

National Park Service
U.S. Department of the Interior

National Mall & Memorial Parks
Washington, D.C.



Environmental Assessment

Washington, D.C., Visitor Transportation Study for the National Mall and Surrounding Park Areas

November 2006



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Environmental Assessment
Washington, D.C., Visitor Transportation Study
for the National Mall and Surrounding Park Areas
National Mall & Memorial Parks
Washington, D.C.

Abstract: The National Park Service provides educational / interpretive transportation services for visitors in the area of the National Mall and surrounding park areas in Washington, D.C., including Arlington National Cemetery. Current visitor transportation services are provided through an independent third-party contract that will expire in December 2007. The purpose of this project is to plan for a convenient visitor transportation service that will protect national park resources and that will ensure high-quality visitor experiences by offering a sustainable, educational, integrated, and affordable transportation network for visitors in the D.C. area. This study responds to the need to analyze the environmental impacts and gain public input on the conceptual range of services that may be offered in the future for visitor transportation.

Public Comment: This environmental assessment will be on review for 45 days. Comments may be submitted by mail to

Transportation Planner
National Mall & Memorial Parks
900 Ohio Dr. SW
Washington DC 20024

Comments may also be submitted through the Internet at <www.nps.gov/nama>.

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SUMMARY

The Secretary of the Interior, through the Director of the National Park Service (NPS), has the exclusive right to provide interpretive transportation services for National Mall & Memorial Parks and other park sites in the metropolitan Washington, D.C., area. The purpose of this project is to plan for a convenient, well-connected interpretive visitor transportation service to national park sites in the D.C. area. This service will protect national park resources and ensure high-quality visitor experiences by offering a sustainable, educational, integrated, and affordable transportation network for visitors. The primary need for the planning study is to analyze the environmental impacts and to gain public input on the conceptual range of services that may be offered in the future for visitor transportation in the visitor core area* and Arlington National Cemetery. Current services are provided through an independent third-party contract that will expire in December 2007.

Alternatives

The National Park Service has identified and analyzed five alternatives to provide an interpretive visitor transportation service in the Washington, D.C., metropolitan area. Various transportation service characteristics, including routes and stops, have been identified and analyzed. In addition, policy changes for the recreational use of personal transportation vehicles (Segway® Human Transporters [HTs] and electric scooters)** within the National Mall & Memorial Parks have been considered.

- Alternative 1 is the no-action alternative, and it would continue current transportation service. In-depth educational / interpretive opportunities would continue to be offered.
- Alternative 2, the preferred alternative, proposes an integrated, easy-to-use system with basic orientation and a choice of additional educational / interpretive services. Visitor transportation services would be expanded in the visitor core and Arlington National Cemetery. Free parking provided by the National Park Service in the vicinity of the National Mall would be changed to metered parking, and routes would be designated for the recreational use of Segway® HTs and electric scooters.
- Alternative 3 proposes a new ride-and-learn visitor bus transportation service that would be focused on providing a sightseeing and in-depth educational / interpretive experience, rather than on convenient transit service.
- Alternative 4 proposes a coordinated system of easy-to-use bus transit opportunities designed to maximize views while conveniently meeting needs for frequent transportation between visitor sites. A choice of educational / interpretive services would be offered. Parking would be eliminated on Madison Drive NW and Jefferson Drive SW, which would be closed to most private vehicles. The recreational use of Segway® HTs and electric scooters would be allowed on all park multi-use trails.

* The visitor core consists of the National Mall, the Smithsonian Institution and National Gallery museums, multiple memorials, and the White House.

** A Segway® HT is a two-wheeled, self-balancing, electric-powered vehicle operated from a standing position. The Segway® HT can be considered to have both pedestrian and vehicle characteristics. It is often

evaluated as part of a larger range of vehicles, such as bicycles, electric scooters, in-line skates, and wheelchairs (FHWA 2005).

For the purposes of this plan, an electric scooter is a three- or four-wheeled electric-powered vehicle operated from a sitting position.

- Alternative 5 incorporates the D.C. Downtown Circulator, with frequent bus service to meet the transportation needs of visitors, local residents, and workers in the central business district. No educational / interpretive programs would be offered.

Due to the number of factors that could influence fares, actual fares have not been determined for the alternatives.

Environmental Impacts

Impacts would be adverse and beneficial, and they would range from short to long term in duration and from negligible to moderate in intensity. Environmental consequences are analyzed for the following topics:

- *Transportation* — The transportation service network, traffic operations, recreational access for Segway® HTs and electric scooters, and parking conditions were analyzed. Minor to moderate, long-term, beneficial impacts would result from improving transportation service in the visitor core area, emphasizing regional transit connections, allowing recreational Segway® HT and electric scooter use under Alternatives 2 and 4, and converting free parking on the National Mall to metered parking under Alternative 2. Negligible to moderate, long-term, adverse impacts would result under all alternatives from removing on-street parking at new transit stops and under Alternative 4 along Madison Drive NW and Jefferson Drive SW. There would be no additional impact under Alternatives 1, 3, 4, and 5 from continuing free parking around the National Mall, but the policy would be inconsistent with regional goals to encourage greater transit use and reduce congestion.
- *Visitor and user experience* — Visitor and user convenience, visitor access to destinations, educational / interpretive approach, and ridership were analyzed. All alternatives would have negligible to minor, long-term, beneficial impacts

from enhancing visitor and user convenience with better wayfinding programs, new transit vehicles, and upgraded transit stop facilities. Impacts from providing convenient access to top destinations in the Washington metropolitan area and from providing various options for educational / interpretive programs would be negligible to moderate, long term, and beneficial under Alternatives 2–5. An in-depth educational service with limited choice of interpretive programs (Alternatives 1 and 3) or no program at all (Alternative 5) would result in negligible to moderate, long-term, adverse impacts.

- *Public health, safety, and security* — Accessibility for persons with disabilities, security features, and potential conflicts between pedestrians and recreational users of Segway® HTs and electric scooters were analyzed.* All alternatives would have negligible to moderate, long-term, beneficial impacts from providing fully accessible transit stops and transit vehicles equipped with security features, as well as the service provider undertaking safety and security programs. Increased recreational use by Segway® HTs and electric scooters under Alternatives 2 and 4 could increase conflicts with pedestrians, with negligible to minor, long-term, adverse impacts.
- *Park operations and visitor transportation service operations* — Differences between alternatives in staffing and the number of vehicles and transit stops would be a cost of doing business for any service provider. There would be no additional impacts under any alternative to NPS contract

* Currently, both Segway® HTs and electric scooters are permitted throughout the National Mall & Memorial Parks for use as a mobility aid by persons with a disability. Recreational use of Segway® HTs and scooters is otherwise restricted to specific north-south sidewalks crossing the National Mall (see the “Legislation and Policy Requirements” section of this document for more detail).

management or law enforcement and security.

- *Socioeconomic environment* — Impacts on the local and regional economies from increased employment opportunities and potential visitor and user spending in other sectors of the local and regional economies would be negligible, long term, and beneficial.

There would be no measurable impacts on cultural or natural resources, including air quality, soundscapes, historic structures, or the visual character of the National Mall and Arlington National Cemetery. Consequently, these impact topics were not further analyzed.

There would be no major impacts under any alternative, and no park resources or values would be impaired. Alternative 2 has been determined to be the environmentally preferred alternative because it would best meet the goals of the National Environmental Policy Act, as stated in section 101(b).

Following the close of the 45-day public comment period, all public comments will be reviewed and analyzed prior to the release of a decision document. The National Park Service will make appropriate changes to the environmental assessment based on comments received.

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ACRONYMS AND ABBREVIATIONS

ADAAG	Americans with Disabilities Act Accessibility Guidelines
ARCO	Arlington County, Virginia
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DBID	Downtown Business Improvement District
DDOT	D.C. Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GWMP	George Washington Memorial Parkway
HT	Human Transporter (as in Segway® Human Transporter)
MDW	U.S. Army Military District of Washington
MWCOG	Metropolitan Washington Council of Governments
NCPC	National Capital Planning Commission
NEPA	National Environmental Policy Act
NAMA	National Mall & Memorial Parks
NPS	National Park Service
TRB	Transportation Research Board
USC	United States Code
US DOD	U.S. Department of Defense
US DOT	U.S. Department of Transportation
US EPA	U.S. Environmental Protection Agency
WMATA	Washington Metropolitan Area Transit Authority
WMATC	Washington Metropolitan Area Transit Commission

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**PROJECT PURPOSE,
NEED, AND CONTEXT**

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INTRODUCTION

The Secretary of the Interior, through the Director of the National Park Service (NPS), has the exclusive right to provide interpretive transportation services for National Mall & Memorial Parks and other park sites in the metropolitan Washington, D.C., area. The service area explored in this environmental assessment includes the visitor core (consisting of the National Mall, the Smithsonian Institution and National Gallery museums, multiple memorials, and the White House), Arlington National Cemetery, and other major visitor destinations throughout the metropolitan area (see the “Project Vicinity Area” map).

Sites with the highest visitation in the visitor core area include the Washington Monument, the Vietnam Veterans Memorial, the Lincoln Memorial, the World War II Memorial, the U.S. Capitol, and the National Air and Space Museum (see the “Visitor Core: Top Visitor Destinations” map). Other park areas include the George Washington Memorial Parkway, Rock Creek Park, Chesapeake & Ohio Canal National Historical Park, Anacostia Park, Kenilworth Aquatic Gardens, Frederick Douglass National Historic Site, and Mary McLeod Bethune Council House National Historic Site.

PURPOSE

The purpose of this project is to plan for a convenient, well-connected interpretive visitor transportation service to national park sites in the Washington, D.C., area. This service will protect national park resources and ensure a high-quality visitor experience by offering a sustainable, educational, integrated, and affordable transportation network for visitors in the D.C. area. The specific goals of the project are to provide:

- a visually identifiable, high-quality transportation system that meets NPS policy goals and fits within the historic context of our nation’s capital

- a convenient, sustainable transportation system that provides access to and among existing and future NPS sites and other visitor destinations in the nation’s capital and that meets mobility needs and improves visitor enjoyment
- visitor orientation and educational interpretive services that promote an awareness and understanding of the significance of our nation’s capital and its memorials, landmarks, and rich cultural heritage
- a transportation system that supplements, supports, and is integrated with the existing urban transportation network and that maximizes direct and convenient connections to mass transit (Metrorail and Metrobus) and other transportation systems and services (including other commercial, private, and public service providers, as well as parking facilities)
- a model transportation solution that creatively explores all opportunities to work or partner with governmental agencies and public and private transit service providers to fulfill the mission of the National Park Service
- an easy-to-use transportation ticketing and payment system that is affordable, flexible, and coordinated with other transportation providers

NEED

The primary need for the planning study is to analyze the environmental impacts and to gain public input on the conceptual range of services that may be offered in the future for visitor transportation in the visitor core area and Arlington National Cemetery. Current services are provided through an independent third-party contract that will expire in December 2007.

The need for interpretive visitor transportation services includes the following:

- Over 26 million people annually visit the National Mall & Memorial Parks and other destinations in metropolitan Washington. Each day visitors typically travel to multiple destinations and use a range of transportation modes and services because many sites are too far apart for visitors to walk comfortably and conveniently. Transit systems are not consistently integrated or linked, and there is a gap in public transit to top destinations within the National Mall and East Potomac Park areas (see the “Visitor Core: Primary Public Transit Service” map). Visitor travel options, access, and connections between transportation systems need to be improved.
- In the next two decades the Metropolitan Washington region is expected to grow by 1.6 million people and 1.2 million jobs (Metropolitan Washington Council of Governments [MWCOCG] 2006). This growth will lead to continuing congestion on the region’s transportation infrastructure. Visitor transportation planning needs to take this growth into account.
- Parking is scarce in the District, and it is difficult for visitors to find parking close to top destinations in the visitor core. According to the *Mayor’s Parking Task-force Report*, approximately 400,000 on- and off-street parking spaces are available in the District of Columbia (D.C. Department of Transportation [DDOT] 2003c). These spaces are used by an estimated 197,000 personal vehicles that are registered in the District, and approximately 200,000 vehicles that enter the District during the morning peak. Regional parking management policies support transit incentives and the use of alternative modes of transportation (NCPC 2004a).
- The introduction of personal transportation vehicles for recreational use (Segway® Human Transporters [HTs] and electric

scooters*) is growing in Washington, D.C., raising new questions about alternative modes of transportation. There is a need to address the appropriateness of such recreational use in park settings, growing demand, and safety concerns for all users, including bicyclists and pedestrians.

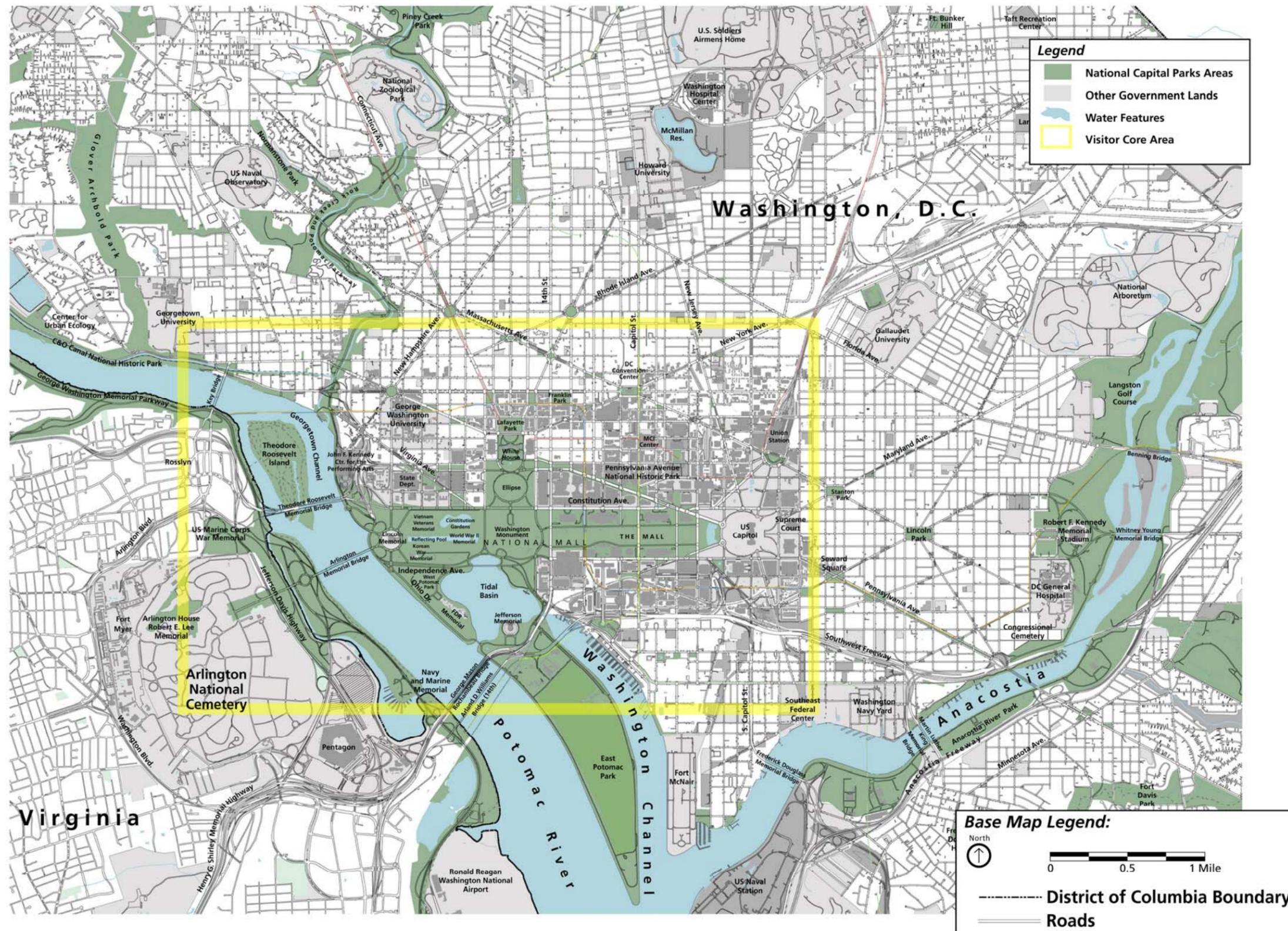
- Any NPS interpretive transportation service needs to be coordinated with long-term planning goals for Washington, D.C., which include:
 - reducing vehicle congestion
 - improving air quality
 - providing visitor parking facilities outside the primary visitor destination areas
 - increasing visitor use of transit instead of private vehicles

This environmental assessment presents five alternatives for an interpretive visitor transportation system and analyzes the potential environmental impacts that would result. This document has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the implementing regulations of the Council on Environmental Quality (CEQ), the National Historic Preservation Act of 1966, as amended, and NPS *Director’s Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-making* and its accompanying handbook (NPS 2001).

* A Segway® HT is a two-wheeled, self-balancing, electric-powered vehicle operated from a standing position. The Segway® HT can be considered to have both pedestrian and vehicle characteristics. It is often evaluated as part of a larger range of vehicles, such as bicycles, electric scooters, in-line skates, and wheelchairs (FHWA 2005).

For the purposes of this plan, an electric scooter is a three- or four-wheeled electric-powered vehicle operated from a sitting position.

Currently, both Segway® HTs and electric scooters are permitted throughout the National Mall & Memorial Parks for use as a mobility aid by persons with a disability. Recreational use of Segway® HTs and scooters is otherwise restricted to specific north-south sidewalks crossing the National Mall (see the “Legislation and Policy Requirements” section of this document for more detail).

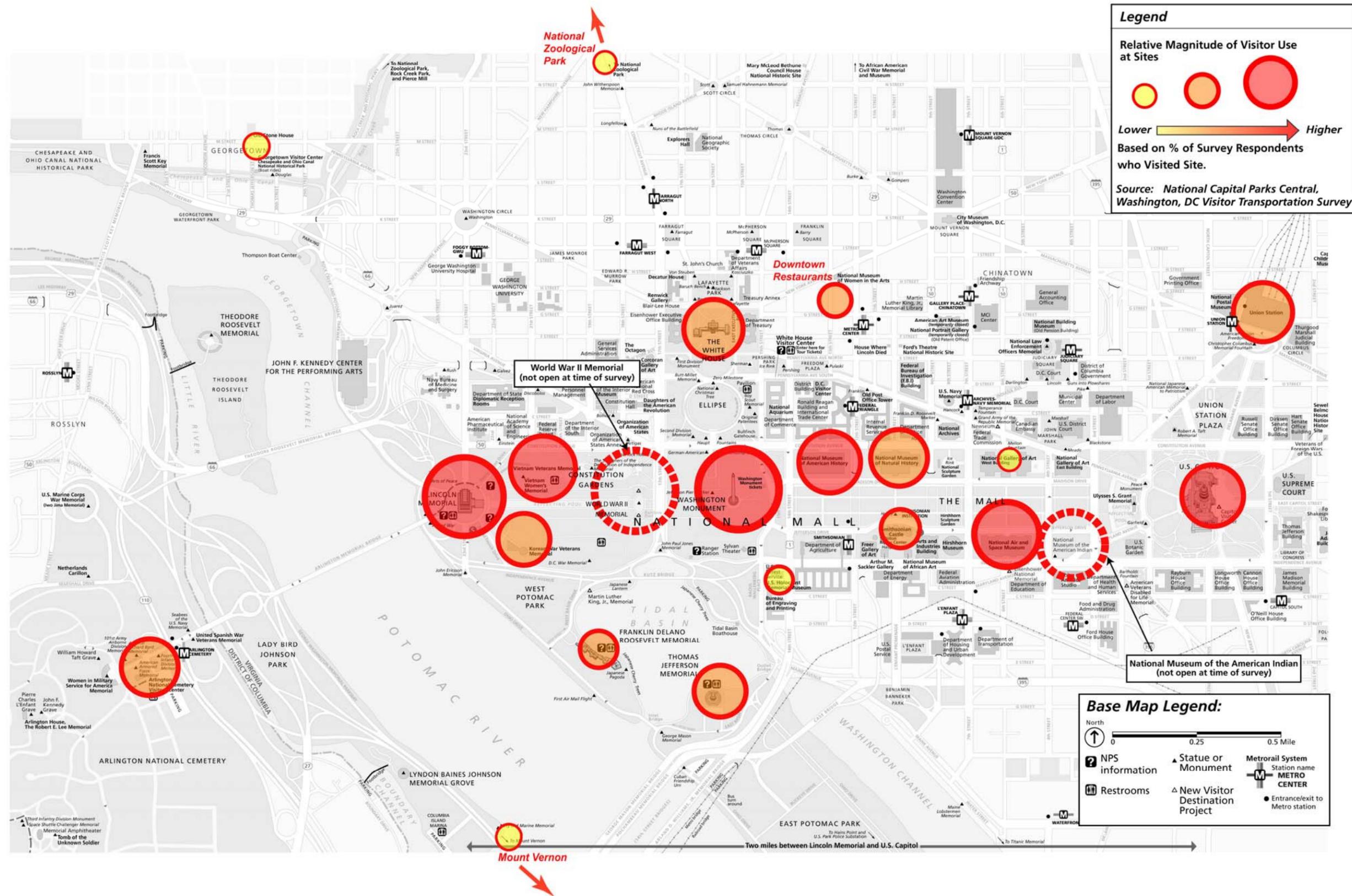


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Visitor Core: Top Visitor Destinations

National Mall & Memorial Parks

June 2006 • 802/2008

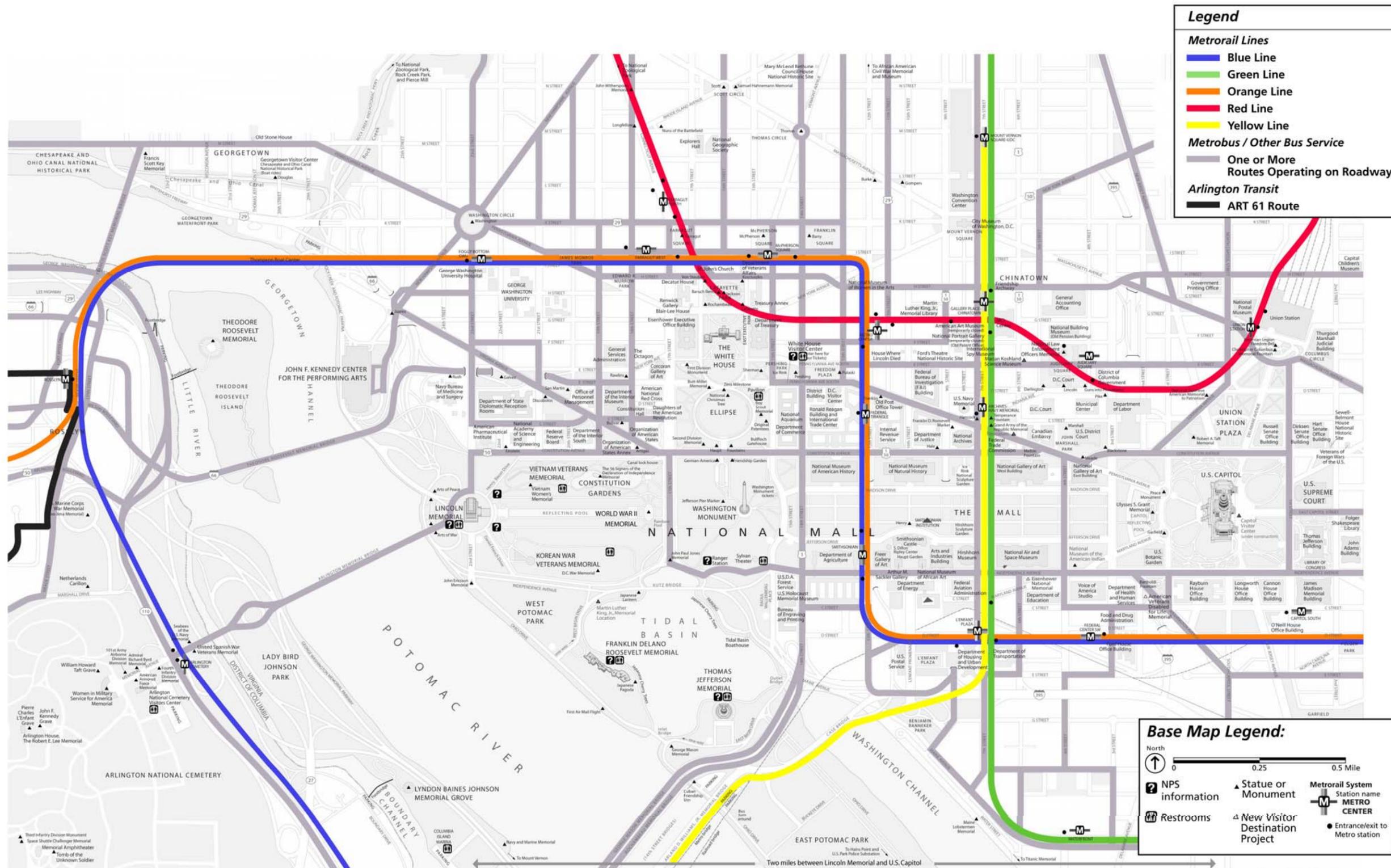


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Visitor Core: Primary Public Transit Service

National Mall & Memorial Parks

June 2006 • 802/2009



Source: Washington Metropolitan Area Transit Authority

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LEGISLATION AND POLICY REQUIREMENTS

AUTHORITY TO PROVIDE INTERPRETIVE TRANSPORTATION SERVICES ON THE NATIONAL MALL

The Secretary of the Interior, through the Director of the National Park Service, is responsible for the operation of our national parks, which includes providing for their public enjoyment. To meet this responsibility, in the late 1960s the National Park Service contracted with Universal Interpretive Shuttle Corporation to conduct guided tours of the National Mall as an NPS concessioner. The Washington Metropolitan Area Transit Commission (WMATC) and others subsequently sought to bar the NPS concessioner from conducting tours of the Mall without WMATC approval. The NPS concessioner and the United States contended that the Secretary of the Interior's authority over national park lands, particularly his grant of "exclusive charge and control" over the Mall dating from 1898, permitted him to contract for the concessioner's service without interference.

The United States Supreme Court held that the Secretary's exclusive authority to contract for services on the Mall was undiminished by the compact creating WMATC or otherwise (*Universal Interpretive Shuttle Corp. v. Washington Metropolitan Area Transit Commission*; 393 U.S. 186, 188 (1968)). In reaching this conclusion, the court stated as follows:

The Mall is, and was intended to be, an expansive, open sanctuary in the midst of a metropolis; a spot suitable for Americans to visit to examine the historical artifacts of their country and to reflect on monuments to the men and events of its history. The Secretary has long had exclusive control of the Mall and ample power to develop it for these purposes. We hold that the WMATC has not been empowered to impose its own regulatory requirements on the

same subject matter (393 U.S. 186, 193–94).

The court also noted that the Secretary had "substantial power over the Mall," and that, as the parties to *Universal Interpretive Shuttle* agreed, the Secretary was

free to enter into the [concession] contract in question[,] . . . to exclude traffic from the Mall altogether, or selectively to exclude from the Mall any carrier licensed by the WMATC or following WMATC instructions. Moreover, . . . the Secretary could operate the tour service himself without need to obtain permission from anyone (393 U.S. 186, 189).

These considerations continue to be relevant to current NPS planning efforts, and the Secretary of the Interior remains responsible for future interpretive visitor transportation services on national parklands. The National Park Service strives to meet this responsibility in conjunction with all area visitor and transportation agencies to best serve all visitors to our nation's capital.

NPS TRANSPORTATION POLICY

The *NPS Management Policies 2006* state that the National Park Service "will, where appropriate, emphasize and encourage alternative transportation systems, which may include a mix of buses, trains, ferries, trams, and — preferably — nonmotorized modes of access to and moving within parks. In general, the preferred modes of transportation will be those that contribute to maximum visitor enjoyment of, and minimum adverse impacts on, park resources and values" (NPS 2006b, sec. 9.2). The policies further state that the National Park Service will explore transportation systems if a project:

- is appropriate and necessary to meet park management needs or to provide for visitor use and enjoyment;

- is designed with extreme care and sensitivity to the landscape through which it passes;
- will not cause unacceptable impacts on natural and cultural resources and will minimize or mitigate those impacts that cannot be avoided;
- will reduce traffic congestion, noise, air pollution, and adverse effects on park resources and values;
- will not cause use in the areas it serves to exceed the areas' visitor carrying capacities;
- will incorporate the principles of energy conservation and sustainability;
- is able to demonstrate financial and operational sustainability;
- will incorporate universal design principles to provide for accessibility for all people, including those with disabilities;
- will take maximum advantage of interpretive opportunities and scenic values;
- will not violate federal, state, or local air pollution control plans or regulations;
- is based on a comprehensive and multi-disciplinary approach that is fully consistent with the park's general management plan and asset management plan;
- will enhance the visitor experience by offering new or improved interpretive or recreational opportunities, by simplifying travel within the park, or by making it easier or safer to see park features.

The *Management Policies 2006* also state in section 9.2 the following:

Early NPS participation in transportation studies and planning processes is crucial to the long-term strategy of working closely with other federal agencies; tribal, state and local governments; regional planning bodies; citizen groups; and others to enhance partnering and funding opportunities. The Service will participate in all transportation planning forums that may result in links to parks or impacts on park resources. Working

with federal, tribal, state, and local agencies on transportation issues, the Service will seek reasonable access to parks and connections to external transportation systems.

MULTIMODAL ACCESS

The most popular way to get around the study area is by walking. Visitors also use bicycles and other nonmotorized wheeled conveyances, such as in-line skates. Newer modes of personal transportation are motorized and include Segway® HTs and electric scooters.

Segway® HTs and electric scooters meet the NPS definition of a motor vehicle, which is "every vehicle that is self-propelled and every vehicle that is propelled by electric power, but not operated on rails or upon water, except a snowmobile and a motorized wheelchair" (36 CFR 1.4). This would require that the public use of these vehicles be restricted to park roadways. However, as an interim policy the National Mall & Memorial Parks has limited recreational use of Segway® HTs only to specific north-south sidewalks crossing the National Mall, specifically, sidewalks adjacent to streets managed by the District of Columbia (3rd, 4th, 7th, and 14th streets NW/SW).

The use of Segway® HTs or electric scooters by persons with a disability is permitted on all park roads, sidewalks, and trails and within all park facilities, including memorials and the Washington Monument. All other use of personal transportation within this document is referred to as "recreational use." Consequently, a new park policy is required to allow the recreational use of Segway® HTs or electric scooters on park sidewalks and multi-use trails rather than just on park roads.

Within the District of Columbia, however, Segway® HTs do not meet the definition of a motor vehicle (ordinance A14-0497). Therefore, regardless of the purpose of use, they are allowed to operate on roadways or sidewalks (similar to bicycles) within the District, but under certain operational restrictions in the

downtown area. Due to high pedestrian activity in the downtown area, Segway® HTs are restricted to roadways only; however, this restriction is minimally enforced.

AIR QUALITY

The National Park Service has a responsibility to protect air quality under both the 1916 Organic Act (16 USC 1-4) and the Clean Air Act (42 USC 85). In accordance with the *Management Policies 2006*, the National Park Service “will seek to perpetuate the best possible air quality in parks to (1) preserve natural resources and systems, (2) preserve cultural resources, and (3) sustain visitor enjoyment, human health, and scenic vistas” (NPS 2006b, sec. 4.7.1). Air quality related values are also to be protected, and in the D.C. metropolitan area these include historic structures, cultural landscapes, and other elements of a park environment that are sensitive to air pollution.

The District of Columbia is a nonattainment area for 8-hour ozone and particulate matter (PM 2.5) (US EPA 2006). This fact affects transportation policies of all governmental agencies within the District. The National Park Service will participate in the development of federal, state, and local air pollution control plans and regulations to remedy existing impacts on park resources and values from human-caused air pollution and to prevent future impacts.

RESOURCE IMPAIRMENT

The fundamental purpose of the national park system is to conserve park resources and values (16 USC 1-4). NPS managers must always seek ways to avoid, or to minimize to

the greatest degree practicable, adversely impacting park resources and values. By law NPS superintendents have the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. That discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values. An impact to any park resource or value may constitute impairment. However, an impact would be more likely to constitute impairment to the extent that it has a major adverse effect on a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in relevant NPS planning documents.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in a park.

CONTEXT FOR THE PLAN

NPS TRANSPORTATION, CIRCULATION, AND PARKING

Transportation Service

The National Park Service has provided interpretive transportation services for visitors to the Washington, D.C., area since 1969. The present transportation service is provided under an independent third-party contract by Landmark Services, Inc., which offers Tourmobile Sightseeing for visitors to the National Mall and surrounding park areas. While stops and routes have varied over the years, multiple services are provided, including:

- the American Heritage Tour, which serves the National Mall & Memorial Parks, Union Station, the U.S. Capitol, and nearby sites
- the Arlington National Cemetery Tour, which is included with the American Heritage Tour and is also available as a separate tour
- the Twilight Tour, which is an evening tour of the major downtown memorials
- the Mount Vernon Tour, which includes George Washington's estate and gardens, with access by way of the George Washington Memorial Parkway
- the Frederick Douglass Tour, which goes to the national historic site

Because the interpretive visitor transportation service was designed to augment NPS interpretive services, as well as to provide transit access, guides are present on each Tourmobile vehicle to offer educational background information and to answer questions. The transportation service is provided year-round and served approximately 1.1 million visitors in 2004 (NPS 2004b).

Tourmobile operates approximately 40 vehicles, including buses, trams, and mini-buses (NPS 2004b). Some vehicles have been modi-

fied to run on compressed natural gas. Vehicles are stored and maintained at a maintenance facility on park land in East Potomac Park, which is under the jurisdiction of the National Mall & Memorial Parks.

Trails and Sidewalks

Trails and sidewalks are another component of the NPS visitor transportation network, and visitors can walk or bicycle to visitor sites. There are over 10 miles of gravel, bituminous, and concrete walks and trails in the area of the National Mall. Wayside exhibits, signs, and plaques along sidewalks in several areas provide visitor education and interpretation. NPS ranger-led walking and bicycle tours and bicycle rental services at the Thompson Boat Center are available for park visitors. The boat center is operated by an independent third-party operator for the National Park Service and also offers canoe and kayak rentals, allowing visitors to see the area's monuments from a unique perspective and to explore the national park lands along the Potomac River.

Roads and Parking

The National Park Service manages approximately 14 miles of roads within the National Mall & Memorial Parks, 1,900 free public parking spaces (including around 400 spaces on the National Mall near the museums), and approximately 100 additional spaces that are designated as parking for people with disabilities (including 27 handicapped spaces on the National Mall). Within the District of Columbia free parking is rare. The District of Columbia operates hundreds of parking meters on three streets (3rd, 4th, and 7th streets NW/SW) that cross the National Mall and on Independence Avenue SW and Constitution Avenue NW adjacent to the National Mall. Daily parking in a private downtown lot can cost up to \$20.

As previously noted, the Mayor's Parking Taskforce Committee estimated there are approximately 400,000 on- and off-street parking spaces in the District of Columbia. These spaces are used by approximately 197,000 non-commercial personal vehicles that are registered for personal use, and by an estimated 200,000 vehicles that enter the District during the morning peak (the number of people that enter is about twice that) (DDOT 2003c). As a result, parking is extremely limited for visitors. This conclusion is supported by the results of the NPS *Visitor Transportation Survey*. Conducted in the spring and summer of 2003, the survey reported that 65% of respondents said finding parking is difficult (NPS 2003f). The survey also indicated that 70% of the respondents would be willing to park and take a shuttle to major attractions.

NATIONAL PARK AREAS

The alternatives within this study focus on the following visitor core parks, along with several surrounding parks, as described below.

Visitor Core Parks

- *National Mall & Memorial Parks* — Most of the park areas in the visitor core are managed by the National Mall & Memorial Parks. The National Mall is the area extending west from the U.S. Capitol to the Potomac River and includes the Mall, Washington Monument, World War II Memorial, Constitution Gardens, Vietnam Veterans Memorial, Lincoln Memorial, Korean War Veterans Memorial, Tidal Basin, Franklin Delano Roosevelt (FDR) Memorial, Thomas Jefferson Memorial, and George Mason Memorial. Additionally the National Mall & Memorial Parks manages Ford's Theatre National Historic Site and the House Where Lincoln Died (Petersen House), Pennsylvania Avenue National Historic Park, East Potomac Park, the Old Post Office Tower, and numerous squares, smaller parks, circles, and triangles throughout downtown Washington, D.C.
- *President's Park* — President's Park is the setting for the White House and includes Lafayette Park, President's Park South (the Ellipse), and the adjacent White House Visitor Center (NPS 2000a).

Surrounding Park Areas

- *National Capital Parks-East* — Twelve major park areas, encompassing over 8,000 acres, are included in National Capital Parks-East. Park units include Anacostia Park, Kenilworth Aquatic Gardens, Frederick Douglass National Historic Site, and Mary McLeod Bethune Council House National Historic Site, among many others.
- *Arlington National Cemetery* — Arlington National Cemetery, across the Potomac River from the District of Columbia, is administered by the U.S. Department of the Army. Within the cemetery is Arlington House, the Robert E. Lee Memorial, which is administered by the National Park Service as a unit of the George Washington Memorial Parkway. Two of the more popular sites are the Tomb of the Unknowns and the grave of President John F. Kennedy.
- *George Washington Memorial Parkway* — The George Washington Memorial Parkway extends from Mount Vernon to Great Falls, Virginia. This 38-mile-long park unit also includes the Mount Vernon Memorial Highway, the Clara Barton Parkway, and the Spout Run Parkway, each of which is a major arterial road for the region.
- *Rock Creek Park* — Rock Creek Park, in the northern portion of Washington, D.C., encompasses approximately 1,755 acres. The park is primarily a wooded valley surrounded by the heavily urbanized metropolitan area (NPS 2002c). Rock Creek Parkway lies within the park and serves as a major arterial road in the region.
- *Chesapeake & Ohio Canal National Historical Park* — Chesapeake & Ohio Canal National Historical Park stretches nearly 185 miles along the Potomac River between Washington, D.C., and Cumberland,

Maryland, and encompasses approximately 19,236 acres. Hiking, bicycling, and horseback riding are the most popular means of traveling through the park (NPS 2003a).

RELATIONSHIP TO OTHER TRANSPORTATION PLANS

NPS Plans

In the late 1990s NPS transportation planning indicated a need to plan future interpretive visitor transportation services for the memorial core area plus a larger (multi-park) area, which would be more extensive than the area served by the current NPS concessioner. In addition, planning by the National Capital Planning Commission (NCPC) and the District of Columbia have indicated a broader need to address urban congestion, visitor and bus parking limitations, and regional air quality concerns.

In the spring and summer of 2003 the National Park Service conducted the *Washington, D.C., Visitor Transportation Survey* to assess the preferences and needs of visitors regarding transit in the metropolitan area (NPS 2003f). The results were used to identify the desired range of transportation services for national park system sites in and around the District of Columbia. In addition, the National Park Service reviewed successful planning practices for visitor transit networks from Boston, Savannah, Orlando, Philadelphia, and London, and it inventoried comparable visitor transit services in Washington, D.C. The case studies are presented in the *Visitor Transportation Study: Report on Urban Visitor Transportation Services* (USDOT 2004) and in the *National Capital Parks—Central / Memorial Core Alternative Transportation Study: Washington, D.C., Local Comparables Report* (NPS 2003e). These studies were used to help develop the desired range of visitor transportation services for this environmental assessment.

NCPC Plans

The National Capital Planning Commission is charged with planning the orderly development of federal buildings and landscapes in the District of Columbia and the six surrounding counties in Maryland and Virginia. The National Park Service is a member of the commission. The commission has prepared the following plans to guide the management of park areas in the nation's capital, including visitor services and facilities.

Extending the Legacy: Planning America's Capital for the 21st Century. Referred to as the *Legacy Plan*, this document presents a vision for the nation's capital over the next 50 to 100 years (NCPC 1997). It calls for extending the monumental core by creating opportunities for new museums, memorials, and federal office buildings in all quadrants of the city. The historic character and open space of the National Mall and its adjacent ceremonial corridors would be preserved, while growth and new development would be accommodated. Public transit would be expanded by removing obsolete freeways, bridges, and railroad tracks that fragment the city, and by developing a supplementary transit system called the Circulator to carry tourists and commuters around the monumental core. Other transportation goals call for improving Metrorail stations and park-and-ride facilities in outlying areas, and for developing better shuttles to and from these stations.

Comprehensive Plan for the National Capital: Federal Elements. The *Federal Elements* portion of the comprehensive plan establishes new goals and policies for future federal development (NCPC 2004a). Together these elements create a planning framework connected by three central goals: accommodating federal and national activities, reinforcing smart growth, and supporting coordination with local and regional governments. Regional transportation goals are to reduce vehicle congestion, improve air quality, increase transit use, and provide parking outside primary destination areas. The goals and policies of the

plan's transportation element promote a balanced, multi-pronged strategy to maximize local use and visitor access to the region's extensive transit system.

Memorials and Museums Master Plan. Prepared in cooperation with the Commission of Fine Arts and the National Capital Memorial Commission, the *Memorials and Museums Master Plan* guides the location and development of future commemorative and cultural facilities in and around the District of Columbia (NCPC 2001). This plan suggests that future visitor destinations will be spread beyond the monumental core, and that visitor transportation services should be able to accommodate new visitor destinations.

Downtown Circulator Implementation Plan. The D.C. Department of Transportation, the Washington Metropolitan Area Transit Authority (WMATA), and the Downtown Business Improvement District (DBID) partnered with the National Capital Planning Commission to address the need for a frequent, low-cost Downtown Circulator to move residents, commuters, and visitors around the monumental core (NCPC/DDOT/DBID/WMATA 2003). The following are goals of the plan:

- Improve connectivity between the monumental core and the central business district.
- Provide circulation for visitors within the downtown and monumental core.
- Enable downtown workers to make business and shopping trips.
- Supplement Metrobus and Metrorail.
- Reduce traffic congestion.

The first phase of the Downtown Circulator began operating in June 2005, and this service is considered to be part of the existing transit

network.* Phase one routes do not operate on NPS roadways.

Local Plans

The *District of Columbia Tour Bus Management Initiative* was completed in October 2003 (DDOT 2003). The study's objective was to develop a plan to alleviate long-standing problems that negatively affect tour bus operations, as well as traffic conditions, the visitor experience, and the city environment. The alternatives in this environmental assessment are compatible with the recommendations of the bus management initiative.

SCOPING EFFORTS FOR THE ENVIRONMENTAL ASSESSMENT

Scoping under the National Environmental Policy Act is defined as an early and open process to determine the breadth of environmental issues and the range of alternatives to be considered. The process can be used to identify which issues need to be analyzed in detail and which can be eliminated from in-depth analysis. National Mall & Memorial Parks conducted scoping with the public and interested/affected groups and agencies, as well as with park staff and resource professionals.

In addition to public meetings and written feedback, the National Park Service acquired a wealth of scoping information during the 2003 *Visitor Transportation Survey* (NPS 2003f), including the following:

- *Visitor profiles* — type of travel group, age distribution, group size, limitations on ability to walk distances

* In March 2006, while this document was being developed, an additional Circulator route, known as the Smithsonian/National Gallery of Art route, was implemented. This route passes through the National Mall & Memorial Parks and uses existing Metrobus stops. For purposes of this environmental assessment, the Circulator service is evaluated as proposed in 2003; new routes are not included in the evaluation.

- *Trip characteristics* — purpose of visits, length of stay, location of overnight stays
- *Perceptions and use of transportation* — ease of driving, parking, transit use; use of sightseeing services
- *Visitor preferences for a future transportation system* — desirable types of transit and related services
- *Detailed travel patterns* — number of destinations visited and sequence

The public scoping process included a visitor survey, a newsletter, public meetings, consultation with public agencies and organizations, and a project website. Citizens and public agencies were asked to identify issues that should be addressed in the environmental assessment, including alternatives, potential impacts, and suggested mitigation measures.

The internal scoping process involved meeting with the staff of the National Mall & Memorial Parks and surrounding regional parks. Internal and public scoping defined the project’s purpose and need, identified potential actions, determined likely issues and impact topics, and placed the potential actions within the context of other planning efforts. As a result of scoping, the project incorporated an existing transit proposal known as the D.C. Circulator, placed additional focus on multi-modal transportation (Segway® HTs, scooters, and bicycles), and further addressed parking issues.

IMPACT TOPICS

Impact topics are the resources or values of concern that could be either beneficially or adversely affected by implementing any of the alternatives being considered. Impact topics were identified based on federal laws, regulations, executive orders, NPS *Management Policies 2006*, NPS director’s orders, and scoping comments. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

Impact Topics Analyzed in Detail

All of the proposed alternatives include implementing a visitor transportation service, and two alternatives also consider policy changes for personal transportation (Segway® HTs and electric scooters). The following impact topics were determined to be relevant to the environmental analysis of these alternatives.

Transportation Network

The regional transportation network provides residents, commuters, and visitors with many choices, and the alternatives being considered could affect those choices. In addition to walking, regional transportation modes include cars, public transit, tour buses, trolleys, Segway® HTs, electric scooters, and bicycles. These modes use a network of regional infrastructure, including roads, surface rails, subways, trails, sidewalks, and parking facilities. Additionally, the regional transportation network includes travel by plane, train, and boat; however, these modes are outside the scope of this study. The roadway network is managed for efficiency by means of a system of traffic operations (traffic signal timing, roadway design, etc.). Policies and plans shape the priorities for the overall network, such as travel demand management, a policy that encourages more efficient travel choices.* This topic analyzes how alternatives function within the transportation network and further the goals of regional transportation plans.

Visitor and User Experience

Interpreting the significance of the national parks in the project area is fundamental to visitor experiences, helping visitors understand and be inspired by why these areas have been recognized as nationally significant and included in the national park system. Changes in the convenience of proposed transporta-

* Travel demand management consists of programs and policies to reduce and manage the demand within transportation corridors and by transportation mode, to disperse peak-period traffic, and/or to encourage transit usage and capacity.

tion service, the ability of visitors to access sites, and the educational / interpretive approach are analyzed.

Public Health, Safety, and Security

The opportunity for visitors to be able to safely enjoy national park resources is integral to the NPS mission, and the National Park Service, its contractors, and cooperators continually seek to provide a safe and healthful environment for all visitors and employees, in accordance with *NPS Management Policies 2006* (NPS 2006b, sec. 8.2.5.1). The security climate has changed significantly since the transportation service was initiated in the late 1960s. Bicycle use has increased, and new modes of personal transportation, such as Segway® HTs, have emerged. The 2003 *Visitor Transportation Survey* indicated that approximately 50% of the visitors to the National Mall & Memorial Parks believe that feeling safe is an important characteristic of a transportation service (NPS 2003f). This topic analyzes differences in how alternatives would address the transportation system and security, access for visitors with limited mobility, and trail and sidewalk safety.

Socioeconomic Impacts

The National Park Service has the responsibility to ensure that commercial services are necessary and appropriate and that they are financially viable (NPS 2006b, sec. 10.2.2). This topic looks at differences in how the alternatives would affect the local and regional economies.

Park Operations and Visitor Transportation Service Operations

The National Park Service is committed to the principles of sustainable facility development and operations (NPS 2006b, sec. 9). Differences in how alternatives would affect maintenance activities, staffing requirements, NPS contract management, and law enforcement and security requirements are analyzed.

Impact Topics Dismissed from Further Analysis

The following topics were dismissed from detailed analysis because there would either be no impacts or the impacts would be negligible (barely detectable and localized) or minor (affecting a relatively small number of resources, features, or individuals, localized, and not appreciable), as described below.

- **Cultural Resources** — Park staff have identified no archeological resources, ethnographic resources, or Indian Trust resources or sacred sites within the area of potential effect, which is defined as the paved routes for proposed visitor transit and personal transportation. Therefore, these resources would not be affected.

Historic structures and cultural landscapes occur within the existing urban paved road network. None of the alternatives would change either this setting or the paved road network. Each alternative proposes substituting higher capacity buses for lower capacity private vehicles, resulting in a net decrease in the number of vehicles using the road network. Therefore, a change in the mix of vehicles in the study area would have no effect on historic structures or cultural landscapes within the study area.

- **Natural Resources** — The alternatives would not affect geologic resources, soils, vegetation, lightscares, water quality, floodplains, wetlands, or prime and unique farmlands within the project area because actions would occur within the existing paved urban environment.

No threatened or endangered species, species of concern, designated critical habitats, or ecologically critical areas are listed for the study area. Urban wildlife species within the project area are typically limited to those that have adjusted to human activity, and there would be no additional impacts under the alternatives considered.

- **Air Quality** — Impacts on air quality would be negligible, beneficial, and long term throughout the region. No alternative being considered would introduce vehicle emissions into new areas. A mass transit service, as well as personal transportation options, would offer an alternative to the use of private automobiles to access visitor sites, therefore likely reducing the number of vehicle trips compared to current conditions. However, this reduction would not be detectable within the context of the metropolitan area as a whole.

In addition, the use of clean fuels was considered when representative transit vehicles were identified. These fuels include clean diesel, biodiesel, and compressed natural gas, along with hybrid electric vehicles. Any of these recommended fuels or vehicles would meet or be well below current emission standards. Electric personal transportation vehicles have no emissions.

- **Soundscapes** — In the visitor core area there would be no impact to the level of noise as the area is already affected by noise from vehicular traffic, railway traffic, and commercial and military air traffic.

Continuing shuttle bus sightseeing tours within Arlington National Cemetery would not noticeably change the number of transit vehicles, and there would be no noise-related impacts on the urban soundscape. Extending transportation service under some alternatives to the U.S. Marine Corps War Memorial, north to the Netherlands Carillon or to the Rosslyn Metrorail station, or south to planned memorials and the Pentagon City Metrorail station would increase the number of transit vehicles traveling through new areas of Arlington National Cemetery and on adjacent roadways. However, the resulting small increase in transit vehicle trips would result in negligible impacts within the existing urban soundscape of Arlington National Cemetery.

Because there would be no impacts on soundscape in the visitor core and negligible impacts in Arlington National Cemetery, this topic was dismissed from further analysis.

- **Viewsheds** — The visual character of the significant viewsheds within the study area, including the National Mall, Arlington Memorial Bridge, Arlington National Cemetery, and the major memorials, would not be affected by any alternative. All transit service would operate on the existing urban road network, and no changes are proposed to this road network or any of the historic viewsheds.
- **Energy Requirements** — As previously mentioned, under all alternatives a range of clean fuels would be used for proposed transportation services. Energy requirements of operating the transit vehicles would be imperceptible on either a local or regional scale, with negligible, localized, long-term adverse impacts from operating transit vehicles.
- **Environmental Justice** — Each federal agency is responsible for ensuring that the effects of its programs, policies, and activities do not have a disproportionately high and adverse environmental impact on minority and low-income populations. All the alternatives propose transit and personal transportation services to all populations and within primarily park and commercial settings; therefore, all impacts, whether beneficial or adverse, would affect all populations equally. No racial, ethnic, or socioeconomic group would bear a disproportionate share of the effects resulting from the implementation of any alternative.

Construction-related activities for transit stop improvements would result in negligible, site-specific, short-term, adverse impacts to air quality, soundscapes, energy requirements, transportation, and visitor and user experience. Consequently, these impacts are not further evaluated.

ALTERNATIVES

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INTRODUCTION

Five alternatives for the proposed project are presented in this chapter, as summarized below:

- *Alternative 1: No-Action* — This alternative describes the continuation of the current interpretive transportation service, which is focused on guided sightseeing, with no changes to the NPS policy affecting the recreational use of Segway® HTs and electric scooters or any additional travel demand management actions. Narrated shuttle bus tours would continue to be provided to visitors seeking in-depth educational / interpretive opportunities. This alternative is the baseline for comparing the management direction and environmental consequences of the other alternatives. If Alternative 1 was selected, the National Park Service would respond to future needs and conditions in the project area on a case-by-case basis without major new actions or policy changes.
- *Alternative 2: Preferred Alternative* — The preferred alternative, the National Park Service’s proposed action, proposes an integrated transportation system to meet the needs of a broad visitor market. Transportation service would provide a frequent, easy-to-use system with basic orientation and a choice of additional educational / interpretive services. Visitor transportation services would be expanded in the visitor core and Arlington National Cemetery, and additional access on designated routes would be provided for the recreational use of personal transportation vehicles (Segway® HTs and electric scooters). New parking policies would allow meters for paid parking on some roadways managed by the National Park Service to support local travel demand management objectives.
- *Alternative 3* — Alternative 3 proposes a new ride-and-learn visitor bus transportation service, which would be focused on providing sightseeing and in-depth interpretive experiences, rather than on convenient transit service. There would be no policy changes related to the recreational use of Segway® HTs and electric scooters, and there would be no additional travel demand management actions.
- *Alternative 4* — Alternative 4 proposes a coordinated system of easy-to-use bus transit opportunities designed to maximize views while conveniently meeting needs for frequent transportation between visitor sites. In addition, general traffic and parking would be restricted on Madison Drive NW and Jefferson Drive SW, which would be dedicated to transit and selected uses. The recreational use of Segway® HTs and electric scooters would be allowed on all park sidewalks and trails.
- *Alternative 5: Downtown Circulator* — Alternative 5 proposes frequent bus transit service to meet the transportation needs of visitors, local residents, and workers in central Washington, D.C. No educational / interpretive opportunities would be provided, and no changes would be made to multimodal access or any additional travel demand management actions. The two proposed routes would supplement two routes that are currently in operation as part of the overall *District of Columbia Downtown Circulator Implementation Plan* (NCPC/DDOT/DBID/Wmata 2003).*

* As previously described, an additional Circulator route, known as the Smithsonian/National Gallery of Art route, was begun in March 2006, while this document was being written. This route passes through the National Mall & Memorial Parks and uses existing Metrobus stops. For purposes of this environmental assessment, the Circulator service is evaluated as proposed in 2003; new routes are not included in this evaluation.

Alternatives 1, 3, 4, and 5 are the same as the preliminary Alternatives A, C, D, and E presented in the second planning newsletter; Alternatives B and F were considered but dismissed (as discussed on page 79). The preferred alternative (alternative 2) is a new alternative that was developed through the National Park Service's Choosing by Advantages process,* and it incorporates various elements presented in the preliminary alternatives.

How the alternatives would meet the goals of the National Environmental Policy Act, as stated in section 101(b), is discussed in Table 22 on page 76. Table 23 on page 81 compares and contrasts the five alternatives, and Table 24 shows how well each alternative would achieve the identified purposes of the project. Environmental consequences are summarized in Table 25 beginning on page 85.

ALTERNATIVE DEVELOPMENT PROCESS

The range of alternatives considered in this environmental assessment is based on preliminary alternatives developed during the internal and public scoping process for this project (see the *Scoping Report*, NPS 2005i).

Preliminary alternatives were developed taking into account public comments made at workshops in February 2004. In addition, selection criteria based on project objectives and NPS policy were established to help guide subsequent steps of alternative screening and evaluation. The alternative concepts were grouped based on desired access to visitor sites, common transit routes, and objectives for education, interpretation, and orientation. These alternative packages (a no-action alter-

* Choosing by Advantages is a process by which the differences of advantages for alternatives and their related costs are compared, ranked, and rated in order to make better decisions. The process can be used to develop alternatives that combine advantages from several previous alternatives while working to reduce associated costs.

native and five action alternatives) were presented in the second newsletter, distributed in September 2004.

The preliminary alternatives were further refined, and as previously discussed, two alternatives were dismissed. The remaining alternatives were then evaluated by means of Choosing by Advantages. Through this process the National Park Service's preferred alternative was developed. Additional information on alternative development is provided in the "Consultation and Coordination" chapter.

PLANNING CONSIDERATIONS AND ASSUMPTIONS

All of the alternatives are based on comparative data for transit service (such as route lengths and travel times, connections to public transit, bus service hours and miles), general requirements for constructed facilities and equipment (such as the number of transit vehicles, the number of stops, vehicle maintenance and storage), and staffing requirements.

The alternatives consider transportation services for 10-year and 20-year planning horizons (2015 and 2025). Services offered, as well as facilities and equipment, under each alternative would meet visitor needs during the peak season (generally from mid-April through mid-September).

Preliminary facility and equipment costs and ongoing operations and maintenance costs are provided for each alternative and will be refined during the implementation of the selected alternative.

All mitigating measures are incorporated into the alternatives. No additional mitigations are proposed.

Trip Planning and Onsite Visitor Information

Pedestrian access and wayfinding programs would be implemented under all alternatives. Wayfinding programs could include maps, signs, brochures, kiosks, and expanded visitor information on the Internet.

Transportation Service Types

The alternatives include a combination of bus transportation service types, which consist of different routes, stop locations, opportunities for visitor orientation and interpretation / education, and visitor experiences, as described below:

- **Visitor Core** — Transportation service would be provided to the National Mall and/or the downtown area. Most alternatives would also provide a transit connection between the visitor core and the Arlington National Cemetery visitor center.
- **Arlington National Cemetery** — Transportation service would be provided within Arlington National Cemetery and the vicinity, except for Alternative 5, which would provide no service at this location.
- **Supplemental Services** — Transportation service with variable routes and/or schedules could be provided, including:
 - Excursions:** Guided tours or point-to-point transit to destinations such as Mount Vernon, Civil War sites, Frederick Douglass National Historic Site, Anacostia Park, Rock Creek Park, Chesapeake & Ohio Canal National Historical Park, and George Washington Memorial Parkway. Operating schedules and destinations could be changed based on market demand.

Introductory Tour: A two- to three-hour guided orientation tour of the visitor core.

Special Event Transit: Numerous special events take place throughout the year in

the visitor core, such as the annual Cherry Blossom Festival and the Smithsonian Folklife Festival. Certain events require roadways to be temporarily closed. Transit service for special events could be provided under any alternative. Special event operations would be coordinated with public transit providers to supplement access by means of Metrorail, Metrobus, and other multimodal connections. This type of service is not analyzed in detail in this environmental assessment.

Ridership

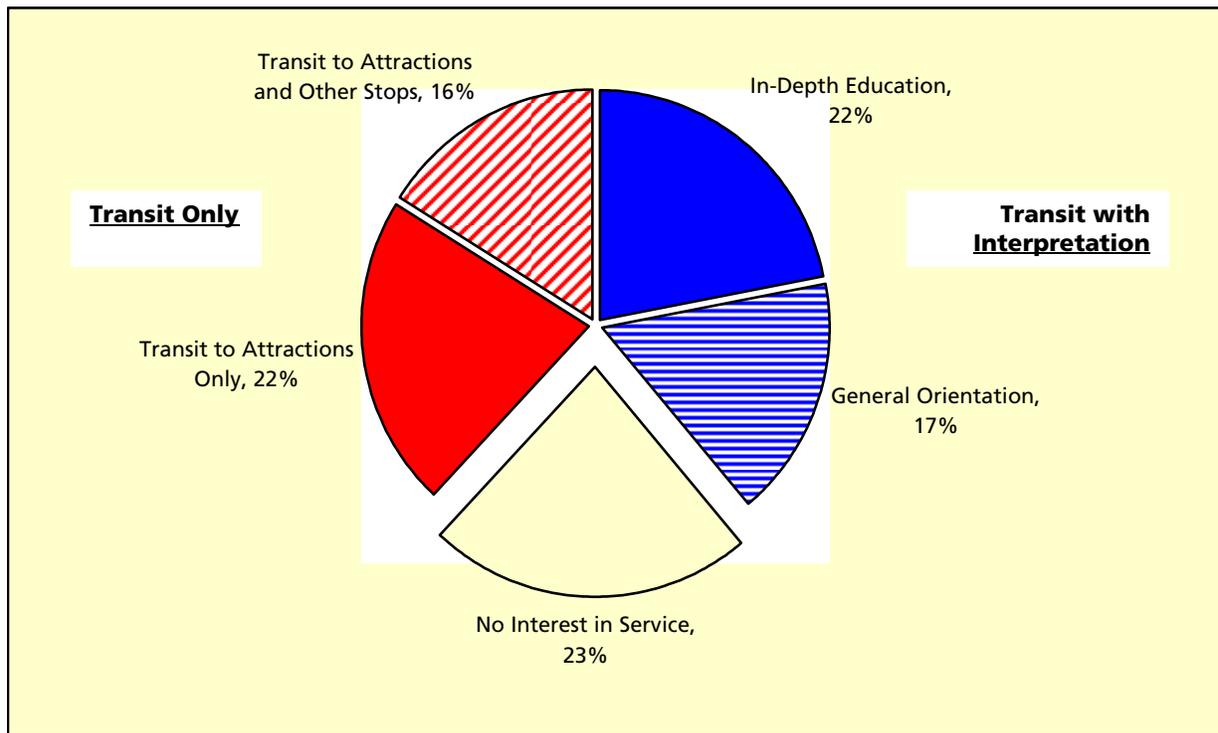
Visitor Core Transit User Market

The 2003 *Visitor Transportation Survey* suggests that visitors are interested in four types of transportation service. A total of 1,386 people responded to a question about how desirable certain types of service would be to use (NPS 2003f). Service choices fell into two overall categories: transit only (to attractions or to attractions and other stops) and interpretive transit (general orientation or in-depth interpretation). The current NPS service falls into the category of in-depth interpretive transit service.

When asked which type of service visitors would be most interested in using, responses were fairly evenly distributed, ranging from 16% to 22% for each type (see Figure 1). However, 23% said they would not use any of these services. The survey responses show there are multiple, overlapping markets, so various integrated service options would be needed to meet demand.

Ridership Levels

Potential ridership was estimated based on use of the existing concession service, with year 2000 chosen as the base year because ridership was not yet influenced by the events of September 11, 2001, after which time use fell. Overall 2004 ridership statistics indicate that passenger levels have begun to increase since 2001, and they could return to 2000 levels

Figure 1. Visitor Transportation Services Visitors Were Most Interested in Using

SOURCE: NPS 2003f.

before an alternative in this environmental assessment is implemented.

Ridership estimates for the visitor core and Arlington National Cemetery are presented for each alternative based on the following assumptions.

Visitor Core

For Alternatives 2, 3, and 4 the potential transit ridership market within the visitor core was based on differences from Alternative 1 in route patterns and access to top destinations (see Table 27 on page 134 for top destinations in the Washington, D.C., area). Compared to current NPS concessioner operations, the frequency of transportation service (also referred to as headways) would be increased, and some bi-directional service instead of one-way service would be offered in some alternatives. Based on data compiled by the Transportation Research Board (TRB), a 10% improvement in

the frequency of transit service is expected to cause a 5% gain in ridership (TRB 2004).

For the purposes of this environmental assessment, visitor core ridership estimates for Alternatives 1–4 were also based on the following assumptions:

- Annual ridership would remain flat for first 10 years (through 2015).
- Annual ridership for 20 years (through 2025) assumes a growth rate consistent with national population growth projections (middle series) by the U.S. Census.

Visitor core ridership estimates for Alternative 5 were obtained directly from the *Downtown Circulator Implementation Plan* and represent the visitor circulation and visitor access/egress travel markets only (NCPC/DDOT/DBID/WMATA 2003). The overall ridership estimates assume that all routes would be fully implemented and that the transit service would draw users from a much broader range of po-

tential riders than the existing NPS concessioner service.

Arlington National Cemetery

Potential ridership for Arlington National Cemetery visitor transportation services was estimated based on the year 2000 Tourmobile use. Additional ridership for an expanded Arlington National Cemetery route considered results from the visitor survey that identified current and latent demand to the U.S. Marine Corps War Memorial (Iwo Jima).

Transit Vehicles

New transit vehicles would be required under all alternatives to meet future needs, given the 20-year planning horizon for this study. The existing transit vehicles have been maintained to operate beyond the typical 12- to 15-year economic life for transit buses.

The visitor transportation service would meet the *Americans with Disabilities Act Accessibility Guidelines*, in accordance with NPS design guidelines. All transit vehicles, stops, and information material (kiosks, etc.) will be accessible to people with disabilities under all alternatives.

Based on the most desirable characteristics of the existing vehicles and the desired attributes of future transit services in each alternative, representative vehicle types were selected for services in the visitor core and Arlington National Cemetery, as well as supplemental or excursion tours. Vehicle types were chosen for their flexibility to meet the following criteria:

- potential to provide a distinctive image and attractive design
- easy and safe boarding and exiting (on / off) attributes (low floors, multiple doors, and wheelchair accommodations)
- maneuverability for congested urban streets

- large windows to maximize viewing potential
- multiple fuel options (including clean fuels)
- potential to provide visible storage areas (including no overhead or below seating storage) for improved security screening
- reduced noise levels

Specific vehicles are not recommended in this environmental assessment. Vehicle selection and procurement will occur during the implementation phases of the project.

Vehicles for the Visitor Core

Under all alternatives a high-capacity transit bus would replace the current transit vehicles in the visitor core area. Buses in this class are larger and offer more passenger seating and standing area than a 40-foot standard transit bus. Articulated buses would also be included in this class. This vehicle type was selected primarily because it offers passenger capacity comparable to existing vehicles, flexibility in seating and standing room arrangements, options for multiple doors, low floors, large windows for viewing, and the potential to use clean fuels.

Vehicles for Arlington National Cemetery

A tourist tram/bus with trailer would continue to be the most suitable transit vehicle type for services provided within Arlington National Cemetery. A vehicle typically consists of one bus power unit and two trailer units. This vehicle type was selected primarily because passenger capacity levels are comparable to existing vehicles, and it offers flexibility in linking one or two trailers to a power unit for varying passenger demand, large windows for viewing, and the potential to use clean fuels. Vehicle design would respect the dignified setting of Arlington National Cemetery.

Potential future expansion of Arlington National Cemetery transportation services outside the cemetery grounds might require

alternative vehicle types. Vehicle types should be compatible with route characteristics and constraints, ridership market, ease of access, and the desired character for the transportation service.

Vehicles for Supplemental Services

A small transit bus was selected as the most suitable vehicle type for an introductory tour and for excursion tours. This vehicle type would be consistent with current vehicle configurations for special excursion services, offer good maneuverability in different settings, provide comfortable seating, and have the potential to use clean fuels.

Special event services could be provided on an as-needed basis. This might require the use of additional leased vehicles or the reallocation of visitor core fleet vehicles when normal service was temporarily interrupted by special events.

Vehicle Fuels

During the development of alternatives it was assumed that a range of clean fuels would be appropriate for the proposed transportation service, including clean diesel, biodiesel, compressed natural gas, and hybrid electric. The engine technology required to use these fuels has been proven and is continuing to undergo modifications to meet U.S. Environmental Protection Agency emission standards. At present, the current emission standards could be met or exceeded by any of the recommended fuels. Final selection of clean-fuel powered vehicles will be made during the implementation phase of the project.

Vehicle Fleet

The number of vehicles that would be required under each alternative and transportation service type was based on operating plans for the peak season and the peak time of day. Estimated peak vehicle requirements correlate to route travel times and related service frequency. Fleet size estimates include additional

vehicles for use as back-ups for mechanical emergencies and special events. For the visitor core and Arlington National Cemetery services the additional vehicle ratio would be 25%, and for supplemental or excursion tours one additional vehicle would be required.

Infrastructure

It was assumed that transportation services would continue to operate entirely on existing public rights-of-way or public infrastructure, including existing roads in mixed-flow traffic without the use of exclusive dedicated bus-travel lanes. It was assumed that minor improvements to roadway surfaces would be required at some locations to accommodate transit vehicle movements in curbside travel lanes and passenger access at transit stops. Any additional improvements that would change the existing infrastructure would be analyzed in separate environmental compliance documents.

Facilities

Transit Stops

The alternatives include the following three types of typical transit stops:

- *Standard Stop* — This stop would provide basic hop-on / -off access to visitor sites such as memorials, museums, and historic landmarks. Stops would typically include a bus stop sign (basic indicator, logo, and route or service name), a local area orientation map, and bench(es).
- *Transfer Stop* — This stop would provide hop-on / -off access and transfers at route junctions or between separate visitor transportation routes in the visitor core area. Stops would typically include a bus stop sign, a local area orientation map with kiosk sign (integrated with the D.C. signing / wayfinding systems), bench(es), bike rack(s), and shelter(s) (approximately 5 feet by 12 feet).
- *Intermodal Stop* — Stops of this type would be within one-half block of a

Metrorail station and would provide hop-on / -off access and connections to Metrorail transit services. Stops would typically include a bus stop sign, a local area orientation map, bench(es), and bike rack(s).

In addition to the features identified for each stop, other elements could be required at some locations to address specific needs, for example, concrete bus pads to reinforce curbside travel lanes, and curb ramps to accommodate pedestrian movements. For cost estimating purposes, added improvements were assumed to be required at 25% of the stops.

Specific needs and improvements for each transit stop would be identified during implementation. Proposed facilities would meet applicable design guidelines and use the existing palette of approved street furnishings or be compatible with them. Proposed facilities would also undergo reviews by the National Capital Planning Commission and the Commission of Fine Arts, as well as consultation with the D.C. Historic Preservation Office, as necessary.

Maintenance / Storage Facility Requirements

Maintenance and storage facility requirements under each alternative would depend on the service delivery and implementation approach. Under all alternatives offsite facilities could be provided by an independent third-party contractor. Alternatively, the current facilities in East Potomac Park could be used, and if needed, supplemented with facilities at another location. Changes to the existing maintenance site or facility, or improvements at a new site, would be analyzed in a separate environmental compliance document.

Representative space requirements for maintenance and storage facilities were estimated for each alternative using comparable bus facility estimates for the National Park Service and public transit agencies. Site area estimates were based on the required building area for bus maintenance and storage, additional space

for employee parking, onsite vehicle circulation, building setbacks, utility easements, and limited landscaping.

Requirements for a maintenance facility site and building were based on the possible range of vehicle sizes and types. For example, bus bays and storage area requirements would differ depending on whether a 45-foot transit bus or a 65-foot articulated bus was used for service in the visitor core. Final requirements would depend on factors such as bus fleet size, vehicle size, fuel type used, the fueling location (either on site or at a remote location), specific maintenance activities to be performed, outdoor versus indoor vehicle storage, and needs related to administrative staff, drivers, and other staff.

Arlington National Cemetery transportation service requirements could either be accommodated in a separate facility or be combined with other services, depending on future contracting, implementation, and operating decisions.

Costs

Capital Costs

Capital cost estimates are provided for the vehicle fleet and transit stops for each alternative. Cost estimates for transit stops assume a bus stop sign, a local area orientation map, and a bench or benches. Depending on the stop location and type, stops could also include a kiosk sign (integrated with the D.C. signing/wayfinding systems), bike rack(s), and shelter(s). Maintenance and storage facilities are assumed to be included in the hourly cost of operations as discussed above and under operation and maintenance costs. A range of implementation methods and fare recovery scenarios could be used to fund capital costs, as discussed under “Transportation Service Implementation and Fares.”

Cost estimates for transit stops do not include other possible desired elements such as custom passenger platforms, development of bus

pullouts/lanes, major landscaping, ornamental fencing, traffic or security bollards, lighting, restrooms, drinking fountains, or ticket booths.

Operation and Maintenance Costs

Operation and maintenance costs are based on data from six representative public transit agencies in the Washington, D.C., area (Federal Transit Administration [FTA] 2005), rather than from the existing NPS third-party operator. This was because (1) detailed operating statistics such as vehicle hours or miles were not available, (2) vehicles are older than typical public transit vehicles and may have higher maintenance costs than newer vehicles, (3) the present service includes an on-board interpreter / narrator, and (4) the management structure of a new visitor core transit system might be different than the current arrangement.

Operating and maintenance costs in the visitor core area include expenses for transportation operations, vehicle maintenance, general maintenance, and administration, as well as labor and nonlabor costs. Operating costs for all visitor core services also include roving fare inspectors, thus allowing passenger boarding through all doors and reducing loading times. Average unit costs were determined for key driving variables (cost per revenue bus-hour, cost per revenue bus-mile, and cost per peak vehicle). The resulting average unit cost for vehicle maintenance for the six transit agencies was then increased by 20% to account for the likely use of unique and larger vehicles. The average unit cost for general administration was also increased by 40% to account for additional marketing/sales costs likely to be incurred for a visitor core transportation service. Operating costs for Alternative 1 were further increased by \$25 per revenue bus-hour to account for wages and fringe benefits for on-board interpreters / narrators.

Operation and maintenance costs for the Arlington National Cemetery service were estimated using the methodology described for

visitor core services. Costs for Alternative 1 were increased to account for on-board interpretation / narration services with a separate guide. This derived average cost was increased by 5% to account for larger vehicles (and thus, potentially higher vehicle maintenance costs).

Operation and maintenance costs for the supplemental or excursion services were assumed to be similar to the visitor core services, with a separate on-board interpreter / narrator (similar to Alternative 1).

Staffing

Staffing requirements for transportation service include transit drivers and/or interpreters, vehicle mechanics, maintenance personnel, and general administrative staff. Staffing requirements were based on local transit agency full-time employee productivity factors for revenue bus-hours and revenue bus-miles (FTA 2005). Staffing requirements for supplemental transportation services were not estimated since specific routes, related operating statistics, and interpretation / narration approach have not been defined. Staffing estimates are provided only so that alternatives may be compared and are not intended to indicate actual numbers of employees to be used by any operator.

Multimodal Access

It was assumed that alternative modes of transportation would remain available to supplement transit access between visitor core sites, or as an alternative recreational experience within the National Mall & Memorial Parks. All multimodal access and personal transportation alternatives analyzed in this document only apply to the National Mall & Memorial Parks and do not apply to George Washington Memorial Parkway, President's Park, Chesapeake & Ohio Canal National Historical Park, or National Capital Parks-East. It was also assumed that all current infrastructure (including 16 miles of multi-use trails with the National Mall & Memorial Parks) would continue to support pedestrians,

bicycles, water transport / excursions, and personal transportation vehicles. Recreational bicycle rentals would continue to be available from the Thompson Boat Center. Bike tours could continue to be arranged with NPS ranger staff without cost, and they would be scheduled on a seasonal basis. The rental of Segway® HTs, electric scooters, and bicycles for recreational use would continue to be available at sources outside park property.

All multimodal improvements would focus on the visitor core area only, specifically on areas managed by the National Mall & Memorial Parks; no multimodal access is evaluated outside park areas. Multimodal access considerations for the surrounding park areas encompass a much wider range of considerations, such as at-grade trail crossings of major regional roadways. Any impacts associated with changes to multimodal access in the surrounding parks would be analyzed in separate environmental compliance documents.

All alternatives would include the following provisions at a minimum:

- continued access for pedestrians and bicycles on all multimodal trails within national park system areas
- continued access for persons with disabilities by Segway® HT and electric scooter throughout the National Mall & Memorial Parks. This access would not be changed under any alternative. All other use of Segway® HTs or electric scooters within this document is referred to as “recreational use.”
- replacement of bicycle racks in disrepair and the installation of additional bicycle racks at key locations throughout the National Mall & Memorial Parks, specifically focusing on the East Coast Greenway.* Through the National Mall & Me-

morial Parks, the greenway designation would overlay the existing multimodal trail designations.

- bicycle racks on transit vehicles
- continued recreational access for Segway® HTs and electric scooters on NPS sidewalks adjacent to roadways maintained by the District of Columbia. These include sidewalks crossing the National Mall along 3rd, 4th, 7th, and 14th streets NW/SW.

Travel Demand Management

Travel demand management is a strategy using incentives and disincentives to help alleviate growing demand on an area’s road network and limited parking. The *Comprehensive Plan for the National Capital: Federal Elements* promotes a pedestrian friendly environment, encourages transit stops to be within walking distance of federal attractions and to be coordinated with Metrorail stations, supports increased public transit access to the visitor core and improved visitor information about long-term parking facilities adjacent to public transportation, and encourages tour bus management and increased bicycle use (NCPC 2004). The alternatives are generally compatible with regional travel demand management policies, but Alternatives 2 and 4 address parking demand in different ways. Specific policy implementation decisions for managing travel demand will be aimed at providing alternatives to private vehicular travel and offering the public more choices in the transportation market.

Other Considerations

Onsite Visitor Parking

The alternatives assume that visitors would continue to be encouraged to use outlying parking lots serviced by public transit, and

* The East Coast Greenway is a national trail from Maine to Florida currently being developed as the “urban sister” to the Appalachian Trail. The trail is intended for many users, including walkers and

cyclists. This route runs east-west along the north side of the National Mall from the U.S. Capitol Reflecting Pool to the Arlington Memorial Bridge.

that no new onsite parking would be provided within the National Mall & Memorial Parks. This would support travel demand management objectives.

Public and Other Transportation Services

Public and other transit operations would continue to meet a variety of transportation and mobility needs of visitors and commuters. The existing transit network includes

- the Metrorail subway, with 16 stations within the study area
- bus service (Arlington County, Metrobus, D.C. Downtown Circulator, Georgetown Metro Connection, etc.), with numerous buses crossing the National Mall (primarily at 4th, 7th, and 14th streets NW / SW), plus several routes on Constitution Avenue NW and Independence Avenue SW

Commuter train service is provided from both Virginia and Maryland to Washington, D.C., along with other select transit services such as the free Kennedy Center shuttle to and from the Foggy Bottom Metrorail station, the National Air and Space Museum shuttle to the Udvar-Hazy Center, and the shuttle to the Wolf Trap Performing Arts Center from the Falls Church Metrorail station. Numerous tour bus companies operate within the area, in addition to several private sightseeing operators that provide hop-on / -off services. Other private transportation services include taxis, limousine services, bicycle rentals, recreational Segway® HT and electric scooter rentals, and private employee shuttle and bus services.

Sustainability

NPS policy supports sustainable transit and design, and these policies guide approaches to transit and facility planning and development. The objectives of sustainability are

- to design park facilities to minimize adverse effects on natural and cultural values, to reflect their environmental setting, and to maintain and encourage biodiversity

- to construct and retrofit facilities using energy-efficient materials and construction techniques
- to operate and maintain facilities to promote their sustainability
- to illustrate and promote conservation principles and practices through sustainable design and ecologically sensitive use

The principles of sustainability are included in all alternatives.

NPS Educational / Interpretive Programs

NPS personnel throughout the National Mall & Memorial Parks, and at adjacent national park system sites, would continue to offer educational / interpretive programs for visitors. Park rangers provide programs that connect visitors educationally and emotionally with park resources and help them understand the significance of historic sites and events.

Law Enforcement and Security Requirements

Monitoring and surveillance measures on transit vehicles and at transit stops would be provided as necessary.

TRANSPORTATION SERVICE IMPLEMENTATION AND FARES

Implementation

Several transit implementation or service delivery methods were examined during the development of alternatives, but no single method is recommended in this environmental assessment. The service delivery strategy* will depend on several factors, including full and just compensation due to the NPS con-

* The service delivery strategy refers to the contractual means through which service would be provided, including potentially by an independent third-party operator or by the National Park Service.

cessioner upon the present contract's expiration and in accordance with the contract's terms, future government or private financing sources, and potential funding subsidies. Any implementation approach could be used with any of the alternatives. Each scenario assumes that a transportation service provider would be authorized to conduct operations on federal parkland, including fare collection and other support services. No significant differences in environmental impacts would be expected as a result of selecting a specific implementation strategy.

The final implementation approach will be a management decision by the National Park Service as to how to best meet financial sustainability and other management goals.

Independent Third-Party Operator

Under this option the National Park Service would solicit a third-party operator through a prospectus to manage transportation services within the project area. The third-party operator would take on ownership of the system through authorization by the National Park Service. In most third-party operated transportation services in the national park system, the contractor owns the vehicles and facilities. If funding sources were available, the National Park Service could subsidize the capital costs of vehicles and/or other facilities, but there would be no direct operating cost investment by the National Park Service. Transportation services would be paid for by using revenues generated directly from user fees or other third-party operations. The third-party operator would need to recover all non-subsidized costs, including depreciation (if appropriate), and have a reasonable opportunity for profit. The National Park Service would typically receive revenue in the form of franchise fees from the operator. Current NPS concession law states that contract terms are to be no more than 10 years initially, or up to 20 years if warranted. The current NPS concessioner arrangement with the National Mall & Memorial Parks and transit services at Denali National Park are examples of independent

third-party operated services within national park units.

Agreement with Public Transportation Entities

Under this option the National Park Service would enter into an agreement with other public entities, such as local transit authorities, or local, state, or federal agencies. This type of agreement would increase the range of possible funding sources. In most current examples, a local entity would manage the program and would be responsible for providing or overseeing operations. Under this option vehicles and facilities would be provided either by one of the other public transportation entities or by the National Park Service. The extent of NPS control would be established within the specific agreement. The agreement would determine the role of the National Park Service in regard to input, management, and control of the transit service and its operations. The Acadia "Island Explorer" and the Yosemite Area Regional Transit System are examples of such arrangements.

Service Contract

Under this option the National Park Service would employ a private contractor to provide transportation services, but the National Park Service would retain ownership. This service type would differ from an independent third-party operation by allowing the National Park Service to directly retain revenue from fares, depending on the terms of the contract negotiated. Either the owner or the contractor could provide the vehicles and facilities, with the cost per service-hour adjusted accordingly. Funds to support the service could come from various sources, such as park entrance fees and annual appropriations, as well as user fares. In the case of the National Mall & Memorial Parks no entrance fees are charged, but revenues could be generated through fare and other transportation-related fees (e.g., parking charges). Service contract terms are typically three years, with two one-year extension options. Transit services

provided at Zion and Rocky Mountain national parks, plus the Grand Canyon free shuttle, are examples of service contract arrangements. Transit vehicles are owned by the National Park Service at Zion and Grand Canyon national parks, while the contractor provides the vehicles at Rocky Mountain.

Park-Operated Service

Under this option the National Park Service would directly operate the transit service, allowing for total government control. The government would make all investments for facilities and vehicles, which could be leased or purchased, and NPS staff would operate and maintain the vehicles. If fares were charged, the National Park Service would retain all revenues to provide for a return on investment and to fund operating expenses. The Cape Cod beach shuttle is an example of a park-operated transit service.

Fare Determination

Fares to use the visitor transportation services would likely be the primary source of revenues for the operator. A fare range is presented for informational purposes only; actual fares will depend on the final implementation plan. Fare ranges depend directly on potential funding mechanisms or revenue sources to supplement transit fare revenues. The average fare requirement will depend on factors such as the following:

- the scale and configuration of the service, and its resulting cost to implement and operate
- ridership
- sources of funds other than user charges to defray system capital and operating expenses (level of subsidy)
- choice of system operator
- on-board interpretive services
- full and just compensation due to the current concessioner upon the present

contract's expiration and in accordance with the contract's terms

Due to the number of factors that could influence average fare requirements, a range of potential fare requirements is presented below for information purposes only.

The primary factors influencing the average fare requirement include the method used to fund capital costs, the potential to attract a broader ridership market, and full and just compensation due to the concessioner. Under the current concession contract the operator must be compensated for the fair value of certain assets after the contract expires. This is typical of all NPS concession contracts.

A low fare and a high fare scenario were used to estimate average fare requirements. These scenarios reflect the following assumptions.

- *Low-Fare Scenario Assumptions* — A low fare scenario was developed by applying the ridership projections (as discussed in the previous section) and associated system cost estimates. It was assumed that the federal government would fund capital costs without being paid back by the operator. The capital cost elements for each alternative would include vehicle fleet acquisition and transit stop development, as well as full and just compensation due to the current concessioner upon the contract's expiration. It was assumed that all system operating costs would be defrayed by fares. The system would be operated by a cooperating transit agency under an agreement with a 10-year term. The low-fare scenario is possible when the capital investment of the new system does not need to be paid by fare revenue.

Arlington National Cemetery service was assumed to operate without on-board interpretation.

- *High-Fare Scenario Assumptions* — A high fare scenario was developed by applying the ridership projections (as described in

the previous section) and associated system cost estimates. For this scenario it was assumed that an independent third-party would fund fleet acquisition and transit stop development, as well as full and just compensation due to the current concessioner upon the contract's expiration. This operator would then be paid back through fare revenue, which would be the only source of funds to defray system operating and capital costs. The system would be operated by an independent third-party under a 10-year contract. The high-fare scenario is likely when both the capital investment and the operating costs would need to be paid by fare revenue.

Arlington National Cemetery service was assumed to operate with on-board interpretation.

Potential fares could range from an estimated \$7 per person per day under the low-fare scenario to \$31 per person per day under the high-fare scenario, both of which would include service to Arlington National Cemetery. These fare requirements are presented for information purposes only. Actual fares will be established during the implementation phase of the project and will be based on the final service delivery plan.

ALTERNATIVE 1: NO ACTION

Current bus transit routes, which are focused on guided sightseeing, would remain under Alternative 1. New vehicles would be used on the existing bus transit routes. There would be no changes to multimodal access regulations or any additional travel demand management actions.

- A single one-way route in the visitor core would continue to be offered, plus service to Arlington National Cemetery, and supplemental service in the form of selected excursion tours (Mount Vernon, Frederick Douglass National Historic Site, and Twilight Tours). Access would continue to be provided to 28 of the top visitor destinations in the metropolitan area.
- Narrated shuttle bus tours would continue to be provided to a visitor market that seeks in-depth educational / interpretive opportunities, meeting transportation needs throughout the visitor core and selected outlying visitor destinations.
- No actions would be taken to manage travel demand, such as changes to parking policy. Multi-use trails would continue to provide access for currently allowed uses; no policy changes would be made for the recreational use of Segway® HTs and electric scooters on park multi-use trails. All commercial rentals of personal transportation vehicles for recreational use would occur off park land, except for rentals of bicycles, canoes, and kayaks at the Thompson Boat Center.

TRANSPORTATION SERVICE

Visitor Core

The current visitor core transportation service consists of one comprehensive one-way route with a direct transfer connection to Arlington National Cemetery. This route follows the current route for the American Heritage Tour.

The geographic limits of the route are Arlington National Cemetery on the west, Union Station and 1st Street NE on the east, E Street NW on the north, and Ohio Drive SW and East Basin Drive SW on the south.

The map for Alternative 1 illustrates the visitor core transportation service route. This route is generally a figure-eight pattern between Union Station and Arlington National Cemetery, operating along the National Mall via Madison Drive NW and Constitution Avenue NW, and Jefferson Drive SW, and crossing the National Mall on 15th Street NW/SW. This location, near the Washington Monument, would serve as a key transfer point, with stops at 15th Street NW/SW and Jefferson Drive SW for both directions of travel. The route length, travel time, and stop information are shown on the map.

Transportation System Infrastructure

Transportation services would continue to operate entirely on existing public rights-of-way or public infrastructure, including existing roads in mixed-flow traffic.

Fares and Ticketing

A daily fare would continue to be charged for hop-on / -off service. Actual fares would be established during project implementation and would be based on estimated ridership, expenses, funding sources, and a final service delivery plan. (Current fares for the American Heritage Tour are \$20 for adults, with discounts for children, groups, and two-day purchases. This fare also includes access to Arlington National Cemetery.)

Tickets would continue to be obtained at the Arlington National Cemetery visitor center, at Union Station ticket outlets, at certain ticket kiosks along the route, on-board from the driver, and through advance purchase on the Internet. The tickets would provide all-day

Alternative 1: Visitor Core Transit Service

National Mall & Memorial Parks

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Visitor Core Transit Service Characteristics			
Routes	Round Trip Route Length (miles)	Round Trip Travel Time (minutes)	Number of Stops along Route
Visitor Core Route (one-way)	11.2	95	20
Transit Stop Connections			
Route/Directional Transfer Locations		2	
Metrorail Stations Served within 1/2 Block		1	
Metrorail Lines Served		1	
Service Hours/Frequency (headway)			
Peak Season	9:00 AM - 6:30 PM	15 minute headway	
Off-Peak Season	9:30 AM - 4:30 PM	20 - 25 minute headway	

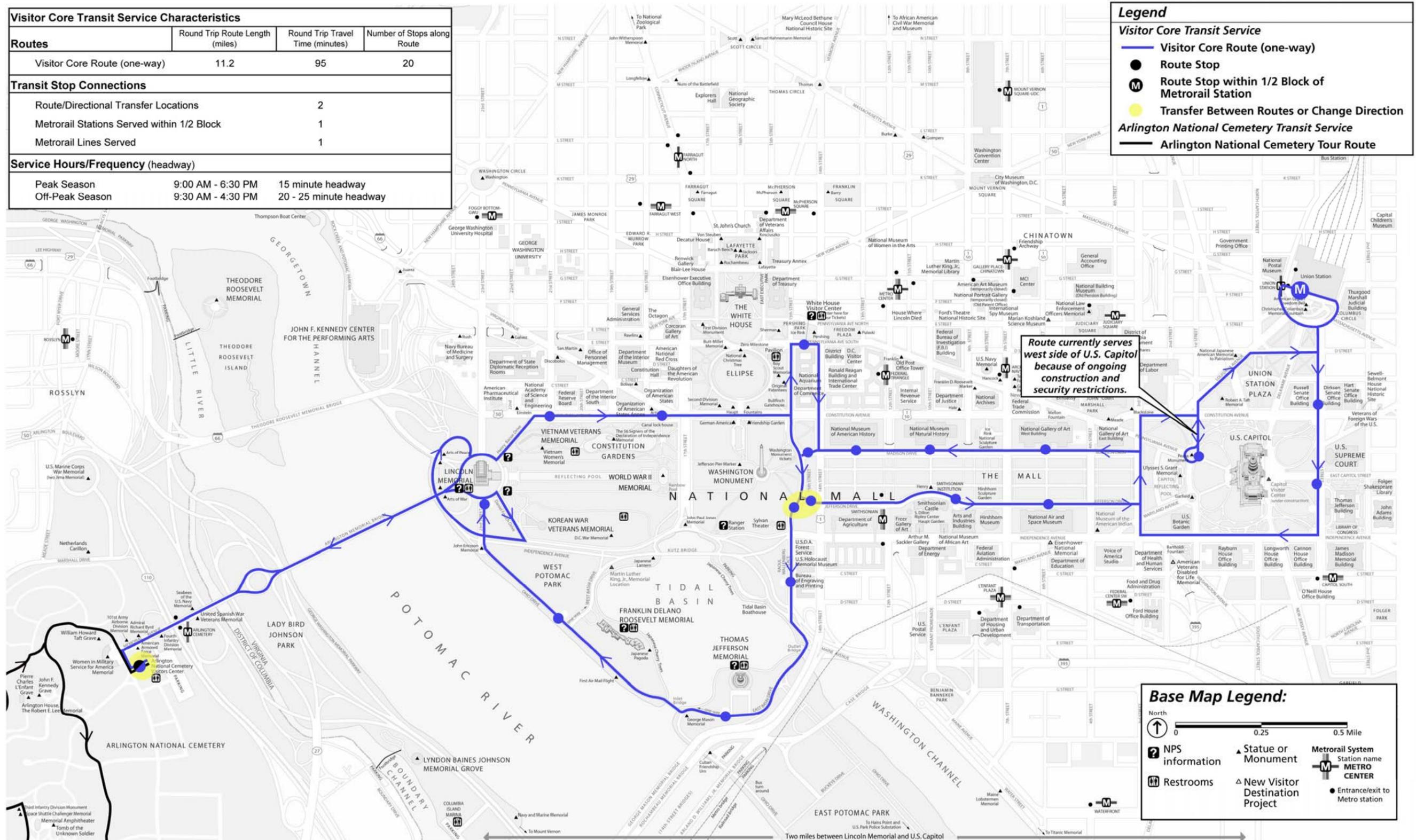
Legend

Visitor Core Transit Service

- Visitor Core Route (one-way)
- Route Stop
- M Route Stop within 1/2 Block of Metrorail Station
- Transfer Between Routes or Change Direction

Arlington National Cemetery Transit Service

- Arlington National Cemetery Tour Route



Base Map Legend:

North

0 0.25 0.5 Mile

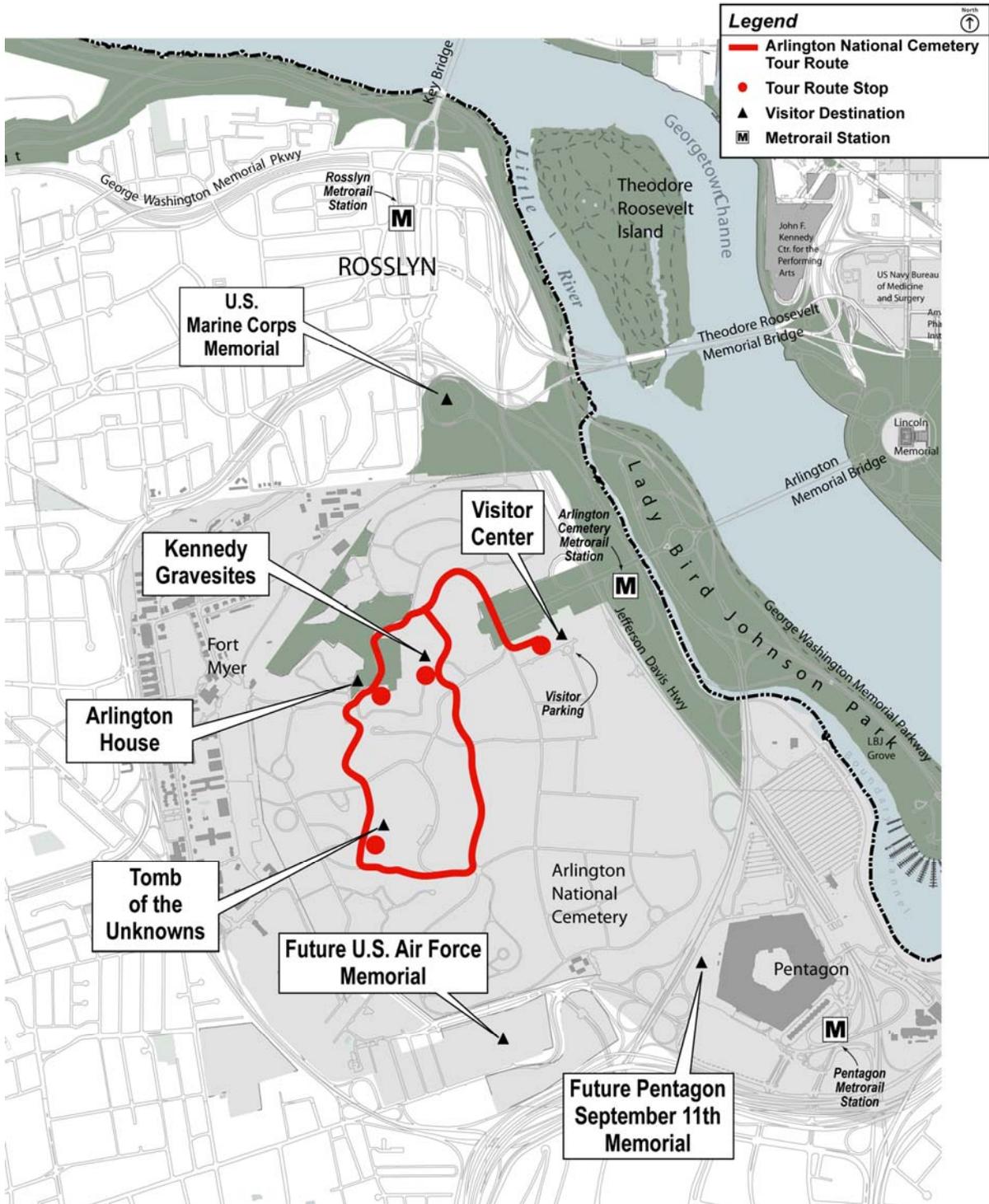
- NPS information
- Restrooms
- Statue or Monument
- New Visitor Destination Project
- Metrorail System Station name METRO CENTER
- Entrance/exit to Metro station

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Alternative 1: Arlington National Cemetery Transit Service

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hop-on / -off service, with one- and two-day passes for adults, children, and groups. Fare discount incentives would be offered by including the Arlington National Cemetery tour with the purchase of a visitor core service fare. Discounts would be offered for children, groups, and two-day purchases.

Public Transit Connections

The visitor core route would continue to provide one direct connection to Metrorail with a stop at Union Station. Metrobus routes could also be accessed along certain segments, including stops along Constitution Avenue NW, Independence Avenue SW, and 14th Street NW/SW, as well as at Union Station.*

Operating Plans

The peak visitor season begins with the cherry blossom season in spring and continues until mid-September. For planning purposes the season is assumed to last from mid-April through mid-September, and bus service is provided from 9 a.m. to 6:30 p.m. seven days a week. Fifteen-minute service frequencies would continue throughout the day.

The off-peak season would extend from mid-September through mid-April, with service from 9:30 a.m. to 4:30 p.m. seven days a week. Service frequencies would be approximately 20 minutes on weekends and 25 minutes on weekdays.

Educational / Interpretive Services

An individual other than the driver would provide narration and interpretation of sites along the route through an on-board public address system. Narrative content would be coordinated with NPS interpretive staff.

* In March 2006 one additional direct connection to public transit was created when Tourmobile shifted the stop at the Arts and Industries Building on Jefferson Drive SW to 12 Street SW, adjacent to the Metro at the Smithsonian.

Staffing

Approximately 26 full-time employees would be required, including transit drivers, narrators, vehicle mechanics, maintenance personnel, and general administrative staff.

Arlington National Cemetery

The Arlington National Cemetery service would continue to follow the route that is used today. This route originates at the visitor center and provides one-way loop service through the cemetery. However, the route is often modified temporarily to accommodate funeral processions, memorial services, and related cemetery activities. This route is approximately 3 miles, and stops are made at the John F. Kennedy gravesite, the Tomb of the Unknowns, Arlington House, and the visitor center. Hop-on / -off access would continue to be provided at all locations, with a round-trip travel time of approximately 45 minutes. The visitor center would continue to serve as a transfer point for connections to the visitor core service.

Fares and Ticketing

Exclusive tickets for service to Arlington National Cemetery would be available only at the cemetery's visitor center. (Current fares are \$6 for adults and \$3 for children, with discounts for groups.) Service would continue to be included with ticket purchases for the current visitor core service, with tickets available at visitor core ticket outlets.

Public Transit Connections

Under Alternative 1 there would be only indirect connections to public transit associated with the Arlington National Cemetery service. The Arlington National Cemetery Metrorail station is slightly farther than a quarter mile from the cemetery visitor center.

Operating Plans

The peak season for Arlington National Cemetery service would continue from April through September, 8:30 a.m. to 6:30 p.m., with 5- to 10-minute service frequencies. The off-peak season would continue from October through March, 8:30 a.m. to 4:30 p.m., with 15-minute service frequencies.

Educational / Interpretive Services

An individual other than the driver would provide narration and interpretation of sites along the Arlington National Cemetery route through an on-board public address system. Narrative content would continue to be coordinated with NPS interpretive staff.

Staffing

Approximately 23 full-time employees, including transit drivers, narrators, vehicle mechanics, maintenance personnel, and general administrative staff would be required for the Arlington National Cemetery service.

Supplemental Transportation Services

Excursion Tours

Excursion tours would continue to be offered on a seasonal basis to other cultural and historic sites outside the visitor core area, including Mount Vernon and Frederick Douglass National Historic Site, as well as the Twilight Tour. These tours would be generally scaled to match visitor demand levels.

Due to the variations and declines in visitor demand since 2001, tour schedules have been refined to meet market conditions. One trip per day is offered to Mount Vernon and to Frederick Douglass National Historic Site. The Twilight Tour is also offered during the summer. The general characteristics of each tour are described in Table 1.

Table 1. Excursion Tour Characteristics — Alternative 1

Tour	Characteristics
Mount Vernon Estate — seasonal	Departure: Noon from Arlington National Cemetery, with one stop at the Washington Monument Tour Length: About four hours, including an onsite walking tour Tickets: Arlington National Cemetery and Washington Monument
Frederick Douglass National Historic Site — Seasonal	Departure: Noon from Arlington National Cemetery, with one stop at the Washington Monument Tour Length: About three hours, including an onsite walking tour Tickets: Arlington National Cemetery and Washington Monument
Washington by Night: Twilight Tour — Seasonal	Departure: 7 p.m. from Union Station Tour Length: About three hours Tickets: Union Station

Fares and Ticketing

Ticket prices for excursion tours would be based on anticipated market demand and estimated expenses. Actual fares would be established during the implementation phase of the project. Tickets would be available at the Arlington National Cemetery visitor center, Union Station, and the Washington Monument ticket kiosk.

Operating Plans

Based on the variability of market demand for excursion tours, the operating plan assumes four buses would be devoted to excursion tours in the peak season (mid-April through mid-September). Each bus would operate for an estimated 9.5 hours per day (9 a.m. to 6:30 p.m.). In the off-season, two buses would be required, operating for an estimated 7.5 hours per day (9 a.m. to 4:30 p.m.). This plan would allow service to three to five destinations per day in the peak season. Off-season service would serve the same destinations, but without daily service (e.g., trips to Mount Vernon on four days, and trips to Frederick Douglass National Historic Site on three days).

Educational / Interpretive Services

An individual other than the driver would provide narration and interpretation on the excursion tours. Narrative content would be coordinated with NPS interpretive staff.

ACCESS TO TOP DESTINATIONS

The existing transportation service would continue to serve 28 of the top visitor destinations in the D.C. metropolitan area (Table 27, page 134).

Two-way access would be provided only to the Washington Monument.

One-way access would continue to be provided to the following top destinations:

- Lincoln Memorial
- National Air and Space Museum
- Vietnam Veterans Memorial
- National Museum of American History
- National Museum of Natural History
- U.S. Capitol
- White House Visitor Center
- Arlington National Cemetery
- Jefferson Memorial
- Union Station

RIDERSHIP

Table 2 presents transit ridership estimates for the visitor core and Arlington National Cemetery services in Alternative 1.

Table 2. Transit Ridership Estimates — Alternative 1

Year	Visitor Core	Arlington National Cemetery
2015	398,000	883,000
2025	433,000	963,000

NOTE: The factors used for ridership projections are described on page 25.

TRANSIT VEHICLES

Vehicles used for the various services would be the same as those described under “Plan-

ning Considerations and Assumptions.” Numbers of vehicles required are shown in Table 3.

Table 3. Number of Transit Vehicles Required — Alternative 1

	Visitor Core	Arlington National Cemetery	Excursion Tours
Peak Service	8	8	4
Spare Vehicles	2	2	1
Total	10	10	5

FACILITIES

Visitor Core Transit Stops

A total of 20 transit stops would continue to serve passengers under Alternative 1, but a new transportation service would result in upgraded standard, transfer, and intermodal stops. As described on page 28, 25% of the stops would be upgraded (e.g., bus pads and curb ramps).

Maintenance / Storage Facility

The current 42,352-square-foot maintenance / storage facility, which is used in accordance with the existing independent third-party contract for transit operations, is in East Potomac Park. Vehicles are maintained on site, and they are stored both inside and outside.

It is assumed that this facility would serve a comparable function under Alternative 1. However, if the facility was determined to be inadequate or incompatible with NPS land uses, site improvements or new offsite facilities could be required. For the purposes of this document, estimated site requirements for a new bus maintenance/storage facility are shown in Table 4.

Any new facilities would be the responsibility of the operator and would need to be provided off site. The actual requirements would be determined by the operator in response to a public solicitation process.

Table 4. Maintenance / Storage Facility Site Requirements — Alternative 1

Transportation Service	Estimated Site Requirements	
	Low Range	High Range
Visitor Core and Excursion Tours	3.1 acres	3.4 acres
Arlington National Cemetery	3.4 acres	3.4 acres
All Services Combined in One Facility	4.3 acres	4.8 acres

NOTE: Key factors related to maintenance/storage facility requirements are presented on page 28.

COSTS

Capital and annual operation and maintenance cost estimates for Alternative 1 are shown in Table 5 and are based on the assumptions described on page 29.

MULTIMODAL ACCESS (SEGWAY® HT, SCOOTER, AND BICYCLE)

No changes to access for pedestrians, bicyclists, or other personal transportation (e.g., recreational use of Segway® HTs and electric scooters) would be made. Access would be consistent with the description in “Planning Considerations and Assumptions.”

TRAVEL DEMAND MANAGEMENT

No additional travel demand improvements beyond those discussed in “Planning Considerations and Assumptions” would be made.

Table 5. Projected Capital and Annual Operating Costs — Alternative 1 (in millions)

	Visitor Core	Arlington National Cemetery	Excursion Tours	Total
Vehicle Fleet	\$7.26	\$6.11	\$2.04	\$15.41
Transit Stops	\$0.72	N/A	N/A	\$0.72
Total Capital Costs	\$7.98	\$6.11	\$2.04	\$16.13
Annual Operating Costs	\$1.94	\$1.76	\$0.89	\$4.59

NOTE: Assumptions for costs are described on page 29.

ALTERNATIVE 2: PREFERRED ALTERNATIVE

Alternative 2 proposes an integrated transportation system to meet the needs of a broad visitor market. Visitor transportation service would provide a frequent and easy-to-use system that would serve expanded areas in the visitor core and Arlington National Cemetery.

- Two new interconnected routes would be provided in the visitor core. Service in Arlington National Cemetery would be extended to the U.S. Marine Corps War Memorial. Selected excursion tours would continue to be offered, potentially including cultural and visitor sites outside the visitor core area as warranted by market conditions. Access would be provided to 39 of the top destinations in the Washington, D.C., area. New transit stops would be located within easy walking access of Metrorail stations.
- Basic orientation would be provided on the new routes, and users would have a choice of additional educational / interpretive services on all routes and supplemental transportation services.
- Additional designated access would be allowed for Segway® HTs and electric scooters along the existing multi-use trail system in the National Mall & Memorial Parks. Parking under the jurisdiction of the National Park Service on the National Mall would be metered to encourage greater use of local and regional transit services.

TRANSPORTATION SERVICE

Visitor Core

Transportation service in the visitor core under Alternative 2 would consist of two interconnected routes, extending from Arlington National Cemetery on the west to Union Station and 1st Street NE on the east, and from F Street NW on the north to Ohio Drive SW and East Basin Drive SW on the

south. The “Alternative 2: Visitor Core Transit Service” map illustrates the two visitor core routes and provides length, travel time, and stop information for each route. This preferred alternative would offer frequent bus transit with a choice of educational / interpretive opportunities on both routes.

The two proposed routes are described below:

- **Blue Route** — The Blue Route would provide two-way loop service between Arlington National Cemetery, the U.S. Capitol, and Union Station. It would primarily operate along the National Mall by way of Madison Drive NW and Constitution Avenue NW, and Jefferson Drive SW and Independence Avenue SW. The Blue Route also would extend north to the White House Visitor Center on Pennsylvania Avenue South NW and south to the Jefferson Memorial on East Basin Drive SW and the FDR Memorial on Ohio Drive SW.

Optional detour segments for the Blue Route would include circulation along 3rd Street NW/SW and 1st Street NW/SW on the west side of the U.S. Capitol. This option would allow for detours when security measures were in place along primary route segments serving the east side of the U.S. Capitol.

- **Red Route** — The Red Route would provide one-way loop service from the Lincoln Memorial in West Potomac Park to the Judiciary Square area in downtown, and it would cross the National Mall on 14th, 15th, and 17th streets NW/SW.

Optional detour segments for the Red Route would include a segment along 11th Street NW and E Street NW. This option would allow for detours when Pennsylvania Avenue is closed for special events and functions.

Alternative 2: Visitor Core Transit Service

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Visitor Core Transit Service Characteristics			
Routes	Round Trip Route Length (miles)	Round Trip Travel Time (minutes)	Number of Stops along Route
Blue (clockwise)	11.8	73	22
Blue (counter-clockwise)	11.0	70	21
Red (one-way)	6.4	44	18

Transit Stop Connections	
Route Transfer Locations	7
Metrorail Stations Served within 1/2 Block	7
Metrorail Lines Served	5

Service Hours/Frequency (headway)		
Peak Season	9:00 AM - 6:30 PM	10 minute headway
Off-Peak Season	9:30 AM - 4:30 PM	10 - 15 minute headway

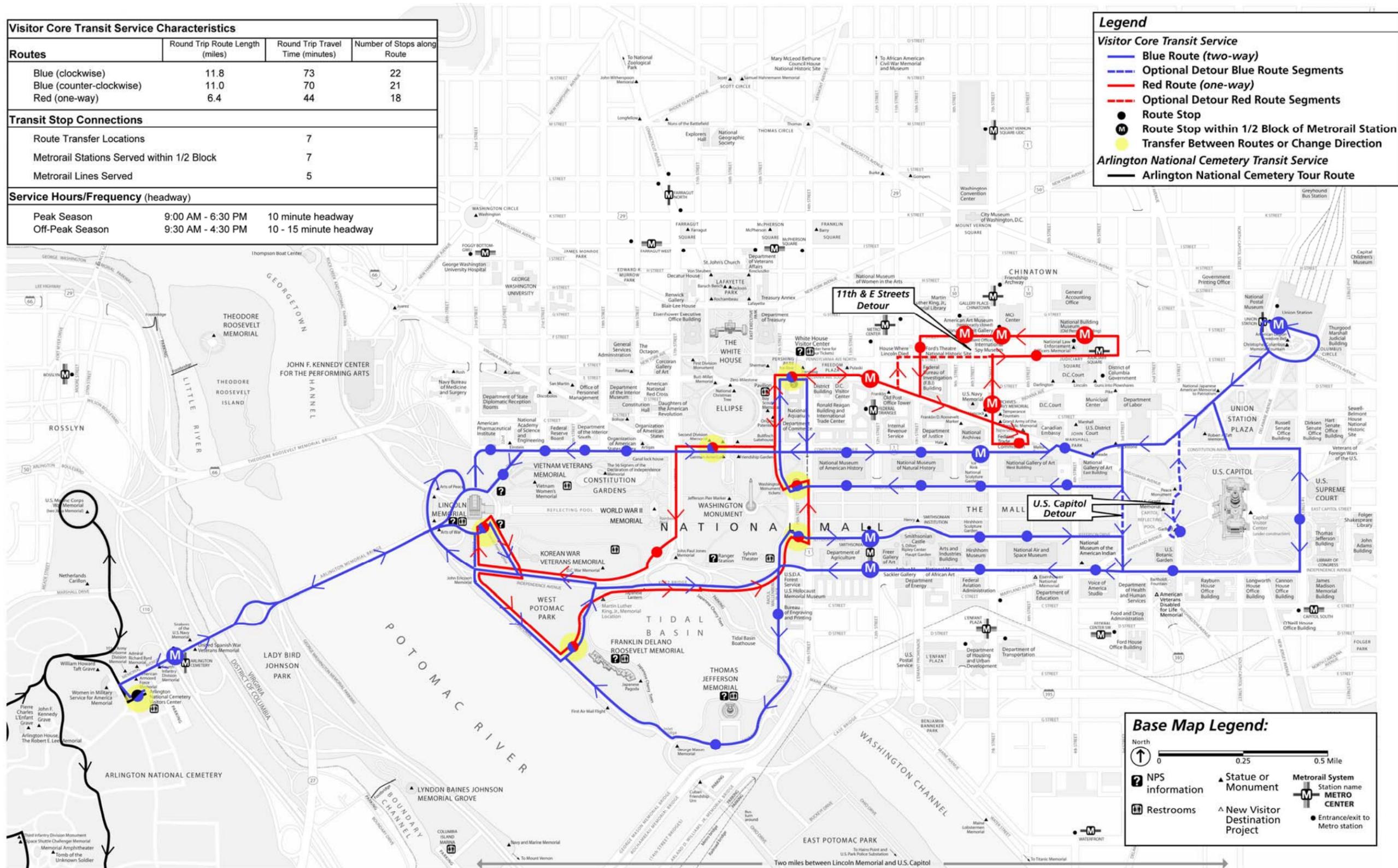
Legend

Visitor Core Transit Service

- Blue Route (two-way)
- - - Optional Detour Blue Route Segments
- Red Route (one-way)
- - - Optional Detour Red Route Segments
- Route Stop
- Ⓜ Route Stop within 1/2 Block of Metrorail Station
- ⦿ Transfer Between Routes or Change Direction

Arlington National Cemetery Transit Service

- Arlington National Cemetery Tour Route

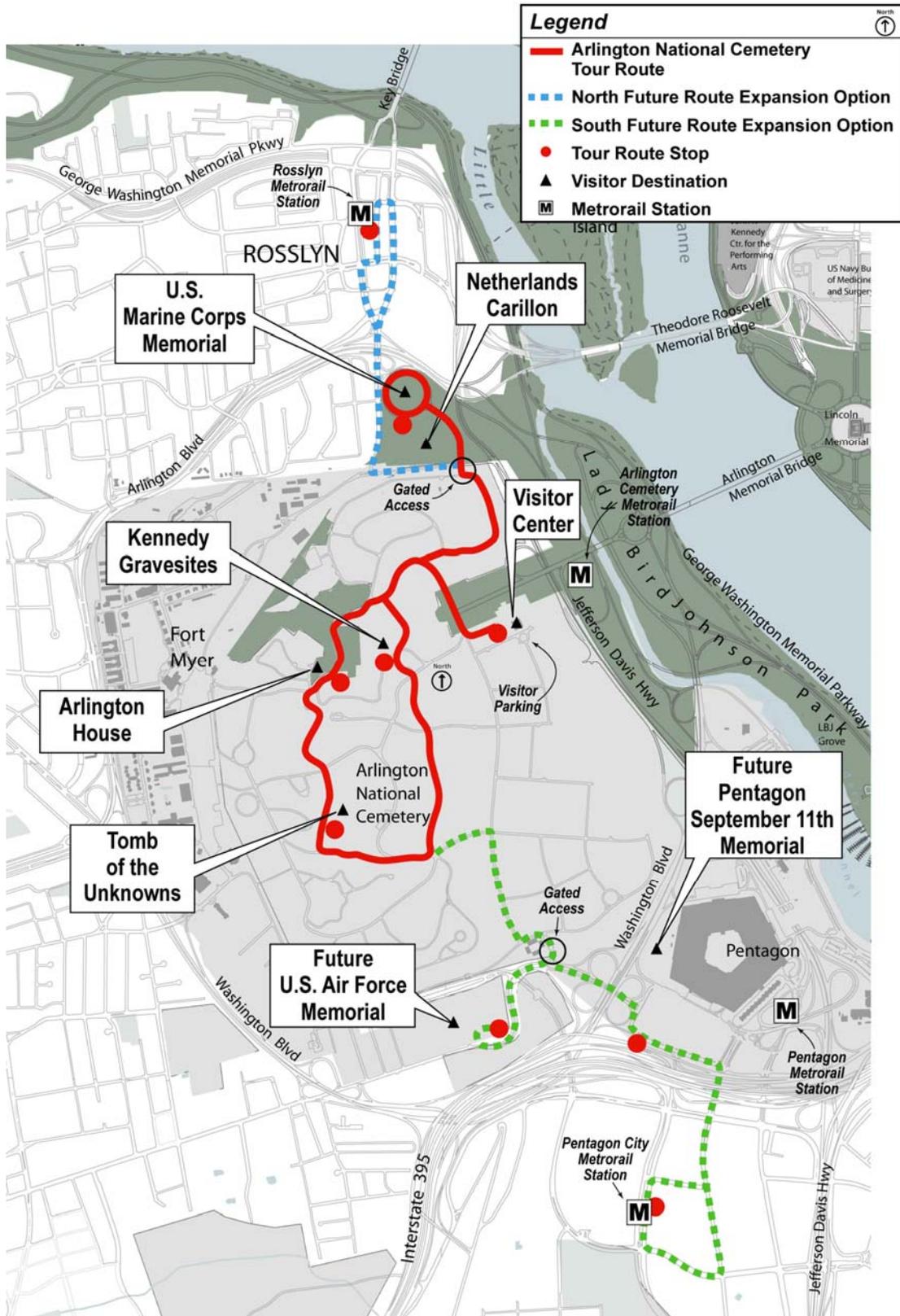


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Alternative 2: Arlington National Cemetery Route Map

National Mall & Memorial Parks

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Transportation System Infrastructure

Transportation services would continue to operate in mixed-flow traffic entirely on public rights-of-way, including existing roads.

Fares and Ticketing

A daily fare for hop-on / -off service would be established during the implementation phase and would be based on estimated ridership, expenses, funding sources, and a final service delivery plan. Tickets could be bought at staffed outlet locations, such as the Arlington National Cemetery visitor center, Union Station, the Washington Monument ticket kiosk, and automatic ticket vending machines along the visitor core routes; advance purchases could be made by phone or on the Internet. Additional options for ticketing could include multiday or group passes.

The National Park Service would seek to use a fare and ticketing system that would be integrated with the ticketing systems of regional transit providers by offering SmarTrip card ticketing and other fare options at Metrorail stations, at park partner locations, and potentially at other visitor destinations. The intent would be to make using the visitor transportation service as seamless as possible by promoting interoperability between existing local and regional transit systems.

Public Transit Connections

A total of seven Metrorail stations would be within one-half block of a transit stop. Each route would provide connections to four stations. Metrobus routes could also be accessed along several select segments of the visitor core routes under this alternative, including stops along Constitution Avenue NW, Independence Avenue SW, 7th Street NW/SW, and Union Station.

Operating Plans

The seasonal hours of operation for visitor core routes would be the same as under Alternative 1, from 9 a.m. to 6:30 p.m. seven days a

week during the peak season, but service frequency would be increased to 10 minutes from 15 minutes to accommodate additional demand and improve visitor convenience. During the off-peak season service would be provided from 9:30 a.m. to 4:30 p.m. seven days a week; service frequency would be 10 minutes on weekends and 15 minutes on weekdays.

A second optional operating scenario was also evaluated for Alternative 2 that included two additional hours of service in the evening during both peak and off-peak seasons. Service would be extended from 6:30 p.m. to 8:30 p.m. in the peak season and 4:30 p.m. to 6:30 p.m. in the off-peak season, with 30-minute service frequencies.

A third scenario was tested for Alternative 2 to determine how twice as many riders in the visitor core would affect related transit fleet and operational requirements. If potential ridership was doubled, service frequency during the peak season would be 5 minutes for the Blue Route throughout the day, instead of the recommended 10 minutes. Peak-season service frequency for the Red Route would not change, nor would service frequency during the off-peak season.

Educational / Interpretive Services

Site orientation and interpretation along visitor core routes would be provided by the driver and audio/electronic systems. These systems could use pre-recorded announcements on the vehicles' public address systems, personal headsets, or electronic screens. Depending on cost and available technology, interpretive delivery devices or tools could also be purchased or rented from park partners and at other visitor destinations.

Staffing

Approximately 57 full-time employees, including transit drivers, vehicle mechanics, maintenance personnel, and general administrative staff would be required for the visitor core transportation service during the day.

Approximately 5 additional full-time employees would be required for the optional evening service.

Arlington National Cemetery

Shuttle bus sightseeing tours would be continued within the grounds of Arlington National Cemetery along the existing route, with extended service to the U.S. Marine Corps War Memorial (see the “Alternative 2: Arlington National Cemetery Transit Service” map).

Service to the U.S. Marine Corps War Memorial would be offered approximately every 20 minutes. Service would require special access through a restricted gate along Marshall Drive, adjacent to the current cemetery boundary. Buses for this extended service would follow the current access road and circulate in a clockwise direction around the one-way memorial loop drive, with a new transit stop at the memorial. The round-trip route between the visitor center and the memorial would be approximately 1.7 miles, and round-trip travel time would be approximately 25 minutes because of reduced operating speeds, transit stop time, and some delay at the restricted access gate.

Additional route extensions could provide convenient transfers to public transit (WMATA and Arlington County Transit) if warranted by future demand. These extensions would support goals of visitor convenience without duplicating service. Coordination would be required with other local agencies and transit providers. Costs for these extensions are not included in the projected capital and annual operating cost estimates.

- *Service Additions to the North (the Netherlands Carillon and the Rosslyn Metrorail station)* — This route would add approximately 2 miles to the U.S. Marine Corps War Memorial route segment. Operating costs would increase by approximately 40% to 50% if similar service frequencies were provided.

- *Service Additions to the South (planned memorials including the Air Force Memorial / Arlington County Cultural Museum, and the Pentagon September 11th Memorial, as well as the Pentagon City Metrorail Station)* — This extension could also include future connections to a proposed light rail transit line along Columbia Pike. Route extensions to the south would require special access through a gated access point along Columbia Pike. In the future routes could also be extended to the Air Force Memorial when the cemetery expands to include this adjacent area (U.S. Army Corps Engineers 1998). If added to the current route, the trip would be approximately 4 to 5 miles longer. Fleet, operating requirements (staff, etc.), and costs would also increase. Operating costs would nearly double if similar service frequencies were provided.

Fares and Ticketing

Fares would be established during the implementation phase and would be based on estimated ridership, expenses, funding sources, and a final service delivery plan. Future route extensions would require fare adjustments. Tickets would provide for all-day hop-on / -off access. Combined tickets for both visitor core service and Arlington National Cemetery service would also be provided.

As described for the visitor core transportation service, tickets could be obtained at staffed ticket outlet locations and in advance by phone or on the Internet. Ideally, ticketing operations would be integrated with regional transit providers' ticketing technology to offer a seamless transit experience.

Operating Plans

Service hours and frequency would be the same as under Alternative 1. Additional service to the U.S. Marine Corps War Memorial would be provided every 20 minutes during the peak season and every 30 minutes during the off-peak season.

Educational / Interpretive Services

Recorded narration would be provided on the Arlington National Cemetery route and to the U.S. Marine Corps War Memorial. Additionally, the driver would provide orientation, limited interpretation, and answer questions related to sites along the route. Interpretive messages would be appropriate to the commemorative and contemplative nature of the memorials.

Staffing

Approximately 21 full-time employees, including transit drivers, vehicle mechanics, maintenance personnel, and general administrative staff would be required for service to Arlington National Cemetery.

Supplemental Transportation Services

Excursion tours would be provided to other cultural and historic sites outside the visitor core area and would be the same as described under Alternative 1 — Mount Vernon, Frederick Douglass National Historic Site, and the Washington, D.C., Twilight Tour. Excursion tours to other cultural and visitor sites outside the visitor core area could be expanded to include Chesapeake & Ohio Canal National Historical Park, George Washington Memorial Parkway, Anacostia Park, and Rock Creek Park.

ACCESS TO TOP DESTINATIONS

The proposed visitor transportation routes would provide access to 39 of the top destinations in the Washington, D.C., area, 11 more sites than under Alternative 1 (a 39% increase).

Two-way service would be provided to the following top destinations:

- Washington Monument
- Lincoln Memorial
- National Air and Space Museum
- Vietnam Veterans Memorial
- National Museum of American History

- National Museum of Natural History
- U.S. Capitol
- White House Visitor Center
- Arlington National Cemetery
- Jefferson Memorial
- Union Station

One way service would be provided to the following top destinations:

- World War II Memorial (access directly from Home Front Drive)
- U.S. Marine Corps War Memorial (one of the top destinations that visitors want to reach by transit; access by way of the Arlington National Cemetery service)

RIDERSHIP

Table 6 presents transit ridership estimates for the visitor core and Arlington National Cemetery transportation services during the day. Additional evening service would increase ridership, but is not shown in the table.

Current and historical ridership statistics served as the primary reference for projecting the future ridership potential. The other scenario that was also tested for Alternative 2, as previously mentioned, was twice the number of riders in the visitor core.

Current daily fares for the NPS concessioner, along with fares for other local comparable services and the NPS 2003 *Visitor Transportation Survey*, are some indicators of how much visitors are willing to pay for NPS-provided sightseeing or transportation services in the

Table 6. Transit Ridership Estimates — Alternative 2

Year	Visitor Core	Arlington National Cemetery
Daytime Ridership Estimates		
2015	563,000	998,000
2025	614,000	1,088,000
Doubled Ridership Estimates		
2015	1,126,000	998,000
2025	1,228,000	1,088,000

NOTE: The factors used for ridership projections are described on page 25.

vicinity of the National Mall. One of the goals under Alternative 2 is to provide an affordable transit option in the visitor core and surrounding areas and to offer convenient transit access in addition to educational opportunities. Actual fares would affect future ridership levels, but specific fare levels cannot be determined until a final implementation plan is developed (see the discussion on page 34).

TRANSIT VEHICLES

Transit vehicles would be the same as described under “Planning Considerations and Assumptions.” Numbers of vehicles required are shown in Table 7.

Table 7. Number of Transit Vehicles Required — Alternative 2

	Visitor Core	Arlington National Cemetery	Excursion Tours*
Vehicle Numbers for Daytime Ridership Estimates			
Peak Service	24	9	4
Spare Vehicles	6	3	1
Total	30	12	5
Vehicle Numbers for Doubled Ridership Estimates			
Peak Service	43	9	4
Spare Vehicles	10	3	1
Total	53	12	5

* Same as Alternative 1.

FACILITIES

Transit Stops

A total of 47 transit stops in the visitor core would be developed under Alternative 2. As described under “Planning Considerations and Assumptions,” typical amenities would be applied to three types of transit stops, and certain improvements (bus pads and curb ramps) would be made to 25% of the stops. In addition, ticket vending machines for passenger fares would be installed at a third of the stops.

Maintenance / Storage Facility

It is assumed that the current maintenance / storage facility would serve a comparable function under this alternative. However, if

the facility was determined to be inadequate or incompatible with NPS land uses, site improvements or new offsite facilities could be required. For the purposes of this document, site requirements for a new bus maintenance / storage facility are shown in Table 8.

New facilities would be the responsibility of the operator and would need to be provided off site. Actual requirements would be determined by the operator and addressed in response to a public solicitation process. If ridership doubled and more vehicles were required, a larger maintenance / storage facility would also be required.

Table 8. Maintenance / Storage Facility Site Requirements — Alternative 2

Transportation Service	Estimated Site Requirements	
	Low Range	High Range
Visitor Core and Excursion Tours	3.6 acres	4.5 acres
Arlington National Cemetery	3.7 acres	3.7 acres
All Services Combined in One Facility	5.4 acres	6.1 acres

NOTE: Key factors related to maintenance/storage facility requirements are presented on page 28.

COSTS

Capital and annual operation and maintenance cost estimates for Alternative 2 are shown in Table 9.

If ridership within the visitor core doubled, fleet size requirements would change from 30 to 53 vehicles, costs would increase by approximately 77% over the base visitor core ridership scenario, and annual operating costs would increase by approximately 52%. Other elements that would also change with a higher ridership scenario include staffing, maintenance facilities, and passenger fare levels. Further analysis would be required to fully quantify these changes.

**Table 9. Projected Capital and Annual Operating Costs — Alternative 2
(in millions)**

	Visitor Core	Arlington National Cemetery	Excursion Tours	Total
Vehicle Fleet	\$21.78	\$7.33	\$2.04	\$31.14
Transit Stops	\$4.36	N/A	N/A	\$4.36
Total Capital Costs	\$26.14	\$7.33	\$2.04	\$35.50
Annual Operating Costs	\$4.93	\$1.75	\$0.89	\$7.57
Projected Costs If Ridership Doubled				
Vehicle Fleet	\$38.48	\$7.33	\$2.04	\$47.85
Transit Stops	\$4.36	N/A	N/A	\$4.36
Total Capital Costs	\$42.84	\$7.33	\$2.04	\$52.21
Annual Operating Costs	\$7.50	\$1.75	\$0.89	\$10.14

NOTE: Assumptions for costs are described on page 29.
No costs have been developed for installing and maintaining parking meters.

MULTIMODAL ACCESS (SEGWAY® HT, SCOOTER, AND BICYCLE)

In addition to existing permitted uses on park multi-use trails, recreational uses of Segway® HTs and scooters would be further allowed on designated routes. Any new commercial services (i.e., individual rentals or tours) for personal transportation would be provided by private operators off federal parkland.

Proposed Policies

The following policies would be implemented for all personal transportation vehicles operating within the National Mall & Memorial Parks. All operators would be required to

- wear helmets at all times
- use a pedestrian warning device (bell) affixed to their vehicle
- secure vehicles to a bicycle rack when not in use; never leave vehicles unattended and unsecured
- yield the right-of-way to pedestrians
- obey all applicable traffic signals and traffic signs

Recreational Access

Segway® HTs and Electric Scooters

The use of Segway® HTs and electric scooters for recreational use within the National Mall &

Memorial Parks would be permitted only on designated routes along certain multi-use trails. Designated routes would include a National Mall trail with a loop option at the west end, and a West Potomac Park loop providing access to memorials in the southern portion of the Mall (see the “Alternative 2: Personal Transportation Designated Recreational Routes” map). Recreational Segway® HT and electric scooter access would also continue to be permitted on NPS sidewalks adjacent to roadways maintained by the District of Columbia (3rd, 4th, 7th, and 14th streets NW/SW). This access would continue to facilitate north-south cross-Mall travel and would connect Segway® HT and electric scooter users to the National Mall trail at various points. No access would be allowed within President’s Park, including Lafayette Park.

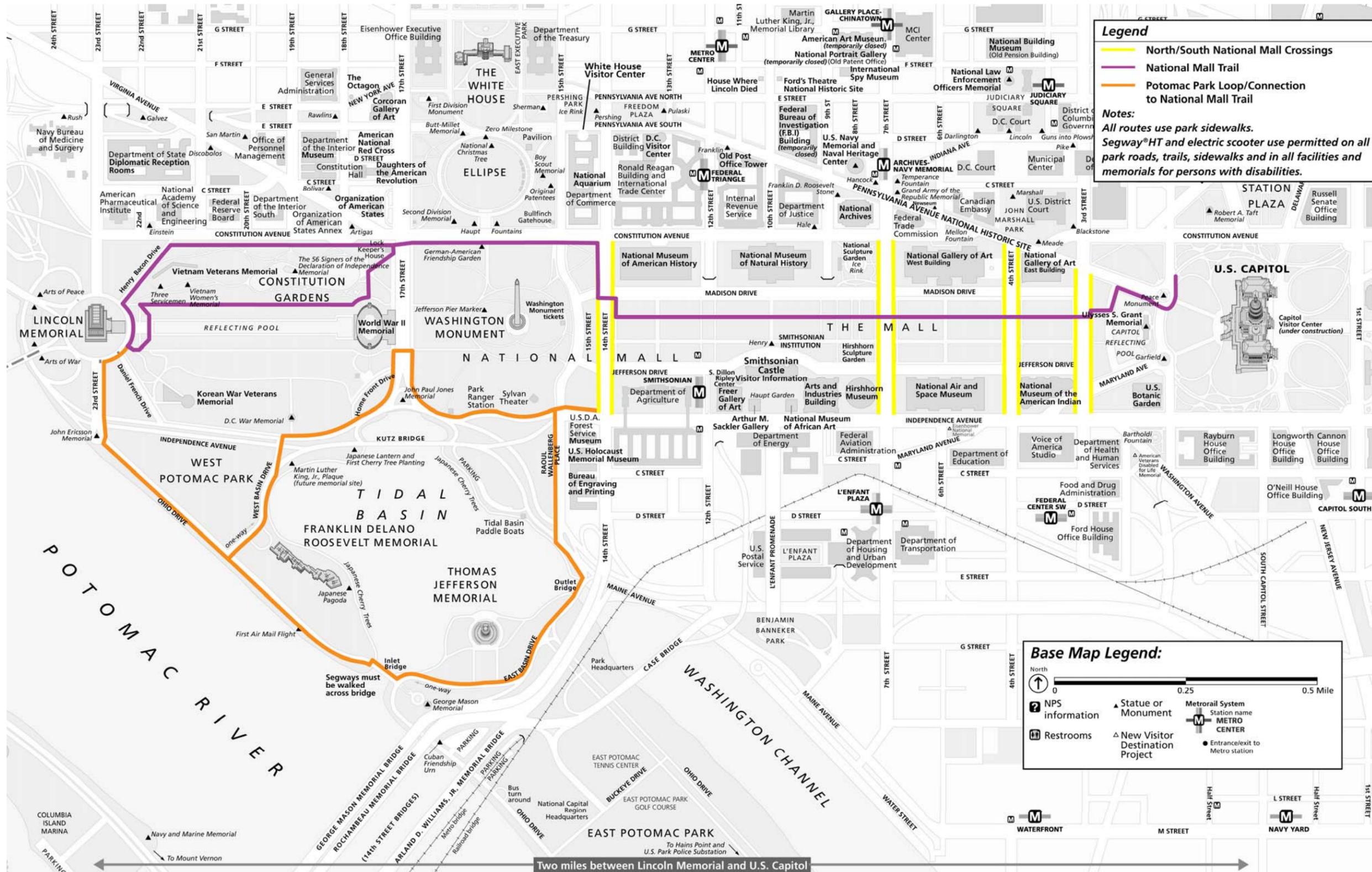
Route designation would include trail blaze signs to clearly mark appropriate Segway® HT and electric scooter use areas. Park brochures for Segway® HT and electric scooter use and policies would be developed, posted on NPS websites, and distributed to local user clubs and tour operators to ensure broad understanding and compliance.

In addition to the proposed policies, all recreational operators of Segway® HTs and electric scooters would be required to adhere to the following new use regulations:

Alternative 2: Personal Transportation Designated Recreational Routes

National Mall & Memorial Parks

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Two miles between Lincoln Memorial and U.S. Capitol

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- always use designated pedestrian crosswalks and specifically obey all pedestrian crossing signals
- adhere to a maximum speed limit of 8 mph
- be a minimum of 16 years old

Bicycles

Bicycles would continue to be permitted on any designated multi-use trail within the National Mall & Memorial Parks. Use regulations as described above under “Proposed Policies” would also apply to all bicycle riders in park areas. As previously stated in “Planning Considerations and Assumptions,” existing bicycle racks would be upgraded and additional racks installed, with particular focus on the East Coast Greenway route.

TRAVEL DEMAND MANAGEMENT

Free parking would be converted to paid metered parking in locations along the National Mall under Alternative 2. This change would encourage greater use of local and regional transit services, rather than private vehicles, for access to the National Mall, and it could create a supplemental funding source for NPS transit operating costs, thereby reducing fares. Parking in East Potomac Park would continue to be free. Paid parking could

be based on a sliding-scale, with time restrictions to discourage all-day parking in various locations and possibly free or reduced-cost parking in the evening.

A paid parking program would be established for an estimated 1,000 parking spaces along Madison Drive NW and Jefferson Drive SW, Constitution Avenue NW (west of 15th Street NW/SW), Independence Avenue SW, Ohio Drive SW, and other select locations throughout the National Mall. On-street spaces along 3rd, 4th, and 7th streets NS/SW are not included in the estimate and are currently metered by the District of Columbia.

New parking meter technology using electronic meters that serve multiple spaces would be used to reduce impacts on resources. This type of meter allows cash or credit card payment and dispenses proof-of-payment tickets that are displayed on parked vehicles. During the implementation phase specific requirements for each metered area and application would be identified. Proposed parking meter infrastructure would meet applicable design guidelines and would use the existing palette of approved street furnishings or be compatible with them. Proposed facilities would also undergo reviews by the National Capital Planning Commission and the Commission of Fine Arts, as well as consultation with the D.C. Historic Preservation Office, as necessary.

ALTERNATIVE 3

Alternative 3 would provide a ride-and-learn visitor transportation service that would be focused more on providing a sightseeing and interpretive experience than on providing convenient transportation service.

- Three interconnected, one-way routes would be provided in the visitor core, covering a larger service area than in Alternative 1. The Arlington National Cemetery service would be extended to the U.S. Marine Corps War Memorial. Excursion tours would be provided as warranted by market conditions. Access would be provided to 42 of the top destinations in the Washington area.
- In-depth and flexible learning experiences would be emphasized, but with limited choice of alternative programs.
- Access policies for the recreational use of Segway® HTs or electric scooters would not change under this alternative, and no additional actions would be taken to manage travel demand.

TRANSPORTATION SERVICE

Visitor Core

Transportation service in the visitor core would consist of three interconnected one-way routes. The geographic limits are Arlington National Cemetery on the west, Union Station and 1st Street NE on the east, K Street NW on the north (with an optional extension to N Street NW), and Ohio Drive SW and East Basin Drive SW on the south.

The three routes would intersect on 15th Street NW/SW in front of the Washington Monument to accommodate transfers. The following routes are proposed (see the “Alternative 3: Visitor Core Transit Service” map for route length, travel time, and stop information):

- **Green Route** — The Green Route would provide one-way loop service between

Union Station and 17th Street NW/SW. This route would operate along the National Mall by way of Madison Drive NW and Constitution Avenue NW, and Jefferson Drive SW and Independence Avenue SW. It would cross the National Mall on 17th Street NW/SW.

- **Red Route** — The Red Route would provide one-way loop service between Judiciary Square, Lafayette Park, and the Tidal Basin area. This route would operate along a portion of the National Mall by way of Constitution Avenue NW, Jefferson Drive NW, and Independence Avenue SW, and it would cross the National Mall on 15th and 17th streets NW/SW.

A future optional segment for the Red Route could extend north of K Street NW to provide access to the Mary McLeod Bethune Council House. This extension would add approximately 0.7 mile and would result in about a 4% increase in related fleet and operating requirements. This optional route extension would be based on future market demand, cost-effectiveness, and financial feasibility.

- **Blue Route** — The Blue Route would provide one-way loop service between Arlington National Cemetery and 15th Street NW/SW. This route would operate along West Potomac Park by way of Constitution Avenue NW and Independence Avenue SW, and it would cross the National Mall on 15th Street NW/SW.

Transportation Service Infrastructure

Transportation services would continue to operate in mixed-flow traffic entirely on public rights-of-way, including existing roads.

Fares and Ticketing

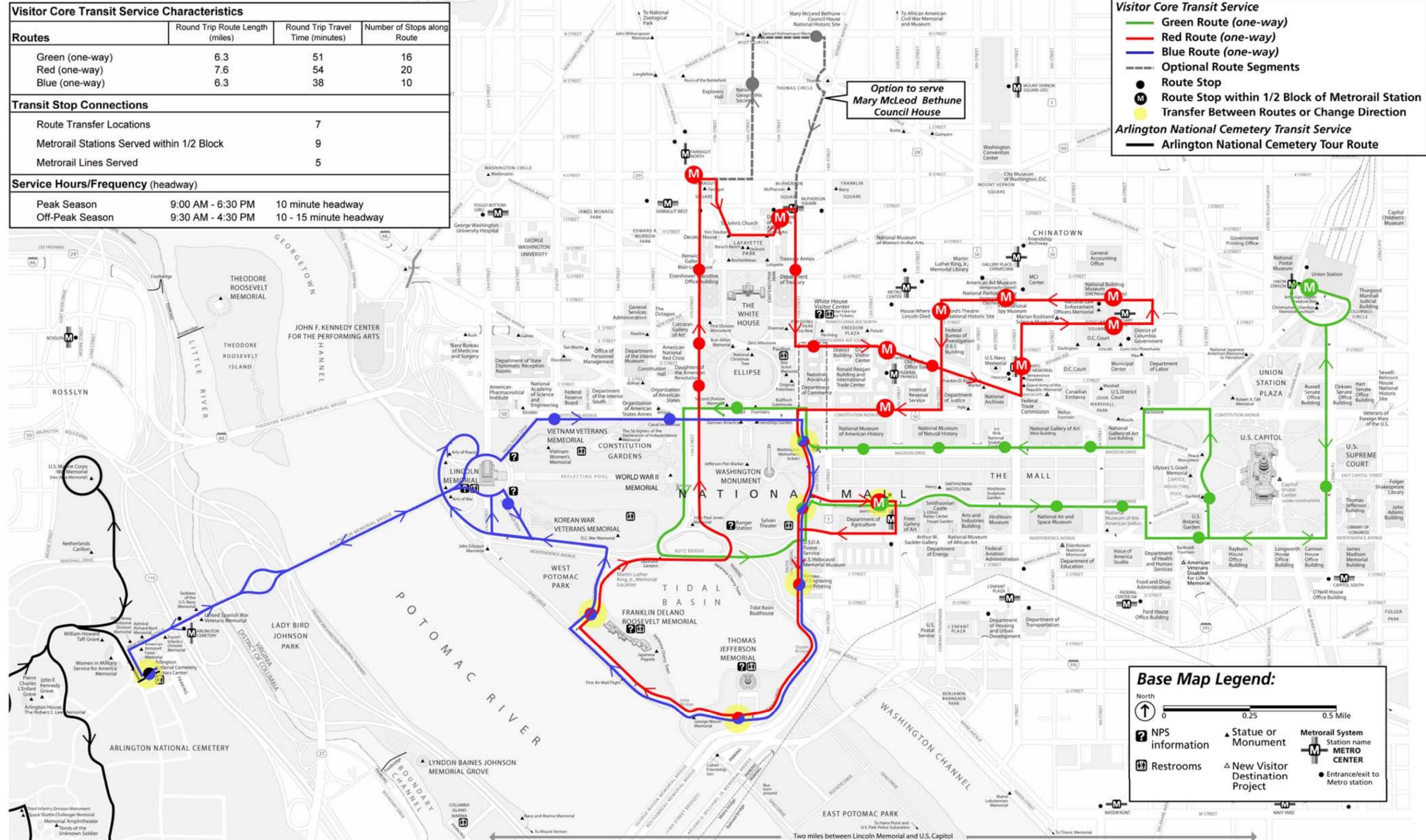
A daily fare would be established during the implementation phase and would be based on

Alternative 3: Visitor Core Transit Service

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Visitor Core Transit Service Characteristics			
Routes	Round Trip Route Length (miles)	Round Trip Travel Time (minutes)	Number of Stops along Route
Green (one-way)	6.3	51	16
Red (one-way)	7.6	54	20
Blue (one-way)	6.3	38	10
Transit Stop Connections			
Route Transfer Locations	7		
Metrorail Stations Served within 1/2 Block	9		
Metrorail Lines Served	5		
Service Hours/Frequency (headway)			
Peak Season	9:00 AM - 6:30 PM	10 minute headway	
Off-Peak Season	9:30 AM - 4:30 PM	10 - 15 minute headway	



Legend

Visitor Core Transit Service

- Green Route (one-way)
- Red Route (one-way)
- Blue Route (one-way)
- Optional Route Segments
- Route Stop
- Route Stop within 1/2 Block of Metrorail Station
- Transfer Between Routes or Change Direction

Arlington National Cemetery Transit Service

- Arlington National Cemetery Tour Route

Base Map Legend:

North

0 0.25 0.5 Mile

- NPS information
- Restrooms
- Statue or Monument
- New Visitor Destination Project
- Metrorail System
- Station name METRO CENTER
- Entrance/exit to Metro station

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estimated ridership, expenses, funding sources, and a final service delivery plan. Tickets could be obtained at staffed ticket outlet locations (such as the Arlington National Cemetery visitor center, Union Station, the Washington Monument ticket kiosk, and automatic ticket vending machines along the visitor core routes). They could also be purchased in advance by phone or on the Internet. Tickets would provide all-day hop-on / -off access, and single- or multi-day passes for adults and children would be offered.

Public Transit Connections

A total of nine Metrorail stations would be within one-half block of transit stops in the visitor core, and each route would provide at least one stop at a Metrorail station. Metrobus routes could also be accessed along several segments of the visitor core routes, including stops along Constitution Avenue NW, Independence Avenue SW, 7th Street NW/SW, 17th Street NW/SW, and K Street NW, as well as at Union Station.

Operating Plans

Daily seasonal hours of operation would be the same as Alternative 1, from 9 a.m. to 6:30 p.m. during the peak season, and from 9:30 a.m. to 4:30 p.m. during the off-peak season. Service frequency would be the same as Alternative 2, every 10 minutes during the peak season and on weekends during the off-peak season, and every 15 minutes on weekdays during the off-peak season.

Educational / Interpretive Services

Orientation and interpretation of sites along the transit routes would be provided by the driver and audio/electronic information systems. These systems could use pre-recorded announcements on the vehicles' public address systems, personal headsets, and electronic screens.

Staffing

Approximately 45 full-time employees, including transit drivers, vehicle mechanics, maintenance personnel, and general administrative staff would be required for the visitor core transportation service.

Arlington National Cemetery

Alternative 3 would continue to provide shuttle bus sightseeing tours with recorded narration within Arlington National Cemetery, with service extended to the U.S. Marine Corps War Memorial. The route description, fares and ticketing, operating plans, educational / interpretive services, and staffing would be the same as described for Alternative 2.

Supplemental Transportation Services

Excursion tours would be provided to cultural and historic sites outside the visitor core area, including Mount Vernon and Frederick Douglass National Historic Site, as described under Alternative 1. In addition to staffed ticket outlet locations, the National Park Service would seek to provide excursion tour tickets at automatic ticket vending machines along the visitor core routes, as well as by phone or on the Internet for advance purchases.

ACCESS TO TOP DESTINATIONS

The proposed visitor core routes would serve 42 of the top destinations in the metropolitan area, 14 more sites than under Alternative 1 (a 50% increase).

Two-way service by means of separate one-way routes would be provided to the following destinations:

- Washington Monument
- U.S. Capitol
- Jefferson Memorial
- Arlington National Cemetery
- Union Station

One-way service would be provided to the following destinations:

Lincoln Memorial
 National Air and Space Museum
 Vietnam Veterans Memorial
 National Museum of American History
 National Museum of Natural History
 White House Visitor Center
 World War II Memorial (from a stop along Constitution Avenue; no direct service on Home Front Drive)
 U.S. Marine Corps War Memorial (by way of the Arlington National Cemetery service, the same as Alternative 2)

RIDERSHIP

Table 10 presents transit ridership estimates for the visitor core and Arlington National Cemetery under Alternative 3.

Table 10. Ridership Estimates — Alternative 3

Year	Visitor Core	Arlington National Cemetery
2015	539,000	998,000
2025	588,000	1,088,000

Note: The factors used for ridership projections are described on page 25.

TRANSIT VEHICLES

Types of transit vehicles would be the same as described under “Planning Considerations and Assumptions.” Numbers of vehicles are shown in Table 11.

Table 11. Number of Transit Vehicles Required — Alternative 3

	Visitor Core	Arlington National Cemetery*	Excursion Tours**
Peak Service	19	9	4
Spare Vehicles	5	3	1
Total	24	12	5

* Same as Alternative 2.
 ** Same as Alternative 1.

FACILITIES

Visitor Core Transit Stops

A total of 35 transit stops would be developed. There would be three types of transit stops,

and certain improvements (bus pads and curb ramps) would be made to 25% of the stops. In addition, ticket vending machines would be installed at a third of the stops.

Maintenance / Storage Facility

It is assumed that the current maintenance / storage facility would serve a comparable function under this alternative. However, if the facility was determined to be inadequate or incompatible with NPS land uses, site improvements or new offsite facilities could be required. For the purposes of this document, estimated site requirements for a new bus maintenance / storage facility are shown in Table 12.

Table 12. Maintenance / Storage Facility Site Requirements — Alternative 3

Transportation Service	Estimated Site Requirements	
	Low Range	High Range
Visitor Core and Excursion Tours	3.5 acres	4.0 acres
Arlington National Cemetery	3.7 acres	3.7 acres
All Services Combined in One Facility	5.2 acres	5.7 acres

NOTE: Key factors related to maintenance/storage facility requirements are presented on page 28.

New facilities would be the responsibility of the operator and would need to be provided offsite. Actual requirements would be determined by the operator and addressed in response to a public solicitation process.

COSTS

Estimated capital costs and annual operation and maintenance costs are shown in Table 13.

**Table 13. Projected Capital and Annual Operating Costs — Alternative 3
(in millions)**

	Visitor Core	Arlington National Cemetery	Excursion Tours	Total
Vehicle Fleet	\$17.42	\$7.33	\$2.04	\$26.78
Transit Stops	\$3.05	N/A	N/A	\$3.05
Total Capital Costs	\$20.47	\$7.33	\$2.04	\$29.83
Annual Operating Costs	\$3.86	\$1.75	\$0.89	\$6.50

NOTE: Assumptions for costs are described on page 29.

MULTIMODAL ACCESS (SEGWAY® HT, SCOOTER, AND BICYCLE)

No access changes would be made for pedestrians, bicycles, or other personal transportation vehicles used for recreation (e.g., Segway® HTs and electric scooters). Access would be consistent with the description in “Planning Considerations and Assumptions.”

TRAVEL DEMAND MANAGEMENT

No changes in travel demand management beyond those discussed in “Panning Considerations and Assumptions” would be made under this alternative.

ALTERNATIVE 4

Alternative 4 would provide a coordinated system of easy-to-use bus transportation designed to maximize views while conveniently meeting the needs for frequent service between visitor sites.

- Three interconnected, two-way routes would be offered in the visitor core, covering a larger service area than Alternative 1. The Arlington National Cemetery service would be extended to the U.S. Marine Corps War Memorial. Two supplemental transportation services (an introductory tour plus excursion tours) would be provided as warranted by market demand. Access would be provided to 43 of the top destinations, and optional excursion routes could provide access to two additional sites, for a total of 45 sites.
- Orientation and interpretation would be provided by drivers and audio/electronic information systems.
- Approximately 400 public parking spaces on Madison Drive NW and Jefferson Drive SW would be eliminated, and these roadways would be closed to private vehicle access, with access only for handicap parking and for transit and delivery vehicles. The recreational use of Segway® HTs and electric scooters would be allowed on all park trails. No additional actions to manage travel demand would be taken.

TRANSPORTATION SERVICE

Visitor Core

Transportation service in the visitor core would consist of three interconnected two-way routes. The geographic limits are Arlington National Cemetery on the west, Union Station and 1st Street NE on the east, K Street NW on the north, and Ohio Drive SW and East Basin Drive SW on the south.

The three routes would intersect on 15th Street NW/SW in front of the Washington Monument to accommodate transfers. Madison Drive NW and Jefferson Drive SW would be closed to private automobile traffic, and general public parking and access would be limited to transit and special uses. The “Alternative 4: Visitor Core Transit Service” map shows the routes, lengths, travel times, and stop information for each route described below:

- **Green Route** — The Green Route would provide two-way service between Union Station and Washington Circle (K Street and 23rd Street NW) and would operate along the north side of the National Mall by way of Madison Drive NW and Constitution Avenue NW.

Two future optional segments are a west-bound route segment on E Street NW from 17th Street NW to the John F. Kennedy Center for the Performing Arts that would replace a segment along Constitution Avenue NW from 17th Street to 23rd Street NW.

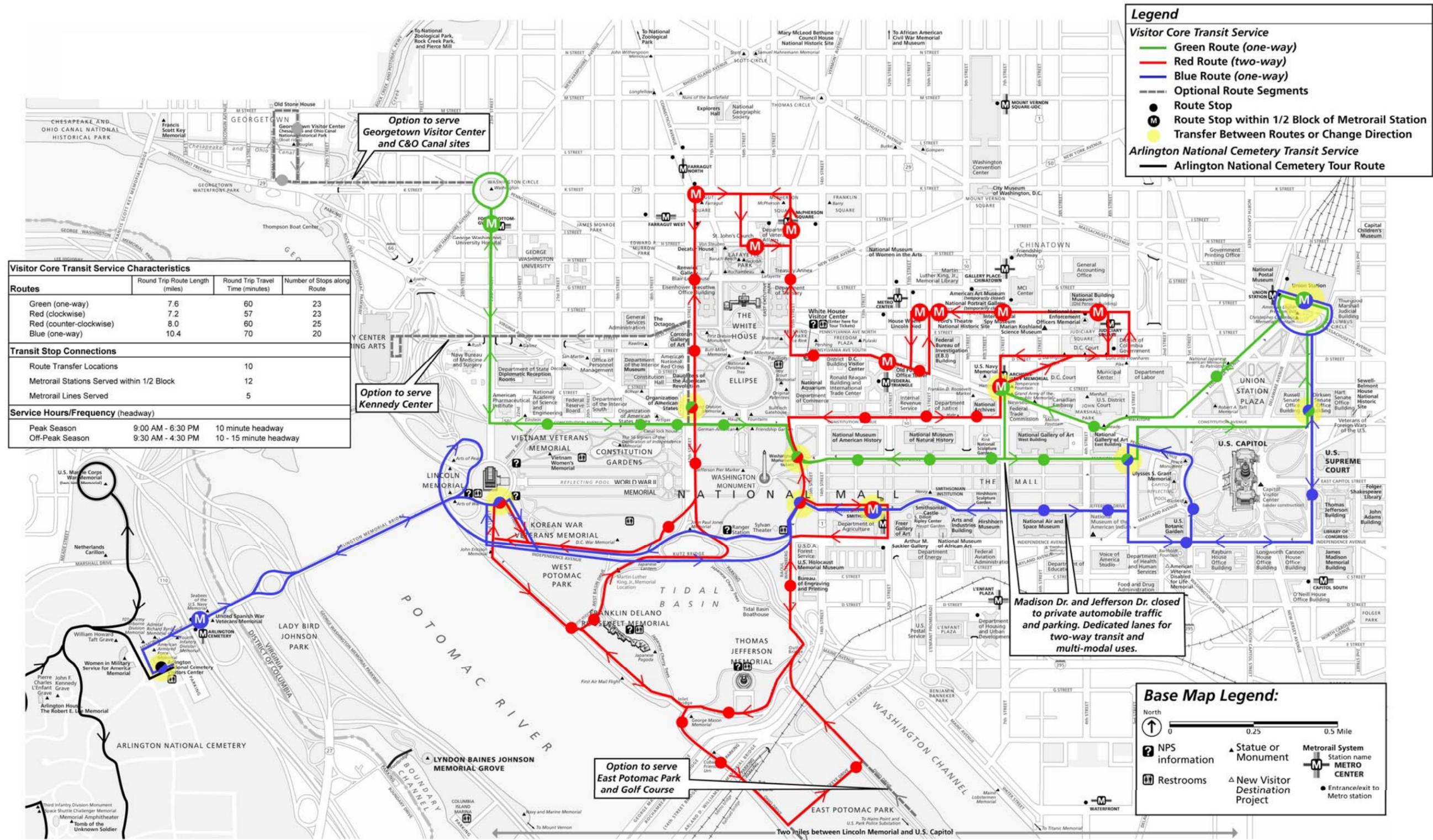
Another optional segment would run between Washington Circle and Georgetown in the northwest quadrant of the city. The route would extend west on K Street NW and Whitehurst Freeway, following Thomas Jefferson Street NW, M Street NW, and 30th Street NW to provide access to the Chesapeake & Ohio Canal National Historical Park and the Georgetown visitor center.

These two optional Green Route segments would add approximately 4 miles, and related fleet and operating requirements would increase by approximately 12%. The decision to provide these future route extensions would be based on access provisions, market demand, cost effectiveness, and financial feasibility.

Alternative 4: Visitor Core Transit Service

National Mall & Memorial Parks

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Legend

Visitor Core Transit Service

- Green line: Green Route (one-way)
- Red line: Red Route (two-way)
- Blue line: Blue Route (one-way)
- Dashed line: Optional Route Segments
- Black circle: Route Stop
- Circle with 'M': Route Stop within 1/2 Block of Metrorail Station
- Yellow circle: Transfer Between Routes or Change Direction
- Black line: Arlington National Cemetery Transit Service
- Black line with arrow: Arlington National Cemetery Tour Route

Visitor Core Transit Service Characteristics

Routes	Round Trip Route Length (miles)	Round Trip Travel Time (minutes)	Number of Stops along Route
Green (one-way)	7.6	60	23
Red (clockwise)	7.2	57	23
Red (counter-clockwise)	8.0	60	25
Blue (one-way)	10.4	70	20

Transit Stop Connections		
Route Transfer Locations		10
Metrorail Stations Served within 1/2 Block		12
Metrorail Lines Served		5

Service Hours/Frequency (headway)		
Peak Season	9:00 AM - 6:30 PM	10 minute headway
Off-Peak Season	9:30 AM - 4:30 PM	10 - 15 minute headway

Base Map Legend:

North ↑

0 0.25 0.5 Mile

- Question mark icon: NPS information
- Person icon: Restrooms
- Statue icon: Statue or Monument
- Triangle icon: New Visitor Destination Project
- Circle with 'M' icon: Metrorail System Station name METRO CENTER
- Circle with 'M' icon: Entrance/exit to Metro station

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- **Red Route** — The Red Route would provide two-way loop service between the Jefferson Memorial, Farragut Square, and the Judiciary Square area, crossing the National Mall at 17th Street NW/SW.

A future optional segment could serve East Potomac Park, following Ohio Drive SW around the perimeter of East Potomac Park and serving other recreational activity sites, including a golf course, swimming pool, tennis courts, and picnic areas. This route extension would add approximately 2.5 miles, and related fleet and operating requirements would increase by approximately 8%.

- **Blue Route** — This route would provide two-way service between Union Station and Arlington National Cemetery and would operate along the south side of the National Mall by way of Independence Avenue SW and Jefferson Drive SW.

Infrastructure

As stated under “Planning Considerations and Assumptions,” transportation services would operate entirely on public rights-of-way, and no new roadways would be developed for such services. However, Alternative 4 proposes restricting private vehicle traffic on Madison Drive NW and Jefferson Drive SW to accommodate two-way transit movements, transit vehicle circulation, transit stops, pedestrian movements, and other special uses. Allowable uses would include all services defined under this alternative (private tour buses, handicap parking, taxicabs, commercial delivery, and specially permitted vehicles). Tour bus loading and unloading would continue to be restricted by time, and no extended tour bus parking would be allowed.

Approximately 400 public parking spaces on Madison Drive NW and Jefferson Drive SW would be eliminated, or less than 1.8% of locally available private parking spaces as inventoried by the Downtown Business Improvement District in 2001, without taking into con-

sideration additional downtown on-street metered parking.

Fares and Ticketing

A daily fare would be established during the implementation phase and would be based on estimated ridership, expenses, funding sources, and a final service delivery plan. Ticket availability and distribution would be the same as described under Alternative 2.

Public Transit Connections

Transit routes would provide access or be within one-half block of 12 Metrorail stations. Each route would stop at least at three Metro-rail stations. Metrobus routes could also be accessed along several segments of the visitor core routes, including stops along Constitution Avenue NW, Independence Avenue SW, 7th Street NW/SW, 17th Street NW/SW, and K Street NW, as well as at Union Station.

Operating Plans

Daily hours of operations would be the same as described for Alternative 1, from 9 a.m. to 6:30 p.m. during the peak season, and from 9:30 a.m. to 4:30 p.m. during the off-peak season. Service frequency would be the same as Alternative 2, every 10 minutes during the peak season and on weekends during the off-peak season, and every 15 minutes on weekdays during the off-peak season.

Educational / Interpretive Services

Orientation and interpretation of sites along the visitor core routes would be provided by the driver and audio/electronic information systems. These systems could use pre-recorded announcements on a bus’s public address system, personal headsets, or electronic screens. Depending on cost and available technology, interpretive delivery devices/tools could be purchased or rented by park visitors from park partners or at other visitor destination sales points.

Staffing

Approximately 69 full-time employees, including transit drivers, vehicle mechanics, maintenance personnel, and general administrative staff would be required for the visitor core transportation service.

Arlington National Cemetery

Alternative 4 would continue to provide shuttle bus sightseeing tours with recorded narration within Arlington National Cemetery, with service extended to the U.S. Marine Corps War Memorial. The route, fares and ticketing, operating plans, educational / interpretive services, and staffing would be the same as described under Alternative 2.

Supplemental Transportation Services

Introductory Tour

An introductory tour for Washington, D.C., would be offered to help visitors understand the area's cultural and educational opportunities. This tour would not provide any hop-on / -off access, but it would orient visitors to the visitor core and surrounding area for subsequent sightseeing activities during their stay. The tour would last approximately 2.5 hours and would be scheduled based on seasonal, weekly, and daily demand. Based on input during the project scoping process, a representative concept was developed for an introductory tour service, as described below:

- ***Fares and Ticketing*** — The ticket price for the introductory tour would be based on anticipated ridership levels and estimated expenses. Actual fares would be established during the implementation phase of the project and would be based on a final service delivery plan.

Tickets could be obtained at staffed ticket outlet locations, such as the Arlington National Cemetery visitor center, Union Station, the Washington Monument ticket kiosk, automatic ticket vending machines along the visitor core routes,

and advance purchase by phone or on the Internet.

- ***Operating Plans*** — It was assumed that four daily trips would be scheduled in the peak season (mid-April through mid-September) and two daily trips in the off-season.
- ***Educational / Interpretive Services*** — An individual other than the driver would provide narration and interpretation of sites along the tour route by means of the on-board public address system. Narrative content would be coordinated with NPS interpretive staff.

Excursion Tours

Excursion tours would be provided to other cultural and historic sites outside the visitor core area (Mount Vernon, Frederick Douglass National Historic Site), as described under Alternative 1. The number and type of excursion tours to other cultural and visitor sites outside the visitor core area could be expanded to include the Chesapeake & Ohio Canal National Historical Park, George Washington Memorial Parkway, Anacostia Park, and Rock Creek Park.

ACCESS TO TOP DESTINATIONS

The proposed visitor core routes would serve 43 of the top destinations in the metropolitan area, with the potential to serve two additional sites on optional route segments. This would be 15 to 17 more destinations than under Alternative 1 (a 54% to 61% increase).

Two-way service would be provided to all of the following top destinations:

Washington Monument
 Lincoln Memorial
 National Air and Space Museum
 Vietnam Veterans Memorial
 National Museum of American History
 National Museum of Natural History
 U.S. Capitol
 White House Visitor Center
 Arlington National Cemetery

Jefferson Memorial Union Station

One-way service would be provided to the following top destinations:

- World War II Memorial (access directly on Home Front Drive, the same as Alternative 2)
- U.S. Marine Corps War Memorial (access by way of the Arlington National Cemetery service, the same as Alternatives 2 and 3)

RIDERSHIP

Table 14 presents transit ridership estimates for the visitor core and Arlington National Cemetery.

Table 14. Transit Ridership Estimates — Alternative 4

Year	Visitor Core	Arlington National Cemetery
2015	587,000	998,000
2025	641,000	1,088,000

NOTE: The factors used for ridership projections are described on page 25.

TRANSIT VEHICLES

The vehicles used for the visitor core, Arlington National Cemetery, and excursion tour services would be the same as those described under “Planning Considerations and Assumptions.” Numbers of vehicles are shown in Table 15.

Table 15. Number of Transit Vehicles Required — Alternative 4

	Visitor Core	Arlington National Cemetery*	Excursion Tours**	Introductory Tours
Peak Service	29	9	4	4
Spare Vehicles	7	3	1	1
Total	36	12	5	5

* Same as Alternative 2.

** Same as Alternative 1.

For the introductory tour, a small transit bus was selected as the most suitable vehicle type. This vehicle type would be consistent with current vehicle configurations for special excursion services, offer good maneuverability in different settings, provide comfortable seating, and have the potential to use clean fuels.

An optional vehicle type for introductory tours could be a double-decker bus, such as the tour buses used by Battlefield Bus Tours to provide seasonal service in Gettysburg National Military Park. This vehicle type can increase sightseeing opportunities (some models offer open decks on the top level), resulting in lower per-passenger operating costs. However, the relatively small market for double-decker buses results in higher per vehicle capital and maintenance costs. Overhead clearance requirements could be an issue on desired routes near the National Mall and to or from the current maintenance facility because double-decker buses range from 13 to 15 feet high. Some bridges in East Potomac Park have a maximum clearance of 12 feet, preventing the use of double-decker buses in this area.

Vehicle requirements for the introductory tours would depend on the actual market demand and the passenger capacity of the vehicle chosen.

FACILITIES

Transit Stops

A total of 71 transit stops would be developed for passenger access. As described under “Planning Considerations and Assumptions,” it was assumed that general costs would be applied to three types of transit stops, and certain improvements (bus pads and curb ramps) would be made to 25% of total stops. In addition, ticket vending machines for passenger fares would be installed at a third of the stops.

Maintenance / Storage Facility

Similar to the other alternatives, it is assumed that the current maintenance / storage facility would serve a comparable function under Alternative 4. However, if the facility was determined to be inadequate or incompatible with NPS land uses, site improvements or new offsite facilities could be required. Estimated site requirements for a new bus maintenance / storage facility are shown in Table 16. Any new facilities would be the responsibility of the operator and would need to be provided off site. The actual requirements would be determined by the operator and addressed in response to a public solicitation process.

Table 16. Maintenance / Storage Facility Site Requirements — Alternative 4

Transportation Service	Estimated Site Requirements	
	Low Range	High Range
Visitor Core, Introductory Tour, and Excursion Tours	4.3 acres	5.1 acres
Arlington National Cemetery	3.7 acres	3.7 acres
All Services Combined in One Facility	6.0 acres	6.9 acres

Note: Key factors related to maintenance/storage facility requirements are presented on page 28.

COSTS

Estimated capital costs and annual operation and maintenance costs for Alternative 4 are shown in Table 17.

MULTIMODAL ACCESS (SEGWAY® HT, SCOOTER, AND BICYCLE)

In addition to currently permitted uses on park multi-use trails, recreational uses of

Segway® HTs and electric scooters would be allowed on all multi-use trails. With the exception of any existing concession services (i.e., individual rentals or tours), any new commercial services for personal transportation vehicles would be provided by private operators off federal park lands.

Proposed Policies

The following policies would apply to all use of personal transportation vehicles within the National Mall & Memorial Parks. All operators would be required to

- wear helmets at all times
- use a pedestrian warning device (bell) affixed to the transportation vehicle
- secure vehicles to a bicycle rack when not in use; never leave vehicles unattended and unsecured
- yield the right-of-way to pedestrians
- obey all applicable traffic signals and traffic signs

Recreational Access

Segway® HTs and Electric Scooters

Segway® HTs and electric scooters would be allowed for all uses on all multi-use trails within the National Mall & Memorial Parks. No access would be permitted within President’s Park, including Lafayette Park. All multimodal personal transportation vehicles (including bicycles) would share NPS trails with pedestrians in a wide range of settings and over a wide range of surfaces. Speed limits and other user requirements would apply to all modes. Funding for related multimodal improve-

Table 17. Projected Capital and Annual Operating Costs — Alternative 4 (in millions)

	Visitor Core	Arlington National Cemetery	Introductory Tour	Excursion Tours	Total
Vehicle Fleet	\$26.14	\$7.33	\$2.04	\$2.04	\$37.53
Transit Stops	\$5.27	N/A	N/A	N/A	\$5.27
Total Capital Costs	\$31.40	\$7.33	\$2.04	\$2.04	\$42.80
Annual Operating Costs	\$6.00	\$1.75	\$0.26	\$0.89	\$8.90

NOTE: Assumptions for costs are described on page 29.

ments would be provided through the general park maintenance budget.

All recreational operators of Segway® HTs and electric scooters would have to adhere to the following new use regulations:

- Always use designated pedestrian crosswalks and specifically obey all pedestrian crossing signals.
- Adhere to a maximum speed limit of 8 mph.
- Be a minimum of 16 years old.

Bicycles

Bicycles would continue to be permitted on any designated multi-use trail within the National Mall & Memorial Parks. Use regulations as described above under “Proposed Policies” would also apply to all bicycle riders in the park. As previously stated in “Planning

Considerations and Assumptions,” existing bicycle racks would be upgraded, and additional racks would be installed, with a particular focus on the East Coast Greenway route.

TRAVEL DEMAND MANAGEMENT

As previously mentioned, approximately 400 public parking spaces on Madison Drive NW and Jefferson Drive SW would be eliminated (less than 1.8% of locally available private parking spaces). These roadways would be used for transit and vehicle deliveries, as well as handicapped parking.

No other travel demand management changes would be made beyond those discussed in “Planning Considerations and Assumptions.”

ALTERNATIVE 5: DOWNTOWN CIRCULATOR

Alternative 5 would provide frequent, low-cost bus transit service to meet the transportation needs of visitors, local residents, and workers in central Washington, D.C. This alternative is considered in accordance with the previously developed *District of Columbia Downtown Circulator Implementation Plan* (NCPC/ DDOT/DBID/Wmata 2003).

- Two interconnected routes would be provided in the visitor core (the phase two routes of the Downtown Circulator). Some refinement of this concept would be required to fully meet NPS goals. It is assumed that the two phase one routes (K Street NW and 7th Street NW/SW) would continue under Alternative 5. No Arlington National Cemetery service would be provided. Access would be provided to 34 of the top destinations in the Washington metropolitan area.
- No orientation or interpretation would be provided.
- No changes to multimodal access or any additional travel demand management actions are proposed.

TRANSPORTATION SERVICE

Visitor Core

Service in the visitor core under Alternative 5 would consist of two interconnected routes. The geographic limits are 23rd Street NW/SW on the west, Union Station and 1st Avenue NE on the east, I Street NW on the north, and East Basin Drive SW and Maine Avenue SW on the south.

The following two visitor core routes are proposed (the “Alternative 5: Visitor Core Downtown Circulator” map shows the two proposed routes, plus length, travel times, and stop information):

- **Monuments Route** — The Monuments Route would provide one-way loop ser-

vice along West Potomac Park, between the Lincoln Memorial and the Smithsonian Metrorail Station and would cross the National Mall on 17th Street NW/SW. The route would primarily operate on Ohio Drive SW, Constitution Avenue NW, 17th Street NW/SW, and Independence Avenue SW.

A future optional segment could include a northern loop around the White House, with stops on the east and west sides of the White House near E Street NW. This extension would require a change in current access restrictions since Pennsylvania Avenue NW north of the White House is now closed to general traffic. This optional future extension would be approximately 0.6 mile longer; related fleet and operating costs would increase by about 4%. Whether to provide this extension would depend on access provisions, market demand, cost effectiveness, and financial feasibility.

- **White House–Capitol Route** — The White House–Capitol Route would provide two-way loop service between Union Station and Foggy Bottom, operating along the National Mall by way of Madison Drive NW, Constitution Avenue NW, Jefferson Drive SW, and Independence Avenue SW. This route concept would require a change in current access restrictions since Pennsylvania Avenue NW north of the White House is closed to general traffic.

A future optional segment could include service between 15th and 21st streets NW, traveling primarily on E Street NW and providing four stops. This option would also require a change in access restrictions on E Street NW between 15th and 17th streets NW where general traffic is temporarily restricted. In addition, D Street NW between 21st and 23rd streets NW has also been temporarily closed to

Alternative 5: Visitor Core Downtown Circulator

National Mall & Memorial Parks

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Legend

Visitor Core Transit Service

Phase I Circulator Routes (currently operating)

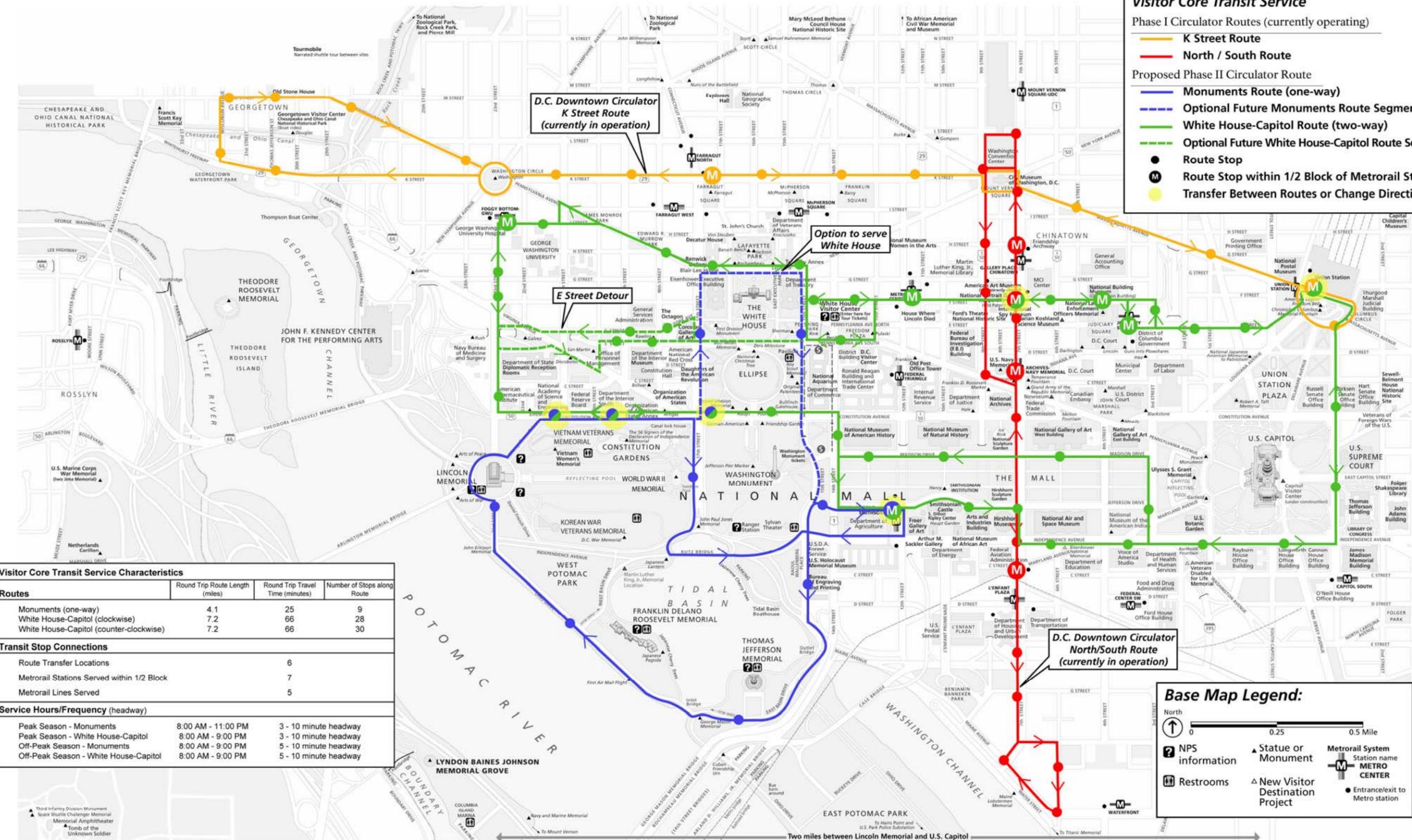
- K Street Route
- North / South Route

Proposed Phase II Circulator Route

- Monuments Route (one-way)
- - - Optional Future Monuments Route Segment
- White House-Capitol Route (two-way)
- - - Optional Future White House-Capitol Route Segment

Route Stop

- Route Stop within 1/2 Block of Metrorail Station
- Transfer Between Routes or Change Direction



Visitor Core Transit Service Characteristics

Routes	Round Trip Route Length (miles)	Round Trip Travel Time (minutes)	Number of Stops along Route
Monuments (one-way)	4.1	25	9
White House-Capitol (clockwise)	7.2	66	28
White House-Capitol (counter-clockwise)	7.2	66	30

Transit Stop Connections	
Route Transfer Locations	6
Metrorail Stations Served within 1/2 Block	7
Metrorail Lines Served	5

Service Hours/Frequency (headway)		
Peak Season - Monuments	8:00 AM - 11:00 PM	3 - 10 minute headway
Peak Season - White House-Capitol	8:00 AM - 9:00 PM	3 - 10 minute headway
Off-Peak Season - Monuments	8:00 AM - 9:00 PM	5 - 10 minute headway
Off-Peak Season - White House-Capitol	8:00 AM - 9:00 PM	5 - 10 minute headway

Base Map Legend:

- North
- 0 0.25 0.5 Mile
- ? NPS information
- ? Restrooms
- ▲ Statue or Monument
- ▲ New Visitor Destination Project
- M Metrorail System Station name METRO CENTER
- Entrance/exit to Metro station

Source: District of Columbia Downtown Circulator Implementation Plan, July 2003

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general traffic. The future optional route change would add less than 0.5 mile to the route, and changes in operating costs and fleet size would be negligible. This future route change would be based on access provisions, market demand, cost-effectiveness, and financial feasibility.

Transportation Infrastructure

Transportation services would continue to operate in mixed-flow traffic entirely on public rights-of-way, including existing roads. This alternative would require changes to roadway access on Pennsylvania Avenue NW and E Street NW between 15th and 17th streets NW.

Fares and Ticketing

A daily fare would be established during the implementation phase and would be based on estimated ridership, expenses, funding sources, and a final service delivery plan. The fare payment system for Alternative 5 would be consistent with the phase one operation of the Downtown Circulator and would offer various passes to visitors. Payment options would include cash when boarding the bus, Metro SmarTrip cards (debit from stored value), transfers from Metrobus and Metrorail (with an incremental fee), tickets from fare-vending machines or multi-space parking meters, and day passes. Fares would typically be on a per trip basis, except when passengers were using a full-day pass.

Public Transit Connections

A total of seven Metrorail stations would be served by the visitor core transit routes or would be within a half block. Each route would provide at least one stop at a Metrorail station. Metrobus routes could also be accessed at stops on Constitution Avenue NW, Independence Avenue SW, 7th Street NW/ SW, 17th Street NW/SW, and K Street NW, as well as at Union Station.

The White House–Capitol Route would cross the 7th Street NW/SW route and also the K Street NW route, where transfers could be made. Transfers could also be made to the K Street route at Union Station.

Operating Plans

The seasonal and daily transit operating plan assumptions for Alternative 5 are based on the *Downtown Circulator Implementation Plan*. Daily operating times and service frequencies would differ from the other alternatives.

The peak visitor season would run from April 1 through August 31 and the off-peak season during the rest of the year. Service would be provided seven days a week. Specific seasonal operating assumptions for each route are described below.

- *Monuments Route* — During the peak season the Monuments Route would run from 8 a.m. to 11 p.m., with service every 3 to 10 minutes. High frequency service would be provided after 10 a.m.

During the off-peak season service would run from 8 a.m. to 9 p.m., with service every 5 to 10 minutes throughout the day. The most frequent service would be provided between 10 a.m. and 8 p.m.

- *White House–Capitol Route* — During both the peak and off-peak seasons, service would be provided from 8 a.m. to 9 p.m. In the peak season buses would run every 3 to 10 minutes throughout the day, and in the off-peak season, every 5 to 10 minutes. The most frequent service would be between 10 a.m. and 7 p.m.

Educational / Interpretive Services

Under Alternative 5 no interpretive services would be provided.

Staffing

Approximately 140 full-time employees, including drivers, vehicle mechanics, maintenance personnel, and general administrative

staff would be required for the NPS visitor core service.

Arlington National Cemetery

Under Alternative 5 Arlington National Cemetery transportation service would not be provided in conjunction with the visitor core service. This would not preclude the independent operation of transportation service in Arlington National Cemetery.

Supplemental Transportation Services

No supplemental services would be provided in conjunction with visitor core service under Alternative 5.

ACCESS TO TOP DESTINATIONS

The proposed visitor core service would serve 34 of the top destinations in the metropolitan area, 6 more destinations than Alternative 1 (a 21% increase).

Two-way service would be provided to the following top destinations:

- Washington Monument
- Vietnam Veterans Memorial
- National Museum of American History
- U.S. Capitol
- Union Station

One-way service would be provided to the following destinations:

- Lincoln Memorial
- National Air and Space Museum
- National Museum of Natural History
- White House Visitor Center
- World War II Memorial
- Jefferson Memorial

No Arlington National Cemetery service or access to the U.S. Marine Corps War Memorial would be provided.

RIDERSHIP

Table 18 presents transit ridership estimates for visitor core services. As previously discussed, visitor core ridership estimates for Alternative 5 were obtained directly from the *Downtown Circulator Implementation Plan* and represent the visitor circulation and visitor access/egress travel markets only. The overall ridership estimates assume that the transportation service would appeal to a much broader market than the existing concessioner service.

Table 18. Transit Ridership Estimates — Alternative 5

Year	Visitor Core Service
2015	2,900,000
2025	3,200,000

NOTE: The factors used for ridership projections are described on page 25.

TRANSIT VEHICLES

Vehicles as described under “Planning Considerations and Assumptions” would be used, and characteristics would be similar to the vehicles being used for the phase one Circulator operations.

Vehicles would only be needed for service in the visitor core. Numbers of vehicles required for peak operation are shown in Table 19.

Table 19. Number of Transit Vehicles Required — Alternative 5

	Visitor Core
Peak Service	52
Spare Vehicles	11
Total	63

FACILITIES

Transit Stops

A total of 71 transit stops would be used for passenger access. As described under “Planning Considerations and Assumptions,” general costs would be applied to three types of stops, and certain improvements (bus pads and curb

ramps) would be made to 25% of the stops. In addition, ticket vending machines for passenger fares would be installed at a third of the stops.

The *Downtown Circulator Implementation Plan* indicates that both existing and new stops would be utilized. New stops would require shelters and include advertising where allowed (but not on the National Mall). The plan indicates that bus stops and amenities could be installed and maintained through a contract with a bus shelter advertiser. However, to be consistent with the other alternatives considered in this environmental assessment, a consistent cost methodology for transit stop improvements was applied to Alternative 5, and additional costs for amenities were included. Financing options for these improvements could be considered during the implementation phase.

Maintenance / Storage Facility

Similar to the other alternatives, it is assumed that the current maintenance / storage facility would serve a comparable function under Alternative 5. However, if the facility was determined to be inadequate or incompatible with NPS land uses, site improvements or new offsite facilities could be required. Estimated site requirements for a new bus maintenance / storage facility are shown in Table 20. Any new facilities would be the responsibility of the operator and would need to be provided off site. The actual requirements would be determined by the operator and addressed in response to a public solicitation process.

Table 20. Maintenance / Storage Facility Site Requirements — Alternative 5

Transportation Service	Estimated Site Requirements	
	Low Range	High Range
Visitor Core	5.1 acres	6.4 acres

NOTE: Key factors related to maintenance/storage facility requirements are presented on page 28.

COSTS

Estimated capital costs and annual operation and maintenance costs for Alternative 5 are shown in Table 21. These costs are based on transit operating statistics defined in the *Downtown Circulator Implementation Plan*, and unit costs are consistent with the other build alternatives in this environmental assessment.

Table 21. Projected Capital and Annual Operating Costs — Alternative 5 (in millions)

	Visitor Core
Vehicle Fleet	\$45.74
Transit Stops	\$5.70
Total Capital Costs	\$51.42
Annual Operating Costs	\$11.84

NOTE: Assumptions for costs are described on page 29.

MULTIMODAL ACCESS (SEGWAY® HT, SCOOTER, AND BICYCLE)

No changes for multimodal access would be made beyond those identified in “Planning Considerations and Assumptions.”

TRAVEL DEMAND MANAGEMENT

No improvements to travel demand management would be made beyond those discussed in “Planning Considerations and Assumptions.”

ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with the National Environmental Policy Act (NEPA) and *Director's Order #12*, the National Park Service is required to identify the environmentally preferred alternative (NPS 2001). The Council on Environmental Quality defines the environmentally preferred alternative as “the alternative that will promote the national environmental policy as expressed in the NEPA’s Section 101” (CEQ 1981). Section 101(b) of the act states that it is the continuing responsibility of federal agencies to

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
4. preserve important historic, cultural and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice;
5. achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life’s amenities; and
6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

How each alternative meets the above goals is discussed below and detailed in Table 22.

Alternative 1 would not fully meet all the goals of the National Environmental Policy Act. Specifically, it would not address the demand for safe Segway® HT and electric scooter access, thus not assuring the public of a safe

environment (goal 2). Although Alternative 1 would improve opportunities for bicyclists, it would only partially promote the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable or unintended consequences because the present market for visitor transportation service is relatively small and would not provide a full array of educational / interpretive opportunities (goal 3) and would not support diversity and variety of individual choice (goal 4). Alternative 1 would partially promote a wide sharing of life’s amenities because the visitor transportation service would provide only limited access to visitor destinations, park resources, and Metrorail connections (goal 5).

Alternative 2 is the environmentally preferred alternative because it would best meet goals 2, 3, and 6, while also meeting goals 1, 4, and 5. The promotion of alternative transportation, the use of clean fuels, and the extension of service to additional destinations would help fulfill the National Park Service’s responsibility as a trustee of the environment (goal 1). Providing a safer and more accessible visitor transportation service and regulating Segway® HTs and electric scooters on designated routes would assure the public of a safer environment (goal 2). Alternative 2 would attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable consequences (goal 3) because of appealing to a broader visitor market and serving non-NPS sites; providing a choice of educational / interpretive opportunities, providing improved opportunities for bicyclists, and providing new mode choices. The visitor transportation service would provide a choice of educational / interpretive programs and would serve new sites in Arlington National Cemetery as well as more downtown National Mall & Memorial Parks sites, thus maintaining an environment that supports diversity and variety of individual choice (goal

4). By providing more access to visitor destinations, including Arlington National Cemetery, along with visitor markets and Metrorail stations, Alternative 2 would promote a wide sharing of life's amenities (goal 5). Alternative 2 would also enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources because transit vehicles would use clean fuels and metered parking could encourage greater transit use (goal 6).

Alternatives 3 and 5 would meet some of the same goals as Alternative 2, but neither would fully assure the public of a safe environment because safety issues for Segway® HT and electric scooter access would not be addressed (goal 2). Alternative 4 would also meet most of the same goals as Alternative 2, but allowing the recreational use of personal transportation vehicles on all park multi-use trails could create more safety conflicts with pedestrians. Because the visitor transportation service would appeal to a smaller market,

Alternative 3 would only partially attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable consequences (goal 3). In addition, Alternative 3 would only partially maintain an environment which supports diversity and variety of individual choice because a choice of education would not be provided (goal 4).

Alternative 5 would only partially attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable consequences (goal 3) because Arlington National Cemetery and supplemental visitor transportation services would not be provided. Alternative 5 would not maintain an environment which supports diversity and variety of individual choice (goal 4) because there would be no educational component with the visitor transportation service, no Arlington National Cemetery service, and no access to the U.S. Marine Corps War Memorial.

Table 22. Comparison of How the Alternatives Meet the National Environmental Policy Act Goals

NEPA Section 101(b) Goals	Alternative 1: No Action	Alternative 2: Preferred Alternative	Alternative 3	Alternative 4	Alternative 5: Downtown Circulator
<i>1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.</i>	Meets goal: Alternative transportation promoted to access NPS sites.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
<i>2. Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.</i>	Meets goal: Safe, accessible visitor service. Does not meet goal: Demand for safe Segway® HT and electric scooter access not addressed.	Meets goal: Safe, accessible visitor service. Segway® HT and electric scooter routes designated and regulated to provide safer environment.	Same as Alternative 1.	Meets goal: Safe, accessible visitor service. No private vehicles on National Mall roads. Partially meets goal: Segway® HT and electric scooter use regulated on all multi-use trails; but potentially more pedestrian safety conflicts.	Meets goal: Safe, accessible visitor service. Does not meet goal: Demand for safe Segway® HT and electric scooter access not addressed.
<i>3. Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.</i>	Meets goal: Bicycle racks on transit vehicles; additional bike racks on the National Mall. Partially meets goal: Smaller market appeal; only in-depth interpretive opportunities, with limited choice of alternative programs.	Meets goal: Broader visitor market appeal and service to non-NPS sites. Choice of interpretive opportunities. Bicycle racks on transit vehicles; additional bike racks on the National Mall. Recreational use of personal transportation vehicles allowed on designated routes.	Meets goal: Bicycle racks on transit vehicles; additional bike racks on the National Mall. Partially meets goal: Smaller market appeal and service to non-NPS sites; only in-depth interpretive opportunities, with limited choice of alternative programs.	Meets goal: Broader visitor market appeal and service to non-NPS sites. Choice of interpretive opportunities. Bicycle racks on transit vehicles; additional bike racks on the National Mall. More supplemental transit services. Recreational use of personal transportation vehicles allowed.	Meets goal: Visitor and local market appeal. Bicycle racks on transit vehicles; additional bike racks on the National Mall. Does not meet goal: No visitor service to Arlington National Cemetery. No supplemental visitor transit services or interpretive opportunities.
<i>4. Preserve important historic, cultural and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice.</i>	Partially meets goal: Only in-depth interpretive opportunities, with limited choice of alternative programs.	Meets goal: Choice of interpretive opportunities. Access to new sites near Arlington National Cemetery and downtown NPS sites. Service extended to the U.S. Marine Corps War Memorial.	Meets goal: Access to new sites near Arlington National Cemetery and downtown NPS sites. Partially meets goal: Only In-depth interpretive opportunities, with limited choice of alternative programs.	Same as Alternative 2.	Does not meet goal: No interpretive opportunities. No service to Arlington National Cemetery or the U.S. Marine Corps War Memorial.
<i>5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.</i>	Partially meets goal: A total of 20 stops on the visitor core route. One direct Metrorail connection.	Meets goal: A total of 61 stops on visitor core routes, with access to more destinations and markets. More convenience, with 7 direct Metrorail connections.	Meets goal: Similar to Alternative 2 except a total of 46 stops on visitor core routes and 9 direct Metrorail connections.	Meets goal: Similar to Alternative 2 except a total of 91 stops on visitor core routes, and 12 direct Metrorail connections.	Meets goal: Similar to Alternative 2 except a total of 67 stops on visitor core routes, and 7 direct Metrorail connections.
<i>6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.</i>	Meets goal: Potential for transit vehicles to use clean fuels.	Meets goal: Potential for transit vehicles to use clean fuels. Encouraged transit use due to metered parking.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.

ALTERNATIVES CONSIDERED BUT DISMISSED AND POTENTIAL TRANSPORTATION SERVICES

The following alternatives or elements of one or more alternatives were identified in Newsletter 2, but were later dismissed. As a result, these alternatives were not carried forward for evaluation in this environmental assessment. This section briefly explains each alternative action and the reason for its elimination.

FORMER ALTERNATIVES

Alternatives B and BB

Alternative B would provide frequent, low-cost bus transit to meet the transportation needs of visitors and local residents, with limited orientation and stop announcements. Three interconnected, one-way routes would be provided in the visitor core, with a one-way route serving Arlington National Cemetery. It was determined that this set of routes was similar to the present Alternative 3, which is evaluated in this environmental assessment.

Alternative BB was the same as Alternative B except a comprehensive, two-way route would be offered in the visitor core, with an internal, one-way Mall loop, and a one-way route for Arlington National Cemetery. During the Choosing by Advantages process, this alternative became the basis for Alternative 2, the preferred alternative.

Alternative F

Under former Alternative F the National Park Service would authorize visitor transit (sight-seeing services) by providing commercial business permits to for-profit operators who would offer transportation and visitor educational / interpretive services in response to market conditions rather than provide service through a single provider. This alternative was dismissed for the following reasons.

- Allowing an unlimited variety of commercial operators would result in an

inconsistent quality of service and interpretive content. While training for operators could be provided, it would be more difficult to control the quality of interpretive messages and ensure that visitors received a uniform level of accurate information. Visitors might not be able to easily distinguish services, and consistent information about service options or stops might not be readily available. This could result in less convenience and more confusion for visitors. Price structures might also vary widely, depending on the type and quality of service. Therefore, this alternative would not meet the stated project goals for convenience and coordination.

- In an environment with safety and security concerns, having many service providers could present additional security concerns, as well as complicate communications, especially in times of heightened security.
- Alternative F would add pressure for more bus stops and staging areas, likely resulting in adverse impacts to the cultural and historical character from a proliferation of stops, signs, and long vehicle queues on streets within the National Mall & Memorial Parks. Therefore, this alternative would not meet the project purpose of protecting park resources.

POTENTIAL TRANSPORTATION SERVICES

As part of the alternative development process, several subarea transit options were identified that could supplement the overall visitor transportation alternatives. However, it was determined that these options were not currently feasible due to access restrictions,

and further market analysis was needed to identify shuttle services to outlying park sites or services that could be implemented by entities other than the National Park Service. These subarea transit options are described below for future consideration.

President's Park and the Ellipse

Optional future transportation service could include circulation around the Ellipse north of Constitution Avenue NW. A stop could be provided at an existing pavilion in the northwest quadrant of the Ellipse. This route would add approximately 0.7 mile to the overall route, plus potential staff increases. If included as part of the preferred alternative, operating costs could increase by 3% to 5%. This concept could only be provided if there was a change in both the current parking configurations and traffic access restrictions for this area.

White House Courtesy Shuttle

This service could operate north of the White House in a U-pattern along Pennsylvania Avenue NW, Jackson Place NW, and Madison Place NW. Current roadway restrictions preclude through-traffic or continuous transit service through these areas and limit access to White House viewpoints on Pennsylvania Avenue and E Street to pedestrians only. An internal courtesy shuttle could provide White House views and convenient transportation for visitors who either did not desire or were unable to walk the two-block distance.

Shuttle service could operate completely within the security perimeter of the designated roads, and visitors could be required to access this route along H Street NW near the designated Red Route stop location on Vermont Avenue NW (near the McPherson Square Metrorail Station). The overall route length would be approximately 0.35 mile, and round-trip travel time would be

approximately 3–5 minutes. Electric carts could be considered for lower demand service in this self-contained area.

West Downtown Shuttle

A west downtown shuttle could supplement the Kennedy Center shuttle and provide connections to the Blue Route under Alternative 2 and the Downtown Circulator route on K Street NW. The route could circulate between 23rd and 18th streets NW/SW, and between Constitution Avenue and K Street NW. The route could provide a closer Metrorail connection to the west end of the National Mall. Connections to the Foggy Bottom–George Washington University and Farragut West Metrorail stations could be provided. This route could be operated by others and provide enhanced access to federal office buildings, hotels, restaurants, and shopping locations in west downtown.

Connections to National Park Sites

Transportation service to outlying recreational and cultural destinations (e.g., Rock Creek Park, Chesapeake & Ohio Canal National Historical Park, Anacostia Park, and Great Falls Park) could be offered with weekend, weekly, or monthly schedules if warranted by demand. This service concept would remain flexible, and destinations could be changed based on market demand.

This environmental assessment assumes potential transportation services would be provided as a separate project by others. All resource impact analysis associated with these optional services would have to be addressed under separate environmental compliance documents.

COMPARATIVE SUMMARY OF ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Table 23. Summary of Alternatives

	Alternative 1: No-Action	Alternative 2: Preferred Alternative	Alternative 3	Alternative 4	Alternative 5: Downtown Circulator
Overall Summary					
General Description	Continuation of current bus transportation service routes, focused on guided sightseeing.	Integrated transit and multimodal transportation system to meet needs of a broad visitor market. Expanded and easy-to-use bus transit with orientation plus choice of interpretive opportunities. Designated routes for Segway® HTs and electric scooters. Some free parking converted to parking meters.	New ride-and-learn visitor bus transportation service, focused on providing a sightseeing and interpretive experience.	Coordinated system of easy-to-use bus transit opportunities. Maximized views, frequent transportation between visitor sites; some dedicated roads for transit. Shared use of multi-use trails by pedestrians and personal transportation (bicycles, Segway® HTs, and electric scooters).	Frequent public bus transit to meet transportation needs of visitors and local residents in central Washington, D.C. No interpretive opportunities. Supplements two routes currently in operation.
Transportation Services	Visitor core Arlington National Cemetery Excursion tours Special event services not precluded	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1 plus introductory tour	Visitor core Special event services not precluded
Metrorail Stations within ½ Block	1	7	9	12	7
Multimodal Access (Segway® HTs, Electric Scooters, Bicycles)	No change	Recreational use of Segway® HTs and electric scooters allowed on designated routes. No change for other modes	No change	Recreational use of Segway® HTs and electric scooters allowed on all multi-use trails. No change for other modes	No change
Other Transportation or Access Changes	No change	Paid metered parking to support local travel demand management objectives	No change	Madison Dr. NW and Jefferson Dr. SW closed to private automobile traffic/parking. Dedicated lanes for two-way transit	No change
Access to Top Destinations (53 total)	28	39	42	43 (45 with optional route segments)	34
Fleet Vehicle Requirements	25	47	41	58	63
Total Projected Costs					
• Capital Cost	\$16.13 million	\$35.50 million	\$29.83 million	\$42.80 million	\$51.42 million
• Annual Operating Cost	\$4.59 million	\$7.57 million	\$6.50 million	\$8.90 million	\$11.84 million
Visitor Core Transportation Service					
Routes	Single one-way route	Two interconnected routes (a two-way route plus a one-way route)	Three interconnected one-way routes	Three interconnected two-way routes	Two interconnected routes (a two-way route plus a one-way route)
Total Route Length	11.2 miles	29.2 miles	20.2 miles	33.2 miles	18.5 miles

	Alternative 1: No-Action	Alternative 2: Preferred Alternative	Alternative 3	Alternative 4	Alternative 5: Downtown Circulator
Operating Characteristics					
Peak Season • Service Frequency • Hours	15 minutes 9 a.m. to 6:30 p.m.	5–10 minutes 9 a.m. to 6:30 p.m.	10 minutes 9 a.m. to 6:30 p.m.	10 minutes 9 a.m. to 6:30 p.m.	3–10 minutes 8 a.m. to 9/11 p.m.
Off-Peak Season • Service Frequency • Hours	20–25 minutes 9:30 a.m. to 4:30 p.m.	10–15 minutes 9:30 a.m. to 4:30 p.m.	10–15 minutes 9:30 a.m. to 4:30 p.m.	10–15 minutes 9:30 a.m. to 4:30 p.m.	5–10 minutes 8 a.m. to 9 p.m.
Ticketing System	Staffed ticket kiosks, on-board, Internet	Staffed ticket kiosks, on-route vending machines, joint ticketing with Metro, park partners (e.g., bookstores), Internet, single / multi-day passes	Staffed ticket kiosks, on-route vending machines, Internet, single / multi-day passes	Same as Alternative 2	On-route vending machines, joint ticketing with Metro, tourist-oriented outlets (e.g., hotels, museums, etc.), pay-per-ride, day passes
Educational / Interpretive Approach	Orientation and narration provided by separate guide	Orientation and narration provided by driver and audio / electronic systems	Same as Alternative 2	Same as Alternative 2	No orientation or narration (potential for audio/electronic information)
Developed Transit Stops	20	47	35	71	71
Ridership Estimates					
• 2015	397,000	563,000	539,000	587,000	2,900,000
• 2025	433,000	614,000	588,000	641,000	3,200,000
Fleet Vehicle Requirements	10	30	24	36	63
Total Projected Costs					
• Capital Cost	\$7.98 million	\$26.14 million	\$20.47 million	\$31.40 million	\$51.42 million
• Annual Operating Cost	\$1.94 million	\$4.93 million	\$3.86 million	\$6.00 million	\$11.84 million
Arlington National Cemetery					
Route	Existing route in cemetery	Extended route to U.S. Marine Corps War Memorial	Same as Alternative 2	Same as Alternative 2	No service (not precluded from independent operation)
Route Length	Cemetery — 3.0 miles	Cemetery — 3.0 miles Memorial — 1.7 miles	Same as Alternative 2	Same as Alternative 2	Not applicable
Operating Characteristics					
Peak Season • Service Frequency • Hours	5–10 minutes 8:30 a.m. to 6:30 p.m.	5–10 minutes 8:30 a.m. to 6:30 p.m.	5–10 minutes 8:30 a.m. to 6:30 p.m.	5–10 minutes 8:30 a.m. to 6:30 p.m.	Not applicable Not applicable
Off-Peak Season • Service Frequency • Hours	15 minutes 8:30 a.m. to 4:30 p.m.	15 minutes 8:30 a.m. to 4:30 p.m.	15 minutes 8:30 a.m. to 4:30 p.m.	15 minutes 8:30 a.m. to 4:30 p.m.	Not applicable Not applicable
Ticketing System	Cemetery visitor center, visitor core ticket locations	Cemetery visitor center, Union Station, park partners, advance ticketing	Same as Alternative 2	Same as Alternative 2	Not applicable
Educational / Interpretive Approach	Narration provided by separate guide	Recorded narration, supplemented by driver	Same as Alternative 2	Same as Alternative 2	Not applicable
Ridership Estimates					
• 2015	883,000	998,000	998,000	998,000	Not applicable
• 2025	963,000	1,088,000	1,088,000	1,088,000	Not applicable
Fleet Vehicle Requirements	10	12	12	12	Not applicable
Total Projected Costs					
• Capital Cost	\$5.11 million	\$7.33 million	\$7.33 million	\$7.33 million	Not applicable
• Annual Operating Cost	\$1.76 million	\$1.75 million	\$1.75 million	\$1.75 million	Not applicable

	Alternative 1: No-Action	Alternative 2: Preferred Alternative	Alternative 3	Alternative 4	Alternative 5: Downtown Circulator
Supplemental Transportation Service					
Type of Service	Excursion tours Special event services not precluded	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1 plus introductory tour	No additional service. Special event services not precluded
Operating Characteristics					
Excursion Tours					
• Peak Operations	3–5 destinations / day	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Not applicable
• Peak Hours	9 a.m. to 6:30 p.m.	9 a.m. to 6:30 p.m.	9 a.m. to 6:30 p.m.	9 a.m. to 6:30 p.m.	
Introductory Tour					
• Peak Operations	Not applicable	Not applicable	Not applicable	Four daily trips	Not applicable
• Peak Hours	Not applicable	Not applicable	Not applicable	2.5 hours per trip	Not applicable
Ticketing System	Cemetery visitor center, Union Station, Wash- ington Monument ticket kiosk	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Not applicable
Educational / Interpretive Approach	Narration provided by separate guide	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Not applicable
Fleet Vehicle Requirements	5	5	5	10	Not applicable
Total Projected Costs					
• Capital Cost	\$2.04 million	\$2.04 million	\$2.04 million	\$4.08 million	Not applicable
• Annual Operat- ing Cost	\$0.89 million	\$0.89 million	\$0.89 million	\$1.15 million	Not applicable

Table 24. How Well the Alternatives Meet Project Objectives

Objective	Alternative 1: No-Action	Alternative 2: Preferred Alternative	Alternative 3	Alternative 4	Alternative 5: Downtown Circulator
<ul style="list-style-type: none"> An identifiable, high quality transportation system that meets NPS policy goals and fits within the historic context of our nation's capital. 	Meets objective: Vehicles easily identifiable and meet NPS policy goals for clean fuels and sustainable systems.	Meets objective: Vehicles easily identifiable and meet NPS policy goals for clean fuels and sustainable systems. All stop facilities designed to fit within historic context.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
<ul style="list-style-type: none"> A convenient, sustainable transportation system that provides access to and among existing and future NPS sites and other visitor destinations in the nation's capital and that meets mobility needs and improves visitor enjoyment. 	Partially meets objective: Access to 28 top destinations, including NPS sites and Arlington National Cemetery. No convenient access to the World War II Memorial from Home Front Drive, the closest location; no access to the U.S. Marine Corps War Memorial. Moving between destinations limited by 15-minute service frequency and one-way figure-eight route with transfer at	Meets objective: Access to 39 top destinations, including NPS sites, the World War II Memorial (from Home Front Drive, the closest location), Arlington National Cemetery, the U.S. Marine Corps War Memorial, and the downtown area. More choice and greater convenience in moving between destinations with 10-minute service frequency and 2 two-way routes.	Partially meets objective: Access to 42 top destinations, including NPS sites, Arlington National Cemetery, the U.S. Marine Corps War Memorial, and the downtown area. More choice in moving between destinations with 10-minute frequency and three shorter one-way routes with transfer locations, with options to serve Mary McCloud Bethune Council House. Improved access for	Meets objective: Access to 43 (potentially 45) top destinations, including NPS sites, the World War II Memorial (from Home Front Drive, the closest location), Arlington National Cemetery, the U.S. Marine Corps War Memorial, and the downtown area. More choice in moving between destinations with 10-minute service frequency and a combination of 2 one-way and 1 two-way routes, with	Partially meets objective: Access to 34 top destinations, including NPS sites, but access to the World War II Memorial from a proposed stop on 17th Street not feasible. No service to Arlington National Cemetery. Service proposed within areas closed for security reasons. More choice in moving between destinations with 3–10 minute service frequency and 1 one-way route and 1

Objective	Alternative 1: No-Action	Alternative 2: Preferred Alternative	Alternative 3	Alternative 4	Alternative 5: Downtown Circulator
	Washington Monument. Improved access for people with disabilities. Does not meet objective: Recreational use of Segway® HTs and electric scooters on park lands not addressed.	Improved access for people with disabilities. Metered parking to encourage transit use. Recreational use of Segway® HTs and electric scooters regulated and routes designated to provide safer environment.	people with disabilities. Does not meet objective: Recreational use of Segway® HTs and electric scooters on park lands not addressed.	options to serve East Potomac Park. Improved access for people with disabilities. Recreational use of Segway® HTs and electric scooters regulated and allowed on all multi-use trails.	two-way route. Improved access for people with disabilities. Does not meet objective: Recreational use of Segway® HTs and electric scooters on park lands not addressed.
<ul style="list-style-type: none"> Visitor orientation and educational interpretive services that promote awareness and understanding of the significance of our nation's capital and its memorials, landmarks, and rich cultural heritage. 	Partially meets objective: No consistent educational / interpretive content. Interpretive opportunities not taken full advantage of; no educational choice provided.	Meets objective: Quality delivery of consistent educational / interpretive content ensured. Expanded educational services offering more choice for visitors.	Partially meets objective: Quality delivery of consistent educational content ensured. Interpretive opportunities not taken full advantage of; no educational choice provided.	Meets objective: Quality delivery of consistent educational / interpretive content ensured. Expanded educational services offering more choice for visitors.	Does not meet objective: Full advantage of interpretive opportunities not taken; no interpretive / educational service provided.
<ul style="list-style-type: none"> A transportation system that supplements, supports, and is integrated with the existing urban transportation network and that maximizes direct and convenient connections to mass transit and other transportation systems and services. 	Partially meets objective: Service to 1 Metrorail station with one directional stop. Access to Metrobus routes. No direct connection to public transit in Arlington. Bike racks provided on transit vehicles; additional bike racks on National Mall. Does not meet objective: No joint ticketing with public transit; park visitor transportation service not linked with public transit.	Meets objective: Service to 7 Metrorail stations; connections to 4 different stations on each route; park visitor transportation service linked with public transit. Access to Metrobus routes. Joint ticketing with public transit. Future connections to public transit in Arlington. Bike racks provided on transit vehicles; additional bike racks on National Mall.	Partially meets objective: Service to 9 Metrorail stations; connection to an least 1 station on each route; park visitor transportation service linked with public transit. Access to Metrobus routes. Future connections to public transit in Arlington. Bike racks provided on transit vehicles; additional bike racks on National Mall. Does not meet objective: No joint ticketing with public transit.	Meets objective: Service to 12 Metrorail stations; connection to at least 3 stations on each route; park visitor transportation service linked with public transit. Access to Metrobus routes. Joint ticketing with public transit. Future connections to public transit in Arlington. Bike racks provided on transit vehicles; additional bike racks on National Mall.	Partially meets objective: Service to 6 Metrorail stations; at least 1 station on each route; park visitor transportation service linked with public transit. Access to Metrobus routes. Joint ticketing with public transit. Bike racks provided on transit vehicles; additional bike racks on National Mall.
<ul style="list-style-type: none"> A model transportation solution that creatively explores all opportunities to work or partner with governmental agencies and public and private transit service providers to fulfill the mission of the National Park Service. 	Meets objective: Actual service delivery determined during project implementation; however, association with public or private provider or agency not precluded.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.

Objective	Alternative 1: No-Action	Alternative 2: Preferred Alternative	Alternative 3	Alternative 4	Alternative 5: Downtown Circulator
<ul style="list-style-type: none"> An easy-to-use transportation ticketing and payment system that is affordable, flexible, and coordinated with other transportation providers 	<p>Does not meet objective: No coordination with other transit providers. Limited availability of ticketing. Fares to be determined during implementation.</p>	<p>Meets objective: Tickets more easily purchased at automatic ticket vending machines. Joint-ticketing system with regional transit providers. Fares to be determined during implementation.</p>	<p>Partially meets objective: Tickets more easily purchased at automatic ticket vending machines. Fares to be determined during implementation.</p>	<p>Meets objective: Tickets more easily purchased at automatic ticket vending machines. Joint-ticketing system with regional transit providers. Fares to be determined during implementation.</p>	<p>Meets objective: Tickets more easily purchased at automatic ticket vending machines. Fare system consistent with Downtown Circulator; various, easy-to-use, and flexible payment options. Fares to be determined during implementation.</p>

Table 25. Summary of Environmental Consequences

	Alternative 1: No -Action	Alternative 2: Preferred Alternative	Alternative 3	Alternative 4	Alternative 5: Downtown Circulator
Transportation	<p>Minor, long-term, beneficial impact from</p> <ul style="list-style-type: none"> improved roadway infrastructure and transit stop facilities at specific locations <p>Minor, long-term, adverse impacts from</p> <ul style="list-style-type: none"> continuing present multimodal access policies (increased Segway® HT and electric scooter demand not addressed, inconsistent NPS and D.C. regulations) <p>No impact from continued limited free parking on the National Mall, but inconsistent with regional goals to encourage greater transit use and reduce congestion</p> <p><u>Cumulative effects:</u> Moderate, long-term, beneficial impacts but no contribution from Alternative 1 because of the small scale of the service compared to the regional transportation network.</p>	<p>Negligible, long-term, adverse impact from</p> <ul style="list-style-type: none"> removing on-street parking at some new transit stops <p>Minor to moderate, long-term, beneficial impacts from</p> <ul style="list-style-type: none"> emphasizing regional transit interconnections with two-way service in the visitor core and helping fill transit gaps in the National Mall and downtown areas, thus supporting regional goals by potentially shifting visitors and users from private automobiles to transit and potentially reducing traffic congestion improved roadway infrastructure and facilities at some transit stops (same as Alternative 1) new forms of multimodal access to designated trails and major sites, improving management of personal transportation on park walks and trails, and 	<p>Negligible to minor, long-term, adverse impacts from</p> <ul style="list-style-type: none"> removing on-street parking at some new transit stops continuing present multimodal access policies (increased Segway® HT and electric scooter demand not addressed, inconsistent NPS and D.C. regulations; same as Alternative 1) <p>Negligible to minor, long-term, beneficial impacts from</p> <ul style="list-style-type: none"> emphasizing regional transit interconnections with one-way service in the visitor core and helping fill transit gaps in the National Mall and downtown areas improved roadway infrastructure and facilities at some transit stops (same as Alternative 1) <p>No impact from continued limited free parking on the National Mall, but inconsistent with regional goals to encourage greater</p>	<p>Negligible to moderate, long-term, adverse impacts from</p> <ul style="list-style-type: none"> removing on-street parking at some new transit stops removing parking on Madison Dr. NW and Jefferson Dr. SW <p>Minor to moderate, long-term, beneficial impacts from</p> <ul style="list-style-type: none"> emphasizing regional transit interconnections with two-way service in the visitor core and helping fill gaps in the existing transit service in the National Mall and downtown areas, thus supporting regional goals by shifting potential visitors and users from private automobiles to transit and potentially reducing traffic congestion improved roadway infrastructure and facilities at some transit stops (same as Alternative 1) new forms of multimodal access on all multi-use park 	<p>Negligible to moderate, long term, adverse impacts from</p> <ul style="list-style-type: none"> removing on-street parking at some new transit stops continuing present multimodal access policies (increased Segway® HT and electric scooter demand not addressed, inconsistent with D.C. regulations (same as Alternative 1)) <p>Negligible to minor, long-term, beneficial impacts from</p> <ul style="list-style-type: none"> emphasizing regional transit interconnections with one-way service in the visitor core and helping fill gaps in the existing transit service in the National Mall and downtown areas, thus supporting regional goals by shifting potential visitors and users to transit and potentially reducing traffic congestion improved roadway infrastructure and facilities at some transit stops (same

	Alternative 1: No -Action	Alternative 2: Preferred Alternative	Alternative 3	Alternative 4	Alternative 5: Downtown Circulator
		<p>offering consistent NPS and D.C. management of Segway® HTs and electric scooters, thus reducing confusion among users</p> <ul style="list-style-type: none"> converting free parking to metered parking on the National Mall, creating incentives for visitors and users to use public transit rather than drive, thus improving the efficiency of on-street parking (greater turnover, no all-day parking) <p><u>Cumulative effects:</u> Moderate, long-term, beneficial impacts because the transportation system would supplement, support, and connect with an increasingly integrated regional transportation network.</p>	<p>transit use and reduce congestion</p> <p><u>Cumulative effects:</u> Moderate, long-term, beneficial impacts due to some improvements to the transportation service network, infrastructure and transit facilities, and traffic operations. The visitor transportation system not fully integrated into the regional system, with no contribution to cumulative effects because of the small scale of the visitor transportation service compared to the regional network.</p>	<p>trails, improving management of recreational Segway® HT and electric scooter use on park walks and trails, and offering consistent NPS and D.C. management of Segway® HTs and electric scooters, thus reducing confusion among users</p> <p>However, continued free parking in the remaining National Mall area inconsistent with regional parking management goals.</p> <p><u>Cumulative effects:</u> Moderate, long-term, beneficial impacts because the transportation system would supplement, support, and be connected with an increasingly integrated regional transportation network.</p>	<p>as Alternative 1)</p> <p>No improvements to the transportation service network in Arlington National Cemetery.</p> <p>No impact from continued limited free parking on the National Mall, but inconsistent with regional goals to encourage greater transit use and reduce congestion</p> <p><u>Cumulative effects:</u> Moderate, long-term, beneficial impacts because the transportation system would supplement and be integrated with the existing regional transportation network.</p>
Visitor and User Experience	<p>Negligible to minor, long-term, beneficial impacts from:</p> <ul style="list-style-type: none"> improved wayfinding programs, new transit vehicles, and upgraded transit stop facilities <p>Negligible to moderate, long-term, adverse impacts from</p> <ul style="list-style-type: none"> relatively infrequent transit service in the visitor core a separate ticketing system not integrated with the Metro system limited opportunities to access public transit a single one-way route around the visitor core, making the visitor transportation service less convenient for downtown access no direct access to 	<p>Negligible to moderate, long-term, beneficial impacts from</p> <ul style="list-style-type: none"> improved wayfinding programs, new transit vehicles, and upgraded transit stop facilities (same as Alternative 1) more frequent service, a joint-ticketing system with Metro, transit access to six more Metrorail stations than Alternative 1, and two interconnected, two-way loops in the visitor core area access to 11 more top visitor destinations compared to Alternative 1 (a 39% increase) choice of consistent, high-quality electronic educational programs increased ridership potential by offer- 	<p>Negligible to moderate, long-term, beneficial impacts from</p> <ul style="list-style-type: none"> improved wayfinding programs, new transit vehicles, upgraded transit stop facilities (same as Alternative 1) more frequent service, transit access to eight more Metrorail stations than Alternative 1, and two interconnected transit routes in the visitor core area plus two-way service by means of separate one-way routes access to 14 more top visitor attractions compared to Alternative 1 (a 50% increase) consistent, high-quality electronic educational programs increased ridership because of being 	<p>Negligible to moderate, long-term, beneficial impacts from</p> <ul style="list-style-type: none"> improved wayfinding programs, new transit vehicles, and upgraded transit stop facilities (same as Alternative 1) more frequent service, a joint-ticketing system with Metro, transit access to 11 more Metrorail stations than Alternative 1, and two interconnected transit routes in the visitor core area, plus two-way loop service access to up to 17 more top visitor attractions compared to Alternative 1 (up to a 61% increase) choice of consistent, high-quality electronic educational programs increased ridership 	<p>Negligible to moderate, long-term, beneficial impacts from</p> <ul style="list-style-type: none"> improved wayfinding programs, new transit vehicles, and upgraded transit stop facilities (same as Alternative 1) more frequent service, a joint-ticketing system with Metro, transit access to five more Metrorail stations than Alternative 1, and two interconnected transit routes in the visitor core area with two-way loop service access to 6 more top visitor attractions compared to Alternative 1 (a 21% increase) increased ridership because of being more responsive to user markets

	Alternative 1: No -Action	Alternative 2: Preferred Alternative	Alternative 3	Alternative 4	Alternative 5: Downtown Circulator
	<p>the World War II Memorial or the U.S. Marine Corps War Memorial</p> <ul style="list-style-type: none"> only in-depth educational / interpretive programs, with limited choice of alternative programs and no consistent content or overall quality guidelines <p><u>Cumulative effects:</u> Moderate, long-term, beneficial impacts, with a negligible, long-term, beneficial impact from Alternative 1 because of separate ticket systems, limited access to public transit, and in-depth educational / interpretive programs that would not appeal to a wide range of users.</p>	<p>ing a service more responsive to user needs</p> <p><u>Cumulative effects:</u> Moderate, long-term, beneficial impacts due to better access to public transit and visitor destinations, improved visitor orientation and interpretation, a visitor transportation service integrated with other regional transit systems, and an easy-to-use joint-ticketing system.</p>	<p>responsive to more market types</p> <p>Minor, long-term, adverse impacts from</p> <ul style="list-style-type: none"> a ticketing system not be linked to the Metro system one-way transit access in the visitor core no direct service to the World War II Memorial only in-depth programs, with limited choice of alternative programs, appealing to a smaller visitor market <p><u>Cumulative effects:</u> Moderate, long-term, beneficial impacts from ongoing regional programs. Minor, beneficial cumulative effects from better access to public transit and visitor destinations, improved visitor orientation and interpretation, and a visitor transportation service somewhat integrated with regional transit systems.</p>	<p>because of being responsive to more market types</p> <p><u>Cumulative effects:</u> Moderate, long-term, beneficial impacts due to better access to public transit and visitor destinations, visitor orientation and interpretation, a visitor transportation service integrated with the regional transit system, and an easy-to-use ticketing system coordinated with other transportation providers.</p>	<p>Negligible to moderate, long-term, adverse impacts from</p> <ul style="list-style-type: none"> inconvenience and delays due to security checks on portions of roads closed to public traffic no transit service to Arlington National Cemetery or the U.S. Marine Corps War Memorial infeasible access to the World War II Memorial no educational / interpretive program <p><u>Cumulative effects:</u> Moderate, long-term, beneficial impacts from ongoing and proposed regional programs, but minor, beneficial contributions from Alternative 5 because of no educational / interpretive opportunities.</p>
Public Health, Safety, and Security	<p>Minor, short- and long-term, adverse impacts on pedestrian safety from the potential for continued conflicts between pedestrians and multimodal users, and inconsistent recreational use of Segway® HTs and electric scooters on park trails.</p> <p>Negligible to moderate, long-term, beneficial impacts from transit vehicles and transit stops being accessible to people with disabilities, new transit vehicles equipped with security features, and transportation service provider safety and security programs</p> <p><u>Cumulative effects:</u> Minor, long-term,</p>	<p>Similar to Alternative 1 except a negligible, long-term, adverse impact on trail and sidewalk safety because of potential conflicts between pedestrians and recreational users of personal transportation vehicles on designated routes.</p>	<p>Similar to Alternative 1.</p>	<p>Similar to Alternative 2 except a minor, long-term, adverse impact from allowing recreational Segway® HT and electric scooter use on all multi-use park trails.</p>	<p>Similar to Alternative 1, except adverse security impacts due to introduction of transit vehicles in secured areas.</p>

	Alternative 1: No -Action	Alternative 2: Preferred Alternative	Alternative 3	Alternative 4	Alternative 5: Downtown Circulator
	beneficial impacts due to general improvements in overall safety and security of the visitor transportation service as well as improved accessibility for people with disabilities.				
Socioeconomic Environment	No additional impact on the local and regional economies from continuing the present visitor transportation service. <u>Cumulative effects:</u> Moderate, long term, beneficial impacts from plans and projects in the Washington, D.C., metropolitan area, but no contribution from the ongoing visitor transportation service.	Negligible, long-term, beneficial impacts from increased employment opportunities and potential visitor and user spending in other sectors of the local and regional economies. <u>Cumulative effects:</u> Moderate, long-term, beneficial impacts because of downtown revitalization and redevelopment providing more opportunities for employment and spending in various regional economic sectors, which would be supported by the proposed visitor transportation service.			
Park Operations and Visitor Transportation Service Operations	Differences between alternatives in terms of staffing and the number of vehicles and transit stops that would have to be maintained, which would be a cost of doing business for any service provider and would not affect park operations. Need for a new transit vehicle maintenance / storage facility under all alternatives, ranging from 4.2 acres to 6.4 acres if all services were combined at one location, with the continued use of the present 2.6-acre maintenance and storage site in East Potomac Park if desired. (East Potomac Park location would continue to be strategically beneficial because of its proximity to the transit service area, minimizing the length of trips between the service area and the facility.) No additional impacts to NPS contract management or law enforcement and security requirements under any alternative. <u>Cumulative effects:</u> None.				

AFFECTED ENVIRONMENT AND IMPACT ANALYSIS

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INTRODUCTION

This chapter describes the existing conditions or the affected environment, and it analyzes the potential environmental consequences or impacts associated with implementing the alternatives. Topics analyzed include transportation; visitor and user experience; public health, safety, and security; socioeconomic environment; and park operations and visitor transportation service operations.

In accordance with the National Environmental Policy Act, impacts or effects are described in terms of intensity, context, duration, and type. Direct and indirect impacts, as well as cumulative impacts, are considered. NPS policy requires a determination of whether any resource impacts would result in the impairment of park resources or values.

IMPACT ANALYSIS STUDY AREA

The impact analysis study area for all resource topics includes the visitor core, Arlington National Cemetery, and other major natural and cultural visitor destinations throughout the Washington, D.C., metropolitan area (see the “Project Vicinity Area” map). The visitor core includes the National Mall, the Smithsonian Institution and National Gallery museums, various memorials, the White House, the U.S. Capitol, and other visitor destinations in the downtown area, as described below.

Visitor Core Park Areas

National Mall & Memorial Parks

In addition to the National Mall, the National Mall & Memorial Parks manages Ford’s Theatre National Historic Site and the House Where Lincoln Died (Petersen House), Pennsylvania Avenue National Historic Park, East Potomac Park, and the Old Post Office Tower, along with numerous squares, smaller parks, circles, and triangles. This includes 156 different federal reservations, or parcels of land. Many areas are identified only by reservation

number. The National Mall is the area extending west from the U.S. Capitol to the Potomac River and includes the Mall, Washington Monument, World War II Memorial, Constitution Gardens, Vietnam Veterans Memorial, Lincoln Memorial, Korean War Veterans Memorial, Tidal Basin, FDR Memorial, Jefferson Memorial, and George Mason Memorial. The memorials are open year-round and are staffed from 9 a.m. to midnight.

Estimating visitation for the National Mall & Memorial Parks is difficult because of the urban setting; however, it is estimated that approximately 26 million visitors came to all sites managed by the National Mall & Memorial Parks in 2005 (NPS 2006a). For example, the World War II Memorial, which opened in May 2004, had an estimated 4.4 million visitors in 2005, slightly more than the annual visitation for Grand Canyon National Park (NPS 2006c).

President’s Park (White House)

President’s Park (the setting for the White House, Lafayette Park, the Ellipse), plus the adjacent White House Visitor Center, had approximately 1.7 million visitors in 2005 (NPS 2006a).

Surrounding Park Areas

Other national park sites in the Washington, D.C., area have popular visitor destinations. Some of these parks, as well as Arlington National Cemetery, are being or have been served in the past by existing third-party contractor excursion services. Alternatives considered in this environmental assessment leave open the ability to serve these areas in the future.

Arlington National Cemetery

Arlington National Cemetery, across the Potomac River from Washington, D.C., is

administered by the U.S. Department of the Army. Within the cemetery is Arlington House, the Robert E. Lee Memorial, which is administered as a unit of the national park system by the George Washington Memorial Parkway. Two of the more popular sites in the cemetery are the Tomb of the Unknowns and the grave of President John F. Kennedy.

Approximately 4 million people annually visit Arlington National Cemetery (Arlington National Cemetery 2005).

George Washington Memorial Parkway

The George Washington Memorial Parkway is significant as the first parkway constructed and maintained by the U.S. government, as a work of landscape architecture, and as a memorial to George Washington (FHWA/NPS 2002). The linear parkway extends from Mount Vernon to Great Falls, Virginia. In addition to the parkway, this 38-mile-long park unit also includes the Mount Vernon Memorial Highway, the Clara Barton Parkway, and the Spout Run Parkway. Each roadway is a major arterial for the region and provides various educational and recreational opportunities. Daily interpretive programs are available year-round at Great Falls Park, Clara Barton National Historic Site, and Glen Echo Park, as well as Arlington House.

During 2005 the National Park Service estimated there were approximately 7.3 million visitors to George Washington Memorial Parkway (NPS 2006c).

National Capital Parks–East

National Capital Parks–East includes 12 major park areas at 98 locations, encompassing over 8,000 acres. Management boundaries extend north to Anne Arundel County, Maryland, at the northern end of the Baltimore/Washington Parkway, through Prince George’s County, and southeast to the southern part of Piscataway Park in Charles County. Park units include Anacostia Park, Kenilworth Aquatic Gardens, Frederick Douglass National Histor-

ic Site, and Mary McLeod Bethune Council House National Historic Site, among many others. As well as historic sites and buildings, park resources include recreation areas, parkways, archeological sites, tidal and nontidal wetlands, meadows, and forests.

The difficulties in estimating visitation for National Capital Parks–East are similar to those for the National Mall & Memorial Parks because of the urban environment. An estimated 1.4 million people visited National Capital Parks–East in 2005 (NPS 2006c).

Rock Creek Park

Rock Creek Park lies in the northern portion of Washington, D.C. Encompassing approximately 1,755 acres, the park is primarily a wooded valley, with associated tributaries and some upland, that is surrounded by the heavily urbanized metropolitan area (NPS 2002c). The major landscape feature is Rock Creek, which flows through the park before it enters the Potomac River. Within the park is Rock Creek Parkway, a major arterial in the region.

The National Park Service estimates that Rock Creek Park had approximately 2.1 million visitors in 2005 (NPS 2006c).

Chesapeake & Ohio Canal National Historical Park

Chesapeake & Ohio Canal National Historical Park stretches nearly 185 miles along the Potomac River between Washington, D.C., and Cumberland, Maryland, and encompasses approximately 19,236 acres. The park setting ranges from densely urbanized areas of Washington, D.C., to pastoral farm country and forests near Cumberland. In addition to historic resources, the park has a wide variety of natural resources, some of which are outstanding. Hiking, bicycling, and horseback riding are the most popular ways to travel through the park (NPS 2003a).

Visitation in 2005 was estimated at approximately 3 million people (NPS 2006c).

IMPACT ANALYSIS METHODOLOGY

The impact analyses and conclusions are based on a review of existing literature and NPS studies, information provided by NPS and other agency experts, and best professional judgment.

Impact Intensity, Context, Duration, and Type

The following definitions were used to evaluate the intensity, context, duration, and type of impacts, as well as the cumulative nature of impacts.

- **Intensity** — Impact intensity is the degree to which a resource would be beneficially or adversely affected. Because definitions of intensity vary by impact topic, the criteria that were used to determine intensity are presented separately for each impact topic.
- **Context** — Context is the setting within which an impact occurs. For example, the context can be temporal, geographic, or the affected interest groups. Geographic context can be site specific (occurring at the location of the action), local (within the general vicinity of the project area), parkwide (affecting a greater portion of a park area), or regionwide (extending beyond park boundaries). The affected interest groups can be visitors, transit users, or commuters. The temporal context is usually related to the duration of the impact, as described below.
- **Duration** — Impacts can be either short term or long term. A short-term impact would be temporary, for example, any transit stop construction-related activities, or the transition between the current visitor transportation service and a potential new service. Long-term impacts would last beyond any construction or transition period, and the resources might not resume their pre-construction / transition conditions for a longer period of time.

- **Type of Impact** — Impacts can be beneficial or adverse. Beneficial impacts would be positive in terms of the condition or appearance of the resource or a change that moved the resource toward a desired condition. Adverse impacts would deplete or negatively alter resources.

NPS policy also requires that direct and indirect impacts be considered. A direct effect occurs at the same time and place as the action. An indirect effect occurs later in time or farther away, but is still reasonably foreseeable.

Cumulative Impacts

The CEQ regulations implementing the National Environmental Policy Act require that cumulative impacts be assessed in the decision-making process for federal projects. A cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time” (40 CFR 1508.7).

Cumulative impacts were determined by combining the impacts of each proposed alternative with other past, present, and reasonably foreseeable future actions. The cumulative impact analysis considered projects occurring both within and outside the project vicinity. The cumulative impact analysis area includes lands administered by federal agencies, the District of Columbia, Arlington County in Virginia, and regional authorities. For this planning effort, the cumulative impact analysis looked at any planning effort, land use project, or transportation project that has been completed, is currently being implemented, or that would be completed in the reasonably foreseeable future.

Cumulative actions are evaluated under each impact topic to determine if there would be

any additive effects on a particular resource. Because some of these cumulative actions are in the early planning or project development stages, the evaluation of cumulative effects was based on a general description of the project. Projects that make up the cumulative impact scenario are listed below. In addition to these plans or projects, numerous special events are held throughout the year in and around the National Mall, and heightened security alerts may also occur at any time, affecting activities in and around security-sensitive locations and significant national properties throughout the National Mall area.

Past Actions

The following past planning efforts were considered to determine if the impacts of proposed actions could have a cumulative effect under specific resource topics. Recommendations, policies, and strategies listed below could be incorporated into any future individual project.

Land Use Plans

- **Memorials and Museums Master Plan** — The master plan guides the location and development of future commemorative and cultural facilities in the District of Columbia and its environs (NCPC 2001).
- **Comprehensive Design Plan: The White House and President's Park** — The goal of the NPS *Comprehensive Design Plan* is to improve the efficient functioning of the Office of the President, to preserve and enhance the symbolic and historic character of the site, and to improve the experience of the American public and all visitors who come to the house, the grounds, and the surrounding President's Park. The plan emphasizes a pedestrian-oriented experience within President's Park, and the White House Visitor Center in the Commerce Building would be expanded (NPS 2000a).
- **Washington's Waterfronts** — Six waterfront areas are identified for potential development: the east and west banks of the

Anacostia River; the Bolling-Anacostia waterfront; the southeast waterfront; the southwest waterfront; and the Georgetown/northwest waterfront (NCPC 1999).

- **The Anacostia Waterfront Initiative Framework Plan** — The plan is intended to guide the revitalization of the Anacostia waterfront area. The five themes in the plan include creating a clean and active river; eliminating barriers to neighborhoods and providing access to residents; improving the urban riverfront park system; providing cultural destinations of distinct character; and building strong waterfront neighborhoods (D.C. Office of Planning 2003a).
- **Rosslyn to Courthouse Urban Design Study** — The study provides urban design guidelines for the area between Wilson and Clarendon boulevards, from Pierce Street to Courthouse Road in Arlington, Virginia (Arlington County [ARCO] 2003).
- **NCPC's New Vision for the South Capitol Street** — As envisioned, South Capitol Street will include a combination of parkland, retail, residential, and cultural establishments, such as a museum or performing arts venue (NCPC 2005b).
- **Rosslyn Area Plan Addendum** — An addendum to the *Rosslyn Transit Station Area Study* (1977), this plan generally confirms the goals and recommendations of the original study, and it includes land use and zoning recommendations, site or area specific guidelines, and an implementation matrix (ARCO 1992).

Land Use Projects

- **Washington Monument: Permanent Security Improvements** — This project reconfigured the grounds of the Washington Monument to create a vehicle barrier system around the monument while maintaining pedestrian flow across the grounds. Work included site walls, sidewalks and plaza, new flagpoles and lighting, irrigation, and utility work (NPS 2002d).

- **Smithsonian National Museum of the American Indian** — The museum at 4th Street SW and Independence Avenue SW opened on September 21, 2004 (Smithsonian 2005b).
- **World War II Memorial** — The memorial opened to the public on April 29, 2004, and was dedicated on May 29. It is located on 17th Street NW/SW, between Constitution Avenue NW and Independence Avenue SW. It is flanked by the Washington Monument to the east and the Lincoln Memorial to the west (NPS 2005d).

Transportation Plans

- **A Transportation Vision, Strategy, and Action Plan for the Nation's Capital** — In 1997 the District of Columbia adopted a vision and strategic plan for developing a transportation system to support the District of Columbia as a world-capital city. The plan is currently being updated. The strategy consists of six elements, including focusing transit investment on internal circulation to provide residents and visitors with improved alternatives to the automobile (D.C. Department of Public Works 1997).
- **District of Columbia Transit Development Study** — This study (1) identifies corridors where potential transit expansion may be advantageous: first, for residents, employees, and visitors in the District of Columbia, and second, for the larger regional transit system; (2) makes suggestions for potential transit options on appropriate corridors; and (3) recognizes potential corridor and route issues and options that may proceed to a more detailed level of planning (WMATA 2001).
- **Tour Bus Management Initiative** — This document assesses the problems associated with D.C. tour bus operations and analyzes potential solutions (USDOT 2003).
- **4th Street SW Transportation Study** — This study evaluates the potential impacts of proposed redevelopment at Waterside Mall on traffic on 3rd, 4th, 6th, and 7th streets SW, I Street SW, and M Street SW.

The study recommends that 4th Street SW be connected between I and M streets SW and that this connection be made available to vehicles (DDOT 2003a).

- **Regional Bus Study** — This study presents a plan to address the short- and long-term requirements for both regional and non-regional bus services in the District of Columbia; for Montgomery County and Prince George's County in Maryland; and for Arlington, Fairfax, and Loudon counties in Virginia, along with the cities of Alexandria, Fairfax, and Falls Church (WMATA 2003).

Transportation Projects

- **2003 Update to the Financially Constrained Long-Range Transportation Plan for the National Capital Region** — This official long-range transportation plan by the Metropolitan Washington Council of Governments identifies the capital improvements, studies, actions, and strategies that are proposed for implementation by 2030. Only projects that are affordable and that can be built and operated during the 2004–30 period are included (MWCOG 2004a).
- **New York Avenue–Florida Avenue–Galaudet University Metro Station** — This Metrorail station, which is between Union Station and Rhode Island Avenue NW on the Metro's Red Line, opened on November 20, 2004 (WMATA 2005c).

Comprehensive Plans

- **Extending the Legacy: Planning America's Capital for the 21st Century** — Referred to as the *Legacy Plan*, this document presents a vision for the nation's capital over the next 50 to 100 years, and it extends Washington's monumental core by creating opportunities for new museums, memorials, and federal office buildings in all quadrants of the city (NCPC 1997).
- **The National Capital Urban Design and Security Plan** — This plan for Washington's Monumental Core and the downtown focuses exclusively on perimeter building

security designed to protect employees, visitors, and federal functions and property from threats generated by unauthorized vehicles approaching or entering sensitive buildings (NCPC 2002).

- ***Rock Creek Park General Management Plan and Environmental Impact Statement*** — The National Park Service’s preferred alternative provides for the broadest use of the park by improving resource protection, enhancing recreational opportunities, and continuing the traditional visitor experience of automobile touring along the length of the park (NPS 2003d).
- ***Comprehensive Plan for the National Capital: Federal Elements*** — The plan’s federal elements create a planning framework connected by three central goals: (1) accommodate federal and national activities, (2) reinforce smart growth, and (3) support coordination with local and regional governments (NCPC 2004a).
- ***Arlington County Comprehensive Plan and General Land Use Plan*** — This plan guides Arlington County’s development by providing high standards for public services and facilities based on several principles, which include the provision of an adequate system of traffic routes that would be integral to the highway and transportation system of the county and region, assuring a safe and convenient flow of traffic, and thereby facilitating economic and social interchange in the county (ARCO 2005a).
- ***Arlington National Cemetery: Master Plan*** — This plan identifies projects and policies to respond to the challenges confronting the national cemetery, including an aging infrastructure, declining space availability for interments, and preserving the dignity of the cemetery while accommodating substantial public visitation. The plan identifies 14 parcels of land that could be used to expand the cemetery, which would allow it to remain open for burials into the 22nd century. All of the parcels are either

currently contiguous to the cemetery or would become contiguous after currently adjacent parcels were acquired (U.S. Army Corps Engineers 1998).

Current and Future Actions

The following planning efforts or projects are currently being completed or will be completed in the reasonably foreseeable future.

Land Use Projects

- ***Air Force Memorial, Naval Annex Site: Environmental Assessment*** — An Air Force Memorial to honor men and women who have served in the U.S. Air Force and its predecessors is proposed on 3 acres of the Naval Annex site. The memorial would include three spires ranging from approximately 200 feet to 270 feet high, a parade ground, an honor guard sculpture, contemplative outdoor rooms and seating areas, pedestrian walkways, and a parking area (US DOD 2003).
- ***Anacostia Riverwalk: Environmental Assessment*** — The proposed project would create a multi-use trail and connecting points on the east side of the Anacostia River from the Washington Navy Yard to Benning Road, and on the west side of the river from the Anacostia Naval Station to the Bladensburg Trail in Prince George’s County, Maryland (NPS 2004a).
- ***Anacostia Waterfront Initiative Southwest Waterfront Plan*** — The Southwest Waterfront Plan is a redevelopment framework for nearly 50 acres of waterfront in the southwest quadrant of Washington. The plan envisions replacing parking lots and underutilized streets with a mix of public plazas, cultural venues, restaurants, shops, and residences to create a vibrant neighborhood and regional waterfront destination. More than 2 million square feet of new construction are proposed, including 14 acres of new parks along the waterfront, three times the existing open space (D.C. Office of Planning 2003b).

- ***The Georgetown Waterfront Park & The C&O Canal National Historical Park*** — The National Park Service has submitted final site development plans for a portion of the Georgetown Waterfront Park, which were approved by National Capital Planning Commission on June 2, 2005 (NCPC 2005a).
- ***Arlington National Cemetery Expansion*** — Expansion of the Arlington National Cemetery will accommodate 26,000 new graves and 5,000 niches along a boundary wall. The newly developed area will provide ground burials until 2030. Two additional projects will start in 2008 and 2010 respectively. The Navy Annex development will begin as early as 2010 or maybe not until 2014. The cemetery is also looking at all potential land acquisitions between Routes 50 and 110 and Columbia Pike (U.S. Army Military District of Washington 2005).
- ***Martin Luther King Jr. National Memorial: Environmental Assessment*** — A national memorial to Dr. Martin Luther King Jr. is proposed by the National Park Service and the Washington, D.C., Martin Luther King Jr. National Memorial Project Foundation. The approved site is in West Potomac Park. After construction, the National Park Service would maintain and operate the memorial (NPS 2005c).
- ***American Veterans Disabled for Life Memorial: Environmental Assessment*** — The National Park Service and the Disabled Veterans' LIFE Memorial Foundation have proposed a national memorial for disabled veterans at Washington Avenue and 2nd Street SW, near the National Mall. The National Capital Planning Commission approved this site in August 2001 (NPS 2005a).
- ***Victims of Communism Memorial: Environmental Assessment*** — The National Park Service and the Victims of Communism Memorial Foundation have proposed an international memorial as a tribute to the millions of people throughout the world who have fallen victim to communism. The approved site is the intersection of Massachusetts Avenue NW, New Jersey Avenue NW, and G Street NW (NPS 2005h).
- ***Capitol Visitor Center*** — The Architect of the Capitol is overseeing the design and construction of a new visitor center, with scheduled completion in the fall of 2006. Expanded space for the House and Senate will be completed later (Architect of the Capitol 2005).
- ***Carter/Woodson House*** — In 2003 legislation authorized the National Park Service to acquire Dr. Carter G. Woodson's home and to establish it as a national historic site. The legislation also authorizes the National Park Service to acquire several buildings adjacent to Dr. Woodson's home and to incorporate them into the site (Association for the Study of African American Life and History 2005).
- ***Newseum*** — The 600,000-square-foot project at Pennsylvania Avenue and 6th Street NW is scheduled to open in 2007. In addition to the Newseum and support facilities, the project will contain office space for Newseum and Freedom Forum staff, an 11,000-square-foot conference center, more than 30,000 square feet of retail space, and more than 145,000 square feet of housing (Newseum 2005).
- ***Smithsonian National Museum of African American History and Culture*** — The site for this new museum is Constitution Avenue NW between 14th and 15th streets NW. Design and compliance will now be started.
- ***Eisenhower National Memorial*** — The Dwight D. Eisenhower Memorial Commission is in the planning stages to create an Eisenhower National Memorial. The approved site is across the street from the National Air and Space Museum on the National Mall, between 4th and 6th streets SW, and Independence Avenue SW and C Street SW (Dwight D. Eisenhower Memorial Commission 2006).

Transportation Plans

- ***L'Enfant Promenade Urban Planning Study / Environmental Assessment*** — The

District Department of Transportation, in coordination with the Federal Highway Administration, the National Park Service, and the Washington Interdependence Council, is pursuing an urban planning study to identify and evaluate rehabilitation options and modifications to the existing roadway and sidewalks for the L'Enfant Promenade, in southwest Washington, D.C., including connections to the southwest waterfront (DDOT 2003b).

- ***District of Columbia Transit Improvements Alternatives Analysis: Need Assessment*** — The document studies transportation, development, and community needs within the District of Columbia. Recommended improvements will enhance mobility within city neighborhoods, provide better access to existing transit service, and leverage existing transit infrastructure by extending the reach of the system and alleviating capacity constraints (DDOT 2004b).
- ***Anacostia Gateway Transportation Study*** — This study identifies short-, mid-, and long-term options to create gateways, improve traffic, parking, aesthetics, transit, pedestrian, and bicycle accessibility for existing and projected conditions, while promoting the historic nature of Anacostia. The study area encompasses nearly the entire historic district boundary of Anacostia, including the Frederick Douglass National Historic Site (DDOT 2004a).
- ***Transportation Improvement Program for the Metropolitan Washington Region FY 2006–2011*** — Each year the National Capital Region Transportation Planning Board, which is the designated metropolitan planning organization, updates a transportation improvement program. It outlines the staged development of the area's *Financially Constrained Long-Range Transportation Plan* (MWCOC 2004a). Priority projects selected for programming by the planning board, the states, and the transit agencies are presented in the first year of the six-year program (MWCOC 2005).

Transportation Projects

- ***District of Columbia Downtown Circulator Implementation Plan*** — Two of the four proposed Downtown Circulator routes (K Street NW and 7th Street NW/SW) began operating in mid 2005 and operate on public streets* (NCPC/DDOT/DBID/WMATA 2003).
- ***Rehabilitation of Rock Creek and Potomac Parkway from Virginia Avenue to P Street Bridge and the Thompson Boat Center: Environmental Assessment*** — The National Park Service, in cooperation with the Federal Highway Administration's Eastern Federal Lands Highway Division, proposes to rehabilitate Rock Creek and Potomac Parkway and also the access road, bridge, and parking area of the Thompson Boat Center (NPS 2005e).
- ***Lincoln Memorial Circle Roadway Project*** — This project's purpose is to improve bicycle and pedestrian safety, improve traffic flow, upgrade visitor facilities, and reduce tour bus congestion. The project includes improving the pedestrian plaza on the east side of the circle, adding concrete bus pads, improving drainage and lighting, replacing curbs and sidewalks, installing new signalized pedestrian crossings and drinking fountains, coordinating traffic patterns, and adding security barriers (NPS 2005b).
- ***K Street Busway Project*** — This WMATA study is looking at improving K Street NW between Union Station and Georgetown University. Roadway, transit, and traffic improvements would focus on the movement of people and goods instead of vehicles; better use of existing road space; improved traffic flow; faster, more reliable,

* In March 2006, an additional Circulator route, known as the Smithsonian/National Gallery of Art route, was implemented. This route passes through the National Mall & Memorial Parks and uses existing Metrobus stops. For purposes of this environmental assessment, the Circulator service is evaluated as proposed in 2003; new routes are not included in this evaluation.

higher quality bus service; new cross-town transit connections; and improved management of on-street parking supply and loading zones (WMATA 2005a).

- ***Pike Transit Initiative*** — The study will analyze alternatives for a new high-capacity and environmentally friendly transit service along Columbia Pike from the Pentagon / Pentagon City area to Baileys Crossroads in Arlington, Virginia. Working closely with local jurisdictions, neighborhoods, and community groups, the study team will develop a preferred transit investment (e.g., light rail, streetcar, or bus rapid transit) for the corridor to Arlington County’s redevelopment initiatives (WMATA 2005b).
- ***Anacostia Corridor Demonstration Project Environmental Assessment and Section 4(f) Statement*** — The D.C. Department of Transportation, in cooperation with the Washington Metropolitan Area Transit Authority, proposes passenger rail service through this corridor by using the existing CSX Shepard industrial spur right-of-way and extending it along the east side of the Anacostia River between Bolling Air Force Base and Pennsylvania Avenue near the John Philip Sousa Memorial Bridge. The project will have a three-year evaluation period, after which time the service may be discontinued or continued as part of a permanent commitment to passenger rail in the Anacostia Corridor (FTA 2004).

Comprehensive Plans

- ***Anacostia Park General Management Plan*** — The general management plan will serve as the decision-making foundation for Anacostia Park over the next 10 to 15 years. Elements common to the alternatives include taking better advantage of existing Metro access, improving vehicular access within the park, and improving the trail system (NPS 2003c).
- ***Federal Capital Improvements Program, Fiscal Years 2005–2010*** — The National Capital Planning Commission prepares a six-year federal capital improvements

program annually to coordinate proposed federal projects among the federal agencies in the region (NCPC 2004b).

- ***The National Mall Comprehensive Management Plan*** — A 50-year vision plan for the National Mall was begun in fiscal year 2005. The plan will provide a unified vision/identity for national park units — the Mall, the Washington Monument, West Potomac Park, President’s Park, as well as the adjacent Pennsylvania Avenue National Historic Park (NPS 2005g).
- ***Columbia Pike Initiative: A Revitalization Plan (Update 2005)*** — The goal of the updated initiative is to build a safer, cleaner, more competitive and vibrant Columbia Pike community. A long-range vision and plan was established, focusing on economic development, land use, urban design, transportation, and public infrastructure, as well as existing and future open space and recreational needs (ARCO 2005b).
- ***New York Avenue Corridor Study*** — The study’s goals for New York Avenue from 7th Street NW to the intersection with Baltimore-Washington Parkway, and 7th Street from H to N streets NW (including three blocks to the east and west of 7th Street NW) are (1) to facilitate the more efficient and safe movement of people into, through, and across the corridor while minimizing the negative impacts of commuter traffic on nearby neighborhoods; (2) to provide a transportation system to include autos, trucks, rail, bus, bicycles, and pedestrians; (3) to investigate opportunities for an inter-modal transportation center; (4) to accommodate local and regional transportation needs over the next 30 to 50 years; (5) to create capacity for new commercial and residential development; and (6) to avoid displacing residents or excluding income diversity (DDOT 2005b).

Impairment of Park Resources or Values

In this environmental assessment, visitor use and experience is the only impact topic analyzed that is subject to the no-impairment standard as defined in NPS *Management Policies 2006* (NPS 2006b). However, no impacts to visitor use and experience under any alter-

native would constitute a major adverse impact to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in relevant NPS planning documents.

TRANSPORTATION

AFFECTED ENVIRONMENT

Transportation conditions within the study area were prepared by reviewing and assembling data from Landmark Services, Inc. (the operator of Tourmobile Sightseeing), the Metropolitan Washington Council of Governments, the National Capital Planning Commission, the National Park Service, Arlington National Cemetery, the D.C. Department of Transportation, the Washington Metropolitan Area Transit Authority, Arlington County, and other local transportation and bicycle agencies.

The Washington, D.C., metropolitan area is among the top three most congested metropolitan areas in the country, after Los Angeles and San Francisco, in terms of annual delay per traveler and annual hours of delay per traveler (Texas Transportation Institute 2005). As previously stated, the Metropolitan Washington Council of Governments projects that in a little more than two decades the metropolitan area is expected to grow by 1.6 million people and by 1.2 million jobs (MWCOG 2006). This growth will lead to additional trips and continued congestion for the region's transportation infrastructure.

Local governments are committed to developing a multimodal transportation system. Policies supporting transit use, ridesharing, telecommuting, and other alternative transportation modes are in place to provide a range of options to expand access and mobility, and to improve the operating condition of the region's congested roadways. Regional transportation planning principles focus on maximizing access to the region's extensive transit system, such as limiting parking throughout downtown areas that are served by the Metrorail system in order to encourage drivers to use transit.

Regional Transportation Policy

A stronger future focus on transit will be needed to address regional traffic congestion and declining regional air quality. The National Capital Planning Commission has proposed shuttles or circulators to supplement existing transit and to fill current unmet transit needs. These shuttle services would further integrate the regional transportation network (NCPC 2004a).

In addition to addressing transportation needs by providing new infrastructure, the federal government encourages the use of travel demand management methods to reduce the demand for transportation services before they result in the need for new infrastructure. The use of alternative modes of transportation can be maximized by

- encouraging the placement of transit stops within walking distances of federal attractions
- supporting coordinated transit stops with key Metrorail stations
- increasing public transit access to attractions in the visitor core
- improving visitor information about long-term parking facilities adjacent to public transportation
- promoting a pedestrian and bicycle friendly environment (NCPC 2004a)

Also, parking supply can be managed through fee programs or limiting the parking supply to discourage the use of private automobiles in locations served by Metrorail.

Transportation Services

The regional transportation system consists of a widespread network of transportation services, including Metrobus/Metrorail, other bus services, commuter rail, and ride-sharing programs. In addition to these services, inter-

pretive visitor transportation services, such as those provided for the National Park Service by the current third-party operator, offer travel options to various destinations, along with on-board interpretive services. Other tours comparable to those offered by the NPS concessioner are provided on several transportation modes, including trolleys, motor coaches, boats, and individual vans. Tour buses also provide visitor transportation services to destinations throughout the region; however, tour buses and interpretive visitor transportation services are not fully integrated into the transportation network and do not provide easy and efficient access to other services, including public transit.

Current visitor interpretive transportation services, as directed by the National Park Service, are only connected to the regional transportation network in a few locations. The NPS 2003 *Visitor Transportation Survey* indicates that 67% of respondents thought it was important to have links to public transit stops. The width and length of current vehicles make operations in downtown traffic and connections to Metro and bus stops difficult.

Employers offer employees various commuter assistance to encourage the use of alternative transportation. According to the *2004 State of the Commute Survey Results from the Washington Metropolitan Region*, over half of the respondents indicated that their employer offered one or more commuter incentives or support services (e.g., Metrochek/other subsidies for transit vanpool, information on commuting options, preferential parking for car or van pools, and bike and pedestrian facilities or services) (MWCOG 2004b).

The key transportation services available in the Washington, D.C., regional transportation network are briefly described below. Visitors can be identified as either tourists or business/convention travelers, and users can be identified as those who travel to downtown for work or other reasons.

Public Transit

The Washington Metropolitan Area Transit Authority operates the second largest rail transit system and the fifth largest bus network in the United States, with 86 Metrorail stations in service (WMATA 2005a). The National Mall area alone is served by more than 100 Metrobus routes, and the District of Columbia as a whole by 350 routes, including many that provide access to national park sites (WMATA 2005d). Five distinct rail lines radiate out from the downtown core, and Metrobuses feed into the Metrorail stations, creating a comprehensive mass transit network serving a population of 3.6 million within a 1,500 square-mile area (see the “Visitor Core Transportation Conditions” map).

Overall, 42% of employees working in the central downtown area use mass transit. The 2003 NPS *Visitor Transportation Survey* found that more than 60% of all visitors use Metrorail and 13% use buses (NPS 2003f; see Figure 2).

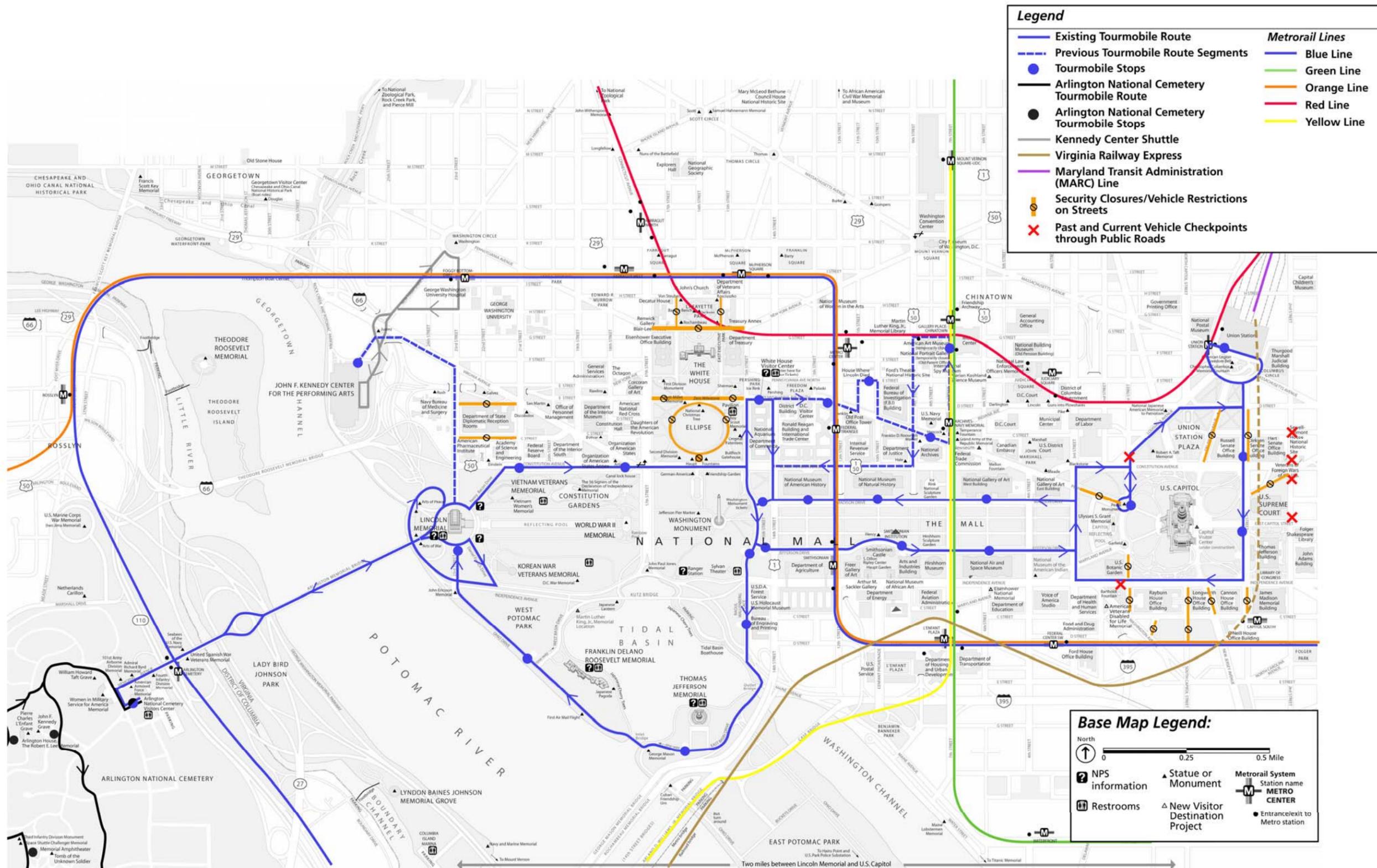
During fiscal year 2004 WMATA provided 190 million total rail trips and 146 million total bus trips. Metrorail operates seven days a week, beginning at 5 a.m. on weekdays and 7 a.m. on weekends, and ending at midnight Sunday through Thursday and 3 a.m. on Friday and Saturday. Metrobus schedules vary by route; however, most routes operate seven days a week. Bus frequency may increase during peak hours (5:30–9:30 a.m. and 3:30–7:00 p.m.). Transfers are available on the Metrorail system and provide a reduced fare on Metrobuses, as well as on most local buses.

In addition to Metrobus service, several jurisdictions have their own local bus service. These include Montgomery County’s Ride-On, Alexandria’s DASH, Prince George’s County’s The Bus, Fairfax County’s Connector, Loudoun Transit, and the City of Fairfax’s CUE systems. The CommuteRide system operates within Prince William County, Manassas, and Manassas Park. Several private commuter bus companies exist as well.

Visitor Core Transportation Conditions

National Mall & Memorial Parks

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Legend

- Existing Tourmobile Route
- Previous Tourmobile Route Segments
- Tourmobile Stops
- Arlington National Cemetery Tourmobile Route
- Arlington National Cemetery Tourmobile Stops
- Kennedy Center Shuttle
- Virginia Railway Express
- Maryland Transit Administration (MARC) Line
- Security Closures/Vehicle Restrictions on Streets
- Past and Current Vehicle Checkpoints through Public Roads

Metro rail Lines

- Blue Line
- Green Line
- Orange Line
- Red Line
- Yellow Line

Base Map Legend:

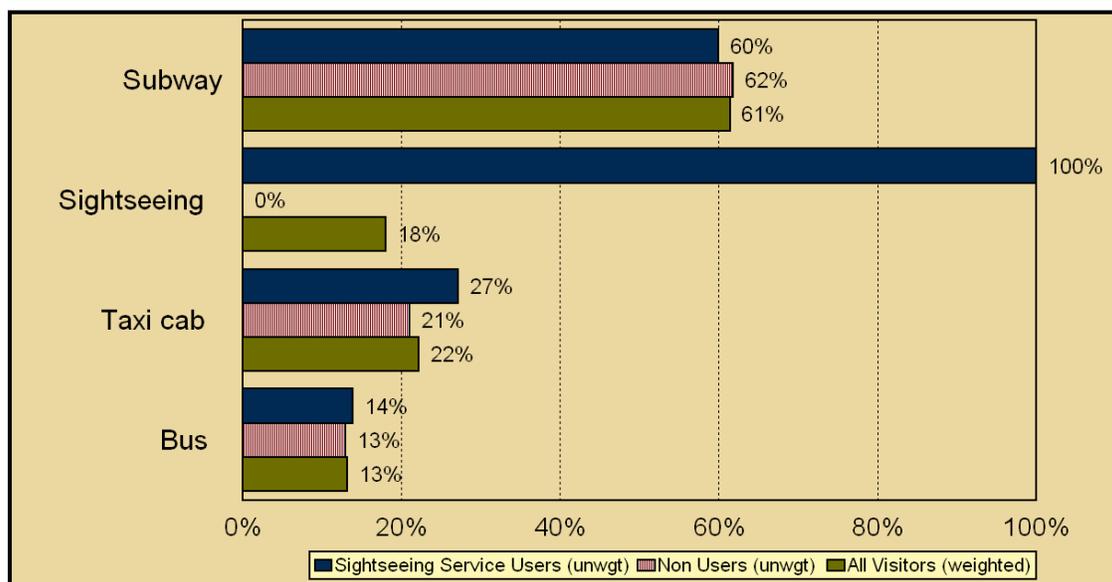
North

0 0.25 0.5 Mile

- NPS information
- Restrooms
- Statue or Monument
- New Visitor Destination Project
- Metro rail System Station name METRO CENTER
- Entrance/exit to Metro station

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Figure 2. Transportation Services Used by Visitors in the Metropolitan Washington, D.C., Area



SOURCE: NPS 2003f.

Note: Results for “All Visitors” are weighted based on the estimated percentage of sightseers to non-sightseers in the general population (18% to 82%). This was necessary because the people who used sightseeing services represented a larger percentage of the people who were surveyed than their actual portion of the visitor population, so the survey data were weighted based on the percentage of persons who actually used sightseeing services. See the NPS 2003 *Visitor Transportation Survey* for additional details.

Commuter Rail

Two commuter rail services operate in the region (see the “Visitor Core Transportation Conditions” map). The Virginia Railway Express provides commuter rail service to Union Station on two routes — the Manassas and the Fredericksburg lines. The Maryland Rail Commuter provides rail service to Union Station on three routes — the Brunswick, Camden, and Penn lines.

Ridesharing

The Washington, D.C., region enjoys a high rate of ridesharing due to a number of factors, including the area’s use of high-occupancy vehicle (HOV) lanes, and an abundance of park-and-ride lots, enabling users to access car or van pools, or bus or rail service for their transportation needs. Unique to the area are “slug” lines, where drivers can informally connect with other commuters going their direction, allowing drivers to use HOV lanes.

Educational / Interpretive Transportation Services

A variety of educational / interpretive visitor transportation services, including the existing third-party operated service for the National Park Service, are provided throughout the region. Other comparable interpretive visitor transportation services provided by for-profit operators include a wide range of tours, such as water excursions; historical walking, bicycle, Segway® HT, and electric scooter tours; thematic van tours; and sightseeing trolley or tram tours. Historic Tours of America and the Gray Line / Goldline / Martz Group operate interpretive trolley tours and evening tours. Most tour operators offer more than one tour, a range of services in routes and themes, and in some cases shuttle services from area hotels.

The National Park Service has provided an interpretive visitor transportation service for Washington, D.C., visitors since 1969. The present service, provided by an independent third-party operator (Landmark Services, Inc.),

offers Tourmobile Sightseeing to the National Mall and to surrounding park areas. While stops and routes have varied over the years, the current operator provides the American Heritage Tour (serving the National Mall & Memorial Parks, Union Station, the U.S. Capitol, and nearby sites), the Arlington National Cemetery Tour, the Twilight Tour, the Mount Vernon Tour, and the Frederick Douglass Tour.

Tour Buses

A 2003 tour bus study prepared for the District of Columbia revealed the following tour bus market characteristics (DDOT 2003):

- **Tour Bus Market** — An unofficial estimate from an industry representative indicates tour buses carry about a third of all D.C. visitors, with 1,100 tour buses per day in the peak season. (The primary peak season is March 15 to June 15; the secondary peak season is mid-September through mid-November; and the off-peak seasons are summer (July through mid-September) and winter (December through February).
- **Tour Bus Service Operations** — Tour bus operations are concentrated in the monumental core between the Lincoln Memorial and the Capitol. Major routes through this area are Pennsylvania Avenue NW, Constitution Avenue NW, and Independence Avenue SW, and the main access routes are New York Avenue NW, Pennsylvania Avenue NW, George Washington Memorial Parkway, I-66, Connecticut Avenue NW, Wisconsin Avenue NW, Arlington Memorial Bridge, and South Capitol Street. Madison Drive NW and Jefferson Drive SW along the National Mall are used as drop-off areas.

Tour buses use approximately 70 curbside loading and unloading locations on NPS lands within the monumental core. In addition, there are an estimated 300 tour bus spaces throughout the District of Columbia and at other visitor destinations such as Arlington National Cemetery and the National Cathedral (DDOT 2005).

The Union Station garage provides tour bus parking in the central part of the city; additional parking facilities are being developed at the old D.C. Convention Center site and RFK Stadium.* Tour buses can park from 20 minutes to 4 hours.

- **Tour Bus Service Characteristics** — Four basic types of tours and operators have been identified (DDOT 2003):
 - (1) motor coach tours that originate outside the D.C. area and that generally provide “step-on” tour guides to accompany groups to multiple sites
 - (2) local school groups on field trips, often using school buses
 - (3) sightseeing trolleys that let passengers on and off at multiple stops; “lecture” drivers do not depart from vehicles and buses do not park
 - (4) special event charters transporting groups to a single destination or to a few related destinations

In the first two categories, drivers usually attempt to park as close as possible to destinations. Pick-ups and drop-offs generally are at the same location, and time limits are enforced for loading and idling. Designated parking spaces, sometimes on site, may be provided for special event charters.

Transportation Infrastructure and Transit Facilities

The visitor core is transected by several major arterial roadways that provide access to all major highway connections. These routes serve both visitors accessing park sites and commuters. A complex urban street network overlays and tunnels under the National Mall and connects the National Mall to the rest of the District of Columbia. The National Park Service manages portions of local roads and many regional parkways and arterial roadways

* Both the RFK Stadium and City Center lots were recently opened for tour bus parking.

(see the “Roads and Lands Managed by National Capital Parks” map).

The street network within Arlington National Cemetery is maintained by the Department of the Army (see the “Arlington National Cemetery Area Transportation Conditions / Road Network” map). No through-traffic is allowed within the cemetery.

Metro and Tourmobile stop facilities may include signs, benches, kiosks, shelters, or bicycle racks, depending on location.

Traffic Operations

Over the next 25 years the number of vehicle miles traveled in the national capital region is expected to increase by 46% (MWCOG 2004a). Respondents to an online survey in April 2004 by the Downtown D.C. Business Improvement District and the D.C. Department of Transportation nearly unanimously identified congestion as an important issue for both residents and workers (DDOT 2004e).

Recent studies have characterized traffic conditions for the street system throughout the visitor core area (NPS and FHWA 2004a, 2004b; FHWA 2003; NPS 1997). In 2004 traffic counts along Constitution Avenue NW from 23rd to 15th streets NW exhibited a broad period of peak traffic flows from 7 a.m. to 7 p.m. Only minor decreases in traffic volumes occurred during midday hours, with each hour ranging from 5% to 8% of daily totals (NPS and FHWA 2004a). Lower volume roadways such as Ohio Drive SW also exhibited expanded periods of peak traffic (NPS and FHWA 2004b).

Many of the intersections surrounding the National Mall have been found to operate at poor levels of service during peak periods of traffic.* Several intersections along Consti-

tution Avenue NW between 23rd and 15th streets NW, and intersections along Independence Avenue SW at 23rd Street SW and 15th Street SW, operated at LOS F during peak hours. Traffic volumes on segments approaching certain intersections were also found to be operating over capacity.

Information from the D.C. Department of Transportation suggests that current traffic conditions contribute to other issues as well (DDOT 2002). High accident locations have been identified at some of the same intersections with poor operations, and active traffic enforcement, using a traffic control officer, has been used at some locations to help ease traffic flow (DDOT, pers. comm. 2004d). These related traffic conditions have a collective effect on private vehicle movements, transit operations, commercial traffic, bicycle riders, and pedestrian access.

Strategies for decreasing congestion include managing parking and pricing, encouraging residents and visitors to use transit, and improving the transit system. To encourage greater transit use, the Downtown Congestion Task Force identified a need for convenient, fast, and comfortable transit service; affordable service; financial incentives; convenient access; and marketing. Service frequency, coverage, comfort; bus priority in traffic; better user information (maps, signs, Internet information); commute trip reduction programs; parking pricing; subsidized transit passes; and clean, attractive stations, terminals, and bus stops were identified as ways to improve the current service (DDOT 2004c).

Due to heightened security measures throughout Washington, D.C., several local roads have been closed to vehicle traffic, including transit vehicles. In addition, numerous vehicle security checkpoints on public roads are periodically implemented (see the “Visitor Core Transportation Conditions” map). These security checkpoints and road closures can adversely affect

* Level of service (LOS) describes the quality of traffic flow and is used as a measure of travel time delay, driver frustration, and apparent congestion. Level of service is reported with letter grades from

A to F, with A representing excellent flow and F representing extreme delays.

traffic operations and transit movements in the downtown area, especially during peak periods.

Daily two-way traffic volumes were obtained for key roads in the visitor core area that could be affected by removing private traffic and parking along Madison Drive NW and Jefferson Drive SW under Alternative 4 (DDOT 2005b), as shown in Table 26.

According to the 2003 NPS *Visitor Transportation Survey*, 40% of survey respondents had driven or parked a car in the downtown area during their trip (NPS 2003f).

Multimodal Access and Facilities

Various alternative transportation modes, including walking and personal transportation (bicycles, Segway® HTs, and electric scooters) are accommodated throughout the metropolitan area and within designated areas of national parklands (see the “National Mall & Memorial Parks Existing Multi-Use Trails” map).

Walking

A well-established pedestrian sidewalk system exists throughout the visitor core, providing access to park sites and other top destinations from Metro stations and parking areas. In

addition, there are numerous pedestrian paths, trails, and greenways in the metropolitan area. Guided walking tours of D.C. sites are available through private companies. According to the 2003 NPS *Visitor Transportation Survey*, 43% of the respondents said that walking was their primary mode of access between major destinations (NPS 2003f).

For planning purposes, it is assumed people are willing to walk 5 to 10 minutes to reach a destination (generally, the time it takes to walk a quarter to a half mile, depending on walking speed). If it takes longer than 10 minutes to walk to a destination, then most people will likely start looking for some means of transportation to reach a destination. On the National Mall sites can be up to 2 miles apart, for example,

- Lincoln Memorial to Washington Monument — 0.7 mile (about a 15-minute walk)
- Washington Monument to National Air and Space Museum — 0.8 mile (about a 15-minute walk)
- White House to Jefferson Memorial — 1.1 miles (about a 20-minute walk)
- Lincoln Memorial to the U.S. Capitol — 2.0 miles (about a 40-minute walk)

Table 26. 2002 Selected Roadway Average Weekday Traffic Volumes

East / West Roadways	15th Street – 14th Street NW/SW	14th Street – 12th Street NW/SW	12th Street – 7th Street NW/SW	7th Street – 3rd Street NW/SW
Madison Dr. NW	8,000	9,000	9,700*	9,700*
Jefferson Dr. SW	6,400	6,000	7,000	6,000
Constitution Ave. NW	32,700	30,900	31,750	29,000**
Independence Ave. SW	26,300	34,000	27,500	23,400

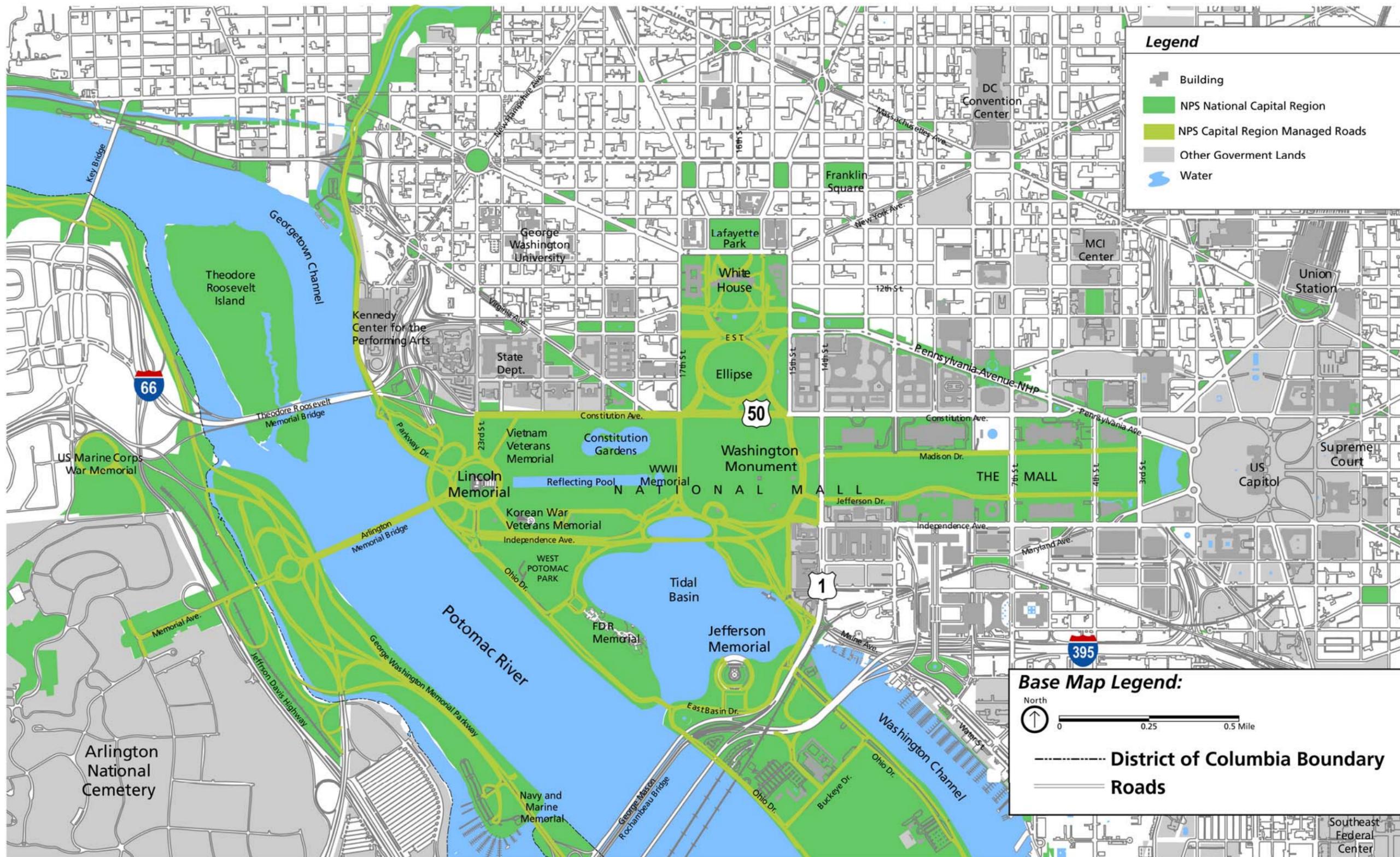
North / South Roadways	Constitution Ave. NW – Independence Ave. SW
15th Street NW/SW	21,800
7th Street NW/SW	20,900
3rd Street NW/SW	6,200

SOURCE: DDOT 2005c.
 NOTE: Average annual weekday traffic volumes are a total of both directions.
 * Madison Drive NW: 12th Street NW/SW to 3rd Street NW/SW.
 ** Constitution Avenue NW: 7th Street NW/SW to 6th Street NW/SW.

Roads and Lands Managed by National Capital Parks

National Mall & Memorial Parks

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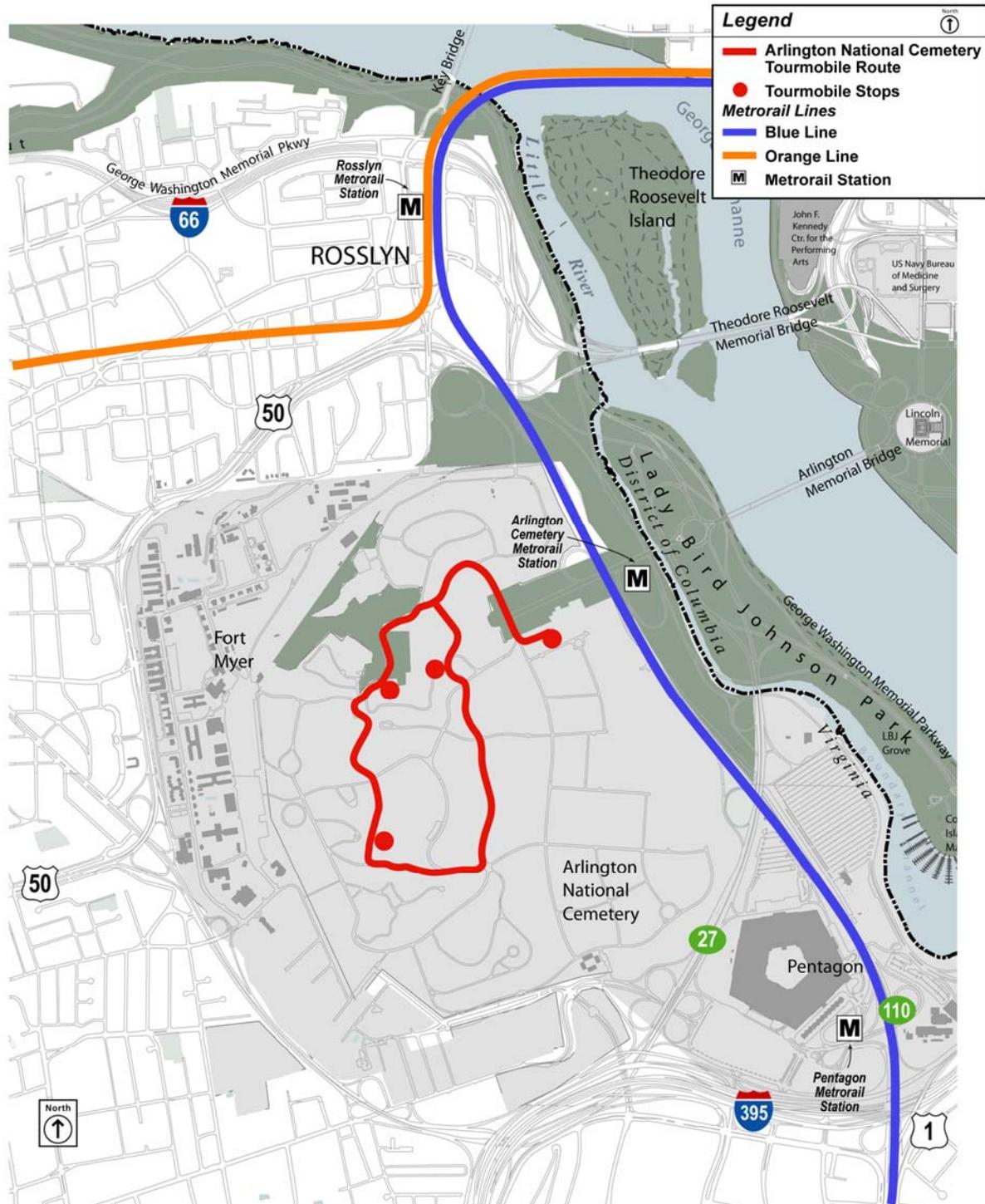


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Arlington National Cemetery Area Transportation Conditions / Road Network

National Mall & Memorial Parks

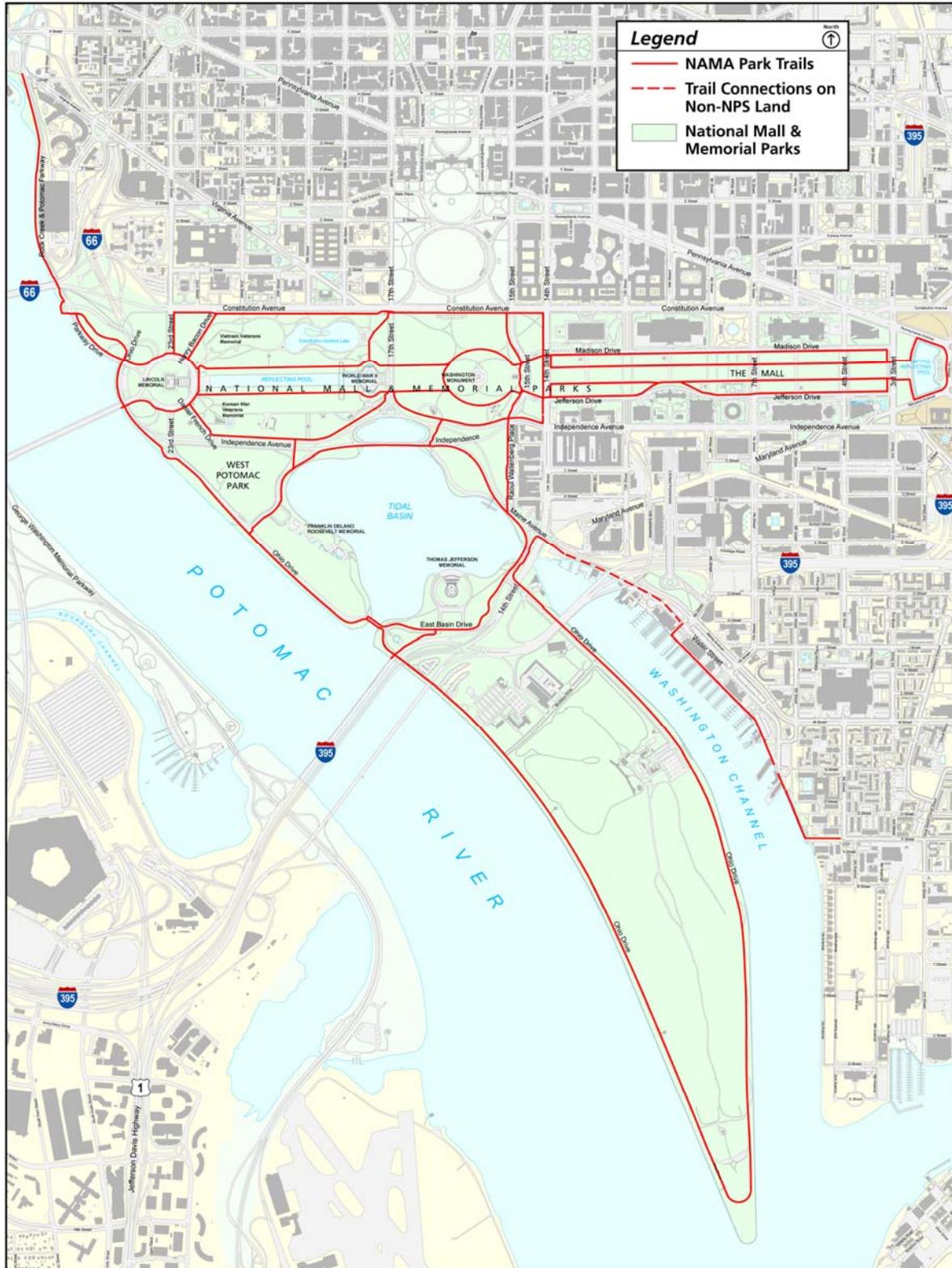
June 2006 • 802/20020



National Mall & Memorial Parks Existing Multi-Use Trails

National Mall & Memorial Parks

June 2006 • 802/20021



Bicycles

An extensive network of scenic bike paths within the greater Washington, D.C., area offers opportunities for recreation and commuting, and many routes use NPS trails. Between 1990 and 2000 bicycle commuting grew by 55%, from a 0.75% share to a 1.16% share of all work trips. During this same time period, the national percentage of journeys to work by bicycle decreased from 0.41% to 0.38%. In Washington, D.C., 30% of all bike trips are for work, and the remaining trips are for non-work purposes, such as shopping, school, and social/recreational trips (DDOT 2005c).

Area bike paths include the Capital Crescent Trail, Rock Creek Park, the Metropolitan Branch Trail, the C&O Canal towpath, and the Mount Vernon Trail (Washington Area Bicyclist Association 2005). Bicycles are allowed on paved roads and walkways in the National Mall & Memorial Parks. They are not allowed in the memorial or monument areas, such as in the chambers of the Lincoln and Jefferson memorials, or on the walks within the FDR, Vietnam Veterans, and Korean War Veterans memorials. In addition to bicycle rentals available at the Thompson Boat Center within Rock Creek Park, and weekend tours provided by National Mall rangers, bicycle rentals and bike tours of the National Mall and other D.C. sites are available through private bike shops and touring companies. Bicyclists are permitted to use certain routes within Arlington National Cemetery; however, security and safety concerns may arise at any time and could result in the closure of those facilities to non-military personnel.

The Washington Metropolitan Area Transit Authority provides bicycle storage facilities at most of its stations, and bicycles may be carried on-board trains during evening and weekend periods, as well as during midday off-peak hours. It is estimated that 2,000 or more people a day currently use bicycles to get to Metro stations. Metrobuses are also

equipped with bike racks on the front, and use is not restricted by day or time. Providing secured and sheltered bicycle parking spaces and supporting the development of a continuous system of bicycle trails in the region will help encourage bike riding in the region.

Segway® HTs

As previously explained, recreational Segway® HT use is only allowed on designated north-south sidewalks crossing the National Mall. By specific revision of park policy, recreational HT riders may cross the National Mall on sidewalks adjacent to streets managed by the District of Columbia — 3rd, 4th, 7th, and 14th streets NW/SW.

Segway® HT access is allowed for persons with disabilities on all park roads, sidewalks, and trails, as well as within all park facilities and memorials. This use is minimal, and only a few individuals choose to use the HT as a mobility assistive device.

Segway® HT rentals and tours of District sites are available through private companies. HTs are also allowed on the Metro during evening and weekend periods, as well as during midday off-peak hours.

Electric Scooters

As previously described, electric scooters meet the definition of a motor vehicle (36 CFR 1.4), and a specific park policy is required to allow the recreational use of electric scooters on park multi-use trails in addition to park roads. A specific policy regarding this type of personal transportation vehicle will be issued upon the completion of this environmental assessment.

Currently, electric scooters are only permitted within the National Mall & Memorial Parks for persons with a disability or mobility impairment; recreational electric scooter riders (i.e., non-disability uses) are not allowed. Electric scooter rentals and tours of District sites are available through private companies.

Parking Conditions

Parking in areas around the National Mall and in the majority of the project area consists of on-street metered parking, permit parking, and private off-street commercial parking facilities (available to the public). The Mayor's Parking Taskforce reported in 2003 that there are approximately 400,000 on- and off-street parking spaces available in the District of Columbia, 260,000 on-street spaces and 140,000 off-street spaces in parking lots and garages (DDOT 2003c). Of the on-street spaces, about 16,000 (6%) have parking meters. Most of the off-street parking is in the central business district, while on-street parking is located along the majority of roadways throughout the city. Demand for these parking spaces can be estimated by the total number of vehicles registered in the District and by the number of vehicles that come into the District each day. An estimated 197,000 personal vehicles are registered in the District, and approximately 200,000 vehicles come into the District during the morning peak (DDOT 2003c). The D.C. government has a complicated system of managing on-street parking spaces to accommodate the ever-increasing parking demand by residents, employees, commuters, and visitors.

There are approximately 1,900 free public parking spaces within the National Mall & Memorial Parks, including spaces designated for handicapped visitors. Many of the free spaces are restricted by time limits during specific hours. However, some parking areas remain unrestricted, and as a result local employees often park all day long at spaces intended for visitor use. The limited supply of parking and the desirability of free parking results in drivers circling through the area looking for parking spaces, which contributes to traffic congestion and localized air pollution. According to the NPS *Visitor Transportation Survey*, for visitors who drove or parked a car on their trip, 65% thought it was difficult to park around the National Mall (NPS 2003f).

In addition to parking available in the National Mall & Memorial Parks, visitors can park at outlying Metro station parking lots and access the visitor core on the Metro. Metrorail parking is free on weekends and holidays, while a fee is charged on weekdays. For visitors parking in lots and garages, the average cost was \$13.56 per day, with a median of \$12.00 (NPS 2003f). The U.S. Department of the Army provides ample paid parking for visitors at Arlington National Cemetery. The current cost to park at the cemetery is \$1.25 per hour for the first three hours, and \$2 per hour thereafter (Arlington National Cemetery 2005).

The Mayor's Parking Taskforce recommended changes to parking policies and procedures in an effort to identify ways to mitigate parking shortages and to balance the needs of competing users, including residents, employees, and visitors. The consensus recommendation was that flexible policies are needed to reflect parking needs in various areas, based on parking supply, demand, and land use. Also, parking in the District should be more automated, better tracked, and appropriately priced to reflect the true cost of parking and to encourage greater turnover. Specific policy recommendations were directed at parking programs for residential and commercial areas; demand-based pricing strategies; safety of pedestrians, motorists, and parking enforcement personnel; and improved tracking mechanisms of localized parking demand (DDOT 2003c).

According to the 2003 NPS *Visitor Transportation Survey*, approximately 70% of visitors would be willing to park 15–30 minutes from the visitor core area if frequent shuttle service was available. Of these visitors, 66% would be willing to pay for parking at these remote facilities, and 57% would consider paying to ride a shuttle from the parking facility (NPS 2003f).

As previously described under "Traffic Operations," the Downtown Congestion Task Force identified strategies to reduce congestion in

the downtown area, including parking management and pricing (DDOT 2004c). Because the National Park Service offers free parking in an area where parking demand greatly exceeds capacity, it is a contributor to parking and associated congestion problems in the downtown area. The alternatives that are considered include proposals to reduce free parking provided by the National Park Service in order to increase transit ridership, reduce congestion, and encourage more efficient use of the limited number of available parking spaces.

transit users would be highly aware of the effects associated with transportation management actions, and their satisfaction or dissatisfaction would be measurably affected to a high degree. If transit users were highly dissatisfied, they would likely seek other transportation options.

There would be no short-term impacts unless specifically noted in the analysis.

Multimodal impacts related to visitor safety are discussed under “Public Health, Safety, and Security.”

IMPACT ANALYSIS

Impact Intensity Thresholds

Impacts on transportation are analyzed for transportation services, transportation facilities, traffic operations, multimodal facilities, and parking.

The following thresholds were defined to distinguish the intensity of an impact:

- *Negligible* — The impact would be undetectable or barely detectable and/or would affect few visitors or transit users. Visitors and/or transit users would not likely be aware of the effects of transportation management actions.
- *Minor* — The impact would be detectable and/or would only affect some visitors or transit users. Visitors and/or transit users would likely be aware of the effects of transportation management actions, but their satisfaction or dissatisfaction would not be measurably affected.
- *Moderate* — The impact would be apparent and/or would affect many visitors or transit users. Visitors and/or transit users would be aware of the effects associated with transportation management actions, and their satisfaction or dissatisfaction would be measurably affected.
- *Major* — The impact would be readily apparent and/or would affect the majority of visitors or transit users. Visitors or

Impacts Common to All Alternatives

Transportation Infrastructure and Transit Facilities

Visitor transportation service under all alternatives would continue to operate on existing public rights-of-way and roads in the District of Columbia; Arlington, Virginia; national park system areas; and Arlington National Cemetery (except Alternative 5). Transit vehicles would operate in mixed-flow traffic without dedicated bus-travel lanes. Improvements to roadway surfaces could be required to accommodate transit vehicles in curbside travel lanes, as well as passenger access at specific transit stops. In addition, improvements to transit stop facilities (benches, signs, kiosks, etc.) would be required at some stops. These improvements would result in minor, long-term, beneficial impacts to the roadways and transportation system, but they could result in negligible to minor, short-term, adverse impacts on traffic operations during construction.

Parking Conditions

Paid parking in and near the visitor core would continue to be available under all alternatives at Union Station, the Arlington National Cemetery visitor center, and metered parking areas throughout downtown.

Cumulative Impacts

The Metropolitan Washington Council of Governments projects that in a little more than two decades the metropolitan area is expected to grow by 1.6 million people and by 1.2 million jobs (MWCOG 2006). This growth will lead to additional trips and continued congestion on the region's transportation infrastructure, resulting in major, long-term, adverse regional impacts.

In addition, actions that would have cumulative effects on transportation under all alternatives include the Pike Transit Initiative, the K Street Busway Project, the Tour Bus Management Initiative, and the Lincoln Memorial Circle roadway. Other planned projects include undertaking regional transportation improvement projects and Metro transit facility improvements, and redeveloping Washington's waterfronts (Anacostia and Georgetown). These projects would result in

- an improved transportation service network through more connections and expanded coverage
- upgraded transportation infrastructure and transit facilities
- better traffic operations due to reduced congestion and support for regional goals to alleviate congestion
- more multimodal access to trails and destinations
- parking management plans that support regional parking goals

The regional transportation system has become increasingly integrated, as shown by the introduction of universal smart card technology (SmarTrip cards), future light rail routes, and additional Metro expansion. The Washington metropolitan area will continue to experience some of the worse traffic congestion in the United States, not as a result of management actions in the park, but as the result of regional population growth. The cumulative impacts of this growth on congestion are expected to continue to be major

and adverse over the long term. Nevertheless, cumulative impacts from other past, present and reasonably foreseeable transportation projects are expected to be long term, moderate, and beneficial.

Alternative 1: No-Action

Analysis

Transportation Service Network

Continuing the current visitor transportation service (with service for the visitor core and Arlington National Cemetery, as well as excursion tours) would result in no change to the regional transportation service network. The current service would continue to be separate from the regional transportation network, which includes public transit, commuter rail, ridesharing programs, interpretive visitor transportation services, and tour buses. One-way service in the visitor core would offer only limited potential to connect with other transit options. Transit gaps on the National Mall and west of 14th Street NW/SW would remain. Over the long term impacts on the transportation network would be negligible and adverse.

Transportation Infrastructure and Transit Facilities

As discussed under "Impacts Common to All Alternatives," long-term impacts from potential roadway and transit stop improvements at specific locations would be minor and beneficial to the overall transportation system.

Traffic Operations

There would be no change in traffic congestion within the study area under current operating conditions, and there would be no long-term impacts. Roads within the study area would remain congested because a large percentage of visitors and users would probably continue to drive their own vehicles as there would be no incentive to shift to transit or other transportation modes. The regional planning goal to encourage transit use in order

to reduce regional traffic congestion would not be addressed.

Multimodal Access

Alternative modes of transportation, including personal transportation (bicycles, Segway® HTs, and electric scooters) and walking, would remain available to supplement visitor transportation service between sites, or as an alternative recreational experience. No policy would be developed for the recreational use of Segway® HTs or electric scooters within the National Mall & Memorial Parks, and no additional access to NPS trails would be allowed. The lack of such a policy would continue to be inconsistent with D.C. regulations, resulting in confusion about whether Segway® HT could be used on NPS trails and sidewalks in the vicinity of lands under D.C. jurisdiction because of unclear jurisdictional boundaries. Current nonconforming recreational Segway® HT use on park trails and sidewalks would continue outside of established park policy. With no change to multimodal access under Alternative 1, and no effort to address additional demand for using these vehicles, long-term impacts would continue to be minor and adverse.

Parking Conditions

There would be no change in parking management within the project area. Paid and metered vehicle parking for visitor core service users would continue to be available as described under “Impacts Common to All Alternatives.” Free parking would continue to be available at sites under the jurisdiction of the National Park Service, including East Potomac Park and along National Mall & Memorial Parks roadways (specifically portions of Constitution Avenue NW and Madison Drive NW; Independence Avenue SW, Jefferson Drive SW, Ohio Drive SW, and West Basin Drive SW). Parking along these roadways is time-restricted in some locations and unrestricted in other locations.

The limited supply of free parking would tend to encourage visitors to use private vehicles, even though only a very small proportion of visitors would be able to find open spaces. Drivers would continue to circulate until free parking became available. NPS parking management policy would remain inconsistent with regional goals to increase transit use and thereby reduce congestion. The continued impact of parking conditions would be minor, long term, and adverse.

Cumulative Impacts

As described under “Impacts Common to All Alternatives,” the Washington metropolitan area would continue to experience some of the worst traffic congestion in the United States, not as a result of management actions in the park but as the result of population growth. Other past, present, and reasonably foreseeable plans and projects in the Washington, D.C., metropolitan area include long-term improvements to the transportation service network, an increasingly integrated regional transportation system, upgraded transportation infrastructure and transit facilities, improved traffic operations, enhanced multimodal access, and regionwide parking management. Impacts of these other plans would be moderate, long term, and beneficial.

Under the no-action alternative the visitor transportation service would not connect to the regional transportation system. Over the long term this would be a minor adverse impact because visitors would continue having to use completely independent transportation systems to move through the downtown area and to get to top destinations. While past, present, and reasonably foreseeable plans and projects in the metropolitan area would continue to result in beneficial impacts, there would be no additional contribution to cumulative impacts under Alternative 1 because of the small scale of the system compared to the regional transportation network.

Conclusion

Alternative 1 would have minor, long-term, beneficial impacts on transportation due to overall improvements to transportation infrastructure and transit stop facilities at specific locations. In the long term Alternative 1 would have adverse minor to moderate impacts from continuing present multimodal access policies, which would not address increased Segway® HT and electric scooter demand and would not be consistent with D.C. regulations. Continuing to provide limited free parking on the National Mall would have no effect on parking; however, regional goals to encourage greater use of transit services and reduce congestion would not be supported.

Past, present, and reasonably foreseeable transportation-related actions would result in moderate, long-term, beneficial impacts due to potential roadway and transit stop improvements at specific locations. Alternative 1 would not make additional contributions to cumulative impacts because of the small scale of the service compared to the regional transportation network.

Alternative 2: Preferred Alternative

Analysis

Transportation Service Network

Proposed transportation service in the visitor core and Arlington National Cemetery, along with excursion tours, would be expanded. The service would be more integrated with public transit by providing connections to Metro, thereby expanding transit coverage and improving the regional transportation network. The Blue Route would provide two-way east/west access along the National Mall between Arlington National Cemetery, the U.S. Capitol, and Union Station. The Red Route would extend into the downtown area to link attractions and services with prominent monuments in the West Potomac Park area. The Arlington National Cemetery service would be extended to the U.S. Marine Corps War Memorial, with potential future

route extensions to the Rosslyn Metrorail station and future planned memorials (U.S. Air Force Memorial and the Pentagon September 11th Memorial) and the Pentagon City Metrorail station.

Expanded service in the visitor core and Arlington National Cemetery would be more integrated into the regional transportation network, making both the visitor transportation service and public transit easier for visitors and users to access. Expanded service in the visitor core would also help address the regional planning goal to meet current transit needs in the downtown area, specifically addressing the public transit service gap in the visitor core area and areas west of 14th Street NW/SW. Impacts to the transportation service network would be moderate, long term, and beneficial because of better interconnections with other systems due to two-way service and expanded transit coverage.

Traffic Infrastructure and Transit Facilities

As discussed under “Impacts Common to All Alternatives,” long-term impacts from potential roadway and transit stop improvements at specific locations would be minor and beneficial to the overall transportation system.

Traffic Operations

Existing levels of congestion would not be appreciably affected under this alternative. There would be no detectable change in traffic operations from the operation of transit vehicles within the visitor core.

The proposed Arlington National Cemetery route extension to the U.S. Marine Corps War Memorial would operate on roads that are not currently used for transit vehicle traffic. Because of the low levels of traffic within the cemetery, the proposed transportation service would not impact traffic operations in this area.

Proposed transit routes would not pass through any security checkpoints, so transit

vehicles would not be subject to security searches, and there would be no delays.

While there would be no perceptible change in traffic operations within the study area from expanded visitor transportation service under Alternative 2, providing more transit opportunities in combination with educational / interpretive opportunities would likely appeal to a wider range of potential users. To the extent that more visitors and commuters would use these transportation services rather than driving private vehicles in the downtown area, traffic and associated congestion would potentially be reduced. This would support the regional planning goal of shifting drivers to transit modes in order to reduce regional traffic congestion. In the long-term, impacts to traffic operations would be negligible and beneficial because of potentially reduced traffic congestion in the downtown area.

Multimodal Access

The recreational use of Segway® HTs and electric scooters would be allowed on designated multi-use trails under the jurisdiction of the National Mall & Memorial Parks, providing another means of access to visitor destinations. Access would continue to be allowed on sidewalks crossing the National Mall adjacent to 3rd, 4th, 7th, and 14th streets NW/SW, which are under the jurisdiction of the District of Columbia. No new modes of transportation would be introduced in Arlington National Cemetery. Recreational Segway® HT use in other surrounding parks will be addressed separately by those parks.

Any necessary facilities (signs, parking areas, etc.) would be provided, with the type and location determined as wayfinding programs were implemented in the future. Proposed NPS policy for Segway® HT use in the National Mall & Memorial Parks would be more consistent with D.C. regulations.

In the long term allowing recreational users of Segway® HTs and electric scooters to access designated trails in the National Mall & Me-

morial Parks would result in minor to moderate, beneficial impacts. In addition, consistency of NPS and D.C. regulations about where Segway® HTs and electric scooters could be used would eliminate any confusion about legal use areas.

Parking Conditions

No new on- or offsite parking would be provided under Alternative 2. As described under “Impacts Common to All Alternatives,” paid and metered parking for visitor core service would continue to be available throughout downtown.

Transit stops for the proposed visitor transportation service would use existing Metro stops when possible; however, approximately 94 on-street parking spaces might have to be removed to accommodate new bus stops. The specific number of spaces would be determined during final implementation. Any removal of parking spaces would be coordinated with the D.C. Department of Transportation. Impacts would be negligible, long term, and adverse due to the additional time drivers would spend searching for parking.

An estimated 1,000 free parking spaces along the National Mall that are under the jurisdiction of the National Park Service would be converted to metered parking. Free parking would continue to be available in East Potomac Park. The supply of public parking spaces under NPS jurisdiction would remain unchanged. Visitors and users who preferred to drive would now be required to pay for parking, resulting in minor, long-term, adverse impacts. Demand at the remaining free parking areas could increase, resulting in circulation and congestion in these areas as drivers tried to find available spaces. However, overall this action would create increased turnover at metered parking spaces, discourage all-day parking, and encourage visitors to use public transit instead of driving. Resulting impacts would be moderate, long term, and beneficial.

Cumulative Impacts

Cumulative impacts would be the same as described under “Impacts Common to All Alternatives.” The Washington metropolitan area would continue to experience some of the worst traffic congestion in the United States, not as a result of management actions in the park but as the result of population growth within the area. Other past, present, and reasonably foreseeable plans and projects in the Washington, D.C., metropolitan area would include long-term improvements to the transportation service network, an increasingly integrated regional transportation system, upgraded transportation infrastructure and transit facilities, improved traffic operations, enhanced multimodal access, and regionwide parking management. Impacts of these other plans would be moderate, long term, and beneficial.

Alternative 2 would contribute a negligible adverse impact to parking conditions from removing on-street parking at some new transit stops. However, Alternative 2 would contribute a minor to moderate, long-term, beneficial impact on transportation due to an improved visitor transportation service network, upgraded infrastructure and transit facilities, improved traffic operations because a few transit vehicles would replace numerous personal vehicles, multimodal access, and parking management supportive of regional parking goals.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternative 2, would result in moderate, long-term, beneficial cumulative impacts. These impacts would result from the transportation system supplementing, supporting, and being integrated with the existing regional transportation network.

Conclusion

Alternative 2 would result in negligible, long-term, adverse impacts to parking conditions from the removal of on-street parking at some

new transit stops. Minor to moderate, long-term, beneficial impacts on transportation would result from

- emphasizing regional transit interconnections with two-way service in the visitor core and helping fill gaps in the existing transit service in the National Mall area and areas west of 14th Street NW/SW, thus supporting regional goals by potentially shifting visitors and users from private automobiles to transit and possibly reducing traffic congestion
- improving roadway infrastructure and facilities at some transit stops, enhancing the overall transportation system
- offering new forms of multimodal access to designated trails and major sites, improving management of personal transportation on park walks and trails, and offering consistent NPS and D.C. management of Segway® HTs and electric scooters, thus reducing confusion among users
- converting free parking to metered parking on the National Mall, creating incentives for visitors and users to use public transit rather than drive

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 2, would result in moderate, long-term, beneficial cumulative impacts. These impacts would result from the transportation system supplementing, supporting, and connecting with an increasingly integrated regional transportation network.

Alternative 3

Analysis

Transportation Service Network

Transportation service in the visitor core and Arlington National Cemetery, as well as excursion services, would be expanded, similar to Alternative 2. The service would be more integrated with public transit by providing more connections to Metro services and

would also expand transit coverage, thus improving the regional transportation network. However, only one-way service would be provided on visitor core routes. The Blue Route would provide one-way loop service between Arlington National Cemetery and 15th Street NW/SW. The Green Route would provide one-way loop service between Union Station and 17th Street NW. The Red Route would provide one-way loop service between Judiciary Square, Lafayette Park, and the Tidal Basin area. A future optional segment for the Red Route could extend north of K Street on 16th Street NW and provide access to the Mary McLeod Bethune Council House. Arlington National Cemetery service would be extended to the U.S. Marine Corps War Memorial, with potential future extensions to the Rosslyn Metrorail station, future planned memorials, and the Pentagon City Metrorail station.

The expanded one-way route system in the visitor core and extended routes in Arlington National Cemetery that would link with public transit would result in a better integrated regional transportation network, making it easier for visitors as well as commuters to use both systems. A more extensive visitor core service would also help address the regional planning goal to fill current transit needs in the downtown area, specifically addressing the service gap in the National Mall and west of 14th Street NW/SW. Similar to Alternative 2, it would be easier for a larger portion of visitors and users to access public transit, and opportunities to move between various regional public transportation systems would be greatly improved. However, because NPS transportation service routes would continue to be one-way rather than bi-directional, interconnections to public transit systems would be less convenient. In the long term impacts on the transportation service network would be minor and beneficial.

Transportation Infrastructure and Transit Facilities

Long-term impacts from roadway improvements and transit stop facilities at some locations would be minor and beneficial, as described under “Impacts Common to All Alternatives.”

Traffic Operations

Existing levels of congestion would remain in the downtown area, and there would be no perceptible change in traffic operations within the visitor core from the addition of small increments in transit traffic, similar to Alternative 2. The proposed Arlington National Cemetery route extension to the U.S. Marine Corps War Memorial would be the same as Alternative 2 and would operate on roads that are not currently used for transit vehicle traffic, with no impact on traffic operations in this area.

The proposed transit routes would not pass through any security checkpoints, so transit vehicles would not be subject to security searches.

While there would be no perceptible change in traffic operations within the study area, providing more transit opportunities in combination with educational / interpretive opportunities would likely appeal to a wider range of potential users, thereby encouraging more visitors to use these transportation services than to drive private vehicles in the downtown area. This would support regional planning objectives and collective efforts to reduce congestion. However, in-depth educational services offered under this alternative might not appeal to as large a visitor market as would a choice of interpretive opportunities under Alternative 2.

Because the proposed visitor transportation service would likely appeal to more visitors and some transit users, these groups might choose not to drive private vehicles and to use the visitor transportation service, potentially reducing traffic and associated congestion in the downtown area. This would support the

regional planning goal of shifting drivers to transit modes in order to address regional traffic congestion. Resulting impacts to traffic operations from potentially reduced traffic congestion in the downtown area would be negligible and beneficial.

Multimodal Access

Similar to Alternative 1, no recreational use of Segway® HTs or electric scooters would be allowed on trails managed by the National Mall & Memorial Parks. NPS policy for the recreational use of Segway® HTs and electric scooters would continue to be inconsistent with D.C. regulations, resulting in confusion over whether Segway® HTs could be used on NPS trails and sidewalks in the vicinity of lands under D.C. jurisdiction because of unclear jurisdictional boundaries. Current nonconforming recreational Segway® HT use on park trails and sidewalks would continue outside of established park policy. As a result, long-term impacts would continue to be adverse and minor because no effort would be made to address increasing demand for the recreational use of Segway® HTs and electric scooters.

Parking Conditions

As described under “Impacts Common to All Alternatives,” paid and metered parking for visitor core service would continue to be available in the downtown area.

Approximately 70 on-street parking spaces might have to be removed to accommodate new bus stops. The specific number of spaces to be removed would be determined during final implementation and would be coordinated with the D.C. Department of Transportation. Long-term impacts to parking conditions would be negligible and adverse at locations where parking was removed.

The National Park Service would continue to offer a limited supply of free parking, which would tend to encourage visitors and commuters to drive private vehicles, even though

only a very small proportion would be able to find free parking. Drivers would likely continue to circulate until free parking became available. NPS parking management policies would be inconsistent with the policies of other regional agencies seeking to provide incentives to drivers to reduce reliance on personal vehicles and increase transit use. The long-term regional impacts of not reducing congestion or encouraging greater use of transit services would be adverse and minor.

Cumulative Impacts

Cumulative impacts would be the same as described under “Impacts Common to All Alternatives.” The Washington metropolitan area would continue to experience some of the worst traffic congestion in the country, not as a result of management actions in the park but as the result of population growth. Other past, present, and reasonably foreseeable plans and projects in the Washington, D.C., metropolitan area would include long-term improvements to the transportation service network, an increasingly integrated regional transportation system, upgraded transportation infrastructure and transit facilities, improved traffic operations, enhanced multimodal access, and regionwide parking management. Impacts of these other plans would be moderate, long term, and beneficial.

Under Alternative 3 the removal of on-street parking at some new transit stops, and not fully integrating the transportation service into the regional transportation system, would have adverse impacts. But Alternative 3 would not contribute to cumulative effects due to the small scale of the visitor transportation service compared to the regional transportation network.

Conclusion

In the long term Alternative 3 would have the following impacts:

- a negligible adverse impact on parking conditions from removing on-street parking at some new transit stops
- a minor to moderate adverse impact from continuing present multimodal access policies, which would not address increased Segway® HT and electric scooter demand and would not be consistent with D.C. regulations

Negligible to minor, long-term, beneficial impacts would result from

- emphasizing regional transit interconnections with one-way service in the visitor core and helping fill gaps in the existing transportation service in the National Mall area and areas west of 14th Street NW/SW
- improving roadway infrastructure and facilities at some transit stops

There would be no impact from continuing to provide limited free parking on the National Mall, but the policy would be inconsistent with regional goals to encourage greater transit use and reduce congestion.

Past, present, and reasonably foreseeable transportation actions would result in moderate, long-term, and beneficial impacts because of some improvements to the transportation service network, transportation infrastructure and transit facilities, and traffic operations. The visitor transportation system under Alternative 3 would not be fully integrated into the regional transportation system, but there would be no contribution to cumulative effects because of the small scale of the visitor transportation service compared to the regional transportation network.

Alternative 4

Analysis

Transportation Service Network

The proposed visitor transportation service in the visitor core would provide bi-directional service on all routes. The Blue Route would

provide two-way service between Union Station and Arlington National Cemetery, the Green Route between Union Station and Washington Circle, and the Red Route between the Jefferson Memorial, Farragut Square, and Judiciary Square. Future optional segments for the Green Route could include connections to the Kennedy Center and between Washington Circle and Georgetown. A future optional segment for the Red Route could provide service to East Potomac Park. An introductory tour would also be provided in the visitor core area to supplement visitor service, but would not provide any additional connections to Metro. The overall transportation service would provide more connections to Metro and also expand transit coverage. The Arlington National Cemetery service would be the same as described under Alternative 2 (service would be extended to the U.S. Marine Corps War Memorial, with potential future route extensions to the Rosslyn Metrorail station, future planned memorials, and the Pentagon City Metrorail station).

Expanded service in the visitor core and Arlington National Cemetery would be better connected with public transit with two-way visitor core service, thus better integrating the service into the regional transportation network. The expanded service would also help address the regional planning goal to fill current transit needs in the visitor core area, specifically addressing the public transit service gap identified on the National Mall and west of 14th Street NW/SW. Similar to Alternative 2, it would be easier for a larger portion of visitors and users to access public transit, and opportunities to move between the various transportation systems would be greatly improved. In the long term impacts would be moderate and beneficial.

Transportation Infrastructure and Transit Facilities

As discussed under “Impacts Common to All Alternatives,” long-term impacts from potential improvements to roadways and transit stop facilities at some locations would be

minor and beneficial to the overall transportation system.

Traffic Operations

Alternative 4 would result in no perceptible change in traffic operations within the visitor core from adding small increments in transit traffic, similar to Alternative 2. The proposed Arlington National Cemetery route extension to the U.S. Marine Corps War Memorial would operate on roads that are not currently used for transit vehicle traffic, but as described for Alternative 2, the proposed transportation service would not impact traffic operations in this area because current use is low.

The proposed transit routes would not pass through any security checkpoints, and transit vehicles would not be subject to security searches and resulting delays.

While there would be no perceptible change in traffic operations under Alternative 4, providing more transit opportunities in combination with educational / interpretive opportunities would likely appeal to a wider range of potential service users, thereby encouraging more visitors and users to take advantage of these transportation services than to drive private vehicles in the downtown area.

Removing all private vehicle traffic and parking from Madison Drive NW and Jefferson Drive SW under Alternative 4, and converting those two streets to two-way transit and multimodal uses, would improve traffic operations on these streets. The streets flank the National Mall and only run from 3rd to 14th streets NW/ SW, so they are not typically used by through-traffic. Access on Jefferson and Madison drives would be provided for private tour buses, handicap parking, taxis, commercial delivery trucks, and specially permitted vehicles, as well as for private vehicles dropping off passengers. Private automobile traffic searching for parking on the National Mall would be directed to more remote parking areas, resulting in negligible, long-term, adverse impacts on local traffic

operations. Some private automobile traffic that currently uses Madison and Jefferson drives would be diverted onto adjacent streets; however, much of the general parking-related traffic is already required to use adjacent streets, so the amount of traffic displacement would be minimal. Parking-related impacts are discussed below under "Parking Conditions."

The proposed visitor transportation service would likely appeal to more visitors and users because of expanded routes and interpretive opportunities, so more people might choose to use the visitor transportation service rather than drive, potentially reducing traffic and associated congestion. This would support the regional planning goal of reducing regional traffic congestion by shifting drivers to transit.

In the long term an expanded visitor transportation service, potentially reduced use of private vehicles and increased use of transit in the downtown area, and improved traffic operations on Madison Drive NW and Jefferson Drive SW would result in negligible, beneficial impacts.

Multimodal Access

Under Alternative 4 all Segway® HTs and electric scooters would be provided unlimited access to existing multi-use trails under the jurisdiction of the National Mall & Memorial Parks, as well as to sidewalks adjacent to cross streets on the National Mall managed by the District of Columbia (3rd, 4th, 7th, and 14th streets NW/SW). Necessary facilities (signs, parking areas, etc.) would be determined during implementation of future wayfinding programs. The proposed policy for recreational Segway® HT and electric scooter use in National Mall & Memorial Parks would be consistent with D.C. regulations.

Long-term impacts as a result of providing unlimited multimodal access to trails in National Mall & Memorial Parks would be moderate and beneficial because Segway® HT and electric scooter users could access more park

sites. NPS policies for Segway® HT use would be more consistent with D.C. policies, reducing confusion about where personal transportation vehicles could be used.

Parking Conditions

As described under “Impacts Common to All Alternatives,” paid and metered parking for visitor core service would continue to be available throughout downtown.

Approximately 142 on-street parking spaces could be removed to accommodate new bus stops. The specific number of spaces would be determined during final implementation and would be coordinated with the D.C. Department of Transportation. Impacts would be negligible, long term, and adverse.

Removing approximately 400 free, time-limited, general parking spaces on Madison Drive NW and Jefferson Drive SW (approximately 18% of public parking spaces in the National Mall & Memorial Parks) could result in adverse impacts to visitors and users. Drivers who would normally park at these free locations would now have to seek parking elsewhere, and demand and congestion at other free parking areas could increase. However, removing public parking would encourage the use of alternative transit modes and improve transit operations on Madison and Jefferson drives. Handicap parking spaces and access to designated areas would be retained. Impacts would be moderate, long term, and adverse because of fewer parking spaces in the downtown area.

Cumulative Impacts

Cumulative impacts would be the same as described under “Impacts Common to All Alternatives.” The Washington metropolitan area would continue to experience some of the worst traffic congestion in the United States, not as a result of management actions in the park but as the result of population growth. Other past, present, and reasonably foreseeable plans and projects in the Washing-

ton, D.C., metropolitan area would include long-term improvements to the transportation service network, an increasingly integrated regional transportation system, upgraded transportation infrastructure and transit facilities, improved traffic operations, enhanced multimodal access, and regionwide parking management. Impacts of these other plans would be moderate, long term, and beneficial.

Alternative 4 would contribute negligible to moderate, adverse impacts to parking conditions from the removal of on-street parking for new transit stops and on Madison Drive NW and Jefferson Drive SW for improved transit access. In the long term Alternative 4 would contribute a minor to moderate beneficial impact on transportation as a result of improvements to the transportation service network, infrastructure and transit facilities, traffic operations, and multimodal access.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 4, would result in moderate, long-term, beneficial cumulative impacts. These impacts would result from the transportation system supplementing, supporting, and being integrated with the existing regional transportation network.

Conclusion

Alternative 4 would cause negligible, long-term, adverse impacts to parking conditions from the removal of on-street parking at some new transit stops and moderate, long-term, adverse impacts from the removal of parking on Madison Drive NW and Jefferson Drive SW.

Minor to moderate, long-term, beneficial impacts to transportation under Alternative 4 would result from

- emphasizing regional transit interconnections with two-way service in the visitor core and helping fill gaps in the existing transit service in the National Mall area and areas west of 14th Street NW/SW,

thus supporting regional goals by shifting potential visitors and users from private automobiles to transit and potentially reducing traffic congestion

- improving roadway infrastructure and facilities at some transit stops
- offering new forms of multimodal access on all multi-use trails, improving management of personal transportation on park walks and trails, and offering consistent NPS and D.C. management of Segway® HTs and electric scooters, thus reducing confusion among users

However, continuing to provide some free parking in the National Mall area would be inconsistent with regional parking management goals in that some visitors would continue to drive in hopes of being able to park for free, with resulting congestion as drivers circulated to find available parking spaces.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 4, would result in moderate, long-term, beneficial cumulative impacts. These impacts would result from the transportation system supplementing, supporting, and being connected with the increasingly integrated regional transportation network.

Alternative 5: Downtown Circulator

Impact Analysis

Transportation Service Network

The proposed visitor core transportation service would be expanded and would be better integrated with public transit by providing more connections to Metro services. In the visitor core two-way service would be provided on one route, and the current visitor transportation service would be replaced with routes that were integrated with the D.C. Downtown Circulator system. The Monuments Route would provide one-way loop service along West Potomac Park, between the Lincoln Memorial and the Smithsonian Metrorail station, with a future optional loop

around the White House. The White House–Capitol Route would provide two-way loop service between Union Station and Foggy Bottom, with a future optional segment for two-way service on E Street between 15th and 21st streets NW. No service would be provided to Arlington National Cemetery under Alternative 5, but it could be operated independently.

An expanded service in the visitor core that was better connected with public transit would make it easier for visitors and residents to use both the visitor transportation service and public transit. Expanded service in the visitor core would also help address the regional planning goal to fill current transit needs in the downtown area, specifically addressing the public transit service gap in the National Mall area and west of 14th Street NW/SW. Not providing visitor transit service to Arlington National Cemetery and surrounding areas would adversely affect visitors and users because this would be a gap in the integrated transportation services in this area. As a result of expanded transit coverage in the visitor core only, two-way service, and a visitor transportation service that was more interconnected with the regional transportation network, impacts to the transportation service network would be minor to moderate, long term, and beneficial.

Transportation Infrastructure and Transit Facilities

As discussed under “Impacts Common to All Alternatives,” long-term impacts to the overall transportation system from improvements to roadways and some transit stop facilities would be minor and beneficial.

Traffic Operations

There would be no perceptible change in traffic operations within the visitor core from small additions to transit traffic. No transit vehicles would operate in Arlington National Cemetery, so there would be no impacts on traffic operations in that area.

Both primary and optional route segments under Alternative 5 are proposed along street segments that have been temporarily closed to general traffic for security reasons. On the White House–Capitol route, both Pennsylvania Avenue NW and E Street NW have been closed between 15th and 17th streets NW, and D Street NW between 22nd and 23rd streets NW. The optional Monuments Route also includes use of the closed portion of Pennsylvania Avenue. Security searches of transit vehicles would disrupt transit service and traffic operations.

Providing access to the World War II Memorial from 17th Street NW/SW would not be feasible because there is no space within the roadway for a bus stop and transit vehicle stops would block traffic, resulting in more congestion at this location, a negligible, adverse impact.

While there would be no perceptible change in regional traffic operations within the study area, providing more transit opportunities could encourage more visitors and commuters to use these transit services as opposed to driving private vehicles. This would support regional planning objectives and collective efforts to reduce congestion. However, because no educational / interpretive services would be provided under this alternative, the service would probably not appeal to as large a visitor market as would Alternative 2; therefore, more visitors could be inclined to drive to destinations in the visitor core.

Because the proposed visitor transportation service would likely appeal to more commuters, traffic congestion could be reduced to the extent that these individuals decided to use the transit service rather than drive. This would support the regional planning goal of shifting drivers to transit modes in order to address regional traffic congestion. However, providing transit access in areas requiring security restrictions could affect traffic operations, resulting in a minor adverse impact because of disruptions to traffic operations from transit vehicle searches.

Multimodal Access

Similar to Alternative 1, no recreational use of Segway® HTs or electric scooters would be allowed on trails managed by the National Mall & Memorial Parks. NPS policy for the use of personal transportation vehicles would continue to be inconsistent with D.C. regulations, resulting in confusion over whether Segway® HTs could be used on NPS trails and sidewalks in the vicinity of lands under D.C. jurisdiction because of unclear jurisdictional boundaries. Current nonconforming recreational Segway® HT use on park trails and sidewalks would continue outside of established park policy. As a result, long-term impacts would continue to be adverse and minor because no effort would be made to address increasing demand for the recreational use of Segway® HTs and electric scooters.

Parking Conditions

As described under “Impacts Common to All Alternatives,” paid and metered parking for visitor core service would continue to be available throughout downtown.

Approximately 142 parking spaces might have to be removed to accommodate new bus stops. The specific number of spaces would be determined during final implementation, and removal would be coordinated with the D.C. Department of Transportation. Impacts would be negligible, long term, and adverse.

The National Park Service would continue to offer a limited supply of free parking, which would encourage visitors and users to drive, even though only a very small proportion would be able to find free parking. Drivers would likely continue to circulate until free parking became available. NPS parking management policies would remain contrary to the policies of other regional agencies to increase transit use and thereby reduce congestion.

Cumulative Impacts

Cumulative impacts would be the same as described under “Impacts Common to All

Alternatives” The Washington metropolitan area would continue to experience some of the worst traffic congestion in the United States, not as a result of management actions in the park but as the result of population growth. Other past, present, and reasonably foreseeable plans and projects in the Washington, D.C., metropolitan area would include long-term improvements to the transportation service network, an increasingly integrated regional transportation system, upgraded transportation infrastructure and transit facilities, improved traffic operations, enhanced multimodal access, and regionwide parking management. Impacts of these other plans would be moderate, long term, and beneficial.

Alternative 5 would contribute an adverse impact to parking conditions from the removal of on-street parking at some new transit stops. Overall, Alternative 5 would contribute a negligible to minor, long-term, beneficial impact on transportation due to improvements to the transportation service network, infrastructure and transit facilities, and traffic operations.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 5, would result in minor, long-term, beneficial cumulative impacts. The transportation system would supplement, support, and be integrated with the existing urban transportation network.

Conclusion

In the long term Alternative 5 would have

- a negligible, adverse impact to parking conditions from removing on-street parking at some new transit stops

- a minor to moderate, adverse impact from continuing present multimodal access policies, which would not address increased Segway® HT and electric scooter demand and would not be consistent with D.C. regulations

Negligible to minor, long-term, beneficial impacts on transportation would result from

- emphasizing regional transit interconnections with one-way service in the visitor core and helping fill gaps in the existing transit service in the National Mall and areas west of 14th Street NW/SW, thus supporting regional goals by shifting potential visitors and users from driving to transit and potentially reducing traffic congestion
- improving roadway infrastructure and facilities at some transit stops

There would be no transit service or access to or around Arlington National Cemetery under this alternative.

There would be no impact from continuing to provide limited free parking on the National Mall, but the policy would be inconsistent with regional goals to encourage greater transit use and reduce congestion.

Past, present, and reasonably foreseeable actions would result in moderate, long-term, beneficial impacts due to some improvements to the transportation service network, infrastructure and transit facilities, and traffic operations. Alternative 5 would supplement and be integrated with the existing urban transportation network, thus contributing moderate, long-term, beneficial cumulative impacts on the increasingly integrated regional transportation network.

VISITOR AND TRANSIT USER EXPERIENCE

AFFECTED ENVIRONMENT

Information about visitor and transit user experiences was gathered from visitor counts and surveys. Also, data from Landmark Services, Inc., the National Park Service, Arlington National Cemetery, the Washington Metropolitan Area Transit Authority, and local bicycle and other transportation agencies were reviewed.

Potential transportation travel markets in the downtown Washington, D.C., area include both visitors and local travelers. Within both of these market groups, sub-market types can be identified. Visitors can be identified as either tourists or business/convention travelers, and local travelers can be identified as those who go downtown for work or other reasons.

Visitor Statistics

Filled with famous sights, attractions, and a full calendar of special events, Washington, D.C., offers year-round experiences for visitors and residents. In addition to the city's most familiar vistas and destinations (such as the many memorials and museums), there is a lively urban center that features such attractions as the streets of Georgetown and world-class performances at the Kennedy Center. Major annual events attracting visitors to the downtown area include the National Cherry Blossom Festival in March, the Independence Day Celebration in July, the Marine Corps Marathon in October, and Veterans Day celebrations in November. In addition, the monumental core is a highly visible stage for special events and demonstrations on a variety of national and international issues.

An estimated 26 million visits were made to 10 sites and parks under the jurisdiction of the National Mall & Memorial Parks in 2005 (NPS 2006a). Recreation visitor statistics for specific sites included approximately 468,000 visits to the Washington Monument, 3.6

million visits to the Lincoln Memorial, 2.3 million visits to the Jefferson Memorial, 3.8 million visits to the Vietnam Veterans Memorial, 4.4 million visits to the World War II Memorial, and 3.2 million visits to the Korean War Veterans Memorial (NPS 2006c).

In addition to the National Mall & Memorial Parks, total recreation visits for several downtown and outlying area national park areas for fiscal year 2005 include approximately 7.3 million visits to George Washington Memorial Parkway, 1.7 million visits to President's Park, 1.4 million visits to National Capital Parks-East, 2.1 million visits to Rock Creek Park, and 3 million visits to Chesapeake & Ohio Canal National Historical Park (NPS 2006c). More than 4 million people visit Arlington National Cemetery annually.

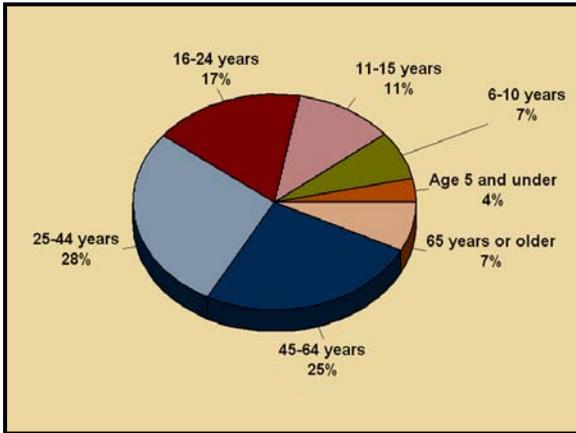
Typical Visitor Profile

Data from the 2003 NPS *Visitor Transportation Survey* provide a statistical analysis of visitation characteristics, which can be used to make a general prediction of visitor characteristics and transit service preferences.

Based on this information, the primary purpose of trips for most visitors is pleasure or leisure. A majority of visitors arrive in family groups and are primarily between the ages of 25 and 44 (28%) or 45 and 64 (25%) (see Figure 3). About 60% stay in the metropolitan area for two to four days (Figure 4).

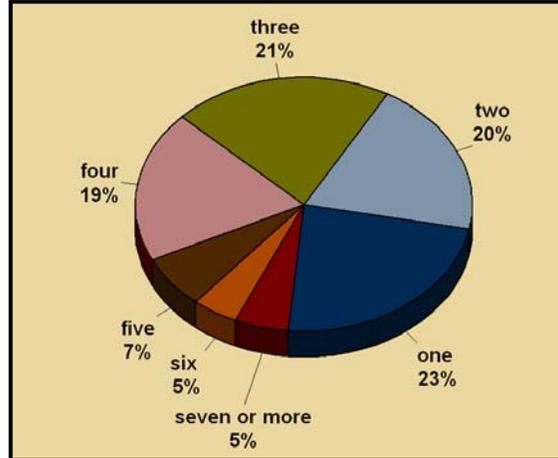
A majority of visitors arrive without a car and use transit services, including Metrorail (see Figure 5). For those visitors who arrive with a car, approximately half continue to drive in the metropolitan area. Visitors on average visit approximately 15 destinations during their trip, or an average of five attractions per day when visiting sites in the visitor core. Walking is the most popular way to get to top visitor destinations in the downtown area (Figure 6).

Figure 3. Age Distributions of Visitor Travel Groups



SOURCE: NPS 2003f.

Figure 4. Visitor Travel Group's Length of Stay (in Days)



SOURCE: NPS 2003f.

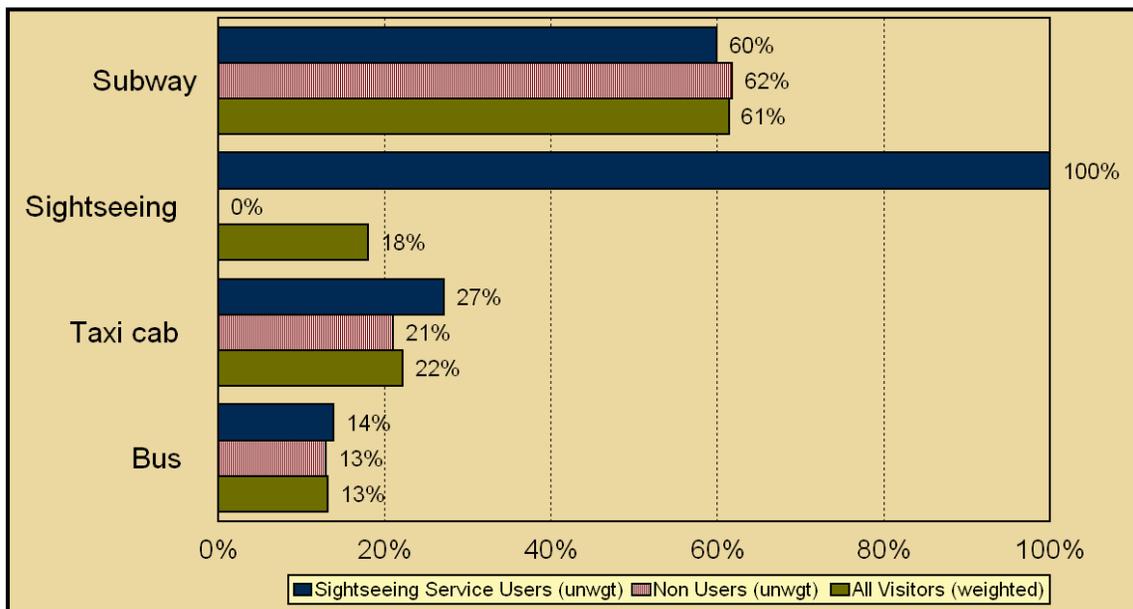
Transportation System

Traveler Characteristics

Thousands of area residents travel to, from, and within the downtown metro area each day. The federal government is the region's largest employer and is the primary contri-

butor to the economy, along with the service sector. Resident trips to access employment, shopping, and other destinations in the downtown area are generally made either by auto or by public transit. Once workers and shoppers arrive downtown, they may need to make short trips within the core area.

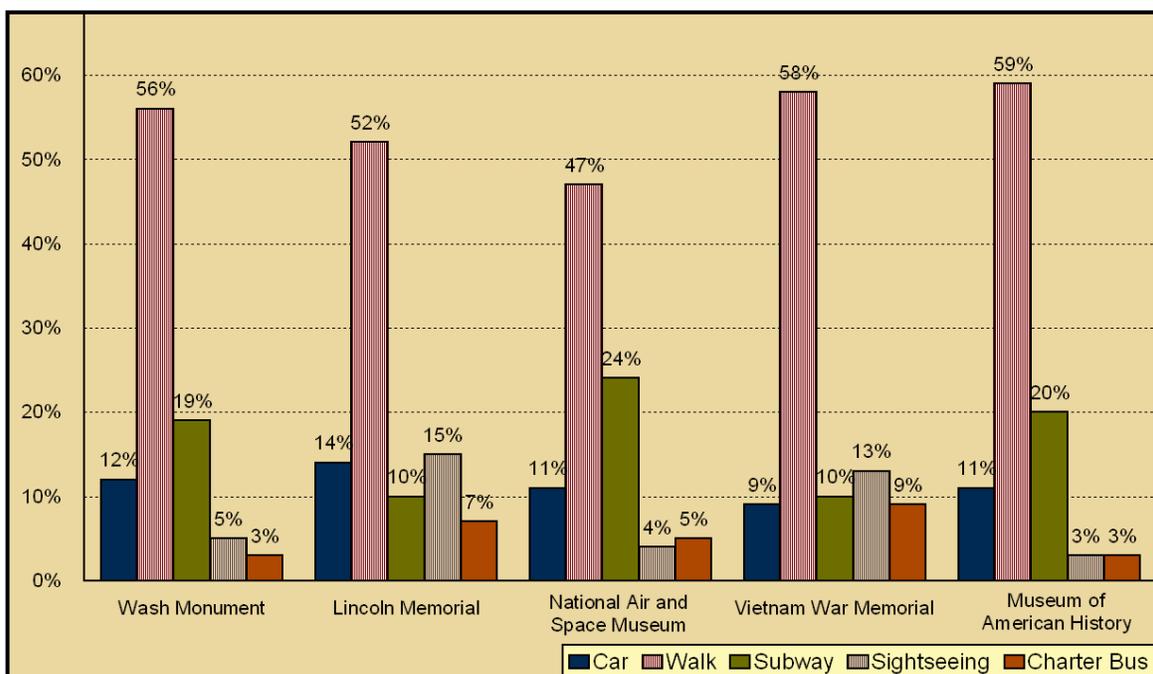
Figure 5. Transportation Services Used by Downtown and Park Visitors



SOURCE: NPS 2003f.

NOTE: Results for "All Visitors" are weighted based on the estimated percentage of sightseers to non-sightseers in the general population (18% to 82%). See the NPS 2003 *Visitor Transportation Survey* for additional details.

Figure 6. Modes of Travel between Visitor Destinations in the Visitor Core



SOURCE: NPS 2003f.

As the region’s largest employer, the federal government’s efforts to encourage alternative commuting modes for its employees make a significant contribution to regional transportation solutions. Federal policies support transit use, ridesharing, telecommuting, and other commuter modes, providing a range of options for reducing use of the region’s congested roadways. The *Comprehensive Plan for the National Capital: Federal Elements* focuses on working with regional entities to develop solutions that offer greater transportation system efficiencies and a wider range of transportation choices, improving access and mobility for federal and nonfederal employees alike (NCPC 2004a).

Visitor Convenience

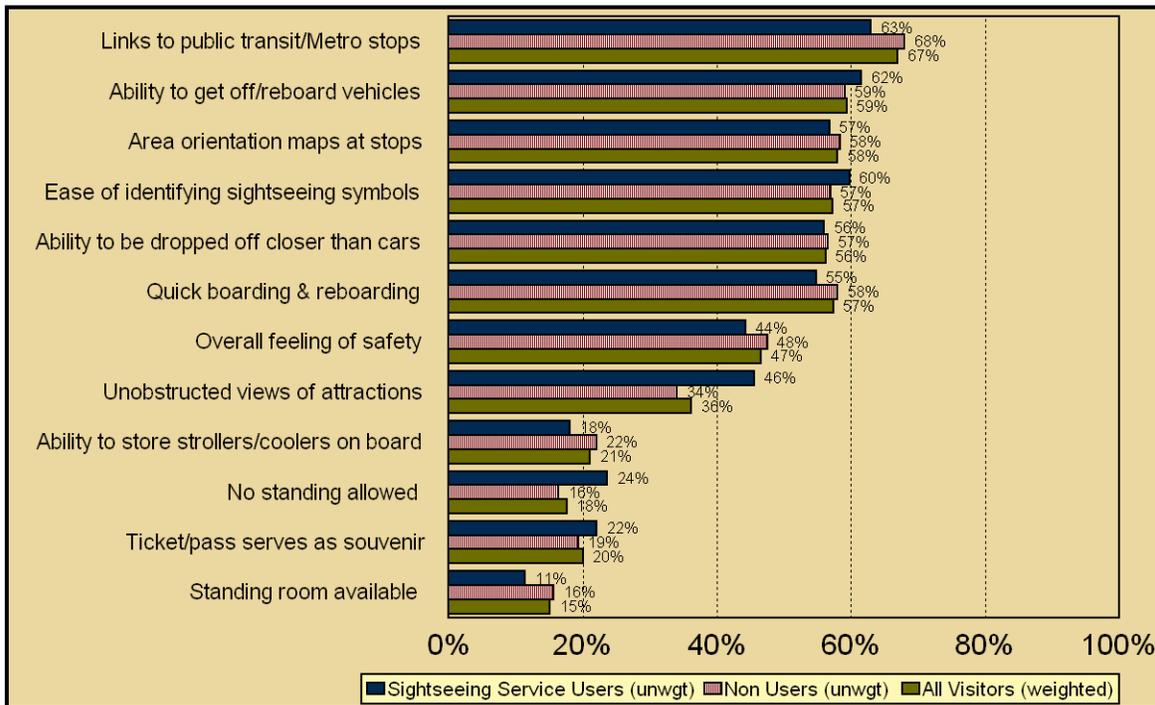
The NPS 2003 *Visitor Transportation Survey* indicates that a majority of visitors choose convenience as the most important transportation service factor (NPS 2003f). Convenience characteristics include features such as links to public transit stops, frequent

service, the ability to get off and on vehicles at designated stops, and the overall feeling of comfort. A majority of visitors identified links to public transit as the most important feature (see Figure 7).

Public transit service in the metro area is provided by the Washington Metropolitan Area Transit Authority, as well as transit services in nearby communities in Maryland and Virginia. The current visitor transportation service provides connections to the Metro at Union Station as well as other elements of the transportation network, such as rail service, tour buses, personal transportation vehicles, and pedestrian trails and sidewalks. The ability to access and connect with public transit and to pay fares with easy-to-use ticketing systems are both attractive convenience characteristics to users (non-visitors) as well.

Special events occasionally affect visitor transportation routes and services, resulting in service delays or cancellations. For example, the visitor ridership study showed four days of

Figure 7. Desired Convenience Characteristics for a Visitor Transportation Service



SOURCE: NPS 2003f.

NOTE: Results for "All Visitors" are weighted based on the estimated percentage of sightseers to non-sightseers in the general population (18% to 82%). See the NPS 2003 *Visitor Transportation Survey* for additional details.

service cancellation in 2000. Heightened security alerts may also affect service and routes, and security checks may result in service slow-downs or disruptions. Currently, the visitor core route only serves the west side of the U.S. Capitol because of ongoing construction and security restrictions.

Ridership

Tourmobile ridership* data indicate that peak days are typically Friday, Saturday, and Sunday, with Saturday being the busiest day. Seasonally, June, July, and August are the peak months, followed by March and April. The busiest ridership month is June. Total ridership includes three routes: Arlington National Cemetery, the National Mall, and excursions (Twilight and Mount Vernon tours). Total ridership dropped by about 30% from 2000 to

2002 (from 1,357,304 passengers to 954,241), which can be attributed to the aftermath of September 11, 2001. For 2004 ridership data showed an increase of 12% over 2002 (to 1,065,365).

According to the NPS *Visitor Transportation Survey* (NPS 2003f), the transit services market of most interest to visitors is equally divided between (1) transit service with some level of interpretation / orientation, and (2) transit service only (see Figure 1 on page 26). Within each of these markets are submarkets based on the level of interpretation offered or the range of destinations served, as explained below:

- For visitors interested in interpretation, the submarkets include those transit users preferring in-depth interpretation and those who are only interested in general orientation. The current concession service focuses on the submarket preferring in-depth interpretive transit service,

* Ridership represents the number of users who have purchased a daily fare; it does not account for total boardings by all transit users.

and it is therefore limited in its potential to also appeal to the portion of the market that wants general orientation.

- The submarkets for visitors who only want convenient transit access without interpretation include transit only to attractions or transit only to attractions and other stops.

Visitor Access to Destinations

As described previously, visitors can access destinations in the visitor core area by using the current NPS concession service, as well as by automobile, tour bus, taxi, private shuttle service, and personal transportation vehicle (bicycles, Segway® HTs, and electric scooters). Sidewalks and trails also connect core area sites, and there is a self-guided walking tour of Arlington National Cemetery.

The top destinations identified in the NPS *Visitor Transportation Survey* (determined by the number of trips to destinations) are shown in Table 27, including which destinations would be accessible under each alternative. Accessible sites would be within 750 feet of a transit stop, or about a 2- to 4-minute walk. The table also indicates destinations that have opened since 2003, such as the World War II Memorial (one of the top destinations visited today) and the National Museum of the American Indian.

Current stops on the American Heritage Tour include the Arlington National Cemetery visitor center, the Lincoln Memorial, the Vietnam Veterans Memorial, the White House Visitor Center, the Washington Monument, the Smithsonian Metrorail stop, the National Air and Space Museum, the U.S. Capitol, Union Station (Metrorail), the National Gallery of Art, the National Museum of Natural History, the National Museum of American History, the U.S. Bureau of Engraving and Printing, the Jefferson Memorial, and the FDR Memorial.

Stops on the Arlington National Cemetery Tour include the visitor center, the John F. Kennedy

gravesite, the Tomb of the Unknowns, and Arlington House. Visitors are not allowed to drive vehicles in Arlington National Cemetery unless they are attending a burial service or visiting a gravesite.

Visitor Movements

Visitor trip movements in the visitor core are shown on the “Visitor Movement between Top Destination Areas” map. The number of visitor trips between destination areas was determined by assessing bi-directional travel patterns (including all travel modes) as reported in the 2003 NPS *Visitor Transportation Survey*. By identifying the most predominant trip movements between top destination areas, it was possible to identify where additional or improved transportation access could be most beneficial.

The most frequent visitor movements between destination areas (in order of magnitude) are as follows:

1. Lincoln Memorial — FDR Memorial / Jefferson Memorial
2. Lincoln Memorial — Washington Monument
3. National Air and Space Museum — National Mall north side (e.g., National Gallery of Art)
4. Washington Monument — National Mall north side (e.g., National Museum of American History)
5. Washington Monument — White House Visitor Center
6. White House Visitor Center — Lincoln Memorial
U.S. Capitol area (e.g., U.S. Supreme Court) — Union Station area
7. National Mall south side (e.g., the Smithsonian Castle) — National Mall north side (e.g., National Museum of Natural History)

Table 27. Top D.C. Visitor Destinations, and Destinations Accessible under Each Alternative

Site Ranking*	Destination	Sites Accessible by Transit Service				
		Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
1	Washington Monument	•	•	•	•	•
2	Lincoln Memorial	•	•	•	•	•
3	National Air & Space Museum	•	•	•	•	•
4	Vietnam Veterans Memorial	•	•	•	•	•
5	National Museum of American History	•	•	•	•	•
6	National Museum of Natural History	•	•	•	•	•
7	U.S. Capitol	•	•	•	•	•
8	White House Visitor Center	•	•	•	•	•
9	Arlington National Cemetery	○/•	○/•	○/•	○/•	
10	Jefferson Memorial	•	•	•	•	•
11	Korean War Veterans Memorial	•	•	•	•	•
12	Smithsonian Castle	•	•	•	•	•
13	Union Station	•	•	•	•	•
14	Franklin D. Roosevelt Memorial	•	•	•	•	•
15	U.S. Holocaust Memorial Museum	•	•	•	•	•
16	National Gallery of Art	•	•	•	•	•
17	Mount Vernon	□	□	□	□	
18	Georgetown				◆	•
19	Downtown DC Restaurants		•	•	•	•
20	National Zoo					
21	Ford's Theatre National Historic Site		•	•	•	•
22	U.S. Marine Corps War Memorial		○	○	○	
23	U.S. Library of Congress	•	•	•	•	•
24	National Cathedral					
25	International Spy Museum		•	•	•	•
26	Old Town Alexandria					
27	Hirschhorn Museum and Sculpture Garden	•	•	•	•	•
28	U.S. Supreme Court	•	•	•	•	•
29	Downtown D.C. Shops		•	•	•	•
30	National Postal Museum	•	•	•	•	•
31	Kennedy Center for the Performing Arts				◆	
32	Bureau of Engraving and Printing	•	•	•	•	•
33	Freer Galley / Arthur Sackler Gallery	•	•	•	•	•
34	FBI Building		•	•	•	
35	Great Falls					
36	U.S. Navy Memorial		•	•	•	
37	National Shrine					
38	National Building Museum		•	•	•	•
39	Tidal Basin	•	•	•	•	•
40	Chesapeake & Ohio Canal National Historical Park				•	
41	Renwick Gallery			•	•	•
42	Rock Creek Park					
43	National Archives		•	•	•	
44	Corcoran Gallery of Art			•	•	•
45	Frederick Douglass National Historic Site	□	□	□	□	
46	National Portrait Gallery		•	•	•	•
47	National Law Enforcement Officers Memorial		•	•	•	•
48	Decatur House			•	•	•
49	Anacostia Museum & Center for African American History					
50	Capital Children's Museum					
51	Anacostia Neighborhood Museum					
Additional Sites (not included in 2003 Visitor Transportation Survey)						
	World War II Memorial	•	•	•	•	•
	National Museum of the American Indian	•	•	•	•	•
	Subtotal — Visitor Core Routes	25	35	38	39/41	34
	Subtotal — Arlington National Cemetery Routes	1	2	2	2	NA
	Subtotal — Excursion Routes**	2	2	2	2	NA
	Total — All Routes	28	39	42	43/45	34

SOURCE: NPS 2003f.

* Ranking based on number of visitors.

** More destinations could be served, depending on demand.

Symbol code:

- Visitor core transit service.
- Arlington National Cemetery transit service.
- Excursion tour.
- ◆ Optional route extension.

Visitor Core: Visitor Movements between Top Destination Areas

National Mall & Memorial Parks

June 2006 • 802/20022

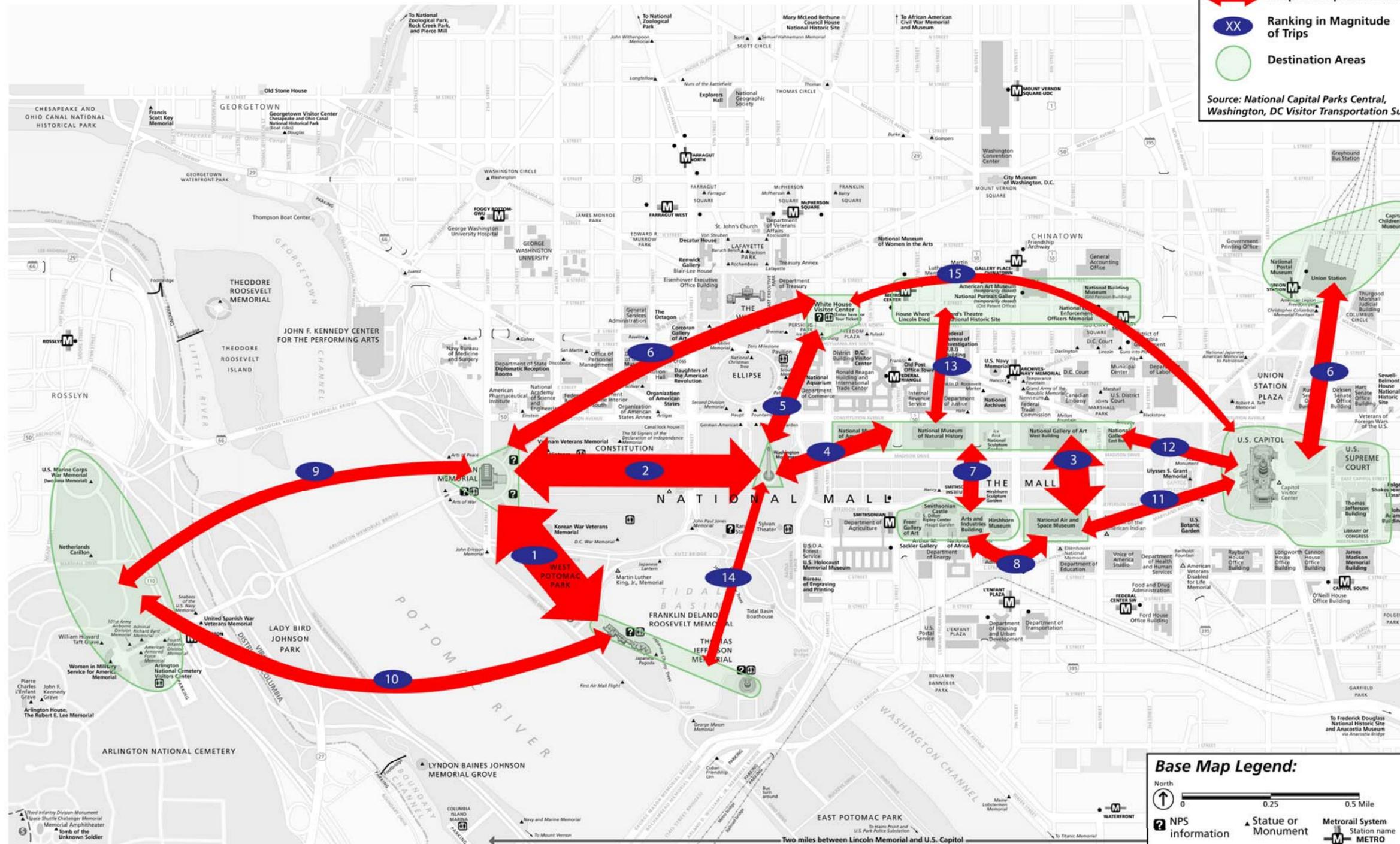
Legend

↔ Frequent Trip Connections

XX Ranking in Magnitude of Trips

○ Destination Areas

Source: National Capital Parks Central, Washington, DC Visitor Transportation Survey



Base Map Legend:

North

0 0.25 0.5 Mile

NPS information

Restrooms

Statue or Monument

New Visitor Destination Project

Metrorail System

Station name METRO CENTER

Entrance/exit to Metro station

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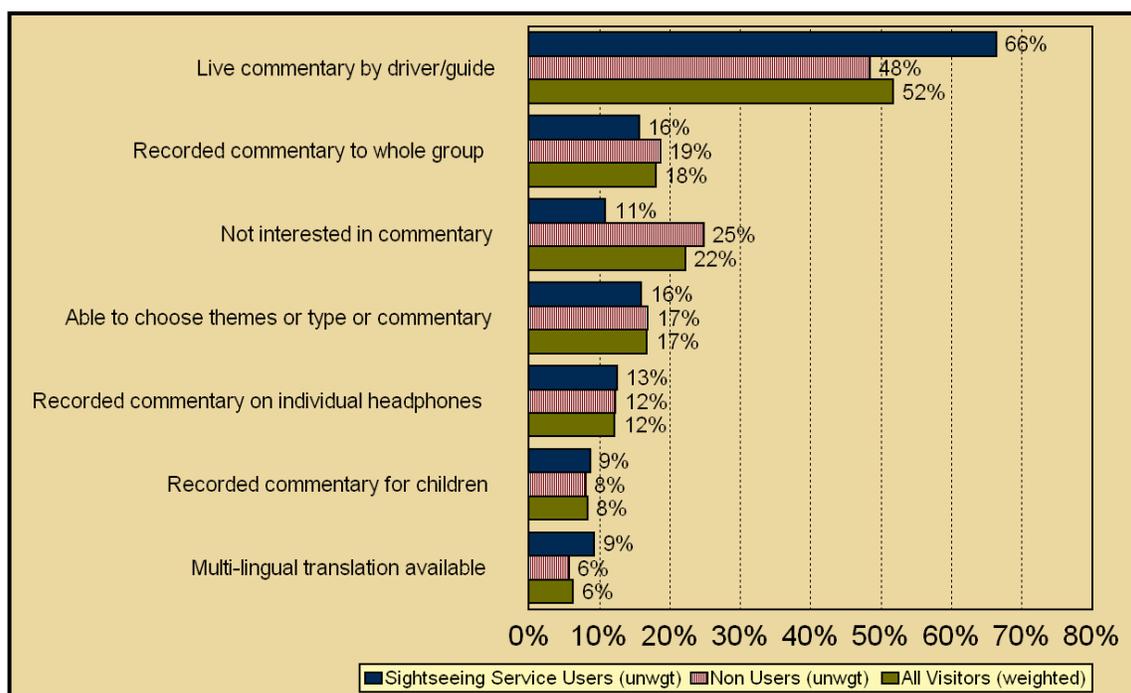
8. National Mall south side (e.g., the Smithsonian Castle) — National Air and Space Museum
9. Lincoln Memorial — Arlington National Cemetery
10. Arlington National Cemetery — FDR Memorial / Jefferson Memorial
11. U.S. Capitol area — National Air and Space Museum
12. U.S. Capitol area — National Mall north side (e.g., National Gallery of Art)
13. National Mall north side (e.g., National Museum of Natural History) — F Street area (e.g., Ford’s Theatre National Historic Site)
14. Washington Monument — FDR Memorial / Jefferson Memorial
15. U.S. Capitol area — White House Visitor Center

Many of these trip movements represent a lengthy walk and therefore could lend themselves to improved transportation services that would connect the destinations.

Educational / Interpretive Opportunities

According to the 2003 NPS *Visitor Transportation Survey*, about a third of the visitors to the D.C. area are coming for the first time, so orientation and information about destinations and services may be necessary. The survey indicated that educational opportunities were ranked as the third most important factor in selecting a transportation service. Educational opportunities were favored by 11%, behind convenience (53%) and ticket options (22%). Figure 8 indicates that live commentary by a driver/guide (the primary method of interpretation currently available in the local area) is the preferred method of interpretation. Approximately 22% of respondents had no interest in any form of education.

Figure 8. Education and Commentary Preferences of Visitors on Transportation Services



SOURCE: NPS 2003f.

NOTE: Results for “All Visitors” are weighted based on the estimated percentage of sightseers to non-sightseers in the general population (18% to 82%). See the NPS 2003 *Visitor Transportation Survey* for additional details.

On-board narrators (as opposed to drivers) currently provide in-depth information on exhibits and architecture on the American Heritage Tour, the Arlington National Cemetery Tour, and the excursion tours. In addition, interpretive programming is offered at sites managed by the National Mall & Memorial Parks, with information available from park rangers, exhibits, publications, and orientation services. NPS rangers on the National Mall provide bicycle tours of the park on the weekends, and self-guided walking tours of Arlington National Cemetery are available.

Other comparable for-profit interpretive visitor transportation services include water excursions; historical walking, bicycle, Seaway® HT, and electric scooter guided tours; thematic van tours; and sightseeing trolley or tram tours with driver guides.

IMPACT ANALYSIS

Impact Intensity Thresholds

The methodology used for assessing impacts is based on the potential for change in visitor and transit user experiences, which was evaluated by identifying how proposed changes to the visitor transportation service would affect convenience, ridership appeal, access to destinations, and educational / interpretive programs. For purposes of analyzing impacts to visitor and transit user experience, the following thresholds of change were defined for impact intensity:

- *Negligible* — The impact would be undetectable or barely detectable and/or would affect few visitors or transit users. Visitors and/or transit users would not likely be aware of the effects of transportation management actions.
- *Minor* — The impact would be detectable and/or would only affect some visitors or transit users. Visitors and/or transit users would likely be aware of the effects of transportation management actions, but their satisfaction or dissatisfaction would not be measurably affected.

- *Moderate* — The impact would be apparent and/or would affect many visitors or transit users. Visitors and/or transit users would be aware of the effects associated with transportation management actions, and their satisfaction or dissatisfaction would be measurably affected.
- *Major* — The impact would be readily apparent and/or would affect the majority of visitors or transit users. Visitors or transit users would be highly aware of the effects associated with transportation management actions, and their satisfaction or dissatisfaction would be measurably affected to a high degree. If transit users were highly dissatisfied, they would likely seek other options.

All impacts would be long term unless specifically identified as short term in the analysis.

Impacts Common to All Alternatives

Visitor and Transit User Convenience

Changes that could affect visitor and transit user convenience include improved wayfinding programs, the replacement of transit vehicles, and improved facilities at some transit stops.

- New wayfinding programs would include maps, brochures, onsite kiosks, and expanded visitor information on the Internet. These programs would offer better trip planning information and opportunities to acquire information on site.
- New transit vehicles would include easy and safe on/off attributes (low floors, multiple doors, and wheelchair accommodations); large windows to maximize viewing potential; visible storage areas (including no overhead or below seating storage) for improved security screening; and reduced noise levels. The new transit vehicles would meet all current safety and security standards. New vehicles would improve the overall comfort and safety of all passengers.

- Transit stop improvements would include signs, area orientation maps, benches, information kiosks, bicycle racks, and shelters depending on the type of stop. These stop improvements would add to the overall comfort and safety of visitors and transit users while waiting for buses.

These actions would result in negligible to minor, long-term, beneficial impacts to visitor and transit user convenience

Potential detours near heightened security areas and construction zones, as well as detours and closures during special events, would temporarily adversely affect visitors and transit users to a minor to moderate degree. To minimize visitor and user frustration, the service operator would provide information about any necessary service changes. The resulting impacts to visitor convenience would be negligible, long term, and adverse.

Cumulative Impacts

Programs that have already been undertaken in the downtown D.C. area include wayfinding signs, walking tour signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and Smart-Trip cards. As a result, the overall visitor and transit user experience has been improved, resulting in moderate, long-term, beneficial impacts.

Long-term projects that are planned in the Washington, D.C., area include

- implementing transit projects, such as the Pike Transit Initiative, the K Street Busway Project, and the Anacostia Corridor Project
- expansion of Metro transit service and facility improvements
- the redevelopment of the downtown and Arlington, Virginia, areas and the construction of future memorials and museums, implementation of the *Compre-*

hensive Plan for the National Capital: Federal Elements, and urban renewal projects

Resulting impacts on visitor and user experiences would be moderate, long term, and beneficial.

Alternative 1: No-Action

Analysis

Visitor and Transit User Convenience

As described under “Impacts Common to All Alternatives,” new wayfinding programs, replacement transit vehicles, and transit stop improvements would be made, with negligible to minor, long-term, beneficial impacts. Also, potential detours due to security checks and closures during special events would temporarily adversely affect visitors and transit users to a negligible degree.

Service frequency would continue at 15-minute intervals during the peak season and 20- to 25-minute intervals during the off-peak season, resulting in potential visitor frustration due to extended waits for buses and occasionally insufficient capacity when a bus arrives already full.

Tickets would continue to provide all-day hop-on / -off access. One- or two-day passes could be purchased for adults, children, and groups. However, tickets would not be integrated into a joint-ticketing system with other transit systems, so users could not use a single ticket to seamlessly transfer between transit services.

The visitor core route would continue to serve only one Metrorail station with one directional stop (within a half block), offering very limited opportunities for passengers to connect with the Metro. Metrobus routes would be accessible along several route segments.

The visitor core service would remain one-way, so visitors would have to travel the entire route to return to a previous stop. There would be no direct connection to public transit from

the Arlington National Cemetery service. Excursion tours would provide connections to public transit only from Union Station.

In summary, the visitor transportation service would be less convenient for visitors looking for a convenient form of transportation in the visitor core because of a separate ticketing system, limited opportunities to connect with public transit, and a single one-way route. These potential riders would likely look for another transit option.

Visitor Access to Destinations

Visitor access to top destinations would continue to be limited because of one-way service. The existing visitor core service would continue to serve 28 top visitor destinations in the visitor core area.

- Two-way access would continue to be provided to the Washington Monument.
- One-way access would continue to be provided to the following sites:

- Lincoln Memorial
- National Air and Space Museum
- Vietnam Veterans Memorial
- National Museum of American History
- National Museum of Natural History
- U.S. Capitol
- White House Visitor Center
- Arlington National Cemetery
- Jefferson Memorial
- Union Station

No direct access from Home Front Drive would be provided to the World War II Memorial; instead access would be from a stop along Constitution Avenue and would require what some would consider a lengthy walk. The U.S. Marine Corps War Memorial, the top destination that visitors said they wanted to reach by visitor transit, would still not be served. Impacts would continue to be minor to moderate, long term, and adverse.

Educational / Interpretive Approach

The present visitor transportation service would continue to provide only narrated, in-depth interpretation / education on transit vehicles, appealing to about 22% of the visitor market according to the NPS *Visitor Transportation Survey* (NPS 2003f). The continued use of an on-board interpreter would provide a forum for visitors to get answers to their questions. Occasionally visitors may not hear what is being said due to surrounding conversations, other distractions, or technical difficulties. Conversely, visitors who do not want to hear the program would have no choice but to do so. The quality of interpretive programs would depend on the capabilities of the individual guides, which would likely vary.

The delivery of educational / interpretive programs would continue to be varied, based on a wide range of interpreters presenting information. Providing in-depth educational programs that appeal to only a limited portion of the visitor market would result in negligible to minor, long-term, adverse impacts.

Ridership

Current ridership trends would continue into the future. Projected annual ridership for visitor core service under Alternative 1 would be approximately 398,000 by 2015 and 433,000 by 2025, an increase of less than 1% per year. Annual projected ridership for the Arlington National Cemetery service would be approximately 883,000 by 2015 and 963,000 by 2025, also an increase of less than 1% per year. The visitor transportation service would continue to appeal to a limited potential market because the service would only focus on in-depth education. Continuing the present transportation service would result in no impacts over the long term.

Cumulative Impacts

As described under “Impacts Common to All Alternatives,” ongoing programs in the downtown area (wayfinding signs, walking tour

signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and SmarTrip cards) have resulted in moderate, long-term, beneficial impacts to convenience and transit user experiences. Long-term projects (e.g., implementing the Pike Transit Initiative, expanding Metro transit service and improving transit facilities, and urban renewal projects) would result in moderate, beneficial impacts on visitor and transit user experiences.

Alternative 1 would contribute a negligible beneficial increment to cumulative effects because of better wayfinding and information services, new vehicles, and improved transit stop facilities. However, the service would not be convenient to all potential users and would appeal to less than 25% of the transit user market. Past, present, and reasonably foreseeable actions, in combination with the actions of Alternative 1, would result in negligible, long-term, beneficial cumulative impacts.

Conclusion

Long-term impacts would be both beneficial and adverse:

- Negligible, beneficial impacts would result from better wayfinding programs, new transit vehicles, and upgraded transit stop facilities.
- Moderate, adverse impacts would result from relatively infrequent transit service in the visitor core, a separate ticketing system that was not integrated with the Metro system, limited opportunities to access public transit, and a single one-way route around the visitor core, all of which would make the visitor transportation service less convenient for access within the downtown area.
- Minor, adverse impacts would result from not providing additional direct access to top destinations (such as the U.S. Marine Corps War Memorial and the World War II Memorial).

- Negligible to minor, adverse impacts would result from only providing in-depth educational / interpretive programs, with varied content.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 1, would result in negligible, long-term, beneficial cumulative impacts. Separate ticket systems, limited access to public transit, and educational / interpretive programs would not appeal to a wide range of users.

Alternative 2: Preferred Alternative

Analysis

Visitor and Transit User Convenience

As described under “Impacts Common to All Alternatives,” new wayfinding programs, new transit vehicles, and transit stop improvements would be made, with negligible to minor, long-term, beneficial impacts. Also, potential detours due to security checks and closures during special events would adversely affect visitors and transit users to a negligible degree on a temporary basis.

Alternative 2 would provide sufficient service capacity and more frequent service, resulting in shorter waits for buses. Impacts on both visitors and users would be moderate and beneficial.

A more efficient ticket-purchasing system would seek to use joint-ticketing technology with regional transit providers. This would increase the overall convenience of accessing various transit systems with a single ticket. Impacts on all transit users would be moderate and beneficial.

Two-way service in the visitor core would offer more efficient access to destinations and more convenience to users because they would no longer have to travel the entire route to return to a previous stop. The two interconnected visitor core routes would include (1) a two-way route between Arlington National Cemetery, the U.S. Capitol, and Union

Station, and (2) a separate route between prominent monuments and downtown attractions and services. These routes would serve seven Metrorail stations, which would be within a half block, an increase of six stations compared to Alternative 1. Each route would connect to four different stations. Metrobus routes could also be accessed from each visitor core route. Impacts would be moderate, long term, and beneficial.

Transit service to the U.S. Marine Corps War Memorial by way of the extended Arlington National Cemetery service would be provided every 20 minutes. There would be no direct connection from the Arlington National Cemetery route to public transit, a negligible adverse impact. However, if a future route extension to the Netherlands Carillon and the Rosslyn Metrorail station was added, one stop connecting to public transit service could be provided. Extending a segment to planned memorials and the Pentagon City Metrorail station would add access to three more stops.

Visitor Access to Destinations

The proposed visitor core routes would serve 11 additional sites compared to Alternative 1 (a 39% increase), making 39 attractions accessible by transit.

- Two-way service would be provided to the following destinations:
 - Washington Monument
 - Lincoln Memorial
 - National Air and Space Museum
 - Vietnam Veterans Memorial
 - National Museum of American History
 - National Museum of Natural History
 - U.S. Capitol
 - White House Visitor Center
 - Arlington National Cemetery
 - Jefferson Memorial
 - Union Station

One-way service would be provided to the following:

- World War II Memorial (by way of direct service on Home Front Drive)
- U.S. Marine Corps War Memorial (by way of the extended Arlington National Cemetery service)

There would be no short-term impacts on visitor access to destinations under the preferred alternative. Long-term impacts would be moderate and beneficial because of increased access to 39% more top destinations than Alternative 1, two-way service to top destinations in the visitor core, direct access to the World War II Memorial, and access to the U.S. Marine Corps War Memorial.

Educational / Interpretive Approach

The proposed visitor transportation service would allow visitors to tailor their educational experiences by selecting which type of service they wanted to use, instead of only being offered in-depth education. In addition, personal interpretive devices would be used, allowing visitors to hear the programs if they wished, while other passengers could carry on separate conversations. Educational content would be consistent and high quality, and foreign language service could be more easily accommodated. Depending on the technology selected, costs and convenience to visitors could vary. Use of the on-board public address systems would be primarily to inform passengers about stops. Long-term impacts of this interpretive / educational approach would be moderate and beneficial. However, visitors who prefer live commentary from an onboard guide would not be accommodated, a minor adverse impact.

Ridership

Projected annual ridership for visitor core service would be approximately 563,000 by 2015 and 614,000 by 2025, a 41% increase over Alternative 1. Annual projected ridership for Arlington National Cemetery service would be approximately 998,000 by 2015 and 1,088,000 by 2025, a 13% increase over Alternative 1.

Increased ridership would result from more opportunities for visitors and transit users to connect with public transit and two-way travel along the National Mall. Also, a choice in the type of educational / interpretive programs would likely appeal to a broader visitor market, ranging from visitors who only want transit service to visitor destinations to general orientation to the D.C. area to in-depth education. The proposed service would now be more responsive to both primary transit market types. Long-term impacts would be moderate and beneficial.

Cumulative Impacts

As described under “Impacts Common to All Alternatives,” ongoing programs in the downtown area (wayfinding signs, walking tour signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and SmarTrip cards) have resulted in moderate, long-term, beneficial impacts to convenience and transit user experiences. Long-term projects (e.g., implementing the Pike Transit Initiative, expanding Metro transit service and improving transit facilities, and urban renewal projects) would result in moderate, beneficial impacts on visitor and transit user experiences.

The actions of Alternative 2 would result in moderate, long-term, beneficial contributions to cumulative effects because of more convenient visitor transportation service, increased interconnections with public transit, a choice in programs for visitor orientation and interpretation of significant historic sites and events, and an easy-to-use ticketing system that was coordinated with other transportation providers.

Past, present, and reasonably foreseeable actions, in combination with the actions of Alternative 2, would result in moderate, long-term, beneficial cumulative impacts. These cumulative impacts would be due to providing better access to public transit and visitor destinations, a choice in high-quality visitor orientation and interpretation, support for a

fully integrated regional transit service, and an easy-to-use joint-ticketing system.

Conclusion

Long-term impacts would be negligible to moderate and beneficial because of

- improved wayfinding programs, new transit vehicles, and upgraded transit stop facilities, the same as Alternative 1
- more frequent service, a joint-ticketing system with Metro, transit access to six more Metrorail stations than Alternative 1, and two interconnected, two-way loops in the visitor core area
- access to 11 more top visitor destinations compared to Alternative 1 (a 39% increase)
- a choice of high-quality interpretive programs that would be geared to various user needs
- increased ridership potential by offering a service that was more responsive to transit user needs

Alternative 2 would provide a combination of transportation convenience and an educational / interpretive approach that would appeal to a wider range of potential transit users.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 2, would result in moderate, long-term, beneficial cumulative impacts. Better access to public transit and visitor destinations, improved visitor orientation and interpretation, a visitor transportation service integrated with other regional transit systems, and a joint-ticketing system would contribute to the beneficial cumulative effects.

Alternative 3

Analysis

Visitor and Transit User Convenience

As described under “Impacts Common to All Alternatives,” new wayfinding programs, new transit vehicles, and transit stop improve-

ments would be made, with negligible to minor, long-term, beneficial impacts. Also, potential detours due to security checks and closures during special events would adversely affect visitors and transit users to a negligible degree on a temporary basis.

Similar to Alternative 2, sufficient service capacity and more frequent transit service would result in shorter waits for buses. Impacts on both visitors and transit users would be moderate and beneficial.

The proposed visitor core service would serve nine Metrorail stations, eight more stations than under Alternative 1. Each route would provide at least one stop at a Metrorail station. Metrobus routes could also be accessed along the visitor core routes. There would be no direct connection to public transit from the Arlington National Cemetery service. However, a route extension to the Netherlands Carillon could provide a stop at the Rosslyn Metrorail station, and a route extension to future planned memorials and the Pentagon City Metrorail station could provide three additional stops, similar to Alternative 2. Excursion tours would continue to provide connections to public transit at Union Station. Impacts on users from increased access to public transit would be moderate, long term, and beneficial.

Similar to existing conditions, tickets would not be integrated into a joint-ticketing system with other regional transit agencies, and there would be no additional impact. The lack of two-way service under this alternative would continue to prevent bi-directional travel along the National Mall, somewhat limiting the system's usefulness because riders could not go back to a previous stop, instead they would have to complete the entire loop. Overall impacts would be minor, long term, and beneficial.

Visitor Access to Destinations

The proposed visitor core routes would serve 14 additional destinations compared to Alter-

native 1 (a 50% increase), making 42 sites accessible by transit.

- Two-way service by means of separate one-way routes would be provided to the following destinations:

Washington Monument
U.S. Capitol
Jefferson Memorial
Arlington National Cemetery
Union Station

- One-way service would be provided to the following destinations:

Lincoln Memorial
National Air and Space Museum
Vietnam Veterans Memorial
National Museum of American History
National Museum of Natural History
White House Visitor Center

- Access to the World War II Memorial would remain from a stop along Constitution Avenue (the same as Alternative 1); no direct service on Home Front Drive would be provided.
- Similar to Alternative 2, the Arlington National Cemetery service would be extended to the U.S. Marine Corps War Memorial, the top destination that visitors want to reach by transit.

Similar to Alternative 1, no additional provisions would be made for multimodal access for personal transportation vehicles to sites within the National Mall & Memorial Parks.

Long-term impacts would be minor to moderate and beneficial because of increased access to 50% more top destinations than Alternative 1, expanded one-way service to top destinations in visitor core, and access to the U.S. Marine Corps War Memorial. However, not providing direct access to the World War II Memorial would be a minor, long-term, adverse impact, the same as Alternative 1.

Educational / Interpretive Approach

Under Alternative 3 a single type of in-depth interpretive program would be offered, similar to the current service, which according to the NPS *Visitor Transportation Survey* appeals to about 22% of the visitor market (NPS 2003f). The difference from Alternative 1 would be that programs would be provided to individual visitors by using personal listening devices. Visitors would be able to hear the program if they wished, while other passengers could converse around them.

Educational content would be consistent, and foreign language service could be more easily accommodated through the listening devices. Depending on the technology selected, costs and convenience to visitors could vary. On-board public address systems would be used primarily to tell passengers about stops. Long-term impacts of this educational / interpretive approach would be moderate and beneficial for visitors seeking in-depth educational opportunities. However, visitors who prefer live commentary from onboard guides would not be accommodated, a minor, adverse impact.

Ridership

Projected annual ridership for visitor core service in Alternative 3 would be approximately 539,000 by 2015 and 588,000 by 2025, an increase of 35% over Alternative 1. Annual projected ridership for Arlington National Cemetery service would be the same as Alternative 2, approximately 998,000 riders by 2015 and 1,088,000 by 2025, a 13% increase over Alternative 1.

The number of riders on the visitor core routes could increase due to three interconnected routes, more access to public transit stops, and new transit vehicles with better features. This type of service could appeal to a broader market base, specifically more non-traditional transit users of the current visitor transportation service. However, the lack of a joint-ticketing system and one-way loop service along the National Mall

would adversely affect the potential to attract more riders. Also, offering only limited educational / interpretive programs would appeal to a smaller visitor market.

Long-term impacts would be negligible to minor and beneficial. Visitors wanting in-depth educational / interpretive programs and improved transit service to destinations and other downtown locations would benefit the most.

Cumulative Impacts

As described under “Impacts Common to All Alternatives,” ongoing programs in the downtown area (wayfinding signs, walking tour signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and SmarTrip cards) have resulted in moderate, long-term, beneficial impacts to convenience and transit user experiences. Long-term projects (e.g., implementing the Pike Transit Initiative, expanding Metro transit service and improving transit facilities, and urban renewal projects) would result in moderate, beneficial impacts on visitor and user experiences.

The actions of Alternative 3 would result in minor, beneficial contributions to cumulative effects because of improved wayfinding and information services, new vehicles, upgraded transit stop facilities, better service frequency, connections to public transit, broader route coverage, access to more destinations, improved delivery of educational / interpretive services, and the potential for increased ridership.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 3, would result in minor, long-term, beneficial cumulative impacts. Better access to public transit and visitor destinations, higher quality visitor orientation and interpretation of significant historic sites and events, and support for an integrated regional transit system would contribute to cumulative impacts.

Conclusion

Long-term impacts would be both beneficial and adverse. Negligible to moderate, long-term, beneficial impacts would result from

- improved wayfinding programs, new transit vehicles, upgraded transit stop facilities, the same as Alternative 1
- more frequent service, transit access to eight more Metrorail stations than Alternative 1, and two interconnected transit routes in the visitor core area plus two-way service by means of separate one-way routes
- access to 14 more top visitor attractions compared to Alternative 1 (a 50% increase)
- more flexible, high-quality, and consistent educational / interpretive programs that would better meet user needs for in-depth education
- increased ridership because of being responsive to more market types

The system would be less desirable for transit users wanting convenient services within the downtown area, resulting in minor, long-term, adverse impacts from the following:

- a ticketing system not linked to the Metro system
- one-way transit access in the visitor core
- not providing direct service to the World War II Memorial
- offering only in-depth educational services with a limited choice of alternative programs would appeal to a smaller visitor market

Overall, alternative 3 would provide a combination of transportation convenience and educational / interpretive approach that would appeal to a wider range of potential transit users but a more limited visitor market.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 3, would result in minor, long-term, bene-

ficial cumulative impacts. Better access to public transit and visitor destinations, improved visitor orientation and interpretation, and a visitor transportation service that was somewhat integrated with regional transit systems would contribute to the cumulative impacts.

Alternative 4

Impact Analysis

Visitor and Transit User Convenience

As described under “Impacts Common to All Alternatives,” new wayfinding programs, new transit vehicles, and transit stop improvements would be made, with negligible to minor, long-term, beneficial impacts. Also, potential detours due to security checks and closures during special events would temporarily adversely affect visitors and transit users to a negligible degree.

Similar to Alternative 2, providing transit vehicles with greater capacity and more frequent service would result in shorter waits for buses. Impacts on both visitors and users would be moderate and beneficial. A joint-ticketing system technology with regional transit providers would use a single ticket to link with other regional transit providers, increasing overall convenience by providing seamless access to other transit systems. Impacts on all transit users would be moderate and beneficial.

The two interconnected visitor core routes would include (1) a two-way route between prominent monuments and downtown attractions and services, and (2) two separate one-way routes between Arlington National Cemetery and Union Station, and between Washington Circle and Union Station. The proposed visitor core routes would serve 12 Metrorail stations within a half block, an increase of 11 stations compared to Alternative 1. Metrobus routes could also be accessed on several visitor core segments. There would be no direct connection to public transit from the Arlington National Cemetery route; however, similar to Alternative 2, if a future seg-

ment to the Netherlands Carillon and the Rosslyn Metrorail station was added, access to one Metrorail station could be provided; and a future segment to planned memorials and the Pentagon City Metrorail station would provide access to the Metro at three additional stops. Impacts on user convenience from increased access to public transit would be moderate, long term, and beneficial.

The visitor core service would offer expanded two-way service, so visitors would no longer have to travel the entire route to return to a previous stop. Offering more efficient service to destinations would result in a moderate, long-term, beneficial impact.

Visitor Access to Destinations

The proposed visitor core routes would serve up to 17 additional top destination sites than under Alternative 1 (up to a 61% increase), making 43 to 45 of the top destinations (depending on additional route options) accessible by transit.

- Two-way service would be provided to all of the following destinations:
 - Washington Monument
 - Lincoln Memorial
 - National Air and Space Museum
 - Vietnam Veterans Memorial
 - National Museum of American History
 - National Museum of Natural History
 - U.S. Capitol
 - White House Visitor Center
 - Arlington National Cemetery
 - Jefferson Memorial
 - Union Station
- One-way service would be provided to the following destinations:
 - World War II Memorial (by way of Home Front Drive, the same as Alternative 2)
 - U.S. Marine Corps War Memorial (by way of an extension of the Arlington National Cemetery service, the same as Alternatives 2 and 3)

Long-term impacts would be moderate and beneficial as a result of access to up to 61% more top destinations than Alternative 1, two-way service to top destinations in visitor core, and direct access to the World War II Memorial and the U.S. Marine Corps War Memorial.

Educational / Interpretive Approach

Similar to Alternative 2, the proposed visitor transportation service would allow visitors to tailor their educational experiences by choosing the type of program they were most interested in, potentially appealing to a larger market. In addition, visitors would use personal interpretive devices, allowing them to hear programs they chose without interfering with other passengers who might not be interested in interpretation. Educational content would be consistent and high quality, and foreign language service could be more easily accommodated. Depending on the technology selected, costs and convenience to visitors could vary. On-board public address systems would be used primarily to tell passengers about stops. Long-term impacts of this educational / interpretive approach would be moderate and beneficial. However, visitors who prefer live commentary from an onboard guide would not be accommodated, a minor adverse impact.

An introductory tour would be offered under this alternative, helping visitors understand the area's cultural and educational opportunities and plan subsequent sightseeing activities. This additional service would result in a minor, long-term, beneficial impact.

Ridership

Projected annual ridership for the visitor core would be approximately 587,000 by 2015 and 641,000 by 2025, an increase of about 48% compared to Alternative 1. Annual projected ridership for the Arlington National Cemetery service would be the same as Alternative 2, approximately 998,000 by 2015 and 1,088,000 by 2025, an increase of 13% over Alternative 1.

The visitor transportation service would likely appeal to a wider variety of riders because of increased opportunities for visitors and transit users to connect with public transit and two-way travel along the National Mall. In addition, because the visitor transportation service would offer a choice in the type of educational / interpretive programs, the service would appeal to a broader visitor market, including visitors or users who want in-depth education, general orientation, and transit service to other downtown locations. The proposed service would be more responsive to other market types.

Long-term impacts would be moderate and beneficial because the proposed service would offer a choice in educational / interpretive programs, improved convenience, and transit service to visitor destinations and other downtown locations.

Cumulative Impacts

As described under “Impacts Common to All Alternatives,” ongoing programs in the downtown area (wayfinding signs, walking tour signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and SmarTrip cards) have resulted in moderate, long-term, beneficial impacts to convenience and user experiences. Long-term projects (e.g., implementing the Pike Transit Initiative, expanding Metro transit service and improving transit facilities, and urban renewal projects) would result in moderate, beneficial impacts on visitor and user experiences.

Alternative 4 would result in moderate, long-term, beneficial contributions to visitor and transit user experiences because of improved wayfinding and information services, new vehicles, upgraded transit stop facilities, better service frequency, connections to public transit, broader route coverage, access to more destinations, improved delivery of educational / interpretive services, and the potential for increased ridership.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 4, would result in moderate, long-term, beneficial cumulative impacts. Better access to public transit and visitor destinations, a choice in high-quality visitor orientation and interpretation of significant historic sites and events, support for a fully integrated regional transportation service, and an easy-to-use joint-ticketing system would contribute to cumulative impacts.

Conclusion

Long-term impacts would be negligible to moderate and beneficial because of

- improved wayfinding programs, new transit vehicles, and upgraded transit stop facilities, the same as Alternative 1
- more frequent service, a joint-ticketing system with Metro, transit access to 11 more Metrorail stations than Alternative 1, and two interconnected transit routes in the visitor core area, plus a two-way loop service
- access to up to 17 more top visitor attractions compared to Alternative 1 (up to a 61% increase)
- more flexible and consistent interpretive programs that would better meet user needs
- increased ridership because of being responsive to more market types

Alternative 4 would provide a combination of transportation convenience and educational / interpretive approach that would appeal to a wider range of potential users.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 4, would result in moderate, long-term, beneficial cumulative impacts. Convenient transportation service to public transit and visitor destinations, visitor orientation and interpretation, support for a visitor transportation service that was integrated with the regional transit system, and an easy-to-use

ticketing system would contribute to cumulative impacts.

Alternative 5: Downtown Circulator

Analysis

Visitor and Transit User Convenience

As described under “Impacts Common to All Alternatives,” new wayfinding programs, new transit vehicles, and transit stop improvements would be made, with negligible to minor, long-term, beneficial impacts. Also, potential detours due to security checks and closures during special events would adversely affect visitors and users to a negligible degree on a temporary basis.

Similar to Alternative 2, sufficient service capacity and more frequent transit service would result in shorter waits for buses. Impacts on both visitors and users would be moderate and beneficial.

The proposed joint-ticketing system with Metro would increase overall convenience for all users by providing seamless access to the entire Metro system with a single ticket. This would be a moderate, long-term, beneficial impact.

The two interconnected routes (including one route providing two-way loop service along the east-west axis of the National Mall) would offer more connections to other transit systems. The proposed visitor core transportation service would serve six additional Metrorail stations within a half block, an increase of five stations compared to Alternative 1. Metrobus routes could also be accessed along several segments of the visitor core routes. Impacts on user convenience would be moderate, long term, and beneficial. There would be no Arlington National Cemetery service under this alternative, and no direct connection to public transit, resulting in a moderate, long-term, adverse impact to visitors.

The visitor core service would offer expanded two-way service, so visitors would no longer

have to travel the entire route to return to a previous stop. This would offer more efficient service to destinations, resulting in moderate, long-term, beneficial impacts.

The lack of an orientation or educational / interpretive component could limit the appeal and usefulness of the service for some visitors and possibly make the system more difficult to use, a moderate, long-term, adverse impact.

Visitor Access to Destinations

The proposed visitor core service would serve 6 additional top visitor destinations compared to Alternative 1 (a 21% increase), making 34 sites accessible. Access would be provided to fewer sites than under Alternatives 2, 3, and 4.

- Two-way service would be provided to the following top destinations:
 - Washington Monument
 - Vietnam Veterans Memorial
 - National Museum of American History
 - U.S. Capitol
 - Union Station
- One-way service would be provided to the following top destinations:
 - Lincoln Memorial
 - National Air and Space Museum
 - National Museum of Natural History
 - White House Visitor Center
 - World War II Memorial
 - Jefferson Memorial
- No access would be provided to or within Arlington National Cemetery.
- No access would be provided to the U.S. Marine Corps War Memorial, one of the top destinations that visitors want to reach by transit, but were unable to do so on public transit or sightseeing service.

Access to the World War II Memorial would be from a stop along 17th Street. However, because the street is not wide enough to accommodate a bus stop, buses stopping for passenger loading or unloading would adversely affect traffic operations. This would

make access to the memorial from 17th Street infeasible.

Long-term impacts to visitor access would be minor and beneficial because of increased access to 21% more top destinations than Alternative 1, and expanded two-way service to top destinations in the visitor core. However, there would be no direct access to Arlington National Cemetery or the U.S. Marines Corps War Memorial. Access to the World War II Memorial would not be feasible from 17th Street. Resulting impacts on visitors would be negligible to moderate, long term, and adverse.

Educational / Interpretive Approach

No educational / interpretive programs would be provided on transportation services in the visitor core, and no service would be provided to Arlington National Cemetery. The proposed visitor transportation service might not appeal to visitors who want some level of education and general orientation. According to the NPS 2003 *Visitor Transportation Survey*, 22% of the visitor market desired in-depth interpretation, and not providing any interpretation would adversely affect these visitors. Long-term impacts would be moderate and adverse.

Ridership

Projected annual ridership for visitor core service in Alternative 5 would be approximately 2.9 million by 2015 and 3.2 million by 2025, more than six times the projected ridership under Alternative 1.* (It should be noted that ridership projections for Alternative 5 are based on a different source and set of assumptions; see “Planning Considerations and Assumptions,” page 26.)

* The District Department of Transportation reported in July 2006 that ridership on the three currently operating Circulator routes, including one route not previously presented in the *Circulator Implementation Plan*, is 1.6 million annual riders.

While various factors would likely increase ridership by local residents, the lack of an educational component could limit the service’s attractiveness and usefulness for some visitors. In addition, the lack of transit service to Arlington National Cemetery would adversely affect some visitors. However, with increased opportunities for visitors and users to connect with public transit and providing two-way travel along the National Mall, the transportation service would likely appeal to a wider variety of riders who were looking for convenient service in the downtown area.

Long-term impacts would be minor and beneficial because of the service’s potential to appeal to a larger user market, but visitor needs would not be fully met.

Cumulative Impacts

As described under “Impacts Common to All Alternatives,” ongoing programs in the downtown area (wayfinding signs, walking tour signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and SmarTrip cards) have resulted in moderate beneficial impacts to convenience and user experiences. Long-term projects (e.g., implementing the Pike Transit Initiative, expanding Metro transit service and improving transit facilities, and urban renewal projects) would result in moderate, beneficial impacts on visitor and user experiences.

Alternative 5 would result in minor, long-term, beneficial contributions to visitor and transit user experiences because even though educational / interpretive opportunities would not be offered for visitors, other elements of the service would be enhanced as a result of improved wayfinding and information services, new vehicles, upgraded transit stop facilities, better service frequency, connections to public transit, and a joint-ticketing system.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 5, would result in minor, long-term,

beneficial cumulative impacts. Better access to public transit and visitor destinations, support for a fully integrated regional transportation service, and an easy-to-use joint-ticketing system would contribute to cumulative impacts.

Conclusion

Long-term impacts to visitor and transit user experiences would be both beneficial and adverse. Negligible to moderate, beneficial impacts would result from

- improved wayfinding programs, new transit vehicles, and upgraded transit stop facilities, the same as Alternative 1
- more frequent service, a joint-ticketing system with Metro, transit access to five more Metrorail stations than Alternative 1, and two interconnected transit routes in the visitor core area with two-way loop service
- access to six more top visitor attractions compared to Alternative 1 (a 21% increase)

- increased ridership because of being more responsive to user markets

Negligible to moderate, long-term, adverse impacts would result from

- inconvenience and delays due to security checks on portions of roads closed to public traffic
- the lack of transit service to and within Arlington National Cemetery and to the U.S. Marine Corps War Memorial
- not providing any educational / interpretive services, thus not serving 22% of the visitor market who desire in-depth interpretation
- infeasible access to the World War II Memorial from 17th Street

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 5, would result in minor, long-term, beneficial cumulative effects. Opportunities to provide a range of educational / interpretive opportunities would not be realized.

PUBLIC HEALTH, SAFETY, AND SECURITY

AFFECTED ENVIRONMENT

The National Park Service and its concessioners, contractors, and cooperators seek to provide a safe and healthful environment for visitors, and the National Park Service works cooperatively with other federal, state and local agencies, organizations, and individuals to carry out this responsibility (NPS 2006b).

Visitors and Users with Special Mobility Needs

According to the 2003 NPS *Visitor Transportation Survey*, approximately a quarter of the respondents indicated that one or more individuals in their immediate travel party could only walk limited distances because of age or a physical condition (for example, pain or discomfort, breathing or respiratory problems, traveling with small children, or using a walker, stroller, cane, or wheelchair; NPS 2003f). Current concessioner vehicles have priority seating for such individuals, and they have wheelchair storage. For individuals who require a wheelchair lift, an on-call service is provided as directed by the National Park Service to the current third-party operator. Individuals can request this service at the operator's ticket booths or stops (Landmark Services, Inc. 2005).

Metrorail trains are equipped with priority seating for individuals with special needs, and Metro stations are equipped to provide access to and from any of the underground stations. Approximately 90% of the Metrobus fleet is currently equipped with wheelchair lifts, and all WMATA buses are expected to be wheelchair accessible by 2006. In addition, the transit authority operates Metroaccess exclusively for persons with disabilities, which provides curb-to-curb transportation for eligible riders to any D.C. location, to Montgomery and Prince George's counties in Maryland, and to Arlington and Fairfax counties, as well as to

Alexandria, Fairfax, and Falls Church in Virginia (WMATA 2005c).

The National Park Service currently permits the use of Segway® HTs and electric scooters within visitor core federal parkland for persons with a disability or mobility impairment.

Visitor Transportation Safety and Security

Results of the 2003 NPS *Visitor Transportation Survey* indicated that approximately half of the visitors to the National Mall & Memorial Parks believe that feeling safe is an important characteristic of a transportation service in the metropolitan area. Of the visitors who used sightseeing services, 90% indicated that their highest level of satisfaction was the feeling of vehicle safety (NPS 2003f).

Trail and Sidewalk Safety

Existing multi-use trails within the National Mall & Memorial Parks include more than 16 miles of trails for pedestrians, bicyclists, and vehicles. No areas within memorials are designated as multi-use trails. Safety concerns are related to potential conflicts between different access modes (e.g., between pedestrians and Segway® HT or electric scooter users, or between pedestrians and bicyclists). Issues also arise because Segway® HTs may be used on sidewalks within the District, with certain operational restrictions. However, recreational Segway® HT and electric scooter access on the National Mall, as previously discussed, is currently allowed only on NPS sidewalks adjacent to roadways maintained by the District of Columbia (3rd, 4th, 7th, and 14th streets NW/SW). No trail accident statistics are available to indicate the severity of safety problems.

In 2005 the Federal Highway Administration undertook a study to begin collecting empirical data about Segway® HT operating characteristics (such as speed and braking) because many people feel that Segway® HTs should not be allowed to operate on sidewalks since they are able to travel much faster than the average pedestrian, thus creating the potential for conflicts. The findings indicate that study participants comfortably traveled near the top speed allowed by each speed key, taking 20–50 feet to reach their top speed. Braking distances ranged between 6 and 21 feet for various stopping conditions, depending primarily on speed (FHWA 2005). It is expected that the results of the study can be used by policy makers and planners when deciding how to accommodate this use.

In 2005 the superintendent of George Washington Memorial Parkway adopted an interim restriction on the use of Segway® HTs, motorized skateboards, and motorized scooters. The restriction was based on “the lack of objective data on operational safety and transportation mode interaction associated with these technologies, as well as concerns on how these technologies impact park visitors, park resources and memorials” (NPS 2005f).

Bicycles are permitted on designated multi-use trails within the National Mall & Memorial Parks.

IMPACT ANALYSIS

Impact Intensity Thresholds

The methodology used for assessing impacts to public health, safety, and security is based on the proposed project’s ability to improve transportation opportunities for visitors and transit users with special mobility needs, the overall safety and security of the visitor transportation service, and trail and sidewalk safety. The thresholds of change for intensity of an impact on public health, safety, and security are defined below:

- *Negligible* — The impact would be undetectable or barely detectable and/or would affect few visitors or transit users. Visitors and/or transit users would not likely be aware of the effects of transportation management actions.
- *Minor* — The impact would be detectable and/or would only affect some visitors or transit users. Visitors and/or transit users would likely be aware of the effects of transportation management actions, but their satisfaction or dissatisfaction would not be measurably affected.
- *Moderate* — The impact would be apparent and/or would affect many visitors or transit users. Visitors and/or transit users would be aware of the effects associated with transportation management actions, and their satisfaction or dissatisfaction would be measurably affected.
- *Major* — The impact would be readily apparent and/or would affect the majority of visitors or transit users. Visitors or transit users would be highly aware of the effects associated with transportation management actions, and their satisfaction or dissatisfaction would be measurably affected to a high degree. If transit users were highly dissatisfied, they would likely seek other options.

Impacts Common to All Alternatives

Visitors and Users with Special Mobility Needs

All proposed stops, information material (kiosks), and related facilities and services under all alternatives would meet the *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities* (U.S. Architectural and Transportation Barriers Compliance Board 2004). Resulting impacts would be negligible, long term, and beneficial.

All new transit vehicles would be accessible to people with physical disabilities, an improvement to the current NPS-directed provision of an on-call system. Approximately 25% of visi-

tors say they cannot walk long distances. Impacts to users would be moderate, long term, and beneficial as a result of improvements to transit vehicles.

Transportation Service Safety and Security

As described under “Visitor and User Experience,” new transit vehicles would meet all current safety and security standards, including easy and safe on/off features (low floors, multiple doors), and visible storage areas (including no overhead or below seating storage) for improved security screening. Impacts would be moderate, long term, and beneficial.

Safety and security programs would be included as part of any contract for operating the visitor transportation service. This would include requirements that each transit driver has a valid operator’s license, safety training for all employees, and security background checks, resulting in a safe and secure transit system for employees and transit users. These programs and requirements would result in negligible, long-term, beneficial impacts.

Cumulative Impacts

Improvements to regional transit service operations and infrastructure include plans and projects for the regional transportation system (including Metro and local and regional transportation service providers), the implementation of the *Comprehensive National Capital Plan: Federal Elements*, Transportation Improvement Plan projects, and the redevelopment of areas in downtown D.C. and Arlington. In addition, under all alternatives new and safer transit vehicles, upgraded transit stops and related facilities and services, and safety and security programs would have negligible to moderate, long-term, beneficial impacts. The cumulative impacts on public health, safety, and security would be minor, long term, and beneficial.

Alternative 1: No Action

Analysis

Visitors and Transit Users with Special Mobility Needs

As described under “Impacts Common to All Alternatives,” new transit vehicles and transit stop facilities would be fully accessible to passengers with physical disabilities. Impacts would be minor, long term, and beneficial.

Transportation Service Safety and Security

As discussed under “Impacts Common to All Alternatives,” long-term impacts from new transit vehicles equipped with security features, along with safety and security programs undertaken by the service operator, would be moderate and beneficial.

Trail and Sidewalk Safety

Recreational Segway® HT and electric scooter use would continue to be allowed only on National Mall & Memorial Parks sidewalks adjacent to roadways maintained by the District of Columbia (3rd, 4th, 7th, and 14th streets NW/SW). Personal vehicle use would not be fully addressed on park lands through a clear management policy, creating some confusion and resulting in continued recreational Segway® HT and electric scooter use that is inconsistent with park policy. Impacts from continued potential conflicts between pedestrians and multimodal users, as well as recreational Segway® HT and electric scooter use on park trails, would result in minor, short- and long-term, adverse impacts on pedestrian safety.

Cumulative Impacts

As described under “Impacts Common to All Alternatives,” improvements to regional transit service operations and infrastructure would have minor, long-term, beneficial impacts on public health, safety, and security.

In the long term Alternative 1 would have negligible to moderate, long-term, beneficial

impacts because visitor transit vehicles and transit stops would be accessible to people with disabilities, and safety and security programs would help ensure safer experiences for transit users.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternative 1, would result in minor, long-term, beneficial cumulative impacts. Improvements in overall safety and security of the regional transportation system, as well as improvements in vehicle and facility standards that would offer better access for people with disabilities, would contribute to cumulative impacts.

Conclusion

The potential for continued conflicts between pedestrians and multimodal users, and continued inconsistent recreational use of Segway® HTs and electric scooters on park trails, would result in minor, short- and long-term, adverse effects on pedestrian safety. Making transit vehicles and transit stops accessible to people with disabilities, using new transit vehicles equipped with security features, and ensuring that the transportation service provider undertook safety and security programs, would result in negligible to moderate, long-term, beneficial impacts.

Past, present, and reasonably foreseeable actions, combined with those of Alternative 1, would result in minor, long-term, beneficial cumulative impacts. This would be due to improvements in overall safety and security of the visitor transportation service, as well as regional transportation systems, and improvements in vehicle and facility standards that offer better access for people with disabilities.

Alternative 2: Preferred Alternative

Analysis

Visitors and Transit Users with Special Mobility Needs

As described under “Impacts Common to All Alternatives,” new transit vehicles and transit

stop facilities would be fully accessible to passengers with physical disabilities. Impacts would be minor, long term, and beneficial.

Transportation Service Safety and Security

As discussed under “Impacts Common to All Alternatives,” long-term impacts from new transit vehicles equipped with security features, along with safety and security programs undertaken by the service operator, would be moderate and beneficial.

Trail and Sidewalk Safety

Recreational Segway® HT and electric scooter use would be allowed on designated multi-use trails under the jurisdiction of the National Mall & Memorial Parks under a new NPS policy. Segway® HTs and electric scooters would continue to be allowed on sidewalks adjacent to 3rd, 4th, 7th, and 14th streets NW/SW that are under the jurisdiction of the District of Columbia. Segway® HT and electric scooter users would be required to use pedestrian warning devices, yield to pedestrians, and stay within speed limits. The proposed management of these personal transportation vehicles would be safer than current conditions. While allowing recreational Segway® HT use on designated NPS routes would be more consistent with D.C. regulations and would alleviate confusion for personal transit users, additional recreational multimodal users on park trails could result in negligible, long-term, adverse impacts on visitor safety.

Cumulative Impacts

As described under “Impacts Common to All Alternatives,” improvements to regional transit service operations and infrastructure would have minor, long-term, beneficial impacts on public health, safety, and security.

In the long term Alternative 2 would have negligible to moderate, beneficial impacts because visitor transit vehicles and transit stops would be accessible to people with disabilities, and

safety and security programs would help ensure safer experiences for users.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternative 2, would result in minor, long-term, beneficial cumulative impacts. Improvements in overall safety and security of the regional transportation system, as well as improvements in vehicle and facility standards that would offer better access for people with disabilities, would contribute to cumulative impacts.

Conclusion

The preferred alternative would have a negligible, long-term, adverse impact on trail and sidewalk safety because recreational use of personal transportation vehicles on designated routes could interfere with pedestrian use. Making transit vehicles and transit stops accessible to people with disabilities, using new transit vehicles equipped with security features, and ensuring that the transportation service provider undertook safety and security programs, would result in negligible to moderate, long-term, beneficial impacts.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 2, would result in minor, long-term, beneficial cumulative impacts. This would be due to improvements in overall safety and security of the visitor transportation service, as well as regional transportation systems, and improvements in vehicle and facility standards that would offer better access for people with disabilities.

Alternative 3

Analysis

Visitors and Transit Users with Special Mobility Needs

As described under “Impacts Common to All Alternatives,” new transit vehicles and transit stop facilities would be fully accessible to

passengers with physical disabilities. Impacts would be minor, long term, and beneficial.

Transportation Service Safety and Security

As discussed under “Impacts Common to All Alternatives,” long-term impacts from new transit vehicles equipped with safety and security features, along with safety and security programs undertaken by the service operator, would be moderate and beneficial.

Trail and Sidewalk Safety

Recreational Segway® HT and electric scooter use would continue to be allowed only on National Mall & Memorial Parks sidewalks adjacent to roadways maintained by the District of Columbia (3rd, 4th, 7th, and 14th streets NW/SW). Personal vehicle use would not be fully addressed on park lands through a clear management policy, creating some confusion and resulting in continued recreational Segway® HT and electric scooter use that is inconsistent with park policy. Impacts from continued potential conflicts between pedestrians and multimodal users, as well as recreational Segway® HT and electric scooter use on park trails, would result in minor, short- and long-term, adverse impacts on pedestrian safety.

Cumulative Impacts

As described under “Impacts Common to All Alternatives,” improvements to regional transit service operations and infrastructure would have minor, long-term, beneficial impacts on public health, safety, and security.

Alternative 3 would result in negligible to moderate, site-specific, beneficial contributions to cumulative effects on public health, safety, and security.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternative 3, would result in minor, long-term, beneficial cumulative impacts. This would be due to improvements in overall

safety and security of the regional transportation system and improvements in vehicle and facility standards that would offer better access for people with disabilities.

Conclusion

The potential for continued conflicts between pedestrians and multimodal users, and illegal recreational use of Segway® HTs and electric scooters on National Mall & Memorial Parks trails, would result in minor, short- and long-term, adverse effects on pedestrian safety, similar to Alternative 1. Making transit vehicles and transit stops accessible to people with disabilities, using new transit vehicles equipped with security features, and ensuring that the transportation service provider undertook safety and security programs, would result in negligible to moderate, long-term, beneficial impacts.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 3, would result in minor, long-term, beneficial cumulative impacts. This would be due to improvements in overall safety and security of the visitor transportation service as well as regional transportation systems, and improvements in vehicle and facility standards that would offer better access for people with disabilities.

Alternative 4

Analysis

Visitors and Transit Users with Special Mobility Needs

As described under “Impacts Common to All Alternatives,” new transit vehicles and transit stop facilities would be fully accessible to passengers with physical disabilities. Impacts would be minor, long term, and beneficial.

Transportation Service Safety and Security

As discussed under “Impacts Common to All Alternatives,” long-term impacts from new transit vehicles equipped with security fea-

tures, along with safety and security programs undertaken by the service operator, would be moderate and beneficial.

Trail and Sidewalk Safety

Recreational Segway® HT and electric scooter use would be allowed on all multi-use trails under the jurisdiction of the National Mall & Memorial Parks under a new NPS policy. Segway® HTs and electric scooters would continue to have access to sidewalks adjacent to 3rd, 4th, 7th, and 14th streets NW/SW, which are under the jurisdiction of the District of Columbia. The proposed management of these personal transportation vehicles would be safer than current use because designated routes would be marked. Segway® HT and electric scooter users would be required to use pedestrian warning devices, yield to pedestrians, and stay within speed limits.

Allowing recreational Segway® HT use on all routes would be more consistent with D.C. regulations and current enforcement trends, alleviating confusion for users. However, additional multimodal users on all park trails could result in minor, long-term, adverse impacts on visitor safety because of the use of different transit modes traveling at different speeds in this heavily visited area.

Cumulative Impacts

As described under “Impacts Common to All Alternatives,” improvements to regional transit service operations and infrastructure would have minor, long-term, beneficial impacts on public health, safety, and security.

Similar to the other alternatives, Alternative 4 would result in negligible to moderate, site-specific, beneficial contributions to cumulative effects on public health, safety, and security.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternative 4, would result in minor, long-term, beneficial cumulative impacts. Improve-

ments in overall safety and security of the regional transportation system, as well as improvements in better vehicle and facility standards that would offer better access for people with disabilities, would contribute to cumulative impacts.

Conclusion

Alternative 4 would have a minor, long-term, adverse impact on trail and sidewalk safety because recreational use of personal transportation vehicles on all multi-use park trails could interfere with pedestrian use. Making transit vehicles and transit stops accessible to people with disabilities, using new transit vehicles equipped with security features, and ensuring that the transportation service provider undertook safety and security programs, would result in negligible to moderate, long-term, beneficial impacts.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 4, would result in minor, long-term, beneficial cumulative impacts. This would be due to improvements in overall safety and security of the visitor transportation service, as well as regional transportation systems, and improvements in vehicle and facility standards that would offer better access for people with disabilities.

Alternative 5: Downtown Circulator

Analysis

Visitors and Transit Users with Special Mobility Needs

As described under “Impacts Common to All Alternatives,” new transit vehicles and transit stop facilities would be fully accessible to passengers with physical disabilities. Impacts would be minor, long term, and beneficial.

Transportation Service Safety and Security

As discussed under “Impacts Common to All Alternatives,” long-term impacts from new transit vehicles equipped with security fea-

tures, along with safety and security programs undertaken by the service operator, would be moderate and beneficial.

However, Alternative 5 proposes reopening roads near the White House along Pennsylvania Avenue and E Street NW that have been closed for security reasons. This action would result in moderate, long-term, adverse impacts from a new use in a secured area.

Trail and Sidewalk Safety

Recreational Segway® HT and electric scooter use would continue to be allowed only on National Mall & Memorial Parks sidewalks adjacent to roadways maintained by the District of Columbia (3rd, 4th, 7th, and 14th streets NW/SW), as described for Alternative 1. Not fully addressing multimodal use on park lands through a clear NPS management policy would create some confusion and result in recreational use of Segway® HTs and electric scooters within the National Mall & Memorial Parks that is inconsistent with present park policy. Impacts from continued potential conflicts between pedestrians and multimodal users, and recreational use of Segway® HTs and electric scooters on park trails, would result in minor, short- and long-term, adverse impacts on pedestrian safety.

Cumulative Impacts

As described under “Impacts Common to All Alternatives,” improvements to regional transit service operations and infrastructure would have minor, long-term, beneficial impacts on public health, safety, and security.

Similar to the other alternatives, Alternative 5 would result in negligible to moderate, site-specific, beneficial contributions to cumulative effects on public health, safety, and security.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternative 5, would result in minor, long-term, beneficial cumulative impacts. Improve-

ments in overall safety and security of the regional transportation system, as well as improvements in vehicle and facility standards that would offer better access for people with disabilities, would contribute to cumulative impacts.

Conclusion

The potential for continued conflicts between pedestrians and multimodal users, and recreational use of Segway® HTs and electric scooters on National Mall & Memorial Parks trails, that is inconsistent with park policy would result in minor, short- and long-term, adverse effects on pedestrian safety, similar to Alternative 1. Making transit vehicles and transit stops accessible to people with disabilities,

using new transit vehicles equipped with security features, and ensuring that the transportation service provider undertook safety and security programs, would result in negligible to moderate, long-term, beneficial impacts, similar to the other alternatives.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 5, would result in minor, long-term, beneficial cumulative effects. Like the other alternatives, beneficial effects would be due to improvements in overall safety and security of the visitor transportation service, as well as regional transportation systems, and improvements in vehicle and facility standards that would offer better access for people with disabilities.

PARK OPERATIONS AND VISITOR TRANSPORTATION SERVICE OPERATIONS

AFFECTED ENVIRONMENT

The overview of park operations and visitor transportation service operations was prepared by reviewing information from several sources, including the National Park Service, Landmark Services, Inc., public transit agencies in the D.C. area (National Transit Database), the *District of Columbia Tour Bus Management Initiative* (USDOT 2003), the *District of Columbia Downtown Circulator Implementation Plan* (NCPC/DDOT/DBID/ WMATA 2003), the *Regional Bus Study* (WMATA 2003), and the NPS concessions management program.

Maintenance and Management Activities

Activities related to the current transportation service includes maintenance of transit vehicles and transit stops (including signs, benches, and other features). All equipment is currently owned by Landmark Services, Inc., and is part of their contractual responsibility. A variety of vehicles are used for the transportation service, including articulated buses,

super trams (each super tram consists of one power car and two trailers), coach vehicles, and minibuses. Super trams are used exclusively for service in Arlington National Cemetery. Articulated buses are primarily used for the American Heritage Tour on the National Mall (Figure 9), and the remainder of the fleet is used for special excursions and for visitors with special mobility needs.

The American Heritage Tour provides a total of 20 transit stops — 16 standard stops, 3 transfer stops, and 1 intermodal stop. (Amenities associated with each type of stop are described in the “Alternatives” chapter, page 28.)

The National Park Service is responsible for managing parking facilities throughout the National Mall & Memorial Parks, including parking along Madison Drive NW and Jefferson Drive SW and at Potomac Park.

Maintenance / Storage Facility Site

The maintenance / storage facility for the current third-party operator is on 2.6 acres of NPS property in East Potomac Park. The maintenance building is 42,352 square feet.

Figure 9. Articulated Bus (Tourmobile)



Vehicles are stored both inside and outside and are maintained on site.

Staffing

Staffing for the visitor transportation service includes drivers, narrators, vehicle mechanics, facility maintenance personnel, and general administrative staff. Based on local transit agency full-time employee productivity factors, as reported in the 2002 Federal Transit Administration's national transit database, it is estimated that approximately 26 full-time employees would be required for the visitor core service, and 23 for the Arlington National Cemetery service (FTA 2005). These employees would provide the basic service functions described above.

NPS staffing includes park rangers, contract personnel, and maintenance personnel, who are responsible for maintaining and overseeing 1,000 acres of some of the most significant natural and cultural resources in the United States, including monuments, memorials, national historic sites, national park areas, and 60 statues, as well as the National Mall.

Law Enforcement and Security Requirements

The present visitor transportation routes are within or adjacent to the National Mall, which is the setting for numerous special events throughout the year that are attended by hundreds of thousands of people. Occasionally, routes and services are affected by events, resulting in service delays or cancellations. For example, the visitor ridership study showed four days of service cancellation in 2000 (NPS 2004b). In addition, areas around the National Mall also contain security-sensitive locations and national icons. Heightened security alerts may also affect service and routes, and security checks may result in service slowdowns or disruptions.

Coordination with event promoters and security agencies is important to maintain

uninterrupted service through event and security-sensitive areas. In addition, other law enforcement and security requirements related to the visitor transportation service include monitoring and surveillance measures on the transit vehicles and at transit stops.

NPS law enforcement activities related to personal transportation vehicles include enforcing speed limits, user requirements (helmets, etc.), and operation only in designated areas. Traffic and parking enforcement on the National Mall, including Madison Drive NW and Jefferson Drive SW, is currently performed by the U.S. Park Police.

NPS Contract Management

NPS concessions staff administer all business contracts and agreements related to the visitor transportation service. They provide criteria and standards, as well as monitor the service. The National Park Service would be responsible for developing and monitoring contracts and agreements for any type of visitor transportation service considered in this document.

IMPACT ANALYSIS

Impact Intensity Thresholds

The methodology used for assessing impacts to park operations and visitor transportation service operations is based on how the proposed project would affect maintenance and management activities, staffing requirements, law enforcement and security requirements, and NPS contract management. For purposes of analyzing impacts to park operations and visitor transportation service operations the thresholds of change for impact intensity are defined below:

- *Negligible* — The impact would be undetectable or barely detectable.
- *Minor* — The impact would be detectable.
- *Moderate* — The impact would be apparent and measurable.

- *Major* — The impact would be readily apparent and measurable.

Impacts Common to All Alternatives

Impacts would generally be the same under all alternatives, as described below.

Analysis

Maintenance and Management Activities

The alternatives would differ in terms of who provided visitor transportation services, either the National Park Service, an independent third-party operator, an agreement with a public transportation entity, or a service contract. The responsible party for maintenance activities, staffing requirements, and law enforcement / security requirements related to the visitor transportation service is unknown at this time and would be determined during the implementation phase.

To give an idea of the scale of operations being considered, the estimated numbers of employees, transit vehicles, and transit stops that would need to be maintained under each alternative are shown in Table 28. Staffing required for the visitor transportation service would include transit drivers, vehicle mechanics, maintenance personnel, and general administrative staff.

Impacts on the transportation service operator are not analyzed because all service-related requirements would be a cost of doing business under some sort of contract or agreement with the National Park Service. The Park Service would only provide oversight responsibilities to ensure that the transportation ser-

vice was being operated in accordance with the contract.

Maintenance / Storage Facility Site Requirements

A new transit vehicle maintenance / storage facility would be required under all alternatives. The size of a new facility is projected to range from 4.2 acres to 6.4 acres if all services were combined at one location. All of the alternatives provide for the continued use of the present 2.6-acre maintenance and storage site in East Potomac Park, if desired by the operator. This location would continue to be strategically beneficial because of its proximity to the transit service area, minimizing the length of trips between the service area and the facility. Any new facilities would be the responsibility of the operator.

NPS Contract Management

A new contract or arrangement for providing the visitor transportation service would offer opportunities to develop a performance-based contract to define service flexibility and ticketing and marketing goals, criteria to evaluate the effectiveness of the service, as well as new criteria for energy-efficient vehicles and facilities. There would be no additional impacts to NPS contract management under any alternative. The National Park Service would continue to be responsible for oversight of the service to ensure that it was operated in accordance with the contract or agreement.

Law Enforcement and Security Requirements

Law enforcement and security requirements would continue under all alternatives and would not create additional NPS responsibilities.

Cumulative Impacts

None of the plans or projects listed in the cumulative impact scenario, or any other past, present, or reasonably foreseeable actions, would have a cumulative effect on park operations or

Table 28. Visitor Transportation Service Staffing, Transit Vehicles, and Stops

Alternative	Estimated Employees	Transit Vehicles	Transit Stops
Alternative 1	49	25	20
Alternative 2	76	47 / 70*	48
Alternative 3	64	41	36
Alternative 4	88	58	72
Alternative 5	101	63	71

* Number of vehicles required if ridership doubled.

visitor transportation service operations. Therefore, cumulative impacts are not evaluated.

Conclusion

The alternatives differ in terms of staffing and the number of vehicles and transit stops that would have to be maintained. All of these costs would be a cost of doing business for any service provider and would not affect park operations. A new transit vehicle maintenance / storage facility would be required under all alternatives, ranging from 4.2 acres to 6.4 acres if all services were combined at one

location. All of the alternatives provide for the continued use of the present 2.6-acre maintenance and storage site in East Potomac Park. This location would continue to be strategically beneficial because of its proximity to the transit service area, minimizing the length of trips between the service area and the facility. Any new facilities would be the responsibility of the operator. There would be no additional impacts to NPS contract management or law enforcement and security requirements under any alternative.

There would be no cumulative impacts on park operations.

SOCIOECONOMIC ENVIRONMENT

AFFECTED ENVIRONMENT

Existing conditions for the socioeconomic environment were assessed by reviewing data from Landmark Services, Inc., the U.S. Census Bureau, the Bureau of Economic Analysis, the Bureau of Labor Statistics, the D.C. Department of Employment Services, and the Metropolitan Washington Council of Governments. In addition, tourist data and profiles from sources such as the “2003 Visitor Statistics, Press Briefing” and the NPS *Visitor Transportation Survey* (NPS 2003f) were also referenced.

Population, employment, and personal income for Washington, D.C., and for the Washington-Arlington-Alexandria Metropolitan Statistical Area are shown in Table 29.

Table 29. Population, Employment, and Personal Income for Washington, D.C., and the Metropolitan Statistical Area — 2004

	Washington, D.C.	Washington- Arlington- Alexandria MSA
Population	554,239	5,157,608
Employment*	721,466	3,052,607
Personal Income (×1,000)	\$28,352,299	\$241,285,673

SOURCE: Bureau of Economic Analysis 2006.

* Total employment comprises the number of jobs, full-time plus part-time, by place of work. Full- and part-time jobs are counted at equal weight.

As previously stated, the metropolitan Washington region is expected to grow by 1.6 million people and 1.2 million jobs over the next two decades (MWCOC 2006).

IMPACT ANALYSIS

Impact Intensity Thresholds

The methodology used for assessing impacts to the socioeconomic environment is based on potential economic development related to the proposed visitor transportation service.

For purposes of analyzing impacts, the following thresholds of change for impact intensity were defined:

- *Negligible* — There would be no impacts on the socioeconomic environment, or the impacts would be barely detectable.
- *Minor* — Impacts on the socioeconomic environment would be detectable.
- *Moderate* — Impacts on the socioeconomic environment would be apparent and measurable.
- *Major* — Impacts on socioeconomic conditions would be readily apparent and measurable.

Assumptions Common to All Alternatives

It is not possible at the present time to project fares under each alternative. Factors that would affect fare levels include the scale of service and resulting implementation and operating costs, ridership levels, funding sources, choice of a system operator, and end-of-contract stipulations with the current contractor. These factors are noted in the “Transportation Service and Implementation Fares” section of the “Alternatives” chapter (page 32). Actual fares will be established during the implementation phase of the project.

Economic Development

Proposed services are not directly associated with an economic development program. The choice by more visitors and commuters to use the visitor transportation system under any alternative could affect the use of other public or private transportation services, potentially impacting employment for those other services and associated income generation.

Cumulative Impacts

Past, present, and reasonably foreseeable plans and projects in the downtown D.C. and Arlington areas, including future memorials and museums, implementation of the *Comprehensive Plan for the National Capital: Federal Elements*, and urban renewal projects, would have moderate, long-term, beneficial impacts on the socioeconomic environment. Projects would provide more opportunities for regional employment and more destinations that may be attractive to visitors and users, thus affecting visitor and user spending patterns within the area.

Alternative 1: No-Action

Analysis

There would be no change on the local or regional economy under Alternative 1. Continuing the current visitor transportation service would not affect local employment opportunities or potential visitor or user spending in other economic sectors.

Cumulative Impacts

Past, present, and reasonably foreseeable plans and projects in the Washington metropolitan area would result in moderate, long-term, beneficial impacts, as discussed under “Impacts Common to All Alternatives.” Alternative 1 would not contribute to cumulative effects.

Conclusion

There would be no additional impact on the local or regional economy from continuing the present visitor transportation service under Alternative 1.

Past, present, and reasonably foreseeable plans and projects in the metropolitan area would result in moderate, long-term, beneficial impacts. The ongoing visitor transportation service under Alternative 1 would not contribute to cumulative effects.

Alternatives 2, 3, 4, and 5

Analysis

The socioeconomic impacts of a new visitor transportation service under Alternatives 2, 3, 4, and 5 would essentially be the same. Each alternative would be expected to add more jobs to the local economy than under Alternative 1, including drivers, maintenance personnel, and administrative staff (see Table 28), as well as secondary positions generated by spending related to system operations and employee spending on goods and services within the region. However, any potential job gains would be very small relative to the entire regional employment base, as shown in Table 29. Impacts would be negligible, long term, and beneficial.

Alternative 2 recommends a new parking policy that would include paid metered parking at locations that are currently free for general public use. This strategy is aimed at meeting local travel demand management objectives by creating incentives for people to use public transit, including alternative modes, rather than to drive private automobiles. It would also provide an additional source of funding for transit service operations. However, this application would impose an economic impact on visitors currently parking for free at sites under the jurisdiction of the National Mall & Memorial Parks. Actual parking rates and fees for the system would be necessary to determine the level of impact. Specific requirements, including implementation costs, parking management needs, and parking fees, would be developed as part of a separate analysis and implementation plan.

Cumulative Effects

Past, present, and reasonably foreseeable plans and projects in the metropolitan area would result in moderate, long-term, beneficial impacts, as discussed under “Impacts Common to All Alternatives.”

Alternatives 2, 3, 4, and 5 would contribute a negligible, long-term increment to the bene-

ficial socioeconomic impacts as a result of increased employment opportunities and potential visitor and user spending in other sectors.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternatives 2, 3, 4, and 5, would result in moderate, long-term, beneficial cumulative impacts. Downtown revitalization and redevelopment projects would provide more opportunities for employment and spending in a variety of regional economic sectors.

Conclusion

Increased employment opportunities and potential visitor and user spending in other

sectors of the local economy under Alternatives 2, 3, 4, and 5 would result in negligible, long-term, beneficial impacts on the socio-economic environment.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternatives 2, 3, 4, and 5, would result in moderate, long-term, beneficial cumulative impacts. Downtown revitalization and redevelopment projects would provide more opportunities for employment and spending in various regional economic sectors, which would be supported by the proposed visitor transportation service.

CONSULTATION AND COORDINATION

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PUBLIC INVOLVEMENT IN DEVELOPMENT OF THE PLAN

The National Park Service began the process for an environmental assessment for visitor transportation services in the Washington, D.C., in November 2001 with a meeting for appropriate park staff and resource professionals. As part of this process, the National Park Service reviewed previous studies for tour bus management, visitor parking needs, and low-cost frequent bus services. This process defined the project's purpose and need, identified potential actions to address the need, and determined the likely issues and impact topics.

PUBLIC SCOPING

In accordance with the National Environmental Policy Act, the National Park Service conducted public scoping to allow citizens and public agencies to identify issues that should be addressed in the document, including alternatives, potential impacts, and suggested mitigation measures. NPS *Director's Order #75A: Civic Engagement and Public Involvement* provides specific direction for this process (NPS 2003b).

The National Park Service initiated public scoping in March 2002, meeting with public agencies that have a role in visitor transportation services in the Washington, D.C., metropolitan area. During the development of preliminary visitor transportation service concepts in July 2002, the Park Service determined that additional research should be conducted on visitor preferences and needs for transportation services. As a result, a visitor survey was conducted during the spring and summer of 2003 for what is now the National Mall & Memorial Parks, and the results were published as the *Washington, D.C., Visitor Transportation Survey* (NPS 2003f).

In January 2004 the National Park Service distributed the first visitor transportation service newsletter to the public. The news-

letter described the study, including its purpose, need, and goals; background information on the planning process; a history of NPS visitor transportation policy; a summary of the case study for urban visitor transportation and local comparable services; and a summary of the visitor transportation survey results. The essential "building blocks" for developing potential visitor transportation services were also discussed. A comment response form asked for feedback about study goals, future services, some of the transportation options used in other communities, and what approaches to visitor transportation were important to consider and explore.

After the release of the first newsletter, four public meetings were held in February 2004, two in the District and two in Arlington, Virginia. The meetings gathered public feedback about the scope of the project and the development of alternative concepts. Participants commented about access, visitors and multiple users, information and orientation, transportation service concepts, infrastructure and the physical environment, and coordination, cooperation, and responsibilities (see the *Scoping Report* for more detail; NPS 2005i).

In September 2004 a second newsletter summarized public feedback, presented the range of preliminary alternatives, and explained the process by which public input would be considered as alternatives were further refined. In December 2004 the National Park Service held one additional public meeting to share further details on the decision-making process for developing a preferred alternative.

Public comments were received by means of formal letters from federal, state, and local agencies, and from organizations; newsletter comment forms; and e-mails from interested groups or individuals. Primary concerns included improved access to visitor destinations; transit service that would be available

and convenient to different users (visitors, workers, etc.); connections with other transit services; improved information (education and orientation); flexibility in ticket/fare options; improved access for transit users with special mobility needs; and clarification of the policy for Segway® HTs, electric scooters, or other personal transportation vehicles.

AGENCY AND ORGANIZATION OUTREACH

The National Park Service invited any interested party currently conducting related planning for transportation or visitor services for the Washington, D.C., area to prepare an informational exhibit for display purposes at the public meetings. As a result, the following agencies, organizations, and individuals had displays at the February 2004 public meetings:

- Tourmobile — Current NPS visitor transportation services
- National Capital Planning Commission, D.C. Department of Transportation, Downtown D.C. Business Improvement District, Washington Metropolitan Area Transit Authority — Circulator study
- Washington Metropolitan Area Transit Authority — Anacostia light rail project and K Street busway
- D.C. Department of Transportation — District bicycle master plan
- Washington Area Bicycle Association — Recommended bicycle improvements
- MetroBike, LLC — National Mall bike sharing concept

In addition to these groups, agencies and organizations contacted for information that assisted in identifying issues or that will be provided an opportunity to review and comment on this environmental assessment, are listed below.

- Federal Agencies
Advisory Council on Historic
Preservation
Architect of the Capitol

Commission of Fine Arts
National Gallery of Art
National Capital Planning Commission
Smithsonian Institution
U.S. Department of the Army, Arlington
National Cemetery

- District / Regional / State Agencies
D.C. Department of Transportation
D.C. Office of Planning
D.C. State Historic Preservation Office
Virginia State Historic Preservation Office
Washington Metropolitan Area Transit Authority
- Organizations
Committee of 100
D.C. Downtown Business Improvement District
Washington Area Bicycle Association
Golden Triangle Business Improvement District
Capital Hill Business Improvement District

PROJECT WEBSITE

A project website has been used throughout the project development process and the environmental assessment portion of the project. The website provides project information, a timeline, ways to participate in the planning process, and links to documents related to the project (choose “Transportation Study” at <http://www.nps.gov/nama/>).

REVIEW OF THE ENVIRONMENTAL ASSESSMENT AND RECIPIENTS

This environmental assessment will be released for a 45-day public review. All agencies and organizations listed above, along with individuals on the NPS project mailing list, will be notified about the availability of the document for public comment.

Copies of the environmental assessment will be provided to interested individuals upon request and will also be available on the Internet at <http://www.nps.gov/nama/>.

COMPLIANCE WITH FEDERAL AND STATE REGULATIONS

The National Park Service has prepared this environmental assessment in accordance with the National Environmental Policy Act of 1969, as amended, and the implementing regulations by the Council on Environmental Quality (CFR 1500-1508), and NPS *Director's Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-making*. This document also complies with the National Historic Preservation Act of 1966, as amended.

The following is a preliminary list of permits and approvals that could be required by various federal and D.C. agencies to implement the proposed action at National Mall & Memorial Parks.

- Federal Agencies
 - Advisory Council on Historic Preservation — consultation on potential effects to historic properties (National Historic Preservation Act, sec. 106)
 - National Capital Planning Commission — project review
 - Commission of Fine Arts — transit stop details
- District of Columbia
 - State Historic Preservation Office — consultation on potential effects to historic properties (see appendix B)
- State Agencies
 - Virginia Historic Preservation Office — consultation on potential effects to historic properties (see appendix B)

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APPENDIX A: TRANSIT OPERATING STATISTICS

Visitor Core	Annual Revenue Bus-Hours	Annual Revenue Bus-Miles
Alternative 1	19,350	107,310
Alternative 2		
• Daytime Service		
Blue Route	46,400	350,400
Red Route	15,460	99,600
Total	61,860	450,000
• Daytime Service plus Evening Service		
Blue Route	50,920	383,560
Red Route	16,930	109,000
Total	67,850	492,560
• Operating Statistics with Doubled Ridership		
Blue Route	72,060	544,200
Red Route	15,460	99,600
Total	87,520	643,800
Alternative 3		
Blue Route	12,550	96,800
Green Route	18,380	98,100
Red Route	18,380	116,800
Total	49,310	311,700
Alternative 4		
Blue Route	21,320	160,500
Green Route	18,380	117,400
Red Route — Clockwise	18,380	110,900
Red Route — Counter-clockwise	18,380	123,200
Total	76,460	512,000
Alternative 5		
Monuments Route	29,877	248,897
White House–Capitol Route	128,567	757,225
Total	158,444	1,006,122
Arlington National Cemetery		
Alternative 1	16,670	66,670
Alternative 2	21,822	87,700
Alternative 3	21,822	87,700
Alternative 4	21,822	87,700
Alternative 5	Not applicable	Not applicable
Supplemental Tours		
Alternative 1	8,910	Not available*
Alternative 2	8,910	Not available*
Alternative 3	8,910	Not available*
Alternative 4		
Excursion Tours	8,910	Not available*
Introductory Tour	2,570	Not available*
Alternative 5	Not applicable	Not applicable

* Annual revenue bus-miles not available since routes and destinations have not been specifically defined at this time.

APPENDIX B: HISTORIC PRESERVATION OFFICER CORRESPONDENCE



United States Department of the Interior

NATIONAL PARK SERVICE
National Mall & Memorial Parks
900 Ohio Drive, S.W.
Washington, D.C. 20024-2000



A88 (NCR-NAMA)

NOV 17 2005

Ms. Lisa M. Burcham
State Historic Preservation Officer
District of Columbia Office of Planning
801 North Capital Street, NE, Suite 3000
Washington, D.C. 20002

Dear Ms. Burcham:

The National Park Service proposes to undertake a visitor transportation study which will evaluate a range of interpretive visitor transportation services to sites within the National Mall & Memorial Parks and surrounding park areas. Services to be considered in this plan include transit between National Park sites and non-park sites, interconnection with existing transportation systems, alternative fuel vehicles, multi-modal options and educational information regarding these sites.

As the proposed visitor transportation study will evaluate a range of services within *existing* routes and roadways, the National Park Service finds that the proposed project will not cause "alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" (CFR §800.16(i)), and will therefore have no effect on the historic properties in the study area. In accordance with the 1995 NPS Programmatic Agreement (Part VI. F.), if the planning process identifies actions that may result from the implementation of the visitor transportation plan, the approved plan will list all undertakings that are subject to further consultation and your office will be notified accordingly.

If you concur with this assessment, please sign below and return this letter to me at your earliest convenience. If you have any questions, please contact Alexa Viets, Transportation Planner for the National Mall & Memorial Parks, at (202) 485-9877.

Sincerely,

Vikki Keys
Superintendent

State Historic Preservation Officer, District of Columbia

12/6/05

Date

Enclosures (1): Map of Visitor Transportation Study Area

TAKE PRIDE
IN AMERICA

Section 106 Consultation between the National Park Service and the Virginia State Historic Preservation Office

A copy of the letter sent to the Virginia State Historic Preservation Office on May 10, 2006, is provided below. On July 11, 2006, (after 60 days) the State Historic Preservation Office indicated by e-mail their concurrence with the preferred alternative and indicated that the environmental assessment did not describe effects that might place this project in the category of "undertaking" in regards to section 106 of the National Historic Preservation Act. The Virginia State Historic Preservation Office has not submitted any additional or formal response after 90 days. Therefore, in accordance with the National Historic Preservation Act regulations (36 CFR Part 800.3), the National Park Service may proceed to the next step in the process.



A88 (NCR-NACC)

United States Department of the Interior

NATIONAL PARK SERVICE
National Mall & Memorial Parks
900 Ohio Drive, S.W.
Washington, D.C. 20004-2009



MAY 10 2006

State Historic Preservation Officer
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Sir/Madame:

The National Park Service has undertaken a visitor transportation study to evaluate a range of interpretive visitor transportation services to sites within the National Mall & Memorial Parks and surrounding park areas, including limited areas in Virginia. Services to be considered in this plan include transit between National Park sites and non-park sites, interconnection with existing transportation systems, alternative fuel vehicles, multi-modal options and educational information regarding these sites.

Included for your information is a preliminary draft of the NPS Environmental Assessment for this project. This document is not for public distribution; however, it is included as background on the study. Please ensure that the alternatives and concepts contained within are not shared beyond your staff.

As the proposed visitor transportation study will evaluate a range of services within existing routes and roadways, the National Park Service finds that the proposed project will not cause "alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" (CFR §800.16(i)), and will therefore have no effect on the historic properties in the study area. In accordance with the 1995 NPS Programmatic Agreement (Part VI. F.), if the planning process identifies actions that may result from the implementation of the visitor transportation plan, the approved plan will list all undertakings that are subject to further consultation and your office will be notified accordingly. If you concur with this assessment, please sign below and return this letter to me at your earliest convenience.

If you have any questions, please contact Alexa Viets, Transportation Planner for the National Mall & Memorial Parks, at 202-485-9877.

Sincerely,

Vikki Keys
Superintendent

State Historic Preservation Officer, District of Columbia

Date

Attachment: Internal Draft Environmental Assessment



GLOSSARY

Affected environment — The existing biological, physical, cultural, social, and economic conditions that are subject to both direct and indirect changes as a result of actions described within alternatives under consideration.

Alternative transportation — In national park areas, alternative transportation systems include buses, ferries, and trams to provide for visitor access and reduce impacts on park land and resources.

Alternatives — A reasonable range of options that can accomplish an agency's objectives.

Area of Potential Effect — The geographic area or areas within which an undertaking could directly or indirectly cause changes in the character or use of historic properties. The area of potential effects is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking.

Assessment of effect — Documentation to assist in completing the activities required under 36 CFR 800.5, "Assessment of Adverse Effects." This documentation applies the criteria of adverse effect to each property that is within the area of potential effect and that is eligible for listing on the National Register of Historic Places.

Average annual weekday traffic — The total yearly weekday volume divided by the number of weekdays in a year.

Best management practices — Effective, feasible (including technological, economic, and institutional considerations) conservation practices and land- and water-management measures that would avoid or minimize adverse impacts to natural and cultural resources. Best management practices may include schedules for activities, prohibitions, maintenance guidelines, and other management practices.

Clean fuels — Fuels that provide less polluting alternatives to gasoline. Clean fuels, as defined by the Energy Policy Act of 1992, include ethanol, natural gas, propane, hydrogen, pure biodiesel, electricity, methanol, and p-series fuels.

Choosing by Advantages — A process by which the differences of advantages for alternatives and their related costs are compared, ranked, and rated in order to make better and trackable decisions. The process can be used to develop alternatives that combine advantages from several alternatives while working to reduce associated costs.

Council on Environmental Quality (CEQ) — The President's Council on Environmental Quality was established by the National Environmental Policy Act to oversee and develop national environmental policy.

Cultural resources — Aspects of a cultural system that are valued by or significantly representative of a culture or that contain significant information about a culture. A cultural resource may be a tangible entity or a cultural practice. Tangible cultural resources are categorized as districts, sites, buildings, structures, and objects for the National Register of Historic Places, and as archeological resources, cultural landscapes, structures, museum objects, and ethnographic resources for NPS management purposes.

Cumulative actions — Actions that, when viewed with other actions in the past, the present, or the reasonably foreseeable future regardless of who has undertaken or will undertake them, would have an additive impact on the resources that the proposal would affect.

Cumulative effects (impacts) — Effects on the environment that result from the incremental impacts of an action when added to other past, present, and reasonably foreseeable actions, regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

Director's Order — The second level of the National Park Service's directives system. Interim updates or amendments to the NPS *Management Policies* may be accomplished through director's orders. Director's orders also serve as a means to clarify or supplement *Management Policies* to meet the needs of NPS managers.

Electric scooter — A three- or four-wheeled electric powered vehicles operated from a sitting position.

Environmental assessment — An environmental document that is prepared to (1) help determine whether the impact of a proposed action or alternatives could be significant; (2) aid in compliance with the National Environmental Policy Act by evaluating whether a proposal would have measurable adverse impacts and whether impacts would be significant, therefore requiring the preparation of an environmental impact statement; or (3) evaluate a proposal that either is not described on the list of categorically excluded actions, or is on the list but exceptional circumstances apply.

Environmental impact statement — A detailed environmental document that is prepared when a proposed action or alternatives have the potential for significant impact on the human environment.

Environmental justice — See Executive Order 12898.

Environmental screening form — A tool used by the National Park Service to help determine the appropriate level of NEPA documentation.

Environmentally preferred alternative — Of the action alternatives considered, the one that would best promote the policies in section 101 of the National Environmental Policy Act.

Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” — Mandates that each federal agency make achieving environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. This order also creates an Interagency Working Group on Environmental Justice to provide guidance to federal agencies in overcoming these issues.

Finding of No Significant Impact — A determination based on an environmental assessment and other factors in the public planning record for a proposal that, if implemented, would have no significant impact on the human environment.

Floodplain — Land on either side of a stream or river that is submerged during floods.

Headway — The time interval between two vehicles traveling in the same direction on the same route.

Human environment — Defined by the Council on Environmental Quality as the natural and physical environment, and the relationship of people with that environment. Although the socioeconomic environment receives less emphasis than the physical or natural environment in the CEQ regulations, the National Park Service considers it to be integral to the human environment.

Hybrid electric — Vehicles that use both internal combustion or diesel engines and electric motors to improve performance and efficiency.

Impact topics — Specific natural, cultural, or socioeconomic resources that would be affected by the proposed action or alternatives (including no action). The magnitude, duration, and timing of the effect to each of these resources is evaluated in the impact section of an environmental document.

Impairment — An impact that, in the professional judgment of the responsible NPS manager, would permanently harm the integrity of park resources or values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values.

Level of service — A grading system for amount of congestion, using the letter A to represent the least amount of congestion and F to refer to the greatest amount.

Mitigation measures — Specific commitments made during the environmental evaluation and study process that would serve to lessen impacts deriving from the proposed action. These measures could include planning and development commitments, environmental measures, and agreements with other agencies to take construction or post-construction action.

National Environmental Policy Act (NEPA) — Established by Congress in 1969, the act requires federal agencies to consider social, environmental, and economic impacts when evaluating federal actions. Application of the NEPA process could include the preparation of categorical exclusions, environmental assessments, or environmental impact statements for projects with the potential to result in significant effects on the environment.

National Historic Preservation Act of 1966 (NHPA) — Directs federal agencies to act as responsible stewards of our nation’s resources when their actions may affect historic properties. This act defined historic preservation to include “the protection, rehabilitation, restoration and reconstruction of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, or culture.” The act led to the creation of the National Register of Historic Places, and it established the Advisory Council on Historic Preservation, an independent federal agency responsible for administering the protective provisions of the act.

National Register of Historic Places — The comprehensive list of districts, sites, buildings, structures, and objects of national, regional, state, and local significance in American history, architecture, archeology, engineering, and culture. This list is maintained by the National Park Service under authority of the National Historic Preservation Act of 1966.

No-action alternative — An alternative in an environmental assessment or environmental impact statement that would continue current management direction. A no-action alternative is a benchmark or baseline against which action alternatives are compared.

Preferred alternative — The alternative an NPS decision-maker has identified as preferred.

Revenue bus-hour — The total number of hours that a bus is operated divided by total revenue.

Revenue bus-mile — The total number of miles that a bus is operated divided by total revenue.

Ridership — Ridership or users of the current visitor transit service, as reported on total daily fares paid. Annual ridership estimates are computed based on the sum of weekday and weekend daily users throughout the defined peak and off-peak seasons. Daily users of the transit service may make one or more boardings throughout the day, depending on the number of individual trips or connections that are made by transit service. Ridership figures based on this definition do not represent total vehicle boardings.

Segway® HT — A two-wheeled, self-balancing, electric-powered individual transportation vehicle. The Segway® HT can be considered to have both pedestrian and vehicle characteristics. It is often evaluated as part of a larger class of vehicles that operate in the middle of the vehicle-pedestrian continuum, such as bicycles, electric scooters, in-line skates, and wheelchairs.

Scoping — An early step in the NEPA process to identify decision-making on issues, alternatives, mitigation measures, the analysis boundary, the appropriate level of documentation, lead and cooperating agency roles, available references and guidance, defining purpose and need, and so forth.

Soundscape — The aggregate of all the natural sounds that occur in parks, together with the physical capacity for transmitting sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive, and can be transmitted through air, water, or solid materials.

Travel Demand Management (TDM) — Programs and policies that reduce and manage the demand within transportation corridors and by transportation modes, disperse peak-period traffic, and/or encourage transit usage and capacity. Elements include encouraging employers to provide flexible work hours, staggered work schedules, and alternative work schedules; encouraging van and car pools, or bus pass programs for major employers; and creating disincentives to drive, such as increasing the cost of parking.

REFERENCES CITED

The following abbreviations are used in the text for governmental agencies, associations, and organizations:

AWS	Anacostia Watershed Society
ARCO	Arlington County, Virginia
CEQ	Council on Environmental Quality
DBID	Downtown Business Improvement District
DDOT	D.C. Department of Transportation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
MDW	Military District of Washington (U.S. Army)
MWCOG	Metropolitan Washington Council of Governments
NCPC	National Capital Planning Commission
NPS	National Park Service
TRB	Transportation Research Board
US DOD	U.S. Department of Defense
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
WMATA	Washington Metropolitan Area Transit Authority

Anacostia Watershed Society

- 2005 *Water Quality Monitoring and Flagging Programs Begin*. Available at <<http://www.anacostiaws.org>>. Accessed July 2005.

Architect of the Capitol

- 2005 *Capitol Visitor Center Fact Sheet*. Available at <http://www.aoc.gov/cvc/upload/cvc_fact_sheet_2005_06.pdf>. Accessed August 2005.

Arlington County, Virginia

- 1992 *Rosslyn Area Plan Addendum*. Arlington, VA.
- 2003 *Rosslyn to Courthouse Urban Design Study*. Arlington, VA
- 2005a *Columbia Pike Initiative - A Revitalization Plan (Update 2005)*. Available at <<http://www.arlingtonva.us/Departments/CPHD/forums/columbia/CPHDForumsColumbiaColumbiaPikeInitiativeMain.aspx>>. Accessed August 2005.

- 2005b *Comprehensive Plan*. Available at <<http://www.co.arlington.va.us/Departments/CPHD/planning/plan/CPHDPlanningPlanMain.aspx>>. Accessed July 2005.

Arlington National Cemetery

- 2005 "Visitor Information." Available at <<http://www.arlingtoncemetery.org/visitorinformation/index.htm>>. Accessed August 2005.

Association for the Study of African American Life and History

- 2005 *The Carter G. Woodson Home*. Available at <<http://www.asalh.com/WoodsonHome.html>>. Accessed August 2005.

Bureau of Economic Analysis, U.S. Department of Commerce

- 2006 District of Columbia: CA1-3 Population, CA34 Wage and Salary Employment, and CA30 Personal Income." Available at <<http://www.bea.gov/regional/reis>>. Accessed June 15, 2006.

Council on Environmental Quality

- 1978 "Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act." *Federal Register* 43 (Nov. 29): 55978-56007.
- 1980 "Prime and Unique Agricultural Lands and the National Environmental Policy Act." August 11, 1980. Washington, DC.
- 1981 "Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations." *Federal Register* 46 (Mar. 23): 18026-38.
- 1997 "Environmental Justice, Guidance under the National Environmental Policy Act." December 10, 1997. Washington, DC.

District of Columbia, Department of Transportation

- 2002 "2002 High Crash Locations." Traffic Safety Division, Washington, DC.
- 2003a *4th Street SW Transportation Study*. March. Washington, DC.
- 2003b *L'Enfant Promenade Urban Planning Study*. January. Washington, DC.

- 2003c *Mayor's Parking Taskforce Report*. Submitted by the Mayor's Parking Taskforce Committee Members. December. Washington, DC. Available at <<http://ddot.dc.gov/ddot/frames.asp?doc=/ddot/lib/ddot/ParkingReport-Final.pdf>>. Accessed June 13, 2006.
- 2004a *Anacostia Gateway Transportation Study*. September. Washington, DC.
- 2004b *District of Columbia Transit Improvements Alternatives Analysis: Need Assessment*. June. Washington, DC.
- 2004c *Downtown Congestion Task Force, Draft Final Report*. Washington, DC. Available at <www.ddot.dc.gov/ddot/cwp/view,a,1249,q,610165.asp>. Accessed June 25, 2006.
- 2004d Personal communication with David Evans and Associates regarding active enforcement intersection locations. October.
- 2004e "Opinions about Downtown Congestion." Online survey results. Available at <www.ddot.dc.gov/ddot/cwp/view,a,1249,q,610291.asp>. Accessed June 23, 2006.
- 2005a *District of Columbia Bicycle Master Plan*. April. Washington, DC.
- 2005b *New York Avenue Corridor Study*. April. Washington, DC.
- 2005c *Traffic Volume Maps*. Available at <<http://ddot.dc.gov/ddot/cwp/view,a,1250,q,580996.asp>>. Accessed August 2005.
- District of Columbia, Department of Works
1997 *A Transportation Vision, Strategy, and Action Plan for the Nation's Capital*. Washington, DC.
- District of Columbia, Office of Planning
2003a *The Anacostia Waterfront Initiative Framework Plan*. November. Washington, DC.
- 2003b "Southwest Waterfront Plan Summary." Available at <http://planning.dc.gov/planning/cwp/view,a,1285,q,582228,planningNav_GID,1708.asp>. Accessed Nov. 2, 2006.
- Dwight D. Eisenhower Memorial Commission
2006 "Its Time to Build a National Memorial to Dwight D. Eisenhower." Available at <<http://www.eisenhowermemorial.org/index.html>>. Accessed January 2006.
- Federal Emergency Management Agency, U.S. Department of Homeland Security
1975 "Federal Emergency Management Agency National Flood Insurance Program, Flood Insurance Rate Map, District of Columbia." Washington, DC.
- Federal Highway Administration, U.S. Department of Transportation
2003 *Kennedy Center Access Improvements, Environmental Assessment and 4(f) Evaluation*. Washington, DC.
- 2005 *Gliding: An Evaluation of Segway HT Riders' Performance on a Closed Course*. Draft Preliminary Report, March 22. Washington, DC.
- Federal Highway Administration, U.S. Department of Transportation / National Park Service, U.S. Department of the Interior
2002 *Environmental Assessment for Roadway and Trail Safety Improvements, George Washington Memorial Parkway*. Virginia and Washington, DC.
- Federal Transit Administration, U.S. Department of Transportation
1979 *Guidelines for Preparing Environmental Assessments*. Washington, DC.
- 1995 *FTA Transit Noise and Vibration Impact Assessment Guidance Manual*. Washington, DC.
- 2004 *Anacostia Corridor Demonstration Project Environmental Assessment and Section 4(f) Statement*. Washington, DC.
- 2005 "National Transit Database." Available at <http://www.ntdprogram.com/NTD/ntd_home.nsf/?Open>. Accessed August 2005.
- Landmark Services, Inc.
2005 *Tourmobile Sightseeing*. Available at <<http://www.tourmobile.com/>>. Accessed July 2005.

- Metropolitan Washington Council of Governments
- 2004a *2003 Update to the Financially Constrained Long-Range Transportation Plan for the National Capital Region*. October. Washington, DC.
- 2004b *2004 State of the Commute Survey Results from the Washington Metropolitan Region*. September. Washington, DC.
- 2005 *Transportation Improvement Program for the Metropolitan Washington Region FY 2006-2011*. October. Washington, DC.
- 2006 "Growth." News briefs. Available at <<http://www.mwco.org/news/briefs/growth.asp>>. Accessed June 2, 2006.
- National Capital Planning Commission
- 1997 *Extending the Legacy: Planning America's Capital for the 21st Century*. Washington, DC.
- 1999 *Washington's Waterfronts*. Washington, DC.
- 2001 *Memorials and Museums Master Plan*. Washington, DC.
- 2002 *The National Capital Urban Design and Security Plan*. Washington, DC.
- 2004a *Comprehensive Plan for the National Capital: Federal Elements*. Washington, DC.
- 2004b *Federal Capital Improvements Program, Fiscal Years 2005-2010*. Washington, DC.
- 2005a *Georgetown Waterfront Park: Commission Action*. Washington, DC. Available at <<http://www.ncpc.gov/actions/pdf/2005/GWaterfront060205.pdf>> Accessed August 2005.
- 2005b *NCPC's New Vision for South Capitol Street*. Washington, DC.
- National Capital Planning Commission, District of Columbia Department of Transportation, Downtown Business Improvement District, Washington Metropolitan Area Transit Authority
- 2003 *District of Columbia Circulator Implementation Plan*. Washington, DC.
- National Park Service, U.S. Department of the Interior
- 1997 "Draft Transportation Study, Memorial Core, Washington, D.C." Prepared by BRW, Inc., and Lee Engineering. On file at Denver Service Center.
- 1998 *Director's Order # 28: Cultural Resource Management*. Washington, DC.
- 2000a *Comprehensive Design Plan, The White House and President's Park*. Washington, DC.
- 2000b *Director's Order #47: Sound Preservation and Noise Management*. Washington, DC.
- 2000c *Draft Long-range Interpretive Plan 2000, National Capital Parks-Central*. Harpers Ferry Design Center.
- 2001 *Director's Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-making*. Washington, DC.
- 2002a *Director's Order #77-1: Wetland Protection / Wetland Procedural Manual*. Washington, DC.
- 2002b *Directors Order #90: Value Analysis*. Washington, DC.
- 2002c *Draft General Management Plan / Environmental Impact Statement, Rock Creek Park and the Rock Creek and Potomac Parkway*. Washington, DC.
- 2002d *Washington Monument: Permanent Security Improvements Environmental Assessment*. Washington, DC.
- 2003a *Annual Performance Plan, C&O Historical Park, Fiscal Year 2004*.
- 2003b *Director's Order #75A: Civic Engagement and Public Involvement*. Washington, DC.
- 2003c *General Management Plan, Anacostia Park*. Washington, DC.
- 2003d *General Management Plan / Draft Environmental Impact Statement, Rock Creek Park*. Washington, DC.
- 2003e *National Capital Parks — Central / Memorial Core Alternative Transportation Study: Washington, D.C., Local Comparables Report*. Washington, DC.
- 2003f *National Capital Parks-Central, Washington, D.C., Visitor Transportation Survey*. November. Prepared for the National Park Service. Boston, MA.
- 2004a *Anacostia Riverwalk: Environmental Assessment*. Washington, DC.

- 2004b "National Park Service Existing Ridership Data, Alternative Transportation Planning Program." On file at National Mall & Memorial Parks, Washington, DC.
- 2005a *American Veterans Disabled for Life Memorial: Environmental Assessment*. Washington, DC.
- 2005b *Lincoln Memorial Circle Roadway Project*. Available at <<http://www.nps.gov/linc/Lincoln%20Project%20Summary3.pdf>>. Accessed August 2005.
- 2005c *Martin Luther King Jr. National Memorial: Environmental Assessment*. Washington, DC.
- 2005d *National World War II Memorial*. Available at <<http://www.nps.gov/nwwm/>>. Accessed August 2005.
- 2005e *Rehabilitation of Rock Creek and Potomac Parkway from Virginia Avenue to P Street Bridge and the Thompson Boat Center: Environmental Assessment*. Washington, DC.
- 2005f "Record of Determination for an Interim Public Use Limitation Restricting Segway HTs, Motorized Skateboards and Motorized Scooters from All of the George Washington Memorial Parkway." George Washington Memorial Parkway.
- 2005g "Statement of John Parsons, Associate Regional Director for Lands, Resources and Planning, National Capital Region, National Park Service, Department of the Interior, Before the Subcommittee on National Parks of the Senate Committee on Energy and Natural Resources, Concerning the Oversight of the National Mall." April 12. Washington, DC.
- 2005h *Victims of Communism Memorial: Environmental Assessment*. Washington, DC.
- 2005i *Washington, D.C., Visitor Transportation Study for the National Mall and Surrounding Park Areas Scoping Report*. Washington, DC.
- 2006a "Corrected Visitation Data for President's Park." Personal communication to David Evans and Associates, June 14.
- 2006b *Management Policies 2006*. Washington, DC.
- 2006c "Public Use Statistics." Available at <<http://www2.nature.nps.gov/NPstats/dspAnnualVisits.cfm>>. Accessed June 11, 2006.
- National Park Service, U.S. Department of the Interior, and Federal Highway Administration, U.S. Department of Transportation
- 2004a "Draft Traffic Safety Study and Recommendation Report, Constitution Avenue, Washington, D.C." Prepared by HDR Engineering, Inc. On file at National Mall & Memorial Parks, Washington, DC.
- 2004b "Draft Traffic Safety Study and Recommendation Report, Ohio Drive and Old Constitution Avenue, Washington, D.C." Prepared by HDR Engineering, Inc. On file at National Mall & Memorial Parks, Washington, DC.
- Natural Resources Conservation Service, U.S. Department of Agriculture,
- 2005 *District of Columbia Electronic Field Office Technical Guide*. Available at <<http://www.md.nrcs.usda.gov/>>. Accessed July 2005.
- Newseum
- 2005 "The Newseum's Move to Washington, D.C." Available at <<http://www.newseum.org/newseum/newseum2006/overview.htm>>. Accessed August 2005.
- Smithsonian Institution
- 2005a *National Museum of African American History and Culture*. Available at <<http://nmaahc.si.edu/>>. Accessed August 2005.
- 2005b *National Museum of the American Indian*. Available at <http://www.nmai.si.edu/index_nmai.cfm>. Accessed August 2005.
- Texas Transportation Institute
- 2005 The 2005 Urban Mobility Report, by David Schrank and Tim Lomax. The Texas A&M University System. Available at <http://tti.tamu.edu/documents/mobility_report_2005.pdf>. Accessed July 2006.
- Transportation Research Board
- 2004 *Transit Cooperative Research Program Report 95, Chapter 9: Transit Scheduling and Frequency — Traveler Response to Transportation System Changes*. Washington, DC.

- Travel Industry Association of America
2005 *The American Experience: 2004 Visitor Statistics*. Available at <<http://www.washington.org/UploadedFiles/ResearchStatistics/2004-vis-stats-web.pdf>>. Accessed August 2005.
- U.S. Army Corps of Engineers
1998 *Arlington National Cemetery, Master Plan*. Baltimore District.
- U.S. Army, Military District of Washington
2005 *Arlington Expansion Underway along Route 110*. Available at <<http://www.mdw.army.mil/>>. Accessed August 2005.
- U.S. Architectural and Transportation Barriers Compliance Board
2004 *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities*. Washington, DC.
- U.S. Department of Defense
2003 *Air Force Memorial, Naval Annex Site: Environmental Assessment*. March 2003. Washington, DC.
- U.S. Department of Transportation
2003 *District of Columbia Tour Bus Management Initiative*. U.S. Department of Transportation Research and Special Programs Administration, John A. Volpe National Transportation Systems Center. Cambridge, MA.
- 2004 *Visitor Transportation Study: Report on Urban Visitor Transportation Services*. U.S. Department of Transportation Research and Special Programs Administration, John A. Volpe National Transportation Systems Center. Cambridge, MA.
- U.S. Environmental Protection Agency
2006 "8-Hr Ozone and Designated PM-2.5 Nonattainment Areas." In *Green Book*. Washington, D.C. Available at <<http://www.epa.gov/oar/greenbk/qnc13.html>>. Accessed May 31, 2006.
- U.S. Fish and Wildlife Service, U.S. Department of the Interior
2005 *National Wetlands Inventory*. Available at <<http://www.wetlandsfws.er.usgs.gov/>>. Accessed July 2005.
- Washington Area Bicyclist Association
2005 "Washington Area Bicyclist Association." General information available at <<http://www.waba.org>>. Accessed July 2005.
- Washington Metropolitan Area Transit Authority
2001 *District of Columbia Transit Development Study*. Washington, DC.
- 2003 *Regional Bus Study*. Washington, DC.
- 2005a *K Street Busway Project*. Available at <http://www.wmata.com/about/expansion/kst_busway.pdf>. Accessed July 2005.
- 2005b *Pike Transit Initiative*. Available at <<http://www.piketransit.com/media/publications.aspx>>. Accessed July 2005.
- 2005c *Washington Metropolitan Area Transit Authority*. Available at <<http://www.wmata.com>>. Accessed August 2005.
- 2005d WMATA Facts. Available at <<http://www.wmata.com/about/default.cfm>>. Accessed June 11, 2006.

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As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environment and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

