



# Paved Trails Study

National Park Service  
National Capital Region

FINAL August 2016

Chesapeake & Ohio Canal National Historical Park  
George Washington Memorial Parkway

National Capital Parks - East  
National Mall and Memorial Parks

Potomac Heritage  
Rock Creek Park





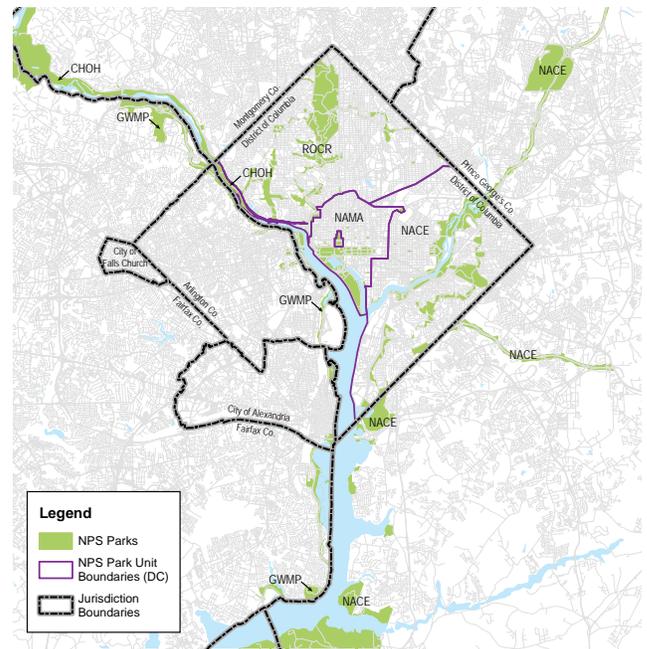
# Executive Summary

## Purpose of the Study

The National Park Service (NPS) is a leader in connecting people to the great outdoors and to our national heritage. Within the National Capital Region (NCR), the NPS paved trail network spans more than 95 miles and links together some of our nation’s most significant cultural heritage, natural resources, and outdoor recreational assets. In addition to five NPS park units, the NPS paved trail network travels through two states, the District of Columbia, five counties, and the City of Alexandria – arguably making it one of the most complex trail networks in the nation.

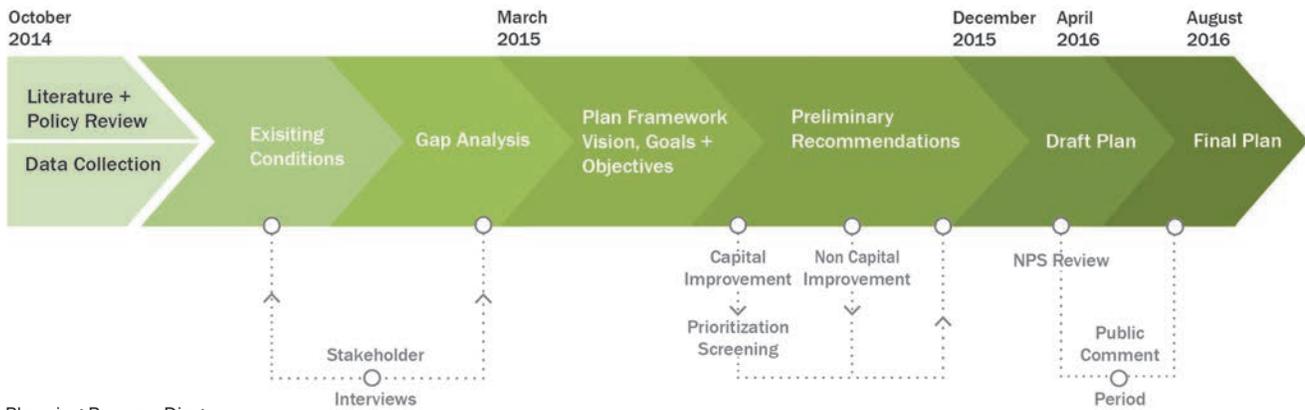
Local governments have helped expand the trail network, and programs like Capital Bikeshare have exploded in popularity, affording year-round bike access to popular attractions, including NPS destinations. Trail usage has increased significantly and as the area continues to grow in residential and employment population, walking and biking trips will also continue to increase. These trends place increased pressure on the trail network, particularly the trail segments that form the backbone of the larger regional trail network, such as NPS trails.

The challenges of providing a high quality trail experience are complex and diverse. Trails on NPS land often traverse cultural landscapes, scenic viewsheds, or along historic roads, and trail improvement or enhancement projects must be designed to minimize impacts on park resources and values. This study is based on a comprehensive examination of the NPS regional trail network conditions and a literature review of NPS and other federal regulations and policies that guide trail planning. Stakeholder outreach and an assessment of local government trail plans and priorities informed the study, including the identification of major trail gaps and areas for potential partnership and collaboration.



National Capital Region Paved Trails Study Area  
Source: AECOM

*The NCR paved trail network is one of the most complex in the nation due to the number of local government jurisdictions it travels through: two states and the District of Columbia; five counties; and the City of Alexandria. NPS park units in this study include: Chesapeake & Ohio Canal National Historical Park (CHOH), George Washington Memorial Parkway (GWMP), National Mall and Memorial Parks (NAMA), Rock Creek Park (ROCR), National Capital Parks – East (NACE), and Potomac Heritage (POHE).*



Planning Process Diagram  
Source: AECOM

The main outcomes of this study are a vision for the trail network, a set of achievable goals, 121 capital and programmatic recommendations, and a framework for prioritizing regional funding of trail-related projects in the future. The success of this plan will, in part, be reliant upon coordination with local governments and other trail partners.

## Challenges and Opportunities

Despite broad expansion of the overall trail network, significant challenges remain related to user conflicts, safety, gaps in the network, signage, maintenance, and funding. Network challenges and opportunities are highlighted below and Chapter 4 provides a more in-depth discussion of these topics.

### Gaps in the Trail Network

The three most common types of trail network gaps are related to incomplete bridge connectivity, missing trail segments, and insufficient access points to the paved trail system. The gaps were determined based on an assessment of overall network connectivity and functionality, and input from NPS and local government stakeholders. The identified gaps are not limited to NPS property. The gaps form the basis for a majority of the study's recommendations, including many of the priority projects, because they connect critical trail segments, address user conflicts or safety issues, and improve access to communities currently underserved by the network.

### Maintenance

Maintaining more than 95 miles of paved trails and associated infrastructure such as bridges is a major challenge. The largest single trail in the network is the Mount Vernon Trail, followed by the C&O Canal Towpath (of which only a small portion is included in this study). According to data obtained from the NPS Denver Service Center, the NCR trail system has a combined

Current Replacement Value of approximately \$165 million; however, this figure could be under-represented as it does not include the entire paved trail network due to how trail assets are currently designated in the facility management system. The current level of deferred maintenance (DM) for trails and trail bridges (compounded annually) is just over \$19 million and is consistent with other NPS park units throughout the United States. The largest amounts of DM are associated with the C&O Canal Towpath and bridges along the Mount Vernon Trail. Funding limitations make it impossible to perform all necessary or recommended maintenance in a given year and competition is high for limited and in some cases, reduced funds.

The NPS maintains several Memorandums of Agreement (MOA) that support maintenance of trail and trail bridge assets. As needs and demands increase across the region for snow removal, lighting, and more amenities, MOAs with local governments and partners will allow the NPS to accomplish more in terms of maintenance needs. The NPS does not have a Service-wide set of design standards for paved trails. The study recommends the development of comprehensive trail design standards and guidelines for the NCR that address a variety of topics including trail width, snow removal, clearances, and safety features, among other factors, as well as the recognition of high-volume corridors. Standards should incorporate innovative, sustainable and durable materials that could help reduce long-term maintenance requirements.

### Funding

An analysis of select funding sources shows that, in comparison to Service-wide figures, the NCR is allocated a significantly lower amount of funding for trail-related cyclic maintenance and repair/rehabilitation than other NPS regions, but is considered a leader in obtaining funding from non-NPS funding sources. For example, between 2000 and 2015, approximately 40% of NCR funding for trails came from non-NPS sources, driven largely by funding associated with the Anacostia Riverwalk Trail (\$10 million).

Lengths of Selected NPS NCR Trail Segments (1.0 Mile or Greater)

NPS Trail	Estimated Paved Miles
Anacostia Riverwalk	5.50
Bingham Drive/Beach Drive Trail <sup>5</sup>	1.17
C&O Canal Towpath	13.53
Capital Crescent Trail	3.65
Fort Circle Hiker-Biker Trail	6.00
Great Falls Park Trails	4.86
Hains Point Sidewalks	4.01
Mount Vernon Trail*	18.00
Mount Vernon Trail Spurs <sup>3</sup>	1.48
NAMA Sidewalks <sup>4</sup>	17.48
National Mall Gravel Paths <sup>4</sup>	1.92
Oregon Avenue Trail <sup>5</sup>	2.23
Oxon Hill Hiker-Biker Trail	1.86
Pennsylvania Avenue Cycle Track	1.20
Rock Creek and Potomac Parkway Trail <sup>5</sup>	1.91
Rock Creek Park Multi-use Trail	4.33
All Other Segments Less than 1.0 Mile	6.79
<b>Total</b>	<b>95.92</b>

Note: Calculations were based on GIS data provided by NPS and are considered estimates. \*MVT calculation includes the portion of the trail within Old Town Alexandria. This chart includes a partial listing of trail segments. For a full listing see Table 3.2 in Chapter 3. Subscript numbers indicate segments or spurs that could be considered part of a larger trail.

- 3 = Mount Vernon Trail connector
- 4 = National Mall Trail system
- 5 = Rock Creek Park Trail connector

It is important to note that while local NPS park units do not collect entrance fees, additional Recreation Fee funding sources are available for the NCR. Other NPS park regions allocate funds from park fee revenues and concessions fees for trail projects at levels far higher than the NCR. For example, the Recreation Fee fund is formed from a portion (20%) of the recreation fees collected by all NPS park units and then is distributed to NPS regions; this source accounted for 33.5% of funding for trail projects between 2000 and 2015 nationally but only 3.28% of funding for trail projects in the NCR for the same time period.

Obtaining a greater share of available funding from internal NPS sources for trails is critical for the trail network's long-term success. More coordination across the NPS park units and early collaboration and pursuit of funding sources with trail partners is recommended to achieve more consistent and reliable trail funding.

## Trail Safety

Pedestrian and bicycle safety is of primary importance to the NPS. The United States Park Police (USPP) has jurisdiction in all Federal parkland and provided input into the identification of trail safety issues described in this study. Trail safety issues are diverse and include trail segments with high user conflict due to high visitor traffic, narrowness of trail width, limited signage or user speeds; a high number of at-grade crossings along the Mount Vernon Trail, within the National Mall area and along segments of the Rock Creek Park Multi-Use Trail, C&O Canal Towpath, and Capital Crescent Trail; vegetation that impacts clear zones and visibility; and lack of consistent signage and wayfinding across the network. An at-grade crossing study for the entire network, development of guidelines for typical crossings, and signage and wayfinding standards (as part of comprehensive trail standards) are recommended to support safety enhancements.

Obtaining comprehensive pedestrian or bicyclist accident or incident data related to NPS paved trails is difficult due to the number of agencies, organizations, and local police departments involved in tracking fatality and injury data. Methods and standards by which data is collected, reported, and made publicly available vary widely and the NPS incident reporting system does not currently require or capture incident geospatial information that could be used to analyze trends and target investment to specific locations. Protocols for incident reporting and data collection to increase trail safety should be developed and mile markers should be installed along all trails to aid emergency responders and trail users.

## Trail Data and Usage Statistics

The NPS paved trail network has seen a steady increase in the level of trail use for both recreational and commuting purposes; the trails are helping to define the region as a pioneer in multi-modal transportation infrastructure. Consistent quantitative trail usage data is not currently available for all NPS trails; however, trail counting technologies are improving in the NCR and this trend is benefitting the NPS and providing a more complete picture of usage trends. Arlington County and the City of Alexandria trail counters provide data on the Mount Vernon Trail and the District of Columbia monitors trail usage at all bridge crossings. Recommendations include efforts to standardize trail counting methodologies and expand the number of permanent automated counters on NPS trails in coordination with local partners. These actions are aimed at providing a more accurate picture of trail usage for the overall network. In addition to the number of trail users, trail data can be used to identify seasonality impacts, special event impacts, and can help substantiate the need for investment in high-volume corridors.

## Vision and Goals

After a review of the baseline conditions of the trail network, NPS staff participated in a day-long vision and goals workshop to guide the formation of plan recommendations. Participants produced a Vision for the NPS NCR Paved Trails network and eight specific goals, to guide future planning and coordination for trails. As expressed in the vision and goals, the NPS recognizes that no single park or agency can carry the full responsibility for maintaining the entire regional network as it exists today, or for enhancing the network to meet the needs of tomorrow's users. Partnerships are an essential element for success and a cornerstone of this study's recommendations.

### Vision Statement

The NPS will lead the region in providing exceptional outdoor trail experiences, seamlessly linking richly diverse places of natural and historic significance in the national capital area, to meet the mobility needs of all users.

**Goal 1: Create a widespread, equitable and interconnected regional paved trail system while conserving, protecting and promoting natural and historic resources.**

**Goal 2: Enhance regional mobility by providing transportation options for those who live, work, play and visit the region.**

**Goal 3: Coordinate with local jurisdictions and partners to advance trail priorities and projects that contribute to the success of the regional trail network.**

**Goal 4: Ensure safe and accessible trail experiences.**

**Goal 5: Provide a range of outdoor recreational experiences for trail users of all ages and abilities.**

**Goal 6: Provide a high quality, well-maintained sustainable trail network.**

**Goal 7: Promote the attributes and experiences of the trail network in the national capital area.**

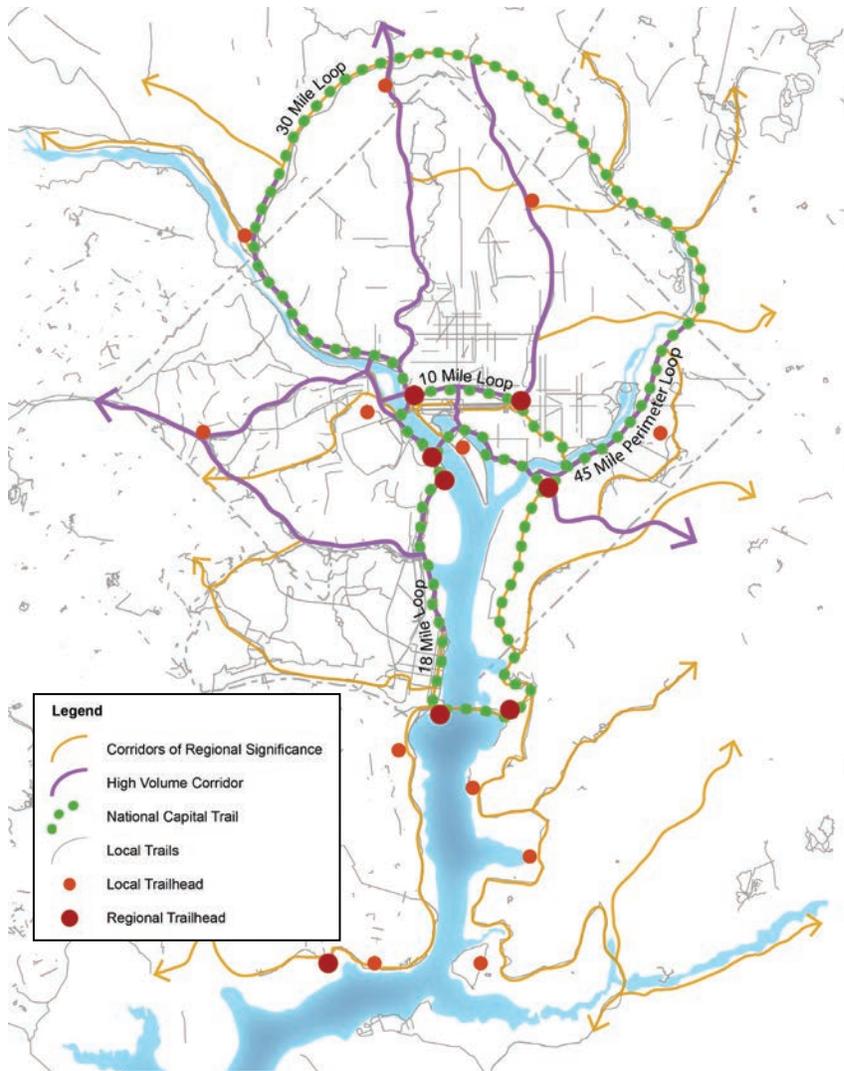
**Goal 8: Leverage multiple funding sources to sustain the network and achieve regional plan priorities.**

## Regional Trail Concept

The regional-level context of this study afforded an opportunity to test ideas and put forth recommendations that would unify the NPS park units and bring together park partners to work collaboratively toward improving the overall trail network. The NCR Paved Regional Trail Network Concept described in the plan provides a platform from which to create an exceptional outdoor trail experience. It is intended to help build momentum and focus resources towards a national capital trail that integrates existing and proposed trail segments from NPS and other jurisdictions into an easily identifiable concept. The framework, described briefly herein, includes corridors of regional significance, high volume corridors, and linkages among those corridors.

**Corridors of regional significance** form the backbone of the overall trail system; they provide integral connections to NPS parks, link local trails, and connect centers of population and employment. These trail segments function as trail arterials, collecting trail users from a much broader on-street local trail network in the region. Certain Regionally Significant Corridors have the added designation of being **high-volume trail corridors**, due to the role they plan in supporting multi-modal objectives and current trail volumes. These trails warrant special design, maintenance and operational considerations to adequately and safely address the high volume of users while still providing for daily recreation needs and appropriate resource management.

Combining trails that are regionally significant with those that experience a high volume of use creates a compelling concept - the **National Capital Trail (NCT)**. The concept designates four distinct loops that each offer between 18 and 45 miles of diverse trail experiences, linking NPS parks and area destinations. The concept is strengthened by local and regional trailheads at key trail intersections to provide amenities and wayfinding and an improved trail experience. The concept has the potential to attract funding through coordinated efforts with other partners, non-profits, and businesses that want to be associated with the trail. Each loop is described in more detail in Chapter 5. Implementation of the concept will require coordination and support from multiple parties including the NPS, Arlington County, Montgomery County, Prince George's County, the District of Columbia, and the City of Alexandria.



**Corridors Of Regional Significance**

Mount Vernon Trail <sup>1</sup>
Capital Crescent Trail
C&O Canal Towpath
Rock Creek Park Multi-use Trail <sup>2</sup>
Rock Creek and Potomac Parkway Trail
Fort Circle Hiker-Biker Trail
Anacostia Riverwalk Trail <sup>3</sup>
Oxon Run Trail (Portion Proposed)
Suitland Parkway Trail (Extension and Improvements Proposed) <sup>4</sup>
Fort Totten Connector (Proposed)

Note: Trails in green bold indicate high volume corridors as follows:  
 1 = Portion north of Old Town Alexandria  
 2 = Rock Creek Park Multi-use Trail and north along Glover and Ridge Roads, NW to Military Road, NW and Oregon Avenue, NW (alternate to Beach Drive)  
 3 = Portion east of the Anacostia River  
 4 = Portion from the South Capitol Street Bridge to Joint Base Andrews

NCR National Capital Trail Concept  
 Source: AECOM

## Project Prioritization

The NCR competes on a national level for project funding and each park unit in the NCR competes for limited regional dollars. A fiscally constrained environment is expected to continue, placing increased importance on the NPS to spend limited dollars strategically. The study establishes trail project prioritization criteria that will help the NPS align limited resources with trail projects that implement the vision and goals and maximize regional benefits.

Seven project criteria were developed to determine high priority projects across the NCR. Each criterion was given a single weighting factor of one; the maximum score a project could receive was seven. The results of the prioritization process yielded 18 capital projects with a score of five or six that are described in more detail in Chapter 6.

### Prioritization Criteria

- Project crosses between more than one jurisdiction or more than two parks
- Project provides critical continuity by closing a gap or eliminating a barrier in the regional network
- Project is included in an approved or adopted plan or study
- Project may reduce user conflicts
- Project is a critical safety improvement
- Project improves connectivity from underserved and emerging neighborhoods
- Project is located along a high-volume trail segment

# Recommendations

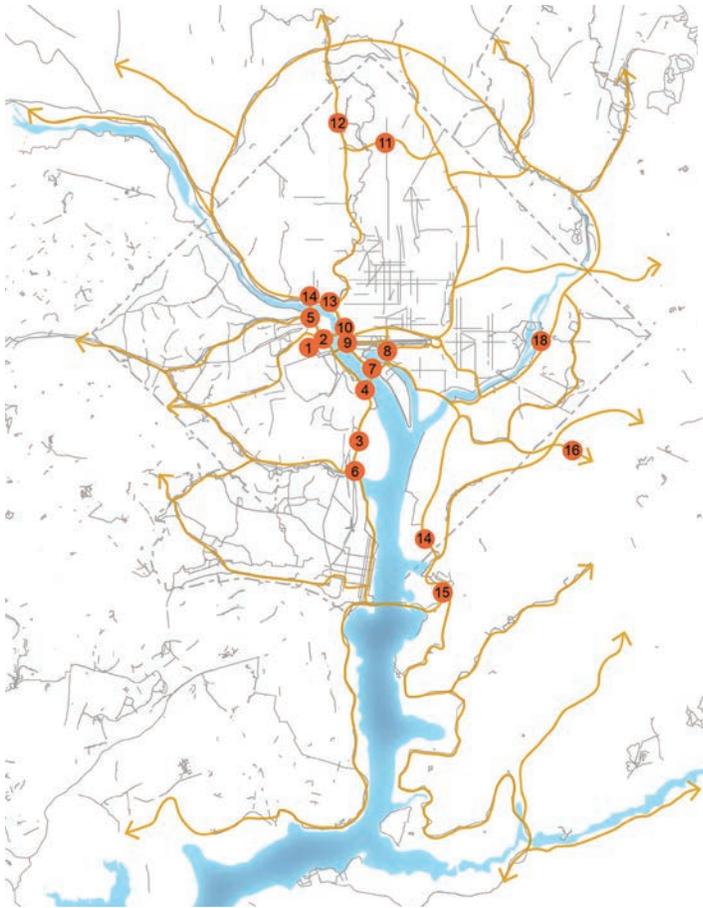
A total of 121 distinct recommendations are outlined in the study and grouped broadly into capital (94) and programmatic (27) recommendations. The capital projects address gaps in the trail network, improve bridge access, provide safety improvements, establish trailheads, and target areas for additional study and investment. The programmatic projects include a range of actions related to coordination, process enhancements, marketing and promotion activities, and trail planning, design and policy. The 18 highest priority capital projects are listed below and shown on the map on the following page.

1. Connect the Theodore Roosevelt Bridge to Arlington Ridge Park (U.S. Marine Corps Memorial and Netherlands Carillon).
2. Develop a connection from the Mount Vernon Trail to Theodore Roosevelt Bridge on the south side of the bridge.
3. Improve access to the Mount Vernon Trail from the Airport Access Road overpass at Ronald Reagan National Airport/Aviation Circle.
4. Connect the 14th Street Bridge to a proposed off-road facility on Boundary Channel Drive and connect Boundary Channel Drive to Long Bridge Drive.
5. Improve safety and access at the intersection of the Mount Vernon Trail and the Custis Trail.
6. Explore the potential for new trail roundabout at Mount Vernon Trail and Four Mile Run Trail.
7. Remove stairs at Ohio Drive SW Tidal Basin Inlet Bridge to connect to Rock Creek and Potomac Parkway Trail and define lanes along East Basin to connect to a new cycle track extension on Maine Avenue with connections to the 14th Street Bridge Trail.
8. Extend the existing cycle track south on 15th Street from Pennsylvania Avenue, NW to the 14th Street Bridge.
9. Develop a set of recommendations to improve visitor safety and reduce conflicts for motorists, pedestrians, and cyclists at Lincoln Memorial Circle.
10. Improve the safety of all at-grade trail crossings from the National Mall leading up to the Theodore Roosevelt Bridge.
11. Conduct a feasibility study for a cycle track or trail along the Military Road, NW right of way, from Glover Road, NW to 16th Street, NW.

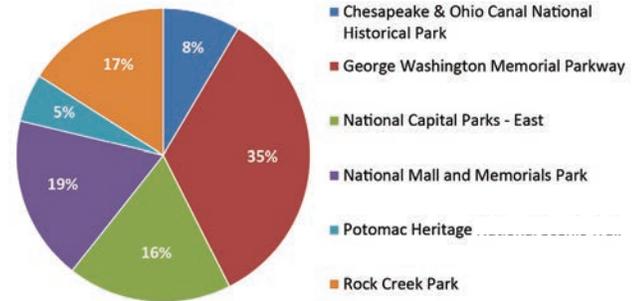
12. Conduct a feasibility study for a trail facility along the Oregon Avenue, NW corridor, stretching from Military Road, NW to the D.C./Maryland line, that avoids impacts to park resources.
13. Close the gap in the Capital Crescent Trail from 30th Street to 31st Street through an analysis of the Water Street corridor.
14. Evaluate potential access improvements from the Capital Crescent Trail to Key Bridge.
15. Develop a hiker-biker trail connector from Shepherd Parkway SW through Oxon Cove Park to the Oxon Hill Farm Trail.
16. Develop an on-street facility from Oxon Hill Farm Trail across Interstate 495 to Oxon Hill Road and on to Harborview Avenue.
17. Conduct a feasibility study for extending the Suitland Parkway Trail from the D.C./Maryland line to Henson Creek Trail.
18. Evaluate potential access improvements from the Anacostia Riverwalk Trail to the Whitney Young Memorial Bridge (East Capitol Street NE).

## Programmatic Recommendations (select)

- Establish a NPS Regional Trails Coordinator
- Adopt a standard trail counting methodology and formalize agreement(s) with local governments
- Expand the number of permanent trail counters and manual trail counts
- Complete an at-grade crossing study and develop standards for at-grade crossings as part of the study
- Establish comprehensive trail standards and a manual of standards
- Establish protocols for incident reporting and data collection, and increase trail security infrastructure
- Develop National Capital Trail marketing and promotion program



Recommended Priority Capital Projects Location Map



Allocation of 94 Capital Projects by NPS Park Unit



Recommended Project Type Breakdown (includes Capital and Programmatic Recommendations)

## Measuring Progress

The high number of recommended projects that cross park unit boundaries and local government jurisdiction lines reinforces the importance of, and the need for, collaboration and cooperation to achieve success. Implementation of this plan will require regional leadership by the NPS NCR office and ongoing, active engagement and participation by all NPS park units within the study area. Each goal in the study is supported by a set of performance measures intended to help the NPS monitor and measure progress over time. In addition, steps to help streamline federal and local project coordination are identified in Chapter 7 to help the NPS NCR and trail partners work together effectively.



Rock Creek and Potomac Parkway Trail near the Kennedy Center  
Source: AECOM

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Paved trail along Ohio Drive in West Potomac Park  
Source: AECOM

# Chapter 1

## Introduction

### 1.1 Purpose of the Study

The National Park Service (NPS) is a leader in connecting people to the great outdoors and to our national heritage. Within the National Capital Region (NCR), the NPS protects and preserves some of our Nation’s most significant and treasured cultural heritage and natural resources, many of which are located within a highly urbanized setting. As the region has grown, the NPS paved trail network that links many of these resources has seen a steady increase in the level of use of trails for both recreational and transportation purposes.

Trends indicate population growth will continue, placing increased pressure on the NPS to play a major role in the region’s outdoor recreation and multi-modal transportation system through its paved trail network. By 2040, the Metropolitan Washington Council of Governments (MWCOG) forecasts the region will grow in population by about 32%, or 2.1 million residents to reach a total population of about 8.7 million residents (MWCOG, Round 8.3 Cooperative Forecasts, October 2014). About half of the forecasted growth is expected to occur in the District of Columbia (D.C.), Arlington County, Fairfax County, Prince George’s County, Montgomery County, and the City of Alexandria. This growth represents significant opportunities to link more and more people to national parks in the NCR; however, the challenges of providing a connected, safe and accessible trail network and outstanding outdoor recreational experience must not come at the expense of park natural and historic resources. Trails on NPS land often traverse through cultural landscapes, scenic viewsheds, or along historic roads; trail improvement or enhancement projects must be designed to minimize impacts on these resources.

**Mission of the National Park Service**

The National Park Service (NPS) preserves, unimpaired, the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The National Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.



Mount Vernon Trail at Mount Vernon Estate and Gardens  
Source: AECOM



Mount Vernon Trail  
Source: National Park Service



Rock Creek and Potomac Parkway Trail near the Kennedy Center  
Source: AECOM

For the purposes of this study, paved trails are defined as asphalt or concrete trails that serve pedestrians and cyclists of all abilities. While the C&O Canal Towpath and Hiker Biker Trail are not paved, they are included in this study due to their regional significance. This study is predominantly focused on NPS off-road paved trails and connections (both on and off-road) to those trails.

During the past 25 years, the Washington metropolitan area has seen a significant expansion of the paved trail network that serves bicyclists and pedestrians, with an emphasis shifting from off-road trail facilities to on-street facilities, particularly in the more urbanized areas of D.C., Arlington County, Fairfax County, and the City of Alexandria. According to the MWCOC, the metropolitan region, an area much larger than the NPS NCR, has approximately 200 miles of major shared use paths, either paved or level packed gravel facilities. It is estimated that the NPS has jurisdiction over approximately 100 miles of paved trails – demonstrating the important role of the NPS in the overall paved trail network for the larger region.

The adoption of transportation and planning policies that are friendly to bicycle and multi-modal facilities has helped create more on-street bicycle lanes, buffered bicycle lanes, and protected bike lanes (cycle tracks) over the last ten years. This enhanced infrastructure has in turn helped to increase the trip mode share of bicycles for non-recreation purposes (World Transport, Policy & Practice, Volume 18.2, 2012). As the region becomes even more urbanized and population densities increase, it is expected that walking and bicycling levels will also rise. For example, between 1990 and 2012, D.C. nearly quadrupled its bicycle mode share (MWCOC, Bicycle and Pedestrian Plan for NCR, January 2015).

This *Paved Trails Study for the National Capital Region* identifies regional priorities for capital improvement projects, feasibility studies, policies, and coordination efforts that NPS will pursue over the next ten years to enhance the experience offered by the trail network. The study examines existing conditions of the trail network, identifies issues and opportunities, and establishes a framework to be used in determining regional funding priorities for trail-related projects. The study will be used by NPS park units to inform basic planning and management decisions related to paved trails. Progress toward the recommended actions in this study will be tracked through a series of performance measures described in Chapter 7 and it is recommended that the study be updated on a five-year cycle. This study updates the 1990 NPS *Paved Recreation Trails of the National Capital Region* plan (1990 plan).



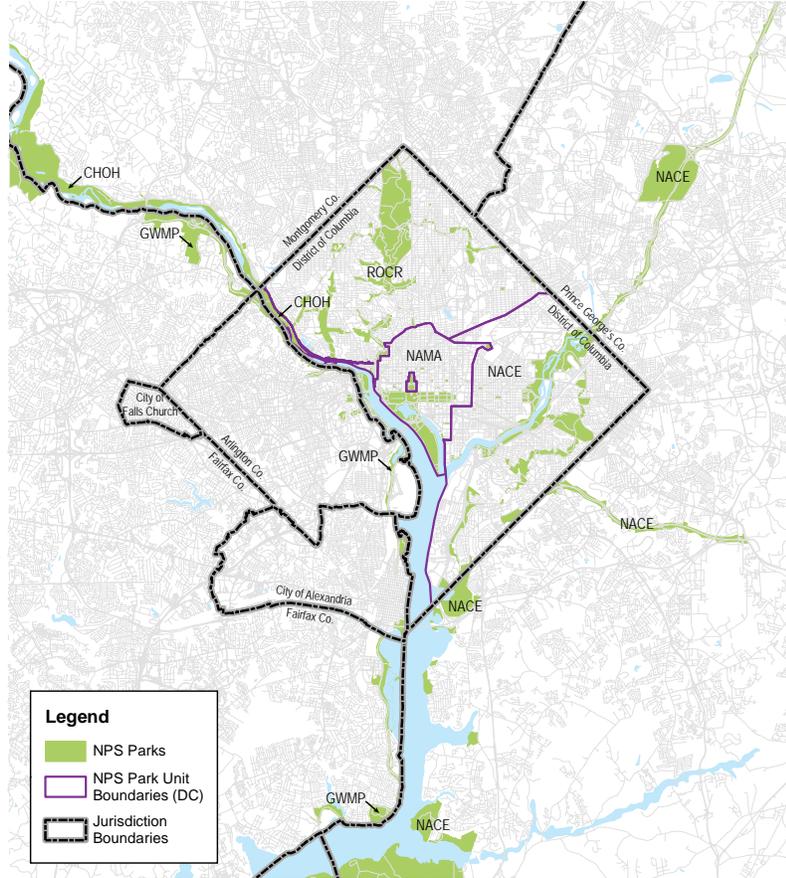
C&O Canal Towpath at Great Falls  
Source: National Park Service / Sean Matthews

## 1.2 Study Area

Established in 1916 by the National Park Service Organic Act, the NPS is a bureau within the U.S. Department of the Interior with headquarters located in Washington, D.C. The NPS comprises seven regional offices, including the NCR which spans parts of West Virginia, Virginia, Maryland and D.C.

The NCR is distinct from other NPS regions due to its highly developed and urbanized setting, the complex web of federal interests and facilities, and the multiple state, county, and city jurisdictions that exist within its boundary. This multi-dimensional environment of federal and local overlays in the NCR is not found in other NPS units or urban areas in the United States. The high percentage of federally owned land in the NCR is also noteworthy.

About ninety percent of the parks and open spaces in the District of Columbia are under the jurisdiction of the NPS, and many of the region's major trails are found within inspiring NPS settings such as Rock Creek Park, the National Mall, and the Chesapeake & Ohio National Historical Park.



**Figure 1.1** National Capital Region Paved Trails Study Area  
Source: AECOM

The study area, shown in Figure 1.1, represents a subset of the overall NCR which includes 35 units in D.C. as well as units in Maryland and Virginia. The study area extends slightly beyond the limits of Washington, D.C. to include portions of Arlington County, Fairfax County and Prince William County in Virginia; Montgomery County and Prince George’s County in Maryland; and the City of Alexandria, Virginia. The following NPS units of the NCR are included in the study:

- Chesapeake & Ohio Canal National Historical Park (CHOH)
- George Washington Memorial Parkway (GWMP)
- National Mall and Memorial Parks (NAMA)
- Rock Creek Park (ROCR)
- National Capital Parks – East (NACE)
- Potomac Heritage (POHE)

Each NPS unit, with the exception of POHE, has a superintendent who is responsible for managing properties within his or her jurisdiction.

### 1.3 Planning Process and Methodology

The planning process for the Paved Trails Study began in October 2014 and followed a seven-step process as shown in Figure 1.2, with completion in August 2016. A NPS Steering Committee comprised of NPS representatives from the NCR Office and each of the park units within the study area provided guidance and direction to the consultant team. Each planning step is briefly described below:

#### Step 1: Literature Review and Data Collection

Background information and data was assembled from over 80 different documents to establish an understanding of relevant policies and regulations affecting NPS paved trails. Existing studies, policy documents, strategic guidance, laws and regulations from relevant federal, state and local governments and agencies were collected to establish a policy framework for the planning effort.

#### Step 2: Existing Conditions

Geospatial data was collected from NPS, local governments, regional governments and other online sources to establish a consolidated Geographic Information System (GIS) database and baseline for spatial planning and existing conditions. Stakeholder interviews, involving over 40 participants internal and external to the NPS, were held to discuss trail issues and opportunities, current and future plans, and opportunities and priorities related to the overall trail network.

#### Step 3: Gap Analysis

A gap analysis was conducted using existing reports and GIS to identify and analyze physical gaps in the trail network as well as data gaps in trail attribute information, maintenance and historic funding levels and sources. The results of the analysis informed the development of preliminary recommendations.

#### Step 4: Plan Framework, Vision Goals + Objectives

A day-long Vision session was held in March 2015 that brought together NPS staff from each of the park units, including park unit Superintendents, Chiefs of Resources, landscape architects, historical and cultural resource specialists, park planners, interpretive and education specialists, facility managers, and regional staff. The participants collaborated and developed a vision, goals and objectives that provided direction for the development of preliminary recommendations in subsequent steps of the planning process.

#### Step 5: Preliminary Recommendations

Based on the analysis of stakeholder input, existing conditions and findings from the gap analysis, and output from the Vision session, preliminary recommendations were developed to depict potential solutions related to physical development projects (capital improvement) and process or policy-related improvements (non-capital). Criteria were developed to aid in the determination of regional priorities and each project was screened against the criteria to establish a focused list of priorities.

#### Step 6: Draft Plan

After review of the preliminary recommendations by the various NPS park units, a Draft Plan was developed for internal review. Upon the completion of revisions, the Draft Plan was released for a 30-day public review period through the NPS Planning, Environment and Public Comment (PEPC) website.

#### Step 7: Final Plan

The final step of the planning process included refinement of the Draft Plan.

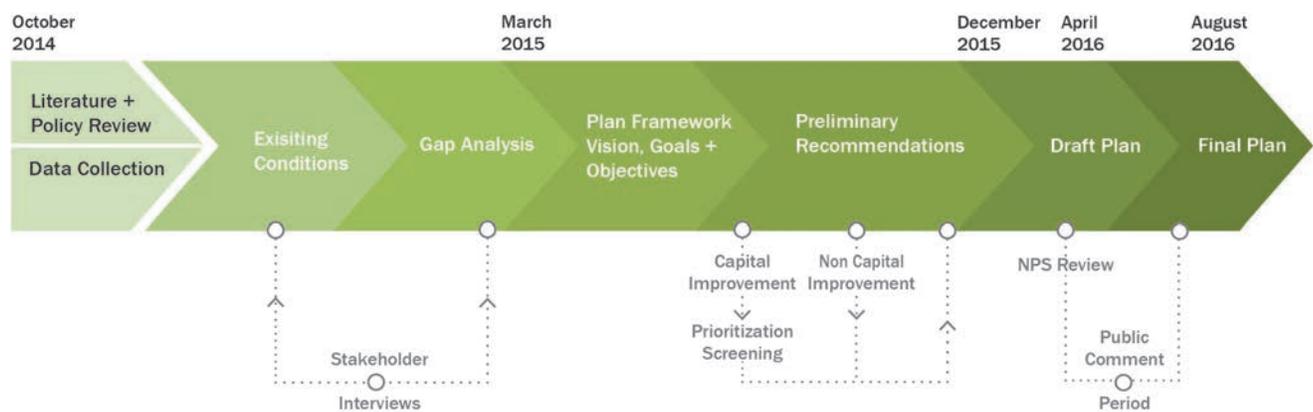


Figure 1.2 Planning Process Diagram  
Source: AECOM

### 1.3.1 Stakeholder and Public Engagement

Engaging the public and key stakeholders in the planning process was central to understanding the current state of the trail network, ongoing and future initiatives and areas for potential collaboration.

Internal stakeholder outreach efforts were designed to reflect the multi-unit construct of the NPS in the NCR which is unlike most other NPS regions. Staff in each of the five park units were individually interviewed to obtain an understanding of available data, ongoing projects, and issues. They also each participated in a staff-level workshop to identify network improvement opportunities for the regional trail network within their boundaries and overall. Additional discussions were held with United States Park Police (USPP) and National Transportation Volpe Center staff, and personnel involved in facility management, program funding and project delivery at NCR and the Denver Service Center.

External stakeholder meetings with local government representatives (see text box) at the outset of the process were structured as one-on-one or small group discussions with bicycle and pedestrian coordinators, park planners and policy planners to explore specific jurisdiction projects or policies that could impact or influence NPS trails. Additionally, two large stakeholder workshops sponsored by Recreational Equipment Incorporated (REI) were convened by the Washington Area Bicyclist Association (WABA) in November 2014 and November 2015. During these events, more than 50 participants discussed big ideas and goals for the broader trail network consistent with the MWCOG service area boundary. The NPS formally presented preliminary recommendations for the trail network during the November 2015 WABA workshop. Workshop participants included trail advocacy group representatives, trail enthusiasts, heritage and tourism industry professionals, local government park planners and bicycle and pedestrian coordinators, local government and state transportation planners, Business Improvement District representatives, and NPS staff.

The 30-day public comment period for the Draft Paved Trails Study ran from April 19, 2016 through May 19, 2016 and produced a total of 84 comments, many of which addressed a number of specific elements of the plan. A summary of comments on the Draft Study is included as Appendix A.6.

#### External Stakeholders

- City of Alexandria
- Arlington County
- District of Columbia
- Fairfax County
- Prince George's County
- Montgomery County
- Northern Virginia Regional Park Authority
- Metropolitan Washington Council of Governments
- Washington Area Bicyclist Association



Washington Area Bicyclist Association Workshop, November 2014  
Source: AECOM

#### WABA Petition of Support

A petition from WABA was provided with the Draft Study comments and included 1,355 signatures expressing support for the recommendations in the Paved Trails Study. The petition urged the full implementation of the plan. Public desire for a high quality, seamlessly connected trail network in the region is strong.

## 1.4 On-going Studies

Several planning efforts are underway in the NCR that have relevance to this study. Below is a sample list of both NPS and non-NPS efforts that have been recognized in this planning effort. It is important to emphasize that bicycle and pedestrian infrastructure improvements and planning efforts are ongoing. The list is not comprehensive of all planning or capital projects currently underway in the region. This trail plan update incorporated available information; going forward future plan updates should reflect the outcomes of those studies that are currently underway.

- NPS Memorial Circle Transportation Plan and Environmental Assessment
- NPS Jones Point Park Recreation and Visitor Services Plan
- NPS Fort Totten - North Michigan Park Pedestrian Access Improvements Project
- NPS National Mall Trail Surfaces Study
- Arlington County Route 110 Environmental Assessment
- Design/Construction of the Anacostia Riverwalk Trail (Kenilworth Park section) (NPS and D.C.)
- NPS Oxon Cove Paved Hiker-Biker Trail and River Access Improvements (D.C.)
- Oxon Run Trail Rehabilitation Project (D.C.)
- South Capitol Street Corridor Project (D.C.)
- City of Alexandria Pedestrian and Bicycle Mobility Plan Update
- Montgomery County Countywide Bikeways Functional Master Plan
- Prince George's County Trail Implementation Plan
- Maryland Transit Administration Purple Line light rail line - design and construction
- Virginia Department of Transportation (VDOT) Regional Bike and Trail and Network Update Study

## 1.5 Report Organization

This report is structured as follows:

**Chapter 1:** Introduction - defines the purpose of the study and describes the planning process

**Chapter 2:** Vision, Goals, and Priorities - establishes the intent of the study and identifies plan priorities at a high level

**Chapter 3:** Status of Trail Network - summarizes the current conditions and issues related to paved trails

**Chapter 4:** Challenges and Opportunities - provides an overview of relevant challenges and opportunities that characterize the trail network

**Chapter 5:** Plan Framework - defines relevant policies and describes a regional trails framework

**Chapter 6:** Recommended Actions - identifies the key steps toward achieving the plan vision and goals

**Chapter 7:** Measuring Progress - defines performance metrics

**Appendix:** includes a list of acronyms, case studies, potential funding sources, and a summary of public comments received on the Draft Plan.

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Oxon Run Trail  
Source: Washington Area Bicyclist Association

# Chapter 2

## Vision, Goals and Priorities

### 2.1 NCR Paved Trail Vision

A day-long workshop was held in March 2015 to establish a vision for the NPS paved trail network within the NCR. The workshop included a presentation about the existing regional trail network and group exercises to explore and define areas of focus for the trail plan. Activities included a Strengths, Weaknesses, Opportunities, and Threats (SWOT) brainstorming exercise to collect participant views about the greatest current and future challenges and opportunities facing the NPS trail network. Findings from the exercise helped to shape plan goals and recommendations.

Participants were also tasked with crafting a vision statement to help guide the process and establish supporting goals and recommendations. Importance was placed on aligning the vision for trails with the principal NPS mission, while recognizing the unique role of NPS trails within the Greater Washington area. The vision statement agreed upon by NPS stakeholders is shown at right:



Vision and Goal Setting Workshop, March 2015  
Source: AECOM

#### Vision Statement

The NPS will lead the region in providing exceptional outdoor trail experiences, seamlessly linking richly diverse places of natural and historic significance in the national capital area, to meet the mobility needs of all users.

## 2.2 Goals

Following development of a vision statement, workshop participants developed a series of goals in support of the Vision for NCR paved trails. Eight overarching goal topics were discussed, and goal statements were developed as shown in Figure 2.1.

Participants also developed a series of objectives under each goal that provide a basis for the development of capital and non-capital projects defined in Chapter 6.



Figure 2.1 NCR Paved Trail Goal Statements

Over the last decade, tremendous research has been completed in documenting the qualitative and quantitative benefits of trails. The following highlights are sourced from Rails to Trails Conservancy and an NPS brochure on the Benefits of Trails and Greenways:

**Health Benefits** - Trails provide a vital link between exercise and health and offer an inexpensive avenue for regular exercise.

- Nearby residents are more likely to exercise due to the provision of trails; therefore, allowing more people to potentially meet their daily exercise needs.
- Trails provide a social opportunity similar to gyms and health clubs which is likely to increase participation in exercising.
- More people are likely to walk or bike for their shorter trips or those under one mile in length, for errands or commuting.
- Trails typically increase access to parks and public facilities which can encourage physical activity.

**Environmental Benefits** - Trails protect and conserve lands as components of linear open space corridors.

- Trails provide enjoyable and safe options for transportation, which reduces air pollution.

**Economic Benefits** - Trails can contribute to new sources of revenues and savings to communities. The following are examples:

- Eco-tourism due to high-quality trails and trail systems has grown over the last few decades with additional hotel-night stays, encouraging longer stays and additional tax revenues.
- More healthy residents exercising on trails means potentially less direct expenditures on health-related costs.
- A typical American spends more on bicycling than air-travel per year, keeping much of the revenues in their own community.
- Property adjacent to/nearby trails can be an amenity that attracts buyers and makes the property easier to sell.
- Reduction in vehicle miles traveled (VMTs) for errands and commutes mean less household income spent on gas, oil and vehicle-related expenses.

**Historic Preservation Benefits** - Trails provide a window into the nation's history, often helping to connect people with the past. The following are examples:

- Trails and trail systems often link or help provide access to historic or environmental resources through a multi-modal option.
- By allowing people to be outdoors while visiting resources, users often enjoy a deeply enriching experience.
- Trails often help protect or preserve historic transportation corridors that served as railroads, trade routes or roads.



Rock Creek Park Multi-use Trail  
Source: AECOM

## Regional Trail Network Concept

In support of the Vision and goals established for the NPS NCR paved trail network, the plan addresses critical gaps in network connectivity in order to maximize the number of trail users and enhance the functionality of the regional network as a whole. Section 5.3 provides additional information about the NCR Regional Trail Network Concept.

### 2.2.1 Corridors of Regional Significance

Several paved trails within the NPS network form the backbone of the overall trail system within the region. These trails provide integral connections not only to NPS parks, but also to local trails and to centers of population and employment across the region. Trail segments within this category function as arterials, collecting trail users from a much broader on-street network that exists in local communities. The following NPS trails are identified as corridors of regional significance and are shown in Figure 2.2:

- Mount Vernon Trail
- Capital Crescent Trail
- C&O Canal Towpath
- Rock Creek Park Multi-use Trail
- Rock Creek and Potomac Parkway Trail
- Fort Circle Hiker-Biker Trail
- Anacostia Riverwalk Trail (Portion under construction) and Anacostia Tributary Trail System
- Oxon Run Trail (Portion proposed)
- Suitland Parkway Trail (Extension and improvements proposed)
- Fort Totten Connector (Proposed)

Each NPS trail identified as a corridor of regional significance also shares a common characteristic of providing a vital connection to other important existing local trails such as the Four Mile Run Trail, Custis Trail, and Metropolitan Branch Trail (MBT) and to proposed trails including the Purple Line Trail and South Capitol Street Trail.

### 2.2.2 High-volume Trail Corridors

Among the regionally significant trail segments, several receive very high user volumes and merit special attention when considering a regional network. Portions of the following NPS trails are considered high volume corridors for the purposes of this study:

- Mount Vernon Trail (North of Old Town)
- Capital Crescent Trail
- Rock Creek Park Multi-use Trail
- Oregon Avenue Connector to Rock Creek Park Multi-use Trail (Improvements proposed)
- Anacostia Riverwalk Trail (Portion east of the Anacostia River)
- Suitland Parkway Trail (Extension and improvements proposed)

The Mount Vernon Trail ties into high-volume local trails in Arlington County, including the Four Mile Run Trail, the Custis Trail, and the W&OD Trail. The MBT provides a high-volume connection from Silver Spring to Central Washington.

### 2.2.3 The “National Capital Trail”

The 1990 plan presented a concept consisting of a series of loops throughout the metropolitan area, which included both proposed extensions of NPS trails as well as construction of additional local connectors. This plan proposes a refined and simplified loop concept, completing critical connections to establish the National Capital Trail as shown in Figure 2.2.

- **Central 10 Mile Loop** – The Central Loop includes a connection from the National Mall south and east to Poplar Point and back across the Anacostia and Potomac Rivers to the Mount Vernon Trail and Arlington Memorial Bridge.
- **Southern 18 Mile Loop** – The Southern Loop includes the portion of the Mount Vernon Trail from the 14th Street Bridge to the Woodrow Wilson Bridge, connecting to the Oxon Hill Trail and South Capitol Street Trail north to Poplar Point, then tying into the Central Loop.
- **Northern 30 Mile Loop** – The Northern Loop includes the Capital Crescent Trail connecting to the proposed Purple Line Trail, Sligo Creek Trail, and Northwest Branch Trail reaching south to the Anacostia Riverwalk Trail and tying into the Central Loop.
- **Perimeter 45 Mile Loop** – The Perimeter Loop includes the outer extent of the Northern, Central, and Southern Loops for a total of 45 miles.

The concept also includes creation of regional and local trailheads at key intersections and locations to provide amenities and wayfinding for trail users that will improve the overall trail experience. Section 5.3 provides additional description of this concept.

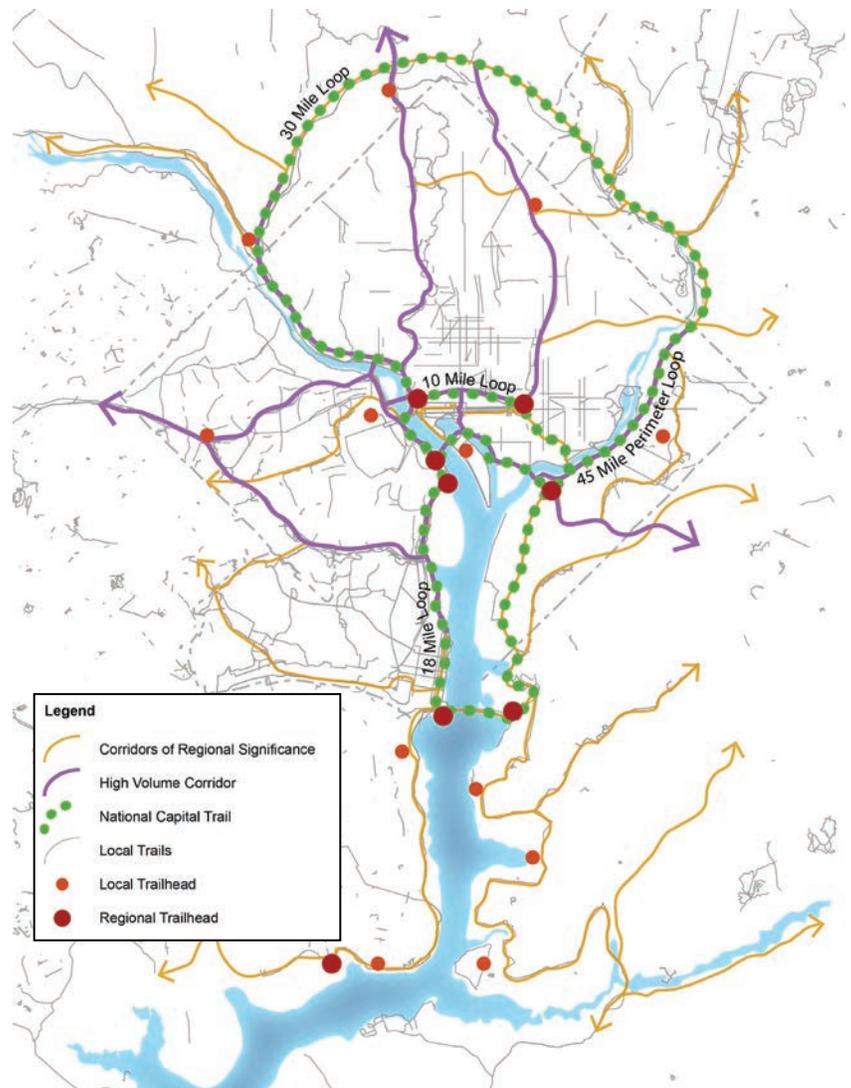


Figure 2.2 National Capital Region Paved Trail Network Concept  
Source: AECOM

## 2.3 Priority Projects

The list of projects presented in this plan is the result of careful consideration of the Vision, each of the aforementioned goals, the overarching regional network concept and the critical issues identified during the analysis and through stakeholder input. A total of 121 recommendations are identified in this plan including 94 capital projects and 27 programmatic actions. The capital projects are distributed across all park units as shown in Figure 2.3 and address gaps in the trail network, improving bridge access, providing safety improvements, establishing trailheads, and establishing target areas for additional study and investment. Programmatic actions relate to improved coordination, process enhancements, marketing and promotion activities, and trail planning, design and policy. Figure 2.4 identifies the breakdown of project types.

As a regional study, intentional emphasis has been placed on defining projects across the region that are necessary for achieving the regional Vision. Each project has been assigned a timeframe for initiation that suggests when the NPS or other identified responsible party should begin working on the action, recognizing that some actions will take longer to implement than others. Many of the recommendations will require an initial study; therefore, initiation of the study is recommended as an immediate priority.

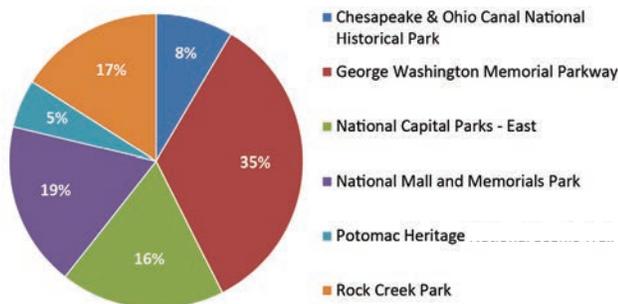


Figure 2.3 Allocation of 94 Capital Projects by NPS Park Unit

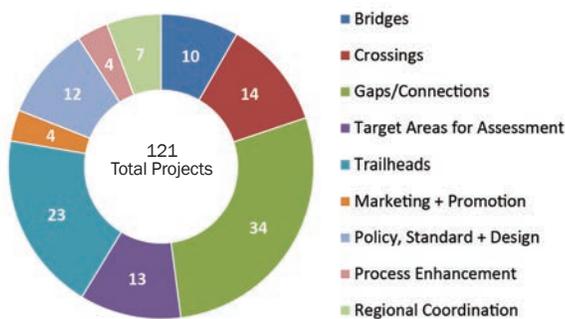


Figure 2.4 Recommended Project Type Breakdown (includes Capital and Programmatic Recommendations)

In addition, each capital project was further evaluated through a set of criteria to determine regional capital project priorities as described in Section 5.4. A total of 18 capital projects rose to the level of regional importance as outlined below and identified on Figure 2.5. Some park units have more priority projects than others which suggests more emphasis and investment is needed in those areas to achieve the regional vision.

Chapter 6 Recommended Actions, presents the overall set of recommendations in more detail. Chapter 6 also includes an overall Proposed Projects Map and project matrix sorted first by timeframe and then by implementing park unit so that overall regional phasing recommendations are understood. Individual park unit phasing tables are also included.

The project list that follows reflects the top-ranking regional capital priority projects. Project descriptions have been abbreviated; more detail is provided in Chapter 6, including a presentation of programmatic actions.

### George Washington Memorial Parkway

1. Connect the Theodore Roosevelt Bridge to Arlington Ridge Park (U.S. Marine Corps Memorial and Netherlands Carillon).
2. Develop a connection from Mount Vernon Trail to Theodore Roosevelt Bridge on south side of the bridge.
3. Improve access to the Mount Vernon Trail from the Airport Access Road overpass at Ronald Reagan National Airport/Aviation Circle.
4. Connect the 14th Street Bridge to a proposed off-road facility on Boundary Channel Drive and connect Boundary Channel Drive to Long Bridge Drive.
5. Improve safety and access at the intersection of the Mount Vernon Trail and Custis Trails.
6. Explore the potential for new trail roundabout at Mount Vernon Trail and Four Mile Run Trail.

### National Mall and Memorials Park

7. Remove stairs at Ohio Drive SW Tidal Basin Inlet Bridge to connect to Rock Creek and Potomac Parkway Trail and define lanes along East Basin to connect to new cycle track extension on Maine Avenue with connection to 14th Street Bridge Trail.
8. Extend the existing cycle track south on 15th Street from Pennsylvania Avenue, NW to the 14th Street Bridge.
9. Develop a set of recommendations to improve visitor safety and reduce conflicts for motorists, pedestrians, and cyclists at Lincoln Memorial Circle.

- 10. Improve safety of all at-grade trail crossings from the National Mall leading up to the Theodore Roosevelt Bridge.

**Rock Creek Park**

- 11. Conduct a feasibility study for a cycle track or trail along Military Road, NW right of way from Glover Road, NW to 16th Street, NW.
- 12. Conduct a feasibility study for a trail facility along the Oregon Avenue, NW corridor, stretching from Military Road, NW to the D.C./Maryland line, that avoids impacts to park resources.

**Chesapeake & Ohio Canal National Historical Park**

- 13. Close the gap in the Capital Crescent Trail from 30th Street to 31st Street through an analysis of the Water Street corridor.
- 14. Evaluate potential access improvements from the Capital Crescent Trail to the Key Bridge.

**National Capital Parks - East**

- 15. Develop a hiker-biker trail connector from Shepherd Parkway SW through Oxon Cove Park to the Oxon Hill Farm Trail.
- 16. Develop an on-street facility from Oxon Hill Farm Trail across Interstate 495 to Oxon Hill Road and onto Harborview Avenue.
- 17. Conduct a feasibility study for extension of the Suitland Parkway Trail from the D.C./Maryland line to Henson Creek Trail.
- 18. Evaluate potential access improvements from the Anacostia Riverwalk Trail to the Whitney Young Memorial Bridge (East Capitol Street NE).

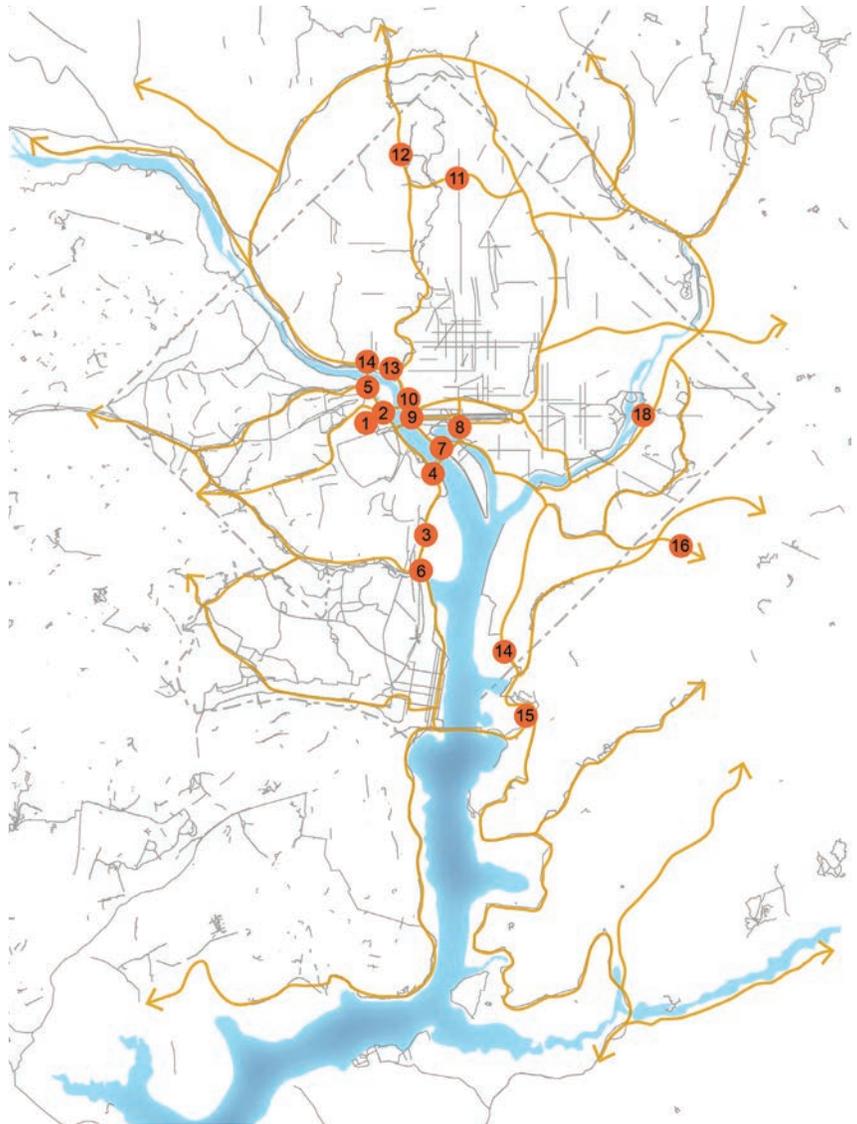


Figure 2.5 Recommended Priority Capital Projects Location Map

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## Chapter 3

Mount Vernon Trail near Memorial Circle  
Source: Washington Area Bicyclist Association

### Status of the Trail Network

NPS manages more than 95 miles of paved trails across the study area and, since 1990, has added approximately 22 miles to the network. Combined with the efforts of neighboring jurisdictions, the trail network is an extraordinary resource for those who live, work and visit the region.

#### 3.1 NPS Trails in the NCR

This section provides an overview of the trail network as it exists today and describes the primary NPS trails that form the core of the regional trail system organized by park unit. Information was assembled based on a review of relevant documents, desktop analysis and GIS data review, and interviews with NPS park unit managers to identify issues and opportunities. Figure 3.3 at the end of this section identifies existing NPS trails within the NCR.



MBT  
Source: Washington Area Bicyclist Association

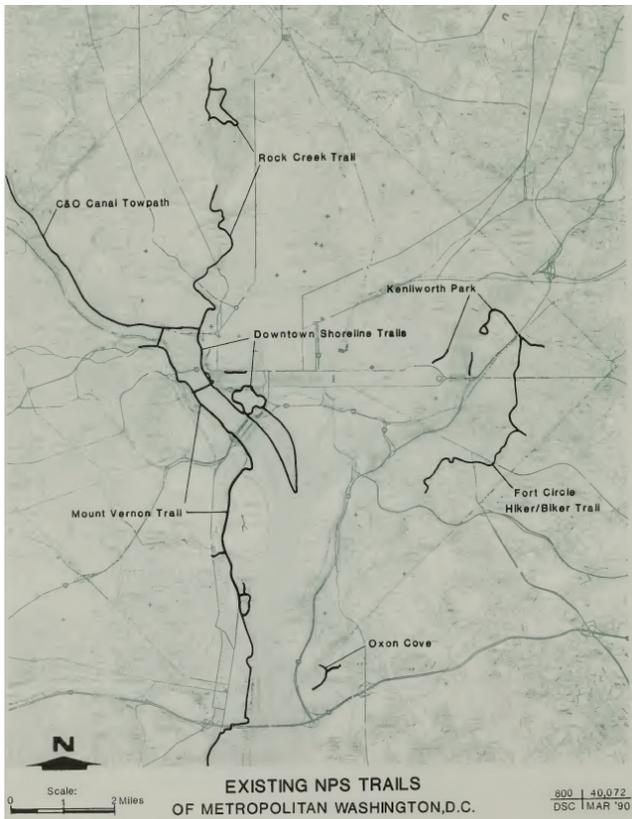


Figure 3.1 1990 NPS Trail Network

Source: 1990 Paved Recreation Trails of the National Capital Region

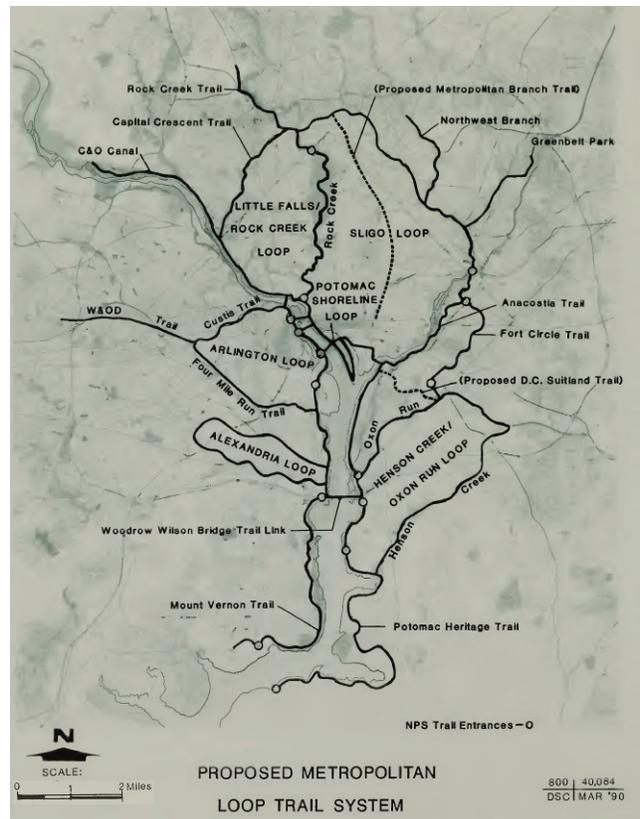


Figure 3.2 1990 Proposed NPS Trail Network

Source: 1990 Paved Recreation Trails of the National Capital Region

### Measured Progress

The two greatest challenges identified in the 1990 plan were the “discontinuities that keep the trails from forming a coherent system and an over-abundance of trails in substandard design.” Figure 3.1 shows the extent of the NPS trail network in 1990. To address these issues, the plan proposed a series of six interlocking loop trails, as depicted in Figure 3.2., and identified 79 priority projects of which eleven were considered top priority and addressed major safety problems in areas of significant use. Other factors used to prioritize projects included cost-effectiveness, network completion, and positive public relations.

A number of priority recommendations have been completed since the 1990 plan, filling network gaps that existed at that time and improving overall connectivity and safety. Relevant priority projects proposed in the 1990 plan that have since been implemented include:

- **Capital Crescent Trail** – Completion of the Capital Crescent Trail parallel to the C&O Canal in Georgetown provided for reduced conflicts between bicyclists and pedestrians. The trail has become an important and heavily utilized asset within the NCR.
- **Woodrow Wilson Bridge Crossing** – Reconstruction of the Woodrow Wilson Bridge provided an important regional pedestrian/bicyclist linkage between Virginia and Maryland.
- **Lincoln Memorial Circle Ramp Crossings** – A series of safety improvements at the east end of Arlington Memorial Bridge included striping and signage for ramp crossings and new yield signage for vehicles. This area would benefit from additional safety improvements and continues to be a focus of this plan.
- **Rock Creek Park Trail Bridge Replacement near Porter Street** – The existing low-water bridge was replaced with a flood-resistant arched bridge.
- **Zoo Tunnel Alternatives** – After weighing several alternatives, the decision was made to widen the sidewalk within the tunnel to better accommodate trail users. Construction of this tunnel widening is anticipated to begin by 2017.

Additionally, the Anacostia Riverwalk Trail represents a major accomplishment, with the final connection north to Prince George's County currently under construction. Other notable linkages include the Kenilworth Park trails extension and the Crystal City connection to the Mount Vernon Trail.

Despite these significant accomplishments, a number of important projects in the 1990 plan have yet to be completed or initiated.

### Overview of NPS Trails

Table 3.1 tabulates estimated paved trail lengths in the study area for each park unit. The roll up shows that GWMP and NAMA contain over half of the paved trails in the study area.

It is important to note that NAMA follows a unique classification system for its trails whereby all sidewalks in the park unit and the gravel paths on the Mall are defined as trails. This generalization is commensurate with a broad park policy that allows bicycling on sidewalks within the park. The District of Columbia does not permit bicycling on sidewalks. The approach by NAMA in its classification of trails makes it difficult to accurately distinguish biking trails within the park unit since all paths are trails; this issue also extends to challenges in calculating operations and maintenance costs since sidewalks are assets linked to landscapes versus facilities.

A breakdown of estimated trail lengths for each NPS trail is included in Table 3.2. The largest single trail in the network is the Mount Vernon Trail, followed by the C&O Canal Towpath of which only a small portion is included in the study area. Figure 3.3 depicts the existing NPS trail included in this study. The following sections provide an overview of each park unit and the major trails found within the parks.

**Table 3.1** NPS NCR Paved Trail Lengths by Park Unit Within Study Area

NPS Park Unit	Estimated Paved Miles
Chesapeake & Ohio Canal National Historical Park	17.24
George Washington Memorial Parkway	28.94
National Capital Parks – East	13.95
National Mall & Memorial Parks	26.77
Rock Creek Park	8.39
White House	0.62
<b>Total</b>	<b>95.92</b>

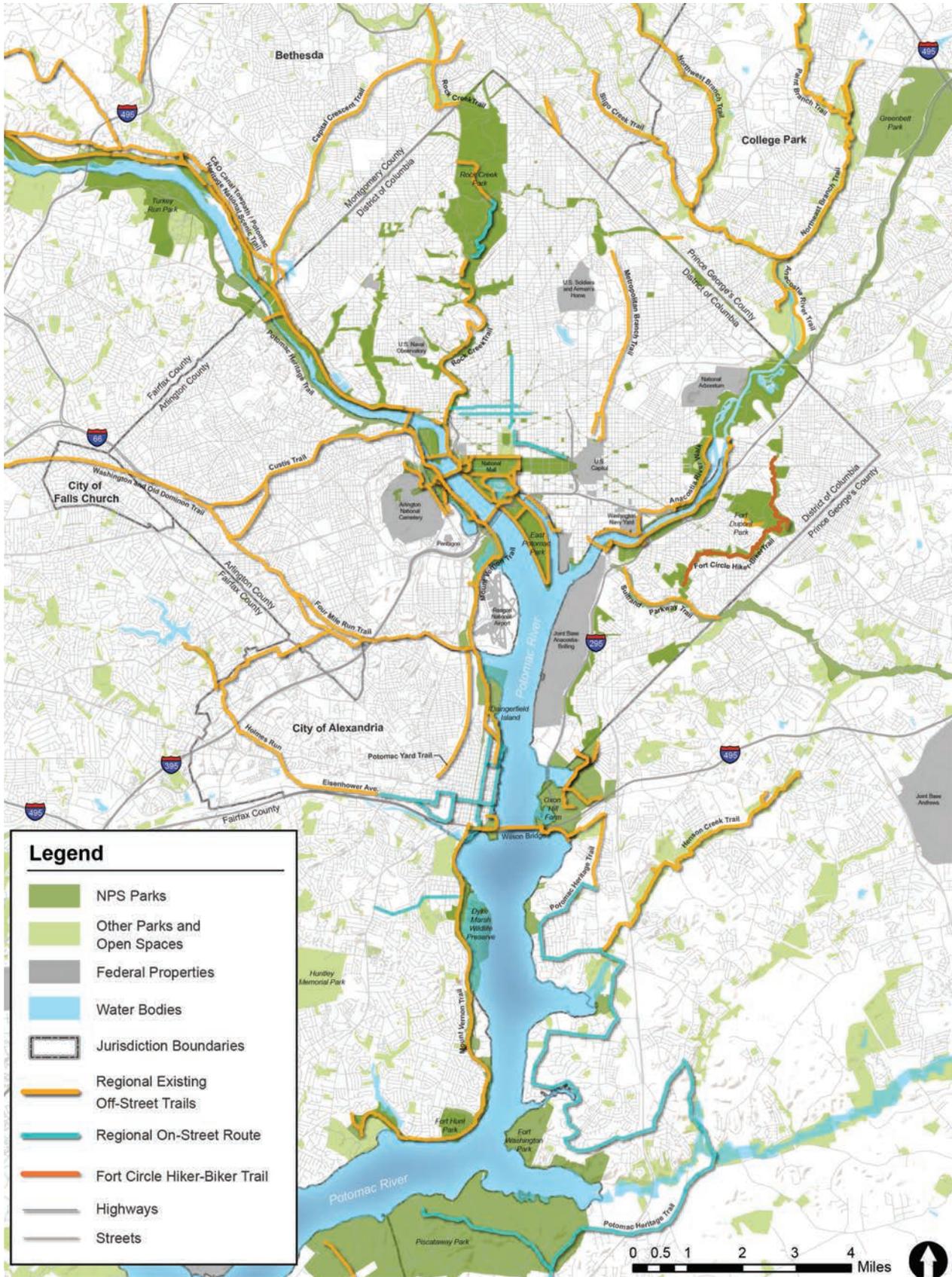
Note: Calculations were based on GIS data provided by NPS and are considered estimates.

**Table 3.2** NPS NCR Paved Trail Lengths by Major Trail

NPS Trail	Estimated Paved Miles
Anacostia Riverwalk	5.50
Arlington Cemetery Edge <sup>3</sup>	0.36
Bingham Drive/Beach Drive Trail <sup>5</sup>	1.17
C&O Canal Towpath	13.53
Capital Crescent Trail	3.65
Crystal City Connector <sup>3</sup>	0.33
Fort Circle Hiker-Biker Trail	6.00
Fort Circle Hiker-Biker Trail Spur <sup>2</sup>	0.04
Fort Dupont Park Hiker-Biker Spur <sup>2</sup>	0.13
Fort Dupont Trail <sup>2</sup>	0.43
Fort Hunt Connectors <sup>2</sup>	0.22
Fort Hunt Trail <sup>2</sup>	0.85
Georgetown Boardwalk	0.13
Great Falls Park Trails	4.86
Hains Point Sidewalks	4.01
Arlington Memorial Bridge	0.88
Military Avenue Trail <sup>5</sup>	0.67
Mount Vernon Trail*	18.00
Mount Vernon Trail Spurs <sup>3</sup>	1.48
Mount Vernon Trail-Alternate <sup>3</sup>	0.61
NAMA Sidewalks <sup>4</sup>	17.48
National Mall Gravel Paths <sup>4</sup>	1.92
Oregon Avenue Trail <sup>5</sup>	2.23
Oxon Hill Hiker-Biker Trail	1.86
Pennsylvania Avenue Cycle Track	1.20
Rock Creek and Potomac Parkway Trail <sup>5</sup>	1.91
Rock Creek Park Multi-use Trail	4.33
Southwest Waterfront	0.62
Towpath Connector <sup>1</sup>	0.89
White House Trails <sup>4</sup>	0.62
<b>Total</b>	<b>95.92</b>

Note: Calculations were based on GIS data provided by NPS and are considered estimates. \*\* MVT calculation includes the portion of the trail within Old Town Alexandria. This chart includes a full listing of trail segments. Subscript numbers indicate segments or spurs that could be considered part of a larger trail.

- 1 = C&O Canal Towpath connector
- 2 = Fort Circle Hiker-Biker Trail connector/spur
- 3 = Mount Vernon Trail connector
- 4 = National Mall Trail system
- 5 = Rock Creek Park Trail connector



**Figure 3.3 Existing NPS Trail Network**  
 Sources: NPS, District of Columbia, Counties of Arlington, Fairfax, Montgomery, and Prince George's, City of Alexandria. Note: NPS trails are those trails located on NPS parkland depicted in the darker green shade on the map.

### 3.1.1 Chesapeake & Ohio Canal National Historical Park

The C&O Canal Towpath represents a valuable historic resource within the NCR and an important trail connection for a variety of users. The clay and crushed gravel Towpath totals 184.5 miles and extends westward from Georgetown to Cumberland, Maryland. The Towpath provides the spine of the POHE network and has been designated as a portion of U.S. Bicycle Route 50. The scope of this study includes the Towpath as far west as Great Falls Park, representing approximately 13.5 miles of the total length. Continuity of the Towpath is a major priority for the CHOH park unit, maintaining the seamless connection between Georgetown and Cumberland. Currently a direct connection is lacking between Lock 1 and Lock 0 (Tidewater Lock), creating confusion for some users hoping to reach the Zero Milepost.

Flooding from stormwater runoff poses a threat at numerous locations along the length of the Towpath; blocked culverts have the potential to shut down the towpath due to flooding that leads to blow outs of the towpath. The towpath does not have a documented trail standard, although the path is 12 feet wide and the crushed aggregate surface is uniform throughout the entire length of the towpath. Encroachment from development was also identified as potentially creating viewshed impacts from the trail.

The Capital Crescent Trail is under NPS jurisdiction from Georgetown to the Maryland state line and provides a paved alternative to the Towpath in this area. The trail is a popular and heavily used commuter route providing linkages north to Bethesda and Silver Spring, both in Maryland. Conflicts arise due to the high volume of usage. The trail is in need of repaving and new gravel shoulders.



Capital Crescent Trail  
Source: National Park Service // Carole Lewis Anderson

### 3.1.2 George Washington Memorial Parkway

The Mount Vernon Trail is an 18-mile multi-use paved route from Mount Vernon Estate and Gardens north to Rosslyn and the Key Bridge. The trail receives very high levels of usage, especially the segment north of Old Town Alexandria, where shared use paths such as Four Mile Run Trail and Custis Trail in Arlington join the trail. The portion of the trail within Old Town is on-street, with alternate routes designated on Union Street and Royal Street. The Mount Vernon Trail, also part of the POHE network, crosses the Potomac River at the 14th Street Bridge, Arlington Memorial Bridge, Theodore Roosevelt Bridge, and Key Bridge. Also, the GWMP trail network extends into Arlington Memorial Cemetery and Fort Hunt Park.

Maintenance challenges and safety issues are presented by the existing crossings of the GWMP, which include timber bridges and at-grade crossings. Development of standards for bridges and crossings will provide consistency and enhance safety. In addition, pavement quality, trail width, and edging are inconsistent in some areas, presenting challenges for safety and overall trail experience.



Mount Vernon Trail  
Source: National Park Service



Trail Bridge along Mount Vernon Trail, southern section  
Source: AECOM

The level of usage presents challenges with user conflicts, as many high-speed commuters share the trail with recreational users. Moreover, a number of at-grade crossings represent serious safety concerns, most notably in the vicinity of Ronald Reagan National Airport and Memorial Circle (situated between Arlington Memorial Bridge and Memorial Avenue). Connections from the trail to Potomac River bridges prove challenging due to the high volume and limited number of crossings, as well as the difficulty of access at certain locations.

The GWMP is currently conducting an Environmental Assessment for Memorial Circle that should be evaluated for implementation in future revisions to this plan. Transportation planning issues constitute an important component of this study, the goal of which is to reduce conflicts between trail, walkway and roadway users and to increase visitor safety and wayfinding at Memorial Circle.

### 3.1.3 National Capital Parks – East

The Anacostia Riverwalk Trail is the most prominent paved trail within the NACE park unit, and consists of segments on both shores of the river. On the east side of the river, NPS maintains approximately 3.5 miles of the trail from Poplar Point to Benning Road, and on the west side from just north of Pennsylvania Avenue to Benning Road. The Kenilworth Aquatic Gardens segment of the trail on the east side is currently under construction and connects to the Anacostia Tributary Trail System to the north. User volume is anticipated to increase dramatically after completion of this linkage and could exacerbate challenges created by the wide variety of user types. The Anacostia Riverwalk Trail also serves as a recent success story of partnership between the NPS and District Department of Transportation (DDOT) for the planning, design and development of the trail. Though the NPS and DDOT share maintenance responsibility for the corridor, this responsibility strains the limited resources of NACE – an issue that should be considered when developing any future trail agreements.



Informal crossing of GW Memorial Parkway at Belle View Boulevard  
Source: AECOM



Mount Vernon Trail near Ronald Reagan National Airport  
Source: AECOM



NPS Fort Circle Hiker-Biker Trail  
Source: National Park Service

The Fort Circle Hiker-Biker Trail is approximately eight miles in length and extends from Fort Ricketts in the south to Fort Mahan Park in the north. The natural surface trail provides a unique hiking and bicycling experience within the metropolitan area, which is why it is included within this paved trail study. On-street routes connect the Hiker-Biker trail to other Fort Circle Parks, also serving as a hiking route segment of POHE, tracing the high points around the District. A wayfinding study is currently underway for the connection from Fort Mahan to Fort Totten.

Nearly two miles of paved trails are located within Oxon Cove Park and Oxon Hill Farm. Currently these trails lack formal connections to areas outside the park. In early 2015, the NPS commenced an Environmental Assessment (EA) to evaluate alternatives to provide a new paved hiker-biker trail system, small parking lot, observation deck, trail links and associated signage and amenities. The areas adjacent to Oxon Hill along the D.C. and Maryland borders have historically contained limited paved trail facilities with large gaps, leading the area to remain generally underserved in the regional paved trail network. Implementation of the preferred alternative(s) from the EA should be incorporated into future efforts to update this study.



Anacostia Riverwalk Trail  
Source: National Park Service

### 3.1.4 National Mall and Memorial Parks

Paved trails within NAMA include sidewalks within the National Mall, alongside Constitution and Independence Avenues west of 14th Street NW, and trails within West and East Potomac Parks. The Rock Creek and Potomac Parkway Trail connects West Potomac Park with the Rock Creek Park Multi-use Trail to the north. A cycle track on Pennsylvania Avenue extends from 15th Street NW to 3rd Street NW. The portion of the 15th Street cycle track between New York Avenue and Pennsylvania Avenue is under DDOT jurisdiction.

Trails within NAMA are some of the highest volume routes due to the combination of heavy usage by residents, tourists, commuters, as well as those seeking to use other regional routes such as a segment of the POHE network, the East Coast Greenway and U.S. Bicycle Route 1, which transverse the National Mall Trails. Seasonal variation in visitor flow is also a challenge that must be considered when developing solutions for improved connectivity and could serve as a basis to implement pilot approaches for improvements. The concentration of resources and various user types is a basis for recommendations in the *National Mall Plan* that suggests the separation of users. The National Mall Circulator, launched in summer 2015 through a partnership among DDOT, NPS and D.C. Surface Transit, is a bus service that provides multi-modal connections for pedestrians (including bicycle transport) connecting the National Mall and Memorial Parks. By utilizing a bus with a bicycle rack, this Circulator can help bicyclists avoid potential roadway conflicts during peak visitor times. Other studies underway address the National Mall's gravel surface paths and tour bus operations.



National Mall gravel path  
Source: AECOM

Arriving from Virginia, NAMA is the gateway to the National Mall – “the premiere civic and symbolic space for our nation” (*National Mall Plan*). Ensuring an attractive and high quality arrival experience by paved trail is consistent with the objectives and recommendations of the *National Mall Plan*. Approaches to Potomac River bridges were an issue identified in the 1990 plan and several challenges remain today – although some progress is being made. Projects to improve connectivity to the 14th Street Bridge have been funded and include improving crossings at East Basin Drive, widening existing trail facilities and relocating the highway sign post and light post on the approach to the bridge. A Road Safety Audit completed in 2014 provided suggestions for improvements around Lincoln Memorial Circle. As noted in the Road Safety Audit additional analysis is needed beyond the scope of this effort to fully evaluate alternatives for improved visitor safety that could involve narrowing of travel lanes, improved or modified crossings, signage and other challenges. The study area should assess access from all roads intersecting with the Circle as well as Ohio Drive and the Rock Creek and Potomac Parkway Trail.

Pedestrian and bicyclist connectivity to the Theodore Roosevelt Bridge involves multiple roadway crossings that are not well defined or signed, and in some cases are dangerous. While efforts are underway by NPS in partnership with DDOT to implement improved bike route signage throughout the National Mall, supplementary enhancements are needed to strengthen trail connectivity in this area.

Recently completed mobility improvements to the Kutz Bridge have widened the sidewalk on the south side of the bridge and eliminated the sidewalk on the north side of the bridge by narrowing the travel lanes.



Sidewalk trails around the National Mall serve many user types  
Source: AECOM



14th Street Bridge approach from D.C.  
Source: AECOM

### 3.1.5 Potomac Heritage



The POHE designation includes a network of approximately 862 miles of existing and planned trails between the mouth of the Potomac River and the Allegheny Highlands in western Pennsylvania. The POHE is a legislatively authorized component of the National Trail System

and is an enterprise of many partners including government agencies at all levels, non-profit organizations, volunteers and commercial interests. While portions of the POHE network are managed by NPS, many segments are managed by others. This “braided” network of multiple trail experiences – hiking paths, bicycling routes, multi-use facilities, and water trails – provides users a continuous outdoor recreational experience that expresses George Washington’s vision of a “great avenue into the Western Country” (NPS, PHNST Foundation 2012).

Within the NCR, the POHE designation applies to many of the major NPS trails including the C&O Canal Towpath, Mount Vernon Trail, Fort Circle Hiker-Biker Trail, and National Mall trails. A number of local trails within the metropolitan area, both off-street and on-street, are also designated as part of the POHE network, including the Custis Trail, Four Mile Run Trail, and on-street routes from Oxon Hill Farm to Piscataway Park. Local and state agencies previously had to apply to the NPS for federal designation of a trail as a segment of the POHE if they met specified criteria. Now the designation process is managed through Memorandum of Understanding (MOU) process that defines roles for and promotes coordination among partners. Management of the trail resource resides with the local or state agency, although NPS can provide technical assistance and limited financial support for projects.

Priorities associated with the POHE network include consistent route marking and graphic identity for through-travelers and ensuring continuity throughout the network by eliminating physical gaps, including completion of a link between Oxon Hill Farm and the Frederick Douglass Bridge and completion of the route linking the Civil War Defenses of Washington.

### 3.1.6 Rock Creek Park

The Rock Creek Park Multi-use Trail is an important paved off-road asset for both commuters and recreational users. Totalling approximately four miles, the trail extends from the intersection of Broad Branch Road NW south to Virginia Avenue NW, and has been the subject of a recent recapitalization program to resurface the trail and widen it where feasible. North of Broad Branch Road NW, bicyclists typically use Beach Drive, large portions of which are closed to vehicular traffic on weekends. North of the Multi-use Trail, NPS paved trails exist along Oregon Avenue NW, from Wise Road NW south to Military Road NW, and along Bingham Drive NW and Beach Drive NW, from Oregon Avenue NW to Military Road NW.



Rock Creek Park Multi-use Trail  
Source: AECOM



Oxon Run Trail at Oxon Run Farm  
Source: AECOM

Challenges for trails within Rock Creek Park stem from the high volume of usage and conflicts between trail user groups and also with vehicles where off-road options are not available. Sensitive environmental resources and physical constraints within the park make extending or widening trails infeasible in many areas. Trail access points into the park are limited, as are east-west trail crossings.



Figure 3.4 Potomac Heritage National Scenic Trail (Portion)

Sources: NPS, Note: The full trail extends from the Allegheny Highlands in western Pennsylvania to the mouth of the Potomac River.

### 3.2 Local Government Regional Trails (Non-NPS)

Over the previous 25 years, local governments have undertaken a tremendous expansion of trail facilities throughout the region. Though the majority of facilities being planned, designed and implemented by local governments are for non-NPS owned or managed trails, local efforts represent significant opportunities for collaboration and information exchange, as well as alignment of priorities. Two significant avenues exist for local trail planning and development coordination: local jurisdictional master plans, and regional local government coordination headed by the MWCOG, the governmental agency tasked with regional transportation planning.

In order to better understand the state of the existing regional trail network, an extensive review of documents and sources relevant to this study from local or state governments was completed. Moreover, a series of meetings and conference calls were held with local governments to gain an understanding of current trail resources, priorities and conditions. From the combined document review and meetings, a series of common themes emerged that describes the focus and priorities of local governments towards trails, such as:

- Regional connectivity is a primary goal
- User conflicts and improving safety remain a top priority
- Maintenance and design factors for trails are evolving due to the recognition of high priority commuter trail routes by local governments
- Improved and expanded signage is needed
- Better bridge access in Virginia and the District of Columbia is a key objective
- Most jurisdictions have set ambitious goals for their overall on-road and off-road trail network
- Local government documents emphasize trails as a key element in their multi-modal transportation system
- Local governments follow American Association of State Highway and Transportation Officials (AASHTO) trail standards
- Street and intersection crossing improvements are needed
- Trail connectivity to employment centers and transit is a key objective

The remainder of this section includes brief profiles of local government initiatives and major policy documents that could influence the regional trail network.



Pennsylvania Avenue Cycle Track  
Source: Washington Area Bicyclist Association

### 3.2.1 Metropolitan Washington Council of Governments

The *Bicycle and Pedestrian Plan for the National Capital Region* (2015) for the MWCOG has a stated goal to “identify the capital improvements, studies, actions, and strategies that the region proposes to carry out by 2040 for major bicycle and pedestrian facilities.” The plan was an update of the 2010 *Bicycle and Pedestrian Plan* for MWCOG. An important note is that the jurisdiction of MWCOG extends beyond the study area for this NPS Paved Trails Plan. Some projects identified by the plan were not relevant to this study and have been excluded. The MWCOG plan incorporates the goals, targets, and performance indicators for walking and bicycling from the *Transportation Planning Board Vision* (1998) and the *Metropolitan Washington Council of Governments’ Region Forward 2050 plans* (2010). Recognized objectives of the plan include:

- Promote walking and bicycling
- Reduce pedestrian and bicyclist fatalities
- Develop a set of recommended best practices for the design and implementation of bicycle and pedestrian facilities
- Include bicycle and pedestrian facilities improvements in new transportation projects
- Implement a regional bicycle and pedestrian plan
- Set targets and indicators that would measure progress towards the goals of the plan

One of the most relevant sets of data from the *Bicycle and Pedestrian Plan* is the quantitative documentation of trail usage, which was collected from surveys and census reports. Since the completion of the previous plan in 2010, 53 projects that had been identified were completed, including the 11th Street Bridge Trail and several protected or buffered bike lanes. The region added about 50 miles of multi-use path and 45 miles of bike lanes. A summary of the current regional network is shown in Table 3.3. See Section 4.1, Regional Growth Trends, for additional information about MWCOG’s proposed network vision.

### Key Findings from MWCOG Bicycle and Pedestrian Plan for the National Capital Region (2015)

#### Quantitative

- Walk commuting has fallen from 3% to 2.7%, but bicycle commuting has increased slightly, from 0.7% to 1%
- Bicycling and walking are concentrated in the core neighborhoods near Downtown Washington, D.C. and certain metro stations, as well as college campuses and military bases
- Walk commuting grew in the urban core, and in Montgomery and Frederick Counties, but fell in other suburban areas, notably Fairfax and Loudoun Counties
- Lack of safe route was listed by 33% of surveyors as the second most frequently cited reason for not biking or walking, followed closely by 28% citing trip distance as a barrier

#### Existing Biking and Pedestrian Facilities Findings

- 200 miles of shared-use paths (W&OD, Mount Vernon Trail, C&O Canal, Capital Crescent, and Rock Creek Park Multi-use Trails)
- 300 miles of side-paths
- 60 miles of bike lanes in the District of Columbia, 24 miles in Arlington County and 17 miles in Montgomery County
- Adding cycle-tracks to existing routes has helped increase ridership of bikes
- Trail connections to different long-distance bicycle routes (American Discovery Trail is a coast-to-coast, recreational, non-motorized trail that follows the C&O Canal Towpath and the Anacostia River Tributary Trails)
- More connections over bridges with biking and pedestrian facilities (Woodrow Wilson Bridge trail, multi-use path on Mount Vernon Trail, 14th Street Bridge, Arlington Memorial Bridge, Theodore Roosevelt Bridge, Key Bridge)
- Dual-facilities, with both an on-road bike lane and a side-path for pedestrians and slow bicyclists, are recommended to be added to bike routes

Source: MWCOG

**Table 3.3** Miles of Existing Bicycle/ Pedestrian Facilities in the Washington Region (MWCOG area)

Facility Type	Total in 2005	Completed 2006 - May 2010	Completed June 2010 - May 2014	Total Miles
Bicycle Lane	56	35	45	136
Shared-Use Path	490	53	52	595
<b>Total</b>	<b>546</b>	<b>88</b>	<b>97</b>	<b>731</b>

Source: Bicycle and Pedestrian Plan for the National Capital Region (MWCOG), 2015.

Table 3.4 includes a list of local trails of regional significance included in this study. Each provides a critical linkage to an NPS trail and is a contributor to the overall network within the metropolitan area. These trails also function as commuter routes and serve high volumes of experienced bicyclists in addition to recreational users.

**Table 3.4** Local Regional Trails Included in Study

Trail	Jurisdiction
Capital Crescent Trail	Montgomery County, MD
Custis Trail	Arlington County, VA
Four Mile Run Trail	Arlington County, VA
Henson Creek Trail	Prince George's County, MD
Holmes Run/Eisenhower Avenue Trail	City of Alexandria, VA
MBT	District of Columbia, DC
Northwest Branch Trail	Prince George's County, MD
Potomac Yard Trail	City of Alexandria, VA
Sligo Creek Trail	Montgomery County, Prince George's County, MD
Washington & Old Dominion Trail	Arlington County, Fairfax County, City of Falls Church, VA

### 3.2.2 City of Alexandria, Virginia

The City is currently developing a draft update to the 2008 *Alexandria Pedestrian & Bicycle Mobility Plan*, anticipated for completion in 2016. The planning process includes a focus on development of separate pedestrian and bicycle visions for the City, both of which align with the City's 2008 Mobility Plan goals. Priority projects emphasize on-street bicycle routes and pedestrian sidewalk improvements with lower priority given to additional enhancements or improvements to the Mount Vernon Trail.

The *Alexandria Pedestrian & Bicycle Mobility Plan (2008)* provides "a blueprint for 10 years of on-the-ground safety, mobility and connectivity improvements. Implementation of this Plan would make walking and bicycling more attractive transportation choices in the City." Goals of the study are summarized as follows:

- Provide a continuous, connected and accessible pedestrian network
- Complete a connected system of primary and secondary bikeways with ample bicycle parking
- Educate and encourage walking and biking
- Create a safe walking and biking environment

### 3.2.3 Arlington County, Virginia

The *Arlington Master Transportation Plan (MTP) - Bicycle Element (2008)* integrates transportation with land use, supports the design and operation of complete streets, and manages travel demand and transportation systems. This element of the MTP focused on bicycle travel, which is greatly affected by land use, street design, traffic volumes, fuel prices, public perception and transportation system management. Objectives of the plan are summarized as follows:

- Provide high-quality transportation services
- Move more people without more traffic
- Promote safety
- Establish equity
- Manage effectively and efficiently
- Advance environmental sustainability

Regional level trails facilities in Arlington County include the Mount Vernon Trail (NPS), Custis Trail, Washington & Old Dominion (North Virginia Park Authority) and Four Mile Run. The County is seeking a MOU with trail owners for maintenance activities, such as snow clearing, and has a robust trail counter and data collection program.



Potomac Yard Trail in Alexandria  
Source: AECOM



Four Mile Run Trail near U.S. Route 1 in Alexandria  
Source: AECOM

Plan recommendations relevant to NPS trails identified below:

- Work with regional partners to ensure that bikeways are provided on and across Virginia Department of Transportation (VDOT) and NPS owned arterial roadways, interstate and parkway corridors, as part of all projects to improve, or reconstruct these roadways.

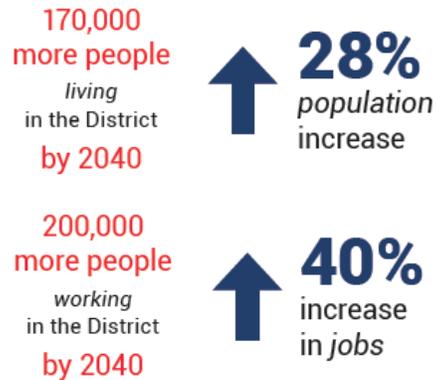
- Coordinate with NPS to complete implementation of remaining trail improvement projects identified in the 1990 NPS plan.
- Add grade-separated crossings of major highways where feasible, improve existing crossings of major highways, and develop improved alternatives for crossing or circumnavigating large federal institutions and properties, such as Fort Myer, the Pentagon complex, and Arlington National Cemetery.
- Plan and construct new shared-use trails and trail connections in conjunction with new development. Focus on trails, bridges, and overpasses that link with other sections of the bikeway network, thereby enhancing the connectivity of the entire network and with regional bikeways in adjacent jurisdictions.
- Evaluate, expand and upgrade the signed bike route system, and improve wayfinding information for bicyclists provided both on-site and electronically.

In 2015, the County adopted the *Rosslyn Sector Plan* that includes a number of recommendations to remove barriers and connect Rosslyn to the Potomac River, open space, and parkland located alongside the river. The County is currently updating the 2005 *Public Spaces Master Plan (PSMP)*, which has included a 2016 Parks and Recreation Needs Assessment Survey. The results of the survey indicate that paved, multi-use trails rank at the top in terms of need and importance for residents.

### 3.2.4 District of Columbia

The District has experienced an increase in mode share for biking and walking in the last several years and in response has recently developed a bold and implementation-focused transportation plan to advance the District's multi-modal future. Over the next 25 years, the District is projected to grow 28% in population and 40% in employment base, with the highest growth areas being the NoMa neighborhood, along the 16th Street corridor, and near the future development center of Poplar Point. The transportation system is envisioned to serve the people who live, work and visit the city, and makes the city more livable, sustainable, prosperous and attractive.

A number of actions are proposed in the *MoveDC* (2014) plan to enhance and improve the trail network. Actions include expanding and upgrading the network of bike facilities on roadways and expanding and upgrading the network of shared-use paths. Improvement of shared-use paths should fill the gaps in the trail system including:



Source: MoveDC 2014 Executive Summary

- Metropolitan Branch Trail
- Anacostia River Trail
- South Capitol Street Trail
- Oxon Run Trail
- Prince George's Connector
- Suitland Parkway Trail
- Piney Branch Parkway Trail

The *MoveDC* plan calls for completion of the Metropolitan Branch Trail; new crossings of Rock Creek Park via a cycle track on Military Road and trails; improvements to the Rock Creek Park Multi-use Trail between P Street and Broad Branch Road; new trails in the vicinity of Anacostia Park including a connection to Nannie Helen Borroughs Avenue NE; and, improvements to the Mount Vernon Trail, including George Washington Memorial Parkway crossings and Arlington Memorial Bridge access. Additional recommendations from the *MoveDC* plan include:

- Ongoing transportation and park planning projects should include planning for trails and bikeways to ensure that bicycle network gaps are eliminated and trail system access is enhanced.
- Facilitate and support development of regional and national trail routes through the District of Columbia. DDOT and other agencies should support the D.C. sections of the regional trails.
- Improve bridge access for bicyclists.
- Improve and expand signage for the bike network.
- Increase access to parks and green spaces. Create new trails, cycle tracks, and bicycle lanes accessing 73 District parks.
- Integrate the District's transportation system with the region's transportation network. Connect with many regional bicycle facilities and ensure the trail network is compatible with regional initiatives.

### 3.2.5 Fairfax County, Virginia

The *Fairfax County Bicycle Master Plan (2014)* was developed “to provide policies, programs, and physical facility recommendations to aid in the implementation of the *Comprehensive Plan Amendment PA 2013-CW-T*.” The Master Plan is divided into two components: Phase I - Tysons; and Phase II - a planning effort that addresses bicycling countywide. The goals of the plan include:

- Develop a safe and connected network of on-road and off-road bicycle route options (shared-use paths and trails), and other supporting infrastructure, that serve all communities and destinations.
- Plan, develop, design, construct, and maintain new facilities and accommodations, and upgrade existing facilities to safely and comfortably serve all bicyclists from all age groups when cycling for transportation or recreation purposes.
- Increase bicycle use for transportation, especially for non-commute trips, which account for approximate 75% of all transportation trips.
- Establish and track annual progress towards goals for bicycle travel demand and provision of bicycling infrastructure as identified in the *Fairfax County Bicycle Master Plan*.
- Increase actual bicycling safety and the perception of safety for bicycling on roads and trails in Fairfax County.

The plan focused heavily on the planning and development of an extensive pedestrian and on-street bike network with connectivity to transit and employment centers, connectivity to NPS trails such as the Mount Vernon Trail, and connectivity to other regional trails such as the W&OD Trail.



Rock Creek Park Trail, Montgomery County  
Source: AECOM

### 3.2.6 Montgomery County, Maryland

The *Montgomery Countywide Bikeways Functional Master Plan (2005)* establishes a countywide network focused on bicycling for recreation and utilitarian purposes in transportation rights-of-way. Objectives of the plan are summarized below:

- Develop an interconnected system of bikeways and trails that serves transportation and recreational needs and accommodates a variety of skill levels.
- Provide connections to current or planned bicycle facilities in adjacent counties, the District of Columbia, and municipalities located within the County.
- Provide bikeway connections to the County’s major activity centers: municipalities, central business districts, town centers, transit stations, major employment hubs, countywide park trails and regional parks.
- Create an integrated bikeway and park trail system.
- Develop a methodology to prioritize and implement bikeway projects in order to benefit as many cyclists and potential cyclists as soon as possible.
- Minimize conflicts between bicyclists and motor vehicles and between bicyclists and pedestrians and make bicycling safer and more convenient for Montgomery County residents.

The trails that fall within Montgomery County – the Rock Creek Park Trail, Sligo Creek Trail, the Capital Crescent Trail and the C&O Canal Towpath (NPS) – have been categorized as hiker-biker trails in the *Montgomery Countywide Bikeways Functional Master Plan*. Due to the scale, the plan did not evaluate bicycle suitability conditions or identify potential bikeways on all county roads. Some of the trail conditions findings are listed below:

- The County currently has more than 160 miles of existing bikeways. This includes 45 miles of hard surface hiker-biker park trails, 101 miles of shared use paths along county and state roads, and 17 miles of bike lanes.
- The County’s hiker-biker park trails receive more than 2 million annual park user visits.
- All design changes to the bikeway facilities are to be in accordance with AASHTO guidelines for the development of bicycle facilities.

### 3.2.7 Prince George's County, Maryland

The *Countywide Master Plan for Transportation* was developed to “provide residents and workers in Prince George’s County with a safe, affordable, multi-modal transportation system that effectively contributes to the timely achievement of county growth, development, and revitalization goals.” This plan takes into account and reconciles area master plan transportation recommendations for a transportation network that will support the Prince George’s County Approved *General Plan*. As a functional master plan, it is concerned with how transportation supports the county’s development pattern by guiding public and private resources to transportation policies, programs, facilities, and services that will help attain the goals and concepts in the *General Plan*. Goals of the study are summarized as follows:

- Improve the transportation network in order to reduce congestion and vehicle miles traveled.
- Incorporate and reconcile the transportation recommendations of the 31 master plans approved since 1982 into one complete and up-to-date document.
- Provide strategic transportation, particularly transit, guidance that reflects the major changes that have occurred since 1982.
- Provide adequate pedestrian and bicycle linkages to schools, parks, recreation areas, commercial areas, and employment centers.
- Develop bicycle-friendly roadways in conformance with the latest standards and guidelines, including the 1999 AASHTO Guide for the Development of Bicycle Facilities.
- Ensure funding to achieve the goals of the master plan and the state’s priority list.
- Increase trail funding by one percent of the total county transportation budget (excluding developer funding). Give priority to trails that function as transportation facilities or as links to other transportation facilities.
- Design and construct master plan park trails to accommodate all user groups (pedestrians, bicyclists, equestrians, mountain bikers, and disabled users), to the extent feasible and practical.
- Provide trail connections within and between communities as development occurs, to the extent feasible and practical.
- Promote the use of walking and bicycling for some transportation trips.
- Develop theme-based marketing of major hiker-biker/ equestrian trails and bicycle commuting routes.

### 3.3 Other Regional Trails

In addition to the NPS and Local Government trails, the region contains a number of other regional trails that are commonly managed by non-governmental agencies. The NCR is a popular destination or focal point for several trails that span hundreds of miles, sometimes over many jurisdictions. Several of these “super” regional trails rely upon similar routes within the NCR including U.S. Bicycle Route 1, East Coast Greenway, the American Discovery Trail, and the September 11th National Memorial Trail. This reliance on similar routes is based partially on a desire to connect the trail with popular destinations, of which many resources are managed by NPS. It’s also partially based on the necessity to transverse areas with numerous and expansive rivers at a limited number of crossings.

With the growing desire to utilize NPS trails for other regional routes there is an increased need for improved signage due to potential conflicts with resource management, and user conflicts between regional trail travelers and daily recreation users, and commuters. Specifically the National Mall Trails and the Mount Vernon Trail are NPS trail facilities that have been incorporated into the branding of other regional trails. The NPS should develop standards that address proper resource management, safety enhancements for multiple types of user groups and the desire to brand and market the regional trail system as something other than NPS. Section 5.4 describes a framework concept for a National Capital Trail system that aims to simplify the core trail network, which would help minimize competing branding efforts.

The following page provides a brief overall summary of other regional trails.

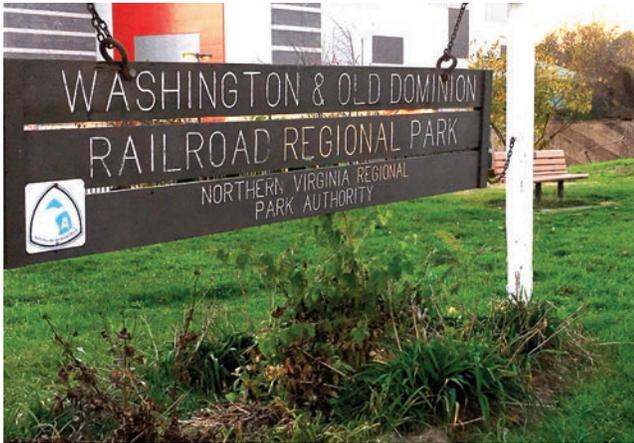
### 3.3.1 Washington & Old Dominion Trail



Northern Virginia  
Regional Park Authority

Spanning over 45 miles from Loudoun County, VA to Arlington County, the Washington & Old Dominion (W&OD) Trail

provides a wide array of recreation facilities for cycling, walking and equestrian use, and has a growing emphasis as a regional commuter route. Owned and managed by the Northern Virginia Regional Park Authority (NVRPA), the agency has been focusing on enhancing the safety of the trail by improving street crossings, studying options for widening the trail facility and developing additional pedestrian and cyclist connectors. As the reliance on W&OD Trail as a commuter route has grown in the last several years, NVRPA has focused on enhanced maintenance needs such as snow clearing, implementation of speed zones, and potential lighting needs at street crossings.



Washington & Old Dominion Trail

Source: AECOM

### 3.3.2 East Coast Greenway

East Coast



Greenway

This developing 3,000+ mile route from Canada to Key West, Florida, spans 15 states from Maine to Florida, providing recreation and transportation mobility to walkers, cyclists, skaters, skiers, wheelchair users and equestrians. Over the span of the route, over 100 individual trail segments are utilized to provide a continuous and safe route. The East Coast Greenway (ECG) travels for 166 miles within Maryland and ten miles within the District of Columbia. Two important regional trails that are co-labeled for the ECG include the MBT and the National Mall trails. Within the District, two primary efforts are underway for the ECG: on-street safety improvements coordinated with DDOT, and signage of the route within the National Mall in coordination with the NPS. The ECG then crosses the Arlington Memorial Bridge and connects to the Mount Vernon Trail heading south to the Mount Vernon Estate and Gardens. The route then parallels U.S. Bicycle Route 1 through Fort Belvoir to Prince William County, Virginia.

### 3.3.3 American Discovery Trail



The American Discovery Trail (ADT) is a super-regional trail of over 6,800 miles, stretching from Pt. Reyes National Seashore in California to Cape Henlopen State Park in Delaware. The trail is unique in that it connects 14 national parks, 16 national forests and over 10,000 significant points of

interest in-between. Traversing the United States, the trail offers a mix of urban, suburban and rural character and highlights educational opportunities. Within the NCR, the ADT route overlays the Anacostia Tributary Trail to the Fort Circle Trail (Hiker-Biker Trail) and the Rock Creek Park Multi-use Trail south to the C&O Canal Towpath, where it leads out of the NCR area.

### 3.3.4 U.S. Bicycle Route 1



The Virginia Department of Transportation (VDOT) has led the planning of route alternatives, including the completion of a Preferred Route Study in October 2014 for U.S. Bicycle Route 1 (USBR1). Officially designated in 1982 as a bicycle route, USBR1 includes over 274 miles within Virginia alone. USBR1 is critical to the regional trail network as it officially connects to both the NPS and local government networks by crossing the 14th Street Bridge from the District of Columbia, then overlapping the East Coast Greenway route by traveling south along the Mount Vernon Trail to an on-street network through Fairfax County, Fort Belvoir and into Prince William County, Virginia.

### 3.3.5 U.S. Bicycle Route 50



The U.S. Bicycle Route 50 (USBR50) designation includes the full length of the C&O Canal Towpath in D.C. and Maryland. From the Towpath's end the designation includes a westward connection via the Great Allegheny Passage to Frostburg, Maryland. USBR50 also currently includes a connection from Steubenville, Ohio to Terre Haute, Indiana, while plans ultimately call for a cross-country designation from San Francisco to D.C.

### 3.3.6 September 11th National Memorial Trail



The September 11th Memorial Trail is a 1,100 mile “symbol of resiliency and character” that links the World Trade Center to the Pentagon in Arlington County and to the Flight 93 Memorial in Shanksville, PA. The September

11th Trail Alliance is a 501(c)3 organization that focuses on implementation of a multipurpose trail system for cyclists, hikers and walkers. The organization manages two designated routes; the September 11th National Memorial Trail (9/11 Trail) and the Pentagon Memorial Trail Circuit. The 9/11 Trail follows the Northwest Branch Trail in Prince George's County, traveling west toward Fort Totten, then connecting to the MBT, traveling on the northern edge of the National Mall to the Arlington Memorial Bridge, across to the Mount Vernon Trail and back to the Rock Creek Park Multi-use Trail within Georgetown and west along the C&O Canal Towpath. The Pentagon Memorial Trail Circuit follows the same route but focuses only on the National Mall, Arlington Memorial Bridge and Arlington areas.

### 3.3.7 Adventure Cycling Association Tidewater Potomac Heritage Bicycle Route



The Adventure Cycling Association has designated a portion of the POHE network as the Tidewater Potomac Heritage Bicycle Route. The 378-mile route begins and ends at Union Station and connects to points of interest on both the Virginia and Maryland sides of the Potomac River within the NCR and beyond. In Virginia the route first follows the Mount Vernon Trail before extending south to Fredericksburg and east to the Northern Neck. The Maryland portion extends from the DC Metropolitan area along on-road connections south and east to Saint Mary's County.

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# Chapter 4

Bicyclists in the Brookland Neighborhood  
 Source: Washington Area Bicyclist Association

## Challenges and Opportunities

The trail and bicycle network throughout the NCR is one of the most complex in the nation due to the number of local government jurisdictions it travels through: two states and the District of Columbia; five counties; and the City of Alexandria, as well as five different NPS park units. At the core of this complexity is a wide-range of land-uses, demographic characteristics, trail standards and trail access opportunities. This section provides an overview of relevant challenges and opportunities that characterize this complex network of NPS and local government regional trails. Brief descriptions are provided for regional growth, safety, gaps, maintenance, design considerations, counters, and partnerships in this section.

### 4.1 Regional Growth Trends

In 2015, MWCOG set forth an aggressive vision for 2040 of a regional network of over 2,000 miles of bike lanes, almost 2,000 miles of share-used paths, hundreds of individual signed routes, dozens of intersection improvements, and 15 bicycle access routes over bridges and through tunnels. This vision, shown in Table 4.1, represents a doubling of the facility mileage defined by MWCOG in 2010 and is supported by significant efforts across the region to expand the trail network. The plan outlines over 475 projects, which upon implementation will add over 630 miles of shared-used paths, 80 intersection improvements and 10 pedestrian and bicycle bridges and tunnels by the year 2040. It is important to note that this vision includes jurisdictions that are outside of the focus area of this study.

Table 4.1 MWCOG Proposed Regional Network Vision

Facility Type	Trail Mileage Completed Through 2014	Planned New Facilities/Upgrades	Total 2040
Bicycle Lane	136	792	928
Shared-Use Path	595	800	1,393
<b>Total</b>	<b>731</b>	<b>1,592</b>	<b>2,323</b>

Source: Bicycle and Pedestrian Plan for the National Capital Region (MWCOG), 2015.

The Greater Washington, D.C. area is projected to grow over the next several decades, with the District expected to experience some of the highest growth levels. Overall MWCOG projects a 24% growth in metropolitan residential population and an employment base growth of over 36% by 2040. More important than the numbers of growth is the projected pattern - MWCOG estimates that the highest concentration of jobs will be in the District, Fairfax County and Montgomery County, while residential growth is expected to be more dispersed than today. This trend will result in greater numbers of people commuting, particularly east-west commuting across the region.

Within D.C., specific neighborhoods may experience a greater share of growth in residents and employment such as Columbia Heights, NoMa, Farragut Square, Navy Yard, Southwest Waterfront and Anacostia. The projected growth in residents and employees will increase both walking and bicycle trips throughout the District. Bicycle trips alone may increase by 230,000 by 2040 – resulting in additional use of bridge crossings into the District.

## Bike Share Stations

In September 2010, the District of Columbia and Arlington County launched a regional bike sharing system, Capital Bikeshare. The bike sharing program consists of over 3,100 bicycles available to rent at approximately 350 stations, as of November 2015. Locations of stations have been expanded to include the City of Alexandria, VA and Montgomery County, MD.

In 2014, the Lincoln Memorial Capital Bikeshare Station was the third most popular station behind Columbus Circle/Union Station and Massachusetts Avenue at Dupont Circle.

Source: [www.capitalbikeshare.com](http://www.capitalbikeshare.com)



Capital Bikeshare Station at Jefferson Memorial shows that all bikes are checked out, demonstrating the popularity of the program.

Source: AECOM

The Capital Bikeshare program has continued to grow in popularity, with monthly figures for paid 24-hour passes increasing from 578,993 in February 2015 to 742,179 in July 2015, an increase of over 28% in just six months. Annual passes increased during the same time period from 52,299 to 55,766, an increase of over 6%. These significant increases are in part due to additional Bikeshare stations as well as increases in the number of available bicycles (*Capital Bikeshare, 2015*). During warmer months, ranging from April to October, the system experiences over 300,000 monthly riders regularly while data shows a drop to around 100,000 per month during colder months. The availability of Bikeshare adjacent to many primary NPS destinations encourages year-round access to resources and advances the goal of the NPS to increase opportunities for people to access parks and trails. Bicycles require less infrastructure than cars in terms of parking and provide a healthy and sustainable mode of transit.

The District of Columbia's Bikeshare Development Plan (BDP) was released in draft form in September, 2015 and includes the establishment of system-wide goals, measures, expansion plans and financial projects. A range of expansion scenarios are documented by the plan with up to 359 additional stations identified in the most aggressive plan. The plan recommends 99 additional stations between FY 2016 and FY 2018 with a number of the station locations sited near or adjacent to NPS paved trails.

Furthermore, the plan establishes expansion criteria that includes striking a balance in station typologies, ensuring suitable capacity, optimizing station expansion and maintaining station density. The criteria does not specifically address the development of standards for siting, screening, access and maintenance of Bikeshare facilities on NPS property. There may be certain conditions where screening from certain angles is desired. Maintenance standards should be established through MOUs with the NPS for stations sited on NPS property.

## 4.2 Trail Counting Trends and Methodologies

The practice of conducting trail counts to document usage has evolved over the last several decades in correlation to emerging technologies. More recently, several national standards and initiatives have been implemented by local partner jurisdictions to collect trail count data, and in some cases local jurisdictions are pilot testing new techniques and methods. Though technology has allowed for better accuracy and lower operating costs, manual counts remain the best means to collect quantitative information regarding user characteristics such as trail user type (e.g. walker, jogger, or biker), helmet use, etc., and are used by approximately 93% of agencies that collect trail count data (Transportation Research Board, 2014). Manual trail counting involves personnel or volunteers being physically present at a site and recording a numeric count of pedestrians and bikers using a trail over a specific period of time(s). Nationally, as well as locally, most agencies collecting trail count data utilize a mix of methods as conditions warrant, and balance the use of manual counts to verify automated counts periodically. One of the most advanced methods currently utilized in the NCR is a combination of passive infrared technology with permanent inductive loops. This combination offers a highly accurate and automated method for collecting count data that can differentiate between user types and ignore motor vehicle interference.

### 4.2.1 Count Trends by Trail

A review of qualitative and quantitative measures shows that trail usage has been increasing in the NCR. There are a number of influences that may contribute to this increase, including: ability to utilize a larger, more well-established network of trail and on-street route options; increases in gasoline prices; and an emphasis on healthy recreation alternatives. This section of the NPS Paved Trails Study does not seek to establish the influencing factors for the increase. Rather, this section documents observed trends and outlines opportunities to reduce or eliminate gaps in the NPS network of trail count data collection on an annual basis, which serves to further document needs and prioritize trail development or improvement projects.

Within the core NCR, there are few off-road, paved trails with trail count data available for an extended period of time in order to observe trends. Table 4.2, summarizes the current number of trail counters (permanent and annual manual counts) for NPS trails and other significant paved regional trails in the NCR.

The Transportation Research Board (TRB) National Cooperative Highway Research Program (NCHRP) Report 797: Guidebook on Pedestrian and Bicycle Volume Data Collection (2014) is a joint project sponsored by the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHA). The guidebook is the most comprehensive national source for trail count methods, establishment of requirements, and performance measures for data accuracy.

Table 4.2 Active Counters by Major Trail

Regional Trail Name	Number of Permanent Counters	Number of Manual Counts
Custis Trail	5 (ARL)	N/A
Four Mile Run	3 (ARL)	N/A
W&OD Trail	4 (ARL)	N/A
MBT	1 (D.C.)	1 (2014) (D.C.)
Mount Vernon Trail	12 (6 NPS, 3 ARL, 3 ALX)	N/A
C&O Canal Towpath	8 (NPS)	1 (2014) (MC)
Capital Crescent Trail	2 (1 NPS; 1 MC)	4 (2007) (MC)
Anacostia Riverwalk Trail	N/A	2 (2014) (D.C.)
Rock Creek Park Multi-use Trail	N/A	1 (2014) (D.C.)
Marvin Gaye Trail	N/A	1 (2014) (D.C.)
Holmes Run Trail	2 (ALX)	N/A
Woodrow Wilson Bridge Trail	1 (ALX)	N/A

Source: AECOM, 2015

Data was collected from area jurisdictions and NPS during stakeholder interviews and through a review of existing reports. ARL = Arlington County; ALX = City of Alexandria; MC = Montgomery County; D.C. = District of Columbia

In addition to the counters and count locations noted in Table 4.2, the District of Columbia conducts annual counts on most of the bridges on the Potomac and Anacostia Rivers. Counts range from 2008 to 2014; however, due to budget issues, counts are not available for all bridges for the full time period. Through an analysis of count results provided by DDOT, the following trends have been identified in usage of area bridges for trail or on-road bicycle facilities:

- Since 2008, ten area bridges have seen a 79% increase in bicycle usage.
- Between 2012 and 2014, the last two years with counts conducted on all ten bridges, an increase of 3% in bicycle usage was observed.
- The Key Bridge, Arlington Memorial Bridge and 14th Street Bridge accounted for 76% of all bicycle usage on area bridges, down from a high of 83% in 2011.
- The fastest growing usage is primarily on bridges with on-road facilities, representing a combined 130% growth since 2008.

Two preliminary trends can be established from the analysis of existing available trail count data. The first trend relies on data from the Custis Trail over a 62 month period, as shown in Figure 4.1. The data identifies a year-over-year growth in trail use and a distinct seasonality to usage, with as much as a 200%+ increase during the summer months. Despite the pronounced seasonality, there has been a steady increase in winter usage, from near zero in 2010 to approximately 20,000 in 2012.

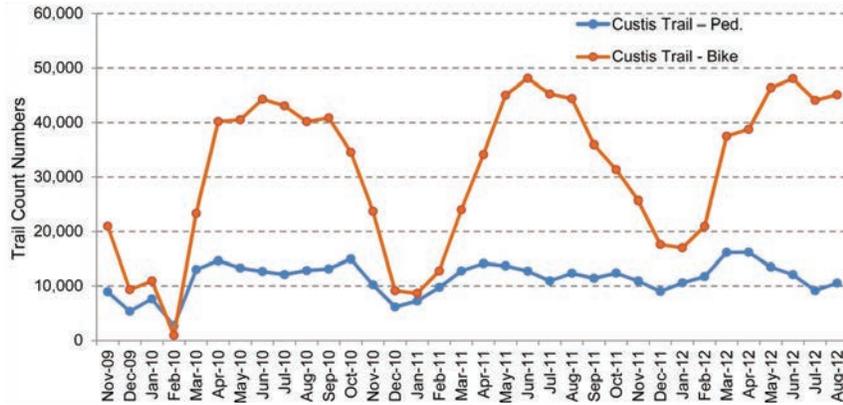


Figure 4.1 Custis Trail Counts Between November 2009 and July 2012  
Source: Arlington County

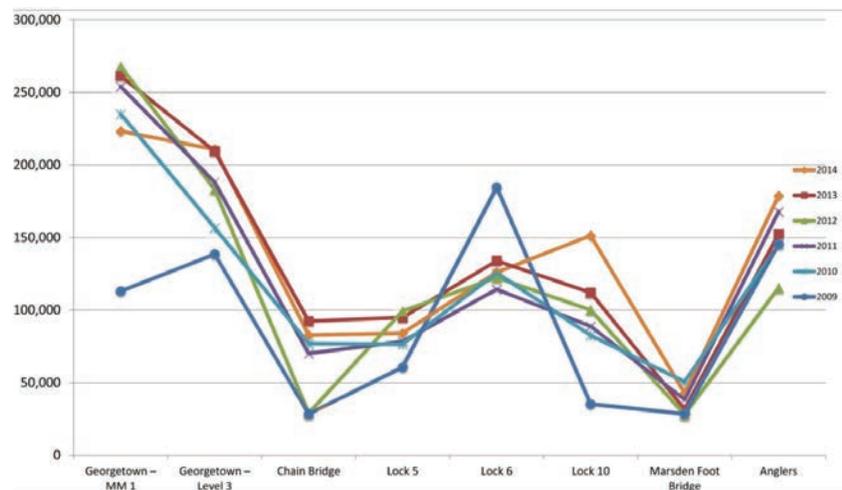


Figure 4.2 C&O Canal Towpath Trail Counts between 2009 and 2014  
Source: National Park Service

As previously noted, three NPS-owned and maintained trails have trail count data available for analysis: the Mount Vernon Trail, the Towpath, and the Capital Crescent Trail. The Towpath has one of the longest time periods of data from automated counters available for analysis, spanning from 2009 to 2014, as shown in Figure 4.2. Eight locations have permanent counters and annual user data is provided, though user types (i.e. walking or bicycling) are not defined. The Towpath data identifies a consistent increase in trail usage: between 2009 and 2014 the trail experienced a 49% increase in total numerical users counted. Individual locations, however, experienced varying degrees of usage. Lock 10 surpassed a 300% increase, while Lock 6 documented a 30% decrease. If overall growth trends continue for the Towpath, the trail could experience over 1.5 million users annually by 2020.

### 4.2.2 NPS Trail Counters

In order to maximize the effectiveness of trail data, reliable count data is required. Historically, the NPS has had limited resources available to collect and analyze trail count data and has relied upon partner jurisdictions to assist. Preliminary gaps in data collection were identified through analysis of existing trail counters and count locations made available by the NPS and partner jurisdictions. The following section outlines the types of data and general location of gaps in NPS trail count data.

#### Counter Data Gaps

A range of data can be collected from various counter methodologies. Manual counts allow for the collection of user characteristics like gender and direction as well as behavior characteristics such as helmet use. This is the primary type of count the District of Columbia conducts annually. Permanent counters have seen the greatest improvements in technological efficiencies with the latest versions of Eco-Counters serving as a high-mark for automated counters' accuracy in counting user types such as bicyclists or pedestrians, speed of travel and direction of travel.

Manual counts are generally conducted, to varying degrees, on NPS trails by a partner local jurisdiction. However, in some cases, a limited number of counts are conducted or only one count is completed annually. At a minimum, manual trail counts should be conducted at each terminus or intersection with a regional or other NPS trail and in areas with varying degrees of trail usage (i.e. low use areas, medium use areas, and high use areas). This minimum level of information would establish the number of users entering each facility annually, similar to park unit visitation counts. The data may also identify the number of users entering from regional trails, which would establish direct points of entry numbers for NPS trails. Manual counts should be completed on an annual basis and include accompanying user characteristic and behavior data such as helmet use, direction of travel and gender. The collection of helmet usage can be used to identify estimates of exposure and progressive improvements to high risk conflict areas along NPS paved trails when compared to annual user counts and crash data.

Through coordinated efforts with local jurisdictions, the NPS has increased the number of permanent counters on paved NPS trails from nine in 2009 to 32 by February 2015. Permanent counters provide usage data that can identify user type and direction of travel, and may be analyzed in hourly increments. Trail count data on the Capital Crescent Trail indicates that pedestrian use is highest in the morning, while bicyclist use increases in the afternoon. Analysis of trends can inform park management on issues such as safety improvements, scheduling of maintenance, and selection of vendors.



Arlington County is the first municipality on the East Coast to install a Bikeometer, which visibly counts trail volumes.

Source: BikeArlington

Though user characteristic and behavior data is not available from automated counters, the more detailed usage data is recommended. Three primary benefits exist from the use of automated counters: more detailed usage information, cost efficiency, and better accuracy. With better accuracy and detail, trail count data can be used to identify seasonality impacts or even special events impacts, leading to better staffing and volunteer projections and a better understanding of the type of trail user and their needs for amenities.

Trail counts for the Mount Vernon Trail were analyzed for a collection period from 2011 to 2014. Due to frequent errors and gaps in counts for each counter location, trends were inconclusive. This acknowledges an important challenge of collecting trail count data. Data provided by NPS-maintained counters had errors or gaps in data approximately 30% of the months that counts were collected, whereas, the Eco-Counters maintained by Arlington County on the Mount Vernon Trail had errors or gaps approximately 8% of months. Errors associated with NPS counters lasted longer (approximately 4.8 months per occurrence) than errors associated with Arlington County counters (2.3 months).

Standardized count methodologies will enable information sharing opportunities with partner jurisdictions. For manual counts, the NPS should utilize standards established by the National Bicycle and Pedestrian Documentation (NBPD) Project for manual counts, along with enhanced coordination with Arlington County and the District of Columbia. For permanent counters, the use of emerging technologies should be comprehensively evaluated based on best practices from local partner jurisdictions. Once collected, the sharing of count data in a standardized method with local jurisdictions should be a priority of the NPS and can support long-range transportation, recreation, and community planning initiatives.

### **Counter Location Gaps**

Though significant progress has been made in increasing the number of permanent counters and manual counters within the NPS paved trail network, gaps in trail count data exists in several locations. Figure 4.3 identifies current counters on the network. An opportunity exists for the NPS to comprehensively count trail usage across the paved trail network through continued coordination with partner jurisdictions for additional annual manual counts along the POHE, the National Mall trails, Rock Creek Park Multi-use Trail and the Anacostia Riverwalk Trail. Updated manual counts should be collected for the Capital Crescent Trail to provide a more accurate picture of trail usage. Manual counts for each junction and terminus along these five trails should be coordinated and include weekday and weekend counts as well as user characteristic data.

Data collected from manual counts would provide the NPS with a comprehensive picture of annual trail usage for the entire paved trail network including recreational and commuter usage. Additionally, characteristic and behavior data may provide the NPS with risk exposure estimates based on helmet usage comparisons with crash figures and volume data.

Additional coordination with local partner jurisdictions should continue for the installation and maintenance of permanent automated counters. Emphasis should be placed on the junction and terminus points along the Capital Crescent Trail, Rock Creek Park Multi-use Trail, Anacostia Riverwalk Trail as well as the POHE. For the POHE, on-road permanent counters would need to be utilized for portions of the trail.

### **Recommendations**

In order to provide additional manual counts annually and to spearhead the installation of permanent automated counters, the NPS should:

1. Continue to work with local partner jurisdictions to expedite the provision of access to NPS paved trails.
2. When possible, the acquisition of equipment should be coordinated with partners as new technology in counters can provide significant cost efficiencies for permanent counters.
3. A maintenance program for the calibration of equipment, as well as the operation and management of data for permanent counters, should be defined by the NPS and partners to ensure effectiveness of data for long-term planning needs and the protection of investment in equipment.
4. As an owner of significant portions of the National Capital Region's paved trail network, the NPS has an opportunity to take a leadership position in the adoption of standardized count methodologies and continued sharing of data for planning initiatives.
5. Through the continued implementation of partnerships with local jurisdictions, the NPS can obtain an accurate estimate of trail usage that will help in the prioritization of future trail improvements.

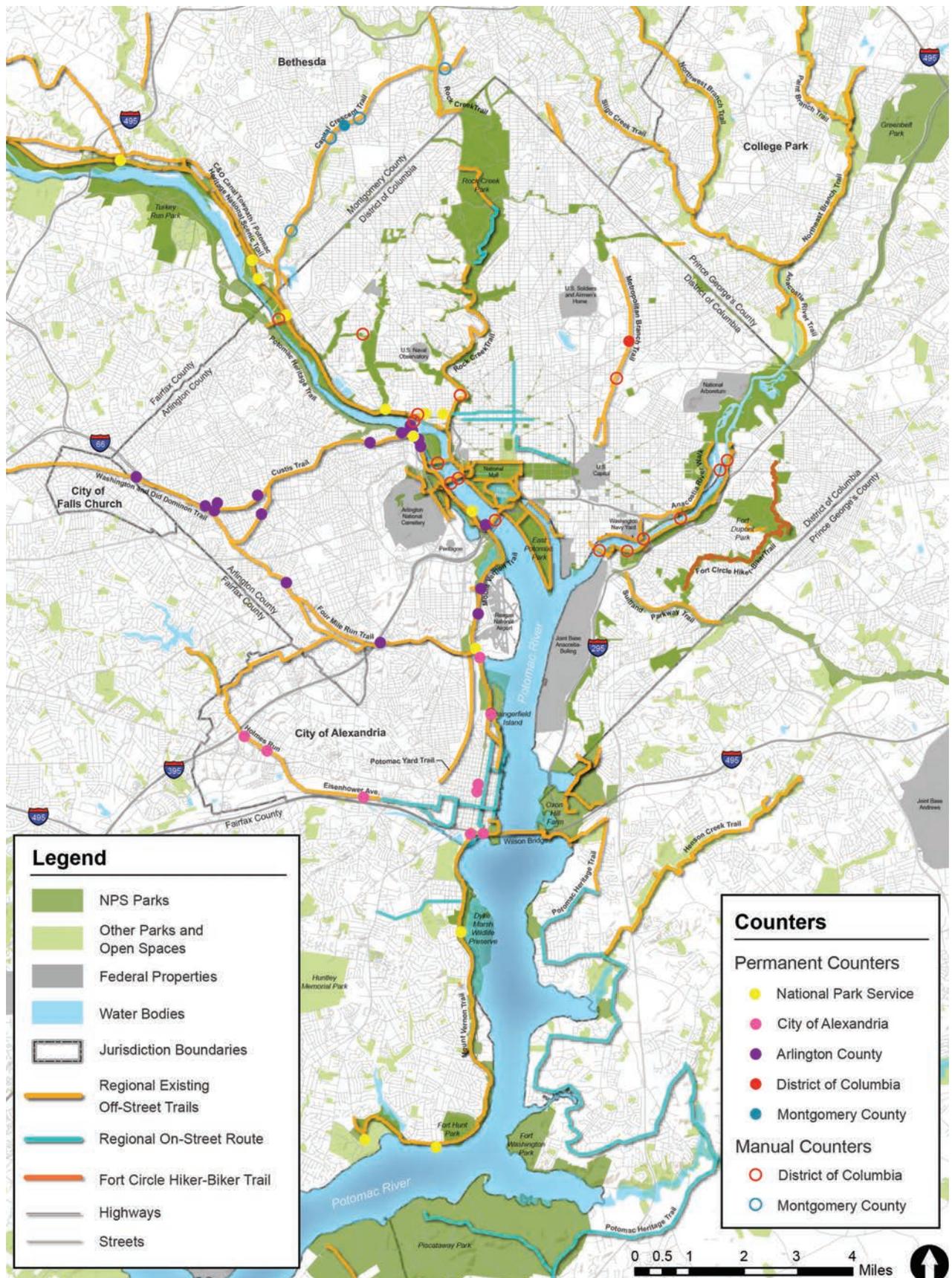


Figure 4.3 Trail Counters within the NPS NCR Network  
 Sources: NPS, District of Columbia, Counties of Arlington, Fairfax, Montgomery, and Prince George's, City of Alexandria.

### 4.3 Gaps in the Network

Despite the recognized growth in the overall trail network, several significant gaps remain in the system that impact the NPS trail experience. These fall into three categories; bridges gaps, trail gaps, and access gaps, as shown in Figure 4.4.

#### Bridges Gaps

Bridges are pinch points in the trail system that can be improved by providing adequate trail width, approaches, and directional signage. Recent improvements to the 11th Street Bridge have improved access across the Anacostia River. Proposed future upgrades are also planned for the South Capitol Street Bridge by 2020. DDOT has identified a project for FY20 construction to rehabilitate the Theodore Roosevelt Bridge to include pedestrian/bicycle safety improvements and connection for downstream sidewalk connection - a major gap in the trail network today. Other locations where connectivity from bridges to high volume trails is currently challenging include access from the Key Bridge to the Capital Crescent Trail and from the Whitney Young Memorial Bridge (East Capitol Street) to the Anacostia Riverwalk Trail. Other improvements to trail bridge approaches to the Arlington Memorial Bridge are also needed to address safety and user conflicts and will be addressed as part of an ongoing NPS study.

#### Trail Gaps

Trail gaps are missing segments in the existing trail network. Some identified trail gaps are associated with proposed projects that will eliminate the gap and provide opportunity for a more seamless network. The ongoing project to complete the Kenilworth segment of the Anacostia Riverwalk Trail represents a significant gap closure currently underway. The Rock Creek Park and Oxon Hill Farm areas have a number of gaps that affect north-south movement between the District and Maryland. The City of Alexandria's *Draft Bicycle and Pedestrian Master Plan* identifies a number of priority projects to improve connectivity including intersection safety improvements along the Mount Vernon Trail at transition points between the off-road multi-purpose trail and an on-street network.

#### Access Gaps

Access gaps represent points of ingress and egress to the paved trail system that are currently lacking. Improved access provides opportunities for connections and a more equitable trail system. New access points may consist of new street or highway crossings needed to reach a paved trail, or bridges or intersections that can provide universal access to the trail network. Significant opportunities for new access points exist along the Mount Vernon Trail and the George Washington Memorial Parkway, and the Rock Creek Park Multi-use Trail and Rock Creek and Potomac Parkway Trail.

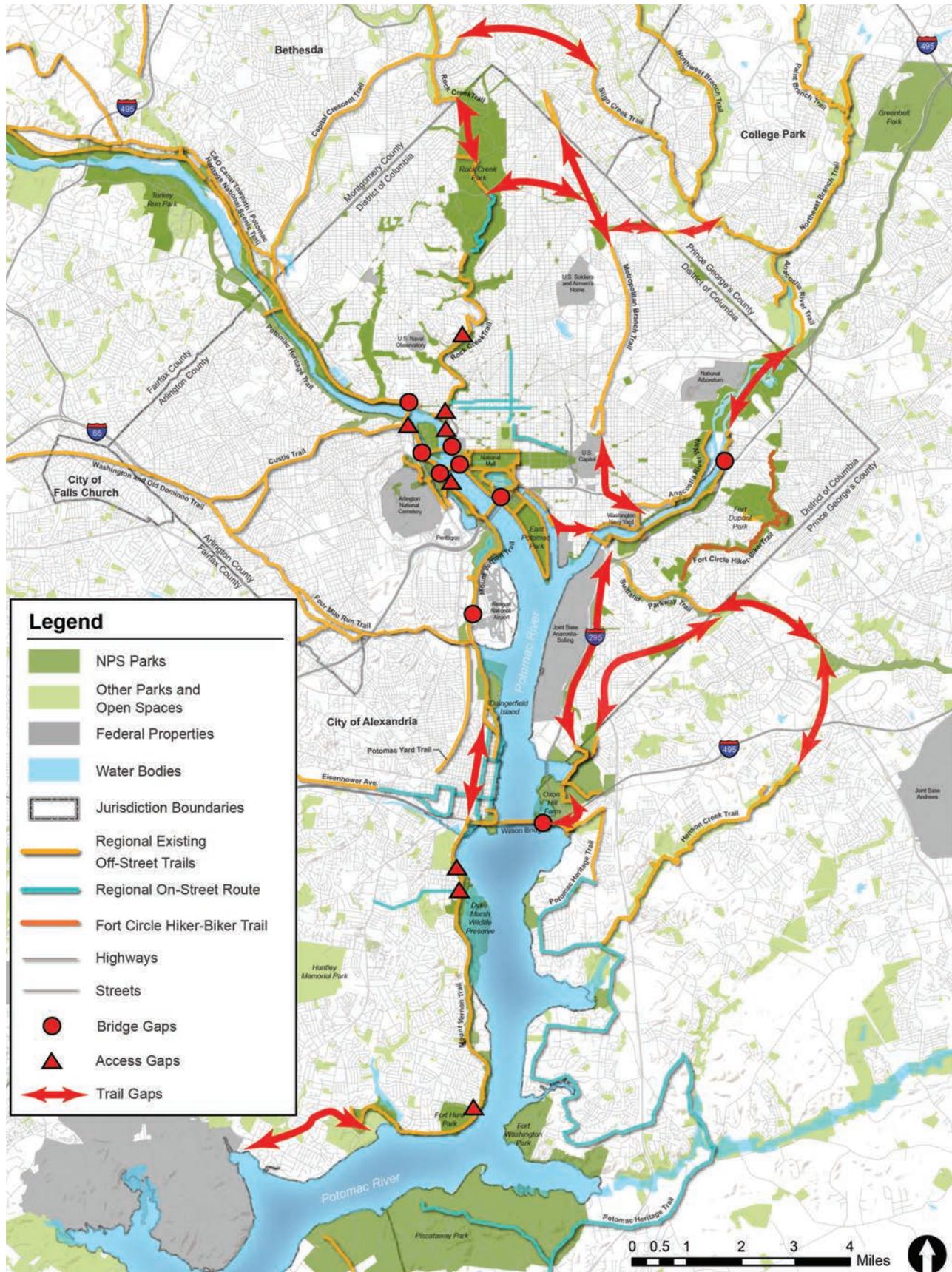


Figure 4.4 NCR Network Gaps

Sources: NPS Multi-Use Trail Gaps and Opportunities in the National Capital Region, Timothy Bevins, 2012, District of Columbia, Counties of Arlington, Fairfax, Montgomery, and Prince George's, City of Alexandria.

## 4.4 Trail Safety

Pedestrian and bicycle safety is of primary importance to the NPS and is expressed as a specific objective within this study. Similarly, safety is a universal goal, policy or objective in every local government bicycle and transportation-related plan that was reviewed as part of this planning effort.

However, it is difficult to obtain comprehensive pedestrian or bicyclist accident or incident data related to paved trails. Multiple agencies, organizations, and local police departments track fatality and injury data but the data is typically oriented toward incidents on roadways and not trails.

Within the NCR, there are a number of entities involved in the tracking, collection and assessment of incident data related to bicycles and pedestrians. However, the methods and standards by which data is collected, reported, and made publicly available vary widely. The most well-regarded comprehensive analysis of trail safety for the NCR was prepared by Timothy Bevins in 2012 in a document entitled “*Common Paths: Improving Safety and Enhancing User Experience on the George Washington Memorial Parkway’s Mount Vernon Trail*.” The report compiled crash data along the Mount Vernon Trail from five different jurisdictions that respond to the trail as well as from NPS Rangers, volunteers and trail user reports. Data from the report was referenced in the development of this plan.

Because comprehensive location-based statistical data was not readily available, this study relied upon data outlined in previous NPS reports and input from the five United States Park Police (USPP) and NPS park units to identify leading trail safety issues.

Information regarding visitor safety, safety hazards and deficiencies is often documented in individual studies undertaken by the NPS for specific locations (i.e. interchange, bridge etc.). An important note is that data on NPS trail safety is incomplete as there is currently not a centralized system in place that can be easily queried to assess safety trends. The Incident Management Analysis and Reporting System (IMARS) is a relatively new Service-wide system that is used by USPP to document incidents that occur in a park. Currently the system does not require or capture geospatial information for incidents that would allow mapping of incidents along trails for analysis. When an incident occurs, the location of the incident is typically referenced as the nearest roadway intersection when entered into the system, which may be a considerable distance from the actual location of the incident.

## National Data Sources

The National Highway Traffic Safety Administration’s (NHTSA) Fatality Analysis Reporting System (FARS) is a nationwide census providing NHTSA, Congress and the American public yearly data regarding fatal injuries suffered in motor vehicle traffic crashes. FARS data is not comprehensive; to be included in FARS, a crash must involve a motor vehicle traveling on a traffic way customarily open to the public, and must result in the death of an occupant of a vehicle or a non-occupant within 30 days (720 hours) of the crash. Therefore, fatalities occurring in parking lots, driveways or trails not linked to a roadway are likely not included.

## State Data Sources

Data is available via the Traffic Records Management, Reporting and Analysis Division of the Virginia Highway Safety Office (VAHSO), which manages the state’s highway safety traffic records information system in the Traffic Records Electronic Data System (TREDS). The system is designed to streamline data records and is intended to capture GPS coordinates for specific locations. Data that is collected, stored and analyzed by this Division is used for problem identification and resolution by local, state and federal entities across the Commonwealth.

The Virginia Department of Motor Vehicles also collects data by jurisdiction regarding bicycle and pedestrian fatalities, injuries and bicycle crashes at the locality level. While interesting, the data lacks specificity on location or a relationship to the trail network, so a connection cannot easily be made between the data and the safety of paved trails.

Some information is also available online through the District Department of Transportation although the data is aggregated at the city level. The Maryland Department of Transportation Motor Vehicle Administration through the Maryland Highway Safety Office also generates and distributes non-locational-specific summary crash data; specific location information would require coordination with each local District Engineer for the area of interest.

## The United States Park Police

The United States Park Police (USPP) is an agency within the NPS and has jurisdiction in all Federal parks. They have regional jurisdiction in the Washington metropolitan area and provide law enforcement services to designated areas within the National Park System and other areas as requested. USPP prevents and detects criminal activity as well as conducts investigations and apprehends those individuals suspected of committing offenses against Federal, state, and local laws.

Source: <http://www.nps.gov/subjects/uspp/mission-statement.htm>

## Trail Safety Issues and Opportunities

The following issues and opportunities contribute to trail safety concerns in the NCR.

**User Conflicts.** User conflicts largely exist in corridors that are under pressure to serve a growing commuter base and also meet daily recreation needs – identified as high-volume corridors in this study. Conflict typically occurs due to limited signage, narrowness of trail width, non-delineated access or junction points or crossings, lack of parallel relief routes, high seasonal visitor traffic, and user speeds. Major points of user conflicts have been documented to occur along the Mount Vernon Trail, within the National Mall Trails system, and along segments of the Rock Creek Park Multi-use Trail, C&O Canal Towpath and Capital Crescent Trail. While the speed limit on NPS trails is 15 miles per hour, consistent signage regarding the speed limit is weak and enforcement is challenging.

**At-Grade Crossings.** The NCR trail network contains numerous at-grade crossings that may have subpar safety features or areas that would benefit from improved crossing features or alignments based on access patterns. Two areas that demonstrate this type of safety issue are along the Mount Vernon Trail and the George Washington Memorial Parkway, as well as the Rock Creek Park Multi-use Trail and the Rock Creek Park and Potomac Parkway Trail.

The Mount Vernon Trail has 18 at-grade trail crossings with vehicular traffic and another nine at-grade trail crossings associated with Arlington Memorial Bridge (NPS Transportation Scholar Report, 2012). Thirteen of the at-grade crossings exist south of the City of Alexandria. Many trail crossings occur at high vehicle volume intersections with minimum-to-no safety or signage features for pedestrian or cyclist crossings. The George Washington Memorial Parkway was designed as a scenic roadway along the natural terrain of the Potomac River. Points of interest and overlooks were designed to be reached by motorized vehicle and today heavy vehicle traffic often travels at high speeds above the posted limit. To improve overall safety, at-grade crossings should be studied in detail to evaluate current safety concerns and a full range of potential improvements. In addition, popular trail access points from nearby neighborhoods that require crossing the Parkway should also be studied. For example, Fairfax County has approved a study to evaluate pedestrian and bicycle crossing of the Parkway at Belle View Boulevard. Roadway and trail safety enhancements could include improved sightlines, speed limit reductions in key areas, creating shorter trail crossing distances by narrowing or reducing lanes, introducing pavement markings, and improved crossing signage.

Opportunities exist to not only study these at-grade crossings along the trail for potential enhancements, but for the NPS to develop crossing design standards for the entire paved trail

## United States Park Police Districts in the NCR

The United States Park Police is comprised of three contingents—the Services Division, the Homeland Security Division, and the Field Operations Division. Within the NCR, the USPP is structured in five districts:

**District 1: Central District** – includes the National Mall, the Memorials, the Ellipse, Lafayette Park, Dupont Circle, Franklin Park, Pennsylvania Avenue National Historic Park, Ford's Theater, the Peterson and Mary McLeod Bethune Houses and Rock Creek Park and Potomac Parkway. The District reaches east to include Stanton and Lincoln Parks and the marinas on the western shore of the Anacostia River.

**District 2:** The George Washington Parkway Station - provides coverage primarily of Fort Hunt, Mt. Vernon and the George Washington Memorial Parkway.

**District 3:** Rock Creek Park Station - covers Georgetown, Rock Creek Park, the Fort Circle Park, and other park areas of NW and NE Washington D.C.

**District 4:** Baltimore-Washington Parkway Station - patrols the Baltimore-Washington Parkway, Greenbelt Park and federal jurisdictions in Prince George's and Anne Arundel counties.

**District 5:** Anacostia Station - provides coverage to Anacostia Park, Fort Dupont, the Frederick Douglas Home and other park areas of SW and SE Washington.

network that consider a range of conditions, including sensitive cultural or historic resources or viewshed impacts. A challenge to a comprehensive study is the number of crossings that need to be evaluated, the potential timeframe needed to study alternatives and implement a preferred option, and the coordination time required with local jurisdictions. A pilot program could be considered to test potential design standards and solutions at various crossings as a first step.

**Lighting.** The NPS Management Policies set forth guidance on lighting that stipulates artificial lighting will be restricted to those areas where security, basic human safety, and specific cultural resource requirements require lighting and that minimal impact lighting will be used to minimize disruption of the night sky. Trails managed by NPS in the NCR generally do not have lighting and parks technically close at dark, with the exception of NAMA. However, trails within the parks are used during nighttime hours, especially by commuters, creating a challenge for safety and security.

During the winter months, daylight is not typically available for evening commuters, and opportunities exist to study alternative types of trail lighting and develop standards in cooperation with

local governments for lighting at crossings, trailheads, bridges and other areas. The Fort Totten area is a potential area for the testing of lighting standards to help decrease criminal activities in the area as well as provide for better travel and visitor conditions. The NPS may also consider other deterrents (such as surveillance and proper signage) to reduce safety incidents.

**Pavement Condition.** Condition data for NPS trails in the NCR is unreliable. The last overall condition assessment for trails was completed several years ago and suggests most trails are in good condition. The finding was disputed by several park staff, but without reliable data it is difficult to pinpoint location issues on the regional network. This issue aside, trail pavement condition was raised as a safety concern.

Primary challenges exist for the NPS to adequately maintain an aging trail infrastructure network - including regular paving of more than 95 miles of trails every ten to twenty years. As the pavement ages, edge conditions deteriorate, creating unsafe conditions and narrowing already minimum width trail facilities even further. Large cracks in trail pavement, due to subgrade conditions or root damage from nearby vegetation, can be a safety hazard, especially for people who are riding narrow-tired street bikes.

Recently, some local governments have initiated snow removal on regional trails. The NPS should develop MOAs for snow removal on NPS trails to remove any barriers within the system created by snow.

Opportunities exist for the NPS to develop design standards to better address root damage and edging stability. Moreover, the NPS should explore different and emerging materials for trail pavement and maintenance techniques that can expand the life-span of pavement. The development of template MOAs that address assistance from partners in conditional assessments, maintenance, and replacement of trail pavement is recommended.

Specifically for the Mount Vernon Trail, a number of existing bridges and boardwalks are designed as timber structures to aesthetically fit the Parkway character. These existing structures include a wooden trail surface, which when wet or icy can create unsafe conditions for users. NPS should pursue alternative materials for the trail surface that allow for the overall structure of the bridge or boardwalk to remain timber, while increasing the tread traction for the trail surface. This is an opportunity to test innovative materials, develop new region-specific design standards, increase safety and reduce the maintenance and life-cycle costs of the bridge and boardwalk structures.

**Vegetation.** Vegetation along trails can lead to significant trail impacts such as destabilizing the trail edges, cracking the surface



Bridge along the southern portion of the Mount Vernon Trail  
Source: AECOM



Multiple users on- and off-road near the Jefferson Memorial  
Source: AECOM

of the trail pavement due to root damage, or creating sightline issues around curves, near tunnels or bridges. An opportunity exists for the NPS to develop design and maintenance standards for vegetation. Standards will help ensure proper maintenance of clear zones along trails, typically two feet from the edge of pavement, and can be used to identify areas in need of additional vegetation for reducing impacts from stormwater runoff and erosion. Any trail within close proximity to a water body should be assessed for impacts, as vegetation can play a key role in mitigating erosion and stormwater runoff impacts. Specific areas that have significant impacts due to vegetation are the Rock Creek Park Multi-use Trail and the Mount Vernon Trail. ROCR has successfully utilized youth hiring initiatives and involvement of organizations such as the Student Conservation Association (SCA) and the Youth Conservation Corps (YCC) for assistance with trail maintenance, an initiative that holds potential benefit throughout the NCR.

**Signage and Wayfinding.** With the introduction of mobile devices, apps, and interactive signage, trail users now have an enhanced ability to understand where they are within a trail network. Though

mapping tools and devices are readily available, many users state that the lack of signage and wayfinding is an important issue with a trail system. Knowing one's location, as well as what amenities and attractions are nearby, is consistent with the NPS mission to provide visitors with information and educational opportunities. Signage also helps direct users away from sensitive resources.

Lack of consistent signage and wayfinding across the NPS network contributes to confusion and can cause conflicts on the trails. An opportunity exists for the NPS to develop a comprehensive set of wayfinding and signage standards unique to the NCR's trail network that promotes the visibility of safety features; encourages access to the network; promotes the identity and branding of the regional trail network, as well as unique resources; and enhances visitor experiences through the addition of educational opportunities. Signage and wayfinding should be provided at bridge crossings, trailheads and primary destinations, street crossings, trail junctions, and user conflict areas. Opportunities for pilot signage programs exist throughout NAMA (a program is currently underway and has initially been found to be successful) as well as along the Mount Vernon Trail and the Rock Creek Park Multi-use Trail. Signage efforts should be coordinated with local governments to maximize effectiveness.

**Emergency Access and Surveillance.** Emergency response systems typically require an address in order to route emergency response crews to a specific location. Inconsistent use of mile markers across the system (both NPS and local trails) further complicates the response process. Persons in distress typically call 911 and the call is routed to NPS or other local departments to respond to the call – based on the location given for the incident. The issue is more problematic on NPS trails because they are not connected to street grids, which are typically used to locate an incident when a call is registered. Two opportunities exist for the NPS to provide better emergency access and response times. The first is to provide ample and appropriate mile markers along all NPS trails with a standard design and application that achieves system-wide consistency. The second is to assign official addresses to significant features of the trail system, i.e. trailheads, parking lots, bridges, etc., and ensure that those features are registered as addresses by agencies involved in responding to calls. Address information should also be included on area signage, along with emergency contact information.

Surveillance of the paved trail network is best conducted through the ability to have “eyes on the trail” by trail users and volunteer staff. In order for law enforcement to properly monitor the trail network, NPS should implement trail maintenance standards that minimize impacts to natural and historic resources while maintaining sightlines. In areas with safety or crime issues, as well as in areas that are secluded, difficult to access, or heavily used, NPS should coordinate with local government partners to study the use of video surveillance.



Existing signage along the Mount Vernon Trail at Mount Vernon Estate and Gardens

Source: AECOM



User ethics sign along the Mount Vernon Trail near Gravelly Point

Source: AECOM

## 4.5 Maintenance Requirements

To keep trails open and in good condition, NPS units perform operations and maintenance (O&M) activities that include preventive and recurring maintenance projects designed to prolong the service life of the facility. Typical O&M activities range from basic work such as grass cutting, painting, and trash collection to more substantial activities such as surface maintenance, crack sealing, and drainage system upkeep. Though the topic of maintenance is broad, this section focuses on challenges of and opportunities for the NPS asset management methodology and the provision of O&M funding.

Due to funding limitations, not all necessary or recommended maintenance can be performed for all trail facilities in a given year. This leads to deferred maintenance (DM), a measure of the accumulated total costs necessary to correct deficiencies resulting from unaccomplished past recommended maintenance and repairs. The following section outlines existing trail assets as identified by the NPS, as well as the challenges and opportunities to enhance how the NPS uses current methodologies and applications for determination of O&M and DM requirements of paved trail facilities. Additional discussion about funding is included in Section 4.9.

### 4.5.1 Trail Asset Classification

NPS assets are managed through a Facility Management Software System (FMSS). Trails are considered a transportation asset type in the NPS Long Range Transportation Plan and are coded this way in corresponding data systems.

The NPS maintains records for 22 individual paved trail assets within the study area associated with the following park units: CHOH, GWMP, NACE, and ROCR and includes the non-paved C&O Canal Towpath and the Fort Circle Hiker-Biker Trail. Currently trails within NAMA are considered sidewalks and are not classified as trail assets and therefore were not available for the purpose of this analysis. Trail bridge information was available and has been included. The lack of consistency across the park units in trail/sidewalk classification as well as the separation of trail bridges demonstrate the complexity of asset management within NPS and presents a challenge in being able to accurately assess overall trail needs and priorities in the region. It also makes it difficult to track and analyze existing condition, length, type and location of trail assets. The NPS should evaluate existing information in FMSS and update it accordingly to reflect all assets of the regional paved trail network.

### 4.5.2 Operational and Deferred Maintenance Funding

Allocation of O&M funding is based upon a number of factors that take into consideration an asset's priority and condition, as well as the discretion of the individual park unit's priority for expenditure of funds on the asset. Asset priority is tied to a facility's criticality to the NPS park mission. These factors help determine the annual required maintenance for trails and bridges (and other assets). The annual required maintenance can be compared to the amount that is planning to be spent annually to identify trends and areas for investment by other funding sources.

According to data obtained from the NPS Denver Service Center, the NCR trail system has a combined Current Replacement Value (CRV) of approximately \$165 million.

As noted, this figure does not represent the entire NPS paved trail network within the NCR; data reflects the current assigned asset designations and values from FMSS.

Trail facilities, as documented within the FMSS system (and not reflective of all trails within larger NCR region) generally have a high score in terms of criticality to park mission. Overall the represented trails receive a score of slightly more than 90 out of a possible 100. In terms of conditional assessment, the scores by park unit have a wide range from Good to Poor, with an overall score of 0.19, out of 1.0 possible, which reflects a condition between Fair and Poor. Of the park units with documented paved trail facilities in the FMSS system, the C&O Canal Towpath has the lowest conditional assessment score of 0.22 out of 1.0 for a generally Poor rating, yet has the highest score for criticality to the park's mission with a score of 98.1 out of a possible 100. This represents an opportunity for the NPS to focus on needed improvements to the C&O Canal Towpath as a regional priority.

The NPS allocates O&M funding into three categories: facility operations (FO), preventive maintenance (PM), and recurring maintenance (RM). Supplemental funding sources from outside the NPS are also sometimes utilized and are factored into the overall effective funding available. The individual park unit uses discretion in determining PM funding for assets. According to data obtained from FMSS in July of 2015, total supplemental funding, or funding received from sources outside of NPS for paved trails, was \$23,461 or 5% of total funding for PM needs. Based on this data, the NCR has significant opportunity to seek additional supplemental funding sources similar to other park units in NPS for trail O&M costs. See Cyclic Maintenance information in Section 4.9 for additional detail.

Effective available funding for O&M of both trails and trail bridges totals about one million dollars for the 2015 funding year; however, the total planned funding for PM totals \$322,450 or approximately 32% of the required effective funding need. The difference in effective and planned funding that is not utilized is defined as DM and is compounded annually. Deferred maintenance currently stands at over \$19.3 million or over 11% of the total CRV (see Table 4.3). The total amount of deferred maintenance is consistent with other park units Service-wide, but may be at higher levels than what local governments maintain. The two largest amounts of DM are \$13.8 million for the C&O Canal Towpath and \$2.8 million for bridges along the Mount Vernon Trail. These two groups of assets represent the highest

DM amounts in the NCR and provide the greatest opportunities for the NPS to evaluate and develop design standards that utilize innovative and more durable materials aimed at reducing the PM and DM levels for these assets in the long-term.

### 4.5.3 Maintenance Agreements

The NPS maintains several MOAs with local governments and partners for supplemental support for maintenance of trail and trail bridge assets. As needs increase across the region for snow removal, lighting, and more amenities, MOAs with local governments and partners allow the NPS to accomplish more in terms of maintenance needs. In order to expedite the continuation of this practice, the NCR may seek to work closely with local governments and other partners in developing regional maintenance standards for inclusion in MOA templates. For specific projects that may require unique definitions of roles and responsibilities for O&M needs, negotiations should be held between primary parties early in the process to outline clear and detailed goals, standards and capabilities. Factors such as additional supplemental funding sources, staffing levels and capabilities, equipment sharing costs, location, and restrictions on existing funding should be considered for each project. Having consistency across the NCR for supplemental O&M responsibilities will allow for clear projections of staffing needs, costs and allocation of funds.

**Table 4.3** Park Unit Deferred Maintenance (DM) and Current Replacement Value (CRV) of Trail and Bridge Assets

Park Unit	Asset Type	Asset Unit of Measure	Area	Total Current Replacement Value (CRV)	Total Deferred Maintenance (DM)
CHOH	Trails	Linear Feet	102,960	\$59,909,575	\$13,894,513
	Bridges	Square Feet	22,428	\$34,161,074	\$868,153
GWMP	Trails	Linear Feet	92,928	\$12,150,871	\$316,000
	Bridges	Square Feet	131,373	\$36,928,273	\$2,804,063
NACE	Trails	Linear Feet	64,615	\$10,040,904	\$1,306,300
	Bridges	Square Feet	5,709	\$1,693,606	\$3,984
ROCR	Trails	Linear Feet	10,800	\$4,642,363	\$32,000
	Bridges	Square Feet	9,101	\$4,637,235	\$50,000
<b>Total</b>				<b>\$165,091,054</b>	<b>\$19,344,013</b>

Note: Data was provided by NPS, Denver Service Center through FMSS System, July 2015. ROCR Trails data provided in February 2016. Data was not available for NAMA; NAMA trails are classified as sidewalks by location and not trail assets. Data refers to paved trails with the exception of C&O Canal Towpath and Hiker-Biker Trail. All FMSS data should be considered approximate as data is dynamic.

## 4.6 Design Considerations

NPS trails in the NCR were some of the first linear recreation facilities available to the public in the region. Since their establishment, usage has increased significantly and many of the trails now serve a dual purpose in meeting both recreational and commuter needs. The evolution of NPS trail use in the NCR calls for distinct trail design standards that reflect these trends and incorporate advancements in materials and industry best practices. This section describes some of the challenges and opportunities of trail design for three major components: trails, trailheads and signage. Industry standards for trail design are referenced for consideration.

### 4.6.1 Trail Facilities

Local governments use design standards such as the *AASHTO Guide for the Development of Bicycle Facilities* (2012, 4th Edition), as well as the *Federal Highway Administration Separate Bike Lane Planning and Design Guide* and the *Architectural Barriers Act (ABA)* of 1968 and corresponding *ABA Accessibility Guidelines for Outdoor Developed Areas* (36 CFR 1191, effective November 2013) in the development of trail facilities. These documents establish requirements for trail width, clear zones, sight distances, and crossings. While most NPS paved trails within the NCR are asphalt and eight to nine feet in width, this varies in some locations and from one trail to another. A lack of paved trail standards across the Service creates challenges for planning and design of trail facilities and for conducting assessments, which can impact the provision of funding for long-term maintenance needs and create barriers to working with local partners.

A Service-wide set of design standards for paved trails would establish consistency in the design and construction of trails. The design of trail facilities must consider the context of the area in terms of physical constraints and impacts to resource values, ecological resources and impacts to NPS policies. Therefore, an approach to develop design standards unique to the NCR would be best. The NCR could serve as a testing ground for materials and design techniques and establish new sustainable standards for the region and the NPS as a whole.

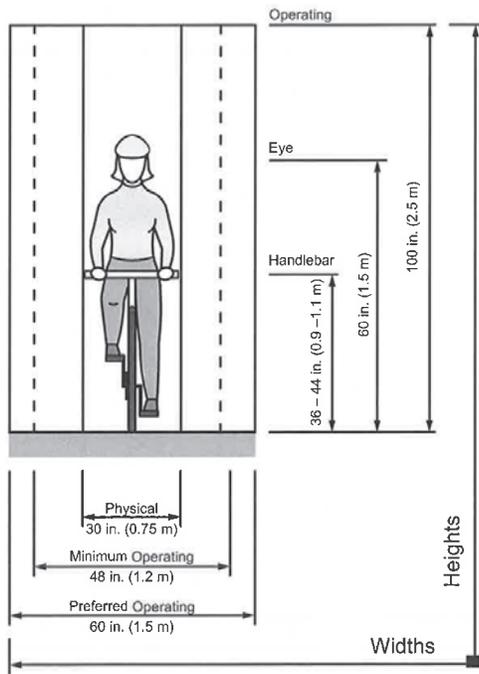
The ability for each park unit to provide consistent design standards and specifications to trail partners may encourage new opportunities and expedite the planning and design timeline for projects. It is important that the NPS consider the input of local jurisdictions in the development of any future design standards to ensure the ability to broadly apply the standards across the region. This approach may encourage partnerships in the maintenance of trail facilities, and most importantly, improve safety for users through consistent design of trail facilities.

It is important to note that development of design standards would need to be flexible to allow for contextual factors and would need to be reviewed and updated on a regular basis to incorporate lessons learned. To better address recreation and commuting needs, a hierarchy of trail types and trail amenities should be established commensurate with a hierarchy of design standards.

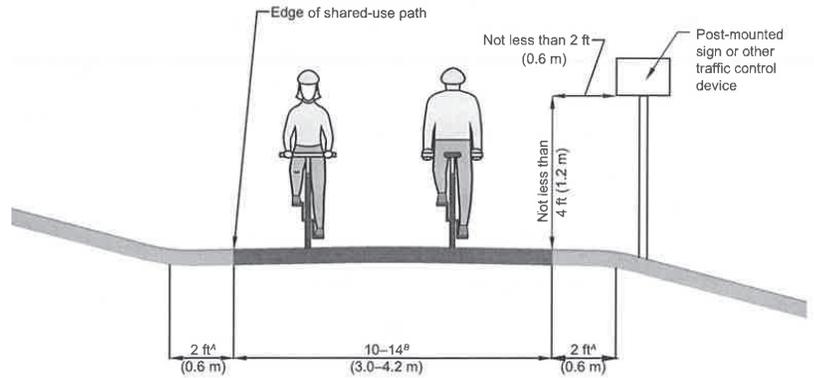
The establishment of high-volume corridors across the NCR would require the development of design standards that better accommodate various user types. Design standards specific to high-volume corridors may include enhanced signage, reduced at-grade street crossings, wider trail treads or the planning of parallel relief routes among other unique features. Figure 4.5 illustrates the minimum operating width and height of a bicyclist with a minimum operating width of 48", or four feet, and a preferred operating width of 60", or five feet.

A multi-use trail with two travel lanes would require a minimum width of eight feet and a preferred width of ten feet. In areas with high volumes (more than 300 users per peak hour or where volume is 30% or more pedestrian mode) it may be optimal to separate users into wheeled modes and pedestrian modes. Under this situation, AASHTO guidelines recommend that pedestrians and wheeled users are provided bi-directional travel requiring a minimum of 15 feet of total trail width with ten feet for wheeled modes and five feet for pedestrian modes. Figure 4.6 illustrates the typical clear zone requirements for each travel lane of a trail in this scenario. A minimum of two feet of space is required on either side of the trail that is free of hazards such as signs or other vertical obtrusions, as well as minimal slope changes of 1:6. Where vertical barriers such as fences or railing are introduced, a minimum clearance of one foot with flares at either end away from the trail surface are required.

Figure 4.7 illustrates the AASHTO standard for minimum width needed for a shared-used path to facilitate passing, which is common on commuter routes that double as recreation trails, as is the case for many trails within the NCR.



**Figure 4.5** Bicyclist Operating Space  
 Source: AASHTO Guide for the Development of Bicycle Facilities 2012, 4th Edition

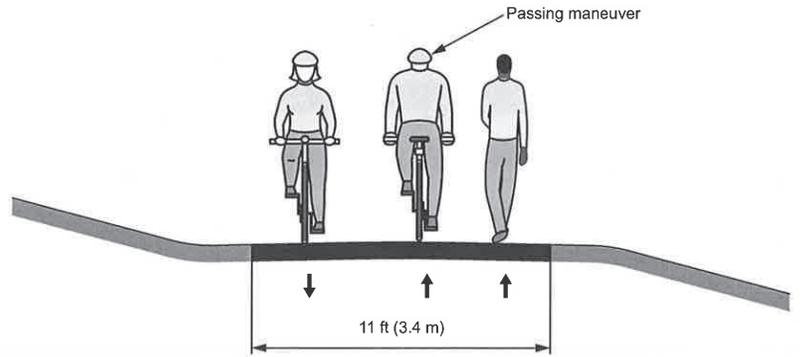


**Notes:**  
<sup>A</sup> (1V:6H) Maximum slope (typ.)  
<sup>B</sup> More if necessary to meet anticipated volumes and mix of users, per the Shared Use Path Level of Service Calculator (9)

**Figure 4.6** Typical Cross-Section with Clear Zones  
 Source: AASHTO Guide for the Development of Bicycle Facilities 2012, 4th Edition



An informal separation of users occurs on many existing trails as shown on the Rock Creek Park Multi-use Trail  
 Source: AECOM



**Figure 4.7** Minimum Width Needed to Facilitate Passing on a Shared Use Path  
 Source: AASHTO Guide for the Development of Bicycle Facilities 2012, 4th Edition

## 4.6.2 Trailheads

Trailheads often serve as the front door for many trail users to the NPS paved trail network. Throughout the NCR, trailheads are currently provided in association with access points and other amenities tied to existing resources. A range of improvements and amenities should be considered to expand trailhead functionality. Surrounding context, infrastructure, volume of use, and potential partnerships will influence amenity selection.

Not all trailheads need to serve the same purpose. By establishing a hierarchy of trailhead standards, the NPS can help manage growth in the use of the trail system by providing specific amenities to encourage desired uses. Table 4.4 illustrates a sample list of amenities that NPS should consider for each type of trailhead.

Local trailheads are defined as providing a minimum number of amenities such as shelter from weather, signage, lighting, seating, trash receptacles, and where appropriate, parking or access to transit. The NPS should develop a version of the local trailhead to include signage that promotes cultural and historical resources and the use of specific materials. Regional trailheads, whether developed by the NPS or other jurisdictions, should promote connectivity to the overall system. Regional trailheads may be sited near existing high traffic destinations, connect other transit systems and may include additional amenities such as staff

centers, restrooms, vending or concessions, bike repair equipment, bike parking, etc. Due to the type of siting and range of amenities offered by regional trailheads, they typically become destinations themselves and provide the greatest level of economic impact across the system. This plan recommends regional trailheads be established at the following eight locations in coordination with local partners:

- C&O Canal Lock Zero (NPS)
- Gravelly Point Park (NPS)
- Jones Point Park (NPS)
- Long Bridge Park
- Mount Vernon Estate and Gardens (NPS)
- Oxon Hill Farm (NPS)
- Poplar Point Park (Future)
- Union Station

Table 4.4 Proposed Trailhead Hierarchy

	Trailhead Type		
	Rest Stops / Rest Areas	Local Trailhead	Regional Trailheads
<b>Standard Amenity</b>	Shelter Seating Directional Signage Bike Rack(s)	Information Kiosk Directional Signs Light(s) Water Trash Receptacle Recycling Seating Bike Racks Picnic Table(s)	Information Kiosk Restrooms Visitor Kiosk Directional Signs Light(s) Water Trash Receptacle Recycling Group/Individual Seating Bike Racks Picnic Tables Bike Repair Station Air Station Transit Access (nearest) Bikeshare
<b>Optional Amenity</b>	Trash Receptacle Recycling Emergency Communications Devices	Restrooms Parking Transit Access Bikeshare Bike Repair Station Air Station Emergency Communications Devices	Staffed Visitor Center Vehicle Parking Shuttle / Bus Drop-off Bike Storage Showers Emergency Communications Devices
<b>Additional Considerations</b>	Frequency should be every 2-3 miles of trail length with the purpose of providing a reprieve from weather and comfort between local trailheads.	Frequency should be at primary access points or resources, where space allows. Volumes of adjacent trail(s) should be medium to high.	Select locations where trail(s) volumes are high, number of resources are medium to high and partnership potential is high. Regional trailheads should be seen as destinations themselves.



Example rest stop amenities on the West Orange Trail, Florida  
Source: AECOM



Example regional trailhead in Millennium Park, Chicago  
Source: Torsodog



Example local trailhead amenities on the Seminole Wikiva Trail, Florida  
Source: AECOM

### 4.6.3 Signage

The NPS currently offers a robust set of sign standards that provide award-winning design standards for a wide range of facilities. Central to the sign standards is the provision of information for safety and education. The NPS has a long history in providing signage for parks and resources; recently the NPS has explored the use of materials from the local vernacular and strengthened sign consistency standards. Signage within the NPS system conforms to the UniGuide Standards for signage developed in 2004 and includes signage for paved trails, entry points and other significant features. Local governments are not required to adhere to the UniGuide Standards. Conformance to the Manual on Uniform Traffic Control Devices (MUTCD 2009 with Revisions 1 and 2, May 2012) is required.

In 2006, the Federal Highway Administration (FHA) approved the UniGuide Sign Standards as compliant to MUTCD standards. Application across the trail network, which transverses local government (MUTCD) and NPS (UniGuide) standards, requires broader consistency and the establishment of joint standards beyond simple compliance. Design standards unique to the NCR should be developed in conformity to UniGuide standards and in coordination with local government MUTCD requirements. Continued emphasis of design standards should be placed on signage for safety and educational information. Consideration should also be given to the appropriateness of the sign type based on the intended user groups and local context and resources.

## 4.7 Management

One of the greatest challenges for managing the NPS trail network is the current lack of a regional-level position to coordinate trails across six NPS units and six local governments. A regional trail coordination position has been staffed by the NPS in the past; however, the position is currently unfilled. Without a regional trail coordinator, local partners have experienced inconsistencies in communications from various NPS park units, a lack of clear understanding of the processes used by the NPS in trail planning, and a general slowness by NPS in responding to project needs.

## 4.8 Partnerships

The NPS coordinates with a number of non-profits, “Friends of” groups, and other partners in the maintenance, surveillance, and promotion of the region’s trail network. Besides the active role these organizations take in the upkeep of the trail network, some are proactive in fundraising for capital projects. Several successful models exist Service-wide, such as the Friends of Acadia (National Park), which is a membership organization dedicated to staffing, maintaining and raising funds in support of trail facilities. Though a number of successful models existing nationally, within the NCR, the reliance of the NPS on partners to raise funds has been limited.

Other partnership models include corporate sponsorships and private donations that have been utilized minimally by the NPS for trails in the NCR; the Trust for the National Mall has raised funds from private and corporate sources for capital projects and deferred maintenance. Within the NAMA park unit, the Trust has raised funds for turf restoration, recycling program development, seawall improvements and wayfinding systems. The success of these projects provides a model for future fundraising efforts focused on NAMA trails and sidewalk improvements.



### WASHINGTON AREA BICYCLIST ASSOCIATION

Recently, WABA has launched a trails coalition of local governments, advocacy groups, and non-profits to support the development of a regional trail vision. This effort is modeled after successful coalitions in large metropolitan areas across the country and will help ensure a clear, organized voice for the trail and cycling community in area transportation planning and development. The NPS is a core member of the coalition.

Besides non-profits and “Friends of” groups, the most extensive type of partnership model that the NCR has utilized for trails is the local government MOA. The NPS has completed several MOAs with local governments for development or improvement of trail facilities, maintenance of trail facilities, and the installation and upkeep of trail counter devices. As noted in the trail counter section, existing agreements should be evaluated in order to expand the opportunities for the collection and analysis of trail usage data by partners and the NPS. With the increased use of regional trails for commuter needs, the NPS has been stretched thin to provide increased maintenance needs in high-volume corridors for such activities as snow removal, repavement, signage, and potential lighting. Development of MOAs with local governments for daily or regular maintenance needs would reduce the dependence on limited NPS staff.

## 4.9 Historic Funding Sources

The identification of funding sources for trail projects can be one of the most difficult tasks in implementing or maintaining a facility. Each year, new funding sources for bike and pedestrian projects for both capital improvements and operations are created. However, competition is high for limited and, in some cases, reduced funds. Trail projects that face the greatest number of challenges -- such as multi-jurisdictional coordination, high construction costs, and limited solutions to implement -- can sometimes be more effective in obtaining funding from multiple sources.

This section provides an overview of funding sources typically used by the NPS with highlights of historic usage by the NCR, potential degree of complexity of the funding, and types of projects eligible for the funding source. Funding strategy opportunities are outlined at the end of the section.

### 4.9.1 NCR Historic Funding Sources for Trails

In addition to traditional categories of outside funding sources for capital improvements and maintenance, the NPS is authorized to collect fees (from visitors and concessionaires), accept donations, and allocate daily operation and project funds. This revenue provides for basic daily operation expenses and programs such as Cyclic Maintenance, Repair and Rehabilitation, among others. Some of the most common funding sources for NPS and the NCR for trail capital projects are shown in Table 4.5.

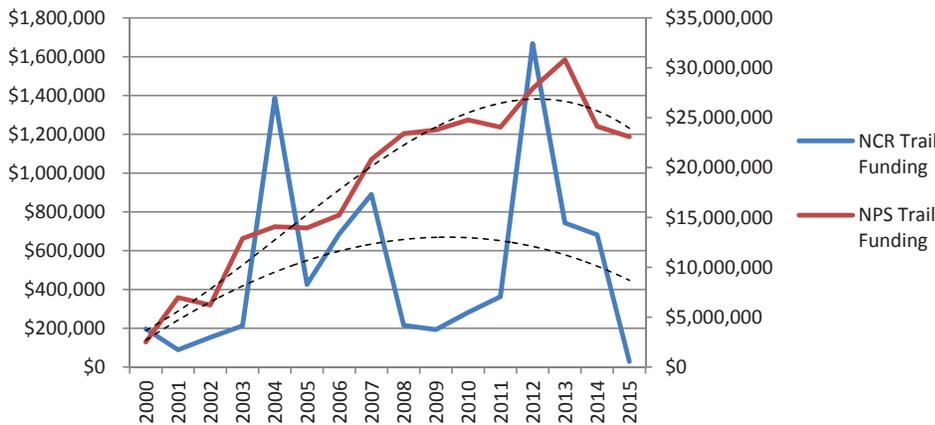
Figure 4.8 shows a comparison of funding trendlines between the NCR and NPS nationally. Although data shows a drop in recent years, overall, NPS trail funding nationally has been increasing since 2000. Trail funding in the NCR has been more inconsistent as shown by sharp and sporadic increases in certain years.

Table 4.5 Select Common Historic Funding Sources (NPS and NCR)

Historic Funding Sources for Trail Capital Projects (2000-2015)		
Funding Source	NPS (all regions)	NCR
Recreation Fees	33.5%	3.28%
Cyclic Maintenance	20.7%	1.54%
Repair / Rehabilitation	12.4%	6.73%
Non-NPS Fund Sources	5.3%	39.82%
FLTP – Category III: Alt. Trans. Program	0.56%	8.52%*

Data is provided by NPS as captured from PMIS on July, 2015.  
 This is not intended as a comprehensive list of trail funding sources.  
 \*Primarily associated with the Anacostia Riverwalk Trail project

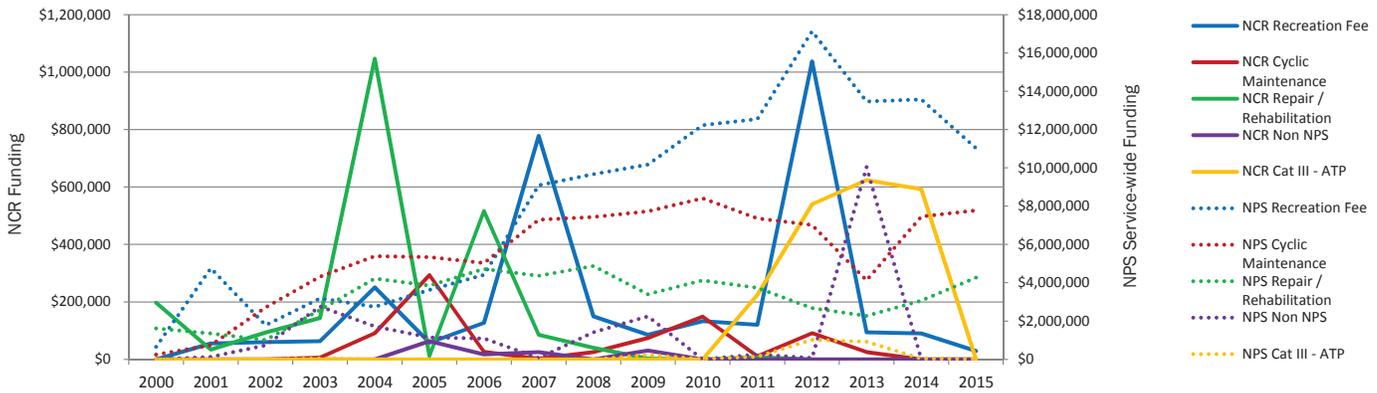
Figure 4.8 Annual Trail Funding Trendlines (NPS and NCR)



Data is provided by NPS as captured from PMIS on July, 2015

\*Note: Excludes \$10MM Cat. III - ATP funding primarily associated with the Anacostia Riverwalk Trail project  
 Funding sources include: Recreation Fees, Cyclic Maintenance, Repair/Rehabilitation, Non-NPS Fund Sources, FLTP-  
 Category III: Alternative Transportation Program

**Figure 4.9** Annual Trail Funding Trends by Fund Type (NPS and NCR)



Data is provided by NPS as captured from PMIS in July, 2015

\*Note: Excludes \$10 million Cat. III - ATP funding primarily associated with the Anacostia Riverwalk Trail project

Figure 4.9, illustrates the trendlines of five common trail funding sources for the NPS and NCR based on available data. The Service-wide trendlines (dashed lines) show a consistent growth in several funding sources; however, the NCR has been inconsistent with national trends in many areas. Although the NCR has been successful in securing FLTP funding in recent years, it is not to a level that could replace other funding sources that have been highly variable such as Repair/Rehabilitation funding and Cyclical Maintenance funding.

**Recreation Fees:** Recreation fees collected by NPS provide funding for trail capital projects. The most common form utilized in the NCR is the Recreation Fee 20%. The Recreation Fee 20% fund is formed from a portion (20%) of the recreation fees that are collected by all NPS park units and then distributed to NPS regions. Nationally, Recreation Fees accounted for almost 33.5% of funding for trail projects between 2000 and 2015; however, the funding source accounts for approximately 3.28% of trail capital funding within the NCR during the same period. The NCR averages just under \$200,000 in recreation fee-based funding for trails per year, but in the last three funding years (2013-2015) the NCR has received less than half the average each year. An important note for the Recreation Fee funding source is that the NPS park units included in this study do not collect entrance fees.

Other highly visited park units, such as the Grand Canyon National Park (GRCA) in the Intermountain Region, do not rely as much as the NCR on Recreation Fee 20% funding for trails. Between 2000 and 2015, GRCA secured additional Recreation Fee funding sources such as the Recreation Fee Park Revenue to fund approximately \$17.1 million in trail projects. GRCA also received \$3.7 million in funding for trail projects from the Concessions Franchise Fee 80%. Both of these sources far exceed the \$827,533 from Recreation Fee 20% received by all NCR park units

included in this study during the same timeframe. This helps to demonstrate the importance of additional Recreation Fee funding sources for trail projects in the NCR.

**Cyclical Maintenance:** The Cyclical Maintenance program is designed to complete regular, scheduled maintenance of assets. Cyclical maintenance is typically not sufficient in and of itself to complete all maintenance needed for all assets. Nationally, NPS funding for trail related cyclical maintenance accounted for approximately 20.7% of total funding between 2000 and 2015. Cyclical maintenance only accounted for 1.5% of total funding for the NCR during the same period.

Within the NCR, Cyclical Maintenance category of funding has been an inconsistent source with no funding received in 2014 and 2015. Furthermore, between 2000 and 2013, the NCR parks that are covered by this study received \$338,000 in Cyclical Maintenance funds, out of a total of \$793,602 received for all parks within the NCR. This can be compared to Cyclical Maintenance funding in other National Park Service units such as GRCA, which received \$1.6 million in Cyclical Maintenance funding during the same period, and Acadia National Park (ACAD), which received \$829,397 during the same period. During the same period, ACAD also received support from a non-profit group that raised over \$20 million for trail development, maintenance and programming.

**Repair / Rehabilitation:** Repairs and rehabilitation projects are typically larger scale than cyclical maintenance and routinely consist of corrective work. Since 2000, most regions have relied more heavily on this funding source to complete daily operational needs. Between the 2000-2015 time period, this funding source has accounted for approximately 12.4% of total trail funding at the NPS level. For the NCR, this figure has been approximately 6.7%, with almost 40% of the total received in 2004 alone.

In the last five years, the NCR has received less than \$10,000 in trail repair / rehabilitation funding across all park units. Other individually significant park units such as ACAD have received over \$586,000, while Great Smoky Mountains National Park (GRMP) in the Southeast Region has received more than \$3.1 million in trail repair/rehabilitation funding in the last five years.

**Non-NPS Fund Sources:** Non-NPS funding does not disclose sources or purposes of funding; however, a few key findings can be found in a review of available data. On a national level, NPS has received approximately 5.3% of funding for trail projects from Non-NPS sources. The NCR is a leader in obtaining funding under this category. Approximately 40% of the NCR funding for trails came from Non-NPS sources between 2000 and 2015. This equates to about 45% of the total amount of Non-NPS funding Service-wide.

Within the NCR, the park units included in this study accounted for 99% of the Non-NPS funding for the region. The development of the Anacostia Riverwalk Trail, which received \$10 million in Non-NPS funding in 2013, accounted for most of this funding.

The strong utilization of Non-NPS funding is an important trend to recognize. The NPS and individual park units are in need of alternative funding sources such as non-profits, corporate donations, etc., that can be leveraged to combat overall funding reductions. Developing the Non-NPS funding category into a more consistent and reliable source is an important initiative for the NCR.

**Federal Lands Transportation Program (FLTP) – Category III – Alternative Transportation Program:** FLTP – Category III: Alternative Transportation Program was established as part of the Moving Ahead for Progress in the 21st Century (MAP-21) Federal Transportation Program, specifically within the Federal Lands and Tribal Transportation Program (FLTTP). This program is now funded through the Fixing America’s Surface Transportation (FAST) Act, signed into law on December 4, 2015. Of the three funding programs within the FLTTP, the FLTP is the only one directly available to the NPS, as well as the U.S. Fish and Wildlife Service (FWS), Forest Service (FS), U.S. Army Corps of Engineers (USACE), and U.S. Bureau of Land Management (BLM).

The NCR receives a \$1.2 million allocation for Category III projects each year. Prior to 2011, these funds were utilized on non-trail related projects. However, since then over \$1.9 million has been provided for trail capital projects, including funding for this study. Similar to the use of Non-NPS funding sources, both the NPS and NCR’s utilization of Category III: Alternative Transportation Program funding is inconsistent; this could be a more reliable funding source if NCR park units coordinated for project funding.

Based on the data available, the NCR is allocated a significantly lower amount of funding for trail-related cyclic maintenance and repair/rehabilitation than other NPS regions. Also, other NPS park units allocate funds from park fee revenues and concession fees for trail projects at levels far higher than the NCR.

Obtaining a greater share of available funding from internal NPS sources for trails is critical for the trail network’s long-term success. More aggressive efforts should be pursued to ensure an appropriate share of funding for what may well be the largest NPS urban trail network in the country.

## 4.9.2 Non-NPS Funding Sources

### Federal Sources

Federal funding sources for trail projects have recently undergone consolidation intended to make it easier for agencies to access the funds. Typically these sources cover transportation-related projects meant to enhance multi-modal transport and infrastructure. However, federal sources may also cover environmental projects such as stream restoration efforts that may include trail development or redevelopment. In the case of Centers for Disease Control (CDC), grants may include health-related data collection and implementation of trail projects. Federal sources have been the primary means for NPS to obtain trail funding and will remain so for the foreseeable future.

The largest source of federal funding for pedestrian and bicycle projects is the U.S. DOT’s Federal-Aid Highway Program, which Congress has reauthorized roughly every six years since the passage of the Federal-Aid Road Act of 1916. The latest act, FAST, referenced previously, was enacted in December 2015 as Public Law 114-95. The Act replaces the MAP-21 Act that was valid until 2015.

FAST authorizes funding for federal surface transportation programs including highways and transit (Public Law 114-73: Surface Transportation Extension Act). The continued availability of any listed FAST programs is unpredictable. Nevertheless, many of these programs have been included in some form since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, and thus may continue to provide capital for active transportation projects and programs. Figure 4.10 highlights a simplified flow of funding for federal sources in the NCR.

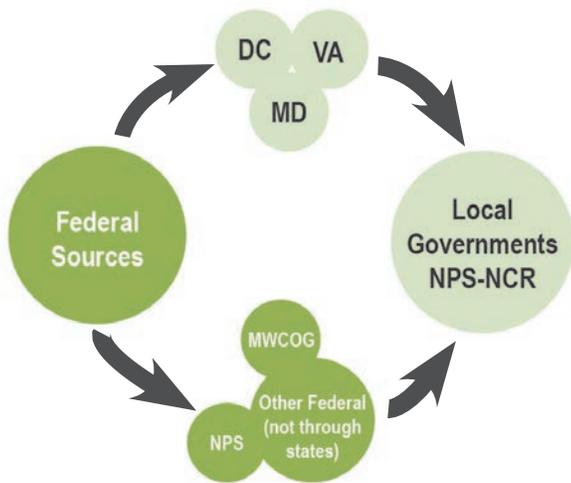


Figure 4.10 Typical Flow of Federal Funding in NCR

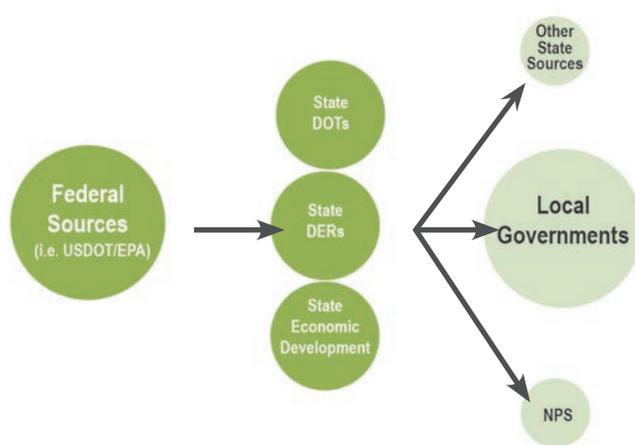


Figure 4.11 Typical Flow of State Funding for Transportation projects in the NCR

A sampling of the most common federal sources of funding historically utilized by the NPS includes:

- FAST contains multiple sources currently utilized for trail funding by the NPS:
  - Transportation Alternatives Program (TAP) - funding available to NPS and private organizations and administrated by a state DOT. Projects may include including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation; recreational trail projects; safe routes to school projects; and projects for planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former divided highways.
- Federal Lands and Tribal Transportation Program (FLTTP) is a three part funding source from the Office of Federal Lands Highway (FLH) within the U.S. DOT FHWA with the following programs historically utilized by the NPS:
  - Federal Lands Transportation Program (FLTP)
  - Federal Lands Access Program (FLAP)

### State Sources

State funding sources often provide a matching source to federal funds for trail development or redevelopment. In most cases, state funding sources remain extremely competitive and require the administration of the funds by a local government agency; therefore NPS must continue to coordinate with area partners. Though many of the state funding sources emphasize transportation enhancement, many include interests in land conservation and other environmental causes. Figure 4.11 illustrates the level of coordination and typical flow of state funding sources for transportation projects. State sources applicable to the NCR include:

- District of Columbia
  - Recreation Trail Program - grant funding available to District agencies and non-profits
- Maryland
  - Program Open Space - with funding available to local governments
  - Maryland Heritage Areas Program - funding is available to NPS, local governments and private organizations
- Virginia
  - Virginia Land Conservation Fund (VLCF) - funding administrated by VLCF and is focused on conservation and preservation of lands
  - Land and Water Conservation Fund - reimbursement program to state agencies or local governments and is Federally funded through the collection of fees

- Virginia Recreation Trail Fund (VRTF) - funding available directly to NPS if teamed with private trail group or organization and is administered by Virginia Department of Conservation and Recreation
- Historic Resources Incentives and Grants - funding available to state agency or local governments for preservation of historic resources

## Local Sources

Local government funding sources typically focus on capital improvements through Capital Improvement Programs (CIPs) that incorporate mechanisms such as capital reserve funds, capital protection ordinances, municipal service districts, tax increment financing, taxes, fees and bonds.

A sampling of local sources include:

- MWCOG – administers the Washington Region’s federally funded TIP (Transportation Improvement Program) under Title I, Surface Transportation, or Title III, Transit; MWCOG is officially an independent non-profit entity that receives funding through a combination of Federal and State sources, grants, and membership dues.
- Arlington County - administered by Arlington County;
  - BikeArlington and WalkArlington – are programs of Arlington County Commuter Services (ACCS), a bureau of Arlington’s Department of Environmental Services. Both programs are funded in part by grants from the US DOT (50% of total funding provided through Congestion Mitigation and Air Quality) and VDOT (26% of total funding). Additional funding comes from local fees and commissions.
  - Stormwater Management Program – is a program by the County’s Department of Environmental Services and funded through site plans and fees.
  - Transit Program – is operated by Arlington County to supplement regional transit and is funded through a combination of state and county general funds as well as grants and fees.
- Fairfax County - administered by Department of Public Works and Environmental Services with funding available to the Transportation Committee or private/non-profit organizations.
- Montgomery County Bikeway Program – led by the County’s Transportation Department, the program receives funding for capital projects through a combination of General Obligation Bonds and State general funds.
- Maryland-National Capital Park and Planning Commission (M-NCPPC) –Hard Surface Trail Renovation – is primarily funded through general funds as part of the M-NCPPC’s CIP, Operating and Capital budgets.

- City of Alexandria Recreation Trail Fund – is funded through a combination of grants, donations, and general tax levy.
- Washington Metropolitan Area Transit Authority (WMATA) – receives funding through two sources; fares and local government subsidies.

## Non-Governmental/ Non-Profit Sources

Many successful trail projects have solicited funding assistance from private foundations and other conservation-minded benefactors. Though many NGOs may not provide transportation-oriented funding, most offer matching programs for environmental and health-related initiatives. As Federal and state funding for trail projects has declined, the need for additional NGO support has grown. Financial assistance from conservancies and trusts for public lands is an example growth area; though many conservancies and trusts do not have endowments, most operate campaigns that raise private and public donations to fund acquisition, development or even operation and maintenance of trails and public lands.

Below are several examples of private, non-governmental funding opportunities available in two categories; advocacy/non-profits, which are typically organizations with a focus on trail development; and corporate/private donors that may be focused on land conservation, health and community development initiatives:

- Advocacy and Non-Profit
  - Alliance for Biking & Walking: Advocacy Advance Grants
  - American Hiking Society: National Trails Foundation
  - The Conservation Alliance
  - East Coast Greenway Alliance
  - National Environmental Education Foundation
  - National Fish and Wildlife Foundation (NFWF)
  - Rails-to-Trails Conservancy
  - Trust for the National Mall
  - The Trust for Public Land
  - The Robert Wood Johnson Foundation
- Corporate/Private Donors
  - American Greenways Eastman Kodak Awards
  - Bank of America Charitable Foundation, Inc.
  - Rite Aid Foundation Grants
  - Walmart State Giving Program
  - CSX
  - REI
  - American Great Outdoors

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## Chapter 5

Anacostia Riverwalk Trail  
Source: Washington Area Bicyclist Association

# Plan Framework

Federal regulations, laws, and NPS policies and regulations provide a legal and policy framework for trail planning, design, and implementation on NPS property. Understanding these requirements, and the process by which they are carried out, is a key step in successfully partnering with the NPS. This section highlights a few of the regulations and policies that apply to trail planning.

This chapter also describes a NCR trail hierarchy and overall paved trail organizational construct that culminates in a National Capital Trail concept. Together these elements form the strategic framework to guide trail planning in the future. The last section describes seven criteria that were used to prioritize projects that are included in this plan.

### 5.1 NPS Policy and Regulatory Guidance

#### NPS Management Policy

Service-wide policy is articulated by the Director of the National Park Service and is set forth in the *NPS Management Policies* document (NPS, 2006). The Management Policies set a broad framework, provide direction and prescribe parameters for making management decisions related to park system planning, land protection, natural and cultural resource management, wilderness preservation and management, interpretation and education, park use, park facilities (including trails), and concessions management. Key policy implications from Chapter 8 (Use of Parks) and Chapter 9 (Park Facilities) of the *NPS Management Policies* document include:

- Management policies do not impose park-specific visitor safety prescriptions. The means by which public safety concerns are to be addressed is left to the discretion of superintendents and other decision-makers at the park level who must work within the limits of funding and staffing.
- The protection of each park's resources and values will be the primary consideration in facility development decisions. Facilities for visitor use and park management will be consistent with each park's authorizing legislation, and with approved general management plans, development concept plans, and associated planning documents.
- Trails and walks will be planned and developed as integral parts of each park's transportation system and incorporate principles of universal design. Trails and walks will serve as management tools to help control the distribution and intensity of use. All trails and walks will be carefully situated, designed, and managed to:
  - Reduce conflicts with automobiles and incompatible uses
  - Allow for a satisfying park experience
  - Allow accessibility by the greatest number of people
  - Protect park resources



## NPS - A Call to Action

A *Call to Action* marks the NPS's effort to position for a new century of stewardship and engagement upon the 100th anniversary of the NPS in 2016. Intended to build momentum and action, the initiative defines four goals: connecting people to parks; advancing the NPS education mission; preserving America's special places; and enhancing professional organizational excellence.

## NPS Long Range Transportation Plan (LRTP)

The *NPS Long Range Transportation Plan* guides transportation program priorities and investments Service-wide and addresses five main goal topics: facility management, transportation finance, resource protection, visitor experience, and safety. The plan lays out short and long-term investment strategies and performance measures to shape transportation infrastructure, including non-motorized systems. The National LRTP functions as a strategic guide to inform planning and programming at the regional and park unit level. The NCR will embark on a LRTP process in 2016.

## 5.2 Federal Requirements

Besides NPS guidelines, a number of additional federal regulations and guidance documents may be relevant to the planning and design of paved trails on federal lands. A sampling of these regulations or standards is included below.

### Code of Federal Regulations (CFR)

Title 36 - Parks, Forests, and Public Property - of the CFR prohibits bicycle use except on parks roads, in parking areas and on designated bicycle routes. However, a new rule effective August 6, 2012, 36 CFR 4.30, amends the CFR for designating bicycle routes and managing bicycle use within park units that could have significant implications for NPS trails. The new rule is intended to provide park superintendents with a more efficient way to determine whether opening existing trails to bicycles would be appropriate. The rule also offers guidance on trail sustainability and bicycle safety within NPS park units.

The rule affects both existing and future (new) trails on NPS property and has differing requirements for trails located in developed areas versus trails located outside developed areas. A special regulation is still required to authorize construction of new trails for bicycle use outside developed areas. Existing trails may not be designated for bicycle use if the designation would result in a significant impact to the environment as determined through an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) evaluation. The designation of a trail for bicycle use must be considered as part of an overall park plan addressing trail use, or a recreation use plan. According to the rule, the plan must at a minimum:

- Evaluate the suitability of existing trail surface and soil condition for accommodating bicycle use, or prescribe a sustainable trail design for the construction of new trails.
- Consider life cycle maintenance costs, safety considerations, strategies to prevent or minimize user conflict, method of protecting natural and cultural resources, integration with commercial services and alternative transportation systems (if applicable).

### National Environmental Policy Act (NEPA), 1969, as Amended

NEPA established U.S. environmental policies, including the goal of achieving productive harmony between human beings and the physical environment for present and future generations. It provides the tools to implement these goals by requiring that every federal agency prepare an in-depth study of the impacts of "major federal actions having a significant effect on the environment" and alternatives to those actions. It requires that each agency make that information an integral part of its decisions. NEPA also requires that agencies make a diligent effort to involve the interested and affected public before they make decisions affecting the environment.

### Architectural Barriers Act (ABA) Accessibility Guidelines for Outdoor Developed Areas (36 CFR 1191, effective November 2013)

The ABA requires access to facilities designed, built, altered, or leased with federal funds. The regulation is governed by the Architectural and Transportation Barriers Compliance Board (Access Board). In 2013, the Access Board issued a final rule (*ABA Accessibility Guidelines for Outdoor Developed Areas*) for accessibility requirements for camping facilities, picnic facilities, viewing areas, trails, and beach access routes constructed or altered by or on behalf of federal agencies. The final rule applies to the NPS and to non-federal entities that construct or alter recreation facilities on federal land on behalf of the federal agencies pursuant to a concession contract, partnership agreement, or similar arrangement. Requirements within the *Accessibility Guidelines* include exceptions for situations where terrain and other factors make compliance impracticable.

### **National Historic Preservation Act (NHPA), as Amended Through 2000 (54 U.S.C. 300101), Including Section 106**

NHPA of 1966, as amended through 2000, protects buildings, sites, districts, structures, and objects that have significant scientific, historic, or cultural value. The act established affirmative responsibilities of federal agencies to preserve historic and prehistoric resources. Section 106 of the NHPA directs federal agencies to take into account the effects of any undertaking on historic properties. “Historic property” is defined as any district, building, structure, site, or object that is eligible for listing in the National Register of Historic Places (NRHP). Section 106 also provides the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) an opportunity to comment on the assessment of effects that would result from the undertaking.

### **5.3 Other Guidance**

#### **Federal Highway Administration Separate Bike Lane Planning and Design Guide**

The guide outlines planning considerations for separated bike lanes (cycle tracks or protected bike lanes) and includes design options, planning considerations, and lessons learned from around the country for implementing separated lanes. The guide serves as a resource document for planners and sets a standard definition for separated bike lanes (and other bike facilities), provides guidance on specific design challenges, defines a four-step design process, and identifies potential funding sources and approaches to maintenance and outreach.

### **American Association of State Highway and Transportation Officials, Guide for the Development of Bicycle Facilities (2012, 4th Edition)**

The AASHTO Guide for the Development of Bicycle Facilities is intended to present guidelines for the design of facilities that are sensitive to local context and incorporate the needs of users. Though this document is not a detailed design or traffic engineering manual, the document presents solutions and alternatives for facilities that form a basic level of provision. The AASHTO Guide includes the following guidelines that could be considered by NPS as part of trail improvements and design:

- Shared-Use path widths
- Safety barriers and clear zones
- Stopping sight distances
- Bridge crossings
- Sight triangles
- Intersections and roadway crossings
- Markings and safety signage

The design of a new trail and potential alterations to an existing trail must consider physical constraints, impacts to underlying resource values, ecological features or functions, and other considerations governed by federal requirements and NPS policies. Several recommendations of this study, described in Chapter 6, address safety, signage trail design and maintenance, and operations standards for the network.

## 5.4 Regional Trail Network Concept – Defining a National Capital Trail

The NCR Paved Regional Trail Network Concept described in this section reflects the context of the region and provides a platform from which to create an exceptional, and one-of-a-kind, outdoor trail experience.

The NPS maintains an extensive amount of land, especially in the core of the NCR. For instance, within Washington D.C., the NPS maintains over 90 percent of the parkland, and major parks are concentrated along river and stream valleys (Capital Space 2010). It is in these destinations that many of the NPS paved trails are found. Green corridors provide valuable ecological functions as green infrastructure in a highly developed urbanized environment while also linking neighborhoods, communities, and points of interest throughout the region. While focused primarily on resource conservation, the programming of NPS parks also reflects the national capital context, including annual cultural events, commemorative sites, and first amendment activities, as well as active and passive recreation (Capital Space 2010).

The diverse setting of the NCR paved trail network is one of the reasons the trails are so beloved and appreciated by those who choose to experience them. As a system, the trails provide extensive benefits to individuals and the community and are helping to define the region as a leader in multi-modal transportation infrastructure.

A Regional Trail Network Concept, defined in the following sections, promotes a forward-thinking approach to guide trail planning in the NCR. It is intended to help build momentum and focus resources towards defining a concept for a National Capital Trail that integrates existing and proposed trail segments from NPS and other jurisdictions into a regional network. The framework considers the special setting of the NCR and defines key corridors within the network (existing and proposed), as well as relationships and linkages among those corridors, and simplifies a complex trail network into an understandable hierarchy and powerful opportunity. The elements of the framework build upon each other.

The preservation and enhancement of trails in the NCR requires a focused set of priorities. Competing priorities, funding availability, and policies are not always aligned across those entities involved in maintaining the trail network.

No single agency can carry the full responsibility for maintaining the regional network as it exists today, or for enhancing the network to meet the needs of tomorrow's users. Partnerships are an essential element for success.

The Regional Trail Network Concept considers the unique setting of the National Capital Region. It defines key corridors within the network (existing and proposed), establishes relationships and linkages among those corridors, and simplifies a complex regional network into an understandable hierarchy and powerful opportunity.

## Corridors of Regional Significance

Corridors of regional significance are defined as primarily paved off-road trails that link communities to major recreational, historical, or cultural destinations and places of employment. All of the NPS off-road paved trails are considered corridors of regional significance. Recognition of these corridors demonstrates the important role they play in providing both north-south and east-west movement across the region. They function as trail arterials that collect trail users from local street networks and feed them into the core of the trail network through direct linkages. Regionally significant corridors serve pedestrians and bicyclists of all abilities and align with many of the recognized trails in the region today. Trails in this category are shown in Figure 5.1 and include:

- Mount Vernon Trail (NPS)
- C&O Canal Towpath (NPS)
- Capital Crescent Trail (NPS + Montgomery County)
- Rock Creek Park Multi-use Trail (NPS)
- Rock Creek and Potomac Parkway Trail (NPS)
- Proposed Oregon Avenue Trail (NPS)
- Potomac Heritage Trail (NPS)
- Fort Totten Connector (NPS)
- Anacostia Riverwalk Trail (NPS)
- Oxon Run Trail (NPS)
- Suitland Parkway Trail (NPS)
- Fort Circle Hiker-Biker Trail (NPS)
- Potomac Heritage Trail Extension to Fort Belvoir (NPS)
- Eisenhower Ave/Holmes Run Trail (Alexandria)
- Potomac Run Trail (Alexandria)
- Four Mile Run Trail (Alexandria)
- Arlington Boulevard Trail (Arlington County)
- Custis Trail (Arlington County)
- W & OD Trail (NVRPA)
- Proposed Purple Line Trail (Montgomery and Prince George's Counties)
- Sligo Creek Trail (Prince George's County)
- Northwest Branch Trail (Prince George's County)
- Northeast Branch Trail (Prince George's County)
- Rock Creek Trail (Montgomery County)
- MBT (D.C. + Montgomery County)
- New York Avenue Trail (D.C.)
- South Capitol Street Trail (D.C.)
- Henson Creek Trail (Prince George's County)

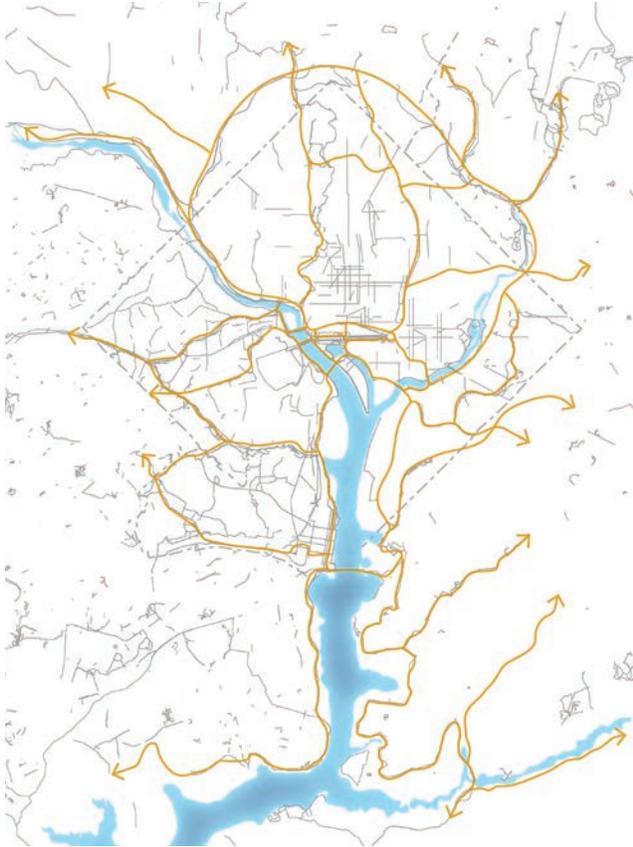
## High-volume Trail Corridors

While comprehensive trail count data is not yet available across the entire study area, several trail corridors segments have documented user volumes that are high in comparison to other parts of the network. These segments function more as highways of the regional trail network, absorbing trail users from the corridors of regional significance and providing access to primary regional destinations, such as downtown D.C.

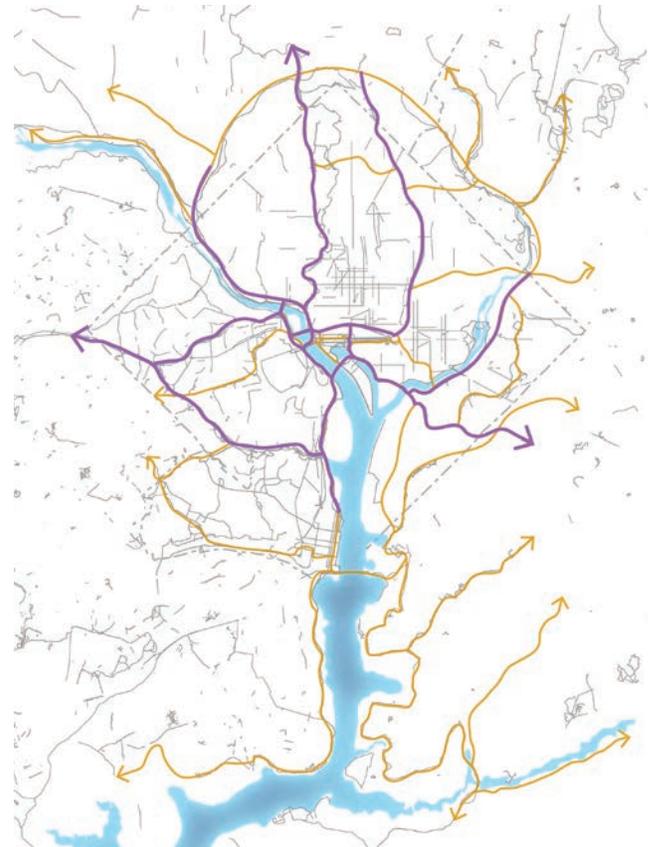
This Plan's designation of high-volume trail corridors recognizes the role that the trails have in supporting multi-modal objectives. The label suggests that these trails warrant special design, maintenance and operational considerations to adequately and safely address the high volume of users while still providing for daily recreation needs and appropriate resource management. As described in Section 3.2, several communities in the region are already moving forward with implementing snow removal policies for certain highly used trails. This trend places increased pressure on the NPS and others to develop compatible policies that will ensure continuity for trail users as they cross jurisdictional boundaries.

High-volume corridors shown in Figure 5.2 include:

- Mount Vernon Trail from Slaters Lane to the Key Bridge (NPS) – beginning north of Old Town Alexandria and continuing north providing access across the 14th Street Bridge, Arlington Memorial Bridge, Theodore Roosevelt Bridge and the Key Bridge
- Four Mile Run Trail – Arlington County defines a 2.25 mile section of this trail from Reagan National Airport to Shirlington Road as a highly used trail
- Custis Trail – Arlington County defines a 5.2 mile section of this trail from the W&OD Trail to North Lynn Street as a highly used trail
- W&OD Trail (NVRPA)
- Capital Crescent Trail – includes the NPS portion of the trail in D.C. and the portion of the trail in Montgomery County between the D.C. line and Bethesda
- Rock Creek Park Multi-use Trail (south of Broad Branch Road NW - NPS) – this trail is undergoing enhancements that will improve access and safety
- Rock Creek Park Multi-use Trail at Broad Branch Road, NW, along Glover and Ridge Roads, NW, to Military Road, NW and Oregon Avenue, NW – this route would provide an alternate and safer facility to Beach Drive. The portions along Ridge and Glover Roads would be a signed route. Recommendations in Chapter 6 include a feasibility study for a trail facility along the Oregon Avenue corridor which would connect to this proposed trail at Military Road.



**Figure 5.1** Corridors of Regional Significance (shown in orange)  
Source: AECOM



**Figure 5.2** High-volume Trail Corridors (shown in purple)  
Source: AECOM

- MBT– from Union Station to Silver Spring
- Suitland Parkway – from the South Capitol Street Bridge to Andrews Air Force Base
- 15th Street Cycle Track - includes an extension of the existing cycle track on 15th Street, NW across the National Mall and connecting to the 14th Street Bridge
- Pennsylvania Avenue Cycle Track – connecting Union Station to 15th Street, NW
- Anacostia Riverwalk Trail – includes the segment from South Capitol Street north to New York Avenue

Underlying resource constraints and values were a consideration in the identification of high volume corridors. For example, the C&O Canal Towpath is not designated as a high-volume corridor. Its gravel surfaces are not well-suited for high speeds; the adjacent paved Capital Crescent Trail is potentially more suitable for higher speeds, ease of maintenance and safety. Likewise, Beach Drive north of Broad Branch is not designated as a high-volume corridor due to capacity, safety, and visibility concerns. A new high volume corridor is recommended along Oregon Avenue that links directly into Rock Creek Trail in Montgomery County. No changes are recommended to Beach Drive north of Broad Branch Road, NW.

### The National Capital Trail (NCT)

Through the characterization of regionally significant and high-volume trails emerges an opportunity to create a compelling identity for the NCR paved trail network – the National Capital Trail (NCT).

The trail, shown in green in Figure 5.3, refines a loop concept first introduced in the 1990 plan by utilizing existing and proposed trail segments to designate four distinct loops.

A strength of the NCT concept is that it is focused on the NCR core and regionally significant corridors of the trail network. Not every trail is, or should be, given this designation or distinction.

The NCT idea is compelling because it is simple, understandable, and refrains from trying to be overly ambitious or inclusive of all trails in the NCR or broader region.

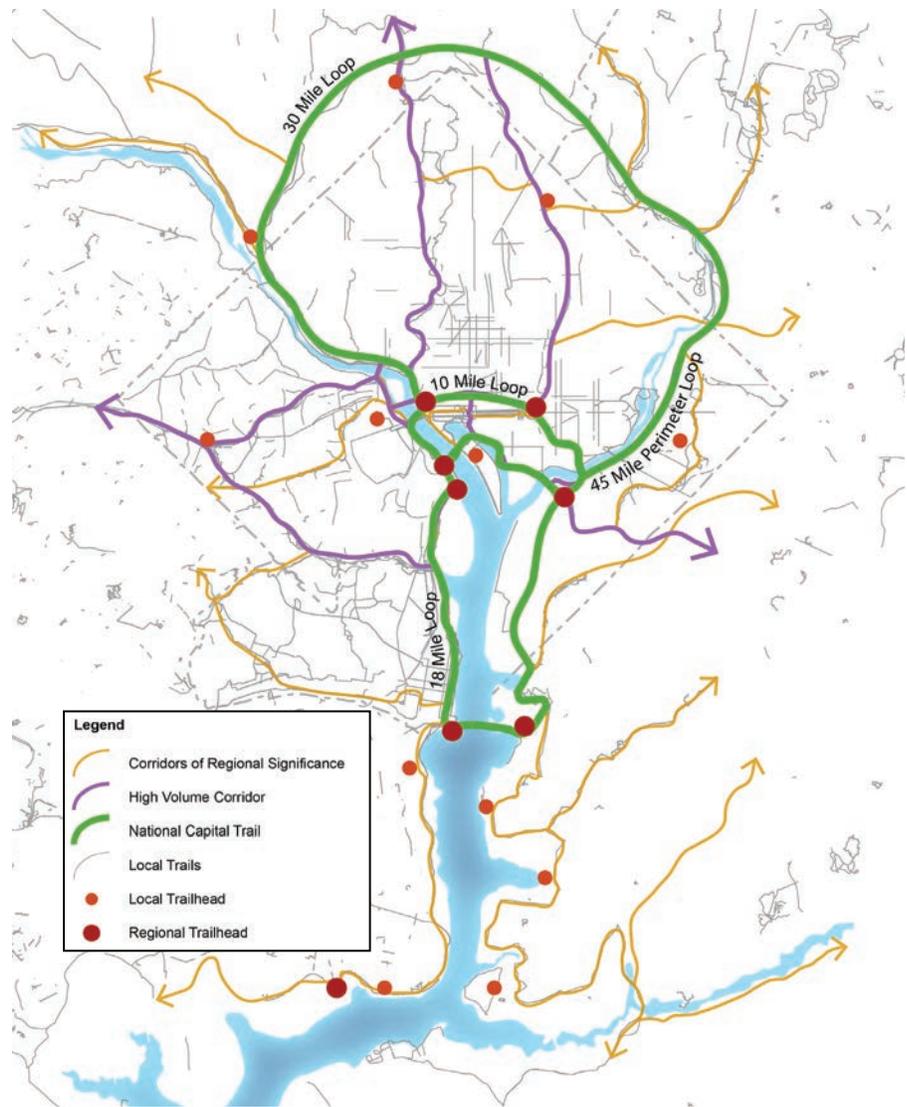


Figure 5.3 NCR National Capital Trail Concept  
Source: AECOM

The NCT should function as a parallel regional-level designation to existing NPS and local trails identified in Figure 5.1 and Figure 5.2. The designation would involve branding and signing the route consistently across the NCT and developing marketing and promotional materials to guide users on the trail resources, experiences, amenities, linkages to other trails, and points of access. Several ongoing national initiatives such as the East Coast Greenway, the 9/11 Memorial Trail and others described in Section 3.3, are also looking to connect through D.C. and to designate portions of their trail networks using existing trails. Those efforts do not necessarily conflict with the NCT concept; however, the primary emphasis for signage and branding should reside with the NCT to ensure the concept is not weakened or diluted.

Envisioned as a unified designation, implementation of this concept will require coordination and support from multiple parties including the NPS, Arlington County, Montgomery County, Prince George’s County, the District of Columbia, and the City of Alexandria. A majority of the proposed trail already exists although some portions are under development or proposed, including the Purple Line Trail in Prince George’s County and the South Capitol Street Trail in D.C. The concept includes a recommendation to establish four regional-level trailheads in the core and multiple local level trailheads along the various segments of the NCT on the network (see Section 4.6 for a discussion on trailheads considerations). Proposed loops include:

- A **perimeter loop** stretches for approximately 45 miles through Maryland, Virginia and the District of Columbia. The loop is envisioned largely off-road with the exception of a portion of the Mount Vernon Trail within Old Town Alexandria and a connection near Oxon Run Farm in Maryland, near the Woodrow Wilson Bridge.
- A **northern loop** spans about 30 miles through Maryland on the Capital Crescent Trail, proposed Purple Line trail, Sligo Creek Trail, Northwest Branch Trail, the Anacostia Riverwalk Trail, and crosses into downtown D.C. on the 11th Street Bridge. At this point the trail is on-road and connects to a proposed regional trailhead at Union Station and along Louisiana Avenue to the Pennsylvania Avenue Cycle Track, continuing along the National Mall to reach a proposed regional trailhead at Lock 0 of the C&O Canal Towpath.
- A **central loop** is defined as a ten mile trail around the National Mall with extension into Virginia over the Theodore Roosevelt Bridge, along the Mount Vernon Trail and across the 14th Street Bridge to an on-street trail along Maine Avenue, SW, M Street, SW, to the South Capital Street Bridge. The trail then heads north on the Anacostia Riverwalk Trail to connect across the 11th Street Bridge as described in the northern loop.
- A **southern loop** is defined along the Mount Vernon Trail from the 14th Street Bridge to Old Town Alexandria, across the Woodrow Wilson Bridge, connecting through Oxon Run Farm to the proposed South Capitol Street Trail before heading west across the South Capitol Street Bridge and connecting to the central loop as described above. This loop is approximately 18 miles in length.

The NCT concept has the potential to attract funding through coordinated efforts with other partners, non-profits, and businesses that want to be associated with the trail. Similar to marketing campaigns for “super regional trails” such as the East Coast Greenway, the concept can be used to promote recreational events and educational activities about the cultural, historical and national heritage resources along the trail, and can be marketed as a destination in regional tourism materials. The promotion of a singular experience which provides a car-free comprehensive overview of the region is an attractive concept for many and a realistic and sustainable goal.

## 5.5 Project Prioritization Criteria

Implementation of a broad vision can be challenging, especially with so many jurisdictions, federal policies and complexities of the built environment. In order to successfully implement the vision, clear prioritization must be established that aligns limited resources to maximize regional benefits and secure high priority assets. Designation of priorities for projects, though objective in nature, must be completed by a transparent and replicable process that can be used to not only establish initial prioritization, but re-evaluate projects on a regular basis for determination of regional funding needs and partnership opportunities. The NPS operating budget has been decreasing over the last several years and park units must routinely find creative ways to do more with less funding and reduced staff levels. The fiscally constrained environment is expected to continue, placing increased pressure on the NPS to spend limited available dollars strategically.

The NCR competes on a national level for project funding. Also, each park unit in the NCR competes for limited regional dollars. To help the NCR prioritize trail-related projects, a set of regional project prioritization criteria were developed to determine the highest priority projects across the NCR. The seven criteria were compared to the overall goals of the study, as shown in Table 5.2 to ensure that they aligned with the overall project purpose. Each criterion was given a single weighting factor of one; the maximum score a project could receive was seven. The results of the prioritization process yielded 18 capital projects with a score of five or six as shown in Table 5.1. No projects received a score of seven. The eighteen high-scoring projects are further described in Chapter 6.

Table 5.1 Project Prioritization Breakdown – Capital Projects

Prioritization Score	# of Capital Projects	% of Total Capital Projects
1	15	16%
2	14	15%
3	27	29%
4	20	21%
5	9	10%
6	9	10%
<b>Total</b>	<b>94</b>	<b>100%</b>

**Table 5.2** Project Prioritization Criteria

Criteria	Project Goals							
	1	2	3	4	5	6	7	8
Project crosses between more than one jurisdiction or more than two park units	Dark Brown	Light Brown	Dark Brown	Dark Brown	Light Brown	Light Brown	Dark Brown	Dark Brown
Project provides critical continuity by closing a gap or eliminating a barrier on the regional network	Dark Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Light Brown
Project is included in an approved or adopted plan or study	Light Brown	Light Brown	Dark Brown	Dark Brown	Light Brown	Light Brown	Light Brown	Dark Brown
Project may reduce user conflicts	Light Brown	Light Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Light Brown	Light Brown
Project is a critical safety improvement	Light Brown	Light Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown
Project improves connectivity from undeserved and emerging neighborhoods	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Light Brown
Project is located along high-volume trail segment	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown

The criteria in the left column above were cross-compared to project goals (numbered below) to identify alignment. Dark brown cells in the table indicate strong alignment between project prioritization criteria and project goal. This process ensured that the criteria responded to project goals.

### Project Goals

1. Create a widespread, equitable and interconnected regional paved trail system while conserving, protecting, and promoting natural and historic resources.
2. Provide a range of outdoor recreational experiences for trail users of all ages and abilities.
3. Enhance regional mobility by providing transportation options for those who live, work, play, and visit the region.
4. Coordinate with local jurisdictions and partners to advance trail priorities and projects that contribute to the success of the regional trail network.
5. Ensure safe and accessible trail experiences.
6. Provide a high-quality, well-maintained sustainable trail network.
7. Promote the attributes and experiences of the trail network in the national capital area.
8. Leverage multiple funding sources to sustain the network and achieve regional plan priorities.

The criteria place value on connectivity between park units or jurisdictions and projects that eliminate critical gaps or provide access to under-served areas in the physical trail network. Moreover, the criteria recognize projects consistent with adopted or approved plans or studies - which suggests that support exists for those ideas or projects at the local level which can make partnering more feasible. Projects that help to reduce user conflicts, provide a critical safety improvement or were located along a high-volume trail corridor also received value under the criteria. Project prioritization scores are provided in Appendix A.4.

The development of project prioritization criteria for trails in the NCR is consistent with overall NPS efforts to focus investments on high priority assets.

The NPS launched a Capital Investment Strategy (CIS) as part of the 2015 Service-wide Comprehensive Call which uses a scoring system to set project priorities based on four elements – financial sustainability, visitor use, resource protection, and health and safety. The CIS is intended to guide prioritization and steer funds to where they will do the most good.

Source: NPS, Fiscal Year 2017 Service-wide Comprehensive Call, Umbrella Memorandum, 2014



Rock Creek and Potomac Parkway Trail near the Kennedy Center  
Source: AECOM

## Recommended Actions

Recommendations in this study are focused on enhancing the existing trail network in response to current user trends and demands and also protecting and preserving the resources and values that make the trail experience on NPS land special. This approach recognizes the need for increased investment for existing trails in the core of the study area and improving the experience and safety for all users and abilities across the network.

As previously noted, the NPS trails described in this study connect to other local trails. Improving the network will require coordination and cooperation with multiple agencies and jurisdictions. A total of 121 recommendations are included in this plan. Chapter 6 has been structured into two parts to reflect the two broad types of recommendations: programmatic actions and capital projects. The structure reflects the difference each category has in terms of potential funding sources. Programmatic actions address regional coordination, process enhancements, marketing and promotion activities, and trail planning, design and policy. Capital projects are larger in scale and potential cost and address physical gaps in the trail network, improving bridge access, providing safety improvements, establishing trailheads, and establishing target areas for additional study.

Due to the high number of recommendations in the study, not all 121 projects are described in detail. Recommended immediate-term programmatic actions (ten) are described in greater detail in Section 6.1. Section 6.2 introduces the capital project types and presents a proposed project map (Figure 6.1) followed by detailed descriptions of each high-priority capital project that received a regional ranking score of five or above. ROM costs estimates and potential funding sources are identified for high priority projects.

A full project matrix is included at the end of the section, organized by timeframe and inclusive of lead responsible party. Timeframes were established with input from NPS park units; certain timeframes for projects in NAMA and NACE were adjusted after the application of the ranking methodology; therefore, some variation may exist between priority projects shown in Section 6.2 and those listed in Table 6.7 for the NAMA and NACE park units. Table 6.4 through Table 6.9 present the projects sorted by park unit.

The following Rough Order of Magnitude (ROM) cost and timeframe thresholds have been applied to all recommendations in this study:

### ROM Cost:

\$	< \$250,000
\$\$	\$250,001 - \$500,000
\$\$\$	\$500,001 - \$2,000,000
\$\$\$\$	> \$2,000,001

### Timeframe:

Immediate = 0-2 Years

Short-Term = 2-5 Years

Mid-Term = 5-10 Years

## 6.1 Programmatic Recommendations

Programmatic recommendations do not have an infrastructure improvement and generally have lower costs than capital projects. Table 6.1 identifies the breakdown of programmatic project types. Table 6.2 identifies programmatic recommendations grouped by project type and timeframe. Below is a brief description of the projects suggested for immediate action from Table 6.2.

**Table 6.1** Programmatic Recommendations by Type

Label	Project Type
Marketing + Promotion	4
Policy, Standard + Design	12
Process Enhancement	4
Regional Coordination	7
<b>Total</b>	<b>27</b>

### 6.1.1 Regional Coordination

#### Establish a NPS Regional Trails Coordinator

This regional position would be responsible for furthering the implementation the recommendations in this plan and the enhancement of the NPS paved trail network. The position would coordinate with all NPS park units, other federal, state and local land managers, and trail advocacy groups, regarding the planning, design, construction, maintenance, and promotion of NPS trails and those trail segments impacting the NPS network. The trail coordinator would be a liaison between the NPS units and trail partners to provide guidance on process requirements and would assist in the cultivation of trail partnerships, marketing, and communications.

- Timeframe: Immediate
- Rough Order of Magnitude Cost: \$

#### Hold Quarterly Trails Coordination Meetings with Local Governments

In support of the paved trail network vision, the NPS should play a leadership role in convening regular meetings with, at a minimum, local government bicycle and pedestrian coordinators, community planners, and transportation planners. These meetings could be led by the NPS Regional Trails Coordinator. The value of recurring meetings is that project ideas can be identified, issues or obstacles with current projects can be discussed, and all parties can stay informed of emerging opportunities that would benefit from collaboration and regional support.

- Timeframe: Immediate
- Rough Order of Magnitude Cost: \$

#### Participate as a Core Member in WABA's Regional Trail Coalition

The NPS NCR has expressed support of WABA in their pursuit to establish a regional trail coalition. While the initiative is in its early formation stage, the coalition is likely to work toward defining a regional trail network vision and will focus on advocacy and promotion of the larger trail network. Participation in this initiative as a core member will provide NPS an opportunity to benefit from trail advocacy and promotion that is developed for the entire regional network.

- Timeframe: Immediate
- Rough Order of Magnitude Cost: \$

### 6.1.2 Process Enhancement

#### Adopt a Standard Trail Counting Methodology and Formalize Agreement(s) with Local Governments for Implementing the Methodology

The lack of reliable pedestrian and bicycle volume data on NPS trails can be a barrier to efforts to plan more effective facilities and to improve safety. Accurate counts will allow the NPS to target funding and align investments more effectively. As described in Section 3.2, the District of Columbia and Arlington County are local leaders in the implementation of trail counting technology, and along with the City of Alexandria and Montgomery County, already provide counters on NPS trails in the NCR. The NPS NCR should establish a preferred standard for trail counters and formalize partnership agreements with these and other entities to expand trail counters along the network. An agreement would define the count technology, data collection, maintenance and calibration, methodology, and reporting requirements to ensure NPS is afforded regular count data for planning purposes.

- Timeframe: Immediate
- Rough Order of Magnitude Cost: \$

#### Expand the Number of Permanent Trail Counters and Manual Trail Counts

The NPS should work to increase the number of permanent trail counters and regular manual counts conducted on NPS trails. The first priority should be to address the lack of a comprehensive trail count of the NPS paved trail network through continued coordination with partner jurisdictions for additional annual manual counts along POHE segments, the National Mall trails, Rock Creek Park Multi-use Trail, Capital Crescent Trail and the Anacostia Riverwalk Trail. Manual counts should be coordinated for each junction and terminus along these five trails networks and include weekday and weekend counts as well as user characteristic data. Additional coordination with local partner jurisdictions should continue for the installation and maintenance of permanent automated counters. Emphasis should be placed on the junction and terminus points along the Capital Crescent Trail, Rock Creek Park Multi-use Trail, Anacostia Riverwalk Trail as well as the Potomac Heritage National Scenic Trail. For the POHE, on-road permanent counters may need to be utilized for portions of the trail that are not off-road facilities.

- Timeframe: Immediate
- Rough Order of Magnitude Cost: \$

#### Establish a Guide “Working with the NPS – Trail Conception to Construction”

The NPS must adhere to several federal policies and regulations that affect the trail planning and implementation process, such as NEPA. These requirements are not always well understood by existing or potential trail partners. A guide that documents how and when to engage the NPS would provide better clarity regarding the internal and external processes and could help reduce confusion or missteps that can sometimes lead to project delays. The guide should include important contact information and be widely distributed to other federal, state and local land managers, transportation agencies, local government bicycle and pedestrian coordinators, and trail advocacy groups.

- Timeframe: Immediate
- Rough Order of Magnitude Cost: \$

### 6.1.3 Policy, Standards and Design

#### Complete At-Grade Crossing Study and Develop Standards for At-Grade Crossings as part of the Study

At-grade crossings contribute to some of the most dangerous conditions present on the NPS paved trail network when sited on high-volume streets or highways with unclear sightlines, minimum signage and a high volume of trail users. A comprehensive study of existing crossing conditions will allow the NPS to identify and prioritize options for improvements, while the establishment of design standards which feature innovative and durable solutions to improving crossing safety will advance a significant goal of the NPS paved trail network to provide a completely safe trail network. A primary focus of this effort may be directed initially toward existing crossings along the Mount Vernon Trail; however, development of design standards should have a regional application.

- Timeframe: Immediate
- Rough Order of Magnitude Cost: \$

### **Establish Comprehensive Trail Standards and Manual of Standards**

The NPS lacks a comprehensive design standard for paved trails; therefore, the NCR should establish a set of trail design standards and guidelines unique to the NCR that define trail user types and at a minimum address trail width; clear zones; sight distances; crossings; markings; amenities; access; vegetation; safety features; lighting; snow removal; maintenance; signage; wayfinding; bridges; tunnels; and boardwalks. The standards and guidelines should take into consideration the regional hierarchy of trail and trailhead types (high volume corridors) and industry standards being implemented locally.

- Timeframe: Immediate
- Rough Order of Magnitude Cost: \$\$

### **Establish Protocols for Incident Reporting and Data Collection and Increase Trail Security Infrastructure**

NPS trail safety data is incomplete; there is currently not a centralized system in place that can be easily queried to assess safety trends. The Incident Management Analysis and Reporting System (IMARS) is a relatively new Department of Interior-wide system that is used to document incidents that occur in the park; however, the system does not require or capture geospatial information for incidents that would allow mapping of incidents along trails for analysis. To overcome this gap, it is recommended the NCR work with the USPP (and local police departments) to establish practical reporting standards that will capture incident location beyond the nearest roadway. In addition, USPP and NCR should collaborate to install mile marker signage on every NPS trail to provide location references for trail users and emergency responders. This recommendation should be coordinated with the implementation of local and regional trailhead infrastructure which should include emergency contact information among other amenities.

- Timeframe: Immediate
- Rough Order of Magnitude Cost: \$\$

### **6.1.4 Marketing and Promotion**

#### **Develop National Capital Trail Marketing and Promotion Program**

Promotion of the National Capital Trail concept across the region should include the development of standards for signage and wayfinding system-wide and a trail map and booklet, as well as, interactive features such as virtual experience opportunities, i.e. mobile device apps, interactive mapping tools, educational websites. Efforts should include the establishment of a clear agreement with Arlington County, Montgomery County, Prince George's County, City of Alexandria and the District of Columbia to advance the National Capital Trail concept and branding.

- Timeframe: Immediate
- Rough Order of Magnitude Cost: \$

Table 6.2 identifies all programmatic recommendations for the NCR grouped by type and timeframe.

**Table 6.2** NCR Programmatic Recommendations

Non-Capital Action	Recommendation Type
<b>Immediate (see Section 5.1) (0-2 Years)</b>	
Establish NPS Regional Trails Coordinator	Regional Coordination
Hold quarterly trails coordination meetings with local governments, and coordinate regularly with advocacy groups	Regional Coordination
Participate as a core member in Washington Area Bicycle Association's effort to establish a regional trail coalition	Regional Coordination
Adopt a standard trail count methodology and formalize agreement(s) with local governments for implementing standard trail counting methodology	Process Enhancement
Expand number of permanent trail counters and manual trail counters	Process Enhancement
Establish guide to working with NPS – trail conception to construction – to clarify NPS process internally and externally	Process Enhancement
Complete at-grade crossing study and develop standards for all at-grade crossings	Policy, Standards + Design
Establish comprehensive trail standards and manual of standards	Policy, Standards + Design
Establish protocols for incident reporting and data collection. Assign address to trailheads or access points, coordinate with local police departments	Policy, Standards + Design
Develop National Capital Trail marketing and promotion program	Marketing and Promotion
<b>Short-Term (2-5 Years)</b>	
Conduct trail condition assessments (establish baseline information, integrate to GIS/FMSS, update regularly)	Policy, Standards + Design
Establish trailhead guidelines (regional and local)	Policy, Standards + Design
Establish pilot materials innovation program	Policy, Standards + Design
Establish design, maintenance, and operations standards for high volume corridors (lighting, snow). Identify opportunities for agreements with local governments.	Policy, Standards + Design
Develop inventory of universally accessible trail locations and seek certification from National Center for Accessibility	Policy, Standards + Design
Develop flexible partnership template agreement	Process Enhancement
Establish database of trail partners. Align partners with projects.	Regional Coordination
Incorporate recommendations from Trail Plan into regional long-range transportation planning efforts	Regional Coordination
Institute training program for funding sources. Comprehensive list of sources (database), template agreements (communicate priorities), partnerships, SWAT team.	Regional Coordination
Expand Roving Trail Ranger Program to friend's groups. Establish bike routes/rides.	Marketing + Promotion
Hold major 'bike rides' on trails	Marketing + Promotion
<b>Mid-Term (5-10 Years)</b>	
Conduct web assessment of NPS trail network. Update NPS website/park unit pages with updated trail route info, guidelines, etc. Update Plan your Visit website, Map My Ride, validate trail accuracy on other sites (tourism, bike advocacy, etc.)	Marketing + Promotion
Conduct signage and wayfinding study (NAMA pilot program, coordination with jurisdictions – destination based approach, pavement markings, etc.). Includes design standards for National Capital Trail.	Policy, Standards + Design
Complete a trail illumination standards study	Policy, Standards + Design
Complete a vulnerability risk assessment for trail resiliency	Policy, Standards + Design
Develop See Click Fix app which is a reporting mechanism for trail users to identify trail issues that are pushed to applicable park unit for response	Process Enhancement

## 6.2 Capital Recommendations

Capital infrastructure projects vary in type, scale, cost, and level of benefit to the overall regional trail network. The recommendations are intended to enhance the physical aspects of the trail network. Most importantly, these projects focus on improving the trail experience and safety for all users and abilities. Each recommendation falls into one of the five project types below.

### Project Types

#### **Gap/Connector**

These projects address a missing piece of an existing identified trail route. The scale of gap or connection is wide and may consist of all the typical elements a segment of trail may have such as additional improvements to approaches to bridges, boardwalks, crossings, tunnels, off-road facilities, on-street facilities, traffic markings, signage and wayfinding, etc.

#### **Bridge**

Bridge connections are some of the biggest constraints throughout the trail network. Many bridges were designed and built without the provision of trail facilities. Over the last few decades, some regional bridges have been modified to include simple trail facilities and connections; however, additional enhancements may be needed. This category focuses on capital projects that include modifications to bridges or bridge approaches. Because bridge modifications typically require the coordination of multiple jurisdictions, improvement efforts can be complex.

#### **Trailhead**

Trailheads can serve as a portal, or front door, to NPS trail system users. Successful trailheads provide amenities and feature that create a safe and comfortable environment for everyone.

As noted in the Design Considerations section in Chapter 4, trailheads require a unique approach to planning in order to address the needs of multiple user groups. Given the scale of the NCR paved trail system, a hierarchy of trailheads is needed to better serve the range of needs created by multiple user groups. A goal of the hierarchy is to provide most amenities and features within cycling distance while providing core amenities within walking distance of the trail. The siting of trailheads should be coordinated in respect to underlying resources conditions and impacts. Larger trailheads should be influenced by trail volume and opportunities for coordination with multiple partners.

#### **Crossing Improvement**

Within the urban environment of the NPS paved trail system, there are frequent situations where a trail must cross a street or highway. Whether the crossing should be at-grade or grade-separated is impacted by a number of variables such as trail and vehicle traffic counts, speed, sight distances and viewshed protection, among others. It is because of these unique characteristics that projects focused on improvements or studies on crossings have been identified in this category.

A number of existing at-grade crossings across the trail network have conditions which should be enhanced to provide better safety features or should be studied for potential grade-separation needs. Also, there are a number of areas which do not currently provide a formal crossing or connection to a trail which can be studied for potentially new crossings. Ultimately, there is a need for the NPS to study and develop a set of design standards for crossings for application across the entire trail network

#### **Target Assessment Area**

For some capital improvement recommendations a specific alternative could not be determined within the scope of the plan. In many of these cases, a need for improvement has been identified but additional study or assessment of existing conditions and potential impacts is needed. Advancement of this type of project is dependent upon the development of a project scope, completion of a feasibility study to examine impacts on park natural and historical resources, and compliance with NEPA and NHPA.

Figure 6.1 identifies 94 recommended capital projects. A label key legend is provided for reference to NPS park unit, project type and project number as follows: The first letter of the label matches the first letter of the NPS park unit in which the project is sited. (National Capital Parks - East is the exception, and is identified with an “E”.) The second element of the label identifies the type of capital project, and the last item is the project number unique to each type of project and park unit.

- C = Chesapeake and Ohio Canal National Historical Park
- G = George Washington Memorial Parkway
- E = National Capital Parks - East
- N = National Mall and Memorial Parks
- P = Potomac Heritage
- R = Rock Creek Park

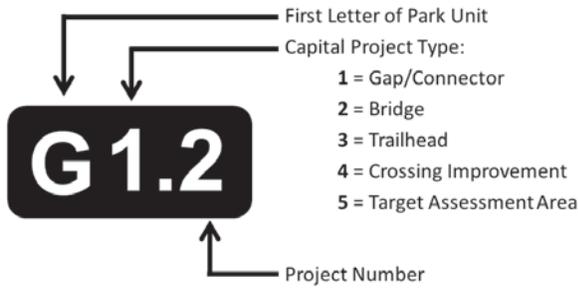


Table 6.3 following the map provides a comprehensive matrix listing all capital projects. The projects have been sorted by timeframe to display regional level priorities. The matrix also identifies the park unit, project type, corresponding map label, applicable trail name and location, recommended action and primary responsibility. Many of the projects will require coordination of multiple parties and the project leadership role may change to best suit the needs of the project and available funding sources.

Because many of the projects will be implemented at the park unit level, Table 6.4 through Table 6.9 sort the projects by park unit and then timeframe.

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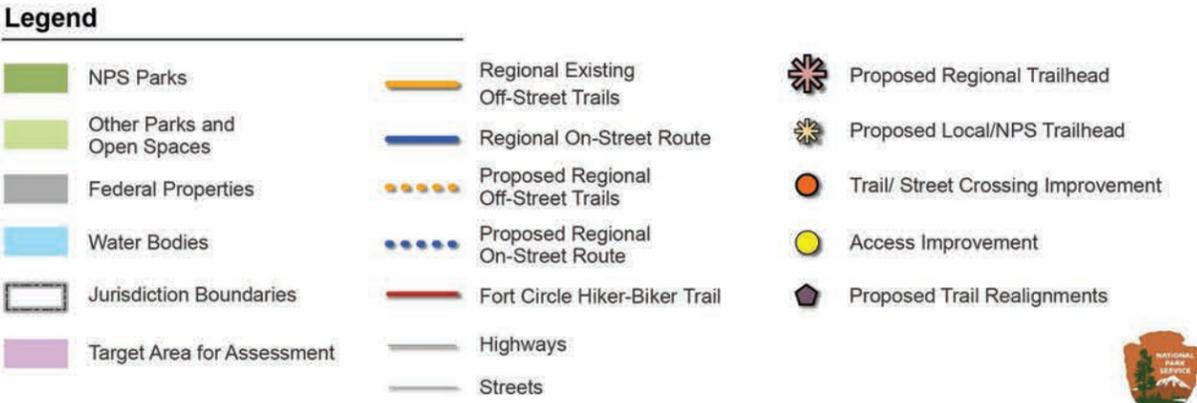
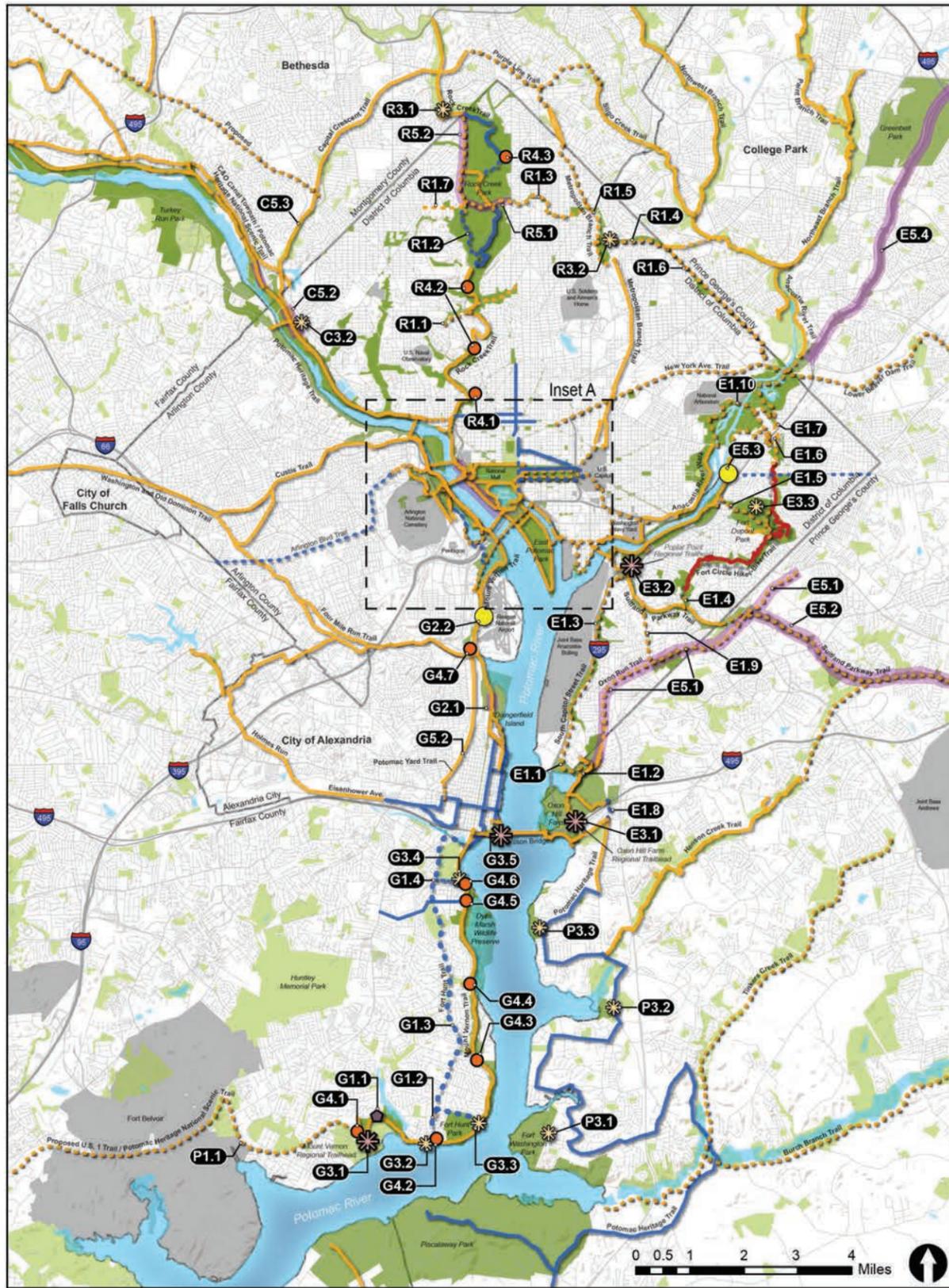


Figure 6.1 Capital Project Recommendations  
 Sources: NPS, District of Columbia, Counties of Arlington, Fairfax, Montgomery, and Prince George's, City of Alexandria.

## C Chesapeake & Ohio Canal National Historical Park (CHOH)

### C1 Gaps / Connectors

- C1.1** Capital Crescent Trail - Close gap in trail from 30th St. to 31st St through an analysis of Water Street corridor that addresses safety and user conflicts.
- C1.2** C&O Canal Towpath - Close gap in trail from Lock 1 to Lock 0.

### C3 Trailheads

- C3.1** C&O Canal Towpath - Develop a regional trailhead with bike share at Lock 0.
- C3.2** Capital Crescent Trail - Develop local trailhead facilities at crossing of Capital Crescent Trail and C&O Canal Towpath near Palisades Park.

### C5 Target Areas for Assessment

- C5.1** C&O Canal Towpath - Enhance signage and wayfinding.
- C5.2** C&O Canal Towpath - Conduct culvert study along C&O Canal Towpath.
- C5.3** Capital Crescent Trail - Conduct lighting study for CCT to determine areas for possible implementation.
- C5.4** Capital Crescent Trail - Evaluate potential access improvements from the Capital Crescent Trail to Key Bridge.

## E National Capital Parks East (NACE)

### E1 Gaps / Connectors

- E1.1** Oxon Cove Hiker-Biker Trail Connector - Develop a hiker-biker trail connector from Shepherd Parkway SW through Oxon Cove Park to the Oxon Hill Farm Trail.
- E1.2** Oxon Hill Trail Connector- Improve connection from Audrey Lane and Forest Heights Elementary School to Oxon Run Park and Oxon Hill Farm Trail.
- E1.3** South Capitol Street Trail - Develop an off-road trail from Fredrick Douglass Memorial Bridge to Shepherd Parkway SW.
- E1.4** Suitland Parkway Trail Connector - Construct off-road connector from Suitland Parkway Trail to Fort Circle Hiker-Biker Trail.
- E1.5** Fort Circle Hiker-Biker Trail - Develop an off-road trail along Fort Davis Dr. SE and Fort Dupont Dr. SE with connection to the Anacostia Riverwalk Trail under I-295.
- E1.6** Fort Circle Hiker-Biker Trail - Connect from Fort Circle Hiker-Biker Trail to Minnesota Ave. Metro Station.
- E1.7** Anacostia Riverwalk Trail - Connect from Anacostia Riverwalk Trail to Minnesota Ave. Metro Station.
- E1.8** Oxon Hill Farm Trail Connector to National Harbor - Develop on-street facility from Oxon Hill Farm Trail across I-495 to Oxon Hill Road and Harborview Ave. (in Prince George's Co.); improve signage and crossings; connect to POHE.
- E1.9** St. Elizabeth's Trail Connector - Develop on-street trail to connect proposed Oxon Run Trail to Suitland Parkway Trail through St. Elizabeth's (link to Metro).
- E1.10** Kenilworth Park Connection to National Arboretum - Develop a connection between Kenilworth Park across the Anacostia River to the National Arboretum and M Street NE.

### E3 Trailheads

- E3.1** Oxon Hill Farm Trail - Develop a regional trailhead facility with bikeshare at Oxon Hill Farm.
- E3.2** Anacostia Riverwalk Trail - Develop a regional trailhead facility with bikeshare at Poplar Point Park.
- E3.3** Fort Circle Hiker-Biker Trail - Develop a local/NPS trailhead facility at Fort Dupont Park.

### E5 Target Areas for Assessment

- E5.1** Oxon Run Trail - Conduct feasibility study to establish off-road trail facility along Oxon Run extending through DC, MD, and NPS portions, and linking to Pennsylvania Avenue, SE (link to Congress Heights Metro Station).
- E5.2** Suitland Parkway Trail - Conduct Feasibility Study for extension of Suitland Parkway Trail from DC/MD line to Henson Creek Trail (also address upgrades to DC portion of trail).
- E5.3** Evaluate potential access improvements from the Anacostia Riverwalk Trail to the Whitney Young Memorial Bridge (East Capitol Street NE)
- E5.4** Work with Prince George's County to explore the feasibility of a trail along the Baltimore Washington Parkway (or other nearby corridor) to connect Washington to Baltimore.

## G George Washington Memorial Parkway (GWMP)

### G1 Gaps / Connectors

- G1.1** Mount Vernon Trail - Realign trail at bridge near Little Hunting Creek.
- G1.2** Fort Hunt Trail - Develop on-road trail facility from MVT crossing GWMP, routed along Vernon View Dr. to Fort Hunt Rd.
- G1.3** Fort Hunt Trail - Develop on-road trail facility from Fort Hunt Rd./Fort Hunt Park along Fort Hunt Rd. to Belle Haven Rd.
- G1.4** Fort Hunt Trail - Develop on-road connector along Belle Haven Road to Belle Haven Park and MVT.
- G1.5** Mount Vernon Trail - Realign trail through Gravelly Point Park to separate through-traffic.
- G1.6** Mount Vernon Trail Connector - Conduct alternatives analysis to provide off-road trail connection from the Theodore Roosevelt Bridge to Arlington Ridge Park.

### G2 Bridges

- G2.1** Mount Vernon Trail - Replace existing 300 foot long bridge through wetlands
- G2.2** Mount Vernon Trail - Improve access on Airport Access Road overpass to Reagan National Airport/Aviation Circle; connect with steps; expand sidewalks.
- G2.3** 14th St. Bridge Trail - Connect 14th Street Bridge to proposed off-road facility on Boundary Channel Drive along Lagoon; create on-street trail facility on Boundary Channel Drive that connects under I-395 to Long Bridge Drive.
- G2.4** Mount Vernon Trail Connector - Develop connection from MVT to TR Bridge on south side of bridge.
- G2.5** Mount Vernon Trail - Improve safety and access at intersection of MVT and Custis Trail at Lee Highway/N. Lynn Street approach to Key Bridge. Coordinate with NPS regarding access drive to future boathouse.

### G3 Trailheads

- G3.1** Mount Vernon Trail - Develop a regional trailhead with bike share at Mount Vernon Estate and Gardens.
- G3.2** Mount Vernon Trail - Enhance existing Local/NPS trailhead with improved signage and amenities at Riverside Park.
- G3.3** Mount Vernon Trail - Develop a local/NPS trailhead at Fort Hunt Park.
- G3.4** Mount Vernon Trail - Develop a local/NPS trailhead at Belle Haven Park.
- G3.5** Mount Vernon Trail - Enhance the regional trailhead at Jones Point Park.
- G3.6** Mount Vernon Trail - Develop a regional trailhead at Long Bridge Park.
- G3.7** Mount Vernon Trail - Develop a regional trailhead at Gravelly Point.
- G3.8** Mount Vernon Trail - Develop a local/NPS trailhead with bikeshare, with viewshed compliancy.
- G3.9** Arlington Boulevard Trail - Enhance existing bikeshare station on N. Meade St. adjacent to US Marine Corps Memorial with signage, shelter, bike repair station, etc.
- G3.10** Mount Vernon Trail - Develop a local/NPS trailhead at existing bridge to the Theodore Roosevelt Island.

### G4 Crossings

- G4.1** Mount Vernon Trail - Provide improvements to at-grade Highway crossing at Mount Vernon Estate and Gardens.
- G4.2** Mount Vernon Trail - Provide traffic calming measures to facilitate crossing of GWMP at Vernon View Dr.
- G4.3** Mount Vernon Trail - Provide traffic calming measures to facilitate crossing of GWMP at Collingwood Rd.
- G4.4** Mount Vernon Trail - Provide traffic calming measures to facilitate crossing of GWMP at Morningside Ln.
- G4.5** Mount Vernon Trail - Provide traffic calming measures to facilitate crossing of GWMP at Belle View Blvd.
- G4.6** Mount Vernon Trail - Provide traffic calming measures to facilitate crossing of GWMP at Belle Haven Rd.
- G4.7** Mount Vernon Trail - Provide safety and sightline improvements and explore the potential for new roundabout with Four Mile Run Trail.
- G4.8** Mount Vernon Trail - Provide at-grade crossing improvements per ongoing EA recommendations at Memorial Bridge.
- G4.9** Mount Vernon Trail - Provide at-grade crossing improvements per ongoing EA recommendations at Washington Blvd.

### G5 Target Areas for Assessment

- G5.1** Mount Vernon Trail- Implement edge of pavement striping on trail within close proximity of roadway along Reagan National Airport perimeter.
- G5.2** Potomac Yard Trail - Coordinate with City of Alexandria to promote trail as MVT relief/commuter route through enhanced signage.

## N National Mall And Memorial Parks (NAMA)

### N1 Gaps / Connectors

- N1.1** Rock Creek Trail - Remove stairs at Ohio Drive SW Tidal Basin Inlet Bridge to connect to Ohio Drive Trail; narrow travel lanes on inlet bridge to widen sidewalk; mark bike lanes along East Basin Drive to connect to new cycle track extension on Maine Ave. with connection to 14th St. Bridge Trail.
- N1.2** 15th St. NW Cycle Track - Extend cycle track south on 15th Street between Pennsylvania Avenue NW and Constitution Avenue by removing vendor/street bus on west side of street. Will require coordination between DDOT and NAMA for 15th Street ROW between Pennsylvania Avenue and Constitution Avenue. Study feasibility to extend cycle track on 15th Street between Constitution Avenue and Maine Avenue in area between existing sidewalk and road/or move sidewalk to accommodate lane. Reclaim a southbound lane of Maine Avenue from Kutz Bridge to Jefferson Memorial and East Basin Drive for cycle track connection/dedicated bike lanes.
- N1.3** Jefferson Memorial Loop - Analyze route alternatives for a new path between FDR Memorial and West Potomac Park ballfields to include marked or separated bicycle and pedestrian facilities.
- N1.4** National Mall Trails - Coordinate with DDOT for development and installation of signage.
- N1.5** Jefferson Drive Sharrow - Install sharrows for shared facility.
- N1.6** National Mall Trails - Implement preferred alternative from the Mall Walkway Study to improve access, ADA and user conflicts. Work with Denver Service Center on study of discrete signage options for future separation of user needs.
- N1.7** Lincoln Memorial Loop - Study feasibility for on-street bike facility on west bound Independence Avenue from 23rd Street SW to 17th Street SW. Sign/mark bicycle loop from MLK Jr. Memorial to Lincoln Memorial, to Vietnam Veterans Memorial, north of Constitution Garden to 15th Street NW and down to Independence Avenue and back west to MLK Jr. Memorial.

### N2 Bridges

- N2.1** CSX Bridge Trail Connector - Build dedicated bike/ped trail via new CSX bridge; Connect to MVT and Long Bridge Drive (Long Bridge Park) and Boundary Channel Drive on west side of Potomac River and to Ohio Dr. SW and Rock Creek Trail on east side of Potomac River.
- N2.2** Memorial Bridge Connector - Conduct a feasibility study at Lincoln Circle to develop set of recommendations to improve visitor safety and reduce conflicts for motorists, pedestrians and cyclists. Alternatives should improved connections across the bridge and along the Parkway and Ohio Drive to trails.
- N2.3** Memorial Bridge Connector - Implement signage enhancements and access improvements from Lincoln Memorial Loop to Memorial Bridge in coordination with DDOT.
- N2.4** Theodore Roosevelt Bridge Connector - Improve safety of all at-grade trail crossings from the National Mall leading up to the TR Bridge; Improve crossing of existing Rock Creek and Potomac Parkway at the Belvedere/Constitution Ave extension; Provide new crossing of Rock Creek and Potomac Parkway to connect Rock Creek and Potomac Parkway Trail to volleyball courts and bridge approach; Provide additional signage; Expand trail width on both north and south sides of bridges.
- N2.5** Rock Creek Trail to Lincoln Memorial - Implement signage enhancements and access improvements from Lincoln Memorial Loop to the Theodore Roosevelt Bridge.

### **N3** Trailheads

- N3.1** East Potomac Park - Develop a local/NPS trailhead which may include signage, shelter, bike repair station, water, etc.
- N3.2** Rock Creek Trail - Develop a local/NPS trailhead at existing Bikeshare station to include bike repair station, water, etc.
- N3.3** Metropolitan Branch Trail - Develop a multimodal regional trailhead with coordination from NAMA.

### **N4** Crossings

- N4.1** Jefferson Memorial Loop - Provide crossing improvements from existing George Mason Memorial bikeshare station across E. Basin Dr. SW to Jefferson Memorial and across Ohio Dr. to East Potomac Park.
- N4.2** Rock Creek and Potomac Parkway Trail - Develop trail crossing from F St. NW to Rock Creek and Potomac Parkway Trail.

### **N5** Target Areas for Assessment

- N5.1** Rock Creek Trail - Assess options to expand the width of Rock Creek Multi-use Trail along Ohio Drive SW between the Tidal Basin Inlet and Independence Ave SW.

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## **P** Potomac Heritage National Scenic Trail (POHE)

### **P1** Gaps / Connectors

- P1.1** POHE- Complete multi-use trail facility between Mount Vernon Estate and Gardens and Woodlawn
- P1.2** POHE- Pursue designation of POHE from C&O Canal terminus with Rock Creek Trail through the National Mall area and connecting to the 11th Street Bridge, linking up to the South Capitol Street Trail.

### **P3** Trailheads

- P3.1** POHE - Develop a local trailhead at Fort Washington Park.
- P3.2** POHE - Develop a local trailhead at Harmony Hall Community Center.
- P3.3** POHE - Develop a local trailhead at Fort Foote Park.

## **R** Rock Creek Park (ROCR)

### **R1** Gaps / Connectors

- R1.1** Klingle Creek Trail - Continue to coordinate with DDOT for closure of existing gap.
- R1.2** Rock Creek Trail - Develop full-time on-street bike lane/facility along Ridge Rd. NW from Broad Branch Rd. NW to Military Rd. NW.
- R1.3** Fort Circle Park Trail - Develop an off-road trail facility from 16th St. NW to Fort Stevens Park, Fort Slocum Park and to Fort Totten with connection to Met Branch Trail.
- R1.4** Fort Circle Park Trail - Develop an off-road trail from Fort Totten/Met. Branch Trail via Fort Circle Park to Avondale Park.
- R1.5** Metropolitan Branch Trail - Develop an off-road connection to Met. Branch Trail from Bates Rd. NE to Kansas Ave. NW via Fort Totten Park.
- R1.6** Eastern Avenue Trail - Develop an off-road connector linking Fort Circle Park Trail and Northwest Branch Trail to proposed New York Ave. Trail.
- R1.7** Military Rd. On-Street - Coordinate for development of on-street facilities on Military Rd. from Oregon Ave. NW to Nebraska Ave. NW.

### **R3** Trailheads

- R3.1** Rock Creek Trail - Enhance existing trailhead into a local trailhead standard.
- R3.2** Fort Circle Park Trail - Develop a local trailhead facility with connections to Fort Circle Park Trail and Met. Branch Trail. Increase lighting and security measures in park.

### **R4** Crossings

- R4.1** Rock Creek Trail - Increase signage, lighting, and improve safety at all at-grade crossings at P Street NW.
- R4.2** Rock Creek Trail - Implement multi-use EA recommendations at Calvert St. NW and Beach Dr. NW to Klingle Rd. NW.
- R4.3** Rock Creek Trail - Enhance crossing at Sherrill Dr. entrance at 16th St. NW.

### **R5** Target Areas for Assessment

- R5.1** Fort Circle Park Trail - Evaluate the feasibility of an on or off-road trail facility along Military Rd. NW from Glover Rd. NW to 16th St. NW.
- R5.2** Fort Circle Park Trail - Evaluate the feasibility of an off-road trail facility along Oregon Ave. NW from Military Rd. NW to the DC/MD line with a connection to Beach Dr. and the Rock Creek Multi-use Trail.

Table 6.3 NCR Capital Recommendations (by timeframe)

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
<b>Immediate (0-2 Years)</b>							
CHOH	Gaps/ Connectors	1.1	Proposed	Capital Crescent Trail	Water Street, NW	Close gap in trail from 30th Street to 31st Street through an analysis of Water Street corridor that addresses safety and user conflicts	District of Columbia
CHOH	Target Areas for Assessment	5.4	Proposed	Capital Crescent Trail	Key Bridge	Evaluate potential access improvements from the Capital Crescent Trail to Key Bridge	National Park Service
GWMP	Gaps/ Connectors	1.6	Proposed	Mount Vernon Trail Connector	Arlington Ridge Park connection to the Theodore Roosevelt Bridge	Conduct alternatives analysis to provide off-road trail connection from the Theodore Roosevelt Bridge to Arlington Ridge Park	National Park Service
GWMP	Bridges	2.2	Existing	Mount Vernon Trail	Airport Access Road at GWMP	Improve access on Airport Access Road overpass to Reagan National Airport/ Aviation Circle; connect with steps; expand sidewalks	Arlington County
GWMP	Bridges	2.3	Proposed	14th Street Bridge Trail	Highway 395/14th Street Bridge	Connect 14th Street Bridge to proposed off-road facility on Boundary Channel Drive along Lagoon; create on-street trail facility on Boundary Channel Drive that connects under I-395 to Long Bridge Drive	Arlington County
GWMP	Bridges	2.4	Proposed	Mount Vernon Trail Connector	Mount Vernon Trail connection to the Theodore Roosevelt Bridge	Develop connection from Mount Vernon Trail to the Theodore Roosevelt Bridge on south side of bridge	National Park Service
GWMP	Bridges	2.5	Existing	Mount Vernon Trail	Lee Highway at Key Bridge	Improve safety and access at intersection of Mount Vernon Trail and Custis Trail at Lee Highway/North Lynn Street approach to Key Bridge  Coordinate with NPS regarding access drive to future boathouse	Arlington County
GWMP	Crossings	4.7	Existing	Mount Vernon Trail	Intersection of Mount Vernon Trail and Four Mile Run Trail at Reagan National Airport	Provide safety and sightline improvements and explore the potential for new roundabout	National Park Service
NACE	Gaps/ Connectors	1.1	Proposed	Oxon Cove Hiker-Biker Trail Connector	Oxon Cove Park	Develop a hiker-biker trail connector from Shepherd Parkway SW through Oxon Cove Park to the Oxon Hill Farm Trail	National Park Service
NACE	Gaps/ Connectors	1.8	Proposed	Oxon Hill Farm Trail Connector to National Harbor	From Oxon Hill Farm on Bald Eagle Road (to POHE)	Develop on-street facility from Oxon Hill Farm Trail across I-495 to Oxon Hill Road and Harborview Avenue (in Prince George's Co.); improve signage and crossings; connect to POHE	Prince George's County
NACE	Gaps/ Connectors	1.7	Proposed	Anacostia Riverwalk Trail	Anacostia River Trail to Minnesota Avenue Metro Station	Connect from Anacostia Riverwalk Trail to Minnesota Avenue Metro Station	District of Columbia
NACE	Target Areas for Assessment	5.2	Proposed	Suitland Parkway Trail	Suitland Parkway	Conduct Feasibility Study for extension of Suitland Parkway Trail from D.C./MD line to Henson Creek Trail (also address upgrades to D.C. portion of trail)	National Park Service
NACE	Target Areas for Assessment	5.3	Proposed	Anacostia Riverwalk Trail	East Capitol Street NE	Evaluate potential access improvements from the Anacostia Riverwalk Trail to the Whitney Young Memorial Bridge (East Capitol Street NE)	National Park Service
NAMA	Gaps/ Connectors	1.1	Existing	Ohio Drive Trail	Ohio Drive Inlet Bridge	Remove stairs at Ohio Drive SW Tidal Basin Inlet Bridge to connect to Ohio Drive Trail; narrow travel lanes on inlet bridge to widen sidewalk; mark bike lanes along East Basin Drive to connect to proposed new cycle track extension on Maine Avenue with connection to 14th Street Bridge Trail	National Park Service

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
NAMA	Gaps/Connectors	1.4	Existing	National Mall Trails	National Mall Trails Signage	Coordinate with DDOT for development and installation of signage	National Park Service
NAMA	Gaps/Connectors	1.5	Proposed	Jefferson Drive Sharrow	Jefferson Drive - 3rd Street to 15th Street	Install sharrows for shared facility	National Park Service
NAMA	Bridges	2.4	Proposed	Theodore Roosevelt Bridge Connector	Theodore Roosevelt Bridge at Constitution Avenue and Rock Creek and Potomac Parkway	Improve safety of all at-grade trail crossings from the National Mall leading up to the Theodore Roosevelt Bridge; Improve crossing of existing Rock Creek and Potomac Parkway at the Belvedere/Constitution Avenue extension; Provide new crossing of Rock Creek and Potomac Parkway to connect Rock Creek and Potomac Parkway Trail to volleyball courts and bridge approach; Provide additional signage; Expand trail width on both north and south sides of bridges	District of Columbia
NAMA	Bridges	2.2	Existing	National Mall Trails	Lincoln Memorial Circle	Conduct a feasibility study at Lincoln Memorial Circle to develop set of recommendations to improve visitor safety and reduce conflicts for motorists, pedestrians and cyclists. Alternatives should improved connections across the bridge and along the Parkway and Ohio Drive to trails.	National Park Service
NAMA	Crossings	4.1	Proposed	Jefferson Memorial Loop	Jefferson Memorial at E. Basin Drive SW	Provide crossing improvements from existing George Mason Memorial/Bikeshare station across East Basin Drive SW to Jefferson Memorial and across Ohio Drive to East Potomac Park	National Park Service
NAMA	Crossings	4.2	Proposed	Rock Creek and Potomac Parkway Trail	F Street NW and Rock Creek and Potomac Parkway NW	Develop trail crossing from F Street NW to Rock Creek and Potomac Parkway Trail	District of Columbia
ROCR	Target Areas for Assessment	5.1	Proposed	Fort Circle Park Trail	Military Road NW from Glover Road NW to 16th Street NW	Evaluate the feasibility of an on or off-road trail facility along Military Road NW from Glover Road NW to 16th Street NW	National Park Service
ROCR	Target Areas for Assessment	5.2	Proposed	Oregon Avenue Trail	Oregon Avenue NW from Military Road NW to D.C./MD line	Evaluate the feasibility of an off road trail facility along Oregon Avenue NW from Military Road NW to the D.C./MD line with a connection to Beach Drive and the Rock Creek Park Multi-use Trail	National Park Service
<b>Short-Term (2-5 Years)</b>							
CHOH	Gaps/Connectors	1.2	Proposed	C&O Canal Towpath	L Street to Virginia Avenue	Evaluate potential connections to close the gap in the trail from Lock 1 to Lock 0	National Park Service
CHOH	Trailheads	3.1	Proposed	C&O Canal Towpath	Lock 0 at Virginia Avenue NW and Rock Creek and Potomac Parkway NW	Develop a regional trailhead with bike share at Lock 0	National Park Service
GWMP	Gaps/Connectors	1.2	Proposed	Fort Hunt Trail	From GWMP along Vernon View Drive to Fort Hunt Road	Develop on-road trail facility from Mount Vernon Trail crossing GWMP, routed along Vernon View Drive to Fort Hunt Road	Fairfax County
GWMP	Gaps/Connectors	1.3	Proposed	Fort Hunt Trail	Fort Hunt Road/Fort Hunt Park to Belle Haven Golf Course	Develop on-road trail facility from Fort Hunt Road/Fort Hunt Park along Fort Hunt Road to Belle Haven Road	Fairfax County
GWMP	Gaps/Connectors	1.4	Proposed	Fort Hunt Trail	Belle Haven Road between Fort Hunt Road and GWMP	Develop on-road connector along Belle Haven Road to Belle Haven Park and Mount Vernon Trail	Fairfax County
GWMP	Gaps/Connectors	1.5	Proposed	Mount Vernon Trail	Gravelly Point Park	Realign trail within Gravelly Point Park to separate through-traffic	National Park Service
GWMP	Trailheads	3.1	Proposed	Mount Vernon Trail	Mount Vernon Estate and Gardens	Develop a regional trailhead with bike share	National Park Service

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
GWMP	Trailheads	3.5	Proposed	Mount Vernon Trail	Jones Point Park	Enhance the regional trailhead at Jones Point Park	National Park Service
GWMP	Trailheads	3.6	Proposed	Mount Vernon Trail	Long Bridge Park	Develop a regional trailhead	Arlington County
GWMP	Trailheads	3.7	Proposed	Mount Vernon Trail	Gravelly Point Park	Develop a regional trailhead	National Park Service
GWMP	Crossings	4.2	Proposed	Mount Vernon Trail	Vernon View Drive at GWMP	Provide traffic calming measures to facilitate crossing of GWMP	National Park Service
GWMP	Crossings	4.3	Proposed	Mount Vernon Trail	Collingwood Road at GWMP	Provide traffic calming measures to facilitate crossing of GWMP	National Park Service
GWMP	Crossings	4.4	Proposed	Mount Vernon Trail	Morningside Lane at GWMP	Provide traffic calming measures to facilitate crossing of GWMP	National Park Service
GWMP	Crossings	4.5	Proposed	Mount Vernon Trail	Belle View Boulevard at GWMP	Provide traffic calming measures to facilitate crossing of GWMP	National Park Service
GWMP	Crossings	4.6	Proposed	Mount Vernon Trail	Belle Haven Road at GWMP	Provide traffic calming measures to facilitate crossing of GWMP	National Park Service
GWMP	Crossings	4.8	Existing	Mount Vernon Trail	GWMP northbound approach under Arlington Memorial Bridge	Provide at-grade crossing improvements per ongoing EA recommendations at Arlington Memorial Bridge	National Park Service
GWMP	Crossings	4.9	Existing	Mount Vernon Trail	Washington Boulevard near Arlington Memorial Bridge	Provide at-grade crossing improvements per ongoing EA recommendations at Washington Boulevard	National Park Service
NACE	Gaps/Connectors	1.2	Existing	Oxon Hill Farm Trail Connector	Oxon Hill Farm Trail	Improve connection from Audrey Lane and Forest Heights Elementary School to Oxon Run Park and Oxon Hill Farm Trail	National Park Service
NACE	Gaps/Connectors	1.3	Proposed	South Capitol Street Trail	From Fredrick Douglass Memorial Bridge to Oxon Hill Farm Trail	Develop an off-road trail from Fredrick Douglass Memorial Bridge to Shepherd Parkway SW	District of Columbia
NACE	Gaps/Connectors	1.4	Proposed	Suitland Parkway Trail Connector	From Suitland Parkway Trail to Fort Circle Hiker-Biker Trail	Construct off-road connector from Suitland Parkway Trail to Fort Circle Hiker-Biker Trail	National Park Service
NACE	Gaps/Connectors	1.5	Proposed	Fort Circle Hiker-Biker Trail	Fort Dupont Park and Fort Davis Drive SE	Develop an off-road trail along Fort Davis Drive SE and Fort Dupont Drive SE with connection to the Anacostia Riverwalk Trail under I-295	National Park Service
NACE	Gaps/Connectors	1.6	Proposed	Fort Circle Hiker-Biker Trail	Fort Circle Parks to Minnesota Metro Station	Connect from Fort Circle Hiker-Biker Trail to Minnesota Avenue Metro Station	District of Columbia
NACE	Gaps/Connectors	1.9	Proposed	Saint Elizabeth's Trail Connector	Fort Circle Park from 13th Street SE to Dogwood Street	Develop on-street trail to connect proposed Oxon Run Trail to Suitland Parkway Trail through Saint Elizabeth's (link to Metro)	District of Columbia
NACE	Gaps/Connectors	1.10	Proposed	Kenilworth Park Connector	Kenilworth Park to National Arboretum	Develop a connection between Kenilworth Park across the Anacostia River to the National Arboretum and M Street NE	National Park Service
NACE	Trailheads	3.1	Proposed	Oxon Hill Farm Trail	Oxon Hill Farm	Develop a regional trailhead facility with bikeshare at Oxon Hill Farm	National Park Service
NACE	Trailheads	3.2	Proposed	Anacostia Riverwalk Trail	Poplar Point Park	Develop a regional trailhead facility with bikeshare at Poplar Point Park	District of Columbia
NACE	Target Areas for Assessment	5.1	Proposed	Oxon Run Trail	Oxon Hill Farm Trail to Pennsylvania Avenue SE	Conduct feasibility study to establish off-road trail facility along Oxon Run extending through D.C., MD, and NPS portions, and linking to Pennsylvania Avenue, SE (link to Congress Heights Metro Station)	National Park Service

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
NAMA	Gaps/ Connectors	1.2	Proposed	15th Street NW Cycle Track	Pennsylvania Avenue South to Independence Avenue SW, then to Maine Avenue SW	Extend cycle track south on 15th Street between Pennsylvania Avenue NW and Constitution Avenue by removing vendor/ street bus on west side of street. Will require coordination between DDOT and NAMA for 15th Street ROW between Pennsylvania Avenue and Constitution Avenue. Study feasibility to extend cycle track on 15th Street between Constitution Avenue and Maine Avenue in area between existing sidewalk and road/or move sidewalk to accommodate lane. Reclaim a southbound lane of Maine Avenue from Kutz Bridge to Jefferson Memorial and East Basin Drive for cycle track connection/dedicated bike lanes.	National Park Service
NAMA	Gaps/ Connectors	1.6	Existing	National Mall Trails	National Mall Trails (outer perimeter loop trails)	Implement preferred alternative from the National Mall Walkway Study to improve access, ADA and user conflicts. Work with Denver Service Center on study of discrete signage options for future separation of user needs.	National Park Service
NAMA	Bridges	2.2	Existing	National Mall Trails	Lincoln Memorial Circle	Conduct an EA at Lincoln Memorial Circle to develop set of recommendations to improve visitor safety and reduce conflicts for motorists, pedestrians and cyclists. Alternatives should improved connections across the bridge and along the Parkway and Ohio Drive to trails.	National Park Service
NAMA	Bridges	2.3	Proposed	Arlington Memorial Bridge Connector	Arlington Memorial Bridge and Lincoln Memorial Circle	Implement signage enhancements and access improvements from Lincoln Memorial Loop to Arlington Memorial Bridge in coordination with DDOT.	National Park Service
NAMA	Bridges	2.5	Existing	Rock Creek Park Multi-use Trail to Lincoln Memorial Loop	Theodore Roosevelt Bridge - Rock Creek and Potomac Pkwy	Implement signage enhancements and access improvements from Lincoln Memorial Loop to the Theodore Roosevelt Bridge.	District of Columbia
NAMA	Trailheads	3.3	Proposed	MBT	Union Station	Develop a multi-modal regional trailhead with coordination from NAMA	District of Columbia
POHE	Gaps/ Connectors	1.1	Proposed	Potomac Heritage National Scenic Trail	From Mount Vernon Estates and Gardens to Woodlawn Plantation	Complete multi-use trail facility between Mount Vernon Estate and Gardens and Woodlawn	National Park Service
POHE	Gaps/ Connectors	1.2	Proposed	Potomac Heritage National Scenic Trail	Rock Creek Park Multi-use Trail connection to South Capitol Street Trail	Pursue designation of POHE from C&O Canal terminus with Rock Creek Park Multi-use Trail within the National Mall area and connecting to the 11th Street Bridge, linking up to the South Capitol Street Trail.	National Park Service
ROCR	Gaps/ Connectors	1.1	Proposed	Klingle Creek Trail	Klingle Valley Parkway at Woodley Road to Piney Branch Parkway	Continue to coordinate with DDOT for closure of existing gap	District of Columbia
ROCR	Gaps/ Connectors	1.2	Proposed	Rock Creek Park Multi-use Trail	Glover / Ridge Road NW from Broad Branch Road NW to Military Road NW	Develop full-time on-street bike lane/ facility along Glover / Ridge Road NW from Broad Branch Road NW to Military Road NW	National Park Service
ROCR	Gaps/ Connectors	1.3	Proposed	Fort Circle Park Trail	16th Street NW to Fort Totten	Develop an off-road trail facility from 16th Street NW to Fort Stevens Park, Fort Slocum Park and to Fort Totten with connection to MBT.	National Park Service
ROCR	Gaps/ Connectors	1.5	Proposed	MBT	Kansas Avenue NW to Bates Road NE	Develop an on-road connection to MBT from Bates Road NE to Kansas Avenue NW via Fort Totten Park	District of Columbia

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
ROCR	Gaps/ Connectors	1.6	Proposed	Eastern Avenue Trail	From Gallatin Street NE and Eastern Avenue NE along Fort Circle Parks through Barnard Hill Park to New York Avenue Trail	Develop an off-road connector linking Fort Circle Park Trail and Northwest Branch Trail to proposed New York Avenue Trail	District of Columbia
ROCR	Gaps/ Connectors	1.7	Proposed	Military Road On-Street	Military Road from Oregon Avenue NW to Nebraska Avenue NW	Coordinate for development of on-street facilities on Military Road from Oregon Avenue NW to Nebraska Avenue NW	District of Columbia
ROCR	Crossings	4.1	Proposed	Rock Creek Park Multi-use Trail	P Street NW/Rock Creek and Potomac Parkway (Multi-Use Trail)	Increase signage, lighting, and improve safety at all at-grade crossings	National Park Service
ROCR	Crossings	4.3	Existing	Rock Creek Park Multi-use Trail	Sherrill Drive at 16th Street NW	Enhance crossing at Sherrill Drive entrance at 16th Street NW	District of Columbia
<b>Mid-Term (5-10 Years)</b>							
CHOH	Trailheads	3.2	Proposed	Capital Crescent Trail	Canal Road+I84. NW at Palisades Park	Develop local trailhead facilities at crossing of Capital Crescent Trail and C&O Canal Towpath near Palisades Park	District of Columbia
CHOH	Target Areas for Assessment	5.1	Proposed	C&O Canal Towpath	L Street NW to Virginia Avenue NW	Enhance signage and wayfinding	National Park Service
CHOH	Target Areas for Assessment	5.2	Proposed	C&O Canal Towpath	Claire Barton Parkway	Conduct culvert study along C&O Canal Towpath	National Park Service
CHOH	Target Areas for Assessment	5.3	Proposed	Capital Crescent Trail	Little Falls Stream Valley	Conduct lighting study for CCT to determine areas for possible implementation	Montgomery County
GWMP	Gaps/ Connectors	1.1	Existing	Mount Vernon Trail	Mount Vernon Estates and Gardens	Realign trail at bridge near Little Hunting Creek	National Park Service
GWMP	Bridges	2.1	Existing	Mount Vernon Trail	George Washington Memorial Parkway	Replace existing 300-foot-long bridge through wetlands	National Park Service
GWMP	Trailheads	3.2	Existing	Mount Vernon Trail	GWMP at Riverside Park	Enhance existing Local/NPS trailhead with improved signage and amenities	National Park Service
GWMP	Trailheads	3.3	Proposed	Mount Vernon Trail	Fort Hunt Park	Develop a local/NPS trailhead	National Park Service
GWMP	Trailheads	3.4	Proposed	Mount Vernon Trail	Belle Haven Road	Develop a local/NPS trailhead	National Park Service
GWMP	Trailheads	3.8	Proposed	Mount Vernon Trail	Arlington National Cemetery	Develop a local/NPS trailhead with bikeshare, with viewshed compliancy	National Park Service
GWMP	Trailheads	3.9	Existing	Arlington Boulevard Trail	Existing bikeshare station at North Meade Street at U.S. Marine Corps Memorial	Enhance existing bikeshare station on North Meade Street adjacent to U.S. Marine Corps Memorial with signage, shelter, bike repair station, etc.	National Park Service
GWMP	Trailheads	3.10	Proposed	Mount Vernon Trail	Parking lot adjacent to GWMP at Existing Bridge to Theodore Roosevelt Island	Develop a local/NPS trailhead	National Park Service
GWMP	Crossings	4.1	Proposed	Mount Vernon Trail	Mount Vernon Memorial Highway at Mount Vernon Estate and Gardens	Provide improvements to at-grade Highway crossing at Mount Vernon Estate and Garden	National Park Service
GWMP	Target Areas for Assessment	5.1	Existing	Mount Vernon Trail	GWMP along Reagan National Airport perimeter	Implement edge of pavement striping on trail within close proximity of roadway along airport perimeter	National Park Service

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
GWMP	Target Areas for Assessment	5.2	Existing	Potomac Yard Trail	Jefferson Davis Highway to Eisenhower Avenue	Coordinate with City of Alexandria to promote trail as Mount Vernon Trail relief/commuter route through enhanced signage	National Park Service
NACE	Trailheads	3.3	Proposed	Fort Circle Hiker-Biker Trail	Fort Dupont Park	Develop a local/NPS trailhead facility at Fort Dupont Park	National Park Service
NACE	Target Areas for Assessment	5.4	Proposed	Baltimore Washington Parkway Trail	Baltimore Washington Parkway	Work with Prince George's County to explore the feasibility of a trail along the Baltimore Washington Parkway (or other nearby corridor) to connect Washington to Baltimore	Prince George's County
NAMA	Gaps/Connectors	1.3	Proposed	Jefferson Memorial Loop	Tidal Basin, Kutz Bridge	Analyze route alternatives for a new path between FDR Memorial and West Potomac Park ballfields to include marked or separated bicycle and pedestrian facilities.	National Park Service
NAMA	Gaps/Connectors	1.7	Existing	Lincoln Memorial Loop	Constitution Avenue	Study feasibility for on-street bike facility on west bound Independence Avenue from 23rd Street SW to 17th Street SW. Sign/mark bicycle loop from MLK Jr. Memorial to Lincoln Memorial, to Vietnam Veterans Memorial, north of Constitution Garden to 15th Street NW and down to Independence Avenue and back west to MLK Jr. Memorial.	National Park Service
NAMA	Bridges	2.1	Proposed	CSX Bridge Trail Connector	CSX Bridge	Build dedicated bike/ped. trail via new CSX bridge; Connect to Mount Vernon Trail and Long Bridge Drive (Long Bridge Park) and Boundary Channel Drive on west side of Potomac River and to Ohio Drive SW and Rock Creek Park Multi-use Trail on east side of Potomac River.	District of Columbia
NAMA	Trailheads	3.1	Proposed	East Potomac Park	East Potomac Park at 14th Street Bridge	Develop a local/NPS trailhead which may include signage, bike repair station, water, etc.	National Park Service
NAMA	Trailheads	3.2	Proposed	Rock Creek Park Multi-use Trail	Ohio Drive at Rock Creek Park Multi-use Trail/East Basin Drive	Develop a local/NPS trailhead at existing Bikeshare station to include bike repair station, water, etc.	National Park Service
NAMA	Target Areas for Assessment	5.1	Proposed	Rock Creek Park Multi-use Trail	Ohio Drive SW	Assess options to expand the width of Rock Creek Park Multi-use Trail along Ohio Drive SW between the Tidal Basin Inlet and Independence Avenue SW	National Park Service
POHE	Trailheads	3.1	Proposed	Potomac Heritage National Scenic Trail	Fort Washington Park	Develop a local trailhead	National Park Service
POHE	Trailheads	3.2	Proposed	Potomac Heritage National Scenic Trail	Harmony Hall Community Center	Develop a local trailhead	National Park Service
POHE	Trailheads	3.3	Proposed	Potomac Heritage National Scenic Trail	Fort Foote Park	Develop a local trailhead	Prince George's County
ROCR	Gaps/Connectors	1.4	Proposed	Fort Circle Park Trail	Fort Totten to D.C./MD Line at Avondale Neighborhood Park	Develop an off-road trail from Fort Totten/MBT via Fort Circle Park to Avondale Park	National Park Service
ROCR	Trailheads	3.1	Existing	Rock Creek Trail	Existing Trailhead on Rock Creek Trail	Enhance existing trailhead into a local trailhead standard	Montgomery County
ROCR	Trailheads	3.2	Proposed	Fort Circle Park Trail	Fort Totten	Develop a local trailhead facility with connections to Fort Circle Park Trail and Met. Branch Trail. Increase lighting and security measures in park.	National Park Service
ROCR	Crossings	4.2	Existing	Rock Creek Park Multi-use Trail	Calvert Street NW at Beach Drive NW to Klingle Road NW	Implement multi-use EA recommendations	National Park Service

## Capital Recommendations by Park Unit

The following tables present recommended capital projects organized by NPS park unit. Projects are ordered by timeframe for implementation.

Table 6.4 C&O Canal National Historical Park Capital Recommendations

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
<b>Immediate (0-2 Years)</b>							
CHOH	Gaps/Connectors	1.1	Proposed	Capital Crescent Trail	Water Street, NW	Close gap in trail from 30th Street to 31st Street through an analysis of Water Street corridor that addresses safety and user conflicts	District of Columbia
CHOH	Target Areas for Assessment	5.4	Proposed	Capital Crescent Trail	Key Bridge	Evaluate potential access improvements from the Capital Crescent Trail to Key Bridge	National Park Service
<b>Short-Term (2-5 Years)</b>							
CHOH	Gaps/Connectors	1.2	Proposed	C&O Canal Towpath	L Street to Virginia Avenue	Evaluate potential connections to close the gap in the trail from Lock 1 to Lock 0	National Park Service
CHOH	Trailheads	3.1	Proposed	C&O Canal Towpath	Lock 0 at Virginia Avenue NW and Rock Creek and Potomac Parkway NW	Develop a regional trailhead with bike share at Lock 0	National Park Service
<b>Mid-Term (5-10 Years)</b>							
CHOH	Trailheads	3.2	Proposed	Capital Crescent Trail	Canal Road+184. NW at Palisades Park	Develop local trailhead facilities at crossing of Capital Crescent Trail and C&O Canal Towpath near Palisades Park	District of Columbia
CHOH	Target Areas for Assessment	5.1	Proposed	C&O Canal Towpath	L Street NW to Virginia Avenue NW	Enhance signage and wayfinding	National Park Service
CHOH	Target Areas for Assessment	5.2	Proposed	C&O Canal Towpath	Claire Barton Parkway	Conduct culvert study along C&O Canal Towpath	National Park Service
CHOH	Target Areas for Assessment	5.3	Proposed	Capital Crescent Trail	Little Falls Stream Valley	Conduct lighting study for CCT to determine areas for possible implementation	Montgomery County

Table 6.5 George Washington Memorial Parkway Capital Recommendations

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
<b>Immediate (0-2 Years)</b>							
GWMP	Gaps/Connectors	1.6	Proposed	Mount Vernon Trail Connector	Arlington Ridge Park connection to the Theodore Roosevelt Bridge	Conduct alternatives analysis to provide off-road trail connection from the Theodore Roosevelt Bridge to Arlington Ridge Park	National Park Service
GWMP	Bridges	2.2	Existing	Mount Vernon Trail	Airport Access Road at GWMP	Improve access on Airport Access Road overpass to Reagan National Airport/Aviation Circle; connect with steps; expand sidewalks	Arlington County
GWMP	Bridges	2.3	Proposed	14th Street Bridge Trail	Highway 395/14th Street Bridge	Connect 14th Street Bridge to proposed off-road facility on Boundary Channel Drive along Lagoon; create on-street trail facility on Boundary Channel Drive that connects under I-395 to Long Bridge Drive	Arlington County
GWMP	Bridges	2.4	Proposed	Mount Vernon Trail Connector	Mount Vernon Trail connection to the Theodore Roosevelt Bridge	Develop connection from Mount Vernon Trail to the Theodore Roosevelt Bridge on south side of bridge	National Park Service
GWMP	Bridges	2.5	Existing	Mount Vernon Trail	Lee Highway at Key Bridge	Improve safety and access at intersection of Mount Vernon Trail and Custis Trail at Lee Highway/North Lynn Street approach to Key Bridge  Coordinate with NPS regarding access drive to future boathouse	Arlington County
GWMP	Crossings	4.7	Existing	Mount Vernon Trail	Intersection of Mount Vernon Trail and Four Mile Run Trail at Reagan National Airport	Provide safety and sightline improvements and explore the potential for new roundabout	National Park Service
<b>Short-Term (2-5 Years)</b>							
GWMP	Gaps/Connectors	1.2	Proposed	Fort Hunt Trail	From GWMP along Vernon View Drive to Fort Hunt Road	Develop on-road trail facility from Mount Vernon Trail crossing GWMP, routed along Vernon View Drive to Fort Hunt Road	Fairfax County
GWMP	Gaps/Connectors	1.3	Proposed	Fort Hunt Trail	Fort Hunt Road/Fort Hunt Park to Belle Haven Golf Course	Develop on-road trail facility from Fort Hunt Road/Fort Hunt Park along Fort Hunt Road to Belle Haven Road	Fairfax County
GWMP	Gaps/Connectors	1.4	Proposed	Fort Hunt Trail	Belle Haven Road between Fort Hunt Road and GWMP	Develop on-road connector along Belle Haven Road to Belle Haven Park and Mount Vernon Trail	Fairfax County
GWMP	Gaps/Connectors	1.5	Proposed	Mount Vernon Trail	Gravelly Point Park	Realign trail within Gravelly Point Park to separate through-traffic	National Park Service
GWMP	Trailheads	3.1	Proposed	Mount Vernon Trail	Mount Vernon Estate and Gardens	Develop a regional trailhead with bike share	National Park Service
GWMP	Trailheads	3.5	Proposed	Mount Vernon Trail	Jones Point Park	Enhance the regional trailhead at Jones Point Park	National Park Service
GWMP	Trailheads	3.6	Proposed	Mount Vernon Trail	Long Bridge Park	Develop a regional trailhead	Arlington County
GWMP	Trailheads	3.7	Proposed	Mount Vernon Trail	Gravelly Point Park	Develop a regional trailhead	National Park Service
GWMP	Crossings	4.2	Proposed	Mount Vernon Trail	Vernon View Drive at GWMP	Provide traffic calming measures to facilitate crossing of GWMP	National Park Service

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
GWMP	Crossings	4.3	Proposed	Mount Vernon Trail	Collingwood Road at GWMP	Provide traffic calming measures to facilitate crossing of GWMP	National Park Service
GWMP	Crossings	4.4	Proposed	Mount Vernon Trail	Morningside Lane at GWMP	Provide traffic calming measures to facilitate crossing of GWMP	National Park Service
GWMP	Crossings	4.5	Proposed	Mount Vernon Trail	Belle View Boulevard at GWMP	Provide traffic calming measures to facilitate crossing of GWMP	National Park Service
GWMP	Crossings	4.6	Proposed	Mount Vernon Trail	Belle Haven Road at GWMP	Provide traffic calming measures to facilitate crossing of GWMP	National Park Service
GWMP	Crossings	4.8	Existing	Mount Vernon Trail	GWMP northbound approach under Arlington Memorial Bridge	Provide at-grade crossing improvements per ongoing EA recommendations at Arlington Memorial Bridge	National Park Service
GWMP	Crossings	4.9	Existing	Mount Vernon Trail	Washington Boulevard near Arlington Memorial Bridge	Provide at-grade crossing improvements per ongoing EA recommendations at Washington Boulevard	National Park Service

#### Mid-Term (5-10 Years)

GWMP	Gaps/Connectors	1.1	Existing	Mount Vernon Trail	Mount Vernon Estates and Gardens	Realign trail at bridge near Little Hunting Creek	National Park Service
GWMP	Bridges	2.1	Existing	Mount Vernon Trail	George Washington Memorial Parkway	Replace existing 300 foot long bridge through wetlands	National Park Service
GWMP	Trailheads	3.2	Existing	Mount Vernon Trail	GWMP at Riverside Park	Enhance existing Local/NPS trailhead with improved signage and amenities	National Park Service
GWMP	Trailheads	3.3	Proposed	Mount Vernon Trail	Fort Hunt Park	Develop a local/NPS trailhead	National Park Service
GWMP	Trailheads	3.4	Proposed	Mount Vernon Trail	Belle Haven Park	Develop a local/NPS trailhead	National Park Service
GWMP	Trailheads	3.8	Proposed	Mount Vernon Trail	Arlington National Cemetery	Develop a local/NPS trailhead with bikeshare, with viewshed compliancy	National Park Service
GWMP	Trailheads	3.9	Existing	Arlington Boulevard Trail	Existing bikeshare station at North Meade Street at U.S. Marine Corps Memorial	Enhance existing bikeshare station on North Meade Street adjacent to U.S. Marine Corps Memorial with signage, shelter, bike repair station, etc.	National Park Service
GWMP	Trailheads	3.10	Proposed	Mount Vernon Trail	Parking lot adjacent to GWMP at Existing Bridge to Theodore Roosevelt Island	Develop a local/NPS trailhead	National Park Service
GWMP	Crossings	4.1	Proposed	Mount Vernon Trail	Mount Vernon Memorial Highway at Mount Vernon Estate and Garden	Provide improvements to at-grade Highway crossing at Mount Vernon Estate and Garden	National Park Service
GWMP	Target Areas for Assessment	5.1	Existing	Mount Vernon Trail	GWMP along Reagan National Airport perimeter	Implement edge of pavement striping on trail within close proximity of roadway along airport perimeter	National Park Service
GWMP	Target Areas for Assessment	5.2	Existing	Potomac Yard Trail	Jefferson Davis Highway to Eisenhower Avenue	Coordinate with City of Alexandria to promote trail as Mount Vernon Trail relief/commuter route through enhanced signage	National Park Service

**Table 6.6 National Capital Parks - East Capital Recommendations**

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
<b>Immediate (0-2 Years)</b>							
NACE	Gaps/ Connectors	1.1	Proposed	Oxon Cove Hiker-Biker Trail Connector	Oxon Cove Park	Develop a hiker-biker trail connector from Shepherd Parkway SW through Oxon Cove Park to the Oxon Hill Farm Trail	National Park Service
NACE	Gaps/ Connectors	1.8	Proposed	Oxon Hill Farm Trail Connector to National Harbor	From Oxon Hill Farm on Bald Eagle Road (to POHE)	Develop on-street facility from Oxon Hill Farm Trail across I-495 to Oxon Hill Road and Harborview Avenue (in Prince George's Co.); improve signage and crossings; connect to POHE	Prince George's County
NACE	Gaps/ Connectors	1.7	Proposed	Anacostia Riverwalk Trail	Anacostia River Trail to Minnesota Avenue Metro Station	Connect from Anacostia Riverwalk Trail to Minnesota Avenue Metro Station	District of Columbia
NACE	Target Areas for Assessment	5.2	Proposed	Suitland Parkway Trail	Suitland Parkway	Conduct feasibility study for extension of Suitland Parkway Trail from D.C./MD line to Henson Creek Trail (also address upgrades to D.C. portion of trail)	National Park Service
NACE	Target Areas for Assessment	5.3	Proposed	Anacostia Riverwalk Trail	East Capitol Street NE	Evaluate potential access improvements from the Anacostia Riverwalk Trail to the Whitney Young Memorial Bridge (East Capitol Street NE)	National Park Service
<b>Short-Term (2-5 Years)</b>							
NACE	Gaps/ Connectors	1.2	Existing	Oxon Hill Farm Trail Connector	Oxon Hill Farm Trail	Improve connection from Audrey Lane and Forest Heights Elementary School to Oxon Run Park and Oxon Hill Farm Trail	National Park Service
NACE	Gaps/ Connectors	1.3	Proposed	South Capitol Street Trail	From Fredrick Douglass Memorial Bridge to Oxon Hill Farm Trail	Develop an off-road trail from Fredrick Douglass Memorial Bridge to Shepherd Parkway SW	District of Columbia
NACE	Gaps/ Connectors	1.4	Proposed	Suitland Parkway Trail Connector	From Suitland Parkway Trail to Fort Circle Hiker-Biker Trail	Construct off-road connector from Suitland Parkway Trail to Fort Circle Hiker-Biker Trail	National Park Service
NACE	Gaps/ Connectors	1.5	Proposed	Fort Circle Hiker-Biker Trail	Fort Dupont Park and Fort Davis Drive SE	Develop an off-road trail along Fort Davis Drive SE and Fort Dupont Drive SE with connection to the Anacostia Riverwalk Trail under I-295	National Park Service
NACE	Gaps/ Connectors	1.6	Proposed	Fort Circle Hiker-Biker Trail	Fort Circle Parks to Minnesota Metro Station	Connect from Fort Circle Hiker-Biker Trail to Minnesota Metro Station	District of Columbia
NACE	Gaps/ Connectors	1.9	Proposed	Saint Elizabeth's Trail Connector	Fort Circle Park from 13th Street SE to Dogwood Street	Develop on-street trail to connect proposed Oxon Run Trail to Suitland Parkway Trail through Saint Elizabeth's (link to Metro)	District of Columbia
NACE	Gaps/ Connectors	1.10	Proposed	Kenilworth Park Connector	Kenilworth Park to National Arboretum	Develop a connection between Kenilworth Park across the Anacostia River to the National Arboretum and M Street NE.	National Park Service
NACE	Trailheads	3.1	Proposed	Oxon Hill Farm Trail	Oxon Hill Farm	Develop a regional trailhead facility with bikeshare at Oxon Hill Farm	National Park Service
NACE	Trailheads	3.2	Proposed	Anacostia Riverwalk Trail	Poplar Point Park	Develop a regional trailhead facility with bikeshare at Poplar Point Park	District of Columbia
NACE	Target Areas for Assessment	5.1	Proposed	Oxon Run Trail	Oxon Hill Farm Trail to Pennsylvania Avenue SE	Conduct feasibility study to establish off-road trail facility along Oxon Run extending through D.C., MD, and NPS portions, and linking to Pennsylvania Avenue, SE (link to Congress Heights Metro Station)	National Park Service

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
<b>Mid-Term (5-10 Years)</b>							
NACE	Trailheads	3.3	Proposed	Fort Circle Hiker-Biker Trail	Fort Dupont Park	Develop a local/NPS trailhead facility at Fort Dupont Park	National Park Service
NACE	Target Areas for Assessment	5.4	Proposed	Baltimore Washington Parkway Trail	Baltimore Washington Parkway	Work with Prince George's County to explore the feasibility of a trail along the Baltimore Washington Parkway (or other nearby corridor) to connect Washington to Baltimore	Prince George's County

**Table 6.7 National Mall and Memorial Parks Capital Recommendations**

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
<b>Immediate (0-2 Years)</b>							
NAMA	Gaps/Connectors	1.1	Existing	Ohio Drive Trail	Ohio Drive Inlet Bridge	Remove stairs at Ohio Drive SW Tidal Basin Inlet Bridge to connect to Ohio Drive Trail; narrow travel lanes on inlet bridge to widen sidewalk; mark bike lanes along East Basin Drive to connect to proposed new cycle track extension on Maine Avenue and to 14th Street Bridge Trail	National Park Service
NAMA	Gaps/Connectors	1.4	Existing	National Mall Trails	National Mall Trails Signage	Coordinate with DDOT for development and installation of signage	National Park Service
NAMA	Gaps/Connectors	1.5	Proposed	Jefferson Drive Sharrow	Jefferson Drive - 3rd Street to 15th Street	Install sharrows for shared facility	National Park Service
NAMA	Bridges	2.4	Proposed	Theodore Roosevelt Bridge Connector	Theodore Roosevelt Bridge at Constitution Avenue and Rock Creek and Potomac Parkway	Improve safety of all at-grade trail crossings from the National Mall leading up to the Theodore Roosevelt Bridge; Improve crossing of existing Rock Creek and Potomac Parkway at the Belvedere/Constitution Avenue extension; Provide new crossing of Rock Creek and Potomac Parkway to connect Rock Creek and Potomac Parkway Trail to volleyball courts and bridge approach; Provide additional signage; Expand trail width on both north and south sides of bridges	District of Columbia
NAMA	Crossings	4.1	Proposed	Jefferson Memorial Loop	Jefferson Memorial at E. Basin Drive SW	Provide crossing improvements from existing George Mason Memorial/Bikeshare station across East Basin Drive SW to Jefferson Memorial and across Ohio Drive to East Potomac Park	National Park Service
NAMA	Crossings	4.2	Proposed	Rock Creek Park Multi-use Trail	F Street NW and Rock Creek and Potomac Parkway NW	Develop trail crossing from F Street NW to Rock Creek and Potomac Parkway Trail	District of Columbia
<b>Short-Term (2-5 Years)</b>							
NAMA	Gaps/Connectors	1.2	Proposed	15th Street NW Cycle Track	Pennsylvania Avenue South to Independence Avenue SW, then to Maine Avenue SW	Extend cycle track south on 15th Street between Pennsylvania Avenue NW and Constitution Avenue by removing vendor/street bus on west side of street. Will require coordination between DDOT and NAMA for 15th Street ROW between Pennsylvania Avenue and Constitution Avenue. Study feasibility to extend cycle track on 15th Street between Constitution Avenue and Maine Avenue in area between existing sidewalk and road/or move sidewalk to accommodate lane. Reclaim a southbound lane of Maine Avenue from Kutz Bridge to Jefferson Memorial and East Basin Drive for cycle track connection/dedicated bike lanes.	National Park Service

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
NAMA	Gaps/ Connectors	1.6	Existing	National Mall Trails	National Mall Trails (outer perimeter loop trails)	Implement preferred alternative from the National Mall Walkway Study to improve access, ADA and user conflicts. Work with Denver Service Center on study of discrete signage options for future separation of user needs.	National Park Service
NAMA	Bridges	2.2	Existing	National Mall Trails	Lincoln Memorial Circle	Conduct a feasibility study at Lincoln Memorial Circle to develop set of recommendations to improve visitor safety and reduce conflicts for motorists, pedestrians and cyclists. Alternatives should improved connections across the bridge and along the Parkway and Ohio Drive to trails.	National Park Service
NAMA	Bridges	2.3	Proposed	Arlington Memorial Bridge Connector	Arlington Memorial Bridge and Lincoln Memorial Circle	Implement signage enhancements and access improvements from Lincoln Memorial Loop to Arlington Memorial Bridge in coordination with DDOT.	National Park Service
NAMA	Bridges	2.5	Existing	Rock Creek Park Multi-use Trail to Lincoln Memorial Loop	Theodore Roosevelt Bridge - Rock Creek and Potomac Pkwy	Implement signage enhancements and access improvements from Lincoln Memorial Loop to the Theodore Roosevelt Bridge.	District of Columbia
NAMA	Trailheads	3.3	Proposed	MBT	Union Station	Develop a multi-modal regional trailhead with coordination from NAMA	District of Columbia
<b>Mid-Term (5-10 Years)</b>							
NAMA	Gaps/ Connectors	1.3	Proposed	Jefferson Memorial Loop	Tidal Basin, Kutz Bridge	Analyze route alternatives for a new path between FDR Memorial and West Potomac Park ballfields to include marked or separated bicycle and pedestrian facilities.	National Park Service
NAMA	Gaps/ Connectors	1.7	Existing	Lincoln Memorial Loop	Constitution Avenue	Study feasibility for on-street bike facility on west bound Independence Avenue from 23rd Street SW to 17th Street SW. Sign/mark bicycle loop from MLK Jr. Memorial to Lincoln Memorial, to Vietnam Veterans Memorial, north of Constitution Garden to 15th Street NW and down to Independence Avenue and back west to MLK Jr. Memorial.	National Park Service
NAMA	Bridges	2.1	Proposed	CSX Bridge Trail Connector	CSX Bridge	Build dedicated bike/ped trail via new CSX bridge; Connect to Mount Vernon Trail and Long Bridge Drive (Long Bridge Park) and Boundary Channel Drive on west side of Potomac River and to Ohio Drive SW and Rock Creek Park Multi-use Trail on east side of Potomac River.	District of Columbia
NAMA	Trailheads	3.1	Proposed	East Potomac Park	East Potomac Park at 14th Street Bridge	Develop a local/NPS trailhead which may include signage, bike repair station, water, etc.	National Park Service
NAMA	Trailheads	3.2	Proposed	Rock Creek Park Multi-use Trail	Ohio Drive at Rock Creek Park Multi-use Trail/East Basin Drive	Develop a local/NPS trailhead at existing Bikeshare station to include bike repair station, water, etc.	National Park Service
NAMA	Target Areas for Assessment	5.1	Proposed	Rock Creek Park Multi-use Trail	Ohio Drive SW	Assess options to expand the width of Rock Creek Park Multi-use Trail along Ohio Drive SW between the Tidal Basin Inlet and Independence Avenue SW	National Park Service

Table 6.8 Potomac Heritage Capital Recommendations

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
<b>Short-Term (2-5 Years)</b>							
POHE	Gaps/ Connectors	1.1	Proposed	Potomac Heritage National Scenic Trail	From Mount Vernon Estates and Gardens to Woodlawn Plantation	Complete multi-use trail facility between Mount Vernon Estate and Gardens and Woodlawn	National Park Service
POHE	Gaps/ Connectors	1.2	Proposed	Potomac Heritage National Scenic Trail	Rock Creek Park Multi-use Trail connection to South Capitol Street Trail	Pursue designation of POHE from C&O Canal terminus with Rock Creek Park Multi-use Trail within the National Mall area and connecting to the 11th Street Bridge, linking up to the South Capitol Street Trail.	National Park Service
<b>Mid-Term (5-10 Years)</b>							
POHE	Trailheads	3.1	Proposed	Potomac Heritage National Scenic Trail	Fort Washington Park	Develop a local trailhead	National Park Service
POHE	Trailheads	3.2	Proposed	Potomac Heritage National Scenic Trail	Harmony Hall Community Center	Develop a local trailhead	National Park Service
POHE	Trailheads	3.3	Proposed	Potomac Heritage National Scenic Trail	Fort Foote Park	Develop a local trailhead	Prince George's County

Table 6.9 Rock Creek Park Capital Recommendations

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
<b>Immediate (0-2 Years)</b>							
ROCR	Target Areas for Assessment	5.1	Proposed	Fort Circle Park Trail	Military Road NW from Glover Road NW to 16th Street NW	Evaluate the feasibility of an on or off-road trail facility along Military Road NW from Glover Road NW to 16th Street NW	National Park Service
ROCR	Target Areas for Assessment	5.2	Proposed	Oregon Avenue Trail	Oregon Avenue NW from Military Road NW to D.C./MD line	Evaluate the feasibility of an off road trail facility along Oregon Avenue NW from Military Road NW to the D.C./MD line with a connection to Beach Drive and the Rock Creek Park Multi-use Trail	National Park Service
<b>Short-Term (2-5 Years)</b>							
ROCR	Gaps/ Connectors	1.1	Proposed	Klingle Creek Trail	Klingle Valley Parkway at Woodley Road to Piney Branch Parkway	Continue to coordinate with DDOT for closure of existing gap	District of Columbia
ROCR	Gaps/ Connectors	1.2	Proposed	Rock Creek Park Multi-use Trail	Glover/Ridge Road NW from Broad Branch Road NW to Military Road NW	Develop full-time on-street bike lane/ facility along Glover/Ridge Road NW from Broad Branch Road NW to Military Road NW	National Park Service
ROCR	Gaps/ Connectors	1.3	Proposed	Fort Circle Park Trail	16th Street NW to Fort Totten	Develop an off-road trail facility from 16th Street NW to Fort Stevens Park, Fort Slocum Park and to Fort Totten with connection to MBT.	National Park Service
ROCR	Gaps/ Connectors	1.5	Proposed	MBT	Kansas Avenue NW to Bates Road NE	Develop an on-road connection to MBT from Bates Road NE to Kansas Avenue NW via Fort Totten Park	District of Columbia
ROCR	Gaps/ Connectors	1.6	Proposed	Eastern Avenue Trail	From Gallatin Street NE and Eastern Avenue NE along Fort Circle Parks through Barnard Hill Park to New York Avenue Trail	Develop an off-road connector linking Fort Circle Park Trail and Northwest Branch Trail to proposed New York Avenue Trail	District of Columbia

Park Unit	Project Type	Map Label	Status	Trail Name	Location	Action	Primary Responsibility
ROCR	Gaps/Connectors	1.7	Proposed	Military Road On-Street	Military Road from Oregon Avenue NW to Nebraska Avenue NW	Coordinate for development of on-street facilities on Military Road from Oregon Avenue NW to Nebraska Avenue NW	District of Columbia
ROCR	Crossings	4.1	Proposed	Rock Creek Multi-use Park Trail	P Street NW/Rock Creek Multi-use and Potomac Parkway (Multi-Use Trail)	Increase signage, lighting, and improve safety at all at-grade crossings	National Park Service
ROCR	Crossings	4.3	Existing	Rock Creek Park Multi-use Trail	Sherrill Drive at 16th Street NW	Enhance crossing at Sherrill Drive entrance at 16th Street NW	District of Columbia
<b>Mid-Term (5-10 Years)</b>							
ROCR	Gaps/Connectors	1.4	Proposed	Fort Circle Park Trail	Fort Totten to D.C./MD Line at Avondale Neighborhood Park	Develop an off-road trail from Fort Totten/MBT via Fort Circle Park to Avondale Park	National Park Service
ROCR	Trailheads	3.1	Existing	Rock Creek Trail	Existing Trailhead on Rock Creek Trail	Enhance existing trailhead into a local trailhead standard	Montgomery County
ROCR	Trailheads	3.2	Proposed	Fort Circle Park Trail	Fort Totten	Develop a local trailhead facility with connections to Fort Circle Park Trail and MBT. Increase lighting and security measures in park.	National Park Service
ROCR	Crossings	4.2	Existing	Rock Creek Park Multi-use Trail	Calvert Street NW at Beach Drive NW to Klinge Road NW	Implement multi-use EA recommendations	National Park Service

### 6.3 Priority Projects

The following 18 projects scored the highest in terms of regional priority. All 18 projects cross more than one jurisdiction or park unit and help to address network continuity by closing a gap or eliminating a barrier in the paved trail system.

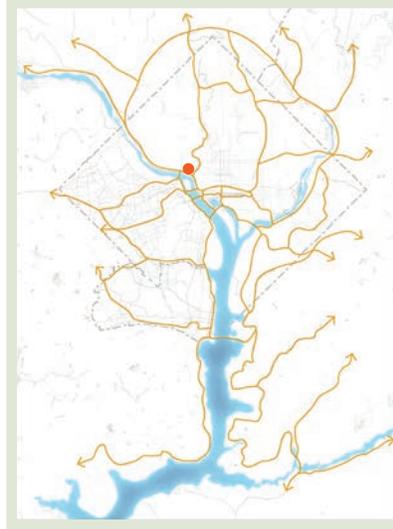
## Project C1.1 Closure of Gap on Water Street NW between 30th St NW and 31st Street NW

### Washington, D.C.

The project involves closing a gap in the Capital Crescent trail in Georgetown between 30th and 31st Streets NW. At the Potomac Boat Club, the off-road trail ends and is on-road for a short distance until picking up again as an off-street paved trail along the edge of the Georgetown Waterfront Park. The off-road trail ends at the edge of the park at 31st Street NW. Cyclists and pedestrians use the off-road trail and the street in this corridor; however, cyclists are not permitted to ride along the waterside trail of the park. The gap between 30th Street and 31st Street forces users to travel on K Street NW or the adjacent service road to continue eastbound, creating conflicts with vehicles or pedestrians on Water Street. The gap prevents a seamless connection with the Rock Creek Park Multi-use Trail and the core of Washington D.C. to the east. Alternatives should reduce the potential for conflicts in this area, calm traffic, improve visibility of trail users, improve directional signage to trail resources, and enhance safety overall.

*This project is currently underway in coordination with NPS, the Georgetown Business Improvement District, and the D.C. Department of Transportation.*

**Map Reference:** C1.1  
**Project Type:** Gaps  
**Park Unit:** ROCR  
**Status:** Proposed  
**Primary Responsibility:** District of Columbia (in coordination with NPS)  
**ROM:** \$\$  
**Potential Funding Source:** Non-NPS



Cyclists on K Street NW  
Source: AECOM



Arrow indicates the trail gap in Georgetown between 30th Street NW and 31st Street NW  
Aerial Image Source: Google Earth Pro



End of off-road trail at 31st Street NW  
Source: AECOM

## Project C5.4 Key Bridge Connection to Capital Crescent Trail

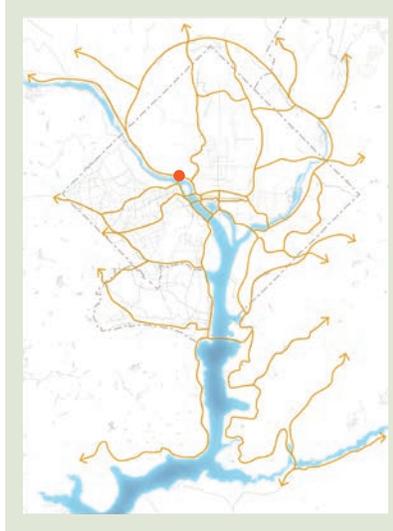
### Washington, D.C.

The lack of a direct connection from the Capital Crescent Trail to the Francis Scott Key Bridge creates an access challenge for trail users traveling to or from Virginia. The connection is complicated by steep terrain and multiple changes in elevation from the trail to the bridge approach from M Street NW.

Currently there are two main means of access to the bridge: Whitehurst Freeway to M Street NW, and 34th Street NW to M Street NW. The Whitehurst Freeway connection involves climbing an informal trail or concrete steps to the level of the C&O Canal Towpath and then ascending another set of stairs to access the sidewalk on Whitehurst Freeway and M Street. The other option farther to the east allows trail users to connect via 34th Street and a stairwell to the Towpath and a bridge across the C&O Canal and subsequently to M Street.

A study should be conducted to evaluate a full range of access options including improvements to existing connections and/or provision of a new connection that can be designed to avoid the use of stairs. The study should take into account the safety of trail users and include recommendations for improved signage and lighting.

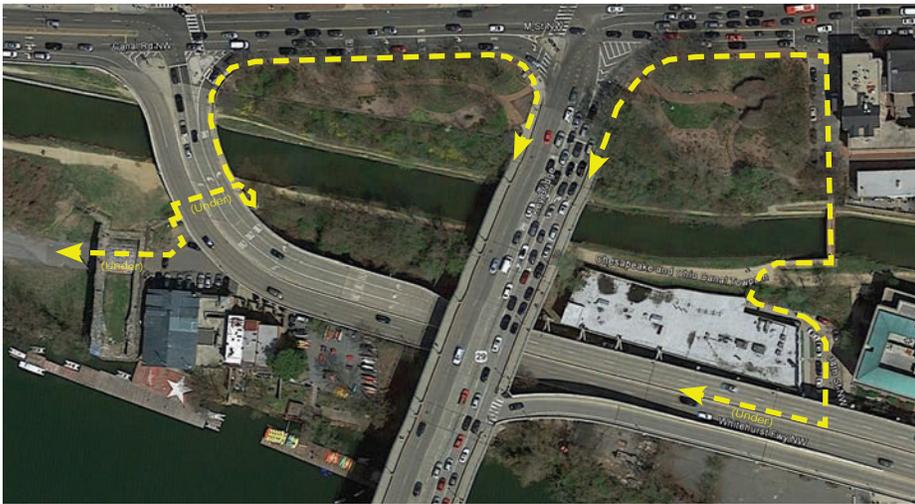
**Map Reference:** C5.4  
**Project Type:** Target Areas for Assessment  
**Park Unit:** CHOH  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM Cost:** \$\$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



Existing stair connection from the C&O Canal Towpath to the Whitehurst Freeway sidewalk  
 Source: AECOM



Existing informal trail up an embankment from the Capital Crescent Trail  
 Source: National Park Service



The dashed lines indicate two current means of access from the Capital Crescent Trail to M Street NW and the approach to the Key Bridge  
 Aerial Image Source: Google Earth Pro



Existing stair connection down to the Capital Crescent at 34th Street NW  
 Source: National Park Service

## Project E1.1 Oxon Cove Hiker-Biker Trail Connector

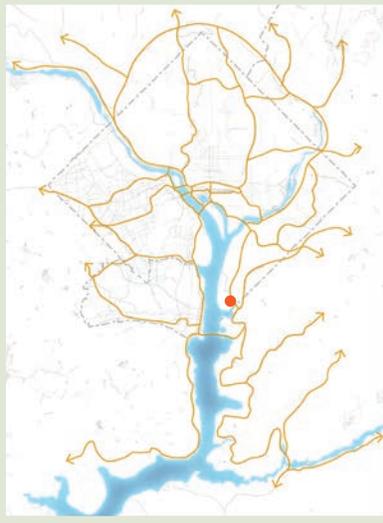
### Washington, D.C. and Prince George's County, MD

The project provides an off-street connection between the NPS Oxon Hill Farm property and the proposed South Capitol Street Trail currently under development by the DDOT. This connection addresses a critical gap in the regional network and upon completion would serve to link trails in Virginia (via the Woodrow Wilson Bridge) with the Anacostia Riverwalk Trail network in D.C. and into Prince George's County, Maryland. This connection would also help to increase access to communities that are currently underserved - connecting local communities to employment centers and the overall regional network.

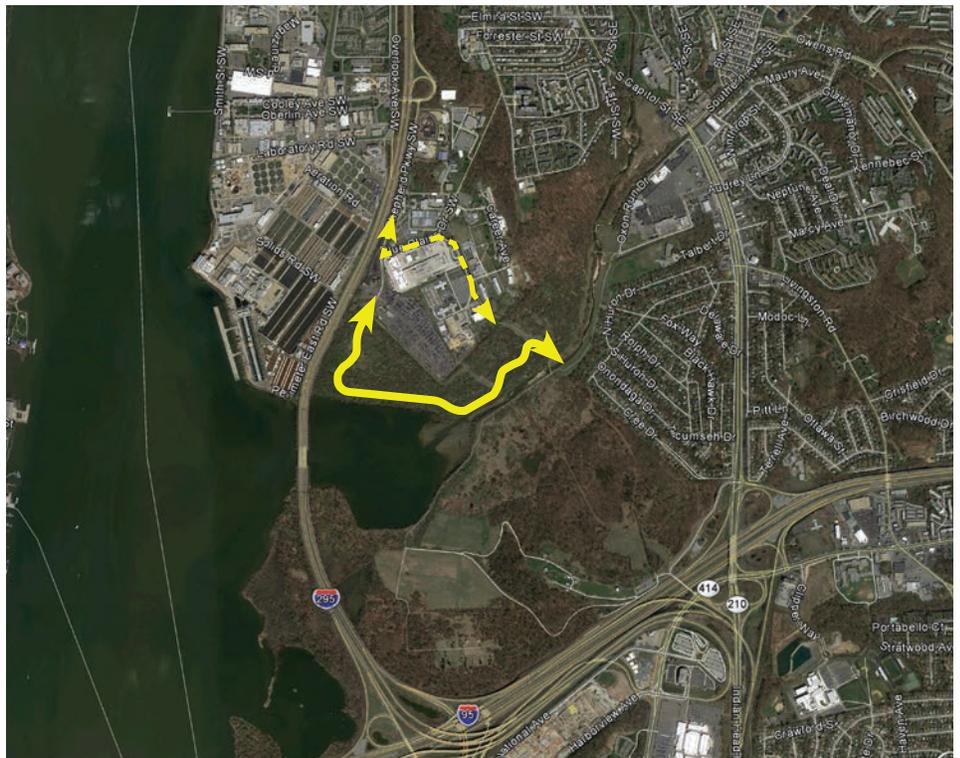
The NPS has completed an environmental assessment to evaluate alternatives to connect Oxon Hill Farm and the Forest Heights community with Shepherd Parkway and the proposed South Capitol Street trail in D.C. The preferred alternative provides for a new 4,885-foot paved multi-use hiker-biker trail extending from Shepherd Parkway SW through Oxon Cove Park to the existing Oxon Hill Farm Trail. Proposed improvements should be coordinated with DDOT so that the connection with on-street trails on District property is seamless. As a somewhat isolated part of the trail network, proper signage, security measures, and lighting on District and federal land should also be evaluated as part of the project.

A secondary connection from Shepherd Parkway SW to the Oxon Hill Farm Trail via Blue Plains Drive SW and DC Village Lane SW could be considered as an on-street option, and should similarly include appropriate lighting and signage.

**Map Reference:** E1.1  
**Project Type:** Gaps  
**Park Unit:** NACE  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM:** \$\$\$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



Southern terminus of Shepherd Parkway SW and proposed origin of hiker-biker trail  
 Source: Google Earth Pro



The solid line shows the preferred alternative trail route per the NPS Oxon Cove Multi-Use Biker Trail EA. The dashed line shows an on-street route that could also be considered.  
 Sources: NPS and Google Earth Pro

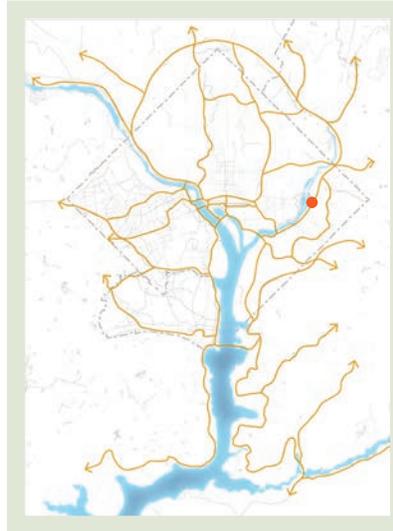
## Project E5.3 East Capitol Street Bridge Connection to Anacostia Riverwalk Trail

### Washington, D.C.

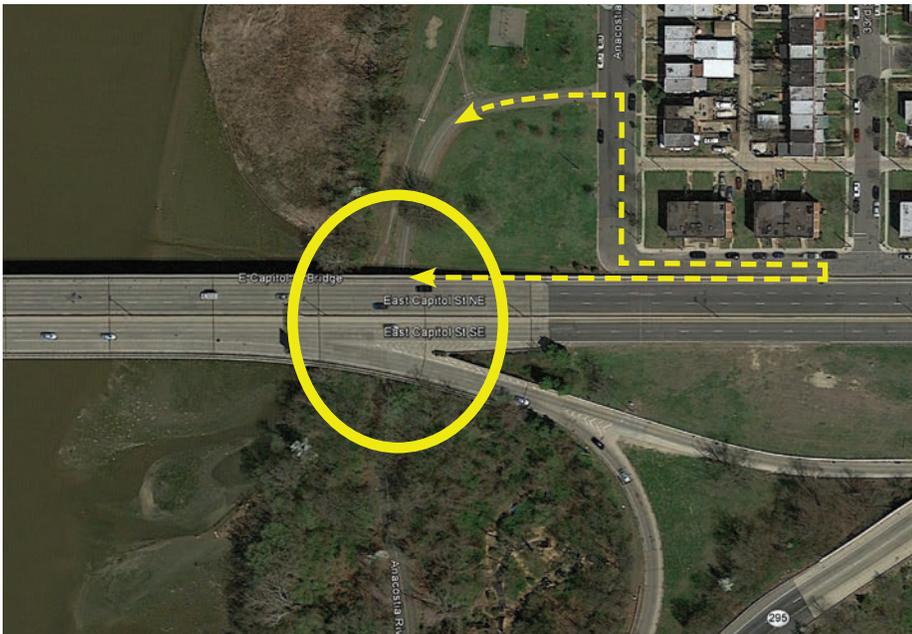
The existing connection from the sidewalk on the north side of the Whitney Young Memorial Bridge (East Capitol Street Bridge) to the Anacostia Riverwalk Trail is via a small break in the guardrail to an on-street route from East Capitol Street NE to Anacostia Avenue NE. The East Capitol Street Bridge is listed as a top priority location to improve bridge access for bicyclists as part of the *MoveDC Multimodal Long-Range Transportation Plan*. This recommendation is part of an extensive series of proposed improvements in eastern DC, which includes a cycle track on East Capitol Street east of the Anacostia River.

A study should be conducted to evaluate a full range of pedestrian and cycling access options to provide a safer and more direct connection between the bridge and the Anacostia Riverwalk Trail. The study should be coordinated with and provide input to future bridge rehabilitation or replacement efforts by DDOT.

**Map Reference:** E5.3  
**Project Type:** Target Areas for Assessment  
**Park Unit:** NACE  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM Cost:** \$\$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



The existing bridge approach from the east shows the narrow sidewalk on the north side of the bridge. The break in the guardrail provides a narrow connection to the adjacent neighborhood.  
 Source: Google Earth Pro



Study area for connection from the Whitney Young Memorial Bridge (East Capitol Street) to the Anacostia Riverwalk Trail. The dashed line indicates the existing means of access from the bridge to the trail.

Aerial Image Source: Google Earth Pro



Existing connection from Anacostia Ave NE down to the Anacostia Riverwalk Trail.  
 Source: Google Earth Pro

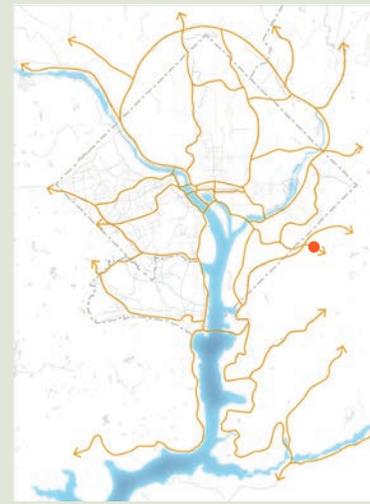
## Project E5.2 Feasibility Study of Suitland Parkway Trail

### Prince George's County, MD

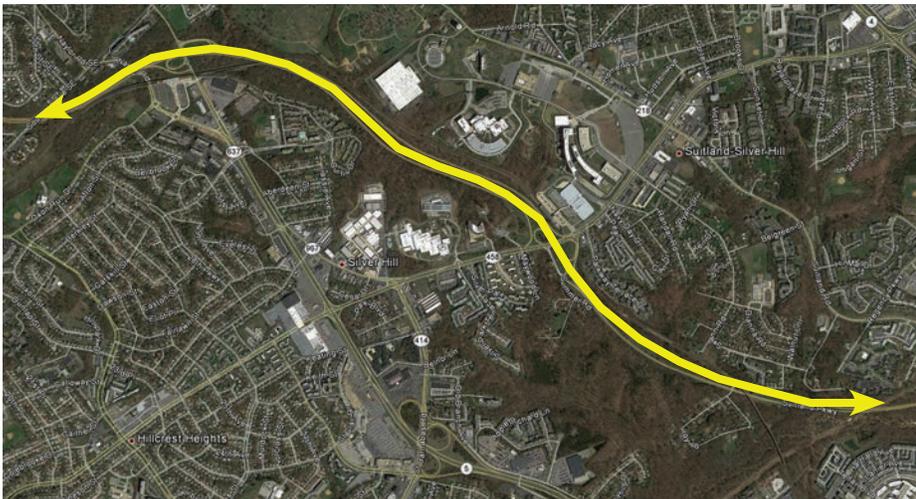
Currently an off-road trail exists along the east-bound travel lanes of the Suitland Parkway, a four-lane divided road. However, the trail abruptly ends at the D.C./Maryland boundary where NPS property begins. An extension would provide a valuable connection to the south and east and could ultimately extend to Andrews Air Force Base.

This area is underserved by trails but is expected to grow with new investment already occurring in Anacostia and more growth projected in the future. A feasibility study is needed to evaluate extension of the Suitland Parkway Trail from the District line through Prince George's County to the Henson Creek Trail (and potentially further). This study should address the trail comprehensively including upgrades to the existing trail within the District, which is a dangerous, narrow asphalt trail directly adjacent to the roadway.

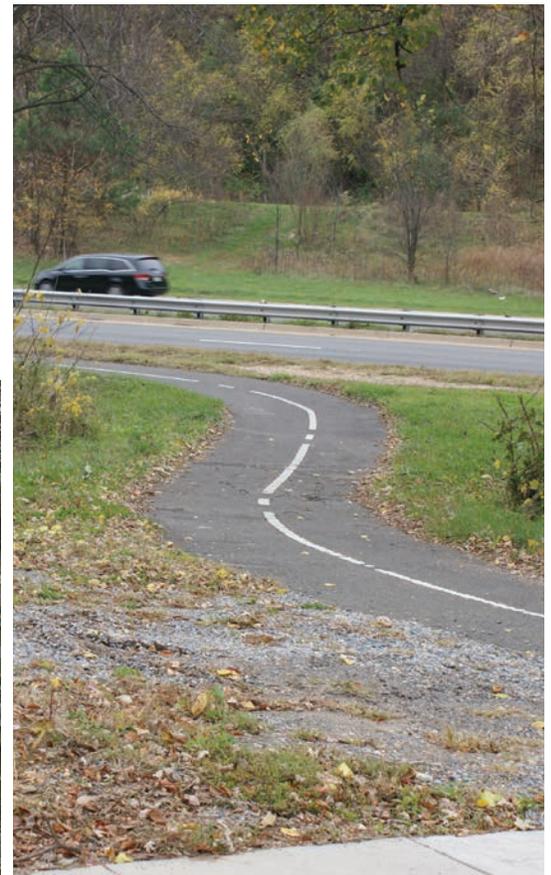
**Map Reference:** E1.8  
**Project Type:** Target Areas for Investment  
**Park Unit:** NACE  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM:** \$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



Suitland Parkway Trail terminus at the D.C. line  
 Source: Google Earth Pro



Arrow indicates proposed extension of the Suitland Parkway Trail from D.C.  
 Aerial Image Source: Google Earth Pro



Existing Suitland Parkway Trail near Sheridan Road, NE  
 Source: AECOM

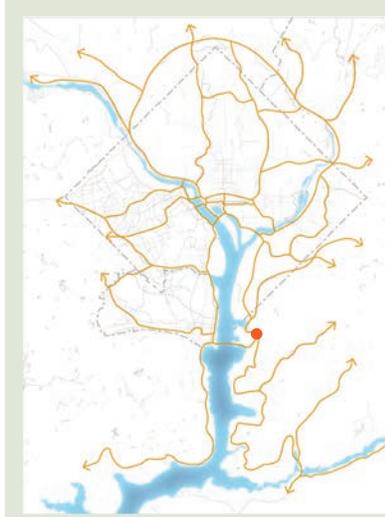
## Project E1.8 Oxon Hill Farm Trail Connector to National Harbor

### Prince George's County

The project provides an on-street connection from the Oxon Hill Farm Trail across I-495 to Oxon Hill Road and Harborview Avenue in National Harbor to the south. Currently the Bald Eagle Road bridge across I-495 has only a very narrow sidewalk on one side that presents safety issues for trail users. An improved connection in this area would allow trail users in the District to access the Woodrow Wilson Bridge trail into Virginia or the Potomac Heritage National Scenic Trail south through Prince George's County. The National Harbor connection also provides an important linkage between POHE segments in Maryland and Virginia. Improvements should include enhanced signage and road crossings for access and safety.

The project helps to address a critical gap in the trail network and will require coordination across multiple parties including, at a minimum, Prince George's County, Maryland State Highway Association, and the National Park Service. Adequate directional signage on both sides of I-495 should guide trail users to the regional trail network and nearby amenities and attractions.

**Map Reference:** E1.8  
**Project Type:** Gaps  
**Park Unit:** NACE  
**Status:** Proposed  
**Primary Responsibility:** Prince George's County  
**ROM Cost:** \$\$\$  
**Potential Funding Source:** Non-NPS



Missing connection at the entrance to Oxon Hill Farm  
 Source: AECOM



Entrance lane to Oxon Hill Farm  
 Source: AECOM



Arrow indicates suggested connection from Oxon Hill Farm across I-495  
 Aerial Image Source: Google Earth Pro

# Project G1.7 Arlington Ridge Park Connection to Theodore Roosevelt Bridge

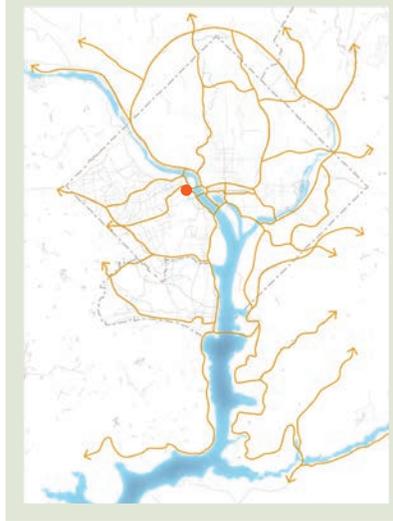
## Arlington, VA

The project addresses the lack of a trail connection between the Arlington Ridge Park (USMC Memorial and Netherlands Carillon) and the Theodore Roosevelt Bridge. Currently the roadway network is a serious barrier to connectivity and inhibits trail traffic on the bridge from reaching the Park and prevents visitors at the Park from connecting to downtown D.C. attractions. This connection is also an important consideration in the context of broader east-west connectivity, especially to the Arlington Boulevard Trail extending to the west from Arlington Ridge Park.

Sidewalks on the bridge are narrow and the trail on the southern span of the bridge abruptly ends in a median on the Virginia side of the river. The District has a major multi-modal project identified in the FY 2015 - 2021 Obligation Plan to rehabilitate the bridge spans and provide pedestrian and cyclist safety improvements. The project may improve connections to the downstream Virginia side but it will not remove the existing barriers.

The NPS, in coordination with VDOT, Arlington County and D.C., should pursue a full alternatives analysis to define a viable connection in this area. Alternatives may need to consider bridges or tunnels to adequately address safety concerns related to the crossings of the George Washington Memorial Parkway, Jefferson Davis Highway, and Arlington Boulevard as well as the presence of nearby Metrorail in order to minimize surface crossings. The recently County-adopted *Realize Rosslyn Sector Plan* recommends a new pedestrian/bicycle bridge crossing of Interstate 66 and the George Washington Memorial Parkway from a new esplanade on 18th Street. This concept would connect the esplanade to the Mount Vernon Trail near the bridge. This location is north of the USMC Memorial but could be explored as part of an alternatives analysis.

**Map Reference:** G1.7  
**Project Type:** Gaps  
**Park Unit:** GWMP  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM Cost:** \$\$\$\$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



Cyclists stuck in the inaccessible areas between roadway segments east of the USMC Memorial  
 Source: AECOM



Arrow generalizes the desired connection between the bridge and Arlington Ridge Park  
 Aerial Image Source: Google Earth Pro



Illustrative Concept Plan showing new pedestrian/bicycle bridge over I-66 and George Washington Memorial Parkway  
 Source: Arlington County Rosslyn Sector Plan, July 2015

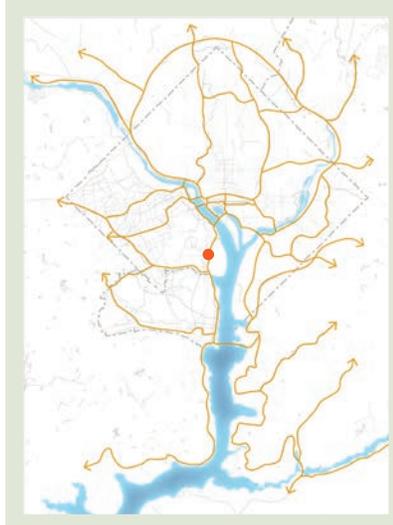
## Project G2.2 Airport Access Road Improvements

### Arlington, VA

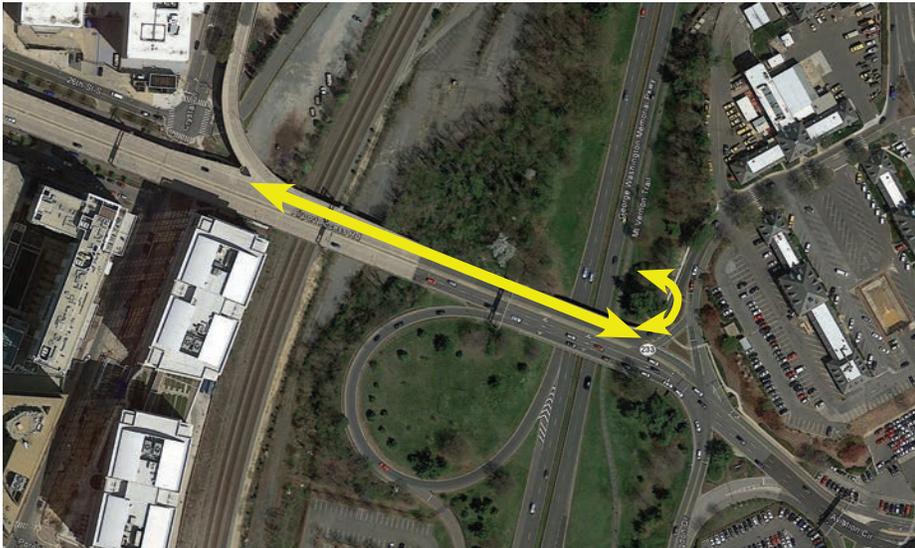
The project addresses the need to improve the on-street connection from Crystal City to the Mount Vernon Trail via Airport Access Road. Currently there is a very narrow sidewalk on the north side of the bridge across the railroad and George Washington Memorial Parkway that connects to the sidewalk network within the airport grounds. There is no official connection to the Mount Vernon Trail. Opportunities to expand sidewalks on the bridge should be explored, as well as options to provide a formal bicycle friendly connection from the bridge to the Mount Vernon Trail from the airport. Arlington County recently completed some sidewalk and crosswalk improvements in this area.

The NPS is currently improving safety conditions of the Mount Vernon Trail in this area by moving the trail closer to the bridge abutment under Airport Access Road and further away from the northbound vehicle travel lanes. Opportunities to connect the trail directly to the airport should be explored in coordination with the county and airport.

**Map Reference:** G2.2  
**Project Type:** Bridges  
**Park Unit:** GWMP  
**Status:** Proposed  
**Primary Responsibility:** Arlington County  
**ROM Cost:** \$\$\$  
**Potential Funding Source:** Non-NPS



Existing Airport Access Road sidewalk with Mount Vernon Trail beneath  
Source: Google Earth Pro



Arrow indicates areas in need of improved access (across the length of the bridge and from the roadway to Mount Vernon Trail)  
Aerial Image Source: Google Earth Pro

## Project G2.3 Connection from 14th Street Bridge to Boundary Channel Drive and Long Bridge Park

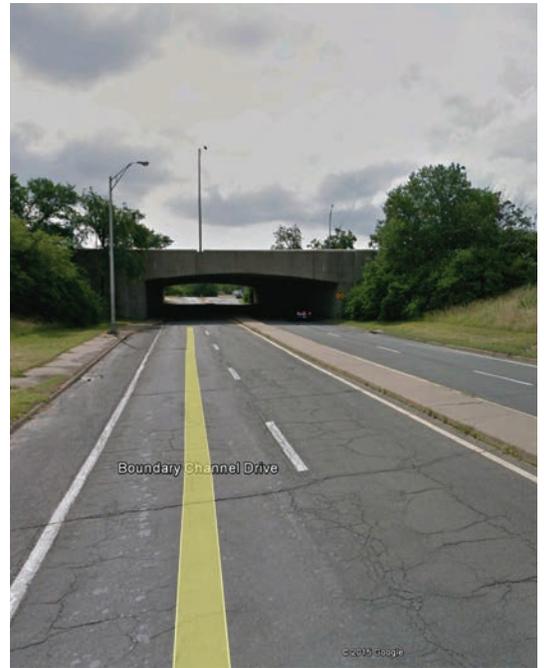
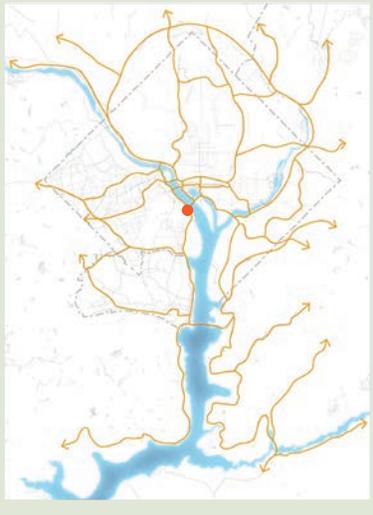
### Arlington County, VA

The project addresses a bridge connection and a trail gap by establishing a formal connection from the 14th Street Bridge to the Pentagon by way of Boundary Channel Drive and also connecting the trail network to the recently constructed Long Bridge Park in Arlington County. This connection would greatly improve access to the Mount Vernon Trail and link to major parks in Virginia to Downtown D.C. Because this connection is adjacent to NPS property, NPS should coordinate with Arlington County and the Department of Defense in defining appropriate access points.

An existing connection beneath the Humpback Bridge on the George Washington Memorial Parkway provides a link to the east side of the Pentagon Lagoon, but the off-street trail segment currently terminates. This trail should be extended with the cooperation of the Pentagon Reservation to directly connect to Boundary Channel Drive on the southwest side of the Lagoon. An on-street trail facility should then be provided along Boundary Channel Drive to create a direct connection east under Interstate 395 to Long Bridge Drive.

According to the Arlington County Bicycle Comfort Map, the link between Boundary Channel Drive and Long Bridge Drive is identified as a suggested route but due to poor riding conditions, the county advises caution along this corridor.

**Map Reference:** G2.3  
**Project Type:** Bridges  
**Park Unit:** GWMP  
**Status:** Proposed  
**Primary Responsibility:** Arlington County  
**ROM Cost:** \$\$\$  
**Potential Funding Source:** Non-NPS



Boundary Channel Drive looking towards Long Bridge Park  
Source: Google Earth Pro



Arrows indicate proposed connections to improve access  
Aerial Image Source: Google Earth Pro

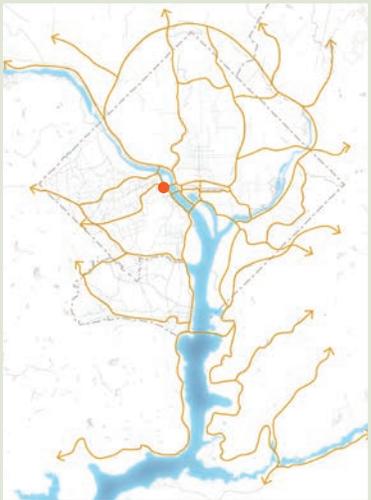
## Project G2.4 Mount Vernon Trail Connection to the Theodore Roosevelt Bridge

### Arlington County, VA

The trail on the south side of the Theodore Roosevelt Bridge crosses the George Washington Memorial Parkway and terminates abruptly with no connections to the Mount Vernon Trail (or points west), stranding users in an area between several busy on-and off-ramps to the Parkway and Arlington Boulevard.

As noted in Project G1.7, the District has a major multi-modal project identified in the FY 2015 - 2021 Obligation Plan to rehabilitate the bridge spans and provide pedestrian and cyclist safety improvements. The NPS should work with DDOT to coordinate access improvements from the bridge to the Mount Vernon Trail so that direct access is provided between the southern span of the bridge and the trail. Also, Arlington County's *Realize Rosslyn Sector Plan* proposes recommendations for improved access to the trail as described in Project G1.7.

**Map Reference:** G2.4  
**Project Type:** Bridges  
**Park Unit:** GWMP  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM Cost:** \$\$\$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



Arrow indicates proposed connection to the Mount Vernon Trail  
Aerial Image Source: Google Earth Pro



Theodore Roosevelt Bridge showing the sidewalk terminus on the south side of bridge  
Source: AECOM

# Project G2.5 Safety and Access Improvements at the Intersection of the Mount Vernon and Custis Trails

## Arlington County, VA

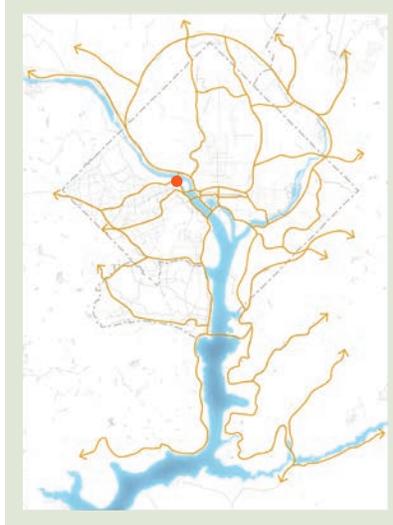
The northern terminus of the Mount Vernon Trail intersects with North Lynn Street in Rosslyn, providing connections to the westbound Custis Trail and the Key Bridge to Georgetown. This area is a gateway to Arlington County and receives high volumes of traffic, presenting conflict and safety issues for trail users. Also, the potential for a new boathouse adjacent to the Key Bridge on NPS property could impact the current Mount Vernon Trail alignment and overall access conditions for vehicles and trail users in this vicinity.

The recently County-adopted *Realize Rosslyn Sector Plan* identifies opportunities and recommendations to redesign and program open space at Rosslyn's edge to embrace the Potomac River landscape. Several recommendations in the plan could have implications on NPS land and trails; therefore, ongoing coordination with the County is needed to coordinate improvements. Relevant policies in the plan include:

- Improve the safety and efficiency of the intersection of N. Lynn Street, Lee Highway and the Custis Trail to clearly separate transportation modes and provide safe routes for pedestrian cyclists to access Rosslyn, Georgetown, the Mount Vernon Trail via Roosevelt Island, and North Arlington via the Custis Trail.
- Complete a new master plan for Gateway Park (see figure below)
- Establish a boathouse facility adjacent to the Key Bridge.

The County and the NPS should work together so that safety improvements and signage for the Mount Vernon Trail at this intersection are considered as part of any open space design (or boathouse concept) being considered by the County. Early dialogue and coordinated planning can ensure trail access improvements span both local and federal land in this area and result in improved regional connectivity. A future boathouse in this location should not impede trail access but instead should be used to improve and expand trail access.

**Map Reference:** G2.5  
**Project Type:** Bridges  
**Park Unit:** GWMP  
**Status:** Proposed  
**Primary Responsibility:** Arlington County  
**ROM Cost:** \$\$  
**Potential Funding Source:** Non-NPS



Mount Vernon Trail entrance at North Lynn Street and Lee Highway  
 Source: Google Earth Pro



Circle shows the area of focus for safety and access improvements  
 Aerial Image Source: Google Earth Pro



Illustrative Concept Plan showing Gateway Park (E) improvements and esplanade along Lee Highway  
 Source: Arlington County Rosslyn Sector Plan, July 2015

## Project G4.7 Improvements to Intersection of the Mount Vernon Trail with the Four Mile Run Trail

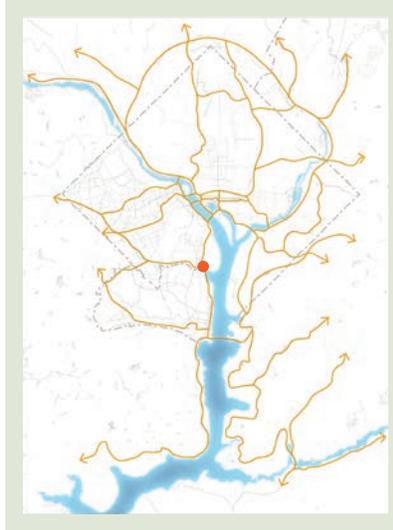
### Arlington County, VA

The Four Mile Run Trail in Arlington County is a major trail tributary to the Mount Vernon Trail, and the point where the two trails intersect creates conflict points and safety challenges for trail users. A number of accidents have been documented at the location, with contributing factors such as blind spots, sharp curves, and unclear signage. In addition, this area is sometimes utilized by airport personnel as an emergency vehicle egress route.

A full range of measures should be explored to enhance not only visibility and signage, but also realignments where feasible. A roundabout could potentially reduce the likelihood of sightline issues and user conflicts at this critical trail junction.

This intersection was identified as in need of improvement in the 2012 *NPS Common Paths: Improving Safety and Enhancing User Experience on the Mount Vernon Trail*, prepared by Timothy Bevins, National Park Foundation Transportation Scholar.

**Map Reference:** G4.7  
**Project Type:** Crossings  
**Park Unit:** GWMP  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM Cost:** \$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



Intersection of the Mount Vernon Trail and Four Mile Run Trail

Source: Google Earth Pro



Circle shows the area of focus for trail intersection improvements  
 Aerial Image Source: Google Earth Pro



Preliminary design of the proposed roundabout

Source: National Park Service

## Project N1.1 Ohio Drive SW Inlet Bridge

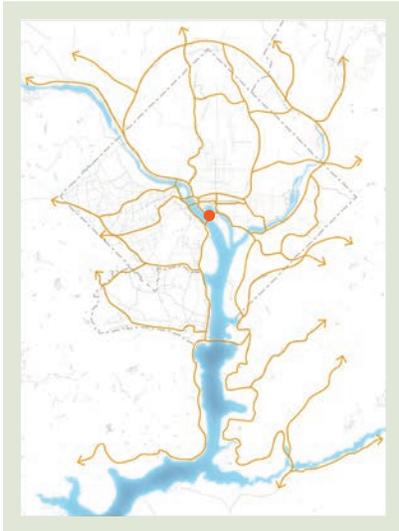
### Washington, D.C.

The project includes a set of capital improvements to the Ohio Drive SW Inlet Bridge along the Rock Creek Park Trail to remove a barrier, enhance accessibility and provide for better safety. This area of NAMA experiences high volumes of pedestrian and cyclist activity that converge on bridges and can result in conflicts.

The project should include the removal of existing stairs at the bridge and the provision of a bike-friendly connection to the trail below the bridge. Moreover, the marking of bike lanes along East Basin Drive SW should be provided to create a defined connection from the bridge area to the proposed extension of a cycle track along Maine Avenue to the 14th Street Bridge Trail (see project N1.2).

The project should be coordinated with NPS plans to widen existing sidewalk on east side of the bridge and narrow travel lanes on the Ohio Drive SW Inlet Bridge.

**Map Reference:** N1.1  
**Project Type:** Gaps  
**Park Unit:** NAMA  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM Cost:** \$\$\$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



Cyclists using Capital Bikeshare trying to navigate near the Inlet bridge  
 Source: AECOM



Source: Google Earth Pro



Stairs at Ohio Drive SW Inlet Bridge  
 Source: Google Earth Pro



Improvements to the bridge would allow a more seamless connection to East Potomac Park - where this cyclist is headed after passing under Interstate 395  
 Source: AECOM

## Project N1.2 15th Street NW / Maine Avenue SW Cycle Track

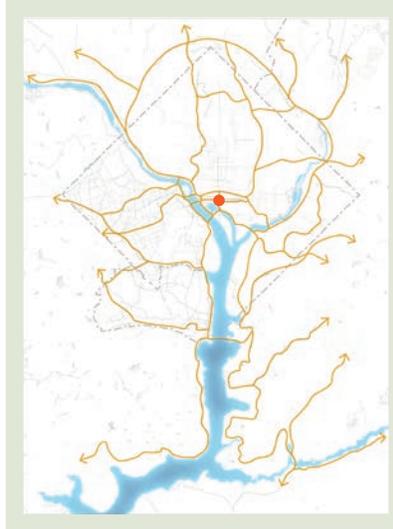
### Washington, D.C.

The project recommends a number of improvements to provide a dedicated cycle track from Pennsylvania Avenue to the 14th Street Bridge across D.C. and NPS properties. This project would improve bicycle access along a high-volume corridor and could improve recreational bicycle mobility in the National Mall area by separating trail users - an objective of the National Mall Plan. The recommendation would need to consider:

- Extending the existing 15th Street NW cycle track in D.C., south from Pennsylvania Avenue NW to Constitution Avenue NW requires the relocation of vendor and street bus parking on the west (southbound) side of street.
- Extending the track through the National Mall from Constitution Avenue NW to Maine Avenue SW could be accommodated by either adding the cycle track between the existing sidewalk and curb of street or moving the curb and sidewalk to accommodate a cycle track on-street.
- Reclaiming a southbound lane of Maine Avenue SW from Independence Avenue SW to East Basin Drive SW around the Jefferson Memorial (and thereby linking to the 14th Street Bridge) would significantly improve access and safety and help define a prominent gateway to NAMA.

The NPS and DDOT should jointly evaluate options for creating this much-needed connection.

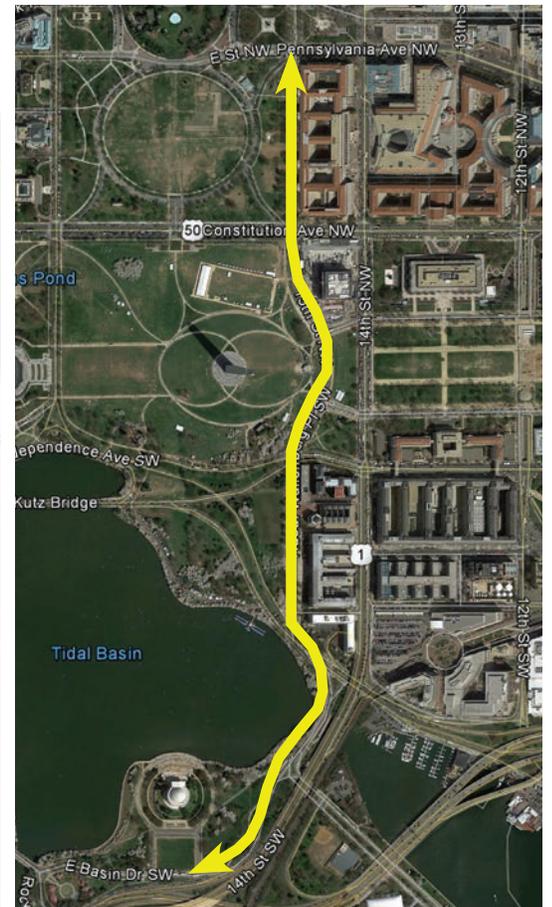
**Map Reference:** N1.2  
**Project Type:** Gaps  
**Park Unit:** NAMA  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM Cost:** \$\$\$\$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



15th Street SW corridor near Jefferson Drive SW  
 Source: AECOM



Cycle track terminus at Pennsylvania Avenue  
 Source: AECOM



Proposed cycle track corridor  
 Aerial Image Source: Google Earth Pro



Crossing at Maine Avenue SW  
 Source: AECOM

## Project N2.2 Lincoln Memorial Circle

### Washington, D.C.

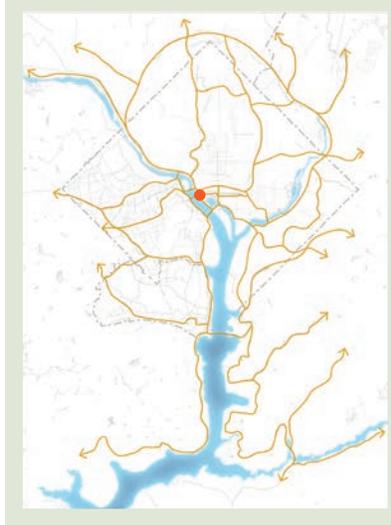
The Lincoln Memorial Circle is a challenging area for non-motorized users. Documented user conflicts and uncontrolled crossings are a common issue in this area. Access across Lincoln Memorial Circle Drive is problematic and limited to a few crosswalks. Also, connecting to and from Rock Creek Park Multi-use Trail near the circle is difficult and unclear, as evidenced by social trails.

The NPS should move forward with an alternatives analysis that considers traffic volumes, pedestrian movements, tour bus movements, Bikeshare volume, and trail traffic, to define preferred routes and safety improvements for pedestrians and cyclists that consider:

- A signed route that connects the Lincoln Memorial Circle NW to the Rock Creek Park Trail. Both on and off-road options should be considered, including a dedicated bicycle lane from the Arlington Memorial Bridge to 23rd Street SW across Ohio Drive SW to the trail. This would encourage trail traffic to utilize the western sidewalk of Ohio Drive under the Arlington Memorial Bridge which is wider than the sidewalk on the eastern side.
- Reduction in travel lanes or lane width to allow for dedicated bicycle lanes
- Provision of bulb-outs and refuge islands to narrow pedestrian crossing lengths
- Addition of a bike lane on the Arlington Memorial Bridge
- Enhancement of safety and informational signage in the area that includes trail information and access points
- Improved routing, trail conditions, signage, and at-grade crossings through the sand volleyball area northwest of the circle (see N2.4)

A Road Safety Audit was conducted in 2014 and provided several recommendations to improve safety conditions in this area. The NPS should move forward with a more detailed study that will lead to action. This recommendation should be coordinated with other recommended trail projects in this plan to ensure comprehensive connectivity throughout the Mall.

**Map Reference:** N2.2  
**Project Type:** Bridges  
**Park Unit:** NAMA  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM Cost:** \$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



At-grade crossing of Rock Creek and Potomac Parkway  
Source: Google Earth Pro



Trail/sidewalk access under Arlington Memorial Bridge  
Source: AECOM



Source: Google Earth Pro

## Project N2.4 Theodore Roosevelt Bridge Connector

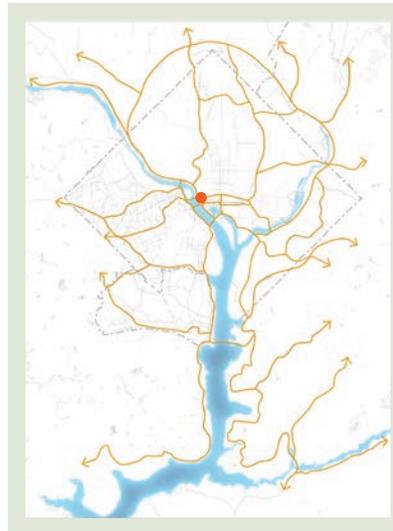
### Washington, D.C.

Trail connectivity between the National Mall and the Theodore Roosevelt Bridge (and Rock Creek Park Multi-use Trail) is indirect and requires multiple at-grade crossings of the Rock Creek and Potomac Parkway and access ramps to I-66.

Safety improvements are needed for all at-grade crossings in this area and should include traffic calming, enhanced directional signage, lane markings, pedestrian refuge islands, bulb outs, and evaluation of grade-separation needs. Clear and uninterrupted access between the Rock Creek Park Multi-use Trail across the Rock Creek and Potomac Parkway NW and the 23rd Street NW / Constitution Avenue areas should be provided. (See N2.2)

As noted previously, the District has a major multi-modal project identified in the FY 2015 - 2021 Obligation Plan to rehabilitate the bridge spans and provide pedestrian and cyclist safety improvements. NPS should work with DDOT to coordinate access improvements from the bridge to trails in this area so that direct access is provided between the Mall and the bridge.

**Map Reference:** N2.4  
**Project Type:** Bridges  
**Park Unit:** NAMA  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM Cost:** \$\$\$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



Trail access to the Theodore Roosevelt Bridge  
 Source: Washington Area Bicyclist Association



Circle shows the area in need of safety and access improvements  
 Aerial Image Source: Google Earth Pro



At-grade crossing approaching the Theodore Roosevelt Bridge  
 Source: Google Earth Pro

## Project R5.1 Feasibility Study of Military Road from Glover Road NW to 16th Street NW

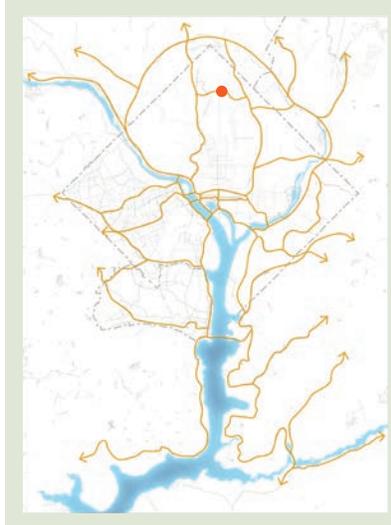
### Washington, D.C.

Military Road is the primary east-west connector through Rock Creek Park and is a busy four lane road with a stone wall dividing directional flow. The Move DC Plan recommends this corridor – from Nebraska Avenue NW to Fort Totten serve as a future cycle track corridor.

According to NPS data, an off-road trail segment exists along the north side of Military Road between Oregon Avenue and Beach Drive. There is no off-road trail between Beach Drive and 16th Street NW. A feasibility study should be undertaken for the entire trail corridor to evaluate options for an improved on or off-road paved trail between Glover Road/Oregon Avenue and 16th Street NW. The study should assess the current trail condition as part of the evaluation.

This recommendation works in concert with other proposed actions to study Oregon Avenue and define Glover/Ridge Road as a primary north-south cycling route through the park. Together these actions are aimed at improving overall accessibility to and through the park.

**Map Reference:** R5.1  
**Project Type:** Target Areas for Assessment  
**Park Unit:** ROCR  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM Cost:** \$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



Military Road NW  
Source: AECOM



Arrow shows proposed study area for feasibility study  
Aerial Image Source: Google Earth Pro

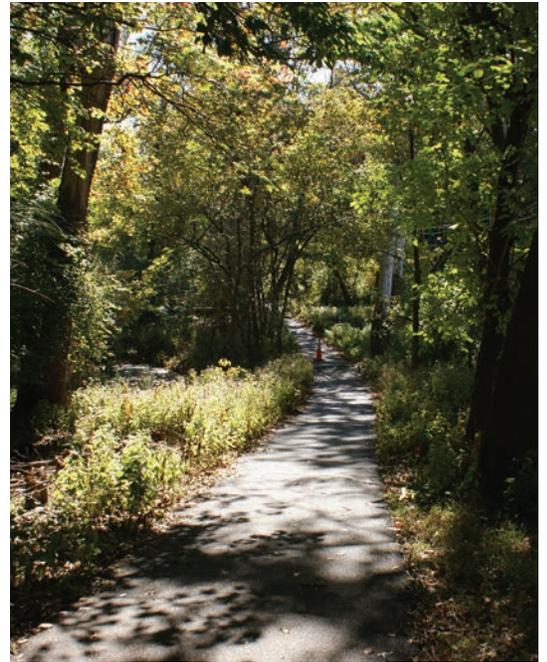
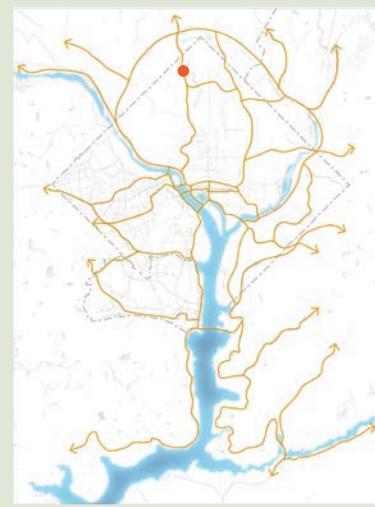
## Project R5.2 Feasibility Study of Oregon Avenue

### Washington, D.C.

Providing a safe and viable off-road north-south trail connection through Rock Creek Park is a key objective of this plan. A feasibility study should be pursued for Oregon Avenue to evaluate options and impacts of an off-road connection from Military Road to the D.C./Maryland line (and connecting to Rock Creek Trail in Montgomery County). An off-road trail along this corridor could help alleviate trail traffic on Beach Drive. However, for the benefits to be realized and for the trail to be utilized as a high-volume corridor as proposed, the off-road trail would need to connect via an on-street route to Beach Drive (potentially Daniel Road).

This action would address a major gap in the overall regional trail network. Portions of the southern part of the corridor near access points to Fort DeRussy have an existing paved trail that could serve as part of the improved corridor; however, other parts of the corridor are unimproved. The NPS has indicated that this area of Rock Creek Park contains sensitive environmental and cultural resources that will need to be considered as part of the analysis.

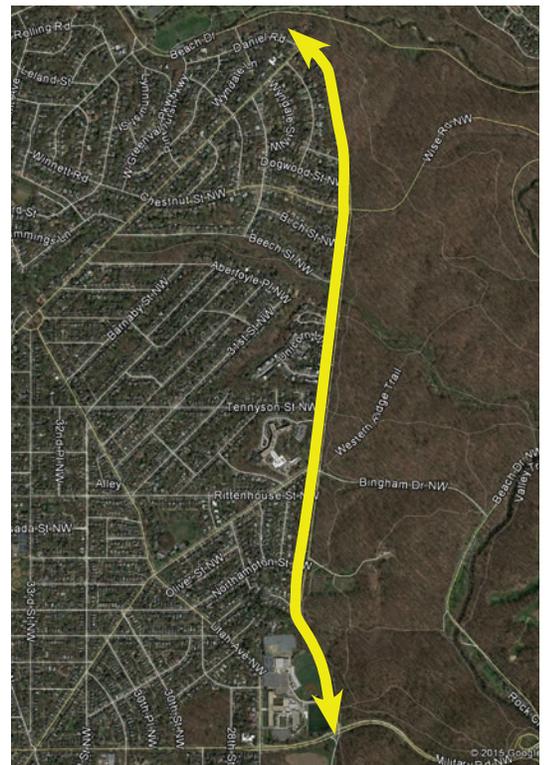
**Map Reference:** R5.2  
**Project Type:** Target Areas for Assessment  
**Park Unit:** ROCR  
**Status:** Proposed  
**Primary Responsibility:** NPS  
**ROM Cost:** \$  
**Potential Funding Source:** FLTP - Category III - Alt. Transportation Program



Existing Oregon Avenue Trail  
 Source: AECOM



Oregon Avenue Trail at the entrance to Fort DeRussy  
 Source: AECOM



Arrow shows proposed study area for feasibility study  
 Aerial Image Source: Google Earth Pro

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Mount Vernon Trail, south of Alexandria  
Source: AECOM

## Measuring Progress

Implementation of this plan will require regional leadership by the NPS NCR office and ongoing, active engagement and participation by all NPS park units within the study area. Recommendations within this plan should be incorporated into other park-unit level planning documents to ensure consistency.

The high number of projects that cross park unit boundaries and local government jurisdiction lines reinforces the importance of and the need for collaboration and cooperation to achieve success. Early coordination among trail partners can clarify process requirements and identify advantages that could be helpful in the pursuit of funding sources. The regional trail network is not dependent on one provider, and similarly, funding requirements for this plan will exceed NPS allocations and will be dependent upon securing multiple funding sources.

This chapter sets forth suggested performance measures for the NPS NCR to track progress in Section 7.1 and provides recommendations for funding coordination in Section 7.2. A list of funding resources is provided in the Appendix.

Park planning helps define the set of resource conditions, visitor experiences, and management actions that, taken as a whole, will best achieve the NPS mandate to preserve resources unimpaired for the enjoyment of present and future generations. Trails provide access to park resources and help to create unique visitor experiences.

NPS planning processes will flow from broad-scale general management planning through progressively more specific strategic planning, implementation planning, and annual performance planning and reporting, all of which will be grounded in foundation statements. Trail planning and improvement opportunities should be a primary consideration in all NPS planning processes.

Source: Adapted from NPS Management Policies, 2006

## 7.1 Performance Metrics

The Paved Trail Plan includes performance measures and targets that the region and park units can use to monitor progress toward meeting the plan's Vision and goals over time. The establishment of performance measures and targets is a familiar component of NPS long-range planning studies. Performance measures for the NCR are at the outset intended to help achieve an interconnected regional network and address safety and access. They also help set the region on a path that leads to the availability of reliable trail data across the region that can be used to inform investment decisions and priorities. Inconsistent trail data on condition, safety incidents, signage, and trail counts, combined with inconsistent approaches to trail classification across the park units, makes it difficult to analyze network trends, identify system-wide issues and target investments appropriately. Lack of existing data also makes it hard to establish realistic performance metrics for reducing safety incidents, as baseline data isn't available. Additional performance measures are intended to help promote regional priorities. Each performance metric is correlated to an established goal as shown below.

### Goal 1: Create a widespread, equitable and interconnected regional paved trail system while conserving, protecting, and promoting natural and historic resources.

#### Performance Measures

- Evaluate the reduction in trail gaps by measuring the increase in access points, bridge access improvements and gaps completed bi-annually.
- Establish system-wide trail count coverage within five years.
- Analyze manual and permanent trail count data for annual and seasonal trends in trail usage with a goal to increase usage each year.

### Goal 2: Enhance regional mobility by providing transportation options for those who live, work, play, and visit the region.

#### Performance Measures

- Assess trail/park wayfinding system gaps annually and evaluate needs in prioritization and partnership opportunities annually.
- Analyze monthly permanent trail count data annually on high-volume corridors for trends in increased usage.
- Annually analyze bikeshare usage trends for stations located on and near NPS paved trails.
- Identify opportunities for additional bikeshare stations on NPS property.

### Goal 3: Coordinate with local jurisdictions and partners to advance trail priorities and projects that contribute to the success of the regional trail network.

#### Performance Measures

- Inventory the number of completed priority projects accomplished by working with local jurisdictional and work to increase the number each year.
- Complete quarterly coordination meetings with regional partners.
- Establish an NPS Regional Trails Coordinator.

### Goal 4: Ensure a safe and accessible trail experiences.

#### Performance Measures

- Inventory the annual increase in linear feet of paved trails with snow removal and lighting.
- Evaluate safety data from partners and USPP annually to determine trends in safety incidents and their correlation to trail improvements.

### Goal 5: Provide a range of outdoor recreational experiences for trail users of all ages and abilities.

#### Performance Measures

- Biannually assess the increase in provision of trail-related amenities, such as trailheads, and evaluate additional needs.
- Assess and distribute trail user health benefits impacts (in various media outlets) based on trail counts and qualitative user survey data on a bi-annual basis.

### Goal 6: Provide a high-quality, well-maintained sustainable trail network.

#### Performance Measures

- Complete a conditional assessments of each NPS trail with a target of system-wide completion within three years.
- Inventory the number of projects implementing design standards annually.
- Quantify reduction in deferred maintenance for trails annually.

### Goal 7: Promote the attributes and experiences of the trail network in the National Capital Area.

#### Performance Measures

- Quantify the number of yearly visitors to the paved trail system annually and assess economic impact and distribute results to various media outlets.
- Inventory the number of website, social media hits and printed media targets completed annually.

## Goal 8: Leverage multiple funding sources to sustain the network and achieve regional plan priorities.

### Performance Measures

- Quantify the amount of non-NPS funding received by NCR annually for priority projects and maintenance.
- Track the number of partner funding agreements executed annually.
- Annually quantify the percentage of transportation funds obligated to high-priority projects.

## 7.2 Funding Identification and Coordination

Project implementation is dependent upon the successful identification of a funding source(s). The more complex a project, the likelihood that it will require multiple funding sources increases. The job of securing funding for a project is time consuming; a review of potential funding sources and strategies should occur at the concept stage of a trail project and should occur in collaboration with potential funding partners so that funding applications can be formulated jointly. Early coordination can be a major determinant of how quickly a project advances.

Section 4.9.1 provides an overview of historic funding sources utilized by the NCR for trail related projects and underscores the importance of securing outside funding sources. Outside funding can help the NPS advance projects that the Department of the Interior's (DOI) Five-Year Deferred Maintenance and Capital Improvement Plan is unable to fund. Outside funding sources strengthen the NCR's financial security and help build partnerships with local jurisdictions and non-profits that may grow into non-monetary-based assistance as well.

### 7.2.1 Recommendations for Coordination

Several lessons learned on successful partnering and funding were identified and transformed into recommendations for the NCR based on a review of relevant case studies and best practices. Recommendations listed in this section consider the full life-cycle of a trail project and ways to streamline the time it takes for a project to be implemented. A select number of case studies that utilized innovative funding approaches are described in the Appendix.

Figure 7.1 identifies four primary steps that can help streamline federal and local project coordination on trail-related projects. In addition, a matrix of outside funding sources is provided in the Appendix that includes: funding source name and contact information, funding source description, potential uses, match requirements, and means of fund access (direct or indirect) for NPS.

- The Vision established in this Plan should be used by the NCR and park units to build support for project implementation efforts, including political support for regional priority projects.
- The NCR should prioritize capital and operation/maintenance projects with funding opportunities as they arise. Projects should align with the overall goals of the region and individual park units as well as interested funding partners.
- The NCR and park units should pursue internal funding for cyclic maintenance, repair and rehabilitation to the maximum extent possible.
- The NCR should develop partner agreements that clearly outline party roles and responsibilities, with an emphasis on trail design standards, construction methods and techniques, and maintenance responsibilities. All MOAs should clearly define project roles and responsibilities from securing funding to completing day-to-day maintenance needs. A key objective for the NPS in defining responsibilities should be to reduce long-term maintenance burdens. A template agreement should be developed for use by park units on trail related projects.
- The NCR should pursue long-term agreements for the installation and maintenance of trail counters, including the provision of counter data.
- The NCR should rely on partners for complex project administration services that are outside the core skill set of NPS staff. Likewise, NPS should identify and target phases of work or maintenance that NPS can clearly accomplish self-sufficiently and ensure partner agreements reflect these terms.
- The NCR should consider public input through the continued outreach to advocacy groups, partners and trail users and consider this input in the evaluation of projects, prioritization, and funding source opportunities.
- The NCR should develop an in-house training event with materials to educate and update staff with the responsibility of trail development, operation and maintenance to identify funding sources, processes, roles and responsibilities.
- The NCR should help identify potential funding sources and partners that align with goals and set forth guidelines for maintaining long-term partner relationships.
- The NCR should define a process to annually monitor and evaluate project progress.
- The NCR should establish a regional central clearinghouse and database of trail funding source information, potential partners, priority projects with schedules and information about creative techniques such as grant stacking or how to leverage multiple funding sources to support one project.

- The NCR should increase coordination with existing trusts and non-profits and encourage the cultivation of new partners to support capital funding campaigns for priority regional trail projects, operations and maintenance, and outreach programs.
- The NCR should streamline project implementation from funding identification and partner coordination through MOA development and project execution. The multi-

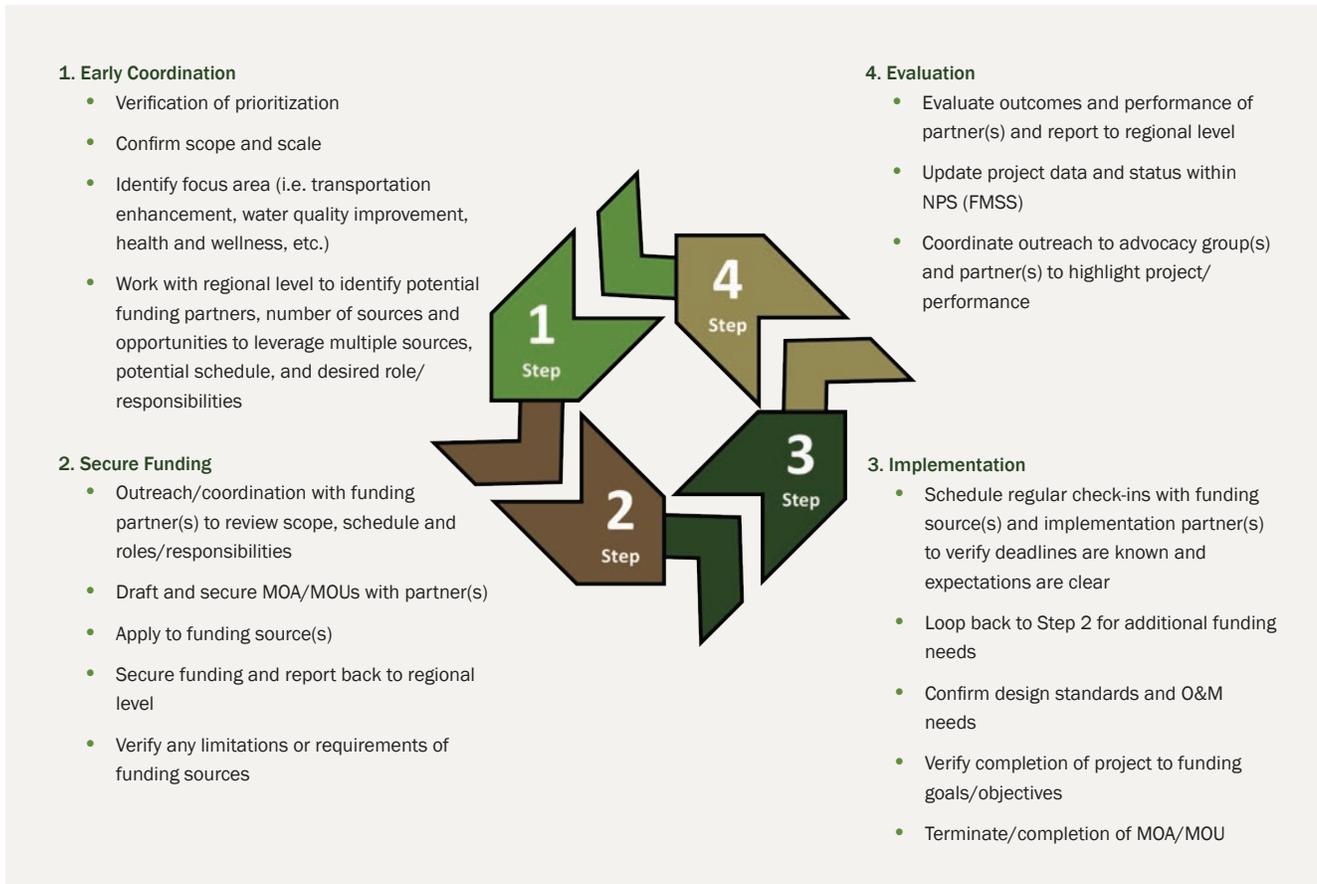


Figure 7.1 Recommended NPS and Local Partner Funding and Coordination Process



# Appendix

## Appendix

### A.1 Capital Funding Matrix

The following information has been compiled in an effort to provide the NCR with an overview of available capital funding sources within the following four categories; Federal; State; Local and Non-Governmental/Non-Profit (NG/NP). Table A.1 contains information for each readily available funding source and includes the following information: funding source name; description; contact or website address; and whether the funding source may be used for acquisition, design, construction and/or operations and maintenance; as well as whether there is a funding match requirement and if the funding is available directly to the NPS.

Table A.1 Capital Funding Matrix

Fund Type	Source Name	Fund Description	Contact/Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding/ Match
Federal (FAST)	Transportation Alternatives Program (TAP)	Funding for a variety of alternative transportation projects; administered by the FHWA to States for Federal, State and Local government, and private organization projects; funding varies by state and by project; distributed annually.	<a href="http://www.fhwa.dot.gov/environment/transportation_alternatives/">http://www.fhwa.dot.gov/environment/transportation_alternatives/</a>	Yes	Yes	Yes	Yes	Funding baseline is 80% of project costs, varies for project by state, and cannot exceed 95% of project costs; funding is directly available to NPS
Federal (FAST)	Surface Transportation Program (STP)	Flexible funding for projects that preserve or improve conditions on a variety of public infrastructure projects; administered by the FHWA to States for Federal, State and Local government, and private organization projects; funding varies by state and by project; distributed annually.	<a href="http://www.fhwa.dot.gov/map21/factsheets/stp.cfm">http://www.fhwa.dot.gov/map21/factsheets/stp.cfm</a>	Yes	Yes	Yes	Yes	Funding baseline is 80% of project costs, varies for project by state, and cannot exceed 95% of project costs; funding is directly available to NPS
Federal (FAST)	Transportation Enhancement Activities (TEAs)	Funding for projects that enhance the transportation experience through 12 eligible TE Activities; administered by FHWA to States for Federal, State and Local government projects; funding varies by state and project, funds available are dependent on TAP and STP funds.	<a href="http://www.fhwa.dot.gov/environment/transportation_enhancements/">http://www.fhwa.dot.gov/environment/transportation_enhancements/</a>	Yes	Yes	Yes	Yes	Match requirement vary; funding is available to state governments
Federal (FAST)	Hazard Elimination and Railway-Highway Crossing Program	Funding for improving safety at public grade crossings; administered by the FHWA to States based on calculated apportionments to the Highway Safety Improvement Program; available on projects management by Federal agencies and State and Local governments; distributed annually; funding varies per project; \$220 million available.	<a href="http://www.fhwa.dot.gov/map21/factsheets/rhc.cfm">http://www.fhwa.dot.gov/map21/factsheets/rhc.cfm</a>	Yes	Yes	Yes	Yes	90:10 match requirement; funding is available to states and local governments
Federal (FAST)	Recreation Trails Program (RTP)	Funding for recreation trails and trail related facilities; administered by the FHWA directly to Federal Agencies and the States; available to Federal, State and Local government, and private organization trail projects; distributed annually; funding varies based on State.	<a href="http://www.fhwa.dot.gov/environment/recreational_trails/">http://www.fhwa.dot.gov/environment/recreational_trails/</a>	Yes	Yes	Yes	Yes	Funding baseline is 80% of project costs, varies for project by state, and cannot exceed 95% of project costs; funding is directly available to NPS
Federal (FAST)	Highway Safety Improvement Program (HSIP)	Funding for projects that improve safety of highways to reduce traffic fatalities and injuries on public roads- must be data-driven; administered by the FHWA and distributed to State DOTs and MPOs; distributed annually; funding varies.	<a href="http://www.fhwa.dot.gov/map21/factsheets/hsip.cfm">http://www.fhwa.dot.gov/map21/factsheets/hsip.cfm</a>	Yes	Yes	Yes	Yes	90:10 match requirement; funding is for state DOTs and MPOs only

Fund Type	Source Name	Fund Description	Contact/Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding/ Match
Federal	Transportation Investment Generating Economic Recovery Program (TIGER)	Funding for capital projects including road, rail, transit, bike/ped, port and multi-modal projects achieving critical national objectives; administered by USDOT, and available to any public entity; distributed annually; \$1 million minimum for rural areas, \$10 million for urban areas; \$200 million maximum (cannot exceed \$125 million in one State).	<a href="http://www.dot.gov/tiger">http://www.dot.gov/tiger</a>	Yes	Yes	Yes	Yes	80:20 match requirement; funding is for any public entity and can be directly received by the NPS
Federal (FAST)	Congestion Mitigation and Air Quality Improvement (CMAQ) Program	Funding for transportation-environmental projects; administered by FHWA and FTA; available to State DOTs and MPOs; funded annually.	<a href="http://www.fhwa.dot.gov/environment/air_quality/cmaq/">http://www.fhwa.dot.gov/environment/air_quality/cmaq/</a>	Yes	Yes	Yes	Yes	Match requirements vary; funding is for state DOTs and MPOs only
Federal (FAST)	Associated Transit Improvements	Funding for projects that enhance public transportation or functionally related to transit facilities; administered by the FTA and available to MPOs and other Public Transit providers; grant amounts and eligible projects vary.	<a href="http://www.fta.dot.gov/documents/chap53MAP21.pdf">http://www.fta.dot.gov/documents/chap53MAP21.pdf</a>	Yes	Yes	Yes	Yes	Funding baseline is 80% of project costs, varies for project by state, and cannot exceed 95% of project costs
Federal (FAST)	Federal Lands Transportation Program (FLTP)	Funding for transportation and infrastructure owned and maintained by NPS or other Federal Agency; administered by FHWA; distributed annually; funding varies per project with an annual total of \$300M.	<a href="http://www.fhwa.dot.gov/map21/guidance/guideftp.cfm">http://www.fhwa.dot.gov/map21/guidance/guideftp.cfm</a>	Yes	Yes	Yes	Yes	Funding available directly to NPS, FWS, Forest Service, BLM and USACE. No match requirement.
Federal (FAST)	Federal Lands Access Program (FLAP)	Funding for safe and adequate transportation access within Federal Lands; administered by FHWA to States with Federal Lands managed by NPS or other Federal Agency; distributed annually; funding varies per project with an annual total of \$250M.	<a href="http://www.fhwa.dot.gov/map21/factsheets/flap.cfm">http://www.fhwa.dot.gov/map21/factsheets/flap.cfm</a>	Yes	Yes	Yes	Yes	Funding is for state, counties, tribes, and local governments that provide access to, are adjacent to, or are located within Federal lands. Funding baseline is 80% of project costs, varies for project by state, and cannot exceed 95% of project costs.
Federal	National Recreation Trails (NRT)	Organization that provides designation for trail projects as a National Recreation Trail; connects projects with available funding; does not provide direct funding or grants	<a href="http://www.americantrails.org/ee/index.php/nationalrecreationtrails">http://www.americantrails.org/ee/index.php/nationalrecreationtrails</a>	n/a	n/a	n/a	n/a	Does not provide direct funding or grants
Federal	Land and Water Conservation Fund (LWCF)	Funded from offshore drilling fees and administered by the NPS directly to the States; available to Federal, State and Local government conservation projects; distributed annually; grant amounts vary.	Manual: <a href="http://www.nps.gov/nrcr/programs/lwcf/manual/lwcf.pdf">http://www.nps.gov/nrcr/programs/lwcf/manual/lwcf.pdf</a>  Website <a href="http://www.nps.gov/nrcr/programs/lwcf/funding.html">http://www.nps.gov/nrcr/programs/lwcf/funding.html</a>	Yes	Yes	Yes	Yes	50:50 match requirement; funding is available to the NPS through a state or local government
Federal	Community Development Block Grant	Administered by the Department of Housing and Urban Development; variety of grants available under various program areas designed to develop and enhance communities; available to State and Local governments; distributed annually; grant amounts vary.	<a href="http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs">http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs</a>	Yes	Yes	Yes	Yes	Match requirements vary; funding is available to the NPS through a state or local government

Fund Type	Source Name	Fund Description	Contact/Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding/ Match
Federal	Economic Development Administration Public Works	Funding program for projects under the EDA's Public Works and Economic Adjustment Assistance Programs; certain economic distress criteria must be met; available to State and Local Governments, non-profits and designated Economic Development District Organizations; Quarterly distribution cycles per fiscal year.	Criteria: <a href="http://www.eda.gov/how-to-apply/files/Eligibility-Requirements-and-Criteria.pdf">http://www.eda.gov/how-to-apply/files/Eligibility-Requirements-and-Criteria.pdf</a>  Website <a href="http://www.eda.gov/funding-opportunities/">http://www.eda.gov/funding-opportunities/</a>	No	Yes	Yes	Yes	50:50 match requirement; funding is available to the NPS through a state or local government
Federal	National Coastal Wetlands Conservation Grant Program	Administered by the U.S. Fish and Wildlife Service to U.S. States to protect, restore or enhance coastal wetlands; distributed annually; up to \$1M.	Chris Darnell, 703-358-2236, <a href="mailto:chris_darnell@fws.gov">chris_darnell@fws.gov</a>  <a href="http://www.fws.gov/coastal/coastalgrants/">http://www.fws.gov/coastal/coastalgrants/</a>	Yes	Yes	Yes	Yes	75:25 match requirement; funding is available to the NPS from the FWS
State (DC)	Recreation Trail Program	Provides funds to DC to maintain and develop recreation trails and trail facilities; Funded by FHWA and administered by the District Department of Transportation; available to private organizations, District, State and Federal agencies; distributed annually; grant amounts vary.	<a href="http://ddot.dc.gov/page/recreational-trails-program-overview">http://ddot.dc.gov/page/recreational-trails-program-overview</a>	Yes	Yes	Yes	Yes	80:20 match requirement; funding is available to the NPS from the District of Columbia
State (MD)	Program Open Space (POS)	Funded from a percentage of the State Real Estate transfer tax and administered by Maryland Department of Natural Resources; awarded to local governments; funds distributed annually, projects must be documented and reviewed each year of project period; grant amounts vary.	<a href="http://www.dnr.state.md.us/land/localsupport/lis_contacts.asp">http://www.dnr.state.md.us/land/localsupport/lis_contacts.asp</a>  Website: <a href="http://www.dnr.state.md.us/land/pos/pos_101.asp">http://www.dnr.state.md.us/land/pos/pos_101.asp</a>	Yes	Yes	Yes	Yes	Match requirements vary; funding is directly available to the NPS
State (MD)	Maryland Heritage Areas Program	Targeted financial assistance within 13 designated Heritage Areas; administered by Maryland Heritage Trust to public entities and non-profits in support of projects in heritage areas; grant amounts and distribution frequencies vary.	100 Community Place, 3rd Floor - Crownsville, MD 21032  (410) 514-7600  <a href="http://mht.maryland.gov/grants.shtml">http://mht.maryland.gov/grants.shtml</a>	Yes	Yes	Yes	Yes	Match requirements vary; funding is directly available to the NPS
State (MD)	Maryland State Highway Administration Bikeways Grants	Provides technical assistance and grant support for projects to enhance bicycle infrastructure, including addressing missing connections identified in the MDOT Trails Plan and expanding bikesharing efforts.	<a href="http://www.mdot.maryland.gov/newMDOT/Planning/Bike/Bikeways.html">http://www.mdot.maryland.gov/newMDOT/Planning/Bike/Bikeways.html</a>	No	Yes	Yes	No	Match requirements vary; funding is directly available to the NPS
State (VA)	Virginia Land Conservation Fund (VLCF)	Matching program for the acquisition and development of open spaces for conservation in one of four categories; administered by Virginia Department of Conservation and Recreation; non-profits and government entities eligible; distributed annually (bi-annually 2016); grant amounts vary based on project, minimum \$5,000.	<a href="http://www.dcr.virginia.gov/virginia_land_conservation_foundation/">http://www.dcr.virginia.gov/virginia_land_conservation_foundation/</a>	Yes	Yes	Yes	No	50:50 minimum match requirement, funding is directly available to the NPS

Fund Type	Source Name	Fund Description	Contact/Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding/ Match
State (VA)	Land and Water Conservation Fund (LWCF)	Matching reimbursement program for the acquisition and development of outdoor recreation facilities; administered by Virginia Department of Conservation and Recreation on behalf of NPS; non-profits and government entities eligible; distributed annually; \$300,000 - \$500,000.	<a href="http://www.dcr.virginia.gov/recreational_planning/lwcf.shtml">http://www.dcr.virginia.gov/recreational_planning/lwcf.shtml</a>	Yes	Yes	Yes	No	50:50 match requirement, must be able to fund entire project before reimbursement; funding is not directly available to the NPS until project completion
State (VA)	Virginia Recreation Trail Fund (VRTF)	Matching reimbursement program for the creation and maintenance of trails and trail facilities; funded by the FHWA and distributed by Virginia Department of Conservation and Recreation; non-profits and government entities eligible; distributed annually; \$25,000 - \$200,000.	<a href="http://www.dcr.virginia.gov/recreational_planning/trailfund.shtml">http://www.dcr.virginia.gov/recreational_planning/trailfund.shtml</a>	Yes	Yes	Yes	Yes	80:20 match requirement, must be able to fund entire project before reimbursement; funding is not directly available to the NPS until project completion
State (VA)	Historic Resources and Incentives Grants	Virginia Department of Historic Resources administers funds and connects organizations with additional opportunities from wide variety of community and corporate foundations that support historic preservation, archeology and land conservation; 501(c)(3) organizations and government entities are eligible for some or all grants; awarded annually; grant amounts vary.	<a href="http://www.dhr.virginia.gov/homepage_general/finance.htm">http://www.dhr.virginia.gov/homepage_general/finance.htm</a>  List of grants: <a href="http://www.dhr.virginia.gov/pdf_files/Financial%20Incentives%20and%20Opportunities.pdf">http://www.dhr.virginia.gov/pdf_files/Financial%20Incentives%20and%20Opportunities.pdf</a>	Yes	Yes	Yes	Yes	Varies for each grant; funding is directly available to the NPS
Local	Metropolitan Washington Council of Governments (MWCOG) Transportation Improvement Program (TIP)	Administers funding for TIP program projects; includes Federal, State and Local Government Funding; \$18 Billion for FY 2015-2020; applies to suburban Maryland, Northern Virginia and DC.	<a href="http://www.mwco.org/clrp/projects/tip/fy1520.asp">http://www.mwco.org/clrp/projects/tip/fy1520.asp</a>	Yes	Yes	Yes	Yes	No match requirement; funding is not directly available to the NPS
Local	Arlington County - BikeArlington	County initiative to partner public agencies, non-profits, and businesses to advocate for projects that promote benefits of biking; does not directly award funding.	<a href="http://www.bikearlington.com/">http://www.bikearlington.com/</a>	n/a	n/a	n/a	n/a	No match requirement; funding is not directly available to the NPS
Local	Arlington County Stormwater Management Program	County Ordinance providing guidelines for BMPs, construction requirements and pollution prevention guidelines that allow the County to obtain grants for projects that promote the ordinance.	<a href="http://topics.arlingtonva.us/building/stormwater-management-ordinance/">http://topics.arlingtonva.us/building/stormwater-management-ordinance/</a>	n/a	n/a	n/a	n/a	No match requirement; funding is not directly available to the NPS
Local	Arlington County Transit Program	County program providing public transportation services, as well as projects to enhance the transit system; funding varies for each FY and includes a variety of county programs, initiatives and plan.	<a href="http://projects.arlingtonva.us/programs/transit/">http://projects.arlingtonva.us/programs/transit/</a>	Yes	Yes	Yes	Yes	No match requirement; funding is not directly available to the NPS

Fund Type	Source Name	Fund Description	Contact/Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding/ Match
Local	Arlington County - WalkArlington	County initiative to partner public agencies, non-profits, and businesses to advocate for projects that promote benefits of walking; does not directly award funding.	<a href="http://www.walkarlington.com/">http://www.walkarlington.com/</a>	n/a	n/a	n/a	n/a	No match requirement; funding is not directly available to the NPS
Local	Fairfax County Department of Public Works and Environmental Services	Funding for projects in County including roads, sidewalks in trails, stormwater and capital projects; funding for specific projects and categories administered by Fairfax county and available to Transportation Committee and private/non-profit organizations.	<a href="http://www.fairfaxcounty.gov/dpwes/">http://www.fairfaxcounty.gov/dpwes/</a>	Yes	Yes	Yes	Yes	Match requirement varies; funding is not directly available to the NPS
Local	Montgomery County Bikeway Program	Funding for bikeway construction along County and State-maintained roadways; \$4,238,000 from 2011-2018.	100 Edison Park Drive Gaithersburg, MD 20879  mcdot.dte.planning@montgomerycountymd.gov  240-777-7220  <a href="http://www.montgomerycountymd.gov/dotdte/bikeways/index.html">http://www.montgomerycountymd.gov/dotdte/bikeways/index.html</a>	Yes	Yes	Yes	Yes	No match requirement; funding is not directly available to the NPS
Local	Maryland-National Capital Park and Planning Commission-Hard Surface Trail Renovation	Funding appropriated through Montgomery County and Prince George's County for hard surface trail renovations through FY20; appropriations vary	6611 Kenilworth Avenue, Riverdale, MD 20737  <a href="http://www.mncppc.org/commission_home.html">http://www.mncppc.org/commission_home.html</a>	Yes	Yes	Yes	Yes	No match requirement; funding is not directly available to the NPS
Local	City of Alexandria Recreation Trail Fund	Funds made available through VA Recreation Trail fund; see Virginia Recreation Trail Fund	<a href="http://www.dcr.virginia.gov/recreational_planning/trailfund.shtml">http://www.dcr.virginia.gov/recreational_planning/trailfund.shtml</a>	Yes	Yes	Yes	Yes	80:20, must be able to fund entire project before reimbursement; funding is not directly available to the NPS
NG/NP	Alliance for Biking & Walking: Advocacy Advance Grants	Provide short-term Rapid Response Grants to state and local organizations to win or increase funding for biking and walking - \$1,000 to \$3,000 with no deadline or formal grant cycle; also have "Big Idea" Grants for unforeseen opportunities to secure funding for large, innovative projects = \$10,000	Brigid O'Keane Advocacy Director  brigid@advocacyadvance.org  202.621.5452  <a href="http://www.advocacyadvance.org/grants">http://www.advocacyadvance.org/grants</a>	No	No	No	No	None; funding is directly available to the NPS
NG/NP	American Hiking Society: National Trails Foundation	Provides annual grants to 501(c)(3) organizations that are members of the Hiking Alliance; projects improve hiking access or safety on a particular trail; grants range from \$500 to \$5,000	1424 Fenwick Lane Silver Spring, MD 20910  1-301-565-6704 (Main)  <a href="http://www.americanhiking.org/national-trails-fund/">http://www.americanhiking.org/national-trails-fund/</a>	Yes	Yes	Yes	Yes	None; funding is not directly available to the NPS

Fund Type	Source Name	Fund Description	Contact/Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding/ Match
NG/NP	The Conservation Alliance	Provides bi-annual grants for 501(c)(3) organizations seeking to protect threatened wild places for habitat and recreation values; must be nominated to apply; maximum \$50,000	925 NW Wall St., Suite 202 Bend, OR 97701  (541) 389-2424  info@conservationalliance.com  <a href="http://www.conservationalliance.com/contact-us/">http://www.conservationalliance.com/contact-us/</a>	Yes	Yes	Yes	Yes	None; funding is not directly available to the NPS
NG/NP	East Coast Greenway Alliance	Partnership helps locate and apply for grants to fund greenway and trail projects that develop the East Coast Greenway; does not directly award grants	5315 Highgate Dr, Suite 105 Durham, NC 27713  Phone: 919-797-0619 Fax: 919-797-0619  andy@greenway.org (MD, DC)  niles@greenway.org (VA)  <a href="http://www.greenway.org/">http://www.greenway.org/</a>	n/a	n/a	n/a	n/a	n/a
NG/NP	National Environmental Education Foundation (NEEF)	Provides bi-annual grants to 501(c)(3) non-profits in collaboration with a public land site to support NEEF core educational programs; grants up to \$5,000.	4301 Connecticut Avenue NW, Suite 160 Washington, DC 20008  (202) 833-2933  <a href="http://www.neefusa.org/">http://www.neefusa.org/</a>	No	No	No	Yes	None
NG/NP	National Fish and Wildlife Foundation (NFWF)	Provides grants to public, educational and non-profit organizations that align with a specific conservation program; grants vary and can be applied for bi-annually; intended to utilize Federal and non-federal funding.	<a href="http://www.nfwf.org/whatwedo/grants/Pages/home.aspx#.VUj7zPIVhBe">http://www.nfwf.org/whatwedo/grants/Pages/home.aspx#.VUj7zPIVhBe</a>	Yes	Yes	Yes	Yes	\$2 of non-federal funding for every \$1 of federal funding
NG/NP	Rails-to-Trails Conservancy	Partnership helps locate grant funding for projects converting former rail lines into trails	<a href="http://www.railstotrails.org">http://www.railstotrails.org</a>	n/a	n/a	n/a	n/a	n/a
NG/NP	Trust for the National Mall	Partnership with the NPS helps obtain donations and grants for projects related to the National Mall.	<a href="http://nationalmall.org/">http://nationalmall.org/</a>	n/a	n/a	n/a	n/a	n/a
NG/NP	The Trust for Public Land	Partnership helps locate and apply for grants to fund public land projects; does not directly award grants.	<a href="https://www.tpl.org/">https://www.tpl.org/</a>	n/a	n/a	n/a	n/a	n/a
NG/NP	The Robert Wood Johnson Foundation	Funding for public agencies, universities and public charities engaged in projects that aim to improve health and healthcare; grant amounts vary; awarded through calls for proposals; primarily research oriented.	(877) 843-RWJF (7953)  <a href="http://www.rwjf.org/en/how-we-work/grants.html">http://www.rwjf.org/en/how-we-work/grants.html</a>	No	No	No	No	None; funding is directly available to the NPS

Fund Type	Source Name	Fund Description	Contact/Website	Funding Use				
				Acq.	Design	Const.	O&M	Funding/ Match
NG/NP	American Greenways Eastman Kodak Awards	Annual funding to non-profit and public agencies, with priority given to non-profits; \$500-\$2,500; supports activities and expenses needed to complete a greenway project.	1655 N. Fort Myer Drive Suite 1300 Arlington, VA 22209-2156  Phone: 22209-2156 Fax: 7035254610  <a href="http://www.rlch.org/funding/kodak-american-greenways-grants">http://www.rlch.org/funding/kodak-american-greenways-grants</a>	Yes	Yes	Yes	Yes	None; funding is directly available to the NPS
NG/NP	Bank of America Charitable Foundation, Inc.	Annual funding for 501(c)(3) organizations that provide community revitalization; grant amounts vary- \$200 million given in 2013.	<a href="http://about.bankofamerica.com/en-us/global-impact/find-grants-sponsorships.html#fbid=WUufmiEs5Ce">http://about.bankofamerica.com/en-us/global-impact/find-grants-sponsorships.html#fbid=WUufmiEs5Ce</a>	Yes	Yes	Yes	Yes	None; funding is directly available to the NPS
NG/NP	Rite Aid Foundation Grants	Annual funding for 501(c)(3) organizations that provide health and wellness for children; grant amounts vary.	<a href="https://kidcents.riteaid.com/?_ga=1.95543262.313544249.1430841623">https://kidcents.riteaid.com/?_ga=1.95543262.313544249.1430841623</a>	Yes	Yes	Yes	No	Step Up Fund (additional funding option): 50:50 for up to \$5,000; funding is directly available to the NPS
NG/NP	Walmart State Giving Program	Bi-annual cycles for either focus giving areas or community engagement & focus giving; \$25,000-\$250,000; administered from the Walmart Foundation to 501(c)(3) organizations.	<a href="http://foundation.walmart.com/apply-for-grants/state-giving">http://foundation.walmart.com/apply-for-grants/state-giving</a>	No	No	No	Yes	None; funding is directly available to the NPS

NG/NP = Non-Governmental / Non-Profit

## A.2 Case Studies

Case studies typically help to illustrate the success and pitfalls of a similar situation or project. In this case, innovative programs and projects have been identified for each of the four primary funding sources which demonstrate realistic approaches to conditions and challenges found within the NCR paved trail network. Follow the description of each program or project is a summary of implications specific to the NCR paved trail network.

### Federal and State Sources

The following examples present two ultimately successful stories due to their innovation in seeking creative means to fund and build priority projects for the NPS. One example presents an ongoing project which has been impacted by a number of delays due to coordination challenges and lack of a clear understanding of the needs and timelines for funding, design and building a project with partners. The second project highlights a success story which owes most of the success to a highly willing partner and the large scale of the project which required a tremendous level of coordination that many medium and low priority projects simply cannot afford or receive.

#### 14th Street Bridge Approach

The 14th Street Bridge Trail Plan is a project managed by NAMA beginning in 2013 and will improve the existing multi-use trail from the 14th Street Bridge to East Basin Drive south of the Jefferson Memorial.

This location has many users. The trail is a primary commuter route for bicyclists from Virginia to downtown DC. The trail intersects East Basin Drive in a location highly used by visitors to the Jefferson Memorial including pedestrians, tour buses, and Capital bikeshare users -- a bikeshare station is located at this trail/road intersection. The existing trail does not meet the ever-growing user capacity. The 14th Street Bridge Trail Plan project will widen and repave the trail (exploring the use of permeable paving material), add safety enhancements such as railings and wayfinding, and increase the width of crosswalks ramps from the trail to East Basin Drive. The project will also add street markings to East Basin Drive alerting motorists to the bike/pedestrian traffic and crossings. An important goal of this project is to relocate an existing lightpole and highway sign post which greatly impedes traffic at the 14th Street Bridge connection to the path.

The multi-use trails and park roads located in the NAMA jurisdiction are an integral connection to the area's bicycle trails network. A daily bicycle and pedestrian count from the Mount Vernon Trail crossing at the 14th Street Bridge mile marker exceeded 2,000 bikes and 500 pedestrians on a recent September

day. Many of the trips occurred during the rush hours in the morning and evening. Improving this trail connection will increase access and circulation for commuters and visitors, resolve the existing bike system connectivity gap, and greatly increase the potential for pedestrian and bicycle use, in this highly traveled area.

NAMA was awarded a Transportation Alternative Program (TAP) grant in 2013 through the MWCOG. The grant amount was \$206,000, and in addition a 20% match was provided with FTLF funds with DDOT serving as the local transportation government agency project sponsor. A MOA for the design portion of the project was developed to transfer the design funds from DDOT to NPS, as NPS was designing the path in-house. Since, the TAP grant funds are available on a reimbursable basis, the construction costs could not be included in this MOA.

As the project developed, the relocation of the highway sign post was more costly than expected. NAMA determined that the relocation was critical to a well-designed trail and applied for, and was awarded a FLAP grant in 2014 for this portion of the work. NCR provided the match again with FTLF funding. Eastern Federal Lands Highway Division of the Federal Highway Administration (EFLHD) administers the FLAP grants for NPS. NAMA realized that it would be best for EFLHD to coordinate both construction projects -- the trail and the sign post relocation. Delays related to coordinating these two grants occurred. Although it took time, the two grants have been combined, a direction for completion is determined, DDOT, EFLHD and NPS are coordinating on a bi-weekly basis, and the project construction is expected to begin in 2017.

### Implications for NPS

Through the challenges of the 14th Street Bridge project, NAMA has identified several opportunities for better coordination and a general need to understand a streamlined process for receiving grant funding and executing projects. These opportunities include:

- Coordinate the pursuit of grant and funding resources with input from the region and trail partners during the application phase
- Develop MOA templates in coordination with grant administrators
- Draft MOA with primary grant administrator at time of grant application
- Repeated coordination upon receipt of funding grant, development of MOA and during each milestone of work
- Clear internal understanding of all correlating projects which may be impacted

- Regional coordinator or clearinghouse for National Capital Region for grant administrators to coordinate with for payments, project prioritization, emerging opportunities, and project schedules

### **Anacostia Riverwalk Trail**

The Anacostia Riverwalk Trail has been a highly successful trail project for both the NPS and the District of Columbia. Unlike the 14th Street Bridge approaches, the Riverwalk Trail was a very large regional undertaking which required an immense level of coordination and expertise to execute.

A project the scale of the Riverwalk Trail is not typical for most NPS paved trail projects. The NPS does not usually handle this level of design in-house or seek to manage the construction of such large, multidisciplinary project. Due to the size of the project, multiple funding sources were pooled for the project with the largest single source coming from a TIGER award to DDOT. NPS developed an MOA with DDOT for the coordination of the project; however, DDOT administered the grants and lead the work efforts while NPS retained ownership of the land and trail. DDOT was able to assign a lead point-person to the project with a dedicated team to coordinate. As part of the MOA, DDOT paid for design and construction of the trail through a combination of several funding sources. NPS, through retained ownership of the trail, will handle daily maintenance needs and DDOT will provide more extensive maintenance improvements such as repaving.

### **Implications for NPS**

The particular segment of described above of the Anacostia Riverwalk Trail has recently been completed and has received accolades from throughout the region for the quicker than normal pace for design, approval, construction and for having a high level of coordination between DDOT and NPS. The project represents an excellent example of NPS coordinating with a willing partner to fund, design, build and help maintain a resource that would have been otherwise difficult to nearly impossible for the NPS to lead. Highlights of the project include:

- High level of coordination with and from DDOT
- Relaxation of ‘control’ for NPS with DDOT in clear lead to design and build trail
- Innovative funding sources lead by DDOT with little to no additional burden on NPS to apply, administer or complete work
- Reduced long-term maintenance liability for NPS through MOA with DDOT
- High level of political support for a regionally significant project

### **Local Sources**

Local funding sources are numerous across the National Capital Region and the extent of the NCR’s paved trail network. Unfortunately not all local jurisdictions are on the same level of coordination or evaluation of their paved trail network; however, a few are progressive and all should be seen as champions of the NPS trail network. The following is an example of a successful and on-going partnership for local funding support.

### **Arlington County Trail Counters**

The Arlington County Trail Counters have been utilized by NPS on the Mount Vernon Trail for over ten years. As documented in the NPS Paved Trail Network Study memorandum, Trail Count Data and Trends, Arlington County has funded the capital expenses and continued operations and maintenance of trail counters along NPS facilities as part of the County’s BikeArlington program.

The data collected through this partnership is beneficial to both parties as Arlington County evaluates the information as part of the County’s long-range transportation planning efforts and the NPS collects monthly counts to evaluate trends in use along the Mount Vernon Trail. Recently the trail counter program has been expanded by Arlington County through a long term special use permit with the NPS for three new trail counters. This partnership is highly beneficial to NPS as both the capital costs and operational costs of the trail counters are paid for by the BikeArlington program with no additional staff or capital expenditures required of the NPS. In return for granting access for install and maintenance of each counter, the NPS receives detailed monthly trail count data for use.

### **Implications for NPS**

Arlington County’s BikeArlington program is a highly successful locally funded program with a long history of partnership with NPS for installation and maintenance of trail counters along the Mount Vernon Trail. This relationship has recently expanded to include funding capital improvement projects, specifically at the intersection of Four Mile Run with Mount Vernon Trail for trail safety improvements. Highlights of the program include:

- Continued, long-standing agreement for installation and maintenance of trail counters
- Serves as model for entire NCR for small projects which can be fully funded, both capital and operations, by a partner
- Successful smaller projects often lead to larger, more complex projects such as trail capital improvements
- Lacks means to expedite regular or template based agreements for faster implementation with regular partners

## Non-Governmental Sources/ Non-Profit

Non-governmental sources such as non-profits, park conservancy, corporate donations, private donations, friends of groups, etc. have been a growing source for funding of capital projects as well as deferred operations and maintenance needs for the NPS. The follow examples are two highly successful case studies which identify the growing interest by park visitors and supporters to financially assist the NPS. In both cases, the core initiative of the founding or sponsoring partner was not to assist the NPS on trail projects; however, through the coordination and alignment of both partner's goals programs were developed to focus on trails.

### *Friends of Acadia's Trails Forever Program*

The Friends of Acadia's Trails Forever Program is a highly successful partnership between a non-profit and Acadia National Park that is focused on the enhancement and preservation of trails throughout the park. Acadia NP contains over 140 miles of hiking trails throughout the park's 47,000 acres and were constructed in the early 1900s by nearby village improvement associations. Additional trails were developed by the Civilian Conservation Corps (CCC) in the 1930s. During peak summer months the park's trail network can see over 5,000 daily visitors, similar to some of the daily peak uses of paved trails throughout the National Capital Region.

Though the Friends of Acadia have successful campaigns for endowment and capital improvement programs over its 25+ year history, the Trails Forever Program has been their most successful financially. The Friends group started a campaign for capital support of the parks trail network in 1999, and by 2001 had raised approximately \$13 million. Funds raised included \$9 million from private donations and a matching commitment by the NPS of \$4 million through the park's entry fee program, marking the first time a national park had used entry fees to match private fundraising. This was significant in that the Acadia NP trail network was the first to be an endowed system nationally. The campaign was so successful that the target was met two years early in 2000. By 2009, the tenth anniversary of the program, the Friends group had funded construction of a 5.6 mile village connector trail, the reopening of 1.8 miles of abandoned trails; construction of over 3,000 steps, 16,760 square feet of walls and replacement or construction of over 259 culverts along trails. By 2013, the program had completed rehabilitation of 130 miles of foot trails, restored 11 miles of abandoned trails and created give village connector trail, in addition to endowing the trail system in perpetuity.

In addition to the support for capital improvements to the park's trail network, the Trails Forever Program has endowed four support positions call 'Ridgerunners,' who are seasonal support staff that work with park managers to monitor trail use, complete trail repairs and administer visitor questionnaires. Ridgerunners also help to educate visitors to park rules for trail use such as pet leash requirements and the environmental impacts associated with non-trail activities in the park. Though the effectiveness of the Ridgerunners program has not been studied, documented contacts with visitor and a separate endowed funding sources helps ensure that the program will remain.

By 2013, Friends of Acadia had over 3,725 members, received \$20 million in grants, supported a \$23.4 million endowment; maintained ten full-time staff, supported over 150 seasonal staff and had an operating budget of approximately \$3 million. Memberships to the organizations starts at \$35 annually and ranges up to \$10,000.

### Implications for NPS

The Friends of Acadia's Trails Forever Program established many firsts for the NPS. It was the first time entry fees were used to match private fundraisings; and the first time a park's trail system was privately endowed. Additional highlights of the program with implications for NPS include:

- Establishment of a well-defined MOA specifying each partner's role
- Establishment of three separate endowments; \$5 million for maintenance of trails; \$1 million for the Acadia Youth Conservation Crew as a 20-person trail maintenance crew; and \$500,000 for the Ridgerunners program
- Advancement of the parks capital expenditure plan through the donation of \$2.5 million raised for trail capital improvements
- Joint development of goals and trail development and evaluation criteria
- Annual progress monitoring by both partners

Source: Managing Outdoor Recreation: Case Studies in the National Parks by Robert E. Manning and Laura E. Anderson, and Friends of Acadia

### **Golden Gate National Parks' Conservancy Trail Campaign**

The Golden Gate National Parks' Conservancy Trail Campaign was an \$85 million program initiated in 2002 and based on the success of the Friends of Acadia Trails Forever Program. The Golden Gate National Parks Conservancy, a 14,000 member non-profit that has contributed over \$300 million in park support since its founding in 1981, the Trails Forever Program focuses on development of 24 miles of trails and construction of eight overlooks.

The Trails Forever Program is funded through the Presidio Trust's Trails, Bikeways and Overlook Plan which included a campaign to raise \$85 million in private donations to support development of capital projects in alignment with the Park's goals. With endowed funding, the Trails Forever Program has restored over 125 miles of trails and over 1,000 acres of habitat and operates multiple volunteer groups for trail maintenance, in addition to the capital campaign objectives. The fundraising campaign was originally seeded by a private donation by of \$15 million, with the same private fund providing a campaign-closing \$10 million second donation for a total of \$25 million from a single private donor. Work is completed through the development of a MOU between the Conservancy and the NPS.

### **Implications for NPS**

The Trails, Bikeways and Overlooks Plan campaign by the Golden Gate National Parks Conservancy's Presidio Trust has remained a highly success program which has funded numerous trail capital projects as well as endowed programs and trail maintenance and stewardship initiatives. Additional highlights of the program with implications to NPS include:

- Trust worked to define 'buckets' or projects with clear public (NPS) and private (Trust) roles and responsibilities
- Project roles defined around phase of work, i.e. design or construction, without a mix of responsibility
- Trust worked to established clear need and vision for the trails and overlooks before launching campaign
- Alignment of Trust's goals with those of NPS allowed for greater trust and faster approvals

### A.3 Acronyms

Table A.2 contains a list of acronyms used throughout the document.

Table A.2 List of Acronyms

Acronym	Definition	Acronym	Definition
AASHTO	American Association of State Highway and Transportation Officials	GRMP	Great Smoky Mountains National Park
ABA	Architectural Barriers Act	GWMP	George Washington Memorial Parkway
ACAD	Acadia National Park	IMARS	Incident Management Analysis and Reporting System
ACHP	Advisory Council on Historic Preservation	ISTEA	Intermodal Surface Transportation Efficiency Act
BDP	Bikeshare Development Plan	L RTP	Long Range Transportation Plan
BLM	US Bureau of Land Management	MAP-21	Moving Ahead for Progress in the Twenty-First Century
CAD	Computer Automated Dispatch	MET	Metropolitan Branch Trail
CCC	Civilian Conservation Corps	M-NCPPC	Maryland-National Capital Park and Planning Commission
CDC	Centers for Disease Control	MOA	Memorandums of Agreements
CFR	Code of Federal Regulations	MOU	Memorandum of Understand
CHOH	Chesapeake and Ohio Canal National Historical Park	MTP	Master Transportation Plan
CIP	Capital Improvement Program	MUTCD	Manual on Uniform Traffic Control Devices
CIS	Capital Investment Strategy	MWCOG	Metropolitan Washington Council of Government
CRV	Current Replacement Value	NACE	National Capital Parks – East
DDOT	District Department of Transportation	NAMA	National Mall and Memorials Parks
DM	Deferred Maintenance	NCHRP	National Cooperative Highway Research Program
DOI	Department of the Interior	NCR	National Capital Region
EA	Environmental Assessment	NCT	National Capital Trail
ECG	East Coast Greenway	NEPA	National Environmental Policy Act
EIS	Environmental Impact Statement	NFWF	National Fish and Wildlife Foundation
FARS	Fatality Analysis Reporting System	NHPA	National Historic Preservation Act
FHA	Federal Highway Administration	NHTSA	National Highway Traffic Safety Administration
FLAP	Federal Lands Access Program	NPS	National Park Service
FLH	Federal Lands Highway	NRHP	National Register of Historic Places
FLTP	Federal Lands Transportation Program	NVRPA	Northern Virginia Regional Park Authority
FLTP	Federal Lands and Tribal Transportation Program	O&M	Operations and Maintenance
FMSS	Facility Management Software System	PEPC	Planning, Environment and Public Comment
FO	Facility Operations	PM	Preventive Maintenance
FS	Forest Service	POHE	Potomac Heritage
FWS	Fish and Wildlife Service	REI	Recreational Equipment Incorporated
GIS	Geographic Information System	RM	Recurring Maintenance
GRCA	Grand Canyon National Park	ROM	Rough Order of Magnitude

Acronym	Definition
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users
SHPO	State Historic Preservation Officer
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TA	Transportation Alternative
TIP	Transportation Improvement Plan
TRB	Transportation Research Board
TREDS	Traffic Records Electronic Data System
USACE	US Army Corp of Engineers
USBR1	US Bicycle Route 1
USDOT	United States Department of Transportation
USPP	United States Park Police
VAHSO	Virginia Highway Safety Office
VDOT	Virginia Department of Transportation
VLCF	Virginia Land Conservation Fund
VMT	Vehicle Miles Traveled
VRTF	Virginia Recreation Trail Fund
W&OD	Washington and Old Dominion
WABA	Washington Area Bicycle Association
WMATA	Washington Metropolitan Area Transit Authority

## A.4 Project Prioritization Scoring

Table A.3 through Table A.8 contain the prioritization scores assigned to each of the 94 capital recommendations. Scores were assigned on a scale of zero to seven as described in Section 5.4. Those projects with a score of 5 or 6 were classified as priority projects.

Table A.3 Prioritization Scores for C&O Canal National Historical Park Capital Recommendations

Park Unit	Map Label	Action	Project Scoring Criteria							Total Score
			1	2	3	4	5	6	7	
<b>Immediate (0-2 Years)</b>										
CHOH	1.1	Close gap in trail from 30th Street to 31st Street through an analysis of Water Street corridor that addresses safety and user conflicts	1	1	1	1	1		1	6
<b>Short-Term (2-5 Years)</b>										
CHOH	1.2	Close gap in trail from Lock 1 to Lock 0	1	1	1					3
CHOH	3.1	Develop a regional trailhead with bike share at Lock 0	1				1		1	3
CHOH	5.4	Evaluate potential access improvements from the Capital Crescent Trail to Key Bridge	1	1		1	1		1	5
<b>Mid-Term (5-10 Years)</b>										
CHOH	3.2	Develop local trailhead facilities at crossing of Capital Crescent Trail and C&O Canal Towpath near Palisades Park	1						1	2
CHOH	5.1	Enhance signage and wayfinding				1				1
CHOH	5.2	Conduct culvert study along C&O Canal Towpath					1			1
CHOH	5.3	Conduct lighting study for CCT to determine areas for possible implementation	1							1

### Project Scoring Criteria

1. Project crosses between more than one jurisdiction or more than two park units.
2. Provides critical continuity by closing a gap or eliminating a barrier on the regional network.
3. Project is included in an approved or adopted plan or study.
4. Project may reduce user conflicts.
5. Project is a critical safety improvement.
6. Improves connectivity from underserved neighborhoods.
7. Project is located along high-volume trail segment.

Table A.4 Prioritization Scores for George Washington Memorial Parkway Capital Recommendations

Park Unit	Map Label	Action	Project Scoring Criteria							Total Score
			1	2	3	4	5	6	7	
<b>Immediate (0-2 Years)</b>										
GWMP	1.6	Conduct alternatives analysis to provide off-road trail connection from Theodore Roosevelt Bridge to Arlington Ridge Park	1	1	1		1		1	5
GWMP	2.2	Improve access on Airport Access Road overpass to Reagan National Airport/ Aviation Circle; connect with steps; expand sidewalks	1	1	1	1	1		1	6
GWMP	2.3	Connect 14th Street Bridge to proposed off-road facility on Boundary Channel Drive along Lagoon; create on-street trail facility on Boundary Channel Drive that connects under I-395 to Long Bridge Drive	1	1	1	1	1		1	6
GWMP	2.4	Develop connection from Mount Vernon Trail to Theodore Roosevelt Bridge on south side of bridge	1	1	1	1	1		1	6
GWMP	2.5	Improve safety and access at intersection of Mount Vernon Trail and Custis Trail at Lee Highway/North Lynn Street approach to Key Bridge  Coordinate with NPS regarding access drive to future boathouse	1		1	1	1		1	5
GWMP	4.7	Provide safety and sightline improvements and explore the potential for new roundabout with Four Mile Run Trail	1	1	1	1	1		1	6
<b>Short-Term (2-5 Years)</b>										
GWMP	1.2	Develop on-road trail facility from Mount Vernon Trail crossing GWMP, routed along Vernon View Drive to Fort Hunt Road	1		1	1		1		4
GWMP	1.3	Develop on-road trail facility from Fort Hunt Road/Fort Hunt Park along Fort Hunt Road to Belle Haven Road	1		1	1		1		4
GWMP	1.4	Develop on-road connector along Belle Haven Road to Belle Haven Park and Mount Vernon Trail	1	1				1		3
GWMP	1.5	Realign trail within Gravelly Point Park to separate through-traffic				1	1		1	3
GWMP	3.1	Develop a regional trailhead with bike share	1				1		1	3
GWMP	3.5	Enhance the regional trailhead at Jones Point Park	1				1		1	3
GWMP	3.6	Develop a regional trailhead at Long Bridge Park	1				1		1	3
GWMP	3.7	Develop a regional trailhead at Gravelly Point				1	1		1	3
GWMP	4.2	Provide traffic calming measures to facilitate crossing of GWMP at Vernon View Drive					1	1	1	3

Park Unit	Map Label	Action	Project Scoring Criteria							Total Score
			1	2	3	4	5	6	7	
GWMP	4.3	Provide traffic calming measures to facilitate crossing of GWMP at Collingwood Road					1	1	1	3
GWMP	4.4	Provide traffic calming measures to facilitate crossing of GWMP at Morningside Lane					1	1	1	3
GWMP	4.5	Provide traffic calming measures to facilitate crossing of GWMP at Belle View Boulevard					1	1	1	3
GWMP	4.6	Provide traffic calming measures to facilitate crossing of GWMP at Belle Haven Road					1	1	1	3
GWMP	4.8	Provide at-grade crossing improvements per ongoing EA recommendations at Arlington Memorial Bridge				1	1		1	3
GWMP	4.9	Provide at-grade crossing improvements per ongoing EA recommendations at Washington Boulevard				1	1		1	3
<b>Mid-Term (5-10 Years)</b>										
GWMP	1.1	Realign trail at bridge near Little Hunting Creek					1		1	2
GWMP	2.1	Replace existing 300 foot long bridge through wetlands					1		1	2
GWMP	3.2	Enhance existing Local/NPS trailhead with improved signage and amenities at Riverside Park							1	1
GWMP	3.3	Develop a local/NPS trailhead at Fort Hunt Park							1	1
GWMP	3.4	Develop a local/NPS trailhead at Belle Haven Park							1	1
GWMP	3.8	Develop a local/NPS trailhead with bikeshare, with viewshed compliancy							1	1
GWMP	3.9	Enhance existing bikeshare station on North Meade Street adjacent to U.S. Marine Corps Memorial with signage, shelter, bike repair station, etc.	1						1	2
GWMP	3.10	Develop a local/NPS trailhead at the existing bride to Theodore Roosevelt Island							1	1
GWMP	4.1	Provide improvements to at-grade Highway crossing at Mount Vernon Estate and Garden					1		1	2
GWMP	5.1	Implement edge of pavement striping on trail within close proximity of roadway along Reagan National Airport perimeter					1			1
GWMP	5.2	Coordinate with City of Alexandria to promote trail as Mount Vernon Trail relief/commuter route through enhanced signage				1				1

**Project Scoring Criteria**

1. Project crosses between more than one jurisdiction or more than two park units.
2. Provides critical continuity by closing a gap or eliminating a barrier on the regional network.
3. Project is included in an approved or adopted plan or study.
4. Project may reduce user conflicts.
5. Project is a critical safety improvement.
6. Improves connectivity from underserved neighborhoods.
7. Project is located along high-volume trail segment.

Table A.5 Prioritization Scores for National Capital Parks - East Capital Recommendations

Park Unit	Map Label	Action	Project Scoring Criteria							Total Score
			1	2	3	4	5	6	7	
<b>Immediate (0-2 Years)</b>										
NACE	1.1	Develop a hiker-biker trail connector from Shepherd Parkway SW through Oxon Cove Park to the Oxon Hill Farm Trail	1	1	1		1	1		5
NACE	1.8	Develop on-street facility from Oxon Hill Farm Trail across I-495 to Oxon Hill Road and Harborview Avenue (in Prince George's Co.); improve signage and crossings; connect to POHE	1	1	1		1	1		5
NACE	1.7	Connect from Anacostia Riverwalk Trail to Minnesota Avenue Metro Station	1	1	1			1		4
NACE	5.2	Conduct Feasibility Study for extension of Suitland Parkway Trail from D.C./MD line to Henson Creek Trail (also address upgrades to D.C. portion of trail)	1	1	1			1	1	5
<b>Short-Term (2-5 Years)</b>										
NACE	1.2	Improve connection from Audrey Lane and Forest Heights Elementary School to Oxon Run Park and Oxon Hill Farm Trail	1	1				1		3
NACE	1.3	Develop an off-road trail from Fredrick Douglass Memorial Bridge to Shepherd Parkway SW	1	1	1			1		4
NACE	1.4	Construct off-road connector from Suitland Parkway Trail to Fort Circle Hiker-Biker Trail	1	1	1			1		4
NACE	1.5	Develop an off-road trail along Fort Davis Drive SE and Fort Dupont Drive SE with connection to the Anacostia Riverwalk Trail under I-295	1	1				1		3
NACE	1.6	Connect from Fort Circle Hiker-Biker Trail to Minnesota Avenue Metro Station	1	1	1			1		4
NACE	1.9	Develop on-street trail to connect proposed Oxon Run Trail to Suitland Parkway Trail through Saint Elizabeth's (link to Metro)	1	1	1			1		4
NACE	1.10	Develop a connection between Kenilworth Park across the Anacostia River to the National Arboretum and M Street NE		1	1			1		3
NACE	3.1	Develop a regional trailhead facility with bikeshare at Oxon Hill Farm	1				1	1		3
NACE	3.2	Develop a regional trailhead facility with bikeshare at Poplar Point Park	1				1	1	1	4
NACE	5.1	Conduct feasibility study to establish off-road trail facility along Oxon Run extending through D.C., MD, and NPS portions, and linking to Pennsylvania Avenue, SE (link to Congress Heights Metro Station)	1	1	1			1		4
NACE	5.3	Evaluate potential access improvements from the Anacostia Riverwalk Trail to the Whitney Young Memorial Bridge (East Capitol Street NE)	1	1	1			1	1	6

**Project Scoring Criteria**

1. Project crosses between more than one jurisdiction or more than two park units.
2. Provides critical continuity by closing a gap or eliminating a barrier on the regional network.
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4. Project may reduce user conflicts.
5. Project is a critical safety improvement.
6. Improves connectivity from underserved neighborhoods.
7. Project is located along high-volume trail segment.

Park Unit	Map Label	Action	Project Scoring Criteria							Total Score	
			1	2	3	4	5	6	7		
<b>Mid-Term (5-10 Years)</b>											
NACE	3.3	Develop a local/NPS trailhead facility at Fort Dupont Park							1		1
NACE	5.4	Work with Prince George's County to explore the feasibility of a trail along the Baltimore-Washington Parkway (or other nearby corridor) to connect Washington to Baltimore	1	1					1		3

Table A.6 Prioritization Scores for National Mall and Memorial Parks Capital Recommendations

Park Unit	Map Label	Action	Project Scoring Criteria							Total Score	
			1	2	3	4	5	6	7		
<b>Immediate (0-2 Years)</b>											
NAMA	1.1	Remove stairs at Ohio Drive SW Tidal Basin Inlet Bridge to connect to Ohio Drive Trail; narrow travel lanes on Inlet Bridge to widen sidewalk; mark bike lanes along East Basin Drive to connect to proposed new cycle track extension on Maine Avenue and to 14th Street Bridge Trail	1	1		1	1			1	5
NAMA	1.4	Coordinate with DDOT for development and installation of signage	1			1				1	3
NAMA	1.5	Install sharrows for shared facility		1			1				2
NAMA	2.4	Improve safety of all at-grade trail crossings from the National Mall leading up to the Theodore Roosevelt Bridge; Improve crossing of existing Rock Creek and Potomac Parkway at the Belvedere/Constitution Avenue extension; Provide new crossing of Rock Creek and Potomac Parkway to connect Rock Creek and Potomac Parkway Trail to volleyball courts and bridge approach; Provide additional signage; Expand trail width on both north and south sides of bridge	1	1	1	1	1			1	6
NAMA	4.1	Provide crossing improvements from existing George Mason Memorial/ Bikeshare station across East Basin Drive SW to Jefferson Memorial and across Ohio Drive to East Potomac Park			1	1	1			1	4
NAMA	4.2	Develop trail crossing from F Street NW to Rock Creek and Potomac Parkway Trail	1	1		1	1				4
<b>Short-Term (2-5 Years)</b>											
NAMA	1.2	Extend cycle track south on 15th Street between Pennsylvania Avenue NW and Constitution Avenue by removing vendor/street bus on west side of street. Will require coordination between DDOT and NAMA for 15th Street ROW between Pennsylvania Avenue and Constitution Avenue. Study feasibility to extend cycle track on 15th Street between Constitution Avenue and Maine Avenue in area between existing sidewalk and road/or move sidewalk to accommodate lane. Reclaim a southbound lane of Maine Avenue from Kutz Bridge to Jefferson Memorial and East Basin Drive for cycle track connection/dedicated bike lanes.	1	1	1	1	1			1	6

Park Unit	Map Label	Action	Project Scoring Criteria							Total Score
			1	2	3	4	5	6	7	
NAMA	1.6	Implement preferred alternative from the Mall Walkway Study to improve access, ADA and user conflicts. Work with Denver Service Center on study of discrete signage options for future separation of user needs.		1		1	1		1	4
NAMA	2.2	Conduct a feasibility study at Lincoln Memorial Circle to develop set of recommendations to improve visitor safety and reduce conflicts for motorists, pedestrians and cyclists. Alternatives should improve connections across the bridge and along the Parkway and Ohio Drive to trails.	1	1	1	1	1		1	6
NAMA	2.3	Implement signage enhancements and access improvements from Lincoln Memorial Loop to Arlington Memorial Bridge in coordination with DDOT.	1			1	1		1	4
NAMA	2.5	Implement signage enhancements and access improvements from Lincoln Memorial Loop to Theodore Roosevelt Bridge.	1			1	1		1	4
NAMA	3.3	Develop a multi-modal regional trailhead with coordination from NAMA	1				1		1	3
<b>Mid-Term (5-10 Years)</b>										
NAMA	1.3	Analyze route alternatives for a new path between FDR Memorial and West Potomac Park ballfields to include marked or separated bicycle and pedestrian facilities.				1			1	2
NAMA	1.7	Study feasibility for on-street bike facility on west bound Independence Avenue from 23rd Street SW to 17th Street SW. Sign/mark bicycle loop from MLK Jr. Memorial to Lincoln Memorial, to Vietnam Veterans Memorial, north of Constitution Garden to 15th Street NW and down to Independence Avenue and back west to MLK Jr. Memorial.		1		1				2
NAMA	2.1	Build dedicated bike/ped trail via new CSX bridge; Connect to Mount Vernon Trail and Long Bridge Drive (Long Bridge Park) and Boundary Channel Drive on west side of Potomac River and to Ohio Drive SW and Rock Creek Multi-use Trail on east side of Potomac River.	1	1	1				1	4
NAMA	3.1	Develop a local/NPS trailhead which may include signage, shelter, bike repair station, water, etc.					1	1		2
NAMA	3.2	Develop a local/NPS trailhead at existing Bikeshare station to include bike repair station, water, etc.							1	1
NAMA	5.1	Assess options to expand the width of Rock Creek Park Multi-use Trail along Ohio Drive SW between the Tidal Basin Inlet and Independence Avenue SW				1				1

**Project Scoring Criteria**

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4. Project may reduce user conflicts.
5. Project is a critical safety improvement.
6. Improves connectivity from underserved neighborhoods.
7. Project is located along high-volume trail segment.

Table A.7 Prioritization Scores for Potomac Heritage National Scenic Trail Capital Recommendations

Park Unit	Map Label	Action	Project Scoring Criteria							Total Score	
			1	2	3	4	5	6	7		
<b>Short-Term (2-5 Years)</b>											
POHE	1.1	Complete multi-use trail facility between Mount Vernon Estate and Gardens and Woodlawn	1	1					1		3
POHE	1.2	Pursue designation of POHE from C&O Canal terminus with Rock Creek Multi-use Trail within the National Mall area and connecting to the 11th Street Bridge, linking up to the South Capitol Street Trail.		1	1						2
<b>Mid-Term (5-10 Years)</b>											
POHE	3.1	Develop a local trailhead at Fort Washington Park							1		1
POHE	3.2	Develop a local trailhead at Harmony Hall Community Center							1		1
POHE	3.3	Develop a local trailhead at Fort Foote Park	1						1		2

**Project Scoring Criteria**

1. Project crosses between more than one jurisdiction or more than two park units.
2. Provides critical continuity by closing a gap or eliminating a barrier on the regional network.
3. Project is included in an approved or adopted plan or study.
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5. Project is a critical safety improvement.
6. Improves connectivity from underserved neighborhoods.
7. Project is located along high-volume trail segment.

Table A.8 Prioritization Scores for Rock Creek Park Capital Recommendations

Park Unit	Map Label	Action	Project Scoring Criteria							Total Score	
			1	2	3	4	5	6	7		
<b>Immediate (0-2 Years)</b>											
ROCR	5.1	Evaluate the feasibility of an on or off-road trail facility along Military Road NW from Glover Road NW to 16th Street NW	1	1	1	1	1				5
ROCR	5.2	Evaluate the feasibility of an off road trail facility along Oregon Avenue NW from Military Road NW to the D.C./MD line with a connection to Beach Drive and the Rock Creek Multi-use Trail	1	1		1	1			1	5
<b>Short-Term (2-5 Years)</b>											
ROCR	1.1	Continue to coordinate with DDOT for closure of existing gap	1	1	1						3
ROCR	1.2	Develop full-time on-street bike lane/ facility along Glover/Ridge Road NW from Broad Branch Road NW to Military Road NW		1		1	1			1	4

Park Unit	Map Label	Action	Project Scoring Criteria							Total Score	
			1	2	3	4	5	6	7		
ROCR	1.3	Develop an off-road trail facility from 16th Street NW to Fort Stevens Park, Fort Slocum Park and to Fort Totten with connection to MBT.	1	1					1		3
ROCR	1.5	Develop an on-road connection to MBT from Bates Road NE to Kansas Avenue NW via Fort Totten Park	1	1	1				1		4
ROCR	1.6	Develop an off-road connector linking Fort Circle Park Trail and Northwest Branch Trail to proposed New York Avenue Trail	1	1	1				1		4
ROCR	1.7	Coordinate for development of on-street facilities on Military Road from Oregon Avenue NW to Nebraska Avenue NW	1	1	1				1		4
ROCR	4.1	Increase signage, lighting, and improve safety at all at-grade crossings at P Street NW					1	1		1	3
ROCR	4.3	Enhance crossing at Sherrill Drive entrance at 16th Street NW	1		1			1			3
<b>Mid-Term (5-10 Years)</b>											
ROCR	1.4	Develop an off-road trail from Fort Totten/ MBT via Fort Circle Park to Avondale Park	1	1	1				1		4
ROCR	3.1	Enhance existing trailhead into a local trailhead standard	1							1	2
ROCR	3.2	Develop a local trailhead facility with connections to Fort Circle Park Trail and MBT. Increase lighting and security measures in park.	1					1		1	3
ROCR	4.2	Implement multi-use EA recommendations at Calvert Street NW and Beach Drive NW to Klingle Road NW					1			1	2

**Project Scoring Criteria**

1. Project crosses between more than one jurisdiction or more than two park units.
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3. Project is included in an approved or adopted plan or study.
4. Project may reduce user conflicts.
5. Project is a critical safety improvement.
6. Improves connectivity from underserved neighborhoods.
7. Project is located along high-volume trail segment.

## A.5 Data Sources

Table A.9 Data Sources

Document Title	Source
<b>National Park Service</b>	
Paved Recreation Trails of the National Capital Region (1990)	Provided by NPS NCR
Multi-Use Trail Gaps and Opportunities in the National Capital Region (2012)	Provided by NPS NCR
CapitalSpace (2010)	<a href="http://www.ncpc.gov/capitalspace/">http://www.ncpc.gov/capitalspace/</a>
Foundation Document – Chesapeake and Ohio Canal National Historic Park (2013)	Provided by NPS NCR
Common Paths: Improving Safety and Enhancing User Experience on the George Washington Memorial Parkway’s Mount Vernon Trail (2012)	Provided by NPS NCR
Fort Circle Parks Final Management Plan (2004)	Provided by NPS NCR
Foundation Document – George Washington Memorial Parkway (2014)	Provided by NPS NCR
Improving Connections for Bicyclists and Pedestrians on the National Mall (2013-2014)	Provided by NPS NCR
National Mall Plan (2010)	<a href="http://www.nps.gov/nationalmallplan/NationalMallPlan.html">www.nps.gov/nationalmallplan/NationalMallPlan.html</a>
Management Policies (2006)	<a href="http://www.nps.gov/policy/mp/policies.html">http://www.nps.gov/policy/mp/policies.html</a>
Foundation Document – Potomac Heritage National Scenic Trail (2014)	<a href="http://www.nps.gov/pohe/getinvolved/planning.htm">http://www.nps.gov/pohe/getinvolved/planning.htm</a>
Foundation Document – Rock Creek Park (2014)	Provided by NPS NCR
National Long Range Transportation Plan (Draft) (2014)	<a href="http://parkplanning.nps.gov/lrtp/">http://parkplanning.nps.gov/lrtp/</a>
Connect Trails to Parks: A Three Year Program Report (2011)	<a href="http://www.nps.gov/ncrc/programs/nts/">http://www.nps.gov/ncrc/programs/nts/</a>
Memorial Circle Transportation Plan and Environmental Assessment (2015)	<a href="http://parkplanning.nps.gov/mctpea">http://parkplanning.nps.gov/mctpea</a>
Gravelly Point and Roaches Run Environmental Assessment (2012)	<a href="http://parkplanning.nps.gov/gpr">http://parkplanning.nps.gov/gpr</a>
Road Safety Audit for the Lincoln Memorial Circle (2014)	<a href="http://www.fedlandsinstitute.org/Documents/RepositoryDocuments/TRIPTAC_LincolnMall_RSA_6.pdf">http://www.fedlandsinstitute.org/Documents/RepositoryDocuments/TRIPTAC_LincolnMall_RSA_6.pdf</a>
Repair And Connectivity Improvements Of The Civil War Defenses Of Washington Hiker-Mountain Biker Trail Environmental Assessment (2013)	Provided by NPS NCR
Klingle Valley Trail Project Environmental Assessment Finding of No Significant Impact (2011)	<a href="https://comp.ddot.dc.gov/Documents/Klingle%20Valley%20Trail%20-%20Finding%20of%20No%20Significant%20Impact%20%28FONSI%29.pdf">https://comp.ddot.dc.gov/Documents/Klingle%20Valley%20Trail%20-%20Finding%20of%20No%20Significant%20Impact%20%28FONSI%29.pdf</a>
Rock Creek Park Multi-Use Trail Rehabilitation Environmental Assessment (2011)	<a href="http://parkplanning.nps.gov/documentsList.cfm?projectID=34546">http://parkplanning.nps.gov/documentsList.cfm?projectID=34546</a>
Rock Creek Park and Rock Creek and Potomac Parkway General Management Plan (2003)	<a href="http://parkplanning.nps.gov/documentsList.cfm?projectID=11262">http://parkplanning.nps.gov/documentsList.cfm?projectID=11262</a>
Work Types: What, Why and How (2010)	Provided by NPS NCR
Anacostia Riverwalk Trail Environmental Assessment Finding of No Significant Impact (2005)	<a href="http://www.nps.gov/anac/learn/management/upload/environment.pdf">http://www.nps.gov/anac/learn/management/upload/environment.pdf</a>
2011-2014 Mount Vernon Trail Counter Data, Provided 2015	Provided by GWMP
2010-2014 C & O Canal/Capital Crescent Trail Counter Data, Provided 2015	Provided by CHOH
NPS Facility Management Software System (FMSS) Deferred Maintenance and Operations and Maintenance Data, July 2015	Provided by NPS Denver Service Center
GIS Base Data, 2014	Provided by NCR NPS
<b>District of Columbia</b>	
moveDC 2-Year Action Plan	<a href="http://www.wemovedc.org/">http://www.wemovedc.org/</a>
District of Columbia Bicycle Master Plan (2005)	<a href="http://ddot.dc.gov/page/bicycle-master-plan">http://ddot.dc.gov/page/bicycle-master-plan</a>
Comprehensive Plan for the National Capital	<a href="http://www.ncpc.gov/ncpc/Main(T2)/Planning(Tr2)/ComprehensivePlan.html">http://www.ncpc.gov/ncpc/Main(T2)/Planning(Tr2)/ComprehensivePlan.html</a>
East Coast Greenway- Maryland and the District of Columbia- Guide to Bicycling and Walking (2013)	<a href="http://www.greenway.org/pdf/mdecgguide.pdf">http://www.greenway.org/pdf/mdecgguide.pdf</a>
Southwest Federal Center Heritage Trail – Assessment Report	<a href="http://www.ncpc.gov/DocumentDepot/Actions_Recommendations/2014September/Southwest_Federal_Center_Heritage_Trail_Assessment_Report_.pdf">http://www.ncpc.gov/DocumentDepot/Actions_Recommendations/2014September/Southwest_Federal_Center_Heritage_Trail_Assessment_Report_.pdf</a>
Long Bridge Study (2015)	<a href="http://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/LongBridge_ExecutiveSummary_Chapters1thru3_0.pdf">http://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/LongBridge_ExecutiveSummary_Chapters1thru3_0.pdf</a>

Document Title	Source
District of Columbia Bike Program Fact Sheet	<a href="http://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/bike_fact_sheet_summer_2012.pdf">http://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/bike_fact_sheet_summer_2012.pdf</a>
District of Columbia Statewide Transportation Improvement Plan - Draft Fiscal Years 2015-2021 Project List	<a href="http://ddot.dc.gov/sites/default/files/dc/sites/ddot/release_content/attachments/MASTER%20Revised%20FY%2015-21%20obligation%20Plan_v5_FINAL_WEBSITE.pdf">http://ddot.dc.gov/sites/default/files/dc/sites/ddot/release_content/attachments/MASTER%20Revised%20FY%2015-21%20obligation%20Plan_v5_FINAL_WEBSITE.pdf</a>
Metropolitan Branch Trail in Brookland Alignment Options public Meeting (2004)	<a href="http://metbranchtrail.com/file_download/2/MBT_Brookland_sm.pdf">http://metbranchtrail.com/file_download/2/MBT_Brookland_sm.pdf</a>
Oregon Avenue EA 06- Chapter 2 – Alternatives and Options	<a href="http://www.oregonaveea.com/documents/06%20Chapter%202%20-%20Alternatives%20and%20Options.pdf">http://www.oregonaveea.com/documents/06%20Chapter%202%20-%20Alternatives%20and%20Options.pdf</a>
DDOT - Pedestrian and Bicycle Safety Enforcement Program (2014)	<a href="http://bestreetsmart.net/resources/2015/Comprehensive%20Pedestrian%20Enforcement-Brnyan.pdf">http://bestreetsmart.net/resources/2015/Comprehensive%20Pedestrian%20Enforcement-Brnyan.pdf</a>
Anacostia Waterfront (Parkside Pedestrian Bridge; 11th Street Bridge Project; South Capitol Street Trail Fact Sheet) (2014)	<a href="http://anacostiawaterfront.org/awi-documents/">http://anacostiawaterfront.org/awi-documents/</a>
DC Pedestrian and Bicycle Crash Data 2005-2010	<a href="http://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/pedestrian_bicycle_crash_data_update_2005-2010.pdf">http://ddot.dc.gov/sites/default/files/dc/sites/ddot/publication/attachments/pedestrian_bicycle_crash_data_update_2005-2010.pdf</a>
2013 Trail Count Statistics, Provided 2014	Provided by DDOT
GIS Base Data	<a href="http://opendata.dc.gov/">http://opendata.dc.gov/</a> and Provided by DDOT
<b>Maryland</b>	
Montgomery County – Countywide Bikeways Functional Master Plan (2005)	<a href="http://www.montgomeryplanning.org/transportation/bikeways/A_A/contents.shtm">http://www.montgomeryplanning.org/transportation/bikeways/A_A/contents.shtm</a>
Montgomery County – Countywide Park Trails Plan Amendment- June 2013 Public Meetings	<a href="http://www.montgomeryparks.org/PPSD/ParkPlanning/Projects/cwptp_ammend/cwptp.amendment.shtm">http://www.montgomeryparks.org/PPSD/ParkPlanning/Projects/cwptp_ammend/cwptp.amendment.shtm</a>
Montgomery County – Countywide Park Trails Plan (2008)	<a href="http://www.montgomeryparks.org/PPSD/ParkTrails/trail_planning/cwptp/cwptp_index.shtm">http://www.montgomeryparks.org/PPSD/ParkTrails/trail_planning/cwptp/cwptp_index.shtm</a>
Montgomery County – Streets and Roads – Sidewalk Snow Removal Plan (2014)	<a href="https://www.montgomerycountymd.gov/COUNCIL/Resources/Files/bill/2014/20141021_21-14A.pdf">https://www.montgomerycountymd.gov/COUNCIL/Resources/Files/bill/2014/20141021_21-14A.pdf</a>
Record of Decision - Purple Line Project - Montgomery County and Prince George's County by the Federal Transit Administration	<a href="http://www.purplelinemd.com/en/about-the-project/studies-reports/record-of-decision">http://www.purplelinemd.com/en/about-the-project/studies-reports/record-of-decision</a>
Prince George's County- Countywide Master Plan of Transportation (2009)	<a href="http://www.pgplanning.org/Resources/Publications/Mpot.htm">http://www.pgplanning.org/Resources/Publications/Mpot.htm</a>
Prince George's County- Corridor Access Study – Recommendation Report (2010)	<a href="http://www.pgplanning.org/Page38934.aspx">http://www.pgplanning.org/Page38934.aspx</a>
Prince George's County Priority Projects List (2007)	<a href="http://www.mdot.maryland.gov/Office_of_Planning_and_Capital_Programming/County_Priority_Letters/2007_Priority_Letters/Prince%20George's%20County%2006-06-07.pdf">http://www.mdot.maryland.gov/Office_of_Planning_and_Capital_Programming/County_Priority_Letters/2007_Priority_Letters/Prince%20George's%20County%2006-06-07.pdf</a>
Anacostia Tributary Trail System Map (2012)	<a href="http://www.pgparcs.com/AssetFactory.aspx?did=1298">http://www.pgparcs.com/AssetFactory.aspx?did=1298</a>
Maryland Twenty-Year Bicycle and Pedestrian Master Plan (2014)	<a href="http://www.mdot.maryland.gov/bikewalkplan">http://www.mdot.maryland.gov/bikewalkplan</a>
Montgomery County GIS Base Data	<a href="http://www.montgomeryplanning.org/gis/data_downloads.shtm">http://www.montgomeryplanning.org/gis/data_downloads.shtm</a> and Provided by the County
Prince George's County GIS Base Data	<a href="http://gisdata.pgplanning.org/opendata/">http://gisdata.pgplanning.org/opendata/</a> and Provided by the County
<b>Virginia</b>	
City of Alexandria – Comprehensive Transportation Master Plan (2008)	<a href="https://www.alexandriava.gov/uploadedfiles/tes/info/tes_tmp_complete.pdf">https://www.alexandriava.gov/uploadedfiles/tes/info/tes_tmp_complete.pdf</a>
City of Alexandria – Pedestrian and Bicycle Master Plan Update (2015)	<a href="http://www.alexandriava.gov/PedBikePlan">http://www.alexandriava.gov/PedBikePlan</a>
Office of History, Alexandria - Alexandria Civil War Defenses of Washington Bike Trail Interpretative Stops	<a href="https://www.alexandriava.gov/uploadedFiles/historic/info/civilwar/CivilWarBikeTrailStops.pdf">https://www.alexandriava.gov/uploadedFiles/historic/info/civilwar/CivilWarBikeTrailStops.pdf</a>
Alexandria Bike Map	<a href="https://www.alexandriava.gov/uploadedFiles/localmotion/info/2015%20FINAL%20Bike%20map%20-%20MAP%20SIDE.pdf">https://www.alexandriava.gov/uploadedFiles/localmotion/info/2015%20FINAL%20Bike%20map%20-%20MAP%20SIDE.pdf</a>
City of Alexandria – Pedestrian and Bicycle Mobility Plan (2008)	<a href="https://www.alexandriava.gov/uploadedFiles/localmotion/info/gettingaround/FINAL_FULLPLAN_060108.pdf">https://www.alexandriava.gov/uploadedFiles/localmotion/info/gettingaround/FINAL_FULLPLAN_060108.pdf</a>
Arlington Master Transportation Plan – Bicycle Element (2008)	<a href="http://arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/31/2014/02/DES-MTP-Pedestrian-Element.pdf">http://arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/31/2014/02/DES-MTP-Pedestrian-Element.pdf</a>
Arlington County Bicycle Programs Briefing Memo (2014)	<a href="http://www.bikearlington.com/tasks/sites/bike/assets/File/Bike_Briefing_Memo_9-18-14.pdf">http://www.bikearlington.com/tasks/sites/bike/assets/File/Bike_Briefing_Memo_9-18-14.pdf</a>
Bike Arlington - Arlington County Bike Map	<a href="http://www.bikearlington.com/tasks/sites/bike/assets/File/Bikemap_front.pdf">http://www.bikearlington.com/tasks/sites/bike/assets/File/Bikemap_front.pdf</a>
Arlington – Rosslyn Sector Plan (2015)	<a href="https://projects.arlingtonva.us/wp-content/uploads/sites/31/2015/07/Final-draft-Rosslyn_Sector_Plan-Posted_07-17-2015.pdf">https://projects.arlingtonva.us/wp-content/uploads/sites/31/2015/07/Final-draft-Rosslyn_Sector_Plan-Posted_07-17-2015.pdf</a>
Fairfax County Bicycle Master Plan (2014)	<a href="http://www.fairfaxcounty.gov/fcdot/pdf/bike/bicycle_master_plan_draft-final.pdf">http://www.fairfaxcounty.gov/fcdot/pdf/bike/bicycle_master_plan_draft-final.pdf</a>

Document Title	Source
Fairfax County – Staff Report for Countywide Plan Amendment – Bicycle Master Plan (2014)	<a href="http://www.fairfaxcounty.gov/dpz/comprehensiveplan/amendments/2013-cw-t2.pdf">http://www.fairfaxcounty.gov/dpz/comprehensiveplan/amendments/2013-cw-t2.pdf</a>
Trail Development Strategy Plan: Online Resource Version	<a href="http://www.fairfaxcounty.gov/parks/plandev/downloads/trail-development-strategy-plan.pdf">http://www.fairfaxcounty.gov/parks/plandev/downloads/trail-development-strategy-plan.pdf</a>
Fairfax County – Countywide Trails Map (2014)	<a href="http://www.fairfaxcounty.gov/dpz/comprehensiveplan/maps/trailsplanmap.pdf">http://www.fairfaxcounty.gov/dpz/comprehensiveplan/maps/trailsplanmap.pdf</a>
Northern Virginia Regional Bikeway and Trail Network Study (2003)	<a href="http://www.virginiadot.org/NoVABike-FinalReport-November2003.pdf">http://www.virginiadot.org/NoVABike-FinalReport-November2003.pdf</a>
Northern Virginia Regional Bikeway and Trail Network Proposed Map (2003)	<a href="http://www.virginiadot.org/ProposedBikeway-November03.pdf">http://www.virginiadot.org/ProposedBikeway-November03.pdf</a>
U.S. Bicycle Route 1 Summary Report : Selection of Preferred Route (2014)	<a href="http://www.virginiadot.org/programs/resources/bike/US_Bike_Route_1_Route_Recommendations_Summary_Report_100814.pdf">http://www.virginiadot.org/programs/resources/bike/US_Bike_Route_1_Route_Recommendations_Summary_Report_100814.pdf</a>
Virginia Department of Transportation - Policy for Integrating Bicycle and Pedestrian Accommodations	<a href="http://www.virginiadot.org/programs/resources/bike_ped_policy.pdf">http://www.virginiadot.org/programs/resources/bike_ped_policy.pdf</a>
Virginia Department of Transportation – State Bicycle Policy Plan (2011)	<a href="http://www.virginiadot.org/programs/resources/vdot_bicycle_policy_plan.pdf">http://www.virginiadot.org/programs/resources/vdot_bicycle_policy_plan.pdf</a>
2013 Virginia Outdoors Plan Virginia’s 10th Statewide Outdoor Recreation Plan (SCORP)	<a href="http://www.deq.state.va.us/Portals/0/DEQ/CoastalZoneManagement/Reports/2014cpw-Poole.pdf">http://www.deq.state.va.us/Portals/0/DEQ/CoastalZoneManagement/Reports/2014cpw-Poole.pdf</a>
Improving W&OD Trail Safety: A Stakeholder Workshop (2014)	<a href="https://www.nvrpa.org/uploads/Files/W&amp;OD_report_6_8_FINAL.pdf">https://www.nvrpa.org/uploads/Files/W&amp;OD_report_6_8_FINAL.pdf</a>
VDOT ( Bike and Pedestrian Crashes; Fatalities in Crashes; Injuries, Pedestrian Injuries by Age by Jurisdiction) 2010-2014	<a href="https://www.dmv.virginia.gov/safety/#crash_data/bicycle/">https://www.dmv.virginia.gov/safety/#crash_data/bicycle/</a>
City of Alexandria GIS Base Data	<a href="https://www.alexandriava.gov/GIS">https://www.alexandriava.gov/GIS</a> and Provided by the City
Arlington County GIS Base Data	<a href="http://gisdata.arlgis.opendata.arcgis.com/">http://gisdata.arlgis.opendata.arcgis.com/</a> and Provided by the County
Fairfax County GIS Base Data	<a href="http://data.fairfaxcountygis.opendata.arcgis.com/">http://data.fairfaxcountygis.opendata.arcgis.com/</a> and Provided by the County
<b>Federal</b>	
NHSTA – Traffic Safety Facts - 2013 Data	<a href="http://www.nrd.nhtsa.dot.gov/Pubs/812139.pdf">http://www.nrd.nhtsa.dot.gov/Pubs/812139.pdf</a>
Guide to Promoting Bicycling on Federal Lands (2008)	<a href="http://fh.fhwa.dot.gov/innovation/td/bikes/documents/02_title_forward_toc.pdf">http://fh.fhwa.dot.gov/innovation/td/bikes/documents/02_title_forward_toc.pdf</a>
Manual on Uniform Traffic Control Devices for Streets and Highways (2009)	<a href="http://mutcd.fhwa.dot.gov/">http://mutcd.fhwa.dot.gov/</a>
<b>Other Resources</b>	
Guide for the Development of Bicycle Facilities (2012)	<a href="http://www.pedbikeinfo.org/pdf/Webinar_PBIC_LC_081012_AASHTO_1.pdf">http://www.pedbikeinfo.org/pdf/Webinar_PBIC_LC_081012_AASHTO_1.pdf</a>
Guide for the Development of Bicycle Facilities (1999)	<a href="http://nacto.org/wp-content/uploads/2011/03/AASHTO-Guide-for-the-Development-of-Bicycle-Facilities-1999.pdf">http://nacto.org/wp-content/uploads/2011/03/AASHTO-Guide-for-the-Development-of-Bicycle-Facilities-1999.pdf</a>
MetroRail bicycle and Pedestrian Access Improvements Study (2010)	<a href="http://planitmetro.com/wp-content/uploads/2010/12/Metrorail-Bicycle-Pedestrian-Access-Improvements-Study_Final.pdf">http://planitmetro.com/wp-content/uploads/2010/12/Metrorail-Bicycle-Pedestrian-Access-Improvements-Study_Final.pdf</a>
City of London – Planning and Design Standards for Trails in Environmentally Significant Areas (2012)	<a href="https://www.london.ca/business/Resources/Guideline-Documents/Documents/reference-docs/Planning-Design-Standards-Trails-ESAreas-June4-2012.pdf">https://www.london.ca/business/Resources/Guideline-Documents/Documents/reference-docs/Planning-Design-Standards-Trails-ESAreas-June4-2012.pdf</a>
Portland – Regional Trails and Greenways Map (2014)	<a href="http://www.oregonmetro.gov/sites/default/files/2014_regional_trails_and_greenways_map.pdf">http://www.oregonmetro.gov/sites/default/files/2014_regional_trails_and_greenways_map.pdf</a>
Seattle Bicycle Master plan (2013)	<a href="http://www.seattle.gov/transportation/docs/bmp/2013/SBMP%20Complete%206%205%202013%202%20pm.pdf">http://www.seattle.gov/transportation/docs/bmp/2013/SBMP%20Complete%206%205%202013%202%20pm.pdf</a>

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## A.6 Public Comment Summary

# National Park Service National Capital Region Draft Paved Trails Study: Public Comment Summary

### Comment Distribution

In total, 84 Total Comments were received. The following table provides the distribution of public comments that were submitted directly to PEPC. The map on the next page depicts the distribution of these public comments by zip code. In addition to general public comments, the National Park Service received comments from representatives of the agencies and organizations listed below.

#### Washington DC: 40 Comments

20003: 5, 20016: 4, 20010: 4, 20009: 4, 20008: 4, 20007: 4,  
20024: 3, 20001: 3, 20037: 2, 20018: 2, 20002: 1, 20011:1,  
20012: 1, 20015: 1, 20242: 1

#### Virginia: 32 Comments

Alexandria: 10:  
22301: 5, 22303: 1, 22305:1, 22306:1, 22307:1, 22314: Arlington:  
13:  
22207:3, 22201: 3, 22205: 2, 22203: 2, 22202: 2, 22204:1 Burke,  
VA: 22015: 1  
Fairfax, VA: 22030: 1  
Falls Church, VA: 22042: 1  
Lorton, VA: 22079: 1  
Springfield, VA: 22153: 1  
Vienna, VA: 22181: 1  
Woodbridge, VA: 22193, 22195: 2  
Boston, VA: 27713: 1

#### Maryland: 10 Comments

Takoma Park, MD: 20912: 2  
Greenbelt, MD: 20770: 2  
Riverdale, MD: 20737: 1  
College Park, MD: 20740: 1  
Temple Hills, MD: 20748: 1  
Hyattsville, MD: 20781: 1  
Baltimore, MD: 21224: 1  
Chicopee, MD: 01013: 1

#### Other: 2 Comments

Anchorage, AK: 99501: 1 Comment  
Omaha, NE: 68134: 1 Comment

#### Organizational Affiliations

Advisory Neighborhood  
Commission 5C

Anacostia Trails Heritage Area Inc.  
Arlington County Division of  
Transportation

District Department of Transportation  
District of Columbia Government  
East Coast Greenway Alliance

Georgetown Business Improvement  
District

Mayor's Recreational Trail Advisory  
Committee

Maryland-National Capital Park and  
Planning Commission  
Palisades Citizens Association

September 11th National Memorial Trail  
System

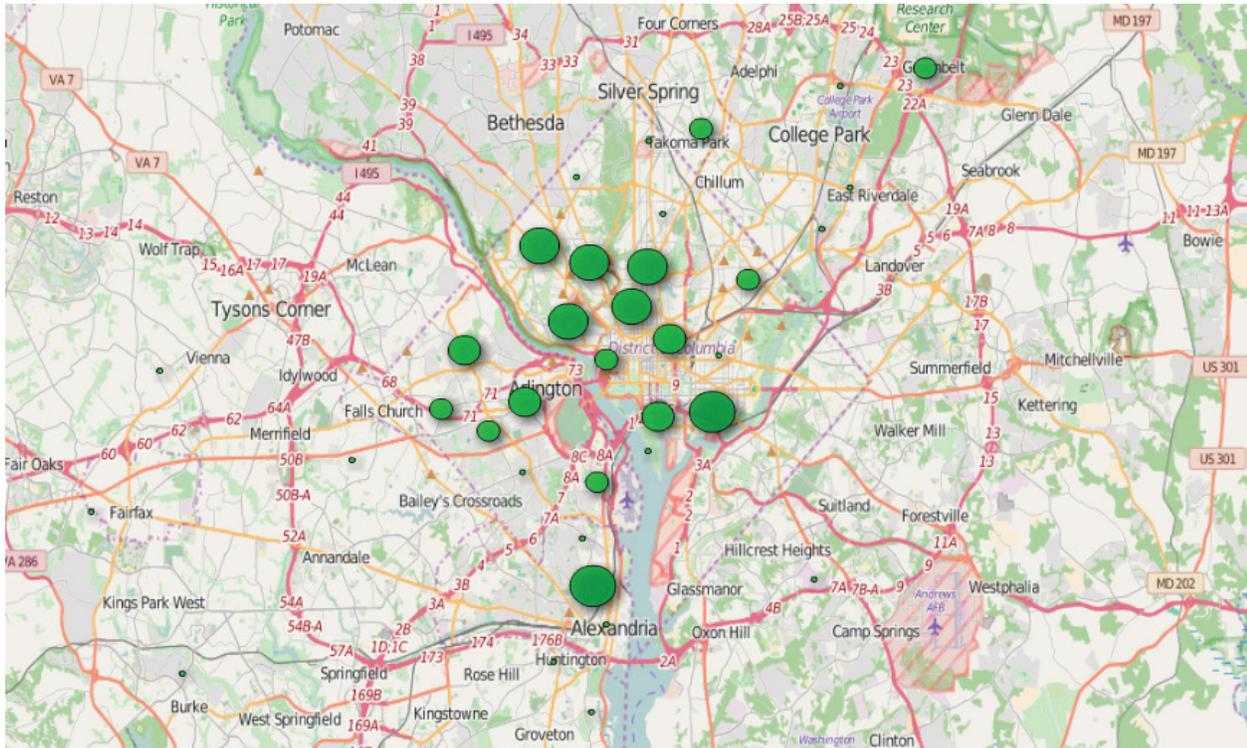
Rails-to-Trails Conservancy

Recreational Trail Advisory Committee  
REI

Sept. 11 National Memorial Trail Alliance  
Virginia Bicycle Federation

Washington Area Bicyclist Association  
(WABA)

Figure 1. Comment Distribution by Zip Code



## Comment Analysis

- 1. General Support for the Plan.** Many commenters felt that the plan was, overall, very well researched and compiled. Commenters often opened their comments with complements on the document. Commenters referenced the quality of the layout itself and the quality of the data within (geographic, financial, demographic, etc.). The general goals of the document were said to be very important for bike commuters, families, and the future of the DC Metropolitan Region as a whole. Commenters noted that the plan will improve the safety, sustainability, and public life of the city. Included in comments for support of the plan was a petition from WABA that included 1355 signatures expressing support for the recommendations in the Paved Trails study, and urging the full implementation of the plan. Public desire for a high quality, seamlessly connected trail network in the region is strong.
- 2. General Maintenance and Sustainable Transportation.** Many commenters stated that the trails in the DC Metro area are heavily used by commuters as transportation routes, and so should be treated as such. These commenters focused on the increasing popularity of bikable cities among young people, and the increasing number of bike commuters in general. “NPS has an opportunity to shift its focus in the National Capital region away from an old-school, road-centric mindset to a more sustainable approach that also recognizes the changing commuter habits of future generations.” In order to improve sustainable transportation options as the plan moves into the

future, these commenters requested that more attention be focused on two key maintenance categories: snow removal and pavement repair.

3. **General Maintenance and Safety.** Many commenters focused on the need for general improvements to the safety of trails. These comments stretched across many safety issues, including: regrading and straightening bridges and trails, fixing root damage and edging, widening heavily trafficked trails, improving visibility, creating safer automobile road crossings, improving signage and wayfinding infrastructure, creating safe lanes for bicyclists and pedestrians, removing bollards, and adding glow paint or lights to trails and paths.

Several commenters in this category referred to specific accidents or dangerous zones. For example, “Mix this pitch with a little bit of moisture and cyclists go down hard, which is just what happened to me.” And, “I have...been injured twice on my bike – – once I broke my arm when I got car doored in the bike lane... the other I broke two ribs when I was thrown from my bike when I hit a pothole...”

4. **GWMP/MVT Bike Traffic.** Almost half of commenters mentioned the issue of extreme bicycle traffic on Mount Vernon Trail (MVT) and its relationship to proposed changes along the George Washington Memorial Parkway (GWMP). The parkway (an automobile route) runs parallel to Mount Vernon Trail (a pedestrian and bicycle path).

Of these commenters, many were strongly in favor of eliminating automobile lanes to add bicycle lanes on the parkway. This solution would reduce the amount of bicycle commuters on Mount Vernon Trail.

- a. “Access to the parkway should be expanded to include more forms of transportation and should not only be for use by users of automobiles.”
- b. “Does it make sense that cars on the southern section (below Alexandria) of the GWMP are given four lanes of space while bikes and pedestrians are crammed onto the narrow, winding MVT?”
- c. “I remember a distinct family ride on 9/28/2014 where we rode with my three kids and wife, the Mount Vernon Trail was very bumpy, it meandered unnecessarily; and it had unnecessarily steep hills for children to ride on. The trail needs to be re-graded to decrease hills, increase visibility and safety, etc. The trail was also very narrow, and made me feel very unsafe for my children...In 1 hour 16 minutes 2 seconds at an average of 4mph...[we covered]...5 miles headed north. My wife was uneasy about riding back the same distance, so I was left with the option of riding back quickly; but I found the trail was inadequate. I started to ride on the shoulder of the GWMP and was able to average 27.63 mph for the same stretch in 10 minutes 32 seconds; initially not seeing that I was technically not allowed to cycle on the road. I road safely on the shoulder, traffic was not impeded, and it highlighted the need for dedicated bicycle lanes for the faster commuters”

Many commenters were also in favor of maintaining the current automobile capacity on the parkway, but improving and widening the Mount Vernon Trail. This solution would help the trail

handle the existing bicycle traffic. “I look forward to any project that would widen and improve the Mount Vernon Trail to better accommodate bicycle commuters and other trail users (particularly runners) during peak commute times.” “The Mount Vernon Trail should be widened. This should be a top priority.” “I strongly urge the Park Service to maintain the Parkway as a 4 lane, traffic light free parkway without bicycles or pedestrians between the curb lanes. Driving the road in its current configuration is scenic and special and this experience (its historic purpose) should not be degraded by forcing the roadway to be shared with other uses. If the trail needs additional capacity, please consider widening just it.”

The remaining few commenters were adamant about addressing the issue of overcrowding on the trail, but believed that either proposed solution would work to solve the problem. In all cases, commenters emphasized the need for maintenance and connectivity along Mount Vernon Trail. One commenter also mentioned that the current state of the trail surface should be better described in pages 3–5 of the plan.

5. **Dangerous Crossing at Belle View Boulevard and George Washington Memorial Parkway.** Many commenters mentioned one dangerous intersection at Belle View Boulevard and George Washington Memorial Parkway. Almost all of these called for a crosswalk, police monitoring/speed control, or a widening of the road to add a turning lane. “Drivers have a very difficult time making a left turn coming out of the Belle View on to the Parkway. Also, it is a very popular place for people to cross the Parkway from the neighborhood to get onto the Mt Vernon Trail (MVT). It should be also be noted that Spokes, a bicycle shop, is located on the Blvd so many cyclists are using that intersection even if they don’t live in the neighborhood.”
6. **Important Connections/Forgotten Connections.** Almost all commenters discussed ideas for small-scale connections or trail system improvements. The range of locations and suggestions was broad, but a generalized list of small-scale ideas is as follows:
  - a. Better connect Capital Crescent Trail to Arlington, the Roosevelt Bridge/Roosevelt Island, the C&O Canal Path, Rock Creek Trail, and the Potomac Heritage Trail.
  - b. Better connect the Anacostia Riverwalk Trail to itself, the Gateway Neighborhood, Suitland Parkway, and other trails in the system.
  - c. Make bridge crossings (Memorial Bridge, Key Bridge, and American Legion Bridge) safer for pedestrians and bicyclists; add safe access to area under Boundary Channel Bridge.
  - d. Add protected bike lanes on 15<sup>th</sup> Street near the 14<sup>th</sup> St. Bridge and towards Georgetown.
  - e. Better connect road corridors to the Trail System, especially ones popular to bicyclists, for example Basin Drive (near the Jefferson Memorial).
  - f. Add bike lanes to parks and other public spaces (Zoo, Dangerfield Island, Fort Totten Park, Greenbelt Park).
  - g. Address the Glen Echo Trolley Right-of-Way and the Palisades Trolley Trail.
  - h. Improve Connectivity of Rock Creek Trail to Metropolitan Branch Trail, Beach Drive, Soapstone Valley Trail, and Broad Branch Road.

- i. Better connect Roosevelt Bridge to Arlington Boulevard Trail and the Bike Path on Route 50.

7. **Collaboration.** Many commenters commended NPS for their collaboration with existing groups and looked forward to more collaboration in the future. “We hope to see collaboration with this plan among state, county, and federal stakeholders in order to move this plan forward.”

Some collaboration efforts that were positively addressed include: Washington Area Bicyclist Association, the September 11<sup>th</sup> National Memorial Trail Alliance, the Capital Trails Coalition, the Recreational Trails Committee, and Rails to Trails. Improved collaboration with the DDOT and Maryland National Capital Park and Planning group were recommended. Several commenters mentioned that the National Park Service should better address their relationship with the Capital Bikeshare program.

It was also recommended that a ‘Regional Bikeways Network’ be established to seek funding from federal transportation sources, while allowing the division of smaller tasks based on organizational reach. Commenters mentioned that conflicting goals among organizations sometimes stifle the broad goals of the trail system. Automobile tolling was also recommended in a few comments as a means for funding future collaboration and trail development.

8. **Equity.** A couple of commenters suggested that the plan should seek equity in the distribution of projects/comments between poorer and wealthier parts of the region.
9. **Recommendation to Include Chart with All Trails and Plans:** Some commenters suggested that the plan should include a comprehensive list of paths and trails in a chart format. The commenters mentioned that the chart should include details about the status of each trail, and plans and recommendations for moving forward. In some cases, this was mentioned as a means of achieving greater accountability and action than was achieved after the 1990 plan.
- a. “Develop operation plans for each major trail: usage, vision, desired improvements, and prioritization ranking.”
  - b. “Explain failures of last plan and outline status of each trail, goals of each trail, in this plan.”
  - c. “The study is an update of the 1990 plan written in an era when bicycling in the US was less of an everyday transportation mode and more of a recreational activity.”

10. **Specific Map Corrections.** Some commenters listed specific ideas regarding map figures. They are as follows:

- a. “On maps referenced throughout the report, please include the Marvin Gaye Trail as a regional existing off street trail. Please include L St and M Street downtown as regional on-street routes rather than K Street.”

- b. “The figure on p. 3–10 should be dropped. At that scale, it is not relevant to the report. If it is not dropped, you need to clearly state that it is a schematic map, not an accurate geographical portrayal”
- c. Existing Conditions Map. “In Maryland show the existing Anacostia River Trail from Colmar Manor which includes the pedestrian bridge over the Anacostia River at the Bladensburg Waterfront Park and the trail south of this park....2) Prince George’s Connector Trail in Avondale – the trail exists from the DC border to Russell Street not to the West Hyattsville Metro as the map shows.”
- d. “Section 4.3 and the map on page 4–9 are wholly inadequate. The text needs to be greatly expanded and the map needs to be much more precise – I would suggest breaking it into 4 or 6 regional maps at a much larger scale so that they are truly informative. There is much on there that I have no understanding about (such as, what is the red arrow south of the Mount Vernon Trail?), but of what I do know, the schematics associated with Rock Creek Park are misleading and/or wrong. For instance, you cannot call Beach Drive (during weekdays) a regional on-street route – that is a suicidal roadway if not in a car. The proper delineation would have a red arrow (trail gap) in the park from Broad Branch Road to the Maryland line.”

**11. Specific Style/Typo/Content Details:** Finally, many commenters listed very specific suggestions in relation to various sections of the document. Often, these comments consisted of typographic errors, misattributions, or mistakes in geographic descriptions. Also, a few commenters suggested generally reducing the use of acronyms and internal language contained in the document.

### Comment Summary Report Response

NPS carefully considered the comments received and many were addressed and incorporated into the plan to improve clarity and understanding of the content. Overall, the number of recommendations increased from 120 to 121.

- Two new additional projects were added under the category of “Target Assessment” and both were categorized as priority recommendations:
  - A study to evaluate access options to improve the connection from the Key Bridge to the Capital Crescent Trail.
  - A study to evaluate improved access from the East Capitol Street Bridge to the Anacostia Riverwalk Trail.
- One additional project was added under the category of “Gaps/Connectors.”
  - A connection from Kenilworth Park across the Anacostia River to the National Arboretum and M Street NE.
- Two gap/connection recommendations were removed after further evaluation.
  - An off-road trail along 16<sup>th</sup> Street NW.

- An off-road connector along Belle View Boulevard to the Mount Vernon Trail (on-street connection already exists).

The comment from the Advisory Neighborhood Commission 5C regarding connection of the Anacostia Riverwalk to the Gateway Neighborhoods is endorsed by the NPS and is represented on the map as the DDOT proposed off-street trail along New York Avenue NE, including a bridge connection across the Anacostia River.

Several comments received were related to the Glen Echo Trolley Trail. While this specific recommendation is not included in the plan, the NPS endorses the idea for additional study on this trail concept.

In addition, several comments were received about the Mount Vernon Trail. The NPS is considering a study specific to the trail that would evaluate the overall trail corridor, including trail condition, expansion/widening needs and opportunities, and other trail improvements that consider trail capacity, user volumes, and performance. This study is not included in the plan but is under evaluation. A similar study for the Capital Crescent Trail should also be considered.

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