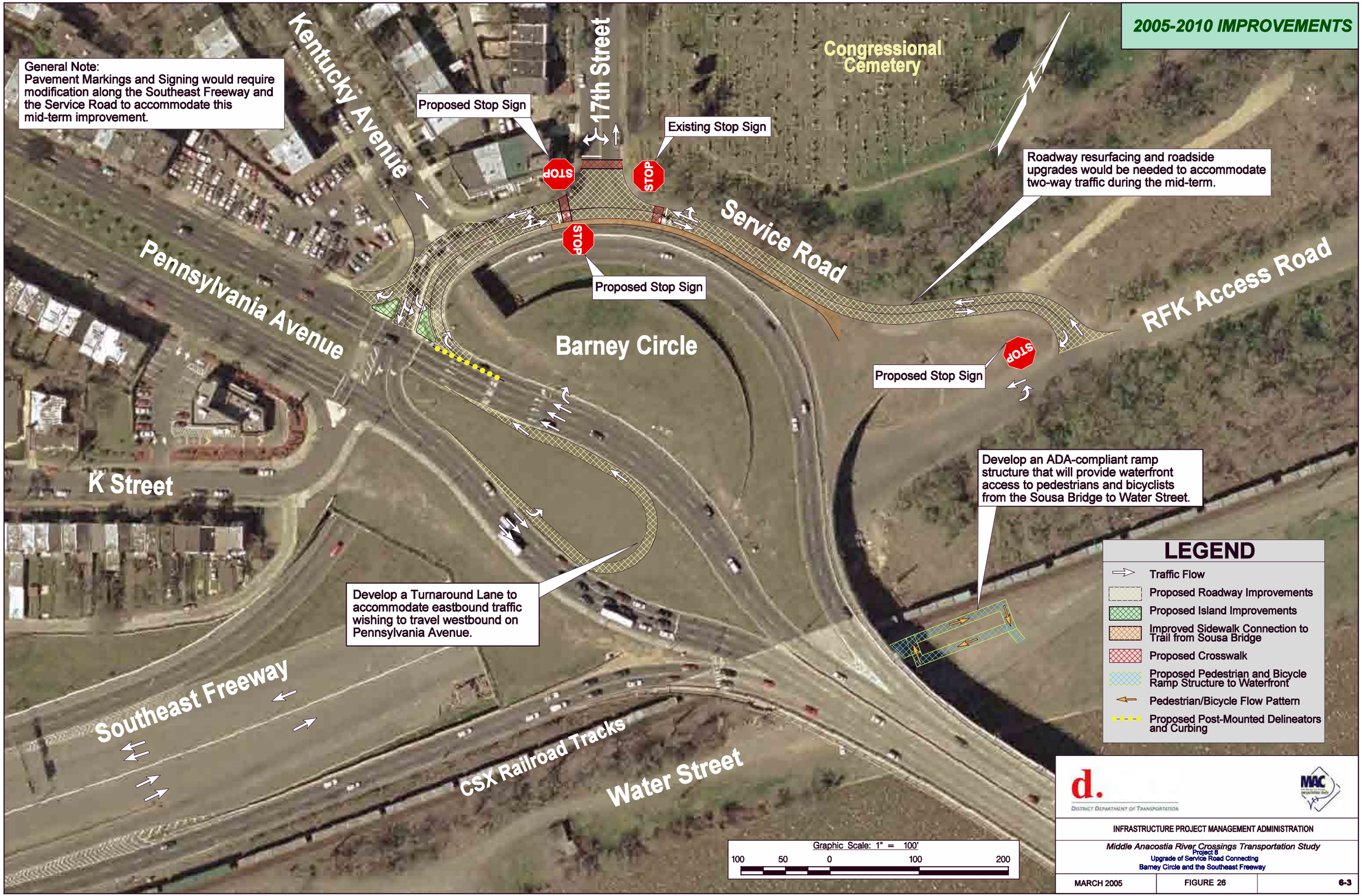
The service road near Barney Circle connecting Pennsylvania Avenue to the Southeast Freeway is currently signed for authorized use only. However, field observations and traffic data indicate that the roadway is being used by the general public to obtain access to and from Barney Circle, 17th Street, and Pennsylvania Avenue. Many different options have been proposed for this road, including closing it to all traffic, permitting all users with the exception of trucks, opening it during peak hours only, and upgrading it for use by all traffic. It is estimated that 5,600 vehicles per day (vpd) currently use this road. Based on traffic forecasts, it is estimated that approximately 11,600 vpd would use the service road. In lieu of the enforcement needed to prohibit this movement to everyone or the introduction of physical barriers to completely close the road, the most feasible option is to upgrade the roadway to accommodate traffic flow until a more permanent solution is implemented.

Currently, the westbound traffic volumes along the service road are approximately 160 vehicles per hour (vph) and 620 vph during the AM and PM peak periods, respectively. From the turning movement counts conducted at Barney Circle/17th Street, over 90% of these vehicles are turning right onto northbound 17th Street. The existing eastbound traffic volumes along the Service Road are approximately 430 vph and 470 vph during the AM and PM peak periods, respectively. Turning movement counts indicated that 100% of the traffic is continuing through on the service road towards the Southeast Freeway.

The service road near Barney Circle (looking west towards 17th Street).

Figure 26 shows the proposed improvements for this roadway. An all-way stop-controlled, T-intersection would be established at the intersection of 17th Street and the Service Road. The presence of stop signs at these approaches would aid in controlling speeds along 17th Street and the service road. In addition to the upgrades along the service road, pavement markings, signing, and barrier adjustments would be needed along the Southeast Freeway to properly alert motorists of the new conditions on the service road ahead.

To assist pedestrians and bicyclists in this area, the sidewalk along the south side of the service road would be rehabilitated. A sidewalk exists along this side of the service road, but it is only in fair condition. In addition to rehabilitating the sidewalk, it would also be extended to meet the end of the path for bikers and walkers traveling across the Sousa Bridge. The placement of new crosswalks at the Service Road/17th Street intersection would also improve circulation in this area.


2005-2010 IMPROVEMENTS
General Note:
Pavement Markings and Signing would require modification along the Southeast Freeway and the Service Road to accommodate this mid-term improvement.
Kentucky Avenue
17th Street
Congressional Cemetery
Proposed Stop Sign
Existing Stop Sign
Roadway resurfacing and roadside upgrades would be needed to accommodate two-way traffic during the mid-term.
Service Road
Pennsylvania Avenue
Proposed Stop Sign
RFK Access Road
Barney Circle
Proposed Stop Sign
K Street
Develop an ADA-compliant ramp structure that will provide waterfront access to pedestrians and bicyclists from the Sousa Bridge to Water Street.
Develop a Turnaround Lane to accommodate eastbound traffic wishing to travel westbound on Pennsylvania Avenue.
Southeast Freeway
CSX Railroad Tracks
Water Street
LEGEND
Traffic Flow
Proposed Roadway Improvements
Proposed Island Improvements
Improved Sidewalk Connection to Trail from Sousa Bridge
Proposed Crosswalk
Proposed Pedestrian and Bicycle Ramp Structure to Waterfront
Pedestrian/Bicycle Flow Pattern
Proposed Post-Mounted Delineators and Curbing
Graphic Scale: 1" = 100'
100 50 0 100 200
d.
District Department of Transportation
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 8
Upgrade of Service Road Connecting
Barney Circle and the Southeast Freeway
MARCH 2005
FIGURE 26
6-3

Associated with making improvements to the existing service road, the existing grass area within Barney Circle provides the opportunity to accommodate a turnaround for eastbound traffic on Pennsylvania Avenue. Other median areas are present west of Barney Circle, but they are not wide enough to accommodate a u-turn movement. The Barney Circle area provides travelers who are east of the 15th block of Pennsylvania Avenue to head westbound on Pennsylvania Avenue or towards the Capitol Hill neighborhood without having to intermix with the heavy traffic volumes on the Sousa Bridge. Existing left-turn restrictions on Pennsylvania Avenue and the side streets often force traffic desiring to travel on westbound Pennsylvania Avenue to use eastbound Pennsylvania Avenue. Post-mounted delineators would be placed near the westbound right-turn only lane for traffic wanting to use the service road. This treatment would ensure that no unsafe weaving maneuvers could occur between the proposed turnaround and westbound traffic utilizing the service road.

Also included in this project is the provision to develop a pedestrian/bicycle ramp switchback structure that would provide access from the westbound Sousa Bridge to Water Street and the Anacostia River. The proposed structure would be approximately 40 feet high and consist of ADA-compliant ramps to allow for use by both pedestrians and bicycles. It is recommended that the landing of the structure connect with Water Street to provide more direct access to the waterfront. Providing the ramp landing on the west side of the CSX railroad tracks would introduce another barrier for pedestrians and bicyclists wishing to access the Anacostia River.

Cost Estimate
The estimated cost for these improvements with the pedestrian ramp structure is **$9,274,000**. Without the structure, the cost of all other improvements in this project is $1,132,000.

Related project improvements
- Signing and pavement marking improvements along Sousa Bridge and the ramp to the Southeast Freeway (Project 1 – Near-Term)
- Near-term Pedestrian Spot Improvements (Project 5 – Near-Term)
- RFK Access Road Resurfacing/Rehabilitation Considerations (Project 9 – Mid-Term)
- Barney Circle Long-Term Improvement Options (Options BC-1 and BC-2)
- Park Drive Connector Road Long-Term Improvement Option (Option R-1)

Project 9 – RFK Stadium Access Road Resurfacing/Rehabilitation

Categories: Accessibility, Neighborhood Traffic Relief, Park and Waterfront Connectivity

The congestion along the Sousa Bridge, combined with concerns over commuter cut-through traffic, have lead to some urgency for opening the existing RFK Stadium Access Road for daily traffic. The existing roadway is currently gated, with access provided only for events held at RFK Stadium and for National Park Service employees. This roadway is seen by some as a viable option for providing access to the Capitol Hill area, Independence Avenue, and Kenilworth Avenue via the East Capitol Street Bridge. Several issues currently make this project difficult to implement. First, it is estimated that if opened to everyday commuter traffic, the access road would carry approximately 5,000 vehicles per day. The existing pavement section along the RFK Access Road is not adequate for accommodating the projected amounts of daily traffic. A significant pavement reconstruction or resurfacing would be required to ensure the structural integrity of the road. Secondly, the roadway is located on National Park Service property. The existing roadway has an average width of approximately 20 feet and would not properly accommodate safe traffic operations for everyday use. Roadway widening and some realignment would be recommended before opening the roadway. At this time, it is uncertain if an agreement could be reached among the numerous stakeholders who utilize the Access Road to implement the necessary improvements.

The RFK Stadium Access Road looking north from the service road near Barney Circle.

The upgrade and extension of the RFK Access Road is not fully consistent with the long-term visions of both the Public Reservation 13 redevelopment and the AWI Framework Plan. Ultimately, a road is envisioned to run along the east side of the redeveloped Reservation 13 property and connect Barney Circle with Independence Avenue. A separate Anacostia Park access road would replace the existing RFK Access Road. The Park Access Road would provide pedestrians, bicycles, and vehicles better connection to the Anacostia River waterfront and operate more like a recreational trail. The likelihood of overcoming various issues during the mid-term timeframe may not be realistic. **Figure 27** represents the vision of what the Park Drive and Reservation 13 roads could evolve into. However, the ultimate need for some connection that utilizes a portion or all of the RFK Access Road is still very much important to the Middle Anacostia River region.

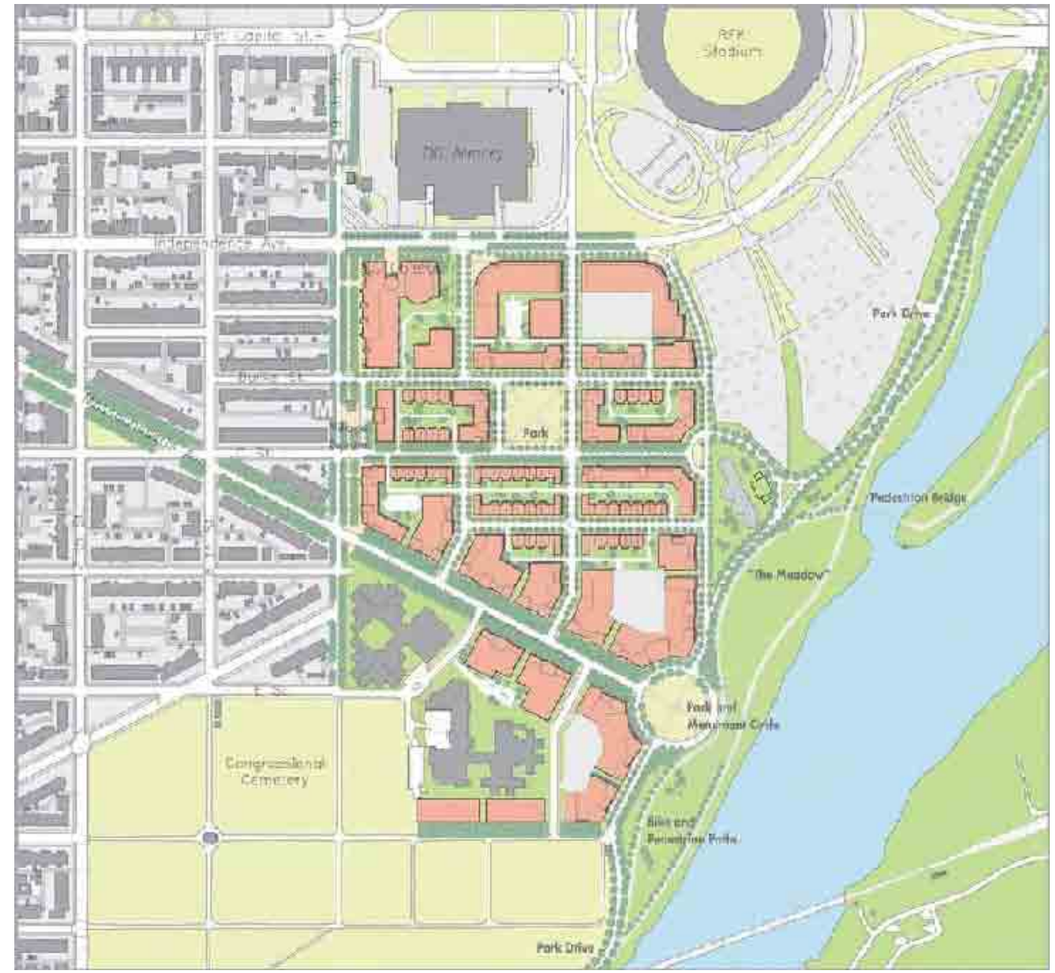
Cost Estimate

A cost estimate has not been prepared for upgrades to the RFK Access Road as a mid-term improvement. However, the AWI vision for this area has been addressed under the long-term improvement section of this report.

Related project improvements

- Upgrade of Service Road between Barney Circle and the RFK Access Road (Project 8 – Mid-Term)
- Barney Circle Long-Term Improvement Options (Options BC-1 and BC-2)
- Park Drive Connector Road Long-Term Improvement Option (Option R-1)

Figure 27. The AWI Long-Term Vision for Park Drive and the Reservation 13 Road



Project 10 - Anacostia Park and Frederick Douglass Home Wayfinding Improvements

Categories: Accessibility, Park and Waterfront Connectivity

Anacostia Park is located along both the east and west side of the Anacostia River within the study area. On the east side of the River, there are currently two roadways that provide visitors with direct access to the Park: Good Hope Road and Nicholson Street. Near these two entrances to the Park, there are National Park Service (NPS) signs alerting travelers of arrival to the Park. In addition to the NPS signing, there are four guide signs along the Welsh Memorial Bridge (Southbound 11th Street Bridge) for the Park. However, there is minimal advance signing directing visitors to the Park from the main roadways within the study area.

The Frederick Douglass Home is located on W Street between 14th and 15th street in Historic Anacostia. Pennsylvania Avenue and Minnesota Avenue act as two of the major streets that travelers use to access this historic site from the north.

Specific to the Middle Anacostia River Crossings Transportation Study, the following locations are proposed to have National Park Service (NPS) wayfinding signs for the Anacostia Park and Frederick Douglass Home:

- At Pennsylvania Avenue (eastbound and westbound directions) prior to the Minnesota Avenue intersection – **a total of 2 signs**. Each sign will also include information for the Frederick Douglass Home.
- Along Minnesota Avenue (Northbound and Southbound directions) prior to the Nicholson Street intersection – **a total of 2 signs**. Information for the Frederick Douglass Home will be included only on the southbound sign.
- Along westbound Good Hope Road after the Minnesota Avenue intersection – **a total of 1 sign.**
    - Recommend replacement of the existing Frederick Douglass Home sign and placement of new sign with both the Anacostia Park and Frederick Douglass Home identified.
- Along westbound Nicholson Street prior to the Anacostia Park – **a total of 1 sign**.
- Along westbound 16th Street for pedestrian-only access to Anacostia Park – **a total of 1 sign.**
    - This pedestrian-access only sign would help promote the use of the pedestrian bridge over the Anacostia Freeway.

A total of seven signs are recommended to assist pedestrians and motorists alike with these two important destinations. Refer to **Figure 28** for the recommended locations of these signs.

Further evaluation is recommended through overlapping studies that advance signing be provided on major corridors such as the Anacostia Freeway, Southeast Freeway, and 11th Street Bridges. In addition, future considerations for wayfinding signing should be made to assist travelers in visiting the stops associated with the incoming Anacostia Light Rail line, the Smithsonian African/American Museum, the Anacostia Business District, and the Monumental Core.

The west side of the River has limited access to Anacostia Park. Water Street is located in between the Southeast Freeway and the Anacostia River and operates as an access road for those who utilize the boathouses and marinas nearby. The roadway is quite narrow and provides minimal Park access, as the Park width is much more limited on the west side of the River. Future evaluation of the need for advance signing is recommended on M Street, 11th Street, and 12th Street to guide the public to the boathouses and marinas along the River and others wishing to reach the waterfront.

Cost Estimate
The estimated cost for these improvements is **$12,000**.

Related project improvements
- Pedestrian Bridge and Anacostia Park Connectivity Improvements (Project 4 – Near-Term)
- Minnesota Avenue Pedestrian Safety Improvements (Project 11 – Mid-Term)

2005 - 2010 IMPROVEMENTS
Anacostia River
Anacostia Park
Pennsylvania Avenue Light Rail Stop
Fairlawn Avenue Light Rail Stop
Old Anacostia Light Rail Stop
Anacostia Freeway
NB 11th Street Bridge
Kramer Middle School
Anacostia Senior High School
Benjamin Orr Elementary School
Nicholson Street
Pennsylvania Avenue
White Place
Minnesota Avenue
22nd Street
23rd Street
16th Street
Ridge Place
Good Hope Road
Frederick Douglass Home
Anacostia Park
Anacostia Park Pedestrian Access
Anacostia Park Frederick Douglass Home
Future Considerations for Wayfinding Signing will be made for the Smithsonian African/American Museum, Anacostia Business District, and the Monumental Core.
LEGEND
Existing Park Entrance (Vehicle or Pedestrian)
Existing Park Entrance (Pedestrian Only)
Anacostia Light Rail Demonstration Project
NOT TO SCALE
District Department of Transportation
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 10
Anacostia Park and Frederick Douglass Home
Wayfinding Signing
MARCH 2005
FIGURE 28
6-7

Project 11 - Minnesota Avenue Pedestrian Safety Improvements

Categories: Safety, Neighborhood Traffic Relief, and Transit Infrastructure

The Minnesota Avenue corridor currently handles a mix of transportation services but not always in a safe and efficient manner. From Good Hope Road to Pennsylvania Avenue, Minnesota Avenue operates as a cut-through roadway for traffic going between Pennsylvania Avenue and the Anacostia neighborhood. Field observations have indicated that traffic speeds are generally higher than the posted speed limit of 25 MPH. This poses a safety concern, verified by the accident data that were collected for the corridor (see **Appendix F**). The land uses of the road consist of mostly residential homes, some churches, the Benjamin Orr Elementary School, and some retail shops. Pedestrian activity is prevalent as a result of these land uses. Combining the higher speeds with the frequent pedestrian activity results in safety concerns along the corridor. In addition, Minnesota Avenue carries a significant amount of buses; most of which are traveling to and from the Anacostia Metro Station.

Existing Minnesota Avenue near Pennsylvania Avenue looking southbound.

In acknowledging the competing demands being placed on Minnesota Avenue, a project has been recommended to address the land uses, pedestrian safety, vehicular speeds and transit use along the corridor. The proposed project is illustrated in **Figures 29, 30, and 31**. It recommends the following improvements to the Minnesota Avenue corridor between Good Hope Road and Pennsylvania Avenue:

- Landscaped median areas along Minnesota Avenue between Good Hope Road and 16th Street.
- Curb extensions at all intersections along Minnesota Avenue between Good Hope Road and Nicholson Street/White Place.
- Improved sidewalks along the Minnesota Avenue corridor.
- Decorative crosswalks at all intersections along Minnesota Avenue between Good Hope Road and Nicholson Street/White Place.
- Marked parking spaces for vehicles and bus stops.
- Additional benches associated with bus stops and the Benjamin Orr Elementary School.

2005 - 2010 IMPROVEMENTS
14th Street
T Street
S Street
Minnesota Avenue
Good Hope Road
16th Street
T Street
17th Street
Bus Stop
Bus Stop
Matchline: See Figure 11B (Sheet 2 of 3)
Skyland Streetscape Project
LEGEND
Proposed Median Areas
Proposed Curb Extensions (Bulbouts)
Proposed Decorative Crosswalks
Proposed Parking Spaces
Graphic Scale: 1" = 100'
100 50 0 100 200
d.
District Department of Transportation
MAC
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 11
Minnesota Avenue Pedestrian Safety Improvements
(Sheet 1 of 3)
MARCH 2005
FIGURE 29
6-9

2005 - 2010 IMPROVEMENTS
R Street
Q Street
Minnesota Avenue
Bus Stop
Bus Stop
Bus Stop
Bus Stop
Matchline: See Figure 11A (Sheet 1 of 3)
Matchline: See Figure 11C (Sheet 3 of 3)
18th Street
19th Street
21st Street
LEGEND
Proposed Median Areas
Proposed Curb Extensions (Bulbouts)
Proposed Decorative Crosswalks
Proposed Parking Spaces
Graphic Scale: 1" = 100'
100 50 0 100 200
d.
District Department of Transportation
MAC
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 11
Minnesota Avenue Pedestrian Safety Improvements
(Sheet 2 of 3)
MARCH 2005
FIGURE 30
6-10

2005 - 2010 IMPROVEMENTS
Matchline: See Figure 11B (Sheet 2 of 3)
22nd Street
Nicholson Street
Benjamin Orr
Elementary School
Bus Stop
Bus Stop
Bus Stop
Minnesota Avenue
Q Street
Naylor Road
23rd Street
White Place
LEGEND
Proposed Median Areas
Proposed Curb Extensions (Bulbouts)
Proposed Decorative Crosswalks
Proposed Parking Spaces
Graphic Scale: 1" = 100'
100 50 0 100 200
d.
District Department of Transportation
MAC
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 11
Minnesota Avenue Pedestrian Safety Improvements
(Sheet 3 of 3)
MARCH 2005
FIGURE 31
6-11

These items help to improve the Minnesota Avenue corridor in the following ways:

- Reduces the crossing distance for pedestrians trying to cross Minnesota Avenue.
- Provides more sidewalk area at the major intersections, making pedestrians more visible to vehicles.
- Provides refuge for parked vehicles and buses along Minnesota Avenue and better define parking spaces more than existing conditions.
    - Approximately 171 parking spaces are provided along Minnesota Avenue from Good Hope Road to Pennsylvania Avenue under this improvement.
    - Nine (9) bus pulloff areas are provided where existing bus stops are located today.
        - WMATA has expressed interest in stopping buses in travel lanes instead of designated pull-off areas. Further coordination with WMATA should occur before implementing this project.
- Reduces the overall width of the roadway at intersections, which should provide traffic calming benefits by reducing in speed and increasing safety along the corridor.
- Provides opportunities for landscaping along the corridor near Good Hope Road through the introduction of medians.
- Provides more visible crosswalks and provides a streetscape element with a brick texture that complements the surrounding neighborhood. It helps define the corridor for pedestrian activity first and motor vehicles second.

It is recommended that any aesthetic treatments applied to Minnesota Avenue be consistent with the planned streetscape improvement for the Skyland Streetscape project (refer to **Appendix H** for more information on this project), which includes the intersection of Good Hope Road/Minnesota Avenue.

Cost Estimate
The estimated cost for these improvements is **$1,528,000**.

Related project improvements
- Near-term Pedestrian Spot Improvements (Project 5 – Near-Term)
- Bus Stop Amenities Improvements (Project 7 – Near-Term)
- Anacostia Park and Frederick Douglass Home Wayfinding Signing (Project 10 – Mid-Term)

Project 12 – Conversion of Martin Luther King, Jr. Avenue and 13th Street to Accommodate Two-Way Traffic

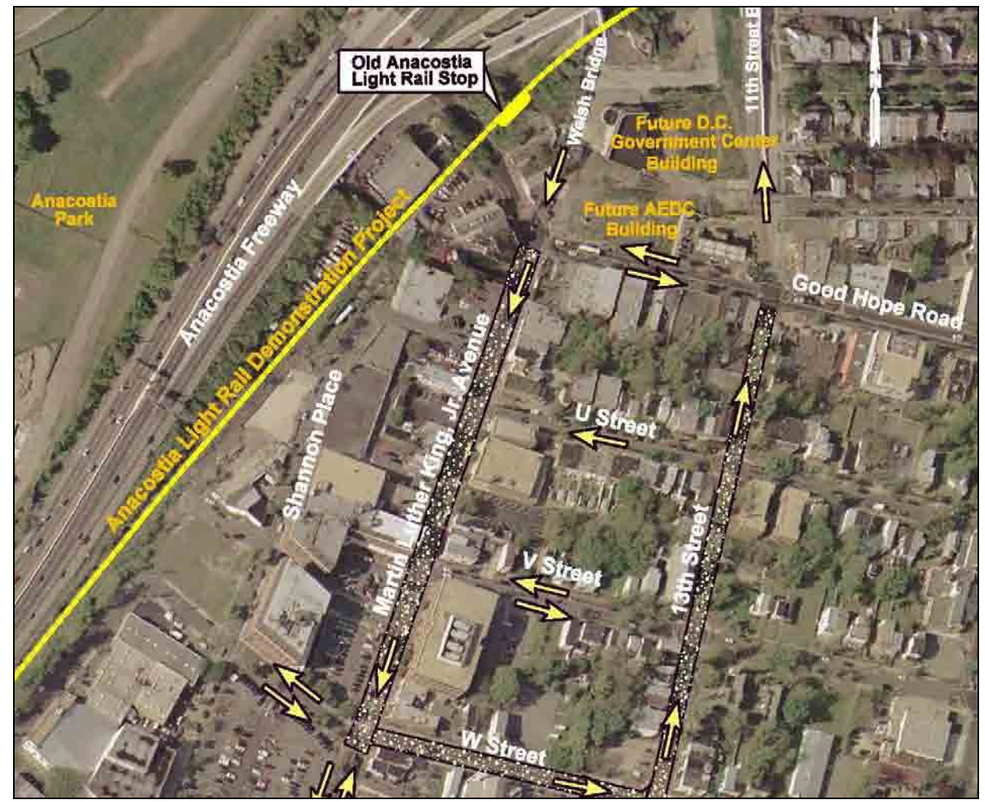
Categories: Accessibility, Mobility and Operations, Transit Infrastructure

Today, Martin Luther King, Jr. Avenue operates with 13th Street as a one-way pair between W Street and Good Hope Road. The remainder of Martin Luther King, Jr. Avenue within the study area (from W Street to Howard Road) is a four-lane, undivided two-way road. In an effort to revitalize the urban setting and encourage new commercial land uses along the Martin Luther King, Jr., Avenue corridor, it is recommended to restore the one-way section to two-way traffic. This idea is promulgated by the impending arrival of a new AEDC Building and D.C. Government Center on the northeast corner of Martin Luther King, Jr. Avenue and Good Hope Road. By doing so, it would then be practical to convert 13th Street to two-way traffic as well. In converting these two sections to two-way traffic, there would also no longer be a need to maintain W Street one-way eastbound between Martin Luther King, Jr. Avenue to 13th Street.

Martin Luther King, Jr. Avenue today (looking north from W Street).

Overall, streets being recommended for conversion from one-way traffic to two-way traffic are:

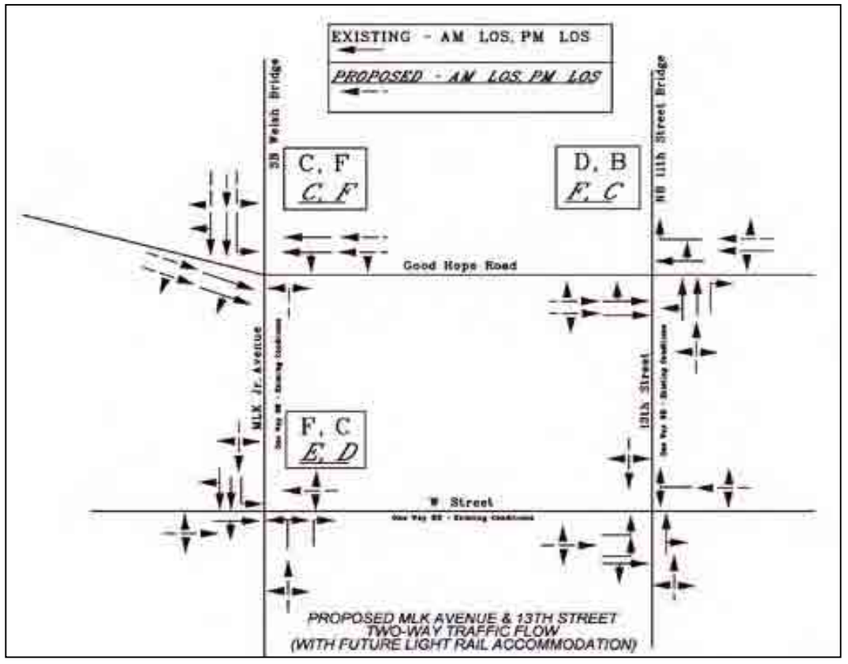
- Martin Luther King, Jr. Avenue (from Good Hope Road to W Street),
- 13th Street (from Good Hope Road to W Street), and
- W Street (from Martin Luther King, Jr. Avenue to 13th Street).



Existing Traffic flow patterns along Martin Luther King, Jr. Avenue, 13th Street, and W Street.

By converting these sections of road to two-way traffic, minor impacts to traffic operations are expected. **Figure 32** shows the AM and PM peak level of service results at three intersections affected by this change. The failing level of service experienced at Martin Luther King, Jr. Avenue/W Street in the AM peak period shifts location to the Good Hope Road/13th Street in the PM peak period.

Figure 32. Level of Service Comparison (Existing vs. Proposed)



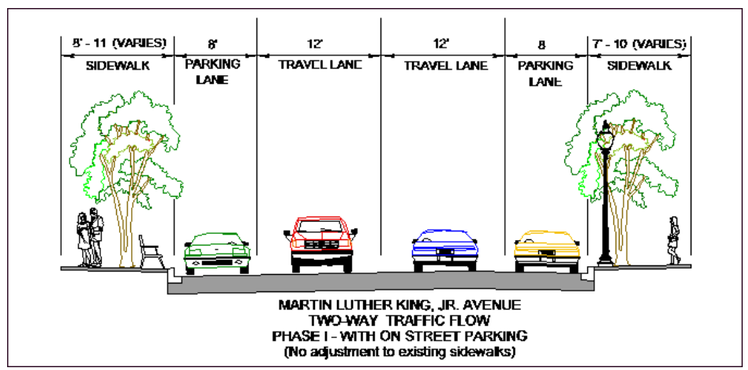
In addition to changing the traffic patterns on these roads, consideration has been given to future light rail accommodations on both Martin Luther King, Jr. Avenue and 13th Street. While the details of where these proposed lines would originate and terminate are still uncertain, opportunities exist for a connection over one or both of the 11th Street bridges.

The following is an overview of existing traffic conditions along Martin Luther King, Jr. Avenue and 13th Street between Good Hope Road and W Street. The following summarizes the phasing process of taking both Martin Luther King, Jr. Avenue and 13th Street from their current condition up to the ultimate condition of having two-way traffic and accommodating light rail.

Phase I

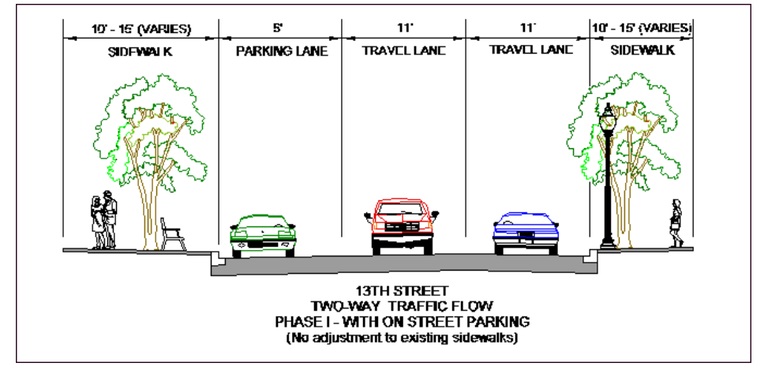
Along Martin Luther King Jr., Avenue, from Good Hope Road to W Street, the average curb-to-curb width is 41 feet. The existing traffic pattern is one-way southbound with the proposed operations being two-way. The curb-to-curb width is adequate to not require adjustments for this phase. The proposed Phase I section would include a total of four lanes; two dedicated travel lanes (one in each direction), and two parking lanes (one for each direction). Travel lanes would be set at 12 feet wide and parking lanes would be eight feet wide. At the signalized intersections of Martin Luther King, Jr. Avenue/Good Hope Road and Martin Luther King, Jr. Avenue/W Street, there would be turning areas that use the parking lanes to accommodate turning maneuvers. Sidewalks would also not require adjustment under this phase. Currently, the sidewalk widths range from seven to ten feet in this section.

Phase I Typical Section for Martin Luther King, Jr. Avenue



13th Street is approximately 30 feet wide between curbs. Under Phase I, the roadway would be able to accommodate one travel lane in each direction as well as one parking lane (provided either on the east side of the road or the west side of the road). The travel lanes would be set at 11 feet wide and the parking lane would be eight feet wide. No curb adjustments are anticipated in Phase I. Sidewalks along 13th Street in this area range from ten-to-fifteen feet in width.

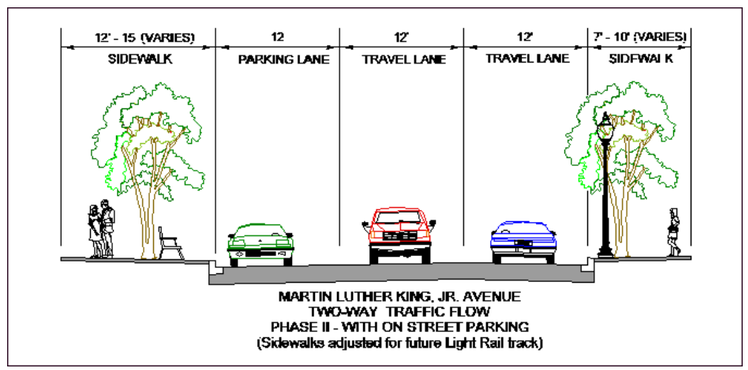
Phase I Typical Section for 13th Street



Phase II

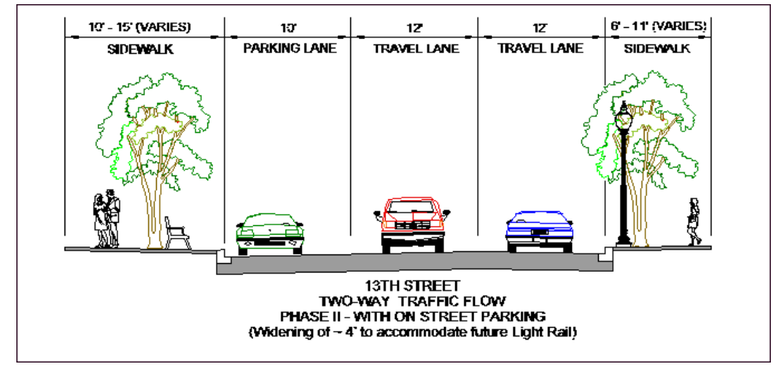
In Phase II of the improvement project, curb adjustments would be required to both Martin Luther King, Jr. Avenue and 13th Street to accommodate a future single-track light rail line. Along Martin Luther King, Jr. Avenue, one curb line would be adjusted to reduce the overall width of the roadway section. Under Phase I, Martin Luther King, Jr. Avenue would be approximately 41 feet wide. In Phase II, a parking lane would be removed and a curb would be relocated to create a 36 feet wide roadway section. This curb adjustment would allow for the adjacent sidewalk to be widened by five feet. The Phase II section would now consist of one travel lane (12 feet wide each) in each direction and one parking lane (12 feet wide) along either the east side or west side of the road.

Phase II Typical Section for Martin Luther King, Jr. Avenue



13th Street would require widening of its existing curb-to-curb section, which was utilized under Phase I. For Phase II, the roadway would need to be widened at least 4 feet to accommodate a future single-track light rail line. By widening 13th Street in Phase II, the roadway would consist of one travel lane in each direction (12 feet wide each) and one parking lane (10 feet wide).

Phase II Typical Section for 13th Street



Light Rail Considerations for Martin Luther King, Jr. Avenue and 13th Street

Based on information provided by WMATA, a single-track light rail facility placed in a curb lane would require the following:

- Twelve foot wide lane for light rail vehicles.
- Three feet of sidewalk width to accommodate the location of catenary poles.
    - 15 feet of roadway in areas with no sidewalk present.

Light Rail and automobiles sharing the road.

In the event that a median was created along either Martin Luther King, Jr. Avenue or 13th Street for light rail accommodations, requirements would include:

- 24 foot wide cross section to accommodate single-track and center catenary support, and
- An additional 15 feet to be added to the cross section in areas where light rail stops and platforms are planned,

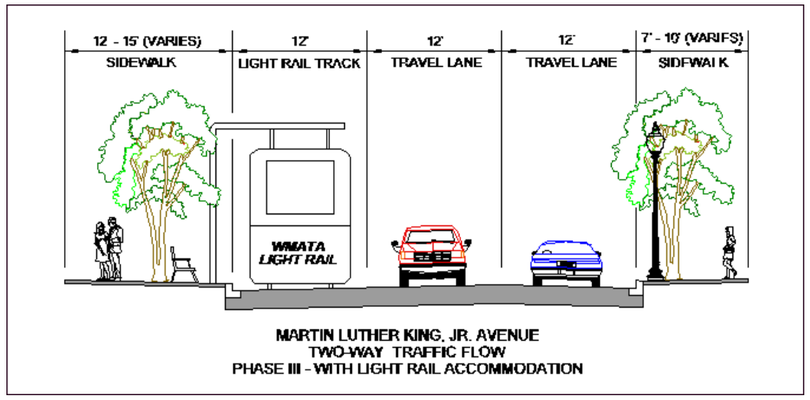
Based on the available widths along Martin Luther King, Jr. Avenue, it appears that a double-track light rail system would be feasible but highly disruptive when combining this service with two-way traffic flow for automobiles. Requirements for double-track light rail (provided by WMATA) include:

- 12 feet for each direction of light rail (24 feet total).
- 10 feet minimum travel lane width for each direction (20 feet total)
    - This scenario would require widening of the roadway, and reduction in the widths of sidewalk adjacent to the road.
    - This scenario would likely be unable to accommodate sufficient platform/stop refuge along Martin Luther King, Jr. Avenue.

Phase III

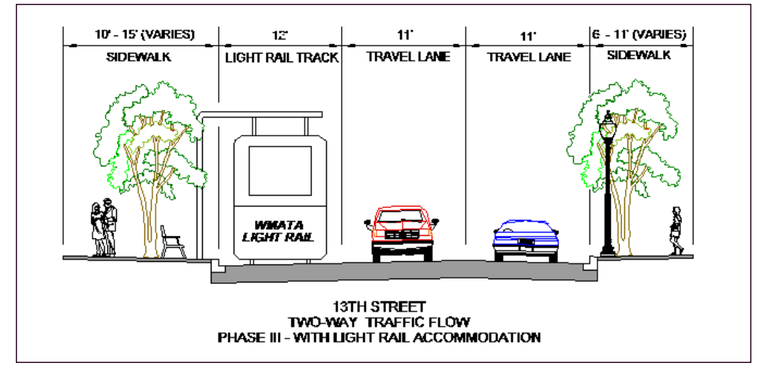
Phase III represents the ultimate build condition of two-way traffic and light rail service along both roadways. Martin Luther King, Jr. Avenue's section would consist of a 12-foot area to accommodate light rail on one side of the roadway. Two 12-foot wide travel lanes would also be accommodated in the Phase III section. Parking could not be provided on street under this ultimate build phase.

Phase III Typical Section for Martin Luther King, Jr. Avenue



Along 13th Street, light rail would be provided in a 12-foot section along the roadway. This light rail line would be adjacent to two 11-foot wide lanes. The lane widths for motor vehicles were set at 11 feet to minimize the impacts associated with widening the road. As with Martin Luther King, Jr. Avenue, parking could not be accommodated on street in this phase.

Phase III Typical Section for 13th Street



The following considerations and/or impacts would require further evaluation with a single-track scenario:

- Removal of on-street parking would result with the introduction of light rail.
  This is an important issue because the proposed D.C. Government Center and AEDC Building are anticipated to generate more demand for parking in an area already over capacity along portions of Good Hope Road and Martin Luther King, Jr. Avenue.
- Potential need to share light rail lane along Martin Luther King, Jr. Avenue with automobile traffic.
- Consideration would be needed for introducing light rail along Martin Luther King, Jr. Avenue and 13th Street to accommodate a northbound and/or southbound route across the Anacostia River.
- Reduced pedestrian amenities may result if catenary poles are placed within sidewalk areas.
- Potential reduction in street trees and other aesthetic plantings along the corridors due to adjustments in sidewalks and implementation of light rail infrastructure.
- Tight right-of-way constraints along both corridors.
- Impacts to existing bus services and amenities along both corridors
- Potential to establish the Welsh Bridge and 11th Street Bridges with two-way flow to complement proposed flow patterns on Martin Luther King, Jr. Avenue and 13th Street, i.e., removal of one-way pair for both bridges and roadways.

The typical section illustrated for Phase III assumes a dedicated lane for the light rail service. Considerations could be made for a shared-use lane between automobiles and light rail, if necessary.

Cost Estimates
The estimated total cost for Phase I and Phase II improvements is **$859,000**. This total does not include light rail costs required under Phase III.

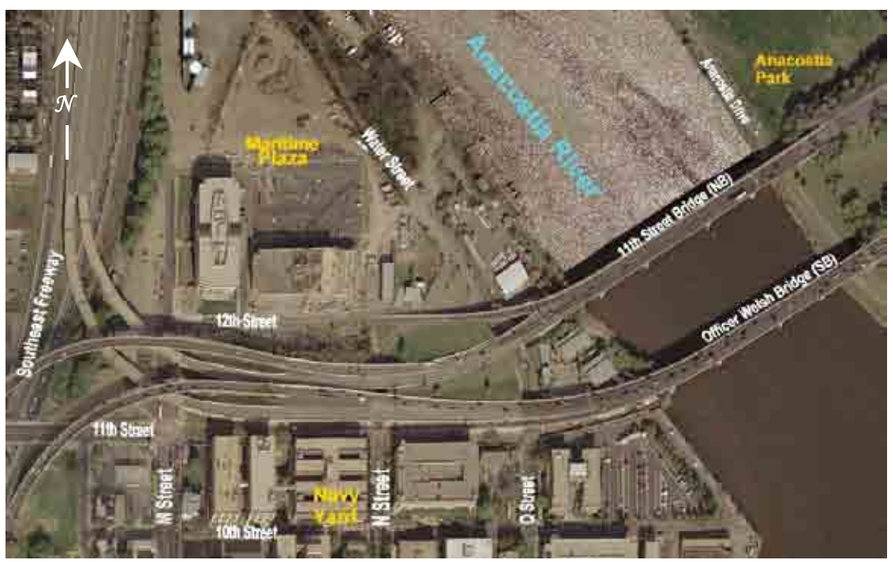
Related project improvements
- Bus stop amenities improvements (Project 7 – Near-Term)
- 11th Street Bridges/Anacostia Freeway Long-Term Interchange improvements (Options A-1 through A-4)

Project 13 - M Street Ramp Connection to the Southbound Welsh Memorial Bridge

Categories: Safety, Accessibility, Mobility and Operations, Redevelopment of Transportation Right-of-Way

Currently, vehicles traveling from eastbound M Street onto the Welsh Memorial Bridge must cross two lanes of traffic to be in the appropriate lane to access Martin Luther King, Jr. Avenue. The existing ramp connection on the west side of the Anacostia River to the Welsh Bridge is from 11th Street. The exit for Martin Luther King, Jr. Avenue is from the far-left lanes. This maneuver is in high demand by bus routes because most buses are destined to the Anacostia Metro Station. This project would remove the need for lane shifts by local traffic and buses along the Welsh Bridge, making for safer traffic flow for all users. **Figure 33** shows the existing ramp connections to the Welsh Memorial Bridge.

Figure 33. Existing Southeast Freeway connections to 11th Street Bridges



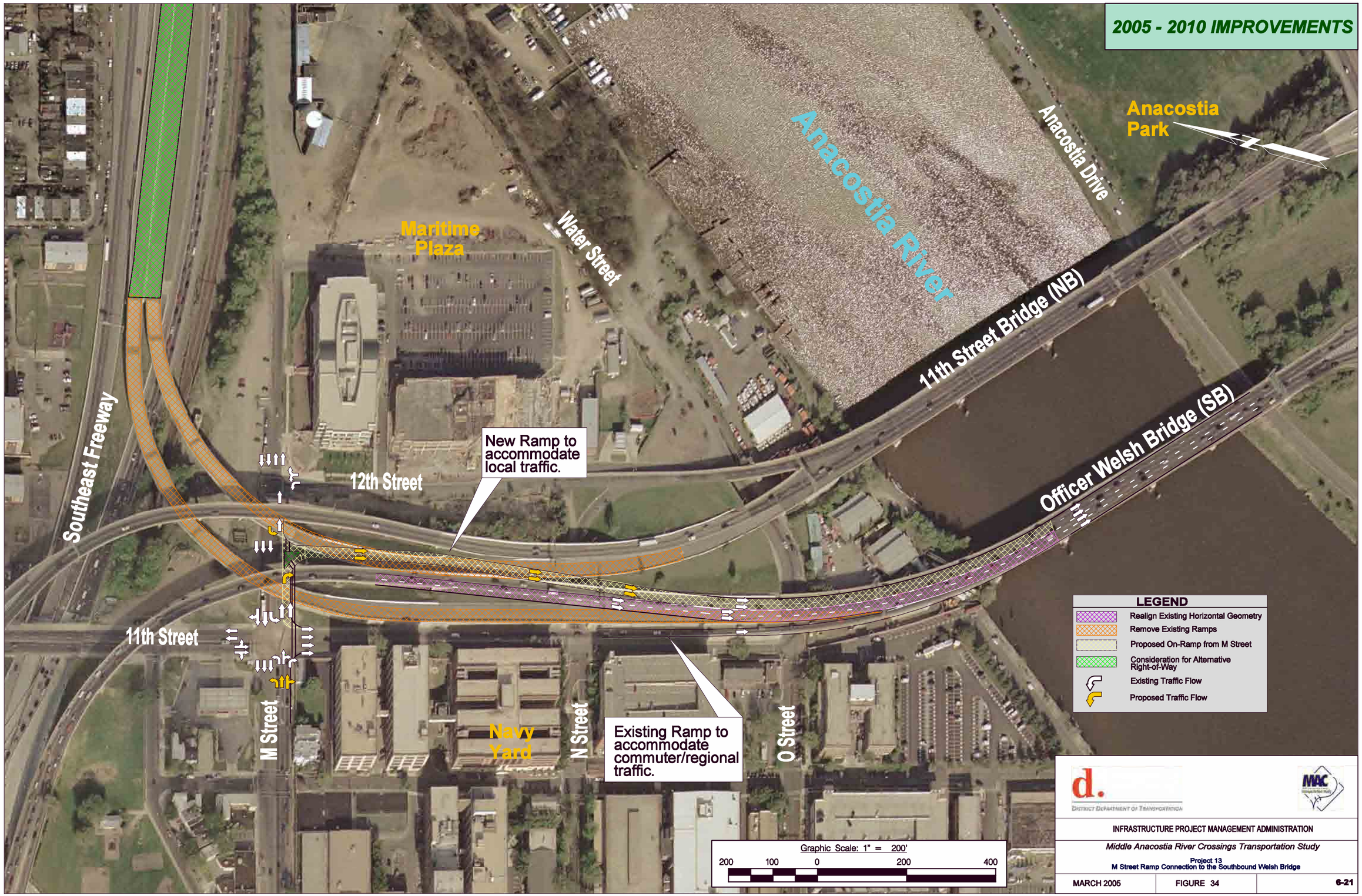
It is recommended to construct a new on-ramp on the west side of the Anacostia River to alleviate the weaving pattern created by local traffic and buses. **Figure 34** depicts the location of the new ramp and associated adjustments along M Street. The new ramp would establish an intersection along M Street between 11th Street and 12th Street. To develop this project, it is necessary to remove the existing RFK Access Ramps. The proposed two-lane ramp would form the two innermost lanes of the Welsh Memorial Bridge. This connection would be feasible with some minor alignment adjustments to the mainline Southeast Freeway. It is anticipated that these horizontal changes can be accommodated through pavement marking adjustments and development of a new gore area between the proposed on-ramp and mainline. The proposed intersection of the new ramp and M Street would be unsignalized, but will provide accessibility from both the eastbound and westbound directions of M Street. The intersection of M Street and 11th Street would incur minor adjustments to the eastbound lane configuration to help facilitate the new ramp connection.

The current ramp connection, located on the west side approaching the Welsh Bridge, should remain available for regional traffic that wants to continue traveling southbound on the Anacostia Freeway.

Specific to the removal of the RFK Access ramps, opportunities become available for landscaping within the abandoned median area of the Southeast Freeway. Aesthetic treatments are recommended to replace the RFK Access Ramps to help enhance the Southeast Freeway right-of-way.

Cost Estimate
The estimated cost for these improvements is **$15,528,000**. Of this total, approximately $12,800,000 is associated with the demolition and removal of the existing RFK Stadium access ramps.

Related project improvements
- Long-term interchange improvements at 11th Street/Anacostia Freeway (Options A-2, A-3, and A-4)
- Long-term interchange improvements at 11th Street/Southeast Freeway (Options SE-1 and SE-2)
- Long-term Boulevard options along the Southeast Freeway between 11th Street and Barney Circle (Options Boulevard 1, Boulevard 2, Boulevard 3, and Boulevard 4)


2005 - 2010 IMPROVEMENTS
Anacostia Park
Anacostia Drive
Anacostia River
Maritime Plaza
Water Street
11th Street Bridge (NB)
Officer Welsh Bridge (SB)
Southeast Freeway
12th Street
New Ramp to accommodate local traffic.
11th Street
M Street
Navy Yard
N Street
O Street
Existing Ramp to accommodate commuter/regional traffic.
LEGEND
Realign Existing Horizontal Geometry
Remove Existing Ramps
Proposed On-Ramp from M Street
Consideration for Alternative Right-of-Way
Existing Traffic Flow
Proposed Traffic Flow
Graphic Scale: 1" = 200'
200 100 0 200 400
d.
District Department of Transportation
MAC
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 13
M Street Ramp Connection to the Southbound Welsh Bridge
MARCH 2005
FIGURE 34
6-21

Project 14 - Pennsylvania Avenue/Potomac Avenue Intersection Improvements

Categories: Safety, Accessibility, and Redevelopment of Transportation Right-of-Way

The complex intersection of Pennsylvania Avenue and Potomac Avenue is a very active location within the study area. The combination of heavy traffic volumes, transit and pedestrian activity associated with the Potomac Avenue Metro Station, numerous bus stops, and close interaction with 14th Street make this intersection confusing and difficult to negotiate for both pedestrians and motorists. The Potomac Avenue Metro Station is located on the north side of the intersection. Additional pedestrian and vehicular demands will be introduced with the planned redevelopment of the northwest corner of the intersection known as Jenkins Row, which will include a grocery store, other retail uses, and condominiums. For more information on the Jenkins Row development, refer to **Appendix H**.

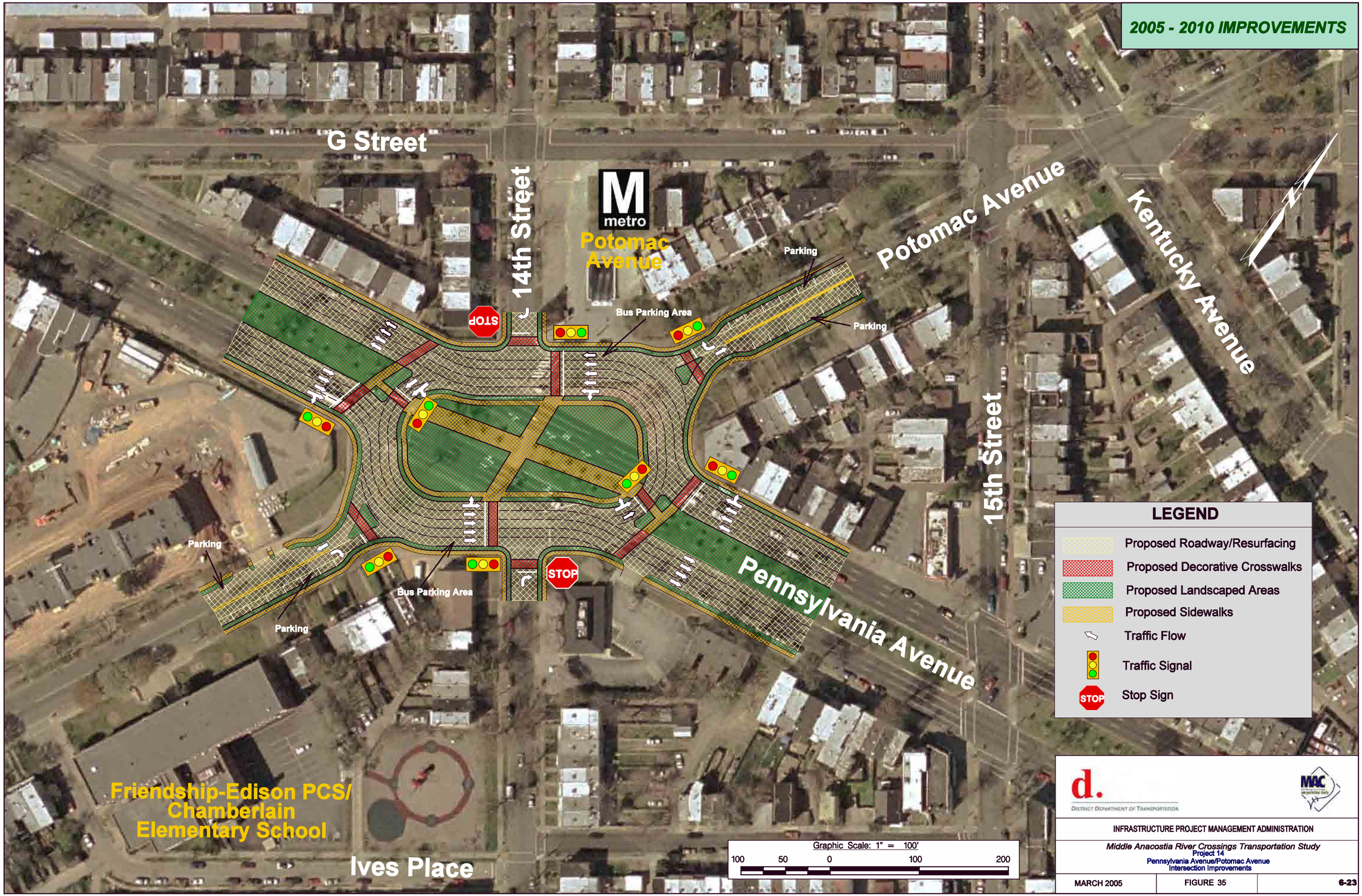
Although most of the signalized locations within this intersection have striped crosswalks, the logical path chosen by most walkers is a direct route across the center median area to and from the Metro Station, which introduces an unmarked, uncontrolled midblock pedestrian crossing.

Aerial view of the Pennsylvania Avenue/Potomac Avenue intersection.

To better address the circulation of all user at this intersection, it is recommended that a more traditional "D.C.-type" circle be developed within the existing right-of-way. The conceptual design is reflective of other circles in the District such as Seward Square and DuPont Circle. **Figure 35** illustrates the new intersection configuration with proposed locations for signals and stop-controls. The newly configured oval-shaped intersection maintains four lanes along Pennsylvania Avenue. A larger, more consolidated pedestrian refuge area is achieved with this configuration. The combined aspects of the proposed crosswalk locations and new median area offer pedestrians a more direct path to get to and from the Potomac Avenue Metro Station. The new crosswalks are proposed to be decorative, and developed with a different material than the roadway. The goal is to use these crosswalks to make drivers more aware of the pedestrian activity and to encourage lower speeds.

Cost Estimate
The estimated cost for these improvements is **$2,623,000**.

Related project improvements
- Near-term Pedestrian Spot Improvements (Project 5 – Near-Term)
- Bicycle Network Improvements (Project 6 – Near-Term)
- Bus stop amenities improvements (Project 7 – Near-Term)


2005 - 2010 IMPROVEMENTS
G Street
14th Street
Potomac Avenue
Potomac Avenue
Kentucky Avenue
15th Street
Pennsylvania Avenue
Ives Place
Friendship-Edison PCS/
Chamberlain
Elementary School
Parking
Parking
Parking
Parking
Bus Parking Area
Bus Parking Area
STOP
STOP
metro
LEGEND
Proposed Roadway/Resurfacing
Proposed Decorative Crosswalks
Proposed Landscaped Areas
Proposed Sidewalks
Traffic Flow
Traffic Signal
Stop Sign
Graphic Scale: 1" = 100'
100 50 0 100 200
d.
District Department of Transportation
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 14
Pennsylvania Avenue/Potomac Avenue
Intersection Improvements
MARCH 2005
FIGURE 35
6-23

Project 15 - Northbound D.C. 295 Ramp Improvements Accommodating Traffic from Eastbound and Westbound Pennsylvania Avenue

Categories: Safety, Mobility and Operations

One of the major congestion points along the Pennsylvania Avenue corridor is the on-ramp to northbound D.C. 295 (Anacostia Freeway) from eastbound Pennsylvania Avenue. The ramp is set up to accept a double left-turn from eastbound Pennsylvania Avenue as well as the right-turn traffic from westbound Pennsylvania Avenue. Three lanes of traffic are required to merge into one lane in less than 100 feet and then merge onto northbound D.C. 295. The lack of adequate storage and merge area on the ramp causes a ripple effect in congestion along Pennsylvania Avenue and D.C. 295. Queues for this movement are often seen as far back as the Sousa Bridge. In turn, the queues spill over into the through lanes for eastbound Pennsylvania Avenue.

Eastbound Pennsylvania Avenue traffic waiting to turn left onto the northbound D.C. 295 ramp.

The recommendation being proposed to improve this situation is to provide additional storage length for the ramp onto northbound D.C. 295. To achieve this improvement, the initial section of the ramp that accepts the double left-turn movement from eastbound Pennsylvania Avenue must be widened to adequately handle turning vehicles. The traffic merging onto the ramp from westbound Pennsylvania Avenue would then yield to this movement and merge into the traffic flow where gaps are available. The combination of **Figures 36 and 37** show the improvements necessary for the existing ramp.

The new on-ramp would then carry two lanes running parallel to northbound DC 295 for a short distance. The critical improvement is that once the ramp has merged to one-lane, it would be carried nearly 2,000 feet before ramp traffic would be required to merge onto mainline D.C. 295.

The existing ramp and mainline are currently in close proximity to the CSX railroad right-of-way, north of Pennsylvania Avenue. Retaining walls and barrier walls are proposed to ensure no construction impacts to this facility.

Cost Estimate
The estimated cost for these improvements is **$3,364,000**.

Related project improvements
- Signal Timing Optimization along Pennsylvania Avenue, east of the Anacostia River (Project 2 – Near-Term)
- Near-Term Pedestrian Spot Improvements (Project 5 – Near-Term)
- Long-Term Interchange improvements at Pennsylvania Avenue/Anacostia Freeway (Options P-1 through P-6)

2005 - 2010 IMPROVEMENTS
Anacostia River
Anacostia Drive
Sousa Bridge
Anacostia Park
Matchline
See Figure 37
Two-lane ramp merges to one-lane. One-lane ramp carried an additional 1200' prior to merge.
Existing merge point for single-lane on-ramp
Proposed 10' shoulder
CSX Railroad
Recommend priority be given to EB double left-turn onto NB ramp
YIELD
Minnesota Avenue
Anacostia Freeway
Fairlawn Avenue
Pennsylvania Avenue
Benjamin Orr Elementary School
LEGEND
Proposed Roadway/Resurfacing
Proposed Landscaped Areas
Traffic Flow
Traffic Signal
Yield Sign
Anacostia Light Rail Demonstration Project
Graphic Scale: 1" = 200'
200 100 0 200 400
d.
District Department of Transportation
MAC
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 15
Ramp Improvements for Eastbound Pennsylvania Avenue to Northbound DC 295 (Sheet 1 of 2)
JUNE 2005
FIGURE 36
6-26

2005 - 2010 IMPROVEMENTS
Anacostia River
CSX Railroad
Anacostia Park
Anacostia Drive
Anacostia Pavilion
Proposed merge point for NB on-ramp
Proposed 10' shoulder
Anacostia Freeway
Fairlawn Avenue
Massachusetts Avenue
K Street
M Place
CSX Railroad
Matchline See Figure 36
LEGEND
Proposed Roadway/Resurfacing
Proposed Landscaped Areas
Traffic Flow
Traffic Signal
Yield Sign
Anacostia Light Rail Demonstration Project
Graphic Scale: 1" = 200'
200 100 0 200 400
d.
District Department of Transportation
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Project 15
Ramp Improvements for Eastbound Pennsylvania Avenue to Northbound DC 295 (Sheet 2 of 2)
JUNE 2005
FIGURE 37
6-27

Summary of Mid-Term Projects

The mid-term projects should supplement the improvements proposed in the near-term timeframe and provide transportation enhancements to Middle Anacostia River region. With some anticipated impacts, design engineering, and environmental documentation, these projects have the opportunity to be in place by the end of 2010, as long as funding is available. While the scale of these improvements are not of the same magnitude as the long-term improvements, the mid-term projects are necessary to meet the goals of this study. **Table 18** summarizes each near-term project, the associated benefits, and estimated costs. Refer to **Appendix L** for more detailed cost information for the mid-term projects.

Table 18. Summary of Mid-Term Project Benefits and Costs

Project	Description	Benefits	Cost Estimate
8	Upgrade the Service Road between Barney Circle and the RFK Access Road to accommodate general use traffic	• Improves access to and from the Southeast Freeway • Safely accommodates u-turning vehicles along Pennsylvania Avenue • Improves access to the Anacostia Park and waterfront for pedestrians and bicyclists	**$9,274,000**
9	RFK Stadium Access Road Resurfacing/Rehabilitation Considerations	• Improves vehicular mobility • Improves access to Anacostia Park	**N.A.***
10	Anacostia Park and Frederick Douglass Home Wayfinding Improvements	• Improves awareness of recreational and cultural destinations • Improves connectivity to Anacostia Park	**$12,000**
11	Minnesota Avenue Pedestrian Safety Improvements	• Improves safety for all users • Improves aesthetics of roadway	**$1,528,000**
12	Conversion of Martin Luther King, Jr. Avenue and 13th Street to Two-Way Traffic	• Improves land use opportunities to revitalize community	**$859,000**
13	M Street Ramp Connection to Southbound Welsh Memorial Bridge	• Improves separation of local and regional traffic on Welsh Memorial Bridge • Reduces weaving between transit vehicles and through traffic	**$15,528,000**
14	Pennsylvania Avenue/Potomac Avenue Intersection Improvements	• Improves safety for pedestrians • Provides better connection to Potomac Avenue Metro Station	**$2,623,000**
15	Northbound D.C. 295 Ramp Improvements Accommodating Traffic from Eastbound and Westbound Pennsylvania Avenue	• Improves vehicle safety • Improves traffic flow along Anacostia Freeway and Pennsylvania Avenue	**$3,364,000**
		Total	**$33,188,000**

* A cost estimate was not developed for this project due to many potential stakeholder coordination and environmental issues.

Chapter 7: LONG-TERM IMPROVEMENTS (2005 – 2025)

The long-term improvements address the missing movements at the key interchanges and provide relief to congestion within the study area and possibly beyond. The next phase of environmental analysis and engineering design of the long-term improvement options could commence at any time. However, the complexity of these options could result in construction starting around 2010 or possibly later. Long-term improvements are focused on the following interchanges and major roadways within the Middle Anacostia River region:

- Pennsylvania Avenue/Anacostia Freeway Interchange,
- Barney Circle improvements,
- 11th Street Bridges/Anacostia Freeway Interchange,
- 11th Street/Southeast Freeway Interchange,
- Boulevard along Southeast Freeway, and
- Park Drive Connector Road.

Among the six locations identified for long-term improvements, there are a total of twenty options discussed in this chapter. A synopsis of how each are defined is as follows:

- The **Pennsylvania Avenue/Anacostia Freeway Interchange** contains six options using the **"P"** designation.
- **Barney Circle improvements** include two long-term options and are identified using the **"BC"** designation.
- The **11th Street/Anacostia Freeway Interchange** contains four options and is identified with the **"A"** designation.
- The **11th Street/Southeast Freeway Interchange** contains three options identified using the **"SE"** designation.
- **Four boulevard options** along the Southeast Freeway are presented using the **"Boulevard"** designation. Three typical sections have been developed to illustrate opportunities for the boulevard concepts. The feasibility of which typical sections may be developed is dependent on the option.
- Finally, there is one option for the **Park Drive alignment** and it is identified using the **"R"** designation.

Figure 38 provides an index of the locations for the various long-term improvement options. **Appendix M** contains the geometric data associated with each long-term option.

Figure 38. Location of Long-Term Improvement Options

Pennsylvania Avenue / Anacostia Freeway Interchange

This interchange currently does not provide access for vehicles traveling southbound on the Anacostia Freeway wanting to access westbound Pennsylvania Avenue. The interchange also includes a highly congested movement of eastbound Pennsylvania Avenue traffic wanting to travel northbound on the Anacostia Freeway. This movement, along with other existing operational deficiencies, makes this a necessary improvement area within the Middle Anacostia River region.

The Pennsylvania Avenue/Anacostia Freeway Interchange today (looking north) with missing movement shown in yellow.

Six interchange options have been developed for this interchange. All proposed options provide full movement access for traffic along Pennsylvania Avenue and the Anacostia Freeway. No modifications are proposed to the Sousa Bridge under any of these interchange improvement options. In addition, all options avoid impact impacts to the existing CSX railroad tracks between the bridge and L'Enfant Square. Option P-1 proposes a full "DC-type" traffic circle with signalization on all approaches into the circle. Option P-2 is a modification of P-1 in that it proposes an oval-shaped design in place of a circular-shaped design. Options P-3, P-4, and P-6 all provide a combination of various flyover ramps and/or loop ramps to accommodate all the movements at this interchange. Option P-5 proposes a single-point diamond interchange with the signalized intersection located on Pennsylvania Avenue, above the Anacostia Freeway.

Options P-1, P-2, and P-5 include consideration of lowering the existing grade of Anacostia Freeway and creating a tunnel underneath Pennsylvania Avenue. Options P-3, P-4, and P-6 maintain Anacostia Freeway above Pennsylvania Avenue.

Option P-1 (DC Circle)

Option P-1 is the creation a full-movement circle to accommodate the intersection of the freeway ramps and Pennsylvania Avenue. This concept lowers the existing grade of Anacostia Freeway into a covered tunnel or U-channel, depressed freeway. By creating this profile change, Pennsylvania Avenue may remain at its current elevation, providing an improved view of the central part of the District for communities east of the Anacostia River. **Figure 39** contains an illustration of Option P-1

The large circular area established by this option provides many landscaping opportunities. Along with aesthetic benefits, the area would satisfy the recommendations made in the *Memorials and Museums Master Plan* for a monument location. A new connection into Anacostia Park is shown in **Figure 39** and would likely be required due to the profile of dropping Anacostia Freeway below grade. Further evaluation would be required to determine if the existing neighborhood connection into Anacostia Park, Nicholson Street, could be maintained. In addition to the removal of Nicholson Street from Anacostia Drive to Fairlawn Avenue, all existing ramps at this interchange would also be removed to accommodate the proposed ramps.

Consideration was not given to providing additional capacity to either Pennsylvania Avenue or the Anacostia Freeway. The proposed traffic circle along Pennsylvania Avenue would generally accommodate three lanes. Exceptions for short auxiliary lanes for right-turning movements may be considered for specific approaches. Five traffic signals are proposed for the circle. A signal would be provided for each approach of Pennsylvania Avenue. Signals would also be provided for the exit ramps from northbound and southbound Anacostia Freeway, respectively. The remaining signal would be located at the leg connecting the circle and Anacostia Drive.

Overall, the operations of the proposed circle are not ideal for free-flow conditions. The introduction of numerous signalized intersections along the circle promotes a very low-speed environment. Traffic projections indicate that queues would likely occur on the eastbound Pennsylvania Avenue approach during the evening peak period because of the heavy demand for traffic seeking to go north on the Anacostia Freeway. Signal timings can be further evaluated if the option is selected for further study to determine if any congested approaches can be minimized. Improved operations may also require additional approach capacity along Pennsylvania Avenue and within the circle. The projected volumes appear too large to consider a modern-day roundabout as an option for this improvement.

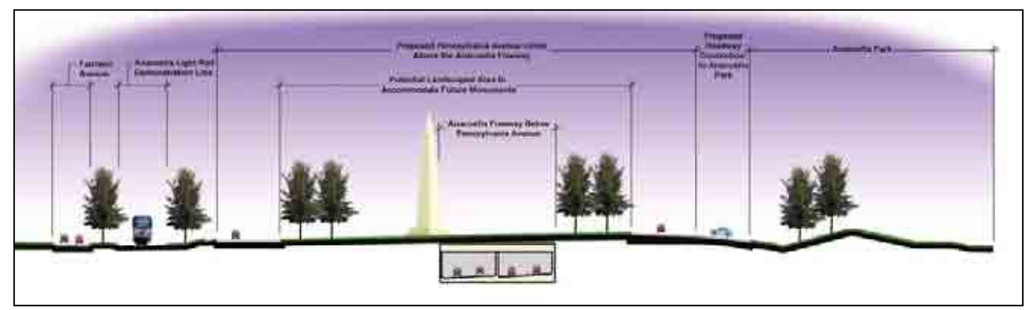
All approaches to the traffic circle would operate with signal control. This provides safe, well-defined pedestrian crossings, while effectively calming traffic flows on Pennsylvania Avenue.

Cost Estimate
The estimated cost for these improvements is **$94.3 million**.

Option P-2 (DC Circle Variation – Oval-Shape)

Option P-2 is a slight variation on the P-1 concept. Like P-1, Option P-2 proposes a full movement, fully signalized interchange between Pennsylvania Avenue and Anacostia Freeway. The major difference between the two concepts is that Option P-2 proposes an oval-shaped connection between Pennsylvania Avenue and the Anacostia Freeway ramps. This option is shown in **Figure 40.**

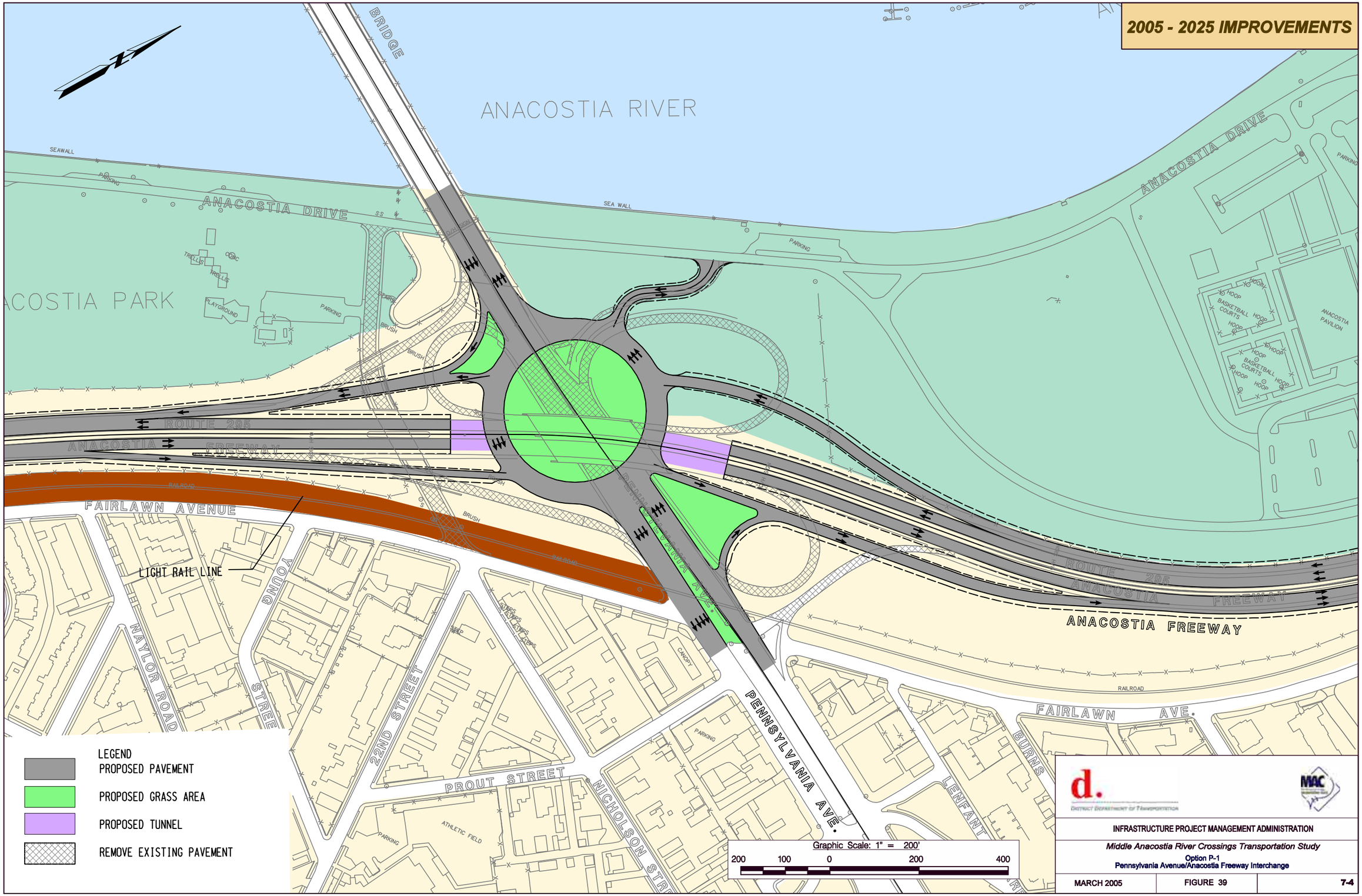
The oval-shaped design provides additional space between each of the proposed signal locations, thereby enhancing traffic flow. This concept also provides additional landscaping area to in comparison to the circular design. Below is a typical section of the interchange looking southbound on the Anacostia Freeway. This section would be similar for Option P-1.

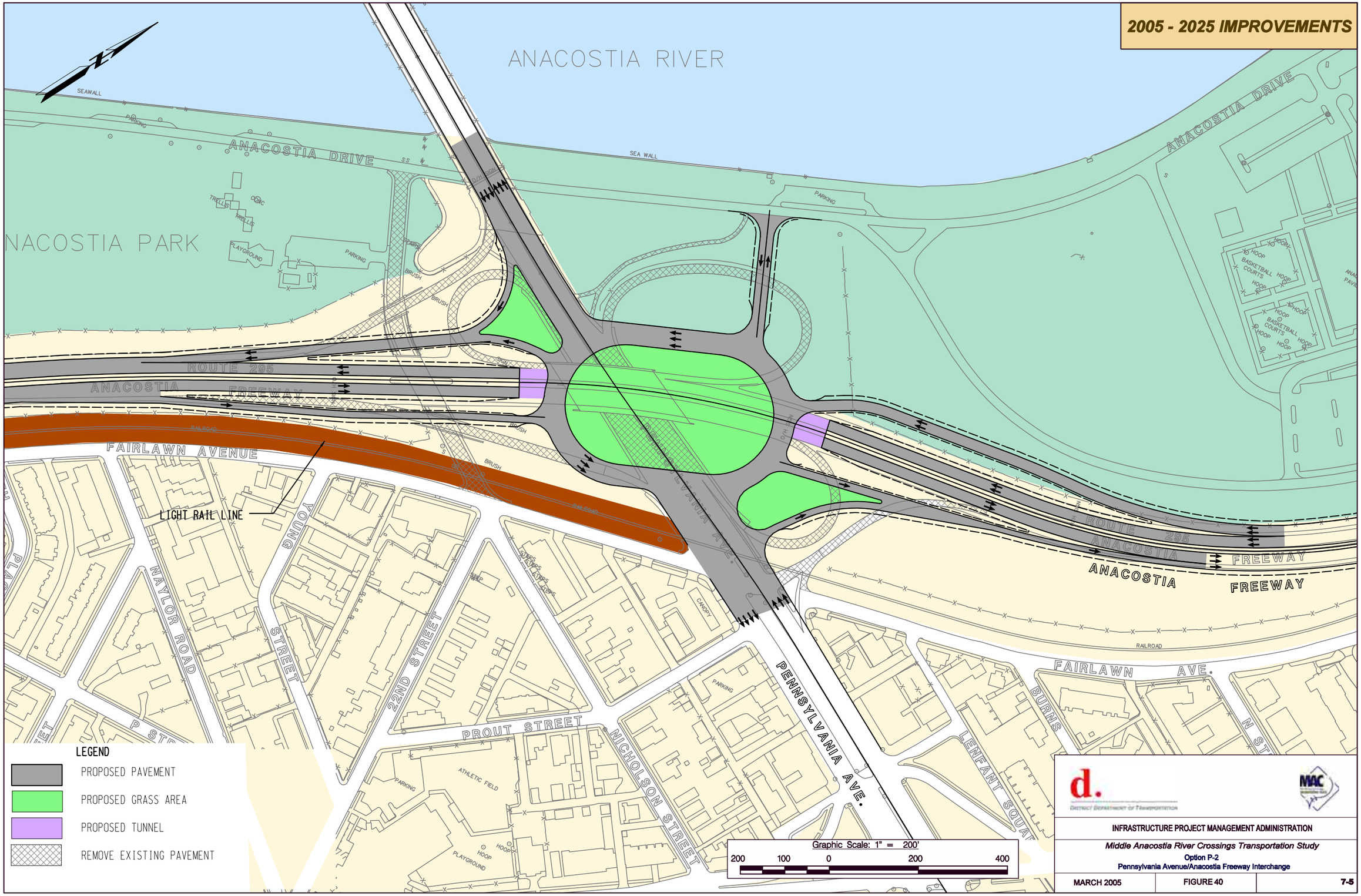


As in Option P-1, this option includes the lowering of the Anacostia Freeway below Pennsylvania Avenue in a tunnel or depressed freeway.

The projected traffic operation for Option P-2 is similar to Option P-1. Because of the signal control at all points along the oval, low-speed traffic flow is anticipated and controlled pedestrian crossings are provided.

Cost Estimate
The estimated cost for these improvements is **$95.3 million**.


2005 - 2025 IMPROVEMENTS
ANACOSTIA RIVER
BRIDGE
SEAWALL
SEA WALL
PARKING
ANACOSTIA DRIVE
ACOSTIA PARK
TRELLIS
CONC
PLAYGROUND
BRUSH
ROUTE 295
ANACOSTIA FREEWAY
RAILROAD
FAIRLAWN AVENUE
LIGHT RAIL LINE
YOUNG
NAYLOR ROAD
STREET
22ND STREET
PROUT STREET
NICHOLSON STREET
ATHLETIC FIELD
PENNSYLVANIA AVE.
CANOPY
FAIRLAWN AVE.
BURNS
LENFANT
HOOP
BASKETBALL COURTS
ANACOSTIA PAVILION
LEGEND
PROPOSED PAVEMENT
PROPOSED GRASS AREA
PROPOSED TUNNEL
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 200'
200 100 0 200 400
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option P-1
Pennsylvania Avenue/Anacostia Freeway Interchange
MARCH 2005
FIGURE 39
7-4


2005 - 2025 IMPROVEMENTS
ANACOSTIA RIVER
SEAWALL
SEA WALL
ANACOSTIA DRIVE
ANACOSTIA PARK
PARKING
PLAYGROUND
TRELLIS
CONC
BRUSH
ROUTE 295
ANACOSTIA FREEWAY
FAIRLAWN AVENUE
RAILROAD
LIGHT RAIL LINE
YOUNG STREET
NAYLOR ROAD
22ND STREET
PROUT STREET
NICHOLSON STREET
PENNSYLVANIA AVE.
LENFANT SQUARE
BURNS
FAIRLAWN AVE.
ATHLETIC FIELD
HOOP
BASKETBALL COURTS
CANOPY
LEGEND
PROPOSED PAVEMENT
PROPOSED GRASS AREA
PROPOSED TUNNEL
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 200'
200 100 0 200 400
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option P-2
Pennsylvania Avenue/Anacostia Freeway Interchange
MARCH 2005
FIGURE 40
7-5

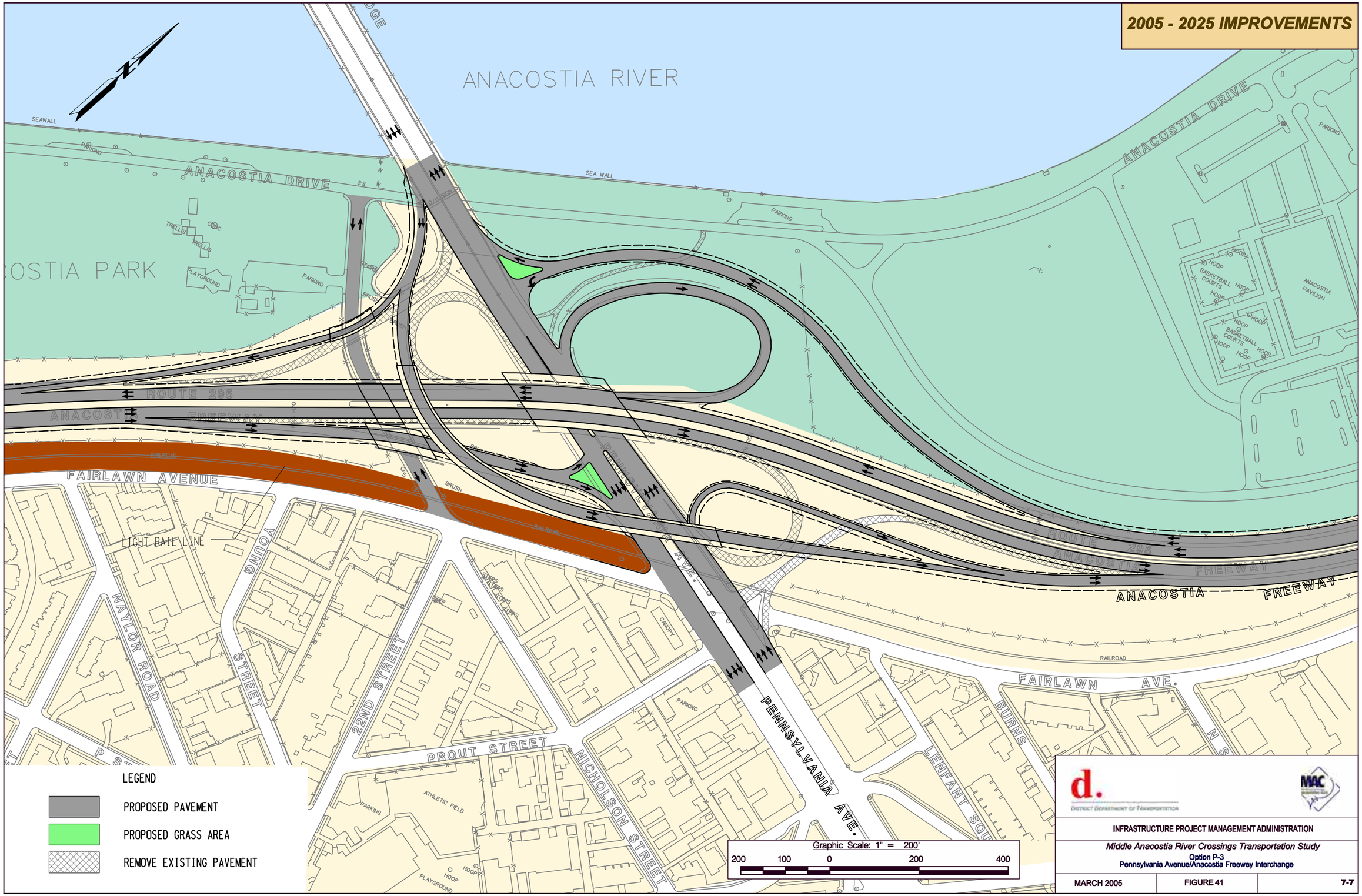
Option P-3 (Eastbound-to-Northbound Flyover)

The critical volume and movement at the Pennsylvania Avenue/Anacostia Freeway interchange is the eastbound Pennsylvania Avenue traffic heading northbound on the Anacostia Freeway. Even when the 11th Street Bridges/Anacostia Freeway interchange is reconfigured to provide direct access to northbound Anacostia Freeway, the eastbound-to-northbound movement at Pennsylvania Avenue and the Anacostia Freeway will carry high traffic volumes. To best accommodate this movement, Option P-3 proposes a free-flowing ramp that exits from the outermost lanes of eastbound Pennsylvania Avenue to connect to northbound Anacostia Freeway. This ramp maneuver replaces the existing double left-turn that continually queues onto the Sousa Bridge. All other movements are accommodated through new loop ramps, slip ramps, or signalized intersections. Option P-3 maintains the existing grade of Anacostia Freeway below Pennsylvania Avenue. The unobstructed views of the center of the City achieved with the options carrying Pennsylvania Avenue over the freeway are not provided with this option. This option may be seen in **Figure 41**.

With this option, access to Anacostia Park is maintained at its existing location - Nicholson Street.

Because this option provides a free-flow ramp for the movement with the highest demand in the interchange, Option P-3 provides the best overall vehicular traffic operation of any of the options at this location. Generally, pedestrian movements are adequately accommodated. However, pedestrians traveling eastbound along Pennsylvania Avenue would be required to cross the free-flow movement of eastbound vehicles accessing the ramp to northbound Anacostia Freeway. It is noted that this interchange option was developed independently, but is similar to the concept developed by Joseph Passonneau & Partners and the Committee of 100 on the Federal City.

Cost Estimate
The estimated cost for these improvements is **$68.6 million**.

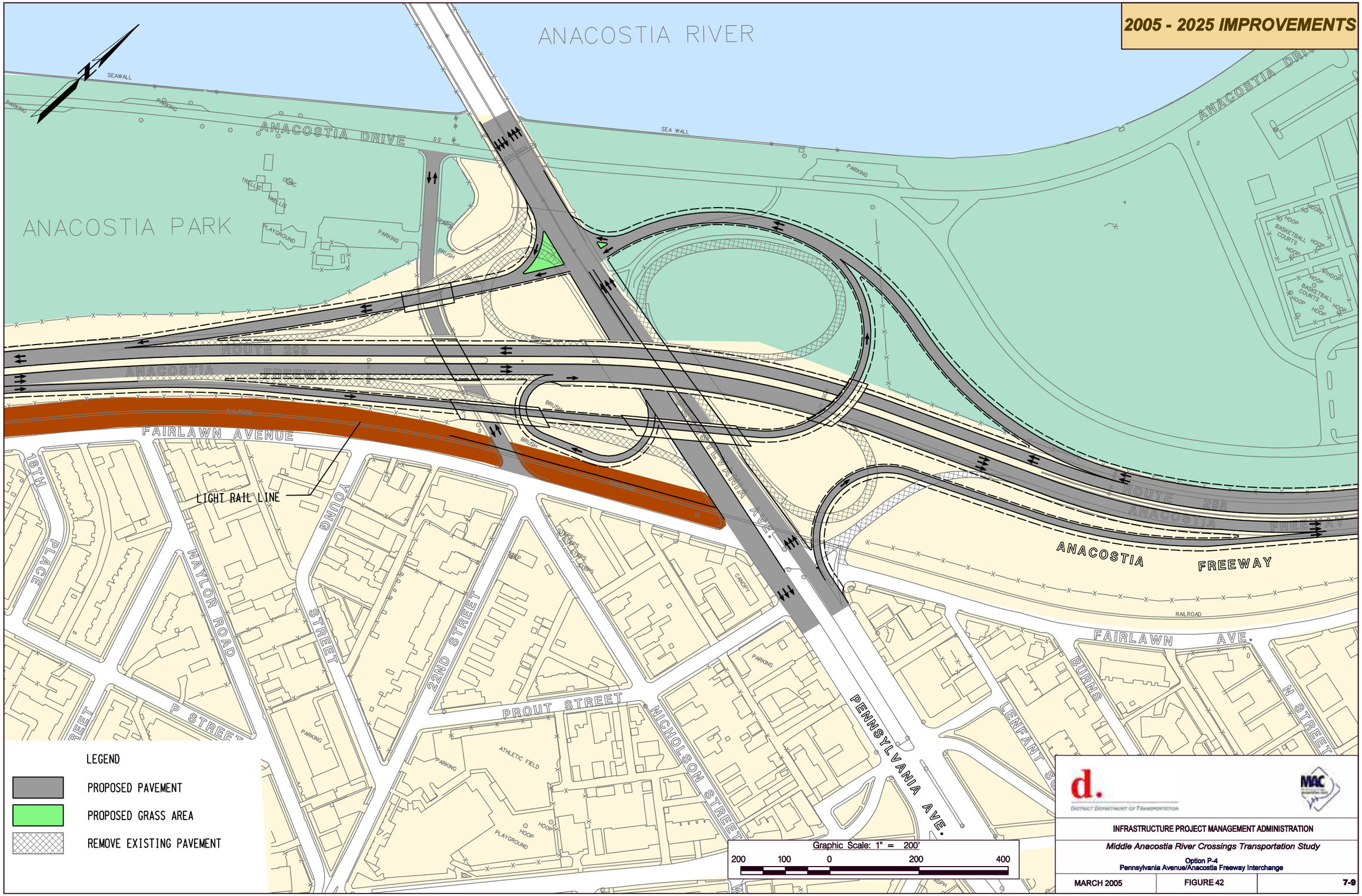

2005 - 2025 IMPROVEMENTS
ANACOSTIA RIVER
SEAWALL
PARKING
ANACOSTIA DRIVE
SEA WALL
COSTIA PARK
TRELLIS
CONC
PLAYGROUND
ROUTE 295
ANACOSTIA FREEWAY
RAILROAD
FAIRLAWN AVENUE
LIGHT RAIL LINE
YOUNG
NAYLOR ROAD
STREET
22ND STREET
PROUT STREET
NICHOLSON STREET
PENNSYLVANIA AVE.
BRUSH
CANOPY
ATHLETIC FIELD
HOOP
BASKETBALL COURTS
ANACOSTIA PAVILION
FAIRLAWN AVE.
BURNS
LENFANT SQU
LEGEND
PROPOSED PAVEMENT
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 200'
200 100 0 200 400
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option P-3
Pennsylvania Avenue/Anacostia Freeway Interchange
MARCH 2005
FIGURE 41
7-7

Option P-4 (Eastbound-to-Northbound Loop Ramp)

Option P-4 accommodates the major eastbound-to-northbound movement through a loop ramp in the southwest quadrant of the interchange. The advantage to this concept is that the location of the heavy movement in relation to the Sousa Bridge is farther east, allowing for more opportunity to separate from the Pennsylvania Avenue through traffic. This option maintains the existing grade of the Anacostia Freeway. Refer to **Figure 42** for this option.

Within this option, one signalized intersection would be provided to accommodate the northbound-to-eastbound movement. The visual impacts associated with this interchange would be significant due to the number of ramp structures required to accommodate the northbound-to-eastbound movement.

Cost Estimate
The estimated cost for these improvements is **$59.5 million**.


2005 - 2025 IMPROVEMENTS
ANACOSTIA RIVER
SEAWALL
PARKING
ANACOSTIA DRIVE
SEA WALL
ANACOSTIA PARK
TRELLIS
PLAYGROUND
ROUTE 295
ANACOSTIA FREEWAY
RAILROAD
FAIRLAWN AVENUE
LIGHT RAIL LINE
18TH PLACE
NAYLOR ROAD
YOUNG STREET
22ND STREET
PROUT STREET
NICHOLSON STREET
PENNSYLVANIA AVE.
BRUSH
ATHLETIC FIELD
HOOP
BASKETBALL COURTS
CANOPY
LENFANT
BURNS
N STREET
P STREET
LEGEND
PROPOSED PAVEMENT
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 200'
200 100 0 200 400
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option P-4
Pennsylvania Avenue/Anacostia Freeway Interchange
MARCH 2005
FIGURE 42
7-9

Option P-5 (Single Point Urban Interchange)

In Option P-5, a single-point urban interchange (SPUI) concept is proposed to accommodate all movements between the Anacostia Freeway and Pennsylvania Avenue. Generally, SPUI's have several design and operational advantages over other conventional interchange designs. First, they typically require less right-of-way than conventional interchanges because the ramps can be located close to the mainline. Second, only one signal is required to handle all left-turn and through movements in comparison to two signals for a conventional diamond interchange. In a SPUI, right turns are typically accommodated with channelized, free-flow movements in advance of the signalized intersection.

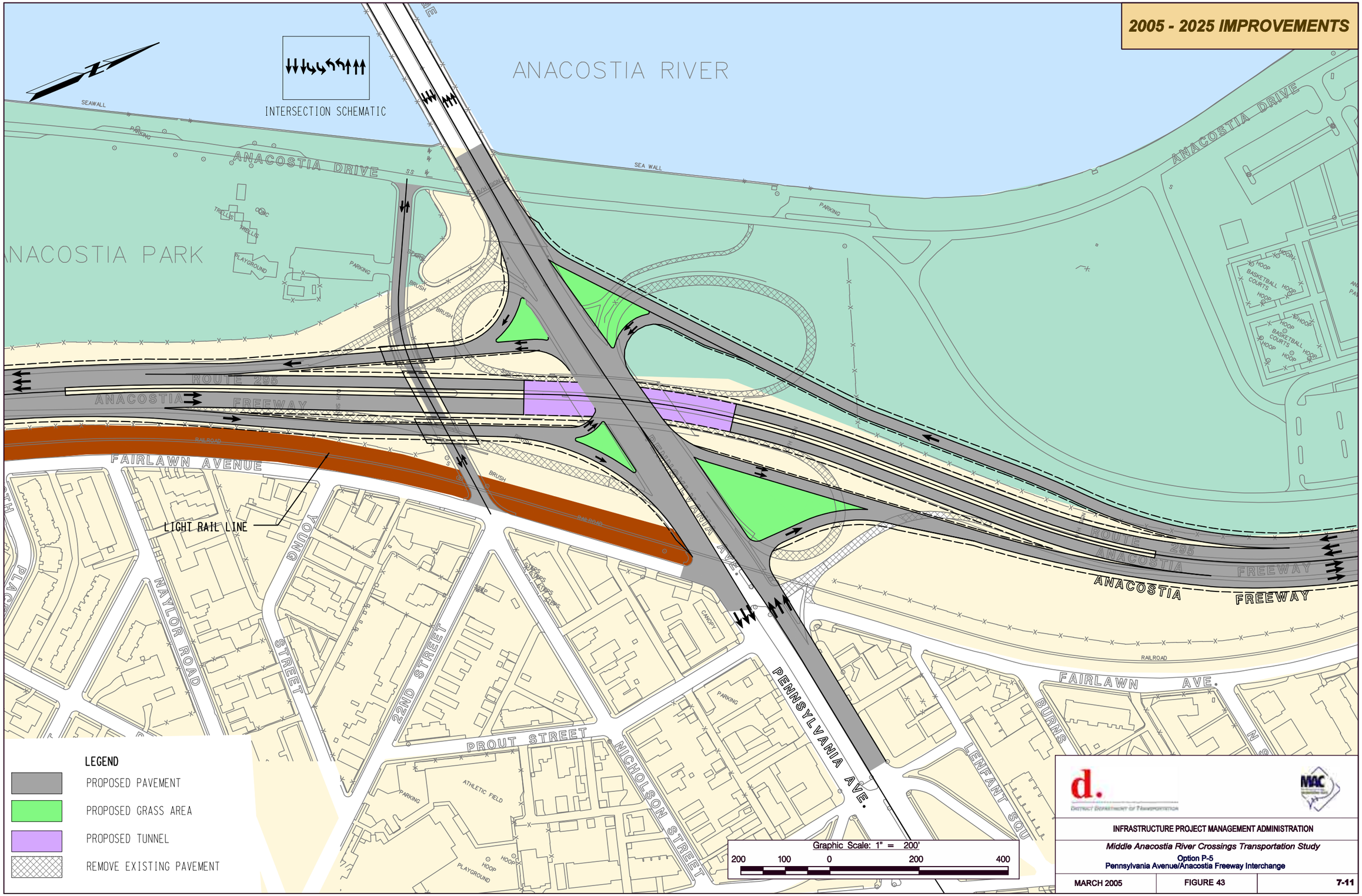
Example of a typical SPUI with the mainline under the cross street.

In Option P-5, it is proposed to lower the elevation of Anacostia Freeway below Pennsylvania Avenue. The Nicholson Street connection would remain with the consideration for extending the length of the depressed section of Anacostia Freeway farther south. **Figure 43** illustrates this option.

The proposed signal operates at favorable levels of service in the AM and PM peak periods. However, the location of the proposed intersection is close to the Sousa Bridge, hindering the amount of storage that can be provided for the projected heavy eastbound-to-northbound left-turn traffic. Queues for this movement are expected to extend onto the Sousa Bridge, similar to the existing conditions. Additionally, the angle at which Pennsylvania Avenue crosses the Anacostia Freeway somewhat compromises the potential operation of the signalized intersection. In contrast the compact intersection shown in the photograph above, the left-turn movements for a SPUI on Pennsylvania Avenue would be spread out, making effective signal control difficult.

Cost Estimate

The estimated cost for these improvements is **$93.2 million**.


2005 - 2025 IMPROVEMENTS
INTERSECTION SCHEMATIC
ANACOSTIA RIVER
SEAWALL
PARKING
ANACOSTIA DRIVE
SEA WALL
ANACOSTIA PARK
TRELLIS
COMC
PLAYGROUND
BRUSH
ROUTE 295
ANACOSTIA FREEWAY
RAILROAD
FAIRLAWN AVENUE
LIGHT RAIL LINE
YOUNG STREET
NAYLOR ROAD
22ND STREET
PROUT STREET
NICHOLSON STREET
PENNSYLVANIA AVE.
CANOPY
ATHLETIC FIELD
HOOP
BASKETBALL COURTS
FAIRLAWN AVE.
BURNS
LENFANT SQU
LEGEND
PROPOSED PAVEMENT
PROPOSED GRASS AREA
PROPOSED TUNNEL
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 200'
200 100 0 200 400
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option P-5
Pennsylvania Avenue/Anacostia Freeway Interchange
MARCH 2005
FIGURE 43
7-11

Option P-6 (Dual Ramp Option in Northwest quadrant)

Option P-6 is a hybrid option of P-4 in that it proposes a flyover ramp from northbound Anacostia Freeway to Pennsylvania Avenue. The two major differences between these options are:

- The exit ramp from southbound Anacostia Freeway does not merge with the northbound flyover exit ramp in Option P-6. This results in creating two very closely spaced ramps providing access to westbound Pennsylvania Avenue.
- Option P-6 replicates the intersection that accommodates eastbound Pennsylvania Avenue traffic wishing to travel northbound on the Anacostia Freeway. This movement is accommodated by a loop ramp in Option P-4.

Two signals would be required along Pennsylvania Avenue to accommodate ramp connections. The retention of the double left movement from eastbound Pennsylvania Avenue to northbound Anacostia Freeway would likely have a negative impact upstream on the other proposed signal location. Refer to **Figure 44** for this option.

Cost Estimate
The estimated cost for these improvements is **$59.5 million**.

Related project improvements at the Pennsylvania Avenue/Anacostia Freeway Interchange

- Signing and Pavement Marking Improvements along Sousa Bridge (Pennsylvania Avenue) and the Ramp to the Southeast Freeway (Project 1 – Near-Term)
- Signal Timing Optimization along Pennsylvania Avenue, East of the Anacostia River (Project 2 – Near-Term)
- Near-Term Pedestrian Spot Improvements (Project 5 – Near-Term)
- Northbound D.C. Ramp Improvements Accommodating Traffic from Eastbound and Westbound Pennsylvania Avenue (Project 15 – Mid-Term)

2005 - 2025 IMPROVEMENTS

ANACOSTIA RIVER

ANACOSTIA PARK

ANACOSTIA DRIVE

SEAWALL

SEA WALL

PARKING

TRELLIS

GAZEBO

PLAYGROUND

BRUSH

ROUTE 295

ANACOSTIA FREEWAY

RAILROAD

FAIRLAWN AVENUE

LIGHT RAIL LINE

18TH PLACE

NAYLOR ROAD

YOUNG STREET

22ND STREET

PROUT STREET

NICHOLSON STREET

P STREET

PENNSYLVANIA AVE.

FAIRLAWN AVE.

BURNS

ATHLETIC FIELD

HOOP

BASKETBALL COURTS

CANOPY

LEGEND

PROPOSED PAVEMENT

PROPOSED GRASS AREA

REMOVE EXISTING PAVEMENT

Graphic Scale: 1" = 200'

200 100 0 200 400

d. District Department of Transportation

MAC

INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

Middle Anacostia River Crossings Transportation Study

Option P-6

Pennsylvania Avenue/Anacostia Freeway Interchange

MARCH 2005 | FIGURE 44 | 7-13

Barney Circle Improvements

Barney Circle currently does not operate as a true circle. Grade separated ramp movements to the Southeast Freeway from Pennsylvania Avenue and the fact that several movements are not accommodated make Barney Circle more of a barrier than a traffic mover. Various movements may only be made using the "Authorized Use Only" Service Road that runs adjacent to Barney Circle. Two long-term improvement options are being considered at Barney Circle that address the creation of a true circle, providing for all the movements. A basic assumption of both options is the reuse of the Southeast Freeway as a boulevard, operating as a minor arterial when missing freeway movements are provided at other existing interchanges in the study area, most critically at the 11th Street Bridges/Anacostia Freeway location.

A view of Barney Circle today (looking north).

In Option BC-1, it is proposed that the converted Southeast Freeway (boulevard) will continue to run below Barney Circle. Option BC-2 proposes the new boulevard to connect into the newly configured circle. As such, the improvements at Barney Circle are closely tied into considerations for the boulevard along the Southeast Freeway from 11th Street to Barney Circle. Also, the replacement of the existing RFK Stadium Access Road with Park Drive (east of Barney Circle) is interrelated to improvements at this location. Both the boulevard options and replacement of the RFK Access Road are discussed later in this chapter.

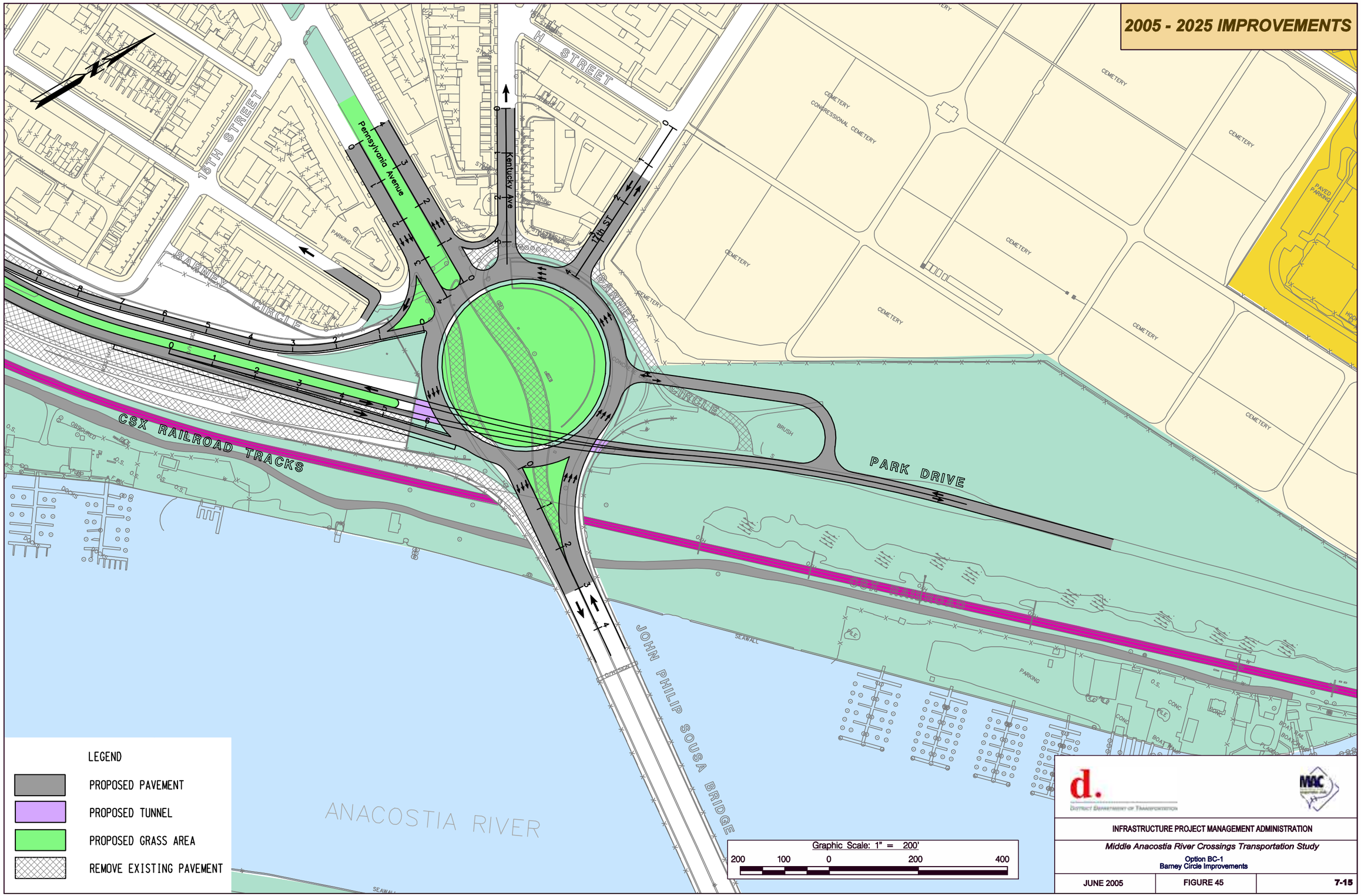
Option BC-1 (Southeast Freeway remains beneath Barney Circle)

Option BC-1 has one major similarity to the existing Barney Circle. Currently, traffic utilizing the Southeast Freeway travels below Barney Circle in both directions as demand is provided from Pennsylvania Avenue and 17th Street. Eastbound traffic feeding into Barney Circle from Pennsylvania Avenue and the 17th Street can only access the westbound direction of the Southeast Freeway by traveling on the Service Road. **Figure 45** shows this option. In Option BC-1, the Southeast Freeway is still grade separated below Barney Circle. However, the "Authorized Vehicles Only" Service Road is replaced by a modified circle design that allows for approach streets to access it. Traffic wishing to enter Barney Circle would do so by using a connection from the proposed Park Drive, a continuation of the Southeast Freeway underneath Barney Circle.

All approaches to Barney Circle would be signalized, making it operate similarly to DuPont Circle or other comparable locations within Washington, D.C. Because the approaches would operate with signal control, safer, well-defined pedestrian crossings would occur, while effectively calming traffic flows on Pennsylvania Avenue. A total of five signals are proposed under this option

Due to the development of the exit ramp from westbound Pennsylvania Avenue to westbound Southeast Freeway, the connection between Pennsylvania Avenue and K Street would be removed. A cul de sac would be created at the end of K Street, separating it completely from Barney Circle.

Cost Estimate
The estimated cost for these improvements is **$23.6 million**.


2005 - 2025 IMPROVEMENTS
15TH STREET
H STREET
Pennsylvania Avenue
Kentucky Ave
11th ST
BARNEY CIRCLE
CSX RAILROAD TRACKS
PARK DRIVE
JOHN PHILIP SOUSA BRIDGE
ANACOSTIA RIVER
CEMETERY
CONGRESSIONAL CEMETERY
PAVED PARKING
PARKING
SEAWALL
LEGEND
PROPOSED PAVEMENT
PROPOSED TUNNEL
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 200'
200 100 0 200 400
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option BC-1
Barney Circle Improvements
JUNE 2005
FIGURE 45
7-15

Option BC-2 (Southeast Freeway brought into Barney Circle)

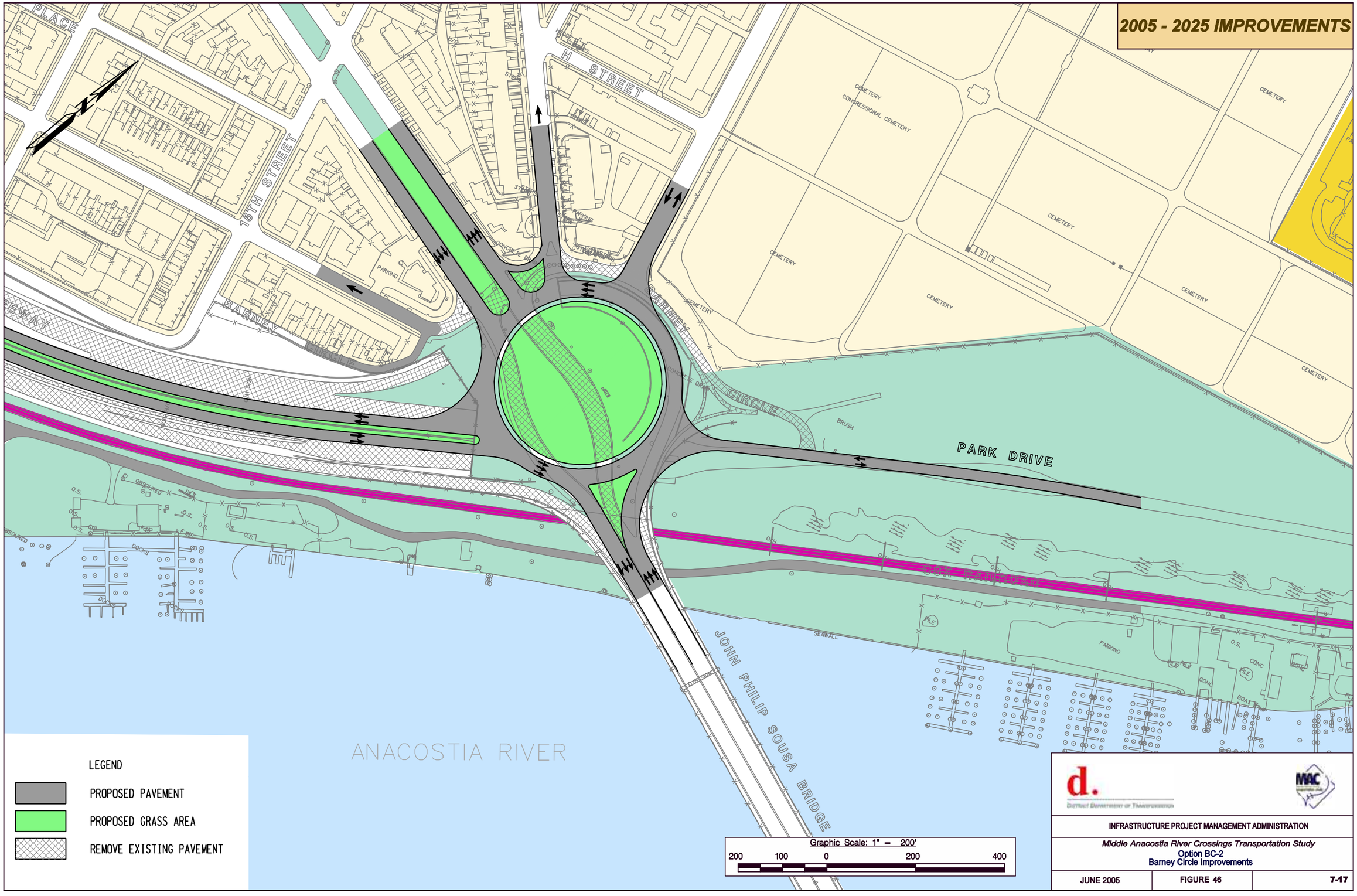
Option BC-2 has the eastbound Southeast Freeway approach brought directly into the circle instead of maintaining the grade separation of both existing conditions and Option BC-1. A direct connection would then be provided to Barney Circle from the proposed Reservation 13 Road. This option is illustrated in **Figure 46**.

All other parameters such as signalization, the number of lanes within the circle, and disconnection of Pennsylvania Avenue and K Street would be the same as in Option BC-1.

Cost Estimate
The estimated cost for these improvements is **$21.3 million**.

Related project improvements to Barney Circle improvements

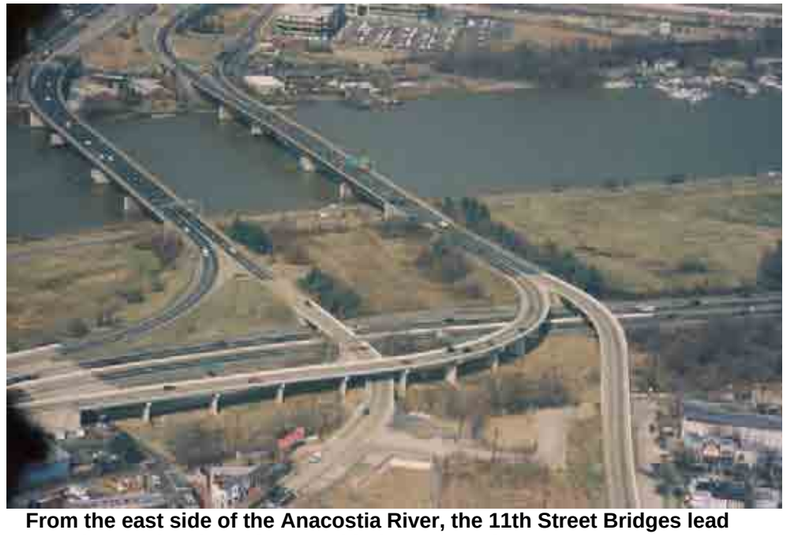
- Signing and pavement marking improvements along Sousa Bridge (Pennsylvania Avenue) and ramp to Southeast Freeway
- Spot-specific pedestrian improvements (Project 5 – Near-Term)
- Upgrades to the Service Road connecting Barney Circle and the Southeast Freeway (Project 8 – Mid-Term)
- Boulevard options along the Southeast Freeway (Options 1, 2, 3, and 4 – Long-Term)
- Park Drive Connector Road improvements (Option R-1 – Long-Term)


2005 - 2025 IMPROVEMENTS
PLACE
15TH STREET
H STREET
BARNEY CIRCLE
CIRCLE
PARK DRIVE
CEMETERY
CONGRESSIONAL CEMETERY
PARKING
SEAWALL
JOHN PHILIP SOUSA BRIDGE
ANACOSTIA RIVER
LEGEND
PROPOSED PAVEMENT
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 200'
200 100 0 200 400
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option BC-2
Barney Circle Improvements
JUNE 2005
FIGURE 46
7-17

11th Street Bridges / Anacostia Freeway Interchange

This interchange, like the Pennsylvania Avenue/Anacostia Freeway interchange, does not provide several movements and acts as a barrier for residents and commuters alike on both sides of the Anacostia River. The usefulness of the existing interchange is limited due to the nature of the two bridges.

The 11th Street Bridge and the Welsh Memorial Bridge form a one-way pair across the Anacostia River and force mixed interaction of local traffic with regional commuter traffic. The 11th Street Bridge currently handles northbound traffic from east of the Anacostia River into the area of the Navy Yard and to westbound I-395 (Southeast Freeway). The Welsh Memorial Bridge accommodates southbound traffic from west of the River to continue south on the Anacostia Freeway or to access the Anacostia neighborhood on the east side of the River. A rehabilitation project is currently underway to address these bridges, while the overall intention is to replace them five- to ten years after this is completed. Missing movements at this interchange contribute to congestion on the Sousa Bridge, Frederick Douglass Bridge, and Barney Circle due to circuitous routes required by motorists.



From the east side of the Anacostia River, the 11th Street Bridges lead to an incomplete interchange with the Anacostia Freeway.

With the future development of a new D.C. Government Center and Anacostia Economic Development Center (AEDC) Building, there is even more urgency to provide a complete interchange at this location and provide better access for local traffic and regional traffic.

Four options have been considered at this location to address the missing movements and separation of local and regional traffic. Option A-1 is considered an interim long-term improvement because it provides only three additional movements to the existing interchange; a southbound ramp from the Welsh Bridge to northbound Anacostia Freeway, a northbound ramp from southbound Anacostia Freeway to the 11th Street Bridge, and a northbound ramp from the approach to the 11th Street Bridge to northbound Anacostia Freeway. In Option A-2, both the 11th Street Bridge and Welsh Memorial Bridge are converted to accommodate two-way traffic. By doing so, the 11th Street Bridge would act as the regional connection between the Anacostia Freeway and the Southeast Freeway. Comparably, the Welsh Memorial Bridge would act as the local connection between the neighborhoods on both the west side and east side of the Anacostia River. Option A-3 builds on the premise of Option A-2 but expands the movements of the proposed interchange to include some local to freeway connections as well as some freeway to local connections. Option A-4 reflects the ultimate build condition for the 11th Street Bridges/Anacostia Freeway interchange in that all local-to-freeway and freeway-to-local movements are accommodated. Access is also provided from the proposed D.C. Government Center and AEDC Building to the area between the two bridges on the east side of the Anacostia River.

All options have been developed to not impact the parcel boundary associated with the proposed D.C. Government Center and the AEDC Building. Likewise, careful consideration has been made to not adversely impact the alignment of the Anacostia Corridor Light Rail Demonstration line, and to keep Anacostia Park impacts to a minimum.

Option A-1 (Interim Build Interchange)

Option A-1 includes three additional ramp connections between the 11th Street Bridges and the Anacostia Freeway. An on-ramp is proposed to connect southbound Anacostia Freeway with northbound 11th Street Bridge. Similarly, an entrance ramp is proposed to accommodate traffic going northbound on the 11th Street Bridge to northbound on the Anacostia Freeway. This ramp would merge with a proposed exit ramp that connects the southbound Welsh Bridge with the northbound Anacostia Freeway. While these ramps do not address the larger issues of completing all movements for the interchange or separating local traffic from regional traffic, they do provide some relief to other areas within the Middle Anacostia River region. This option is shown in **Figure 47**.

The ramp connection between the southbound Welsh Memorial Bridge and northbound Anacostia Freeway would need to cross over the existing ramps feeding the 11th Street Bridge. This requirement, combined with the location of the future Anacostia Light Rail Demonstration line, result in a lengthy, yet low-speed, connection to northbound Anacostia Freeway. The elevation of this ramp approximately 70 feet above existing ground because it needs to cross over the existing ramps for the 11th Street Bridge.

The ramp connection between northbound 11th Street Bridge and northbound Anacostia Freeway would be constructed from the existing ramp structure. This would allow for the local connection of 13th Street, on the north side of Good Hope Road to remain open for the adjacent neighborhood. This ramp would also be bridged over the Anacostia Light Rail Demonstration line and merge with southbound Welsh Bridge traffic heading north onto the Anacostia Freeway.

The ramp connection between the 11th Street Bridge and southbound Anacostia Freeway must also be designed with a low-speed to avoid widening of the bridge.

By providing these ramp connections, traffic using the Southeast Freeway west of 11th Street would now have the option to connect directly with the Anacostia Freeway without having the need to use the Sousa Bridge and Pennsylvania Avenue interchange to the north. Motorists originating in the Anacostia neighborhood would also have improved accessibility to northbound Anacostia Freeway with this option.

Cost Estimate
The estimated cost for these improvements is **$193.0 million**. This cost includes the replacement of the 11th Street and Welsh bridges, but does not accommodate future light rail service across the Anacostia River

Option A-2 (Partial Build Interchange)

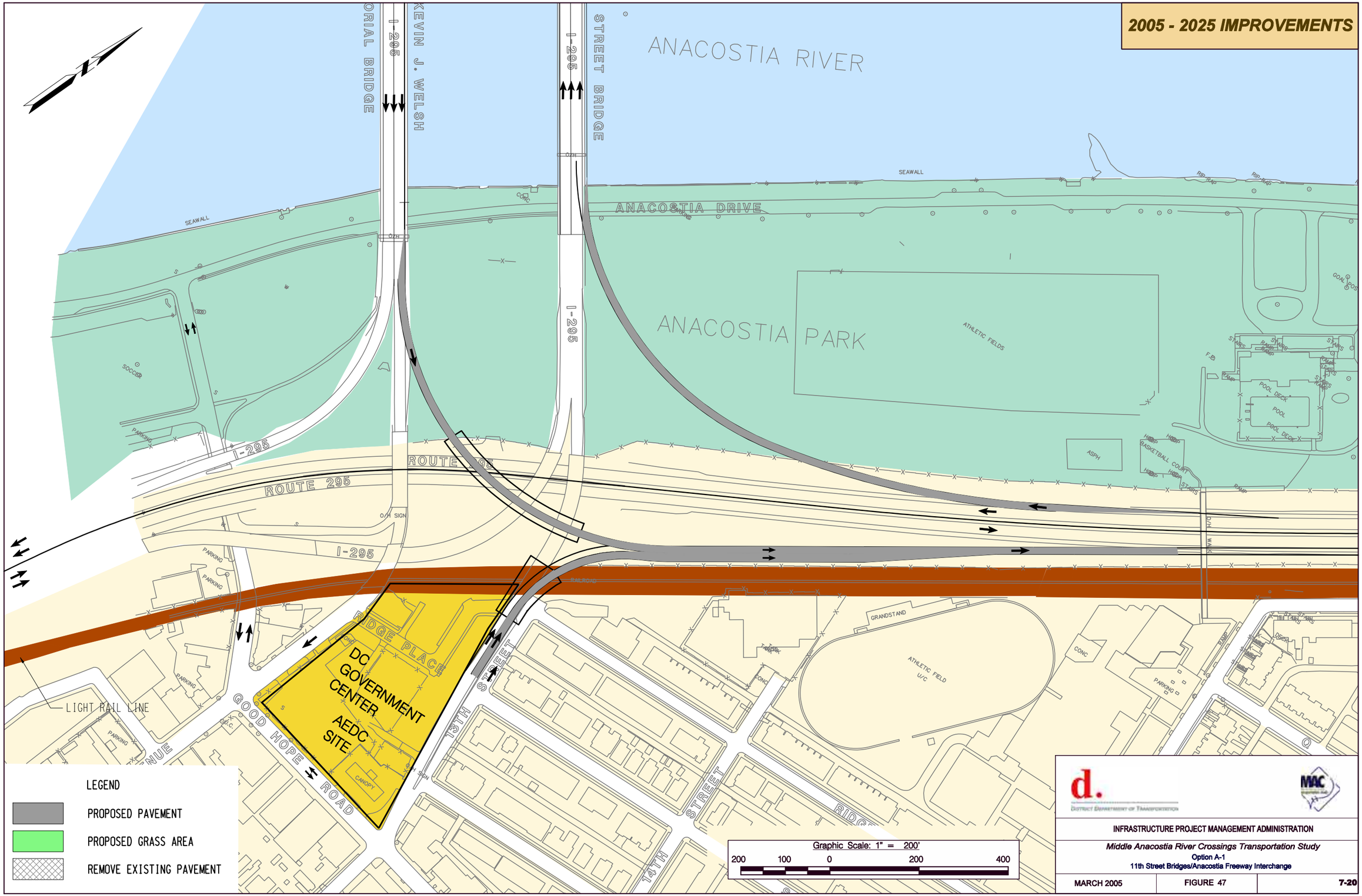
In Option A-2, the 11th Street Bridge and Welsh Memorial Bridge accommodate two-way traffic. The 11th Street Bridge would serve as the regional connection between the Anacostia Freeway and the Southeast Freeway. Consequently, the Welsh Memorial Bridge would serve as the local connection between the neighborhoods on the west side and east side of the Anacostia River. Refer to **Figure 48** for an illustration of Option A-2.

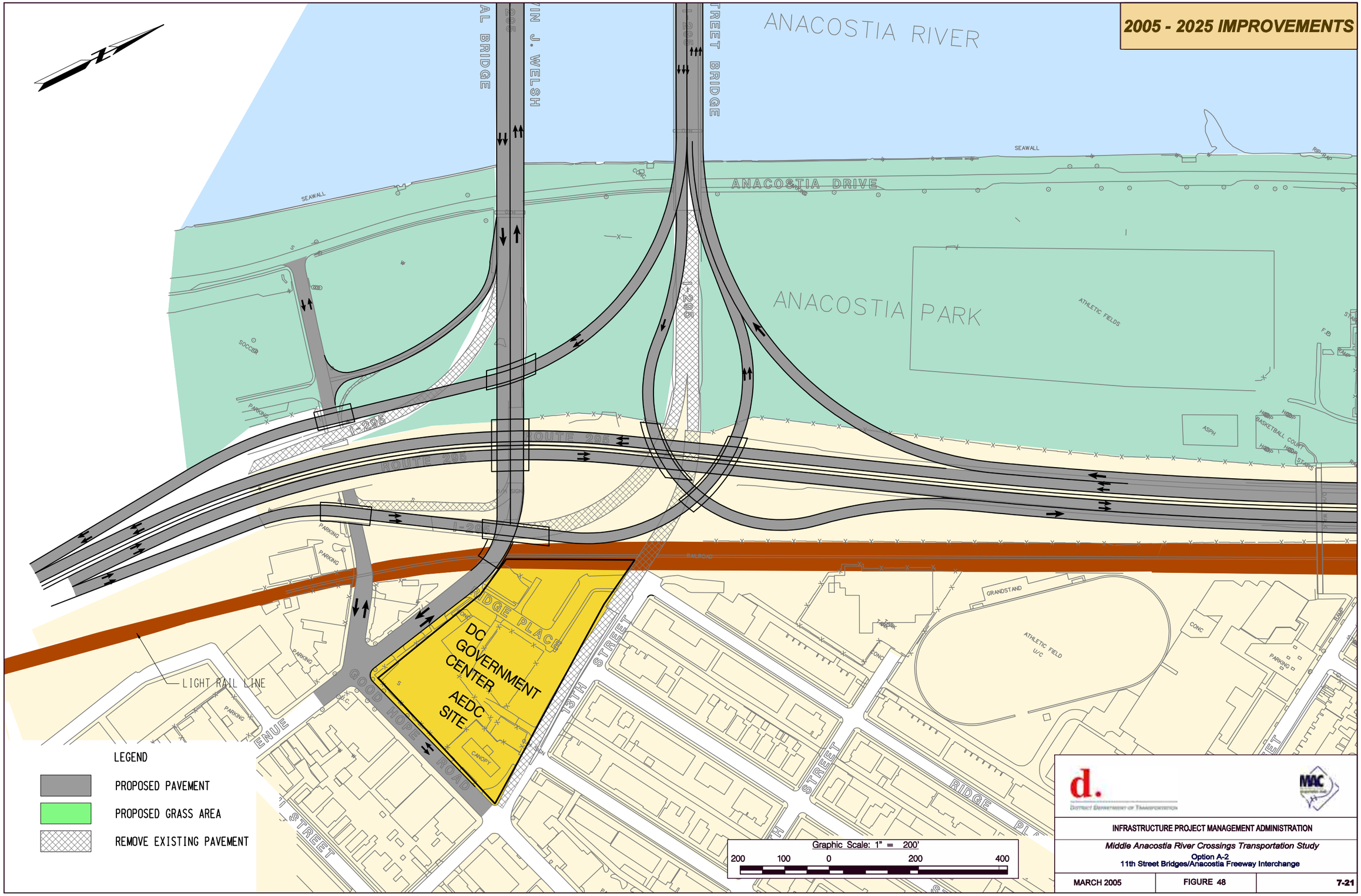
As with Option A-1, this option does not provide for every movement at the 11th Street Bridges/Anacostia Freeway interchange. However, by making each bridge accommodate two-way traffic, the goal of separating local traffic from regional traffic is achieved.

The missing movements at the interchange under Option A-2 include:

- Northbound Anacostia Freeway to Anacostia neighborhood (freeway to local),
- Southbound Anacostia Freeway to Anacostia neighborhood (freeway to local),
- Anacostia neighborhood to northbound Anacostia Freeway (local to freeway), and
- Anacostia neighborhood to southbound Anacostia Freeway (local to freeway).

Cost Estimate
The estimated cost for these improvements is **$230.6 million**. This cost includes the replacement of the 11th Street and Welsh bridges, along with the necessary accommodations for future light rail.


2005 - 2025 IMPROVEMENTS
ANACOSTIA RIVER
ORIAL BRIDGE
KEVIN J. WELSH
STREET BRIDGE
I-295
ANACOSTIA DRIVE
ANACOSTIA PARK
ATHLETIC FIELDS
SEAWALL
RIP-RAP
SOCCER
PARKING
ROUTE 295
ROUTE 295
O/H SIGN
RAILROAD
POOL DECK
POOL
BASKETBALL COURT
HOOPS
STAIRS
RAMP
ASPH
GRANDSTAND
ATHLETIC FIELD
U/C
CONC
DC GOVERNMENT CENTER
AEDC SITE
CANOPY
RIDGE PLACE
GOOD HOPE ROAD
13TH STREET
14TH STREET
LIGHT RAIL LINE
LEGEND
PROPOSED PAVEMENT
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 200'
200 100 0 200 400
d.
District Department of Transportation
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option A-1
11th Street Bridges/Anacostia Freeway Interchange
MARCH 2005
FIGURE 47
7-20


2005 - 2025 IMPROVEMENTS
ANACOSTIA RIVER
ANACOSTIA DRIVE
ANACOSTIA PARK
ATHLETIC FIELDS
SEAWALL
SOCCER
PARKING
I-295
ROUTE 295
RAILROAD
LIGHT RAIL LINE
DC GOVERNMENT CENTER
AEDC SITE
CANOPY
RIDGE PLACE
GOOD HOPE ROAD
13TH STREET
GRANDSTAND
ATHLETIC FIELD
U/C
CONC
ASPH
BASKETBALL COURT
HOOPS
STAIRS
RAMP
LEGEND
PROPOSED PAVEMENT
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 200'
200 100 0 200 400
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option A-2
11th Street Bridges/Anacostia Freeway Interchange
MARCH 2005
FIGURE 48
7-21

Option A-3 (Partial Build Interchange-Modified)

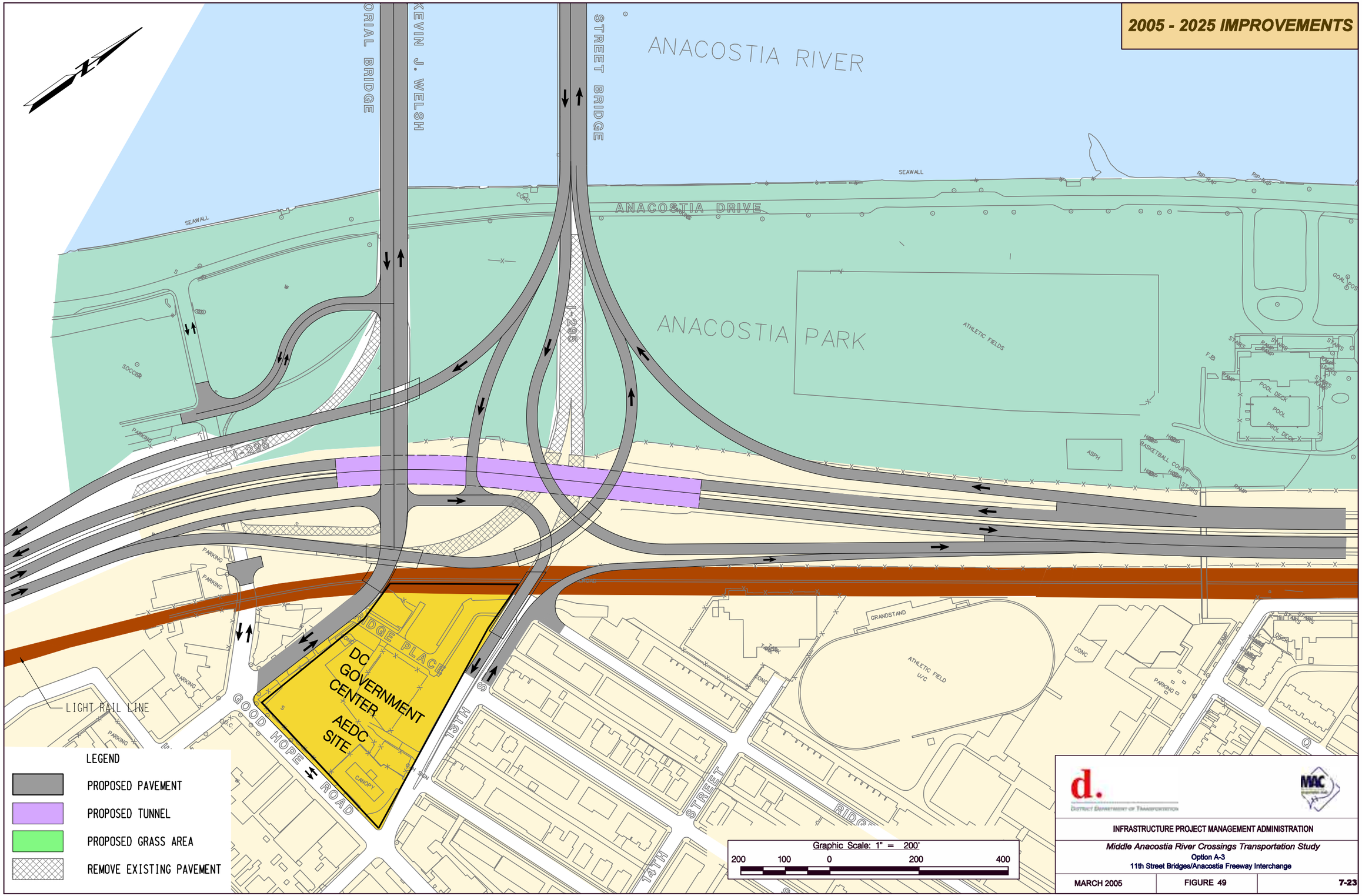
Similar to Option A-2, Option A-3 has the 11th Street Bridge and Welsh Memorial Bridge accommodate two-way traffic. More importantly, Option A-3 includes connections that were not provided between the Anacostia neighborhood and both the Anacostia Freeway and 11th Street Bridge. The northbound Anacostia Freeway to Anacostia neighborhood movement is accommodated by a new ramp. A ramp from 13th Street is also proposed to carry local traffic onto the northbound Anacostia Freeway. Finally, a ramp is provided from the southbound 11th Street Bridge to allow vehicles access to the Anacostia neighborhood. This option is shown in **Figure 49**.

These connections however, do introduce some significant changes when comparing Option A-3 to Option A-2. In Option A-3, the elevation of the Anacostia Freeway must be lowered to accommodate these new ramp connections. The mainline would be placed in a covered tunnel or an exposed depressed freeway. As a benefit, the elevations of the proposed ramps would be lowered and help with the visual perspective when looking across the Anacostia River.

The main detriment to this option is the inability to maintain the local connection along Good Hope Road into the Anacostia Park. The Good Hope Road connection is one of only three direct vehicular connections to the Park. This connection is lost because of the need to lower the elevation of the Anacostia Freeway. This represents a setback to one of the inherent goals of the AWI; the desire to promote safe and convenient access to the Anacostia Park and waterfront. Further evaluation regarding a feasible replacement for this connection is recommended if Option A-3 is to be selected for implementation.

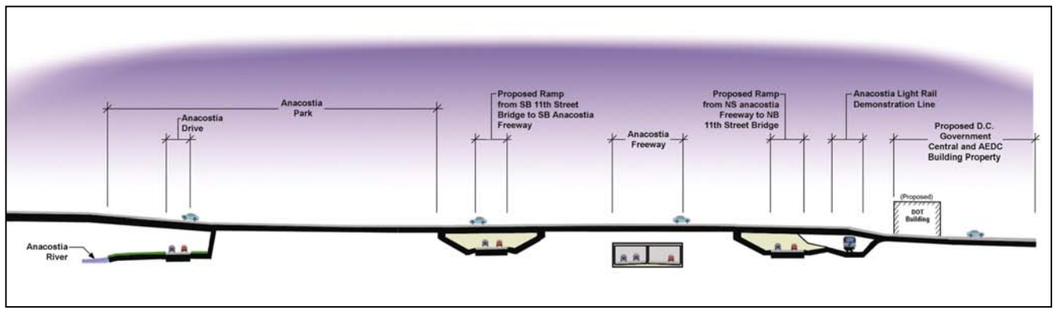
Cost Estimate

The estimated cost for these improvements is **$279.1 million**. This cost includes the replacement of the 11th Street and Welsh bridges, along with the necessary accommodations for future light rail.


2005 - 2025 IMPROVEMENTS
ANACOSTIA RIVER
ORIAL BRIDGE
KEVIN J. WELSH
STREET BRIDGE
SEAWALL
ANACOSTIA DRIVE
ANACOSTIA PARK
ATHLETIC FIELDS
SOCCER
PARKING
I-295
POOL DECK
POOL
ASPH
BASKETBALL COURT
GRANDSTAND
ATHLETIC FIELD
U/C
CONC
LIGHT RAIL LINE
DC GOVERNMENT CENTER
AEDC SITE
CANOPY
GOOD HOPE ROAD
13TH STREET
14TH STREET
LEGEND
PROPOSED PAVEMENT
PROPOSED TUNNEL
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 200'
200 100 0 200 400
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option A-3
11th Street Bridges/Anacostia Freeway Interchange
MARCH 2005
FIGURE 49
7-23

Option A-4 (Full Build Interchange)

Option A-4 (**Figure 50**) reflects the most complete build condition for the 11th Street Bridges/Anacostia Freeway interchange. It is considered the most complete option because all local-to-freeway and freeway-to-local connections are accommodated. Local connections are provided through a series of at-grade intersections that result from various ramps crossing from the Anacostia Freeway, the 11th Street Bridge, and the Welsh Memorial Bridge. Access to the Anacostia Park is provided by a two-way local connection from 13th Street, just behind the proposed D.C. Government Center and AEDC Building. This is connection would replace the leg of Good Hope Road that connects with Anacostia Drive. The rendering below shows a cross section of the interchange from the perspective of someone looking north.

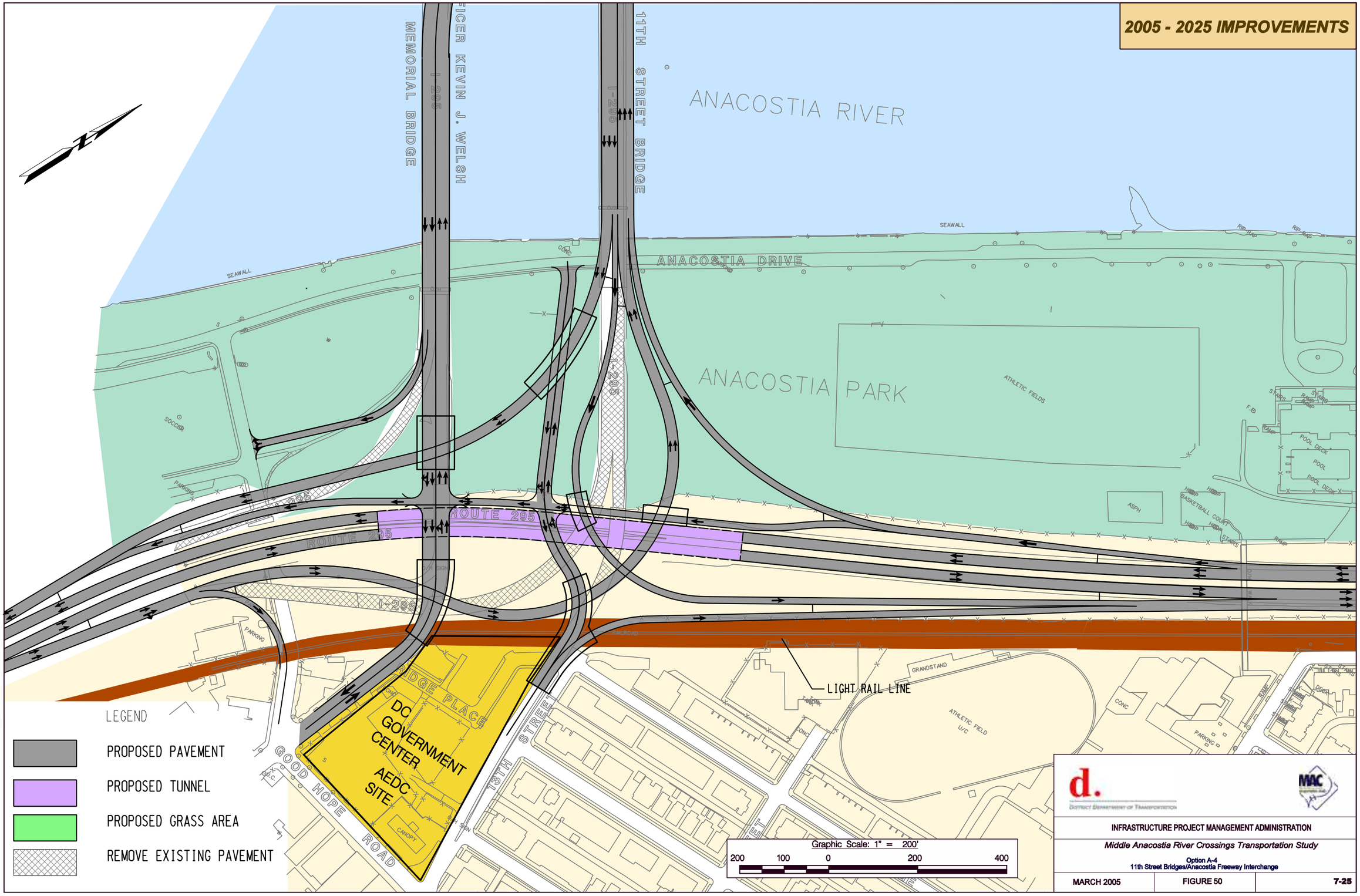


Cost Estimate

The estimated cost for these improvements is **$310.3 million**. This cost includes the replacement of the 11th Street and Welsh bridges, along with the necessary accommodations for future light rail.

Related project improvements to the 11th Street Bridges/Anacostia Freeway Interchange

- Roadway resurfacing along Good Hope Road and Minnesota Avenue (Project 3 – Near-Term)
- Bicycle Network Improvements (Project 6 – Near-Term)
- Conversion of Martin Luther King, Jr. Avenue and 13th Street to Two-Way Traffic (Project 12 – Mid-Term)
- M Street Ramp Connection to Southbound Welsh Memorial Bridge (Project 13 – Mid-Term)


2005 - 2025 IMPROVEMENTS
MEMORIAL BRIDGE
I-295
TIGER KEVIN J. WELSH
I-295
11TH STREET BRIDGE
ANACOSTIA RIVER
SEAWALL
ANACOSTIA DRIVE
ANACOSTIA PARK
ATHLETIC FIELDS
SOCCER
PARKING
ROUTE 295
ROUTE 295
I-295
RIDGE PLACE
DC GOVERNMENT CENTER
AEDC SITE
GOOD HOPE ROAD
13TH STREET
LIGHT RAIL LINE
GRANDSTAND
ATHLETIC FIELD
U/C
CONC
POOL DECK
POOL
BASKETBALL COURT
ASPH
RIP RAP
LEGEND
PROPOSED PAVEMENT
PROPOSED TUNNEL
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 200'
200 100 0 200 400
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option A-4
11th Street Bridges/Anacostia Freeway Interchange
MARCH 2005
FIGURE 50
7-25

11th Street / Southeast Freeway Interchange

The 11th Street Bridges/Southeast Freeway interchange is located on the west side of the Anacostia River. This is another incomplete interchange within the study area that does not provide all the movements for local and regional connections. Three (3) options have been developed at this location. Options SE-1, SE-2, and SE-3 have the proposed two-way 11th Street Bridge act as the regional connection between the Southeast Freeway (west of 11th Street) and the Anacostia Freeway. The proposed two-way Welsh Memorial Bridge would have no direct connection to the Southeast Freeway as it maintains its role as a local connection on the west side of the Anacostia River. The Southeast Freeway currently creates a barrier between neighborhood streets as well as the waterfront. To improve local traffic circulation between neighborhoods, a "DC-type" traffic circle is proposed to link Potomac Avenue, 11th Street, and the proposed boulevard. The boulevard options being considered between 11th Street and Barney Circle are discussed independently later in this chapter. Depending on whether the proposed 11th Street Bridge is carried above or below the proposed circle, impacts may result to the CSX railroad line that exists in this area.

The 11th Street Bridges atop the Southeast Freeway and the Access Ramps to RFK Stadium (looking west).

Option SE-1 (Southeast Freeway under Circle)

In Option SE-1, the newly developed two-way 11th Street Bridge is placed below grade in the area of 11th Street and the Southeast Freeway. A circle, similar to that proposed under the Barney Circle improvements, would act as a connecting point for Potomac Avenue, 11th Street, and the proposed boulevard between 11th Street and Barney Circle. Two travel lanes would be required within the circle and all approaches would be signalized. By placing the 11th Street Bridge below grade, the existing CSX Railroad would require displacement. This option is shown in **Figure 51**.

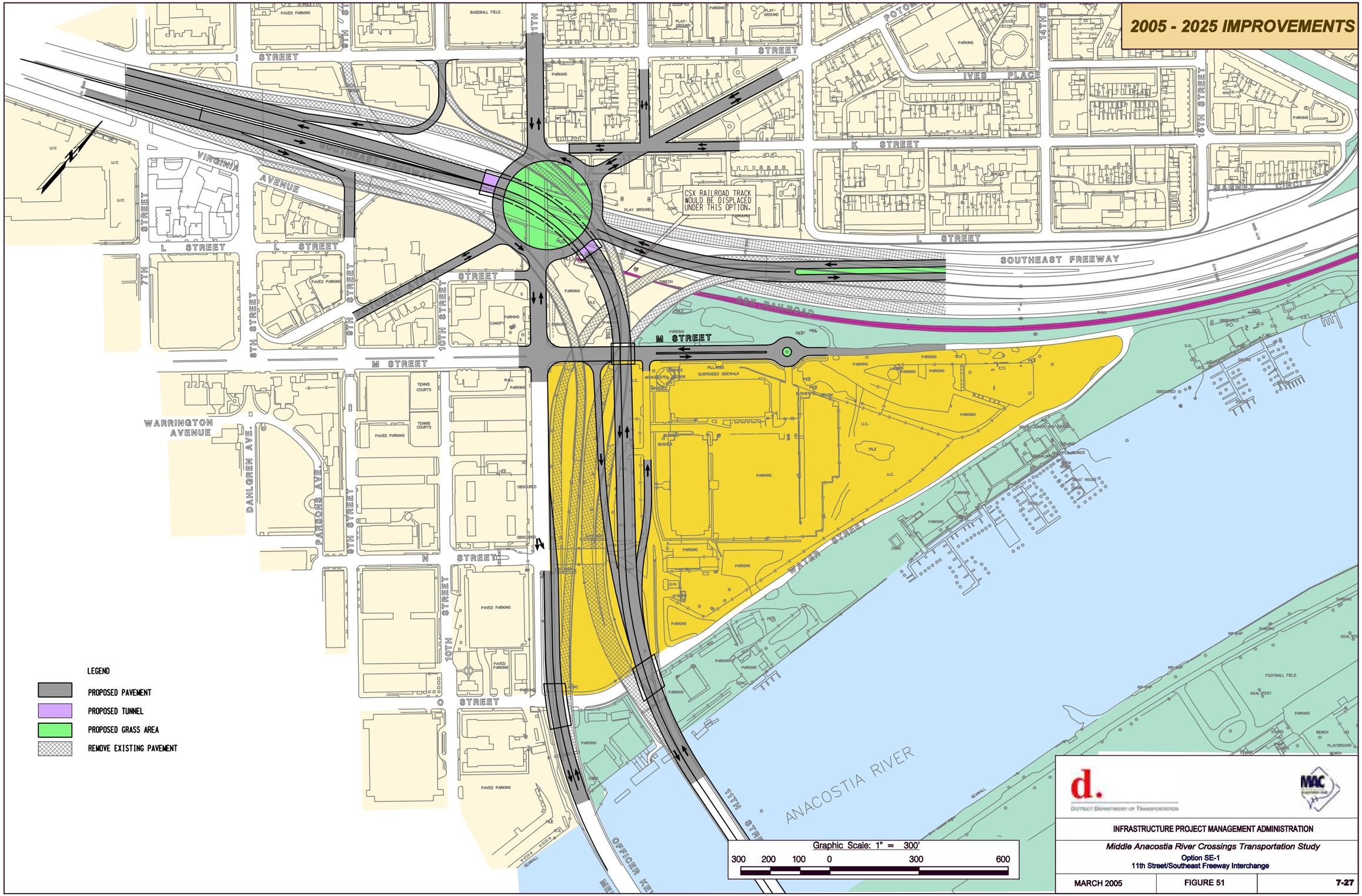
Local ramps between the Southeast Freeway (west of 11th Street) and the neighborhood streets are proposed at the following locations:

- Exit ramp from eastbound Southeast Freeway to 9th Street, and
- Entrance ramp from 10th Street to westbound Southeast Freeway.

Note that local traffic originating on the west side of the Anacostia River in these adjacent neighborhoods would need to use 11th Street to access westbound Southeast Freeway. There is no direct connection provided from the circle to the Southeast Freeway.

Cost Estimate
The estimated cost for these improvements is **$138.6 million**.

2005 - 2025 IMPROVEMENTS



DISTRICT DEPARTMENT OF TRANSPORTATION

INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

Middle Anacostia River Crossings Transportation Study

Option SE-1

11th Street/Southeast Freeway Interchange

MARCH 2005	FIGURE 51	7-27

Option SE-2 (Southeast Freeway over Circle)

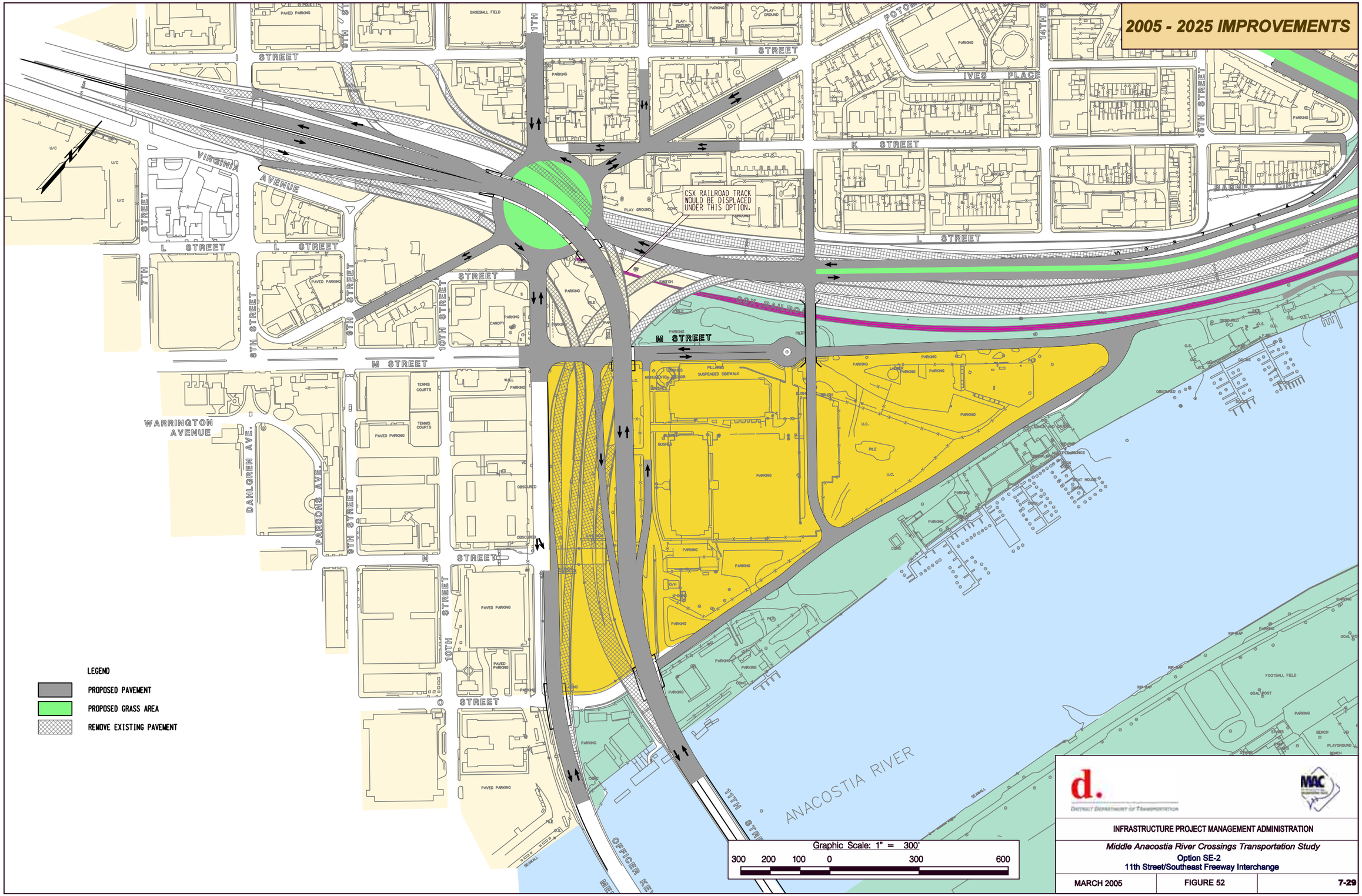
Option SE-2 is similar to Option SE-1 except that the newly developed two-way 11th Street Bridge connection to I-395 would be elevated above the proposed circle that accommodates local traffic. Therefore, the existing CSX railroad tracks would remain in operation. All parameters related to the proposed circle are the same between Options SE-1 and SE-2.

Figure 52 illustrates an alternative scheme for connecting ramps between the Southeast Freeway (west of 11th Street) and the neighborhood streets. Under this option, the following ramp movements include:

- Exit ramp from westbound Southeast Freeway (from 11th Street Bridge) to 8th Street, and
- Entrance ramp from 8th Street to eastbound Southeast Freeway (to 11th Street Bridge).

These ramp options do not provide efficient accessibility for local traffic wishing to travel westbound on the Southeast Freeway in comparison to the ramp options of SE-1. Note that the ramp connections are interchangeable between both options and should be evaluated accordingly.

Cost Estimate
The estimated cost for these improvements is **$99.5 million**.



INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

Middle Anacostia River Crossings Transportation Study

Option SE-2

11th Street/Southeast Freeway Interchange

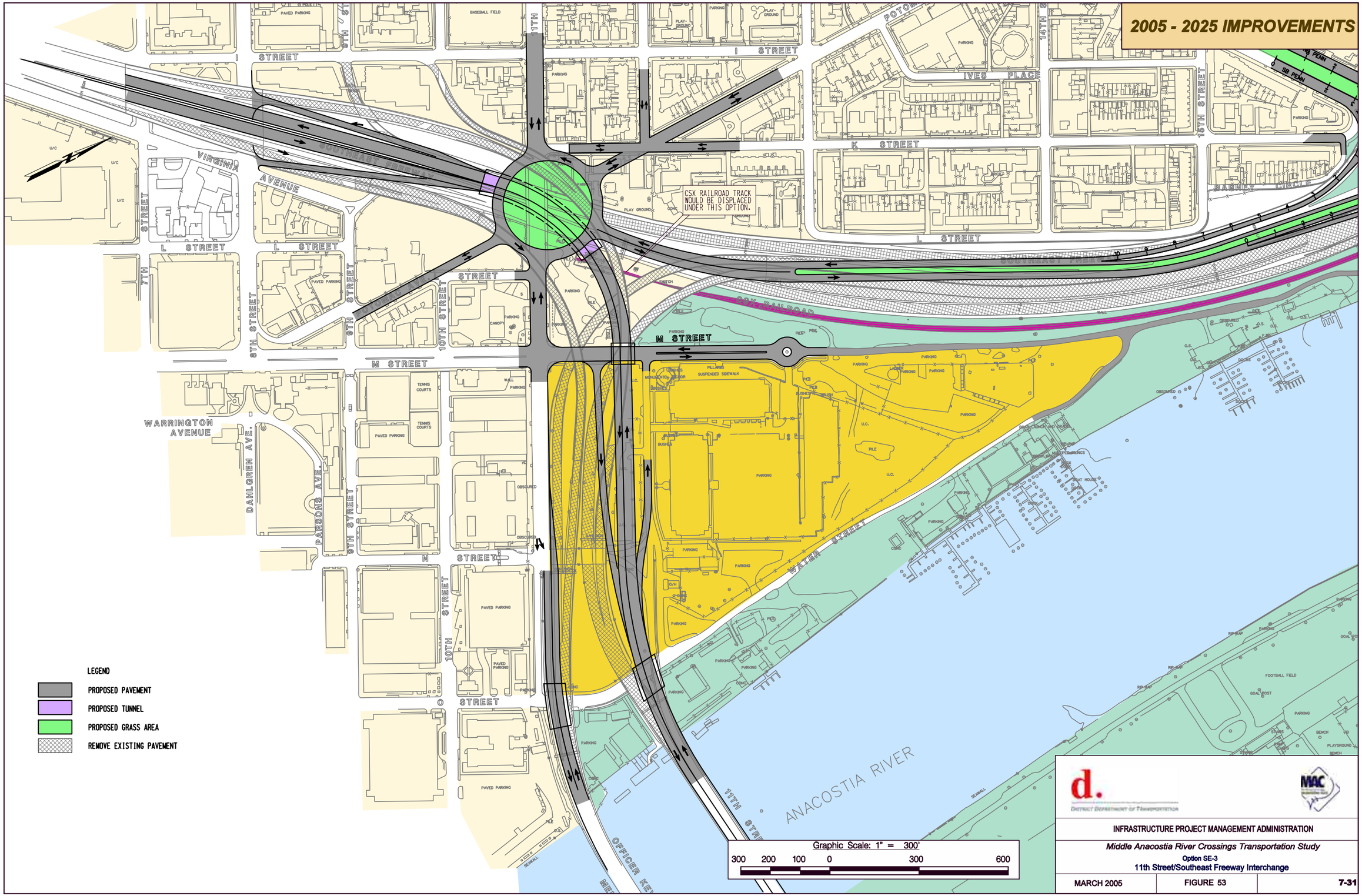
MARCH 2005	FIGURE 52	7-29

Option SE-3 (Southeast Freeway under Circle with ramp adjustments)

Option SE-3 is essentially the same as Option SE-1 except for the ramp connections between the local streets and the Southeast Freeway. **Figure 53** illustrates the concept with the same local ramp connections as were shown in Option SE-2. Again, it is important to note that the ramp connections west of 11th Street that are illustrated with Option SE-1 may be considered for this option as well. As with Option SE-1, the proposed location of the 11th Street Bridge below the circle would require that the CSX railroad be displaced.

Cost Estimate
The estimated cost for these improvements is **$136.8 million**.

Related project improvements to the 11th Street/Southeast Freeway Interchange
- Spot-specific pedestrian improvements (Project 5 – Near-Term)
- Area wide bicycle network improvements (Project 6 –Near-Term)
- M Street ramp connection to southbound Welsh Memorial Bridge (Project 13 – Mid-Term)


2005 - 2025 IMPROVEMENTS
CSX RAILROAD TRACK WOULD BE DISPLACED UNDER THIS OPTION.
SOUTHEAST FREEWAY
VIRGINIA AVENUE
I STREET
K STREET
L STREET
M STREET
N STREET
O STREET
IVES PLACE
POTOMAC
BARNEY CIRCLE
WARRINGTON AVENUE
DAHLGREN AVE.
PARSONS AVE.
7TH STREET
8TH STREET
9TH STREET
10TH STREET
11TH STREET
12TH STREET
WATER STREET
OFFICER KEITH WILLIAMS
ANACOSTIA RIVER
CSX RAILROAD
SB PENN
NB PENN
PAVED PARKING
BASEBALL FIELD
TENNIS COURTS
FOOTBALL FIELD
PLAY GROUND
PARKING
LEGEND
PROPOSED PAVEMENT
PROPOSED TUNNEL
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 300'
300 200 100 0 300 600
d.
District Department of Transportation
MAC
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option SE-3
11th Street/Southeast Freeway Interchange
MARCH 2005
FIGURE 53
7-31

Boulevard along the Southeast Freeway

Considerations for a boulevard in the Southeast Freeway right-of-way between 11th Street and Barney Circle provide a more appropriate transportation use within this area. Currently, this section of the Southeast Freeway contains an abundance of underutilized pavement, including the ramps for RFK Stadium access. Three typical sections envisioned for the boulevard have been developed. To maintain flexibility in land use, various plans to redevelop the Southeast Freeway right-of-way with a boulevard design have been prepared. In addition, the alignment and profile of the boulevard would have a bearing on which section could be achieved.

In general, the boulevard would be developed as a four-lane, divided minor arterial. Pedestrian and bicycle accessibility would be provided adjacent to the roadway by a shared-use trail. Enhanced landscaping would also be applied to medians, buffer zones and all other areas where existing pavement is removed. This would assist in providing a better connection between the neighborhoods and the waterfront by creating a park-like environment, accessible to all modes of travel.

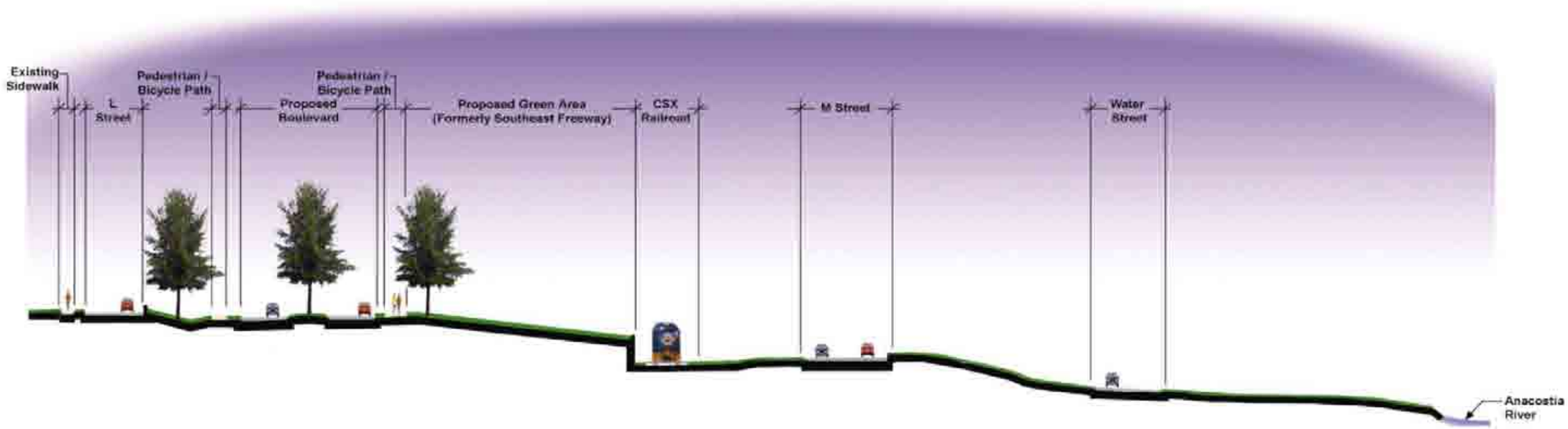
A view of Barney Circle and a portion of the Southeast Freeway targeted for a boulevard design and land use redevelopment.

Boulevard Typical Section Considerations

Three typical sections have been considered for the boulevard to address potential land use redevelopment within this section of the Southeast Freeway. The following describes the three typical sections being considered for the boulevard concepts.

Typical Section 1 shows the boulevard to be constructed approximately five feet below the elevation of L Street **(Figure 54)**. Off-street paths would be provided on both sides of the travel way, separated from the edges road by grass buffer areas. At least one of the off-street paths would be wide enough to accommodate pedestrians and bicyclists. In between the boulevard and the CSX railroad tracks, a park-like setting would be created to allow for new green areas on the west side of the Anacostia River. Just as with Anacostia Park, trails and landscaping could be provided to replace the pavement of the existing Southeast Freeway.

Boulevard Typical Section 1 - Looking East towards Barney Circle



NOT TO SCALE

INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

Middle Anacostia River Crossings Transportation Study

Boulevard Typical Section #1

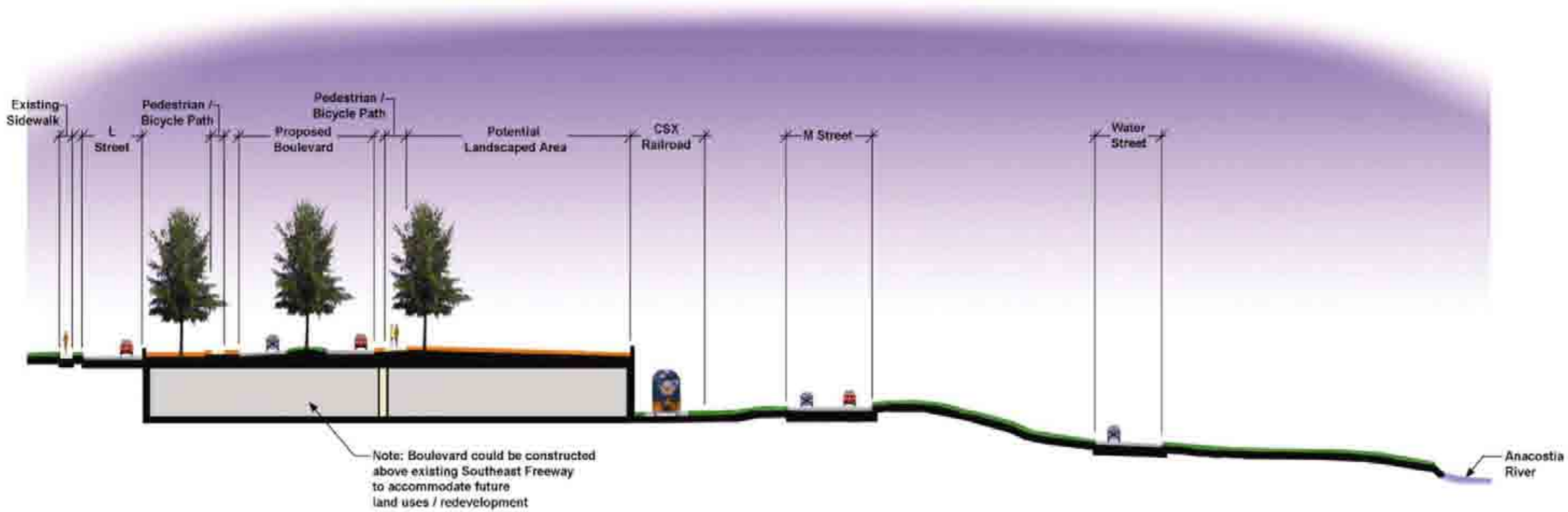
MARCH 2005	FIGURE 54	7-33

Typical Section 2 considers the boulevard to be constructed at the same elevation as L Street, allowing for redevelopment beneath the boulevard (in the Southeast Freeway right-of-way). This typical section is shown in **Figure 55**. This section would place the boulevard on an elevated deck over the existing Southeast Freeway right-of-way. By keeping the boulevard at the same elevation of L Street, the following possibilities are created:

- Local streets that currently terminate at L Street can be extended to the boulevard, providing better connectivity to the waterfront and newly developed park areas.
- The extension of local streets to the boulevard would improve neighborhood accessibility to Barney Circle and other major roadways in the Middle Anacostia River study area.
- The extension of local roads would help connect the neighborhoods north of L Street to the rest of the Middle Anacostia River region and bring them closer to the river.
- The creation of a deck provides the opportunity to reuse transportation right-of-way of the Southeast Freeway for other land uses.

This typical section would also provide off-street paths for pedestrian and bicycle use. The remainder of the deck above the Southeast Freeway would be open for landscaping opportunities or other development.

Boulevard Typical Section #2 - Looking East towards Barney Circle



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Middle Anacostia River Crossings Transportation Study

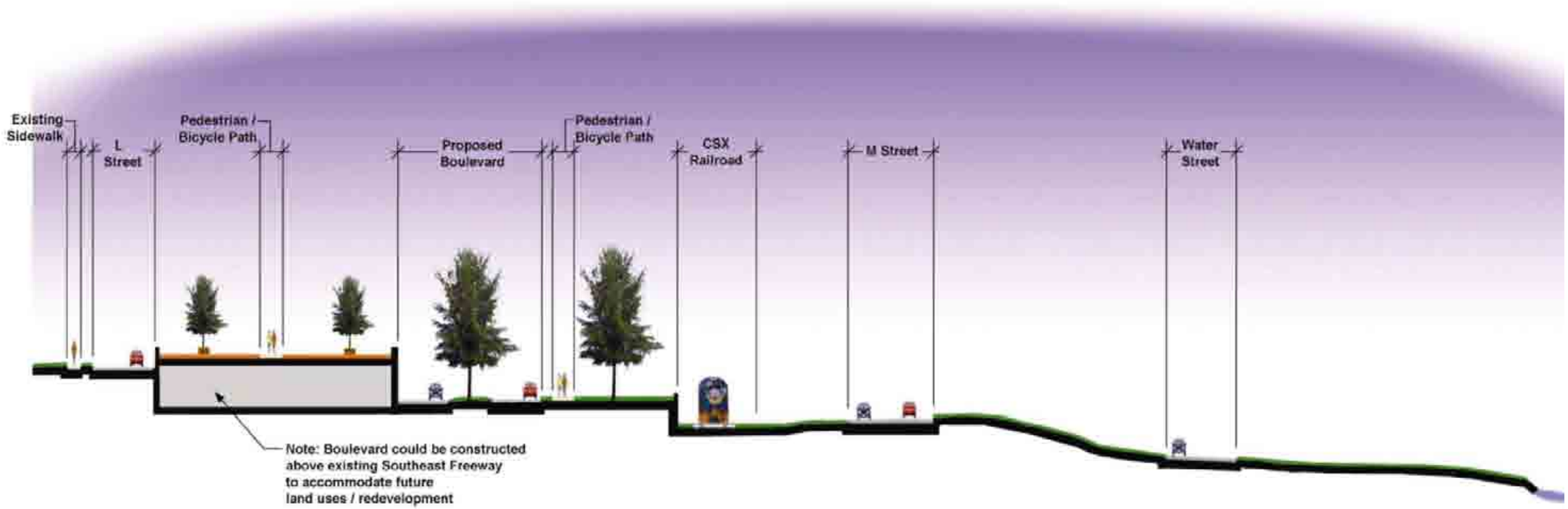
Boulevard Typical Section #2

MARCH 2005	FIGURE 55	7-35

Typical Section 3 considers that future redevelopment can occur beneath a deck structure and a boulevard can be located at the elevation of existing Southeast Freeway, adjacent to the decked area for future development (**Figure 56**). The decked area would be approximately half the width of the deck proposed under Typical Section 2. It would accommodate some landscaping and a meandering multi-use path. Access from the deck down to the boulevard would be provided for pedestrians and bicycles. Local streets would be unable to connect directly with the boulevard, as in Typical Sections 1 and 2. Landscaping and an adjacent sidewalk path would also be provided between the boulevard and the CSX railroad to create park-like environment.

Note that all typical sections do not apply to each of the four options. The four options are described along with those typical sections that would be feasible for implementation.

Boulevard Typical Section 3 - Looking East towards Barney Circle



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INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

Middle Anacostia River Crossings Transportation Study

Boulevard Typical Section #3

MARCH 2005	FIGURE 56	7-37

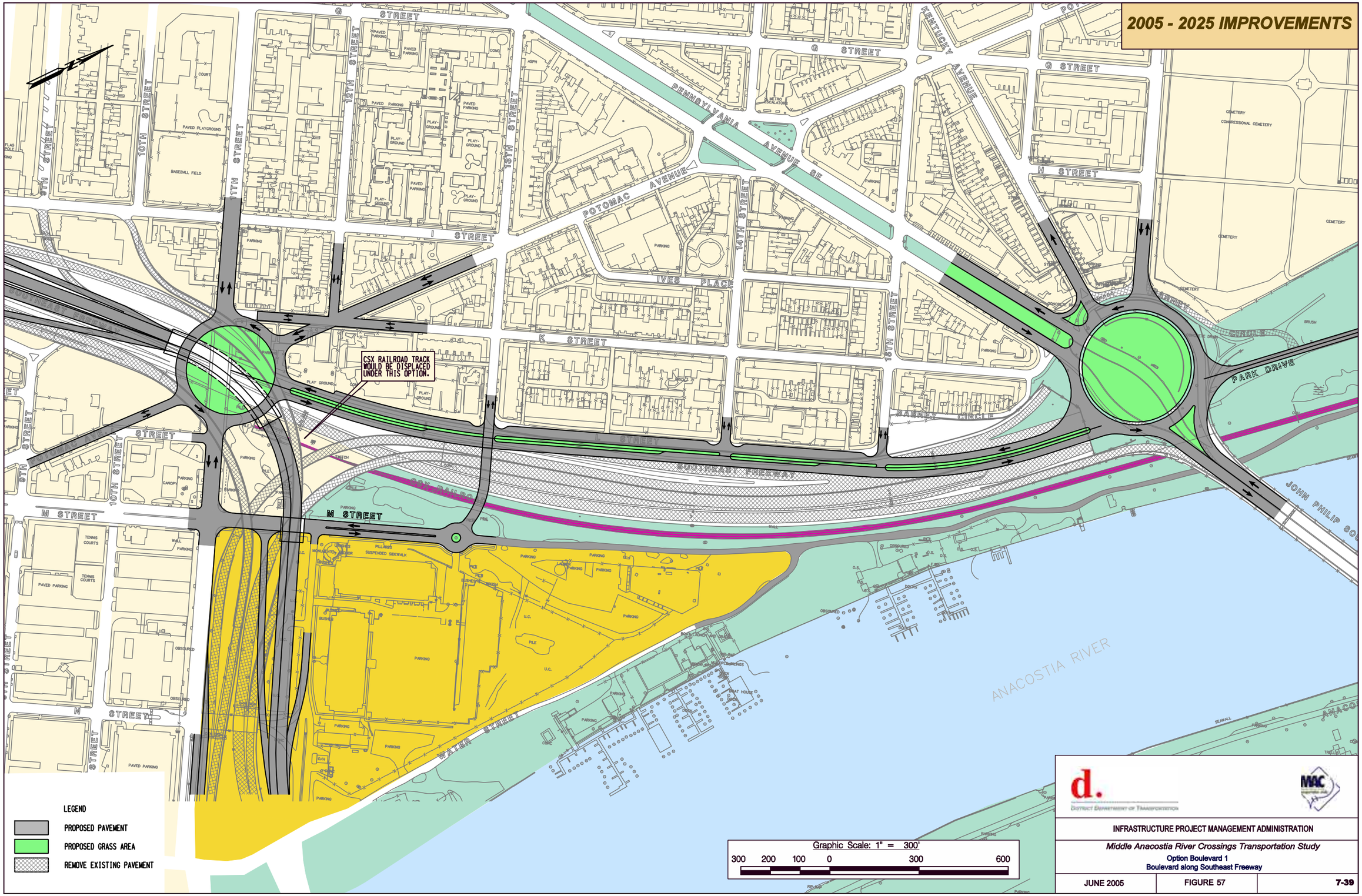
Option Boulevard 1 (Boulevard on L Street)

Option Boulevard 1 proposes that the alignment of the boulevard will replace existing L Street. This concept would provide better accessibility to the transportation network for the adjacent neighborhood north of L Street because it would connect directly with Barney Circle and the circle proposed at 11th Street and Potomac Avenue under the SE-1, SE-2, and SE-3 options. Refer to **Figure 57** for this boulevard option. This option could be adjusted to accommodate Typical Section 1.

13th Street could be extended beyond the boulevard to connect with M Street (near the existing circle) to expand the local street network on the west side of the Anacostia River. Note that this extension may only be provided if the CSX railroad track is removed.

Cost Estimate
The estimated cost for these improvements with Typical Section 1 is **$22.4 million**. Under this estimate, it should be noted that the cost to remove the RFK Access Ramps has not been included. The costs associated with removal of these ramps have been accounted for under the mid-term project #13.

2005 - 2025 IMPROVEMENTS



INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

Middle Anacostia River Crossings Transportation Study

Option Boulevard 1
Boulevard along Southeast Freeway

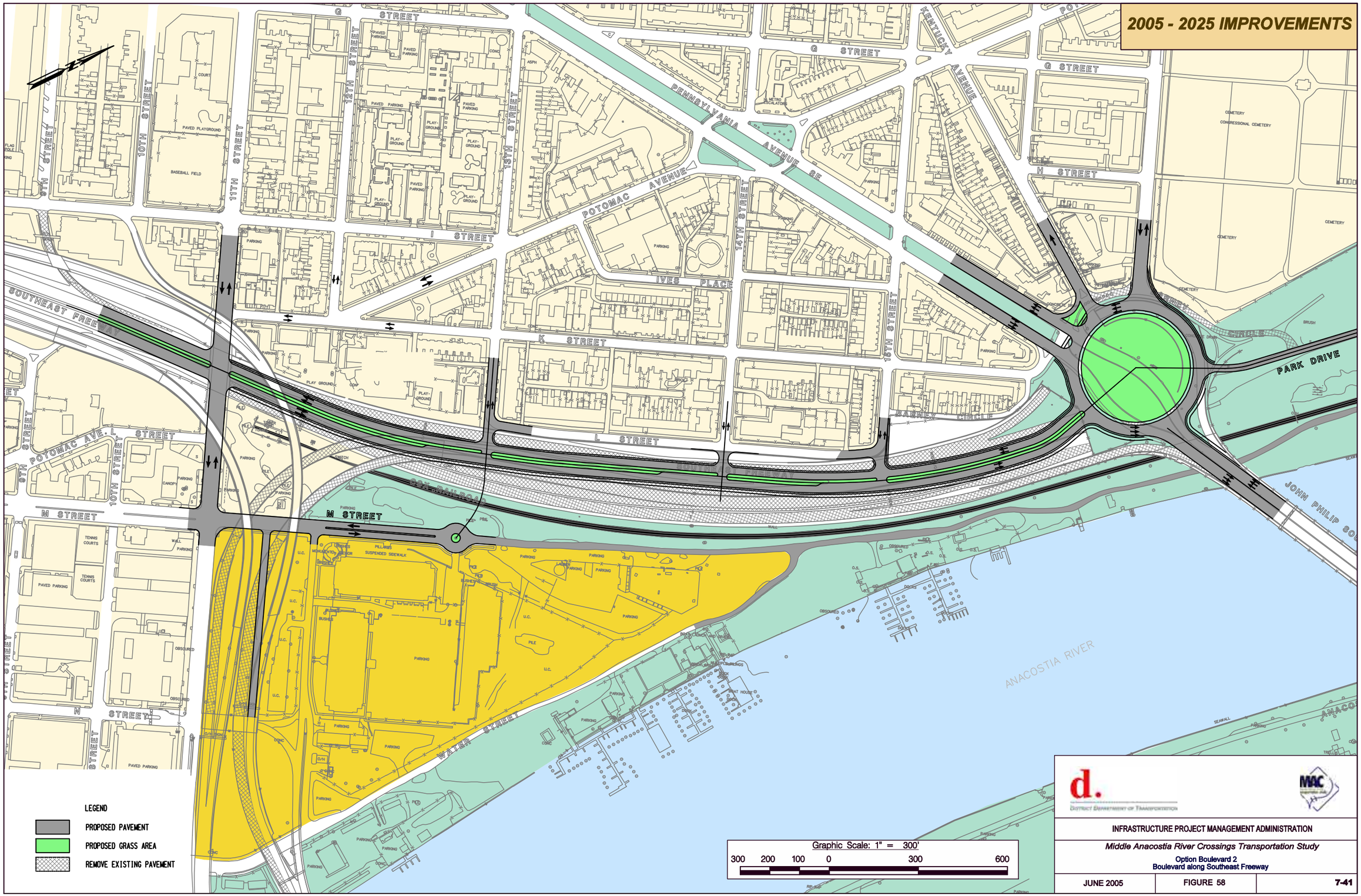
JUNE 2005	FIGURE 57	7-39

Option Boulevard 2 (Local Street Connections to Boulevard)

Option Boulevard 2 proposes a parallel roadway to L Street, with the extension of 13th Street, 14th Street, and 15th Street to the boulevard. It is again possible to extend 13th Street to connect with M Street if the CSX railroad is displaced. **Figure 58** shows this option with the boulevard intersecting 11th Street at-grade. This option may be seen as an interim step prior to the development of an "SE-option", previously discussed. This option could be adjusted to work with Typical Section 3.

Cost Estimate

The estimated cost for these improvements with Typical Section 3 is **$121.0 million**. As in Option Boulevard 1, the cost to remove the RFK Access Ramps has not been included. The costs associated with removal of these ramps have been accounted for under the mid-term project #13.

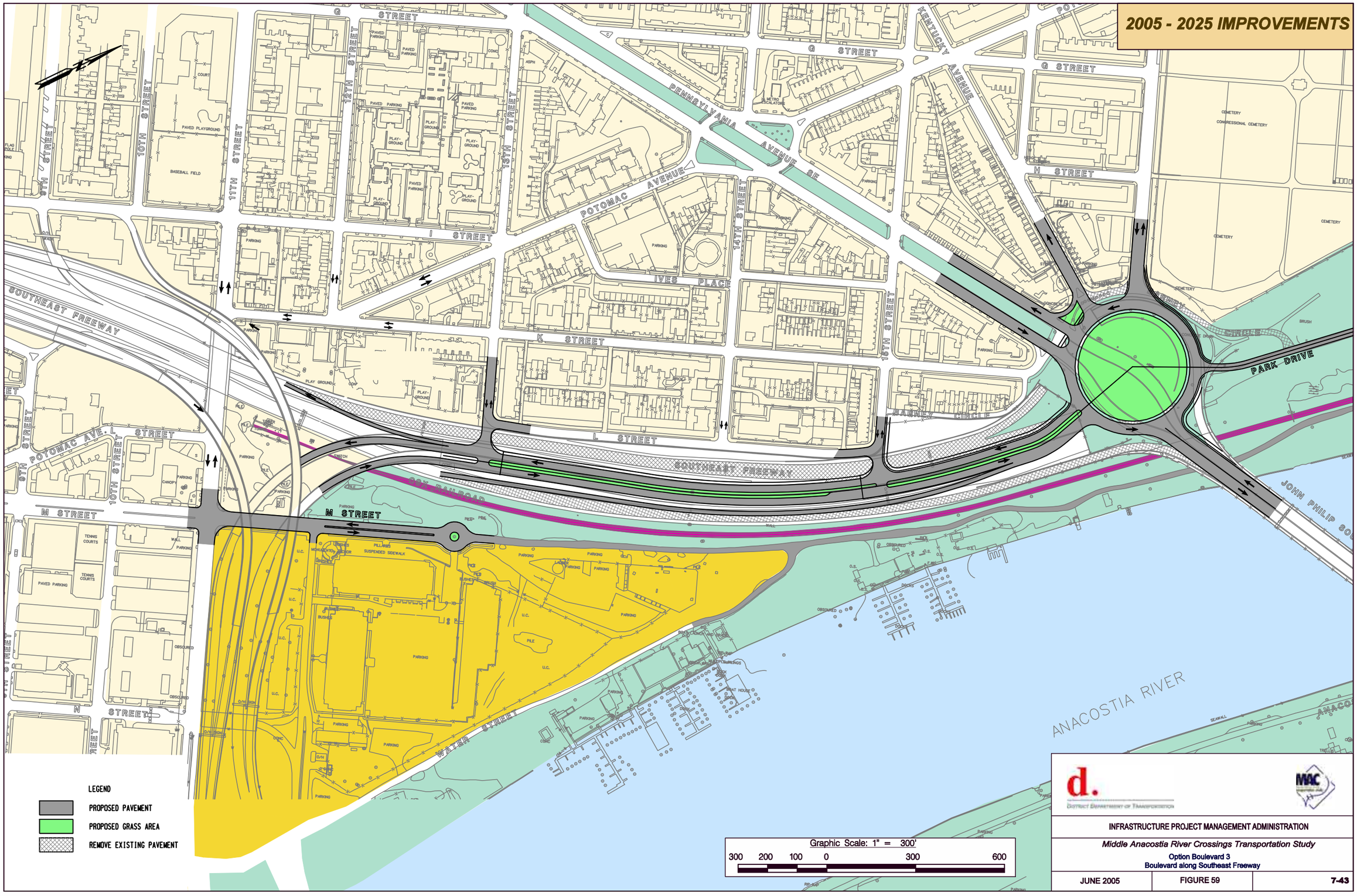

2005 - 2025 IMPROVEMENTS
G STREET
H STREET
I STREET
K STREET
L STREET
M STREET
N STREET
POTOMAC AVENUE
PENNSYLVANIA AVENUE SE
KENTUCKY AVENUE
IVES PLACE
SOUTHEAST FREEWAY
PARK DRIVE
BARNEY CIRCLE
JOHN PHILIP SOUSA BRIDGE
ANACOSTIA RIVER
WATER STREET
CSX RAILROAD
5TH STREET
6TH STREET
7TH STREET
10TH STREET
11TH STREET
12TH STREET
13TH STREET
14TH STREET
16TH STREET
POTOMAC AVE.
BASEBALL FIELD
PAVED PLAYGROUND
TENNIS COURTS
CEMETERY
CONGRESSIONAL CEMETERY
PARKING
LEGEND
PROPOSED PAVEMENT
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 300'
300 200 100 0 300 600
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option Boulevard 2
Boulevard along Southeast Freeway
JUNE 2005
FIGURE 58
7-41

Option Boulevard 3 (RFK Access Ramp Tie-ins)

Option Boulevard 3 proposes a ramp separation to allow buses and other vehicles continuing eastbound on the Southeast Freeway to merge up onto the boulevard and access Barney Circle. This option is more conducive of providing the deck option for the boulevard over the Southeast Freeway. **Figure 59** shows direct connections between the boulevard and the RFK Access Ramps. Initially, it was thought that the RFK Access Ramps might serve as logical connections to a newly developed boulevard. However, the Middle Anacostia River study has determined that more benefit would be provided to the region by removing these ramps entirely. Any further development of this option would require connections to the RFK Access ramps be excluded. This option could be adjusted to accommodate Typical Section 1 or 2.

Cost Estimate

The estimated cost for these improvements with Typical Section 1 is **$18.3 million**. The estimated cost for these improvements with Typical Section 2 is **$175.0 million**.


2005 - 2025 IMPROVEMENTS
G STREET
PENNSYLVANIA AVENUE SE
KENTUCKY AVENUE
H STREET
POTOMAC AVENUE
I STREET
IVES PLACE
K STREET
L STREET
M STREET
N STREET
SOUTHEAST FREEWAY
PARK DRIVE
BARNEY CIRCLE
CIRCLE
JOHN PHILIP SOUSA
ANACOSTIA RIVER
WALER STREET
CSX RAILROAD
5TH STREET
6TH STREET
10TH STREET
11TH STREET
12TH STREET
13TH STREET
14TH STREET
16TH STREET
POTOMAC AVE.
BASEBALL FIELD
PAVED PLAYGROUND
TENNIS COURTS
CEMETERY
CONGRESSIONAL CEMETERY
LEGEND
PROPOSED PAVEMENT
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 300'
300 200 100 0 300 600
DISTRICT DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option Boulevard 3
Boulevard along Southeast Freeway
JUNE 2005
FIGURE 59
7-43

Option Boulevard 4 (Isolated Boulevard)

Option Boulevard 4 proposes that the boulevard would not be at the same elevation as L Street and, therefore, be unable to accommodate local street (13th, 14th or 15th Streets) connections. This option is illustrated in **Figure 60** and provides direct connection of the boulevard between Barney Circle and the proposed circle at 11th Street and Potomac Avenue. Additional right-of-way along the Southeast Freeway would be redeveloped for landscaping or other appropriate uses. This option could be adjusted to accommodate Typical Section 3.

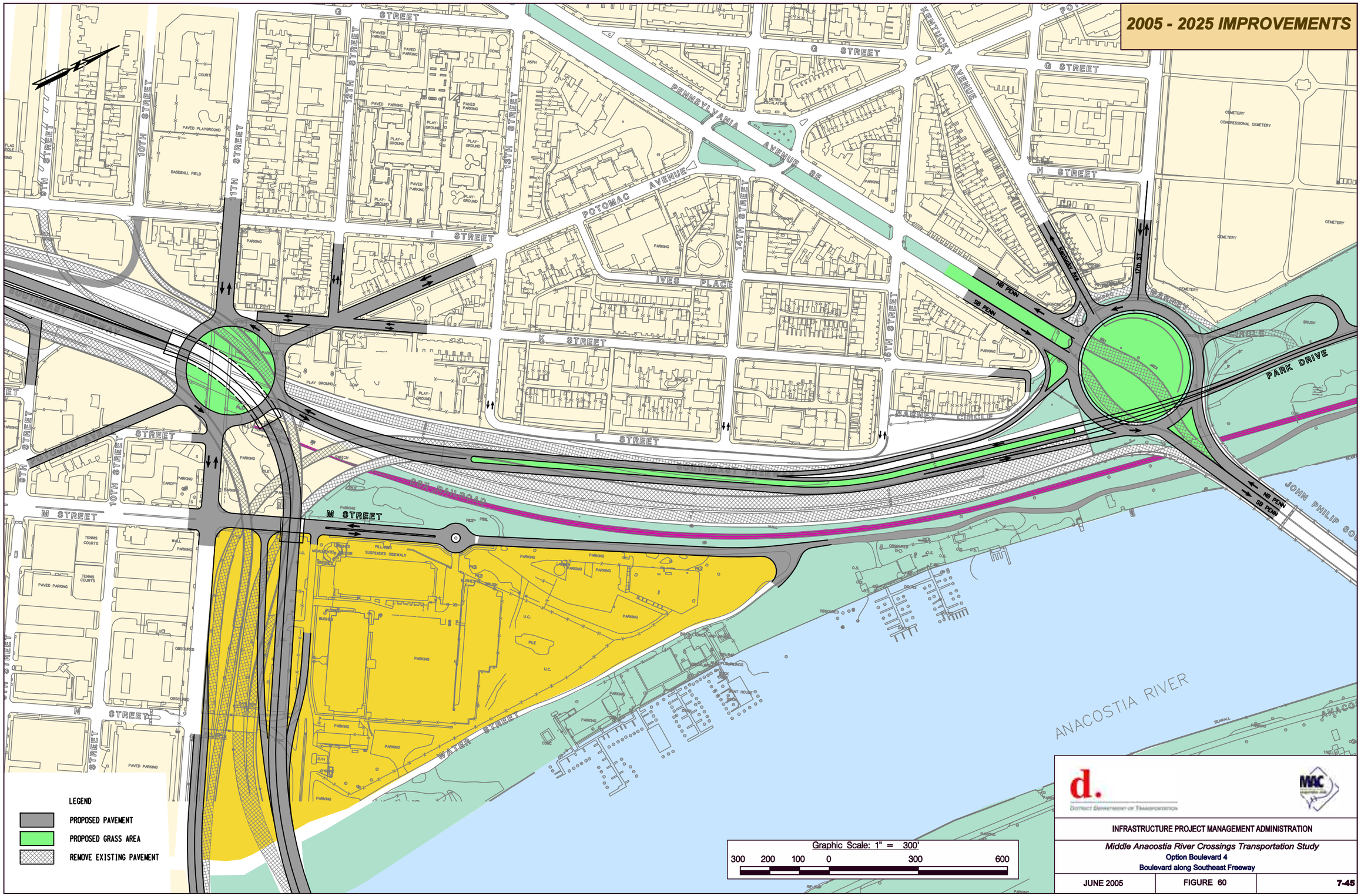
Cost Estimate

The estimated cost for these improvements with Typical Section 3 is **$20.9 million**. This cost reflects a variation to the typical section shown in Figure 56. Instead of creating a partial deck over the Southeast Freeway, sloped earthwork would be proposed from the south side of L Street down to the proposed boulevard. The selection of fill materials in place of a deck structure result in a significant cost savings. In addition, note that the cost to remove the RFK Access Ramps has not been included.

Related project improvements to the Boulevard Options along Southeast Freeway

- Upgrade of the Service Road Connecting Barney Circle and the Southeast Freeway (Project 8 – Mid-Term)
- M Street Ramp Connection to Southbound Welsh Memorial Bridge (Project 13 – Mid-Term)

2005 - 2025 IMPROVEMENTS



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INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

Middle Anacostia River Crossings Transportation Study

Option Boulevard 4

Boulevard along Southeast Freeway

JUNE 2005	FIGURE 60	7-45

Park Drive Alignment

The development of a park road alignment is a specific improvement based explicitly on the Anacostia Waterfront Initiative (AWI) framework plan with the proposal to create a roadway connection between Independence Avenue and Barney Circle, while working in conjunction with the redevelopment of Public Reservation 13. The proposed Park Drive has been planned as a two-lane, low-speed roadway. Associated with this concept is the extension of Massachusetts Avenue from 19th Street to the Park Drive. This extension is part of an overall plan to redevelop the land uses and traffic circulation for Reservation 13. The existing RFK Access Road would be removed and a park access road or trail would be provided along the riverfront.

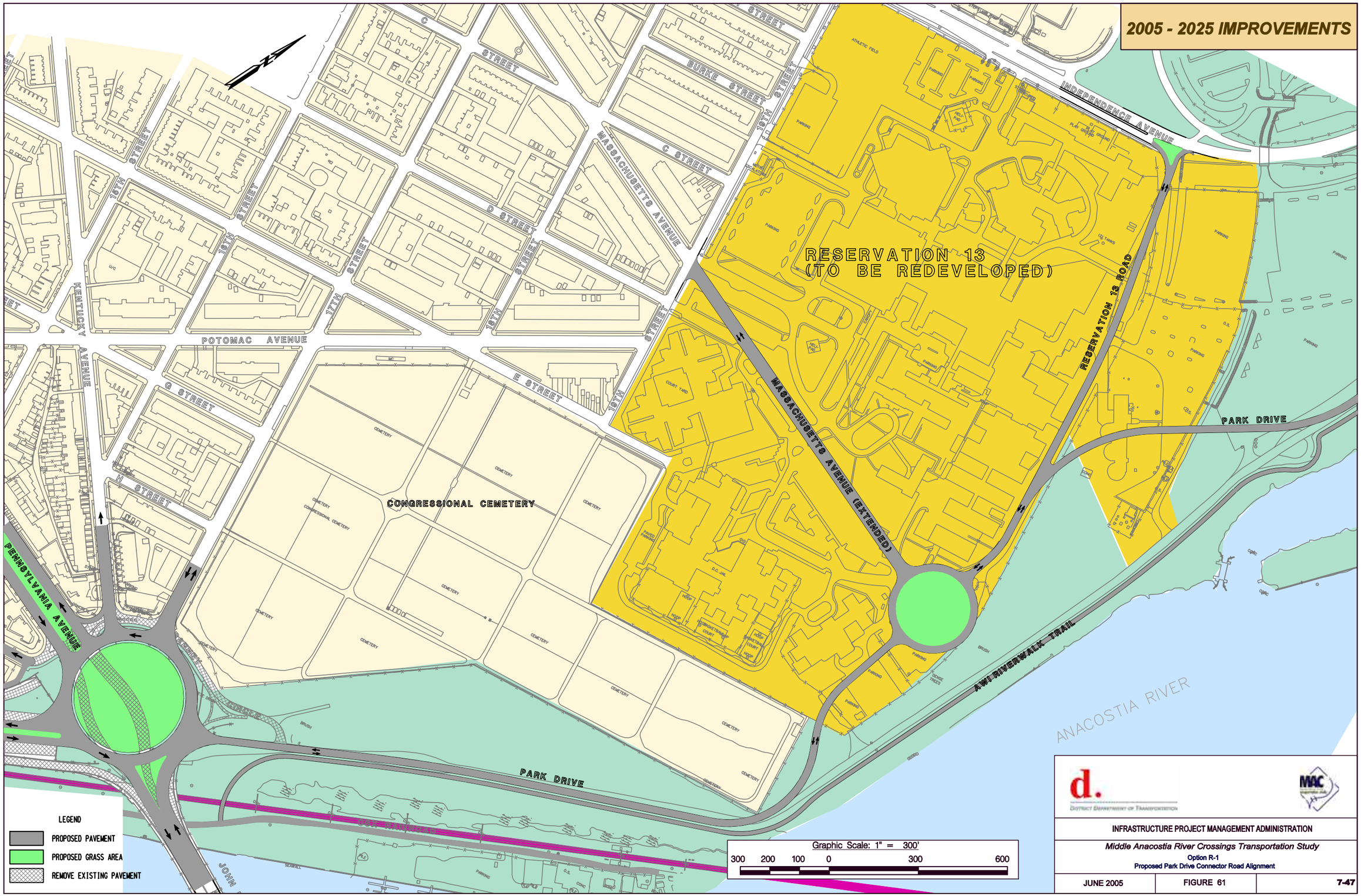
The RFK Access Road (looking west) is located between the Congressional Cemetery and the Anacostia River.

Option R-1 (Park Drive Connector Road)

Option R-1 is the new roadway connection between Barney Circle and Independence Avenue of the existing RFK Access Road that will connect Barney Circle to Independence Avenue. A paved trail would replace the existing RFK Access Road and provide the surrounding neighborhoods a recreational facility that embraces the Anacostia River waterfront. Refer to **Figure 61** for the proposed alignment of this roadway. Park Drive is planned to be a two-lane, low speed roadway with paved shoulders to accommodate bicycles. The Park Drive alignment will split north of the proposed traffic circle to run adjacent to the Reservation 13 redevelopment and to the east around the RFK stadium parking lots. Pedestrians and bicycles will also be able to utilize the portion of the Anacostia Riverwalk Trail that is proposed to run near this improvement.

Cost Estimate
The estimated cost for these improvements is **$4.8 million**.

Related project improvements to the Park Drive Connector Road
- Near-tem Pedestrian Spot Improvements (Project 5 – Near-Term)
- Area wide bicycle network improvements (Project 6 – Near-Term)
- Upgrade of the Service Road Connecting Barney Circle and the Southeast Freeway (Project 8 – Mid-Term)
- RFK Access Road Resurfacing/Rehabilitation Considerations (Project 9 – Mid-Term)


2005 - 2025 IMPROVEMENTS
RESERVATION 13
(TO BE REDEVELOPED)
CONGRESSIONAL CEMETERY
MASSACHUSETTS AVENUE (EXTENDED)
RESERVATION 13 ROAD
PARK DRIVE
AWL RIVERWALK TRAIL
ANACOSTIA RIVER
INDEPENDENCE AVENUE
MASSACHUSETTS AVENUE
PENNSYLVANIA AVENUE
POTOMAC AVENUE
KENTUCKY AVENUE
BURKE STREET
C STREET
D STREET
E STREET
G STREET
N STREET
15TH STREET
16TH STREET
17TH STREET
18TH STREET
19TH STREET
LEGEND
PROPOSED PAVEMENT
PROPOSED GRASS AREA
REMOVE EXISTING PAVEMENT
Graphic Scale: 1" = 300'
300 200 100 0 300 600
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
Middle Anacostia River Crossings Transportation Study
Option R-1
Proposed Park Drive Connector Road Alignment
JUNE 2005
FIGURE 61
7-47

Summary of the Long-Term Improvement Options

The long-term projects provide a vision of the future transportation network of the Middle Anacostia River region. With many benefits and potential impacts to be evaluated prior to implementation, the options at these key locations have the opportunity to complement the future revitalization of the study area and beyond. While these improvements may require significant funding support and further design and environmental evaluation, they form the basis for realizing the goals of the AWI Framework Plan. **Table 19** summarizes each near-term project, the associated benefits, and estimated costs. **Appendix N** contains the long-term cost estimates.

Table 19. Summary of Long-Term Improvement Options

Location	Option	Cost Estimate	General Benefits	Potential Impacts
Pennsylvania Avenue/ Anacostia Freeway	P-1	$94.3 million	• Provides all movements at interchange • Provides aesthetic improvements and possible opportunities for a monument • May provide less obstruction to Anacostia Park and waterfront	• Park Impacts • Utilities • Visual obstructions in some options
	P-2	$95.3 million		
	P-3	$68.6 million		
	P-4	$59.5 million		
	P-5	$93.2 million		
	P-6	$59.5 million		
Barney Circle	BC-1	$23.6 million	• Provides direct access to all adjacent roadways • Provides aesthetic improvements and possible opportunities for a monument	• Utilities
	BC-2	$21.3 million		
11th Street Bridges/ Anacostia Freeway	A-1	$193.0 million	• Eliminate key missing movements • Provides separation of local and regional traffic • May provide less obstruction to Anacostia Park and Waterfront	• Park Impacts • Utilities • Visual obstructions in some options
	A-2	$230.6 million		
	A-3	$279.1 million		
	A-4	$310.3 million		
11th Street/ Southeast Freeway	SE-1	$138.6 million	• Provide better connection of local street network • Separates local and regional traffic • Provides aesthetic improvements	• Residential Impacts • Potential CSX Railroad Impacts • Utilities • Visual impacts in some options
	SE-2	$99.5 million		
	SE-3	$136.8 million		
Boulevard along the Southeast Freeway	Boulevard 1 (Typical Section 1)	$22.4 million	• Reestablish underutilized transportation right-of-way • Improve connectivity between adjacent neighborhoods and the Anacostia Park and waterfront • May provide future land use opportunities	• Utilities
	Boulevard 2 (Typical Section 3)	$121.0 million		
	Boulevard 3 (Typical Section 1)	$18.3 million		
	Boulevard 3 (Typical Section 2)	$175.0 million		
	Boulevard 4 (Typical Section 3)	$20.9 million		
Park Drive Connector Road	R-1	$4.8 million	• Provides better connectivity to Anacostia Park and Reservation 13	• Park Impacts • Utilities

Chapter 8: ENVIRONMENTAL AND AIR QUALITY ANALYSIS

A cursory environmental evaluation was conducted for each proposed improvement project. The emphasis of this evaluation was on the compatibility of the possible improvements with the goals and desires of the affected communities and environmental implications of the long–term projects. In most cases, the local goals are in concert with the AWI: they focus on strengthening neighborhoods by enhancing mobility, increasing access to employment centers, schools and parks, and reducing the detrimental effects of commuter traffic on local roads. With this understanding as a backdrop, the design team developed the array of possible projects. Also, through the technical assistance group (TAG) and through interaction at the numerous public meetings, candidate projects were suggested by study area residents. These were evaluated by the Project Team and added to the study as appropriate.

The proposed projects are designed to have positive effects on the human environment. Many projects seek to correct a long-standing deficiency or simply require very little construction or disturbance to the environment. However, because of the abundant amount of Federal parkland (Anacostia Park) and the rich historic resources and districts, several seemingly minor projects and all of the larger, long-term projects would have some environmental and cultural impacts. Because impacts to the environment are anticipated, these projects would likely require federal NEPA documents either in the form of official Environment Assessments (EAs) or Environmental Impact Statements (EIS), agency coordination and federal and local permitting necessitated by river, wetland and floodplain involvement.

Near and Mid-Term Projects – Environmental Analysis

Proposed near and mid-term projects are relatively straightforward improvements that were either suggested by residents or were developed with immediate action in mind. Of the seven near–term projects, only Project 4 - Pedestrian Bridge and Anacostia Park Connectivity Improvements, could require any form of environmental documentation, albeit minor. This project includes installation of a paved sidewalk from the base of the bridge to the adjacent recreation center, which is part of the National Park System and owned by the National Park Service. Any action on federal property requires NEPA coordination.

Of the seven mid-term projects, three would require careful analysis of various transportation issues as well as an environmental document of some type:

Historic Anacostia.

Project 8 - Upgrade the Service Road between Barney Circle and the RFK Access Road to accommodate general use traffic (Figures 8A and 8B)

Project 9 – RFK Stadium Access Road Resurfacing/Rehabilitation (also presented under the long term options).

Project 15 – Northbound D.C. 295 Ramp Improvements Accommodating Traffic from Eastbound and Westbound Pennsylvania Avenue

These proposed projects lie within or in close proximity to Anacostia Park and would require extensive coordination with the National Park Service. In the case of Project 9, the D.C. Sports and Entertainment Commission would also be a major stakeholder. The transportation and coordination issues regarding Project 9 are presented in Chapter 6.

Long-Term Projects – Environmental Analysis

Similar to the projects described above, the long-term improvements are, by design, intended to meet many of the transportation goals of the AWI. As such, the projects are intended to redirect the ever-growing commuter traffic out of the neighborhoods, restore access to the river and the under-utilized parkland and help create a sense of place with possible monuments, hardscape and other landscape treatments. These are, however, major projects that will require some trade-offs and are anticipated to impact the human, natural and cultural resources environment. Also, because of prior land uses, any construction or demolition near the four interchanges could involve soils contaminated with hazardous waste.

These projects will require a rigorous evaluation and public hearing process under the National Environmental Policy Act (NEPA). The environmental issues and possible challenges of the various long-term projects are presented below. Also, a regional and local air quality assessment was conducted as part of this preliminary evaluation. The results are summarized at the end of this chapter.

Pennsylvania Avenue/Anacostia Freeway Interchange

This project's six options all would require the "taking" of public parkland (Anacostia Park) and thus trigger a federally-required Section 4 (f) Evaluation. In short, this regulation requires that federally-funded transportation projects conduct a thorough alternatives evaluation before any amount of publicly owned parkland is used for transportation purposes. Section 4 (f) also applies to historic sites and districts that are on the National Register of Historic Places and other public lands such as wildlife refuges or even public playgrounds or ball fields. The Section 4 (f) evaluation will require extensive coordination with the National Park Service (NPS) and the Federal Highway Administration; the entity responsible for its 4(f) compliance. Section 4(f) evaluations can be complicated to complete to the satisfaction of all parties, especially those with controversy. However the basic goal of this project is not controversial, it has a strong and straightforward purpose and need and has the NPS as a partner in the overall AWI effort.

There are many issues to consider in this project including constructibility, cost, access to the park and other nearby environmental features such as floodplains and wetlands. Basically, the option that proves to have the least physical impact to the park will also likely have the least impact to the other natural and cultural resources in the immediate area. The stated purpose of this project will also likely be to maintain and even facilitate access to the Park, and this in itself will require some degree of construction or reconstruction on Park property. Because all of the major construction/reconstruction under any option would occur west of Fairlawn Avenue, the project would involve very little if any direct impact to neighboring communities. However, potential secondary effects, such as traffic detours or temporary closures during construction must be evaluated carefully. It is anticipated that this project would be processed as an Environmental Assessment/Section 4(f) Evaluation.

Barney Circle Improvements and the Boulevard Options along the Southeast Freeway

The Barney Circle Improvements Project would be similar to the above project in the areas of the park involvement and Section 4(f) requirements, however it has several major differences that could possibly elevate it requiring an Environmental Impact Statement/Record of Decision document. Any Barney Circle project would likely include the creation of a boulevard that would replace the Southeast Freeway, thus making it a far larger construction/reconstruction project. It would also directly affect adjacent neighborhoods and stakeholders and would therefore require an extensive public information program.

11th Street Bridges/Anacostia Freeway Interchange

The project is very similar in scope and intent to the Pennsylvania Avenue/Anacostia Freeway Interchange Project described above. The primary action is to construct the "missing" ramps within Anacostia Park, and to demolish the unneeded roadway segments. Nearly all of the construction/ demolition would be to the north of any residential/commercial areas, and this would help keep any direct human impacts minor. Special emphasis in the likely Environmental Assessment/Section 4(f) Evaluation would be on wetlands, floodplains, subsurface archaeology and possible impacts to park usage and recreational fields.

11th Street/Southeast Freeway Interchange

This project is similar in projected environmental scope to the Barney Circle/Boulevard options project, although with considerably less National Park impact. Numerous adjacent neighborhoods, schools, churches and commercial areas, historic sites that could be directly or visually affected, and the need for displacing homes and businesses would likely require an Environmental Impact Statement. Other factors such as highway noise and secondary impacts as a result of probable redevelopment would require rigorous impact assessment and possible mitigation.

Park Drive Connector Road

As mentioned under the mid-term project 9, Park Drive would occur within the national park and require extensive coordination with the National Park Service and the D.C. Sports and Entertainment Commission. Environmental considerations would be primarily related to natural resources such as wetlands, wildlife habitat and archaeology along the riverfront but the extension of Massachusetts Avenue to intersect with the Park Drive alignment would expand the environmental document to include a broader range of issues such as secondary and cumulative impacts, employment, redevelopment, traffic patterns, and possible hazardous materials. The scope of this potential project is not defined enough to determine whether an EIS or EA is the appropriate environmental documentation.

Long-Term Projects – Air Quality Analysis

An air quality analysis was conducted to determine the regional and local effects on air quality as a result of the long-term improvement options of the Middle Anacostia River Crossings Transportation Study.

Existing Conditions

The United States Environmental Protection Agency (USEPA) has developed the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants **(Table 20)**, consisting of primary standards to protect our health and secondary standards to prevent environmental and property damage. A geographic area that meets or does better than the primary standard is called an attainment area; areas that do not meet the primary standard are called nonattainment areas.

The study corridor is in attainment with the Clean Air Act for all criteria pollutants except ground-level ozone. The study area is part of the Washington, DC-MD-VA ozone nonattainment area, which EPA designated as 'moderate' nonattainment for the 8-hour standard on April 15, 2004. The attainment date for the nonattainment area is the year 2010.

Given the improvements in automobile emissions control technologies, transportation related emissions in the nonattainment area are expected to decrease in future years despite increased intercity travel demand and increased operational congestion.

Table 20. National Ambient Air Quality Standards (NAAQS)

Pollutant	Standard Value	Standard Type
Carbon Monoxide (CO)		
1-hour Average	9 ppm	Primary
8-hour Average	35 ppm	Primary
Nitrogen Dioxide (NO2)		
Annual Arithmetic Mean	0.053 ppm	Primary and Secondary
Ozone (O3)		
8-hour Average	0.08 ppm	Primary and Secondary
Lead (Pb)		
Quarterly Average	1.5 μg/m3	Primary and Secondary
Particulate < 10 micrometers (PM-10)		
Annual Arithmetic Mean	50 μg/m3	Primary and Secondary
24-hour Average	150 μg/m3	Primary and Secondary
Particulate < 2.5 micrometers (PM-2.5)		
Annual Arithmetic Mean	15 μg/m3	Primary and Secondary
24-hour Average	65 μg/m3	Primary and Secondary
Sulfur Dioxide (SO2)		
Annual Arithmetic Mean	0.03 ppm	Primary
24-hour Average	0.14 ppm	Primary
3-hour Average	0.50 ppm	Secondary

Impacts to Air Quality

Regional Ozone Analysis

Ground-level ozone is the byproduct of chemical reactions between volatile organic compounds (VOCs) and nitrogen oxides (NOx) in the presence of sunlight. One significant source of these chemicals is motor vehicles. While it is not possible to predict ozone levels associated with a single transportation improvement project, it is possible to provide a project-level estimate of the pollutants involved in the formation of ozone.

The implementation of the proposed long-term improvements would increase the amount of automobile travel distances and times in the study area, thereby increasing VOC and NOx emissions in the study area. **Table 21** shows an estimate of the increase (in the year 2030) in tons per year for VOC and NOx as a result of the vehicle miles traveled (VMT) increase. These increases are the result of the addition of ramps at the Southeast Freeway and Anacostia Freeway, and represent an overall transfer of vehicles from outside the study area to within the study area. It does not represent an overall increase of VMT, VOC, and NOx in the overall region and is not expected to preclude the overall region from meeting NAAQS standards for ozone. Also, the increases in total emissions of VOC and NOx within the study area do not represent a direct increase in ozone in the study area. Ozone is formed by a combination of VOC and NOx in the presence of sunlight; however, this formation is greatly influenced by wind transport.

Table 21. 2030 Study Area Estimated Daily Emissions for VOC and NOx (Build vs. No Build)

2030 Build / No Build Average Speed (mph)	2030 Increase in Daily VMT (Build minus No Build) (miles/day)	2030 Increase in VOC Emissions (Build minus No Build) (English tons/day)	2030 Increase in NOx Emissions (Build minus No Build) (English tons/day)
25	43,879	0.0094	0.0084

Notes: Emission Factors (Source: Metropolitan Washington Council of Governments (MWCOG, December 2004)):
VOC(=HC) = 0.194 g/mile (25 mph; summer temperatures, arterial/collector, 2030)
NOx = 0.173 g/mile (25 mph; summer temperatures, arterial/collector, 2030)

Localized Carbon Monoxide Analysis

Carbon monoxide (CO) is a product of incomplete combustion and is emitted directly from the tailpipes of motor vehicles. Because CO is relatively stable, a localized CO analysis can be performed to predict CO concentrations at specific locations in the study area. The analysis focused on the effects of vehicular travel in the study area on 1-hour and 8-hour CO levels near high volume signalized intersection areas where the vehicles operate in an idle mode. The CO levels at these areas were considered worst-case and were compared to the NAAQS for CO **(Table 20)**.

The analysis was conducted using MOBILE6 emissions factors obtained from MWCOG for the existing year (2004) and the future (2030) No Build year and Build year. MOBILE6 emissions factors for idling and free-flow (25 mph) vehicles were input into the USEPA CAL3QHC Version 2.0 line source dispersion model assuming worst-case meteorological conditions including a 1 m/sec (3.3 ft/sec) wind speed, worst-case wind angle and stability class D for urban areas.

Ambient background CO concentrations were added to the predicted 1-hr and 8-hr CO levels. Background concentrations were determined from CO monitoring data. In Washington, DC, the Technical Services Branch of the District's Air Quality Division operates and maintains an extensive ambient air quality-monitoring network within the District. The closest CO monitoring station to the Middle Anacostia River Crossings Transportation study area is located at 34th and Dix Streets, NE. The next highest CO levels in 2004 were 4.0 ppm for the 1-hr average and 3.1 ppm for the 8-hr average.

Traffic used for the CO dispersion modeling analysis considered both AM and PM peak periods for the existing, 2030 No Build, and 2030 Build. The following signalized intersection areas were selected (based on high volumes of traffic operating at an idle condition) for the localized CO analysis:

- Pennsylvania Avenue / Barney Circle
- Pennsylvania Avenue / Anacostia Freeway

CO levels for 8-hour averaging times were determined by applying a 0.7 persistence factor to the predicted 1-hour CO levels. The predicted 1-hour and 8-hour CO levels were added to the appropriate background concentration and then compared to the 1-hour and 8-hour NAAQS for CO, 35 ppm and 9 ppm, respectively. **Table 22** summarizes the results of the localized CO analysis, where only the highest of the am and pm CO levels are reported. All predicted 1-hour and 8-hour CO levels are below the respective NAAQS.

Table 22. Existing and 2030 Worst-Case CO Levels at Study Locations

Signalized Intersection Area	USEPA NAAQS for CO (ppm) 1-hr / 8-hr	Existing CO Level (ppm) 1-hr / 8-hr	2030 No Build CO Level (ppm) 1-hr / 8-hr	2030 Build* CO Level (ppm) 1-hr / 8-hr
Penn. Ave / Barney Circle	35 / 9	6.1 / 4.6	5.2 / 3.9	5.3 / 4.0
Penn. Ave / Anacostia Freeway	35 / 9	6.8 / 5.1	5.8 / 4.4	5.8 / 4.4

*Build intersection areas considered Options BC-2 at Penn. Ave / Barney Circle, and Option P-1 at Penn. Ave. / Anacostia Freeway

Notes: Emission Factors (Source: Metropolitan Washington Council of Governments (MWCOG, December 2004)):

CO = 88.28 g/hr (arterial, idle, winter temperatures, 2005)
CO = 41.04 g/hr (arterial, idle, winter temperatures, 2030)
CO = 8.214 g/mile (arterial, 25 mph; winter temperatures, 2005)
CO = 3.919 g/mile (arterial, 25 mph, winter temperatures, 2030)

Avoidance, Minimization, and Mitigation

Results of the air quality analysis show that the implementation of the long term projects would generate an increase in VMT in the study area, and thus increase total emissions of VOCs and NOx, the precursors to ozone, in the study area. For the study area, this estimated increase in VOC and NOx does not represent a direct increase in ozone in the study area, because ozone formation is greatly influenced by wind transport.

It should be noted that the estimated study area increases in VOC and NOx shown in **Table 21** are not expected to contribute to the overall region's ability to meet NAAQS because the increases are a result of transferring vehicles from outside the study area to within the study area. The overall region should not experience an increase in VMT; and thus the region should not experience an increase VOC and NOx emissions.

The localized CO analysis predicted that 2030 1-hour and 8-hour CO levels would be below NAAQS for the existing and 2030 No Build and 2030 Build conditions at signalized intersections surrounding the Pennsylvania Avenue/Barney Circle and Pennsylvania Avenue/I-295 Freeway areas where high traffic volumes were expected to be operating in the idle mode **(Table 22)**.

Therefore, avoidance, minimization, or mitigation for the project in relation to regional ozone and local CO air quality effects is not required.

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Chapter 9: IMPLEMENTATION AND SUMMARY OF FINDINGS

Making the transportation improvements in the Middle Anacostia River region a reality will require a project development scheme that includes:

- Environmental Assessments and/or Environmental Impact Statements,
- Establishment of funding mechanisms,
- Acquisition of funding,
- Design engineering,
- Permitting and approvals, and
- Right-of-Way acquisition.

Each of the three improvement time frames will have its own specific considerations for constructability, phasing, and cost. Each project under the near-term and mid-term designations may provide opportunities for expedited construction through such contracts as a design-build or fast-tracked design-bid-build. Long-term improvements are generally much more complex than the other projects and will have to engage in all of the developmental steps listed above. The near-term, mid-term, and long-term improvements are summarized below with regard to timeliness of construction, phasing considerations, and issues to consider for future development.

Near-Term Improvement Projects

The near-term projects have been studied and developed with the intent of being implemented as soon as funding is available. The near-term projects are generally low-cost, low-impact improvements throughout the study. These projects are not intended to require additional design engineering and should be viewed as initial steps in achieving the goals of this study while further evaluation is directed towards the mid-term and long-term improvements.

Ease of Construction and Need for Phasing
The seven near-term projects are the first wave of improvements for the Middle Anacostia River region. The timeliness of implementing these projects is critical to the success of the much broader, more costly mid-term and long-term improvements. Near-term projects consist of one or more of the following items:

Washington, D.C. Wayfinding Sign.

Pavement Markings	Pavement Overlay
Signing (Ground-mounted and overhead)	Bridge Deck Patching
Pedestrian Signals	Decorative Fencing
ADA-compliant wheelchair ramps	Handrails
Sidewalk installation or rehabilitation	Bus Shelters
Signal Timing Adjustments	Benches
Lighting	Trash Receptacles
Post-Mounted Delineators	Bicycle Racks

Phasing of the improvements should not be an issue unless there is overlap with construction activities from other projects, unforeseen utility impacts, or if funding is unavailable. If funding is available for each near-term project during the upcoming year and no unforeseen issues arise, all improvements should be in place by the end of 2005. **Table 23** summarizes the costs for all seven near-term projects.

Table 23. Near-Term Project Costs

Project	*Cost Estimate*
Project 1: Signing and Pavement Marking Improvements along the Sousa Bridge and the Ramp to the Southeast Freeway	**$152,000**
Project 2: Signal Timing Optimization along Pennsylvania Avenue, east of the Anacostia River	**Negligible**
Project 3: Roadway Resurfacing and Pavement Marking Replacement	**$900,000**
Project 4: Pedestrian Bridge and Anacostia Park Connectivity Improvements	**$625,000**
Project 5: Near-term Pedestrian Spot Improvements*	**$322,500***
Project 6: Bicycle Network Improvements (Area wide)	**$77,000**
Project 7: Bus Stop Amenities Improvements (Area wide)	**$276,700**
Total	**$2,352,500**

* The Project 5 cost represents the total cost for all pedestrian spot improvement projects throughout the study area.

Potential Issues in Implementation

While it does not appear that there will be conditions that are detrimental to the implementation of any of the near-term projects, some consideration should be given on specific projects to ensure they are in place by the end of 2005.

In ***Project 1***, the overhead signs being replaced on the Sousa Bridge will require some maintenance of traffic to allow construction workers to install the new signs. It is not anticipated that the existing overhead sign structures would need to be replaced, however, an analysis of the structural sign capacity to accommodate the new signs should be completed. Maintenance of traffic will also be required for adjustments to the pavement markings, because existing markings will need to be removed from the bridge deck.

In ***Project 3***, the resurfacing of Minnesota Avenue and Good Hope Road will require milling of the existing pavement. It is likely that both directions of travel will be milled initially and contribute to a disruption in traffic flow. Traffic using these roadways may be slowed somewhat, but should not require detours to complete the resurfacing.

In ***Project 4***, the pedestrian bridge will need to be closed temporarily to pedestrian traffic to complete the necessary maintenance improvements.

In ***Project 7***, each bus stop location that is recommended to have a bus shelter, trash receptacle, or bench installed should be evaluated carefully to determine if enough right-of-way is available to accommodate the improvement. Careful attention should be given to ensure that sidewalks widths are not significantly reduced to accommodate these transit amenities. Coordination will be required with WMATA as well as the local neighborhoods to implement these improvements and ensure compatibility with community goals.

Table 24 provides a general evaluation of anticipated performance measures of each project as it pertains to the study goals and objectives. The table also forecasts the types of impacts and costs that may be associated with each near-term project.

Table 24. Performance and Achievability Matrix for Near-Term Improvement Projects

	Near-Term Project Number						
Performance Projection	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Improve vehicular accessibility	No	No	No	No	No	No	No
Improve vehicular mobility	Yes	Yes	Yes	No	No	No	No
Improve vehicular traffic safety	Yes	No	Yes	No	No	No	No
Improve pedestrian/bicycle accessibility	Yes	No	No	Yes	Yes	Yes	No
Improve pedestrian/bicycle mobility	No	No	Yes	Yes	Yes	Yes	No
Improve pedestrian/bicycle traffic safety	Yes	No	Yes	Yes	Yes	Yes	No
Improve connectivity to park	No	No	Yes	Yes	Yes	Yes	No
Improve transit options for residents	No	No	No	No	No	No	Yes
Improve transit options for commuters	No	No	No	No	No	No	Yes
Relieve commuter traffic on neighborhood streets	No	No	No	No	No	No	No
Restore under-utilized right-of-way	No	No	No	No	No	No	No
Achievability Projection							
Community Impact							
Environmental Impact							
Cost of Implementation							

Achievability Definition

Not Applicable	"="	
High cost/impact	"="	
Moderate cost/impact	"="	
Low cost/impact	"="	

Mid-Term Improvement Projects

The mid-term projects have been studied and developed with the intent of being implemented as soon as funding is available. The mid-term projects are moderate cost, low-impact improvements throughout the study area. These projects may require some additional engineering and would need to be evaluated independently to determine the degree of additional environmental analysis and documentation needs (see Chapter 8). As with near-term projects, the mid-term improvements should be viewed as initial steps in achieving the goals of this study while further evaluation is directed towards the long-term improvements.

Ease of Construction and Need for Phasing

The eight mid-term projects are the second wave of improvements for the Middle Anacostia River region. The timeliness of implementing these projects is critical to the success of the much broader, more costly long-term improvements. Mid-term projects include one or more of the following items:

Pavement Markings	Pavement Overlay
Signing (Ground-mounted and overhead)	Decorative Crosswalks
Pedestrian Signals	Decorative Fencing
ADA-compliant wheelchair ramps	Borrow Material
Sidewalk installation or rehabilitation	Curb and Gutter
Concrete Island Adjustments	Guardrail
Lighting	Barrier
Post-Mounted Delineators	Retaining Walls
Concrete Structures	Demolition of Existing Ramps
Landscaping Materials	Traffic Signals
Pavement Base Material	Soil Subbase material
Earthwork excavation	

Phasing of the mid-term improvements should not be an issue unless there is overlap with construction activities from other projects, unforeseen utility impacts are discovered, or inadequate funding. If funding is available for each mid-term project during the next two-to-three years and no unforeseen issues arise, all improvements should be in place by the end of 2010. **Table 25** summarizes the costs for all eight mid-term projects.

Table 25. Mid-Term Project Costs

Project	*Cost Estimate*
Project 8: Upgrade the Service Road between Barney Circle and the RFK Access Road to accommodate general use traffic	**$9,274,000**
Project 9: RFK Stadium Access Road Resurfacing/Rehabilitation	**N.A.***
Project 10: Anacostia Park and Frederick Douglass Home Wayfinding Improvements	**$12,000**
Project 11: Minnesota Avenue Pedestrian Safety Improvements	**$1,528,000**
Project 12: Conversion of Martin Luther King, Jr. Avenue and 13th Street to two-way traffic	**$859,000**
Project 13: M Street Ramp Connection to Southbound Welsh Memorial Bridge	**$15,528,000**
Project 14: Pennsylvania Avenue/Potomac Avenue Intersection Improvements	**$2,623,000**
Project 15: Ramp Improvements for traffic from Eastbound and Westbound Pennsylvania Avenue to Northbound Anacostia Freeway	**$3,364,000**
Total	**$33,188,000**

* A cost estimate was not developed for this project due to many potential coordination and environmental issues.

Potential Issues in Implementation

While it does not appear that there will be conditions that are detrimental to the implementation of any of the mid-term projects, there are some challenges that need to be met to successfully implement the eight mid-term projects by 2010 or sooner.

In ***Project 8***, there are several items that need to be coordinated to allow for an efficient construction process. First, with the upgrade of the service road, minor adjustments required to widen the road should not pose any significant impacts to the adjacent Congressional Cemetery. However, it is important that accurate right-of-way information is obtained in the area of the cemetery to establish the appropriate new edge of road. The existing service road is, on average, about 20 feet wide. The recommended improvements include provisions to widen the roadway to 22 feet wide. The alleviation of restrictions on traffic using this road is not expected to have a negative effect on emergency response vehicles or other authorized vehicles because of the lack of enforcement placed on the road today. However, traffic studies and community workshops may be required to monitor this change.

Project 8 also proposes the construction of an ADA-compliant ramp structure to help connect pedestrians and bicyclists from the Sousa Bridge to the Anacostia River waterfront. The structure will likely be very costly due to the elevation difference between the bridge and the waterfront (approximately 40 feet). There may be impacts to the Anacostia Park on this side of the River to accommodate the structure and landing area. The structure should also be coordinated with the final design of the Anacostia Riverwalk Trail to determine if there is a more appropriate connection point between the two facilities.

The turnaround movement proposed in the median of Barney Circle between the eastbound and westbound movements of Pennsylvania Avenue may require permits if the grass area is owned by the National Park Service.

In ***Project 9***, there are potential environmental issues, coordination obstacles, and conflicts with the AWI long-term vision that all need to be considered before this project is implemented. Environmental issues are tied into the considerations for if and where the RFK Access Road would be realigned. In just about any alignment option, there would impacts to the Anacostia Park, land owned by the National Park Service. At a minimum, the road would require a significant pavement resurfacing, shoulder stabilization, widening and stormwater management facilities.

Coordination on any improvements for the RFK Access Road would likely involve DDOT and one or more of the following stakeholders:

- National Park Service,
- D.C. Sports and Entertainment Commission,
- The Congressional Cemetery,
- Tour Bus Parking for D.C.,
- The Redevelopment of Reservation 13,
- D.C. Water and Sewer Authority, and
- The general public.

Major League Baseball's return to Washington, D.C. and more specifically, RFK Stadium in the short-term, will also have some bearing on what is done in the near- and mid-term timeframes to improve this roadway.

In ***Project 10***, specific locations need to be evaluated to ensure the signs are not obstructed by trees, other signs, or existing street furniture such as benches, bus shelters or light poles. Conversely, the specific location of the wayfinding signs should also be evaluated to ensure they do not obstruct walkways or other signs. The combination of these evaluations may require that either existing signs or the proposed wayfinding signs be relocated to best serve travelers within the study area.

In ***Project 11***, coordination with WMATA is necessary to determine if the bus pulloff areas are desirable for metrobus drivers or if it is more appropriate to have them stop in the travel lane. DDOT also has a manual that discusses traffic calming policies and guidelines within Washington, D.C. Project 11 proposes medians, curb extensions, on-street parking, and textured crosswalks; all of which are considered traffic calming measures to some degree in the DDOT manual.

In ***Project 12***, coordination should be initiated with adjacent business owners and residents in Anacostia and specifically, along Martin Luther King, Jr. Avenue and 13th Street, to alert them of the operational changes and future considerations for light rail service along these streets. Beginning in Phase II, sidewalks will need to be widened along one side of Martin Luther King, Jr. Avenue between W Street and Good Hope Road to accommodate the transition from a one-way street to a two-way street and more importantly, to accommodate light rail infrastructure. Conversely, sidewalks will be narrowed along one side of 13th Street between W Street and Good Hope Road. This change may have impacts to existing sidewalk amenities and utilities.

In Phases II and Phase III, the amount of on-street parking will also be impacted significantly. According to the Anacostia Gateway Transportation Study, there are **71** parking spaces along Martin Luther King, Jr. Avenue and **36** parking spaces along 13th Street between Good Hope Road and W Street, respectively. With the incoming development lead by the AEDC Building and the Government Center, parking may be more of an issue with the implementation of this project. At this time, DDOT and DCOP are investigating viable off-street parking opportunities.

In ***Project 13***, the RFK Access Ramps are recommended to be removed. This consideration will need to be evaluated in conjunction with accessing RFK Stadium as the interim site for the Major League Baseball's Washington Nationals. The transportation improvements recommended under Project 13 are not feasible if the RFK Access Ramps remain in place. Traffic analyses should be reevaluated to determine if any signal timing adjustments are needed at M Street/11th Street as a result of the new intersection created along M Street with the ramp connection.

In ***Project 14***, the redevelopment of the Pennsylvania Avenue/Potomac Avenue intersection will need proper coordination with the incoming Jenkins Row development. Coordination with WMATA and adjacent properties at this intersection is also recommended to educate the community how and why these changes are proposed.

In ***Project 15***, the close proximity of the proposed ramp to the right-of-way for the abandoned CSX railroad tracks may be an issue if WMATA expands the light rail demonstration line north of Pennsylvania Avenue and proposes any stops or other light rail infrastructure along the west side of the tracks. Retaining walls are proposed under this project to maintain the improvements outside of the CSX right-of-way. However, detailed mapping and further coordination with WMATA on this project and the future of the light rail line are important to consider when more detailed design is applied to this project.

Table 26 provides a general evaluation of anticipated performance measures of each mid-term project as it pertains to the study goals and objectives. This table also forecasts the types of impacts and costs that may result from each project.

Table 26. Performance and Achievability Matrix for Mid-Term Improvement Projects

	Mid-Term Project Number							
Performance Projection	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Improve vehicular accessibility	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Improve vehicular mobility	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Improve vehicular traffic safety	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Improve pedestrian/bicycle accessibility	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Improve pedestrian/bicycle mobility	Yes	Yes	No	Yes	Yes	No	Yes	No
Improve pedestrian/bicycle traffic safety	Yes	Yes	No	Yes	Yes	No	Yes	No
Improve connectivity to park	Yes	Yes	Yes	No	No	No	No	No
Improve transit options for residents	No	No	No	Yes	Yes	Yes	Yes	No
Improve transit options for commuters	No	No	No	No	No	Yes	No	No
Relieve commuter traffic on neighborhood streets	Yes	Yes	No	No	No	No	No	No
Restore under-utilized right-of-way	No	No	No	No	No	No	No	No
Achievability Projection								
Community Impact								
Environmental Impact								
Cost of Implementation								

Achievability Definition

Not Applicable "="

High cost/impact "="

Moderate cost/impact "="

Low cost/impact "="

Long-Term Improvement Options

The long-term improvement options have been developed with the intent of providing some choice for each of the six key locations within the study area. The long-term options are high cost and vary in their magnitude of impacts to surrounding resources. Each selected option will require additional design engineering, traffic analyses, and appropriate environmental analyses and documentation (see Chapter 8). Unlike the near-term projects and the mid-term projects, the majority of the long-term improvements represent the complete build out required to achieve the ultimate goals of the AWI.

The long-term options require many of the construction items called out for the near-term and mid-term projects, as well as the following additional cost features:

- Tunnel construction costs, and
- Pumping Station costs.

Selection of a Preferred Option

The first step of implementing the long-term alternatives into the Middle Anacostia River region is to select one or more preferred options at each location based on a combination of factors such as ease of construction and need for phasing, preliminary cost, traffic accommodations, general safety, and impacts. Next, an evaluation of how each of the preferred options accommodates the local and regional goals sought by the Anacostia Framework Plan.

Table 27 shows projected volumes for the Anacostia River bridge crossings under three different future conditions for 2030; No Build, Build, and Build with a proposed tunnel for South Capitol Street underneath the river. The tunnel proposal could create far-reaching opportunities for additional change, including a notable decrease in traffic on the redeveloped South Capitol Street, Frederick Douglass Bridge, and other river crossings.

Table 27. Future Volumes for the Middle Anacostia River Crossings

Crossing	2030 No Build Volumes	2030 Build Volumes	2030 Build Volumes with South Capitol Street Tunnel
South Capitol Street Tunnel	N.A.	N.A.	81,900
Frederick Douglass Bridge	63,600	62,000	36,600
11th Street Bridge	105,100	172,400	152,300
Sousa Bridge	74,900	57,400	54,400
Whitney Young Bridge	58,700	49,400	47,200
Benning Road Bridge	51,500	46,200	44,100
Total	**353,800**	**387,400**	**416,500**

Within the Middle Anacostia River Crossings Transportation Study area, the Sousa Bridge would experience reduced volumes with the build improvements in place. The 11th Street Bridges would experience an increase in traffic volumes for two reasons. First, the development of a full interchange with the Anacostia Freeway would facilitate better use of these river crossings for traffic on both sides of the river. Second, the proposal of making the 11th Street Bridge and the Welsh Bridge two-way along with devoting one bridge to commuter traffic and one to local traffic would provide improved mobility and usefulness of these crossings.

Acquisition of funding for the build improvements in the Middle Anacostia River region is undoubtedly a major factor in how traffic will be distributed across the Anacosita River. For now, this study provides some general points for consideration as options are evaluated at each of long-term improvement areas.

Pennsylvania Avenue/Anacostia Freeway Interchange

At the Pennsylvania Avenue/Anacostia Freeway interchange, six options have been developed. Three options (P-1, P-2, and P-5) all propose to place the Anacostia Freeway below grade in a tunnel or some type of depressed freeway. The costs associated with constructing a tunnel are the main reason that the overall cost of these options is higher than those options without a tunnel. Uncertain issues associated with placing the Anacostia Freeway below grade include utilities and potential impacts to the water table due to the close proximity of the roadway to the Anacostia River. If a tunnel design was preferred with Options P-3, P-4, or P-6 for this interchange, further evaluations would be required to determine the feasibility of providing all the connections between Pennsylvania Avenue and the Anacostia Freeway. **Table 28** summarizes the costs for these six options.

Table 28. Costs for the Pennsylvania Avenue / Anacostia Freeway Interchange Options

Option	*Cost Estimate*
P-1 (D.C. Circle with Anacostia Freeway in tunnel)	**$94.3 million**
P-2 (Oval-shaped "D.C.-circle" with Anacostia Freeway in tunnel)	**$95.3 million**
P-3 (Flyover ramp for eastbound to northbound movement, no tunnel)	**$68.6 million**
P-4 (Loop ramp in Southeast quadrant, no tunnel)	**$59.5 million**
P-5 (SPUI, with Anacostia Freeway in tunnel)	**$93.2 million**
P-6 (Dual ramp connection in Northwest quadrant, no tunnel)	**$59.5 million**

Although not included in these costs estimates, the possibility exists to extend the proposed Anacostia Freeway tunnel to the south, or to place sections of the freeway between 11th Street and Pennsylvania Avenue in separate tunnels, to provide greater connectivity between the adjoining neighborhoods and Anacostia Park. Visual impacts associated with the non-tunnel options (P-3, P-4, and P-6) are anticipated to be much greater than those options considering a tunnel. The main reason for this is that the various ramp connections between Pennsylvania Avenue and the Anacostia Freeway would require bridge sections over one or both roadways to accommodate all movements at this interchange. The options proposing the Anacostia Freeway below grade minimize the need for structures and, therefore, offer a less obstructed view for communities on the east side of the Anacostia Park and Anacostia River.

No matter which option is selected for further study, maintenance of traffic will be very complex and could be very disruptive to the existing transportation network. The location of the Sousa Bridge, the proposed light rail demonstration line, and the Anacostia River limit the area of potential expansion for this interchange.

The overall goal of all options at this interchange is to provide for all movements between Pennsylvania Avenue and the Anacostia Freeway. By doing so with a variety of feasible ramp combinations, each option will incur some impacts to the Anacostia Park. Coordination with the National Park Service should begin as soon as possible to discuss the various options and possible means of mitigating park impacts.

Barney Circle

At Barney Circle, two options have been developed. Both options develop a full D.C.-type circle at Barney Circle. BC-1 maintains the underpass of the Southeast Freeway below Barney Circle just as it does in existing conditions. BC-2 eliminates the underpass by providing a direct connection with the Southeast Freeway (or proposed boulevard) into the circle. Both options are nearly identical in all other features. Kentucky Avenue, 17th Street, and Pennsylvania Avenue all have direct connections to the new circle. **Table 29** summarizes the costs for these two options.

Table 29. Costs for the Barney Circle Improvement Options

Option	Cost Estimate
BC-1 (Southeast Freeway or Boulevard maintained below circle)	$23.6 million
BC-2 (Southeast Freeway or Boulevard connects directly into circle)	$21.3 million

In terms of staging the improvements at Barney Circle, some consideration should be given to the timing of the boulevard improvements and the Reservation 13 Road. Both locations propose options that directly tie into the new Barney Circle. While it is not required that all three projects be built simultaneously, it may be more cost effective to develop all three at once. Temporary connection between the circle and the existing Southeast Freeway and the RFK Access Road would be constructed if the timing or funding were not available to complete a boulevard option and the Reservation 13 Road, respectively. Considerations for constructing all three projects together also would have a bearing on the amount of disruption the construction would provide to nearby communities. Because maintenance of traffic will be a challenge when the existing Barney Circle is converted to a true circle, it may be beneficial to develop the boulevard and Reservation 13 Road at the same time as Barney Circle to minimize the application of detours and other traffic restrictions.

11th Street Bridges / Anacostia Freeway Interchange

At the 11th Street Bridges/Anacostia Freeway interchange, four options have been developed. **Table 30** summarizes the costs for each of these options. The purpose of these options is somewhat different than those at other long-term locations. First, the options considered at the 11th Street Bridges/Anacostia Freeway interchange vary from an interim option to a complete interchange option. Option A-1 proposes two new ramps: one ramp to connect the southbound Welsh Bridge to northbound Anacostia Freeway and another ramp to connect southbound Anacostia Freeway to northbound 11th Street Bridge. While this option is considered a less expensive, less impactive option to accommodating two missing movements, it does not become the first phase for the ultimate build interchange option (A-4).

Table 30. Costs for the 11th Street Bridges / Anacostia Freeway Interchange Options

Option	Cost Estimate
A-1 (Interim Build, Step 1)	$193.0 million
A-2 (Interim Build, Step 2, no tunnel)	$230.6 million
A-3 (Interim Build Step 2 option w/ Anacostia Freeway in tunnel)	$279.1 million
A-4 (Ultimate Build option with Anacostia Freeway in tunnel)	$310.3 million

Option A-1 maintains one-way directional flow exclusively on both the Welsh Memorial Bridge (southbound) and the 11th Street Bridge (northbound). While this option would help with regional traffic patterns across the Anacostia River, it does not achieve all of the goals sought for this location. Options A-2 and A-3 are independent options with no expansion on the design of A-1. Options A-2 and A-3 do accommodate the change of each bridge to two-way traffic flow; the Welsh Bridge for local traffic, and the 11th Street Bridge for regional traffic. This conversion of the 11th Street Bridges to two-way traffic flow is also directly tied into accommodating the two-way traffic conversion applied to Martin Luther King, Jr. Avenue and 13th Street, south of Good Hope Road.

While there are several design elements that make Option A-2 and A-3 unique, the major feature is the consideration for placing the Anacostia Freeway in a tunnel or depressed freeway. Uncertain issues associated with placing the Anacostia Freeway below grade include utilities and potential impacts to the water table due to the close proximity of the roadway to the Anacostia River. Option A-3 considers a tunnel, while Option A-2 does not. This not only has a major bearing on the cost difference between the two options, it also dictates what movements can be provided. Option A-4 also proposes placing the Anacostia Freeway below grade and provides the most complete interchange of all the options. The enhanced functionality of this option is one of the main reasons this option is estimated to have the highest costs.

The separation of local and regional traffic may be accommodated in Options A-2, A-3, and A-4. New bridges to replace the Welsh Memorial Bridge and the 11th Street Bridge are necessary in the consideration of selecting any of these three options. The structural condition of these bridges is such that further maintenance efforts will not be able to extend the life of these bridges too far into the future. Replacing these bridges with new facilities would assist in advancing the construction of the new interchange with the Anacostia Freeway. Maintenance of traffic will be very complex at this interchange, however, the construction of new bridges should assist in moving traffic during construction.

Accommodating future light rail service is another key element of Options A-2, A-3, and A-4. As each of these options explores the separation of local and regional traffic between the Welsh Bridge and the 11th Street Bridge, respectively, light rail may be another opportunity to connect communities on each side of the Anacostia River. Right-of-way to accommodate future light rail is proposed along the Welsh Bridge. The intent would be to carry a line across the river and allow for expansion of this line along M Street.

Visual impacts would likely be more severe with Options A-1 and A-2 because of the new bridge structures required to complete new ramp connections. The proposed tunnel design applied to options A-3 and A-4 allows for some of the new ramp connections to be lowered between the Anacostia Freeway and the 11th Street bridges. Just like at the Pennsylvania Avenue/Anacostia Freeway interchange, the placement of the freeway below grade allows for minimized obstructions across the River as a result of the interchange considerations.

During the evaluation of these options, care was taken to not impact the property boundaries associated with the AEDC Building, the D.C. Government Center and the Anacostia Corridor Light Rail Demonstration line with any of the long-term options. Coordination will be critical between these incoming developments once more detailed information is available regarding these planned site layouts.

Similar to the Pennsylvania Avenue/Anacostia Freeway interchange, each option will create some impacts to the Anacostia Park. Coordination with the National Park Service should begin as soon as possible to discuss the various options and possible means of mitigating park impacts.

11th Street / Southeast Freeway Interchange

At the 11th Street/Southeast Freeway interchange, three options have been developed. **Table 31** summarizes the cost for these three options. All three options propose a "D.C.-type" circle connecting 11th Street, Potomac Avenue, and the proposed boulevard along the Southeast Freeway. These options all have ties with the development of a boulevard along the Southeast Freeway between 11th Street and Barney Circle. In addition, the "SE" options must also be coordinated with the 11th Street Bridges/Anacostia Freeway interchange options (A-2, A-3, and A-4) that consider two-way traffic flow along the Welsh Bridge and the 11th Street Bridge.

Table 31. Costs for the 11th Street / Southeast Freeway Interchange Options

Option	*Cost Estimate*
SE-1 (SE Freeway proposed under circle in tunnel)	**$138.6 million**
SE-2 (SE Freeway bridged over circle)	**$99.5 million**
SE-3 (SE Freeway proposed under circle in tunnel, with alternative ramps)	**$136.8 million**

There are several impacts that would occur with the development of any of these options. In general, properties at the southeast corner of 11th Street/K Street would likely be displaced to accommodate the extension of Potomac Avenue and the proposed circle. The extension of Potomac Avenue to the circle assumes that no other developments are planned north of L Street (south of the Southeast Freeway).

Options SE-1 and SE-3 propose that the 11th Street Bridge alignment that ties into the westbound Southeast Freeway will be placed below grade beneath the proposed circle. This design option would require that the existing CSX railroad tracks would need to be removed due to a conflict between the profiles of each facility. If either of these options were selected, coordination would be necessary with CSX to determine the feasibility of such a displacement. The RFK Access ramps need to be removed to accommodate these options

While Options SE-1 and SE-3 would require displacing an active CSX railroad line, they would also provide less of a visual obstruction to the surrounding communities. Option SE-2 takes the 11th Street Bridge alignment over the proposed structure and would hinder the viewshed from adjacent businesses and neighborhoods to the Anacostia Park and the Anacostia River.

As with the other major interchanges within the study area, maintenance of traffic would be difficult to establish while construction takes place. Any maintenance of traffic associated with this location would need to account for the traffic flow patterns on both the Welsh Memorial Bridge and the 11th Street Bridge. Because of the complexity envisioned for maintenance of traffic, it is recommended that improvements this location take place only after one of the options at the 11th Street Bridges/Anacostia Freeway interchange is completed.

Boulevard along the Southeast Freeway

There are four options being considered for the Boulevard along the Southeast Freeway. These options can be expanded even more to include considerations for different roadway typical sections. **Table 32** summarizes the available options associated with different typical sections for the boulevard concepts. Typical Sections 2 and 3 account for a full or partial deck structure over the existing Southeast Freeway to allow for future land uses and redevelopment.

Table 32. Costs for the Boulevard Options along the Southeast Freeway

Option	*Cost Estimate*
Boulevard 1 (Typical Section 1)	**$22.4 million**
Boulevard 2 (Typical Section 3)	**$121.0 million**
Boulevard 3 (Typical Section 1)	**$18.3 million**
Boulevard 3 (Typical Section 2)	**$175.0 million**
Boulevard 4 (Typical Section 3)	**$20.9 million**

While the boulevard is not as critical to providing missing movements, it does help promote a better local connection between the Southeast Freeway and Pennsylvania Avenue, revitalizes transportation right-of-way along the west side of the Anacostia River, and opens the opportunity for park-like green space and other land uses that may improve the connection to the Anacostia River waterfront.

Implementing a boulevard design requires ongoing coordination with partnering agencies such as WMATA and the D.C. Sports and Entertainment Commission to determine what is the most feasible option. The typical sections as well as the alignments of the proposed boulevard concepts vary to allow for potential development beneath an elevated roadway or to the south along the river, as well as opportunities to extend neighborhood streets closer to the waterfront area and proposed green space.

While the boulevard options do not rely on having new Barney Circle in place or for the 11th Street/Southeast Freeway interchange to be established, it is recommended to be part of the overall build improvements for the Middle Anacostia River region and be considered for construction with one of both of these locations.

Maintenance of traffic would likely be more feasible to implement under the options applying a full or partial deck structure over the existing Southeast Freeway. Typical Section 1 recommends that the boulevard be constructed on fill material in the area occupied by the Southeast Freeway.

Three of the four boulevard concepts (BLVD-1, BLVD-2, and BLVD-4) require the RFK Access ramps be removed prior to development of the new roadway. This issue is important to consider because the Washington Nationals baseball team will be using RFK Stadium as their home field over the next few years. DDOT believes that these ramps are not a necessary means of access to the stadium. Access to the stadium will be a very important topic and should coordinated prior to the development of any boulevard option along the Southeast Freeway.

Park Drive Connector Road

For the Middle Anacostia River Crossings Transportation Study, one alignment (Option R-1) was presented for the Park Drive Connector Road. This alignment was initiated from plans set forth under the AWI Framework Plan. This alignment option establishes an at-grade circle with the extension of Massachusetts Avenue. Close coordination will be needed between the developers of the Reservation 13 property to ensure the alignment of Park Drive is compatible with the new site layout.

It is not necessary for the Park Drive improvements to occur simultaneously with the Barney Circle improvements. However, it may be fiscally responsible to establish the alignment for this road and build a portion of it in conjunction with the preferred Barney Circle option.

The overall cost estimate for Option R-1 is $4.8 million dollars.

Table 32 provides a general evaluation of anticipated performance measures of each long-term improvement option as they relate to the goals and objectives presented in this report. This table also forecasts the types of impacts and costs that may be associated with each option as a way to compare the benefits and potential issues before a preferred option is chosen.

Table 33. Performance and Achievability Matrix for Long-Term Improvement Options

	Location - Option																			
	Pennsylvania Avenue/Anacostia Freeway						Barney Circle		11th Street Bridges/Anacostia Freeway				11th Street/Southeast Freeway			Boulevard along Southeast Freeway				Park Drive Connector Road
Option Performance Projection	**P-1**	**P-2**	**P-3**	**P-4**	**P-5**	**P-6**	**BC-1**	**BC-2**	**A-1**	**A-2**	**A-3**	**A-4**	**SE-1**	**SE-2**	**SE-3**	**BLVD 1**	**BLVD 2**	**BLVD 3**	**BLVD 4**	**R-1**
Improve vehicular accessibility	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes
Improve vehicular mobility	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Improve vehicular traffic safety	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improve pedestrian/bicycle accessibility	Yes	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improve pedestrian/bicycle mobility	Yes	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improve pedestrian/bicycle traffic safety	Yes	Yes	No	No	Yes	No	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Improve connectivity to park	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Improve transit options for residents	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes
Improve transit options for commuters	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes
Relieve commuter traffic on neighborhood streets	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Restore under-utilized right-of-way	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	No
Option Achievability Projection																				
Community Impact																				
Environmental Impact																				
Cost of Implementation																				

Location – Option Key:
P = Pennsylvania Avenue/Anacostia Freeway Interchange
BC = Barney Circle Improvements
A = Anacostia Freeway/11th Street Interchange
SE = 11th Street/Southeast Freeway Interchange
BLVD = Boulevard Options
R = Park Drive Option

Achievability Definition

Not Applicable	"="	
High cost/impact	"="	
Moderate cost/impact	"="	
Low cost/impact	"="	

Implementation Timeline for Project Improvements

Based on the missing elements of the existing transportation network, the project timeline shown in **Table 34** provides a scenario for implementing improvements within the Middle Anacostia River Region.

Table 34. Project Implementation Timeline

YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Timeline Tasks																					
Secure Funding for Near-Term Projects																					
Design and Construct Near-Term Projects																					
Coordinate Mid-Term Projects																					
Secure Funding for Mid-Term Projects																					
Conduct Environmental Assessments on Mid-Term Projects																					
Design and Construct Mid-Term Projects																					
Select Preferred Long-Term Option(s) at Key Locations																					
Conduct Detailed Design on Selected Long-Term Options																					
Conduct Environmental Assessments on Selected Long-Term Options																					
Secure Funding for Selected Long-Term Projects																					
Design and Construct Selected Long-Term Projects																					

Long-Term Implementation Recommendations

Although it is uncertain what types of funding will be available several years from now to address the long-term improvements, there does appear to be a logical progression of constructing a preferred option at each of the key long-term locations. First, it is recommended that a decision is made for improving the 11th Street Bridges/Anacostia Freeway interchange. By completing this interchange or at least providing some key missing movements, this interchange improvement will help reduce volumes on the Sousa Bridge and other connecting local streets.

To address some of the congestion on the Sousa Bridge, it is recommended to next implement a preferred option at the Pennsylvania Avenue/Anacostia Freeway interchange. By providing a complete interchange at this location, safety can be improved along both the east and west side of the River on Pennsylvania Avenue. A complete interchange would help reduce the number of U-turn and various other illegal maneuvers occurring along the corridor.

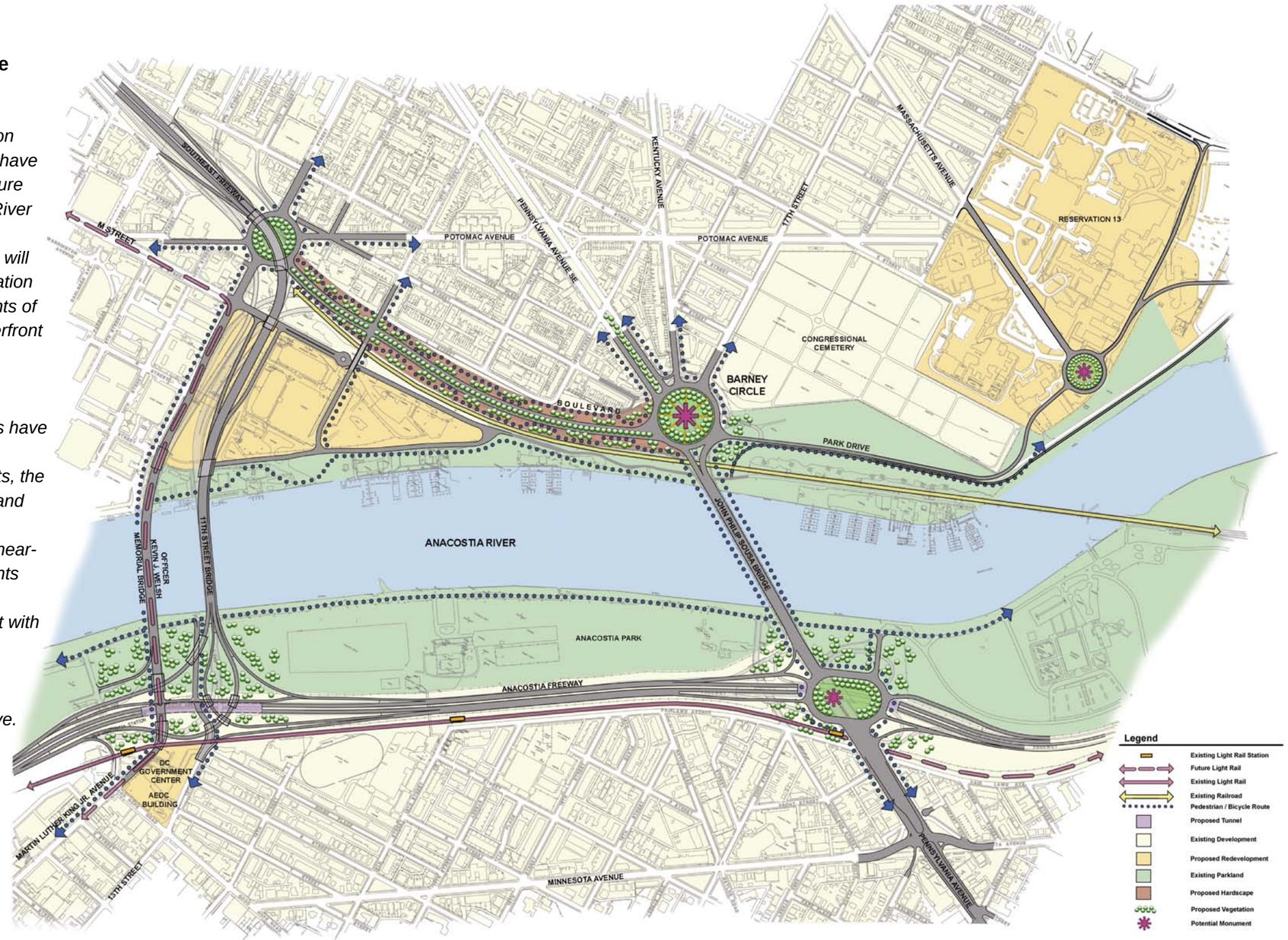
The next three locations somewhat go together, although do not have to be constructed together. Improvements at Barney Circle are slightly higher in priority because of their relationship to the Sousa Bridge and traffic along Pennsylvania Avenue. The development of a complete circle at this location would also improve neighborhood accessibility. The development of the boulevard and Park Drive are equal in terms of completing the new Barney Circle. Funding and other initiatives may make the decision more clear as to which of these locations should be constructed next.

The final recommended location to receive the proposed long-term improvements is the 11th Street/Southeast Freeway interchange. While there are several benefits to the long-term options at this location, the need for them is not as pressing as at the other interchanges. Also, it is the one location in the long-term improvements that proposes some property displacements other that parkland. Perhaps if this option is applied later in the long-term timeframe, the land uses of the area will have changed to a point that make this impact more realistic.

A Look at the Future of the Middle Anacostia River Region

As illustrated in this long-term transportation vision, the proposed improvements would have a profound impact to both the physical nature and social fabric of the Middle Anacostia River region. The implementation of long-term improvements at each of the key locations will lead to not only a more effective transportation system, but will enable many other elements of the AWI to be realized. These include riverfront enhancements, recreation, and the opportunities for monumental gateways.

The Anacostia River and its adjacent lands have been neglected or underused for too long. Because of this neglect and past oversights, the transportation network that services local and regional traffic alike is also in need of improvement. The implementation of the near-term, mid-term, and long-term improvements identified by the Middle Anacostia River Crossings Transportation Study, in concert with other related studies and investments, will revitalize the waterfront and adjacent communities and help achieve the great visions of the Anacostia Waterfront Initiative.



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