

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.

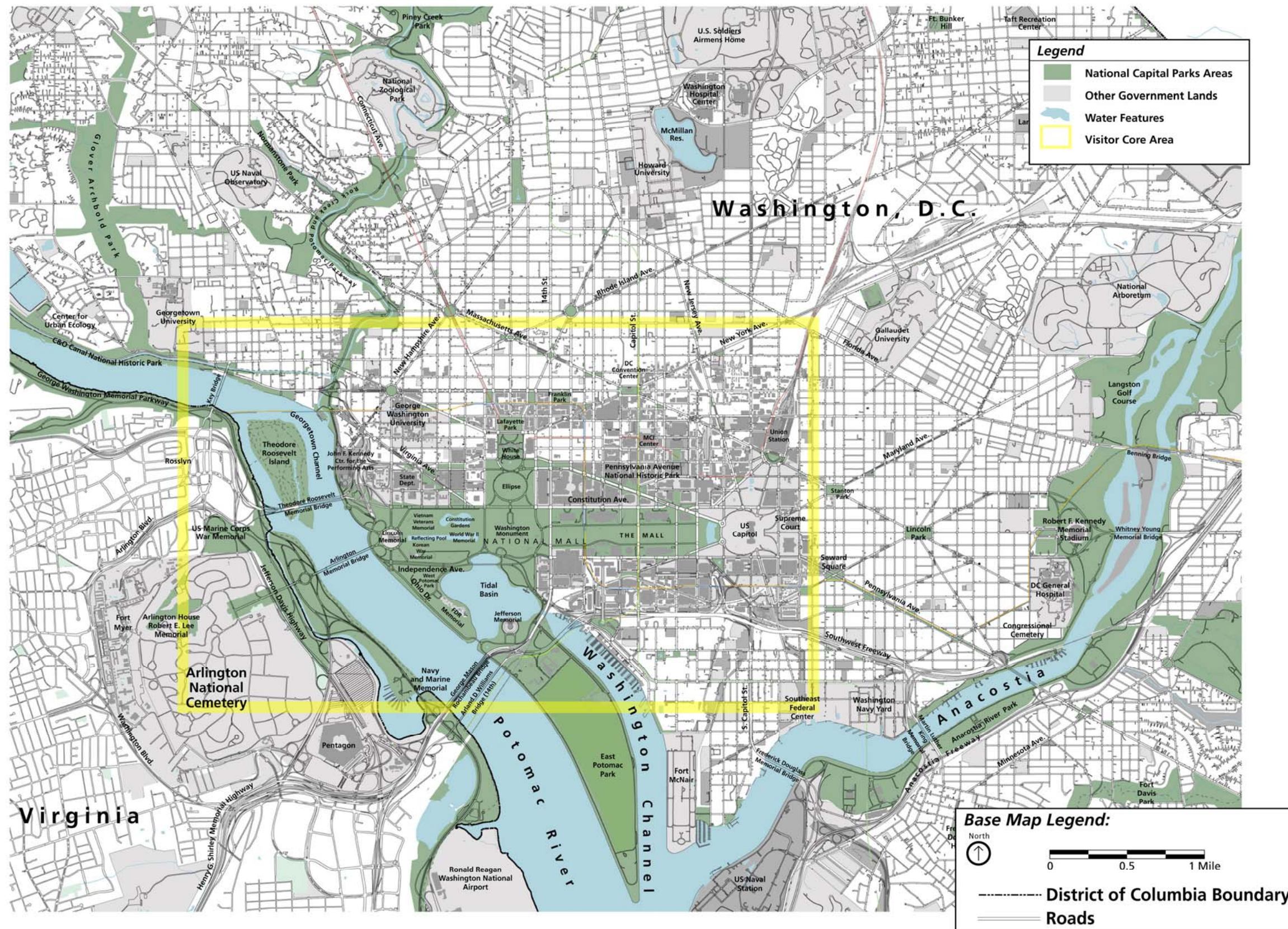
- Any NPS interpretive transportation service needs to be coordinated with long-term planning goals for Washington, D.C., which include:
 - reducing vehicle congestion
 - improving air quality
 - providing visitor parking facilities outside the primary visitor destination areas
 - increasing visitor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

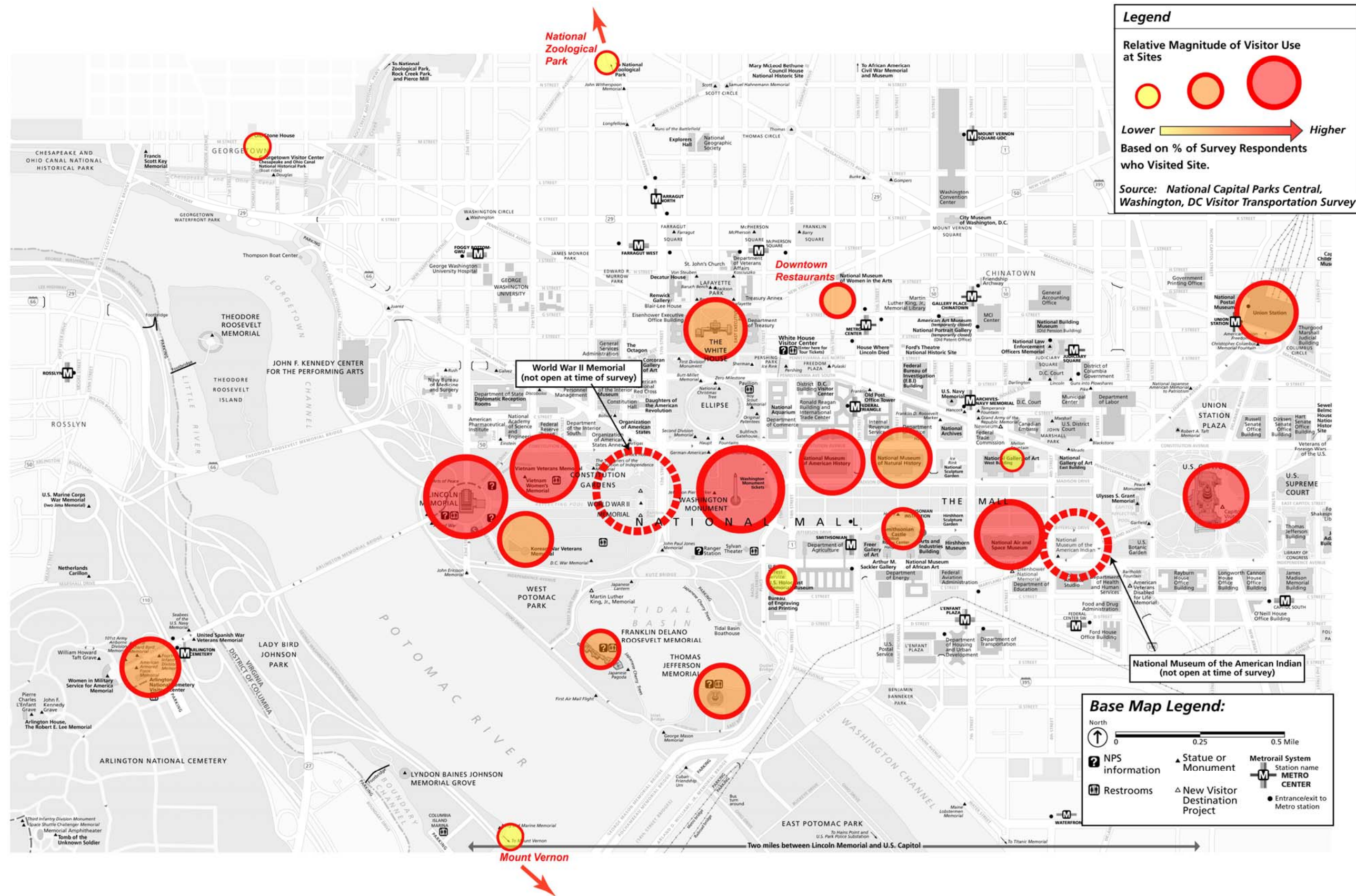


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Visitor Core: Top Visitor Destinations

National Mall & Memorial Parks

June 2006 • 802/20008

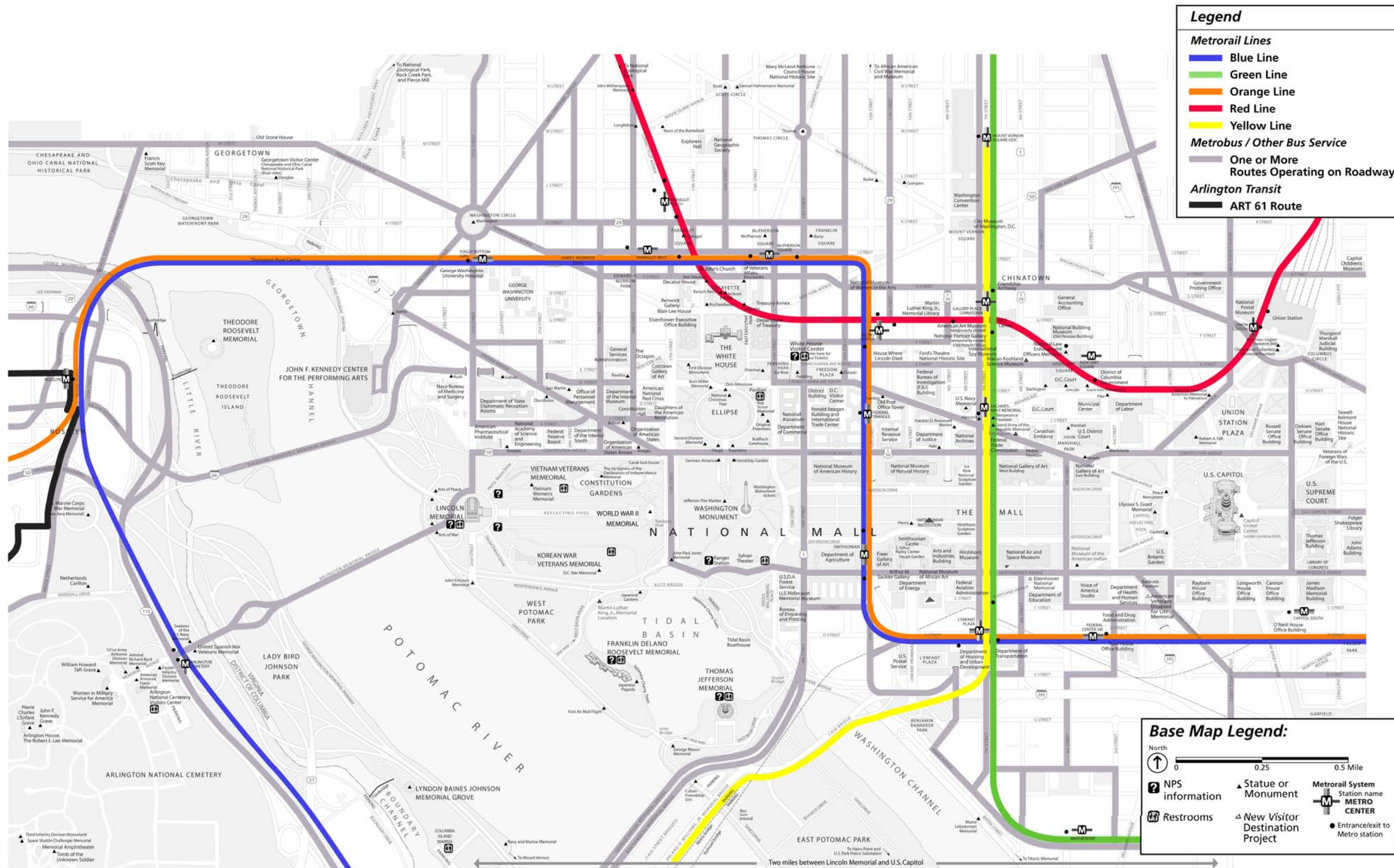


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Visitor Core: Primary Public Transit Service

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

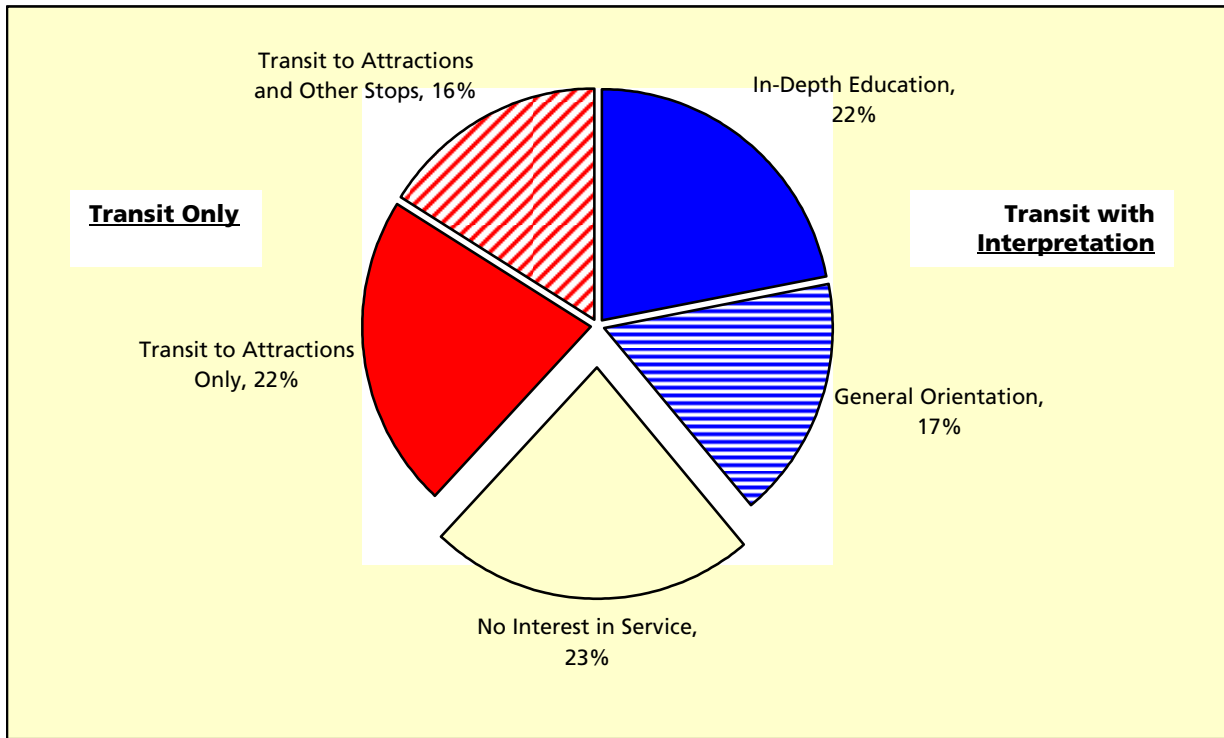
The 2003 *Visitor Transportation Survey* suggests that visitors are interested in four types of transportation service. A total of 1,386 people responded to a question about how desirable certain types of service would be to use (NPS 2003f). Service choices fell into two overall categories: transit only (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	

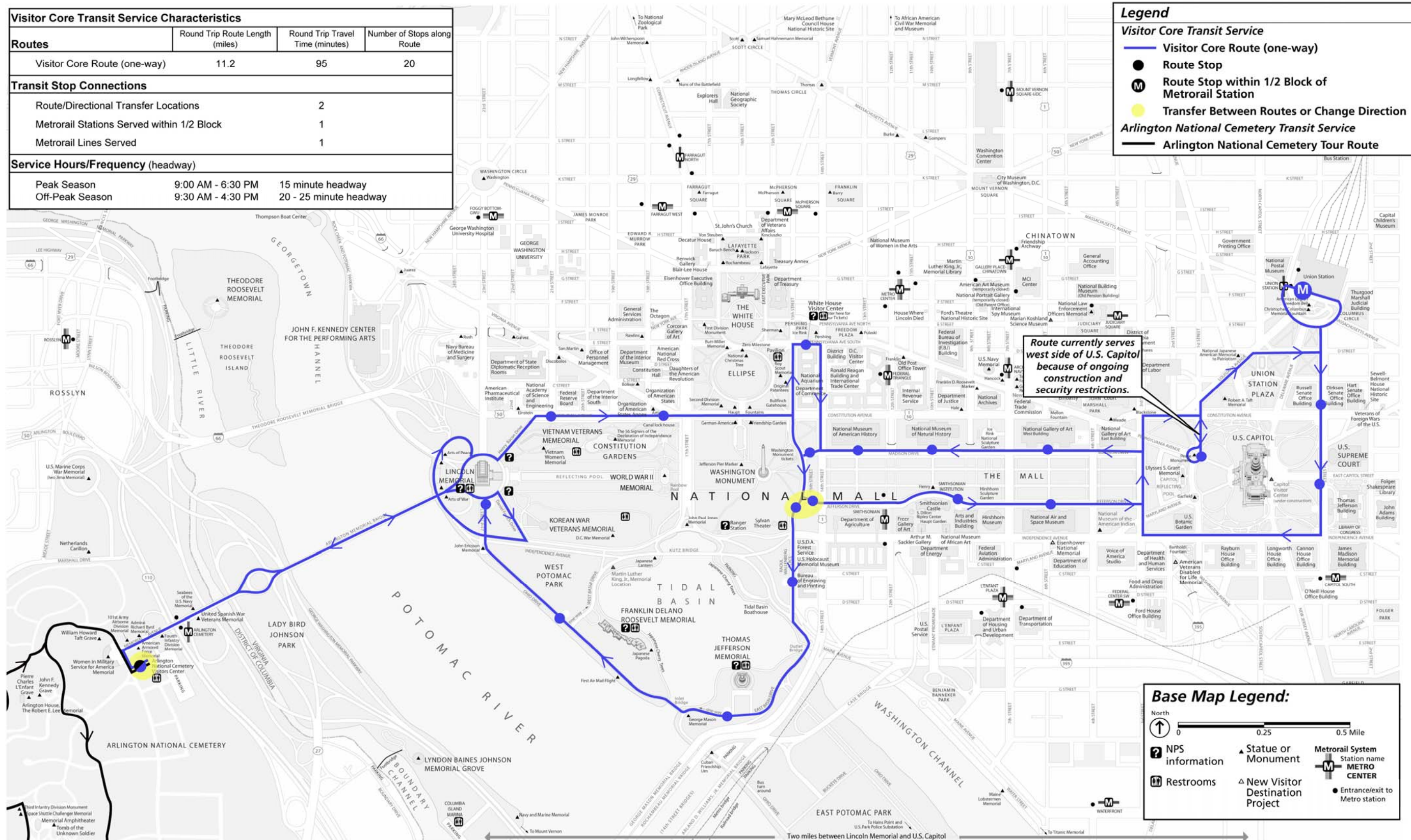
Legend

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

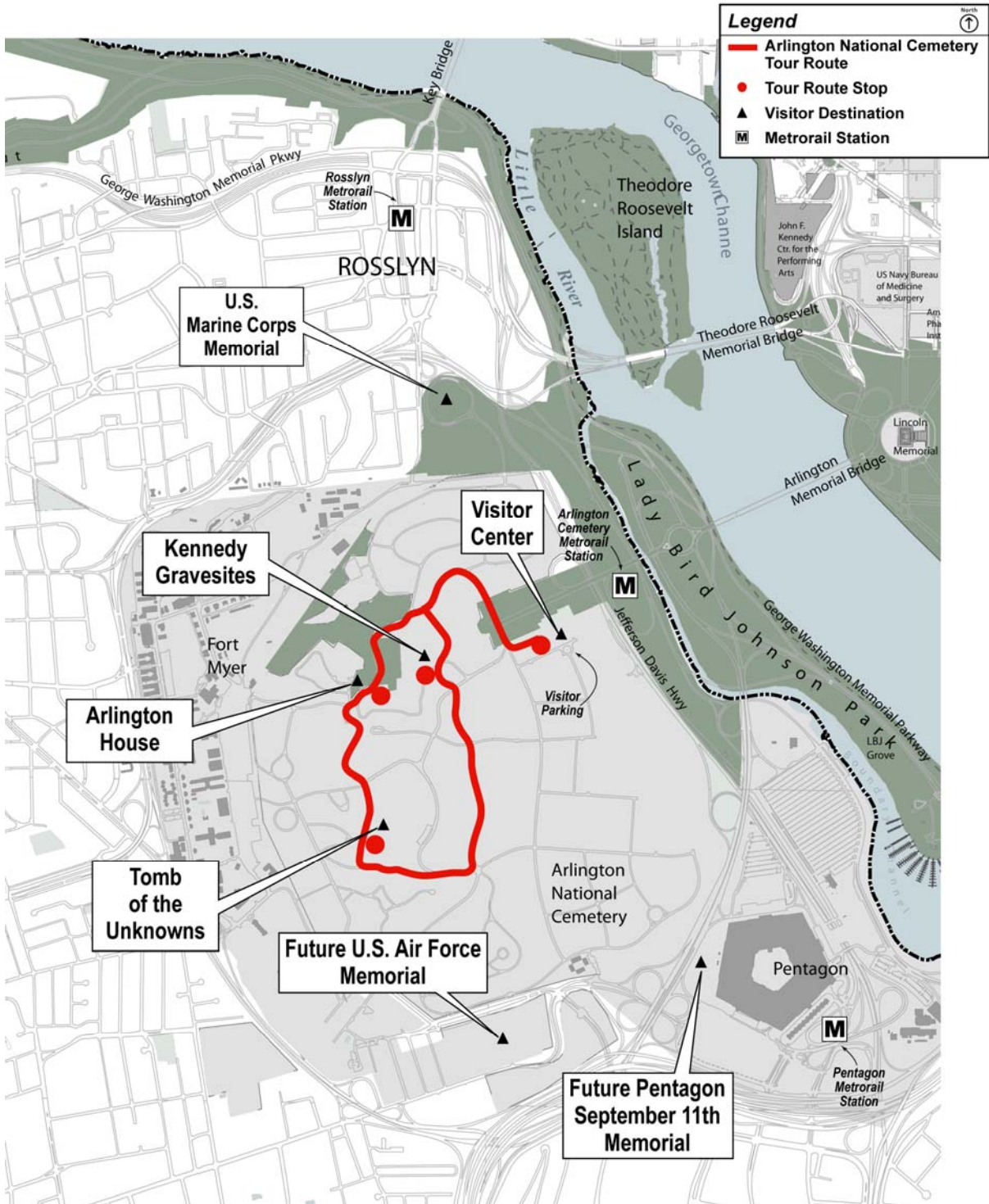
- NPS information
- Restrooms
- Statue or Monument
- New Visitor Destination Project
- Metrorail System Station name METRO CENTER
- Entrance/exit to Metro station

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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

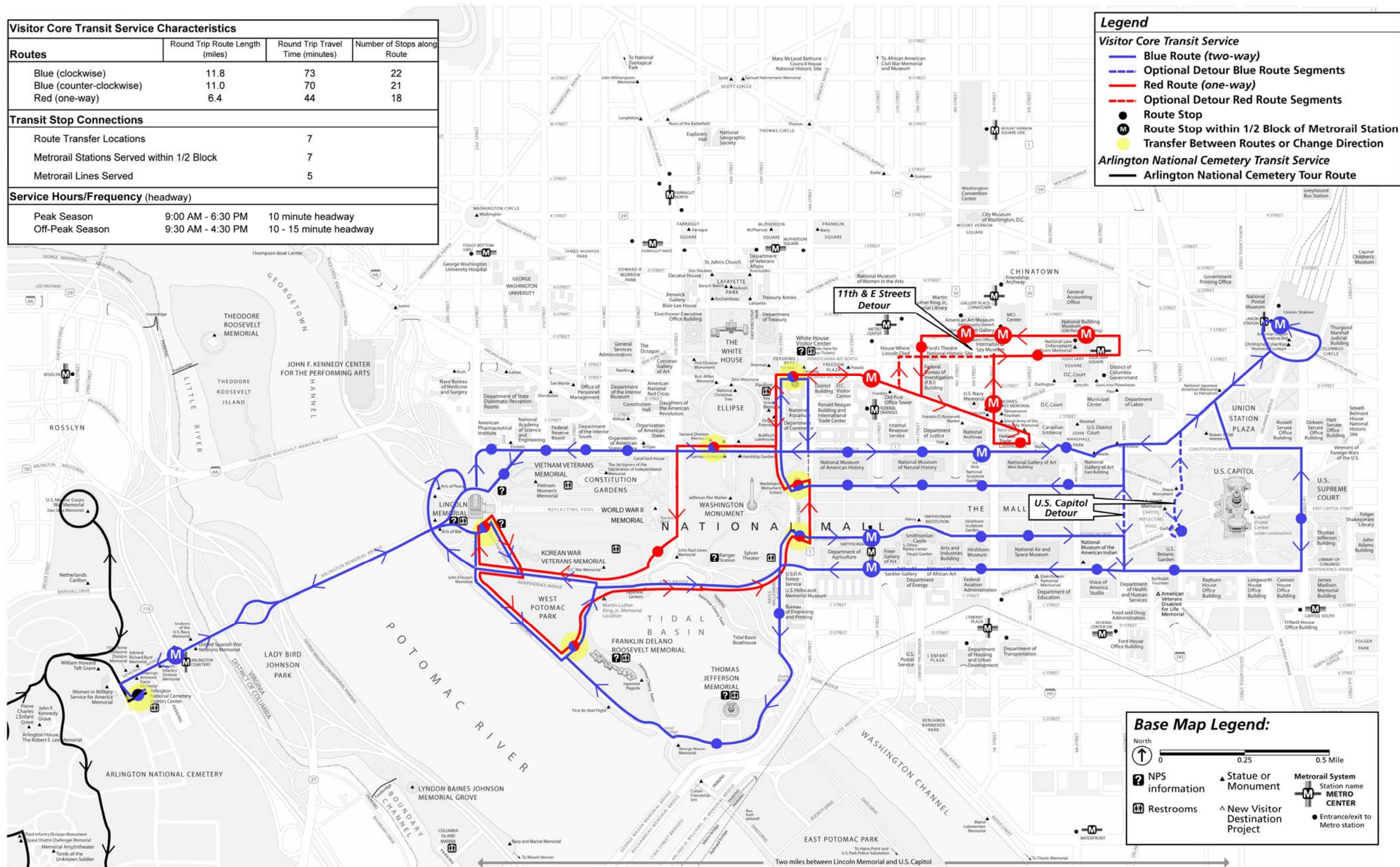
Legend

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



Base Map Legend:

North ↑

0 0.25 0.5 Mile

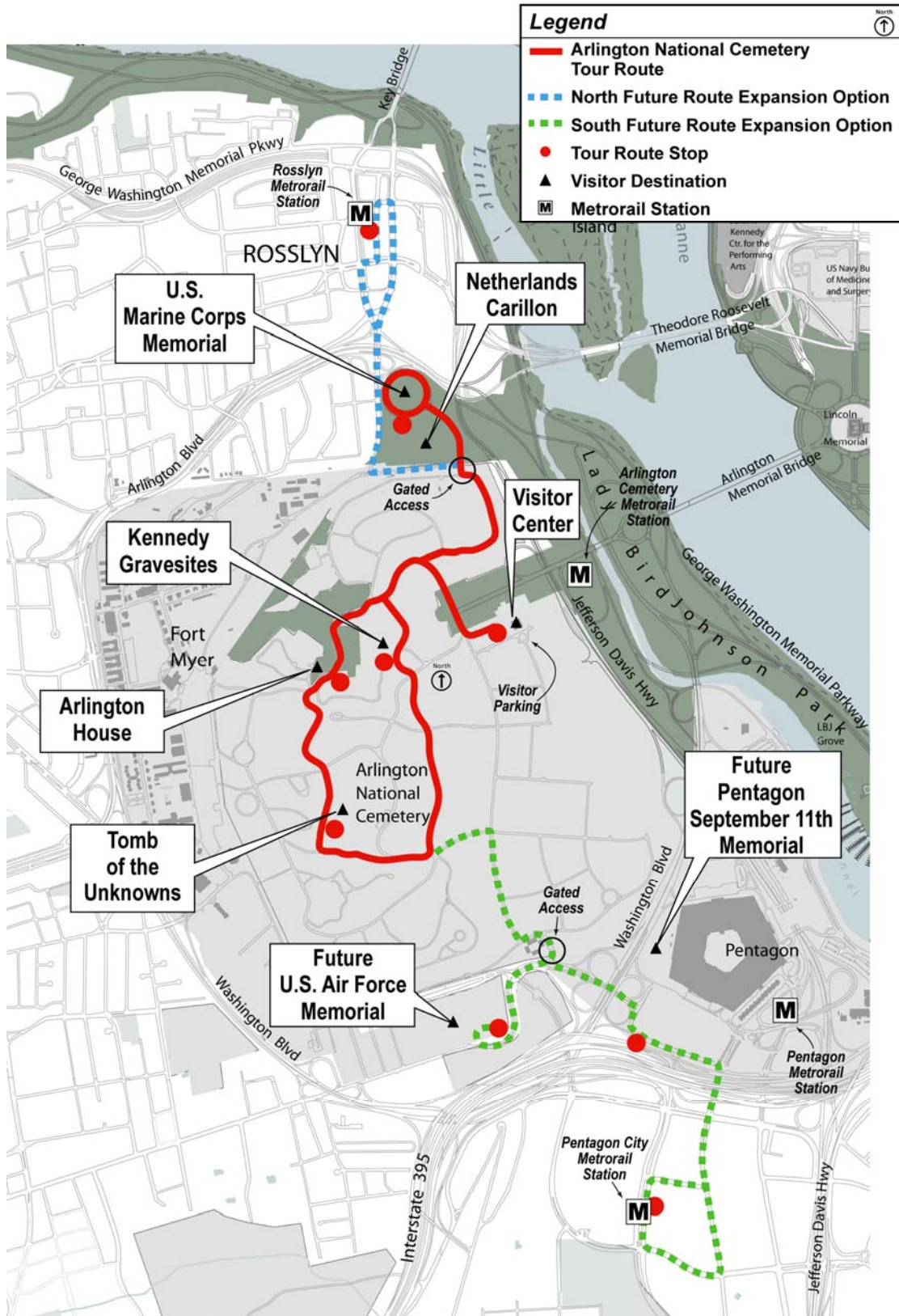
- Ⓜ NPS information
- Ⓜ Restrooms
- Ⓜ Statue or Monument
- Ⓜ New Visitor Destination Project
- Ⓜ Metrorail System Station name METRO CENTER
- Entrance/exit to Metro station

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Alternative 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.

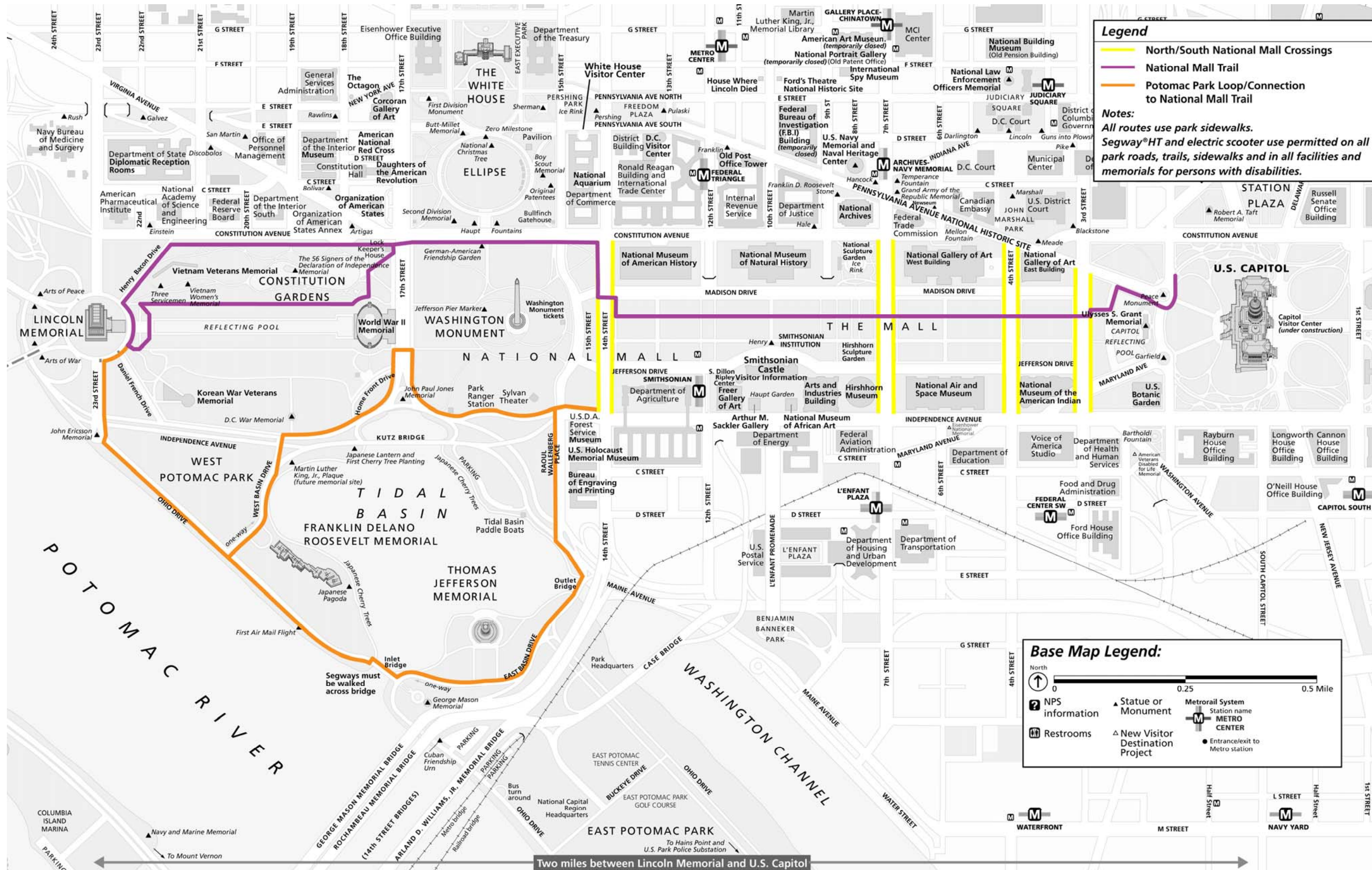
Route designation would include trail blaze signs to clearly mark appropriate Segway® HT and electric scooter use areas. Park brochures for Segway® HT and electric scooter use and policies would be developed, posted on NPS websites, and distributed to local user clubs and tour operators to ensure broad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

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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	

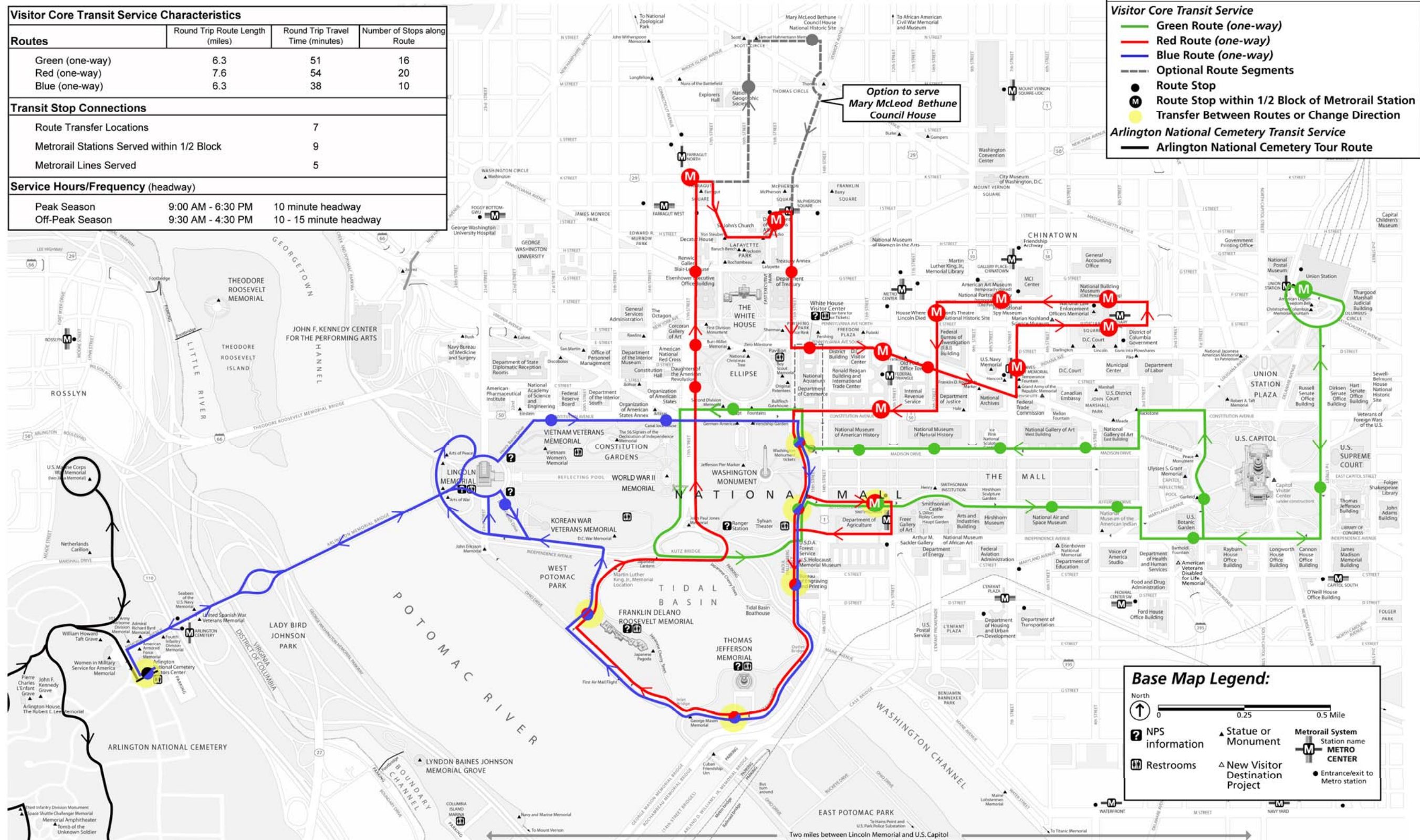
Legend

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.

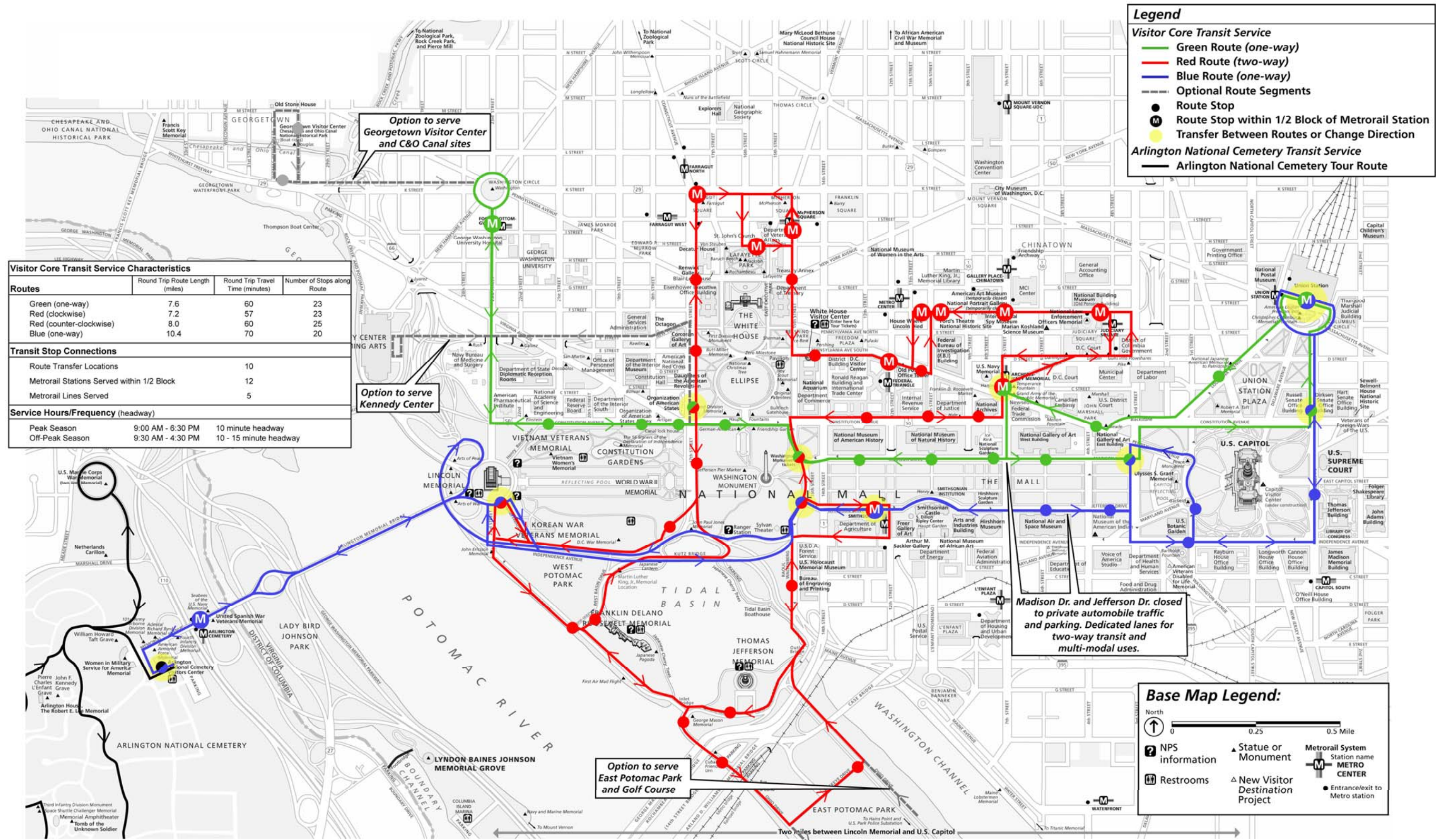
Another optional segment would run between Washington Circle and Georgetown in the northwest quadrant of the city. The route would extend west on K Street NW and Whitehurst Freeway, following Thomas Jefferson Street NW, M Street NW, and 30th Street NW to provide access to the Chesapeake & Ohio Canal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

- Green Route (one-way)
- Red Route (two-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

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

- 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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- **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)

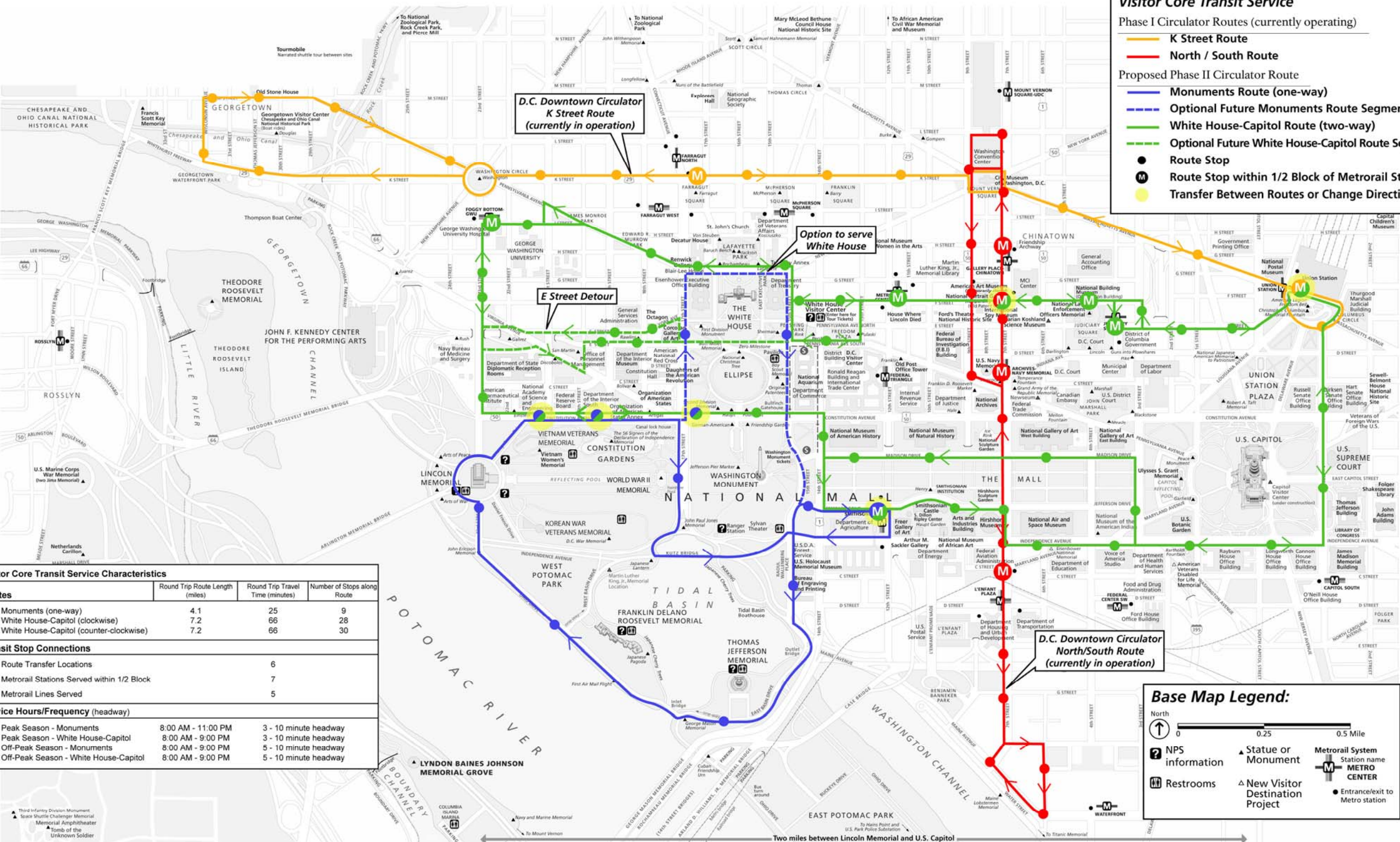
- K Street Route
- North / South Route

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
- 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	15 minutes	5–10 minutes	10 minutes	10 minutes	3–10 minutes
• 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.	8 a.m. to 9/11 p.m.
Off-Peak Season • Service Frequency	20–25 minutes	10–15 minutes	10–15 minutes	10–15 minutes	5–10 minutes
• Hours	9:30 a.m. to 4:30 p.m.	9:30 a.m. to 4:30 p.m.	9:30 a.m. to 4:30 p.m.	9:30 a.m. to 4:30 p.m.	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	5–10 minutes	5–10 minutes	5–10 minutes	5–10 minutes	Not applicable
• Hours	8:30 a.m. to 6:30 p.m.	8:30 a.m. to 6:30 p.m.	8:30 a.m. to 6:30 p.m.	8:30 a.m. to 6:30 p.m.	Not applicable
Off-Peak Season • Service Frequency	15 minutes	15 minutes	15 minutes	15 minutes	Not applicable
• Hours	8:30 a.m. to 4:30 p.m.	8:30 a.m. to 4:30 p.m.	8:30 a.m. to 4:30 p.m.	8:30 a.m. to 4:30 p.m.	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. 	<p>Partially meets objective: No consistent educational / interpretive content. Interpretive opportunities not taken full advantage of; no educational choice provided.</p>	<p>Meets objective: Quality delivery of consistent educational / interpretive content ensured. Expanded educational services offering more choice for visitors.</p>	<p>Partially meets objective: Quality delivery of consistent educational content ensured. Interpretive opportunities not taken full advantage of; no educational choice provided.</p>	<p>Meets objective: Quality delivery of consistent educational / interpretive content ensured. Expanded educational services offering more choice for visitors.</p>	<p>Does not meet objective: Full advantage of interpretive opportunities not taken; no interpretive / educational service provided.</p>
<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. 	<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>
<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. 	<p>Meets objective: Actual service delivery determined during project implementation; however, association with public or private provider or agency not precluded.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>	<p>Same as Alternative 1.</p>

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, and 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 (MWWCOG 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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