

# **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**

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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,

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\* 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**

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

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

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

## **Regional Transportation Policy**

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

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

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

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

## **Transportation Services**

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

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

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

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

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

### **Public Transit**

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

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

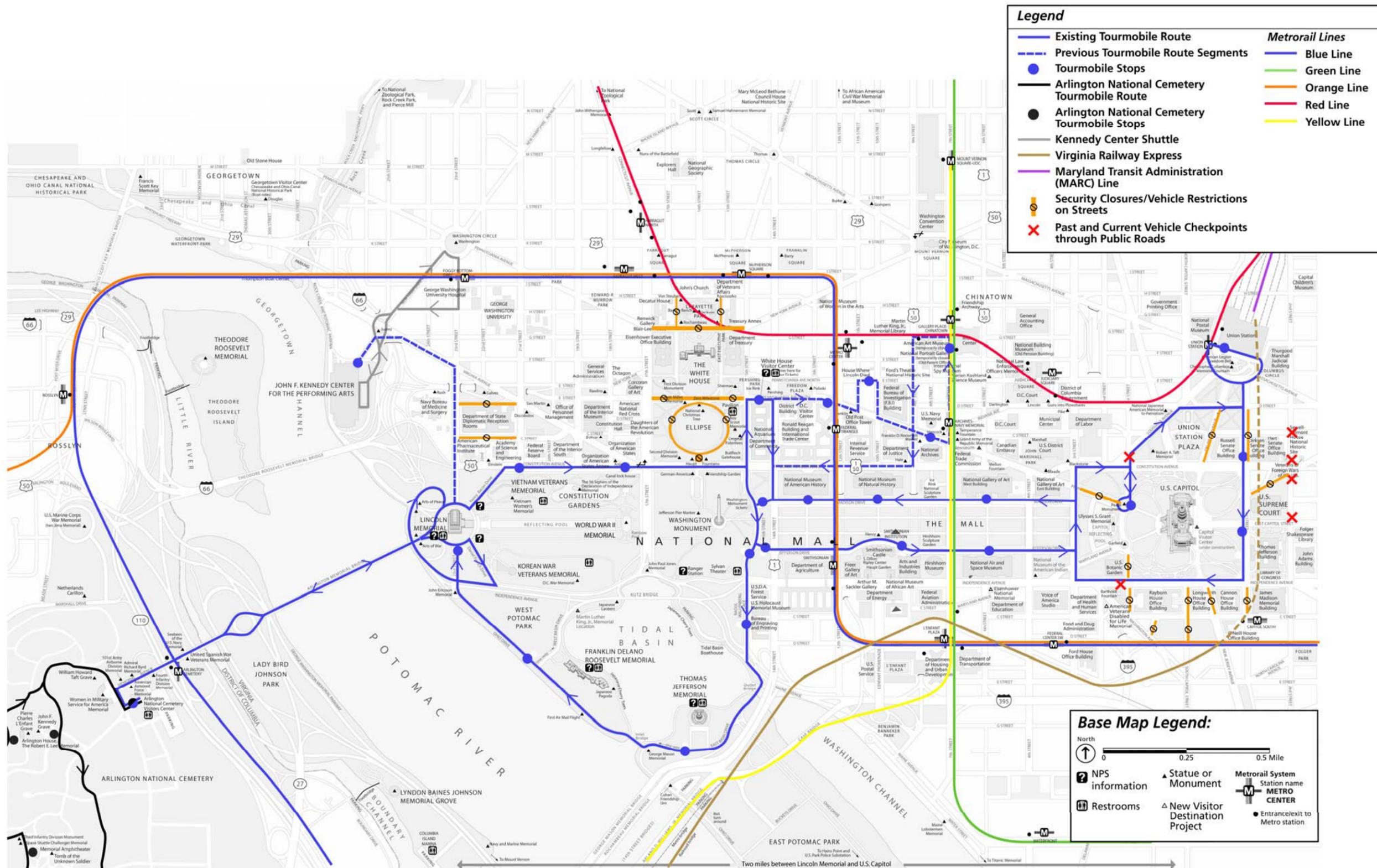
During fiscal year 2004 WMATA provided 190 million total rail trips and 146 million total bus trips. Metrorail operates seven days a week, beginning at 5 a.m. on weekdays and 7 a.m. on weekends, and ending at midnight Sunday through Thursday and 3 a.m. on Friday and Saturday. Metrobus schedules vary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

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

# Visitor Core Transportation Conditions

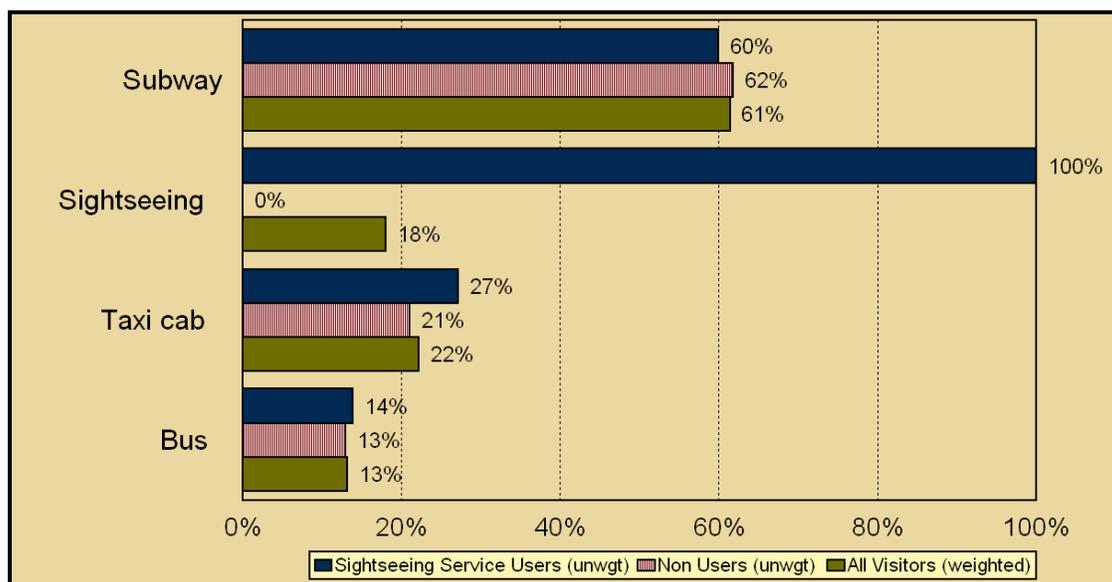
National Mall & Memorial Parks

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



SOURCE: NPS 2003f.

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

### **Commuter Rail**

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

### **Ridesharing**

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

### **Educational / Interpretive Transportation Services**

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

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

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

### **Tour Buses**

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

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

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

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

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

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

### **Transportation Infrastructure and Transit Facilities**

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

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

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

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

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

### Traffic Operations

Over the next 25 years the number of vehicle miles traveled in the national capital region is expected to increase by 46% (MWC0G 2004a). Respondents to an online survey in April 2004 by the Downtown D.C. Business Improvement District and the D.C. Department of Transportation nearly unanimously identified congestion as an important issue for both residents and workers (DDOT 2004e).

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

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

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

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

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

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

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

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

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

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

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

**Multimodal Access and Facilities**

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

**Walking**

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

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

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

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

**Table 26. 2002 Selected Roadway Average Weekday Traffic Volumes**

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

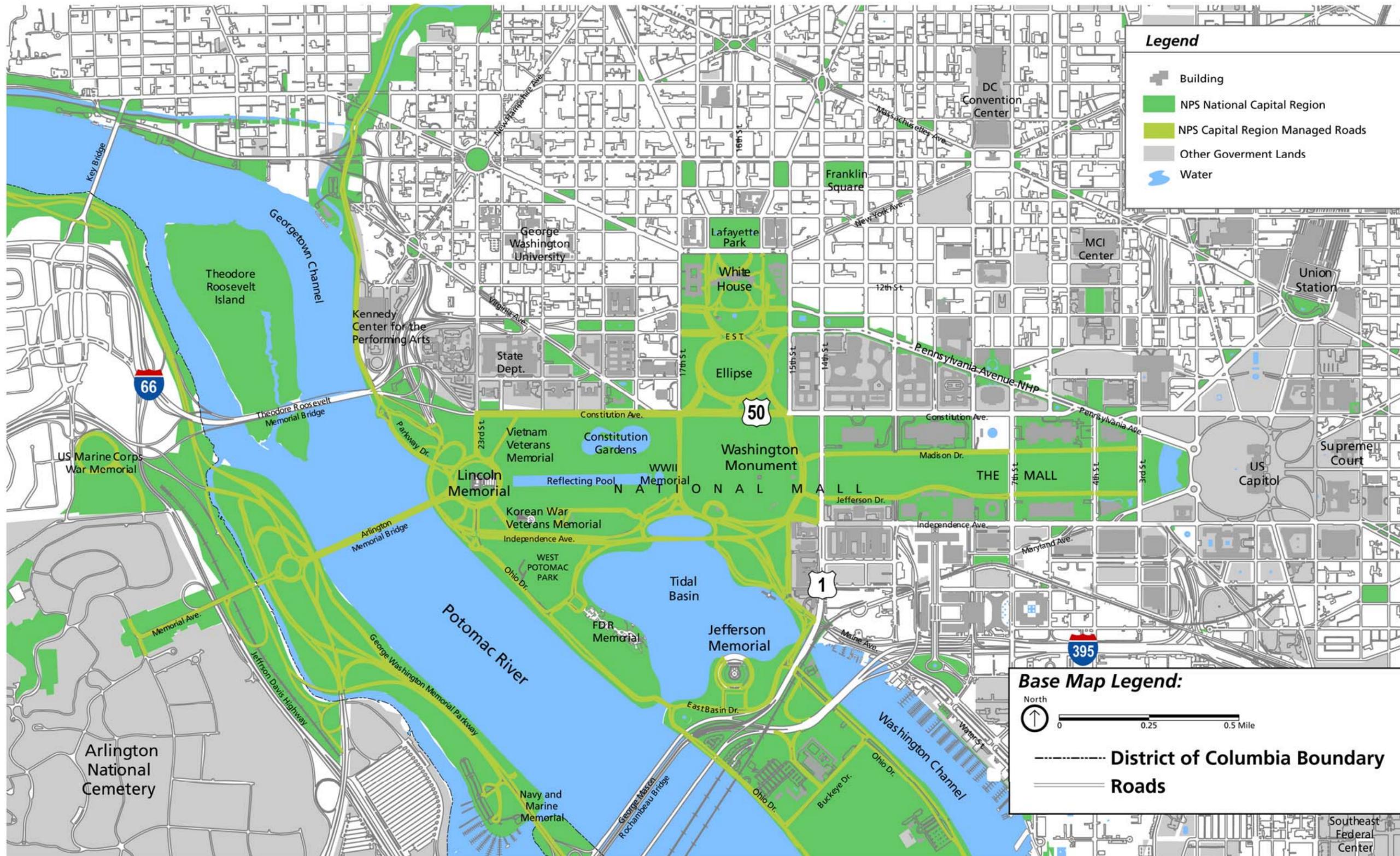
<b>North / South Roadways</b>	<b>Constitution Ave. NW – Independence Ave. SW</b>
15th Street NW/SW	21,800
7th Street NW/SW	20,900
3rd Street NW/SW	6,200

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

# Roads and Lands Managed by National Capital Parks

National Mall & Memorial Parks

September 2006 • 802/20019

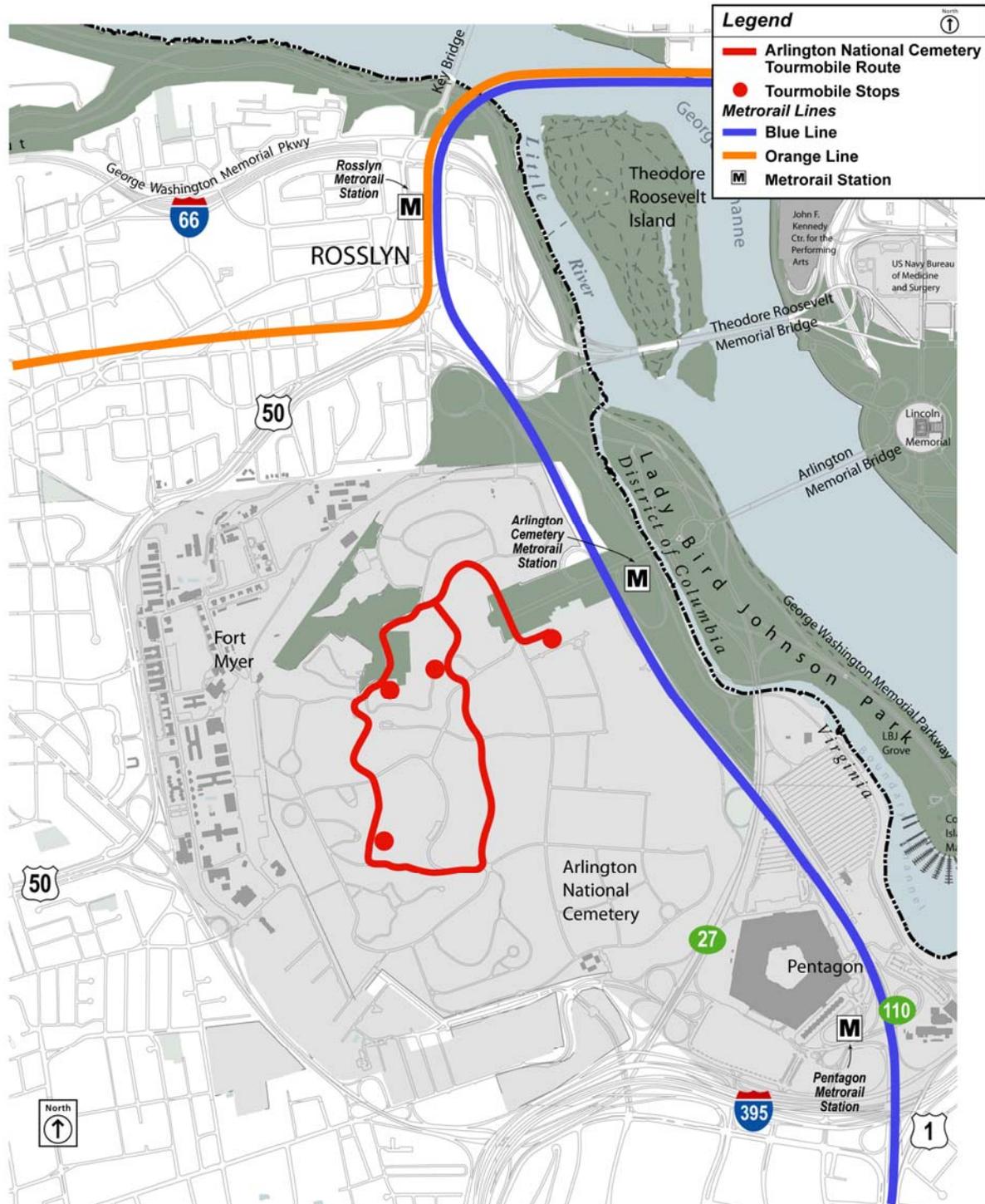


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# Arlington National Cemetery Area Transportation Conditions / Road Network

National Mall & Memorial Parks

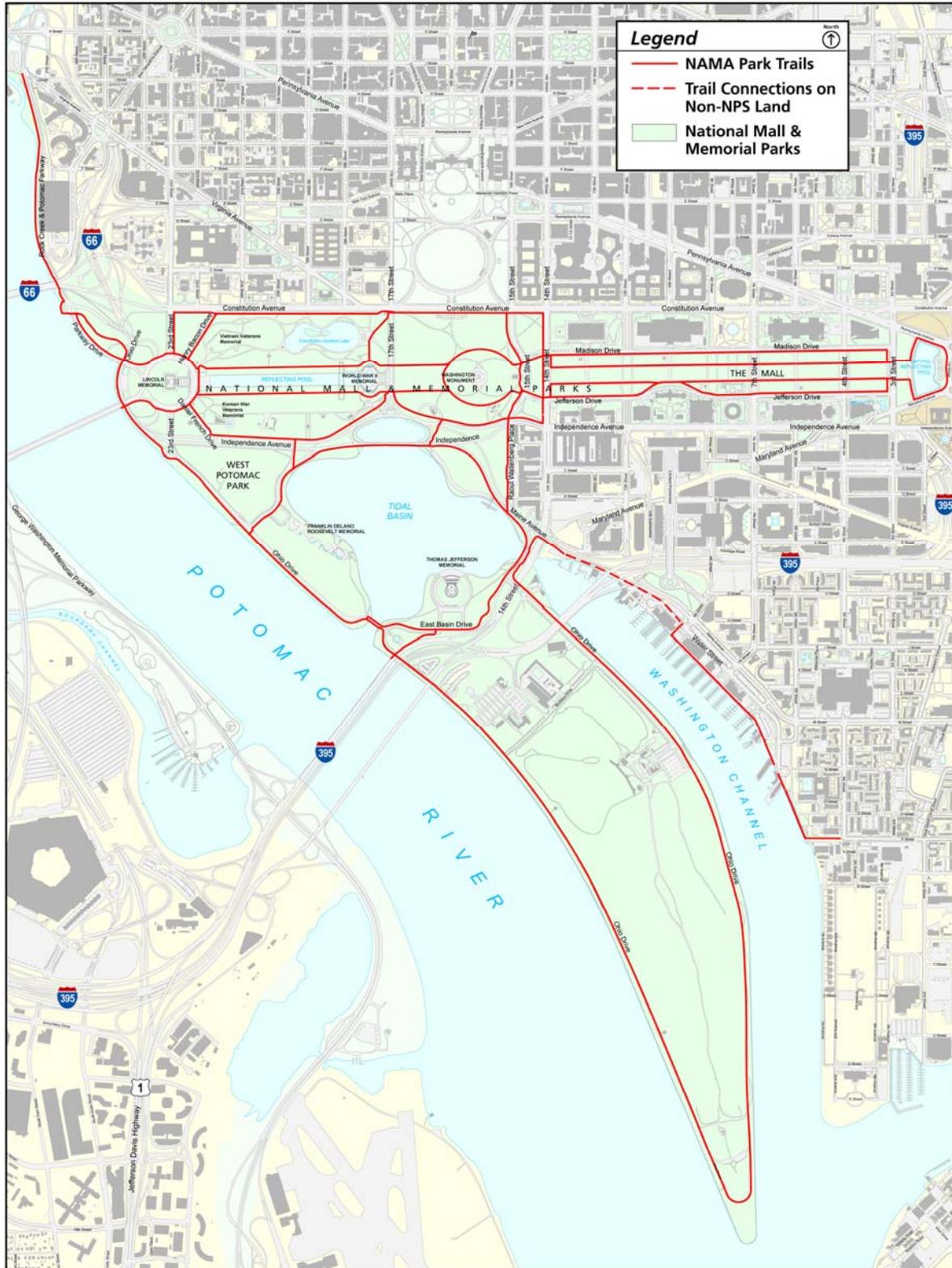
June 2006 • 802/20020



# National Mall & Memorial Parks Existing Multi-Use Trails

National Mall & Memorial Parks

June 2006 • 802/20021



## **Bicycles**

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

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

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

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

## **Segway® HTs**

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

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

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

## **Electric Scooters**

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

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

## Parking Conditions

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

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

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

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

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

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

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

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

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

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

## **IMPACT ANALYSIS**

### **Impact Intensity Thresholds**

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

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

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

### **Impacts Common to All Alternatives**

#### ***Transportation Infrastructure and Transit Facilities***

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

#### ***Parking Conditions***

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

### **Cumulative Impacts**

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

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

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

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

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

### **Alternative 1: No-Action**

#### **Analysis**

##### Transportation Service Network

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

##### Transportation Infrastructure and Transit Facilities

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

##### Traffic Operations

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

to reduce regional traffic congestion would not be addressed.

### Multimodal Access

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

### Parking Conditions

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

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

### **Cumulative Impacts**

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

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

## **Conclusion**

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

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

## **Alternative 2: Preferred Alternative**

### **Analysis**

#### Transportation Service Network

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

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

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

#### Traffic Infrastructure and Transit Facilities

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

#### Traffic Operations

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

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

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

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

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

#### Multimodal Access

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

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

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

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

#### Parking Conditions

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

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

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

### **Cumulative Impacts**

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

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

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

### **Conclusion**

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

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

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

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

### **Alternative 3**

#### **Analysis**

##### Transportation Service Network

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

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

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

### Transportation Infrastructure and Transit Facilities

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

### Traffic Operations

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

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

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

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

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

### **Multimodal Access**

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

### **Parking Conditions**

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

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

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

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

### **Cumulative Impacts**

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

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

### **Conclusion**

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

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

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

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

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

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

## **Alternative 4**

### ***Analysis***

#### ***Transportation Service Network***

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

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

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

#### ***Transportation Infrastructure and Transit Facilities***

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

minor and beneficial to the overall transportation system.

### Traffic Operations

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

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

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

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

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

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

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

### Multimodal Access

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

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

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

### ***Parking Conditions***

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

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

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

### ***Cumulative Impacts***

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

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

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

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

### ***Conclusion***

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

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

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

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

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

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

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

## **Alternative 5: Downtown Circulator**

### ***Impact Analysis***

#### ***Transportation Service Network***

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

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

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

#### ***Transportation Infrastructure and Transit Facilities***

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

#### ***Traffic Operations***

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

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

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

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

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

### Multimodal Access

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

### Parking Conditions

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

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

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

### Cumulative Impacts

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

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

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

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

### **Conclusion**

In the long term Alternative 5 would have

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

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

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

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

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

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

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

# VISITOR AND TRANSIT USER EXPERIENCE

## **AFFECTED ENVIRONMENT**

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

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

### **Visitor Statistics**

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

An estimated 26 million visits were made to 10 sites and parks under the jurisdiction of the National Mall & Memorial Parks in 2005 (NPS 2006a). Recreation visitor statistics for specific sites included approximately 468,000 visits to the Washington Monument, 3.6

million visits to the Lincoln Memorial, 2.3 million visits to the Jefferson Memorial, 3.8 million visits to the Vietnam Veterans Memorial, 4.4 million visits to the World War II Memorial, and 3.2 million visits to the Korean War Veterans Memorial (NPS 2006c).

In addition to the National Mall & Memorial Parks, total recreation visits for several downtown and outlying area national park areas for fiscal year 2005 include approximately 7.3 million visits to George Washington Memorial Parkway, 1.7 million visits to President's Park, 1.4 million visits to National Capital Parks-East, 2.1 million visits to Rock Creek Park, and 3 million visits to Chesapeake & Ohio Canal National Historical Park (NPS 2006c). More than 4 million people visit Arlington National Cemetery annually.

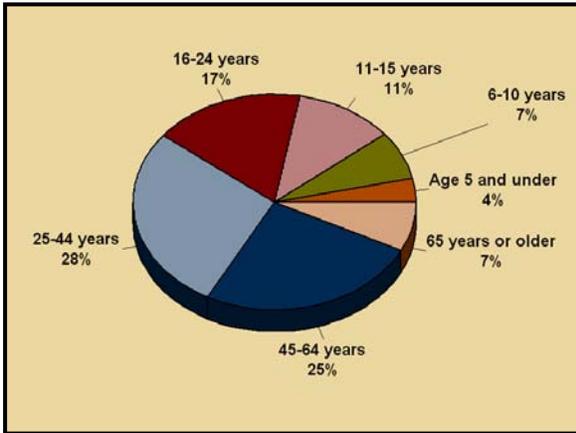
### **Typical Visitor Profile**

Data from the 2003 NPS *Visitor Transportation Survey* provide a statistical analysis of visitation characteristics, which can be used to make a general prediction of visitor characteristics and transit service preferences.

Based on this information, the primary purpose of trips for most visitors is pleasure or leisure. A majority of visitors arrive in family groups and are primarily between the ages of 25 and 44 (28%) or 45 and 64 (25%) (see Figure 3). About 60% stay in the metropolitan area for two to four days (Figure 4).

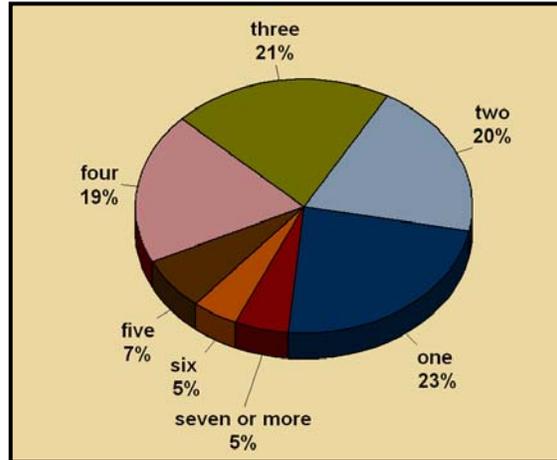
A majority of visitors arrive without a car and use transit services, including Metrorail (see Figure 5). For those visitors who arrive with a car, approximately half continue to drive in the metropolitan area. Visitors on average visit approximately 15 destinations during their trip, or an average of five attractions per day when visiting sites in the visitor core. Walking is the most popular way to get to top visitor destinations in the downtown area (Figure 6).

**Figure 3. Age Distributions of Visitor Travel Groups**



SOURCE: NPS 2003f.

**Figure 4. Visitor Travel Group's Length of Stay (in Days)**



SOURCE: NPS 2003f.

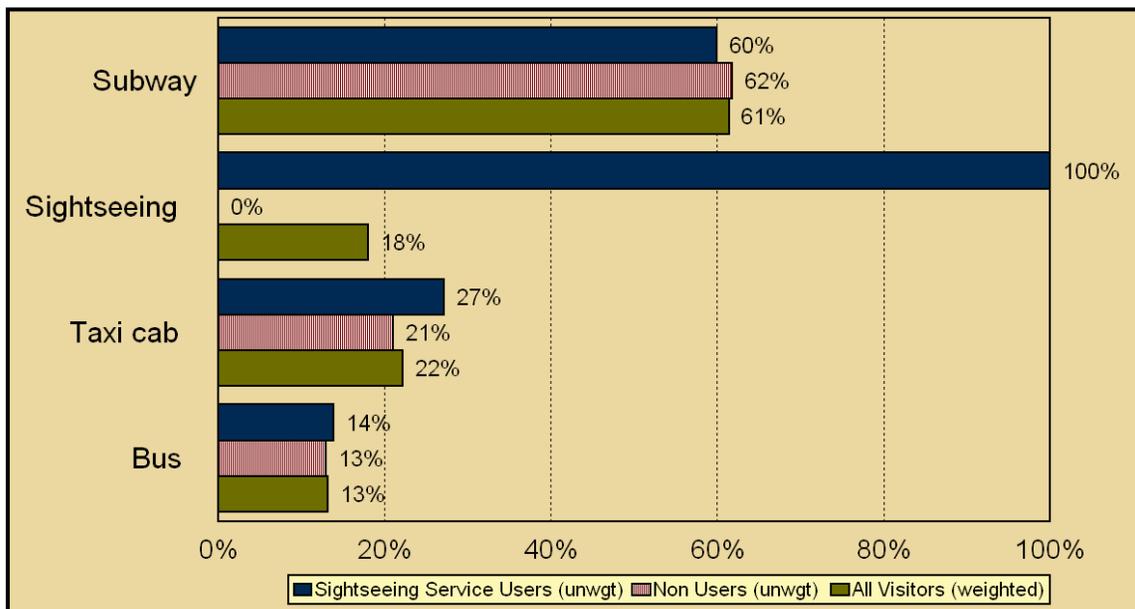
## Transportation System

### Traveler Characteristics

Thousands of area residents travel to, from, and within the downtown metro area each day. The federal government is the region's largest employer and is the primary contributor to the economy, along with the service sector. Resident trips to access employment, shopping, and other destinations in the downtown area are generally made either by auto or by public transit. Once workers and shoppers arrive downtown, they may need to make short trips within the core area.

butor to the economy, along with the service sector. Resident trips to access employment, shopping, and other destinations in the downtown area are generally made either by auto or by public transit. Once workers and shoppers arrive downtown, they may need to make short trips within the core area.

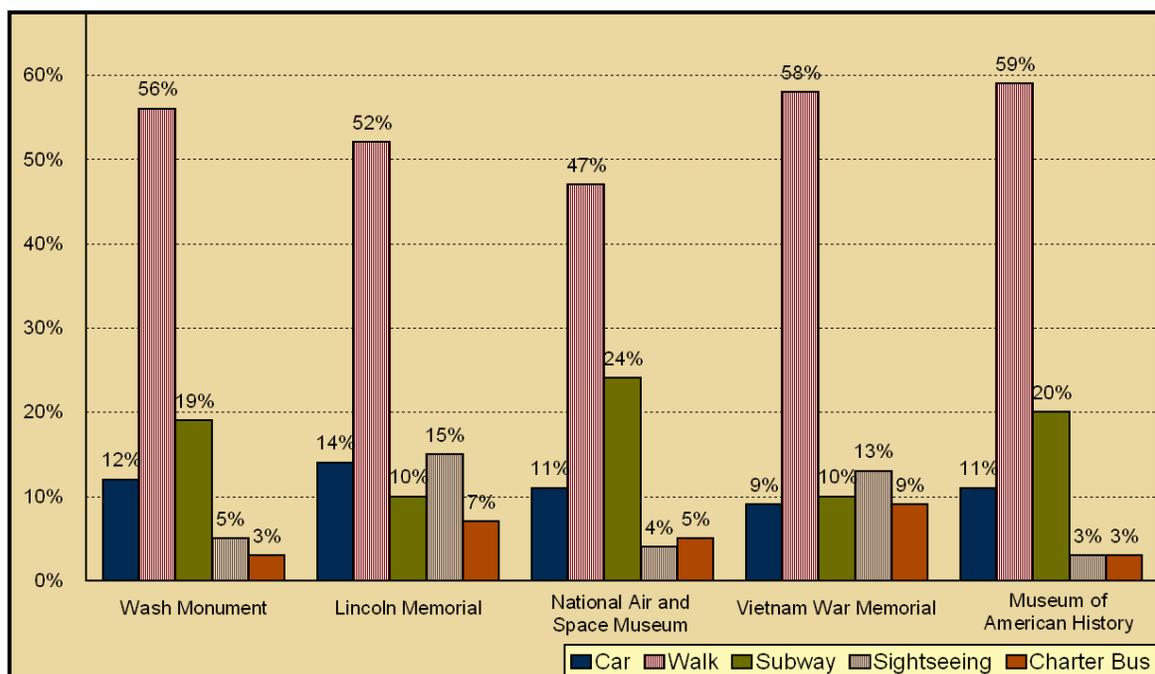
**Figure 5. Transportation Services Used by Downtown and Park Visitors**



SOURCE: NPS 2003f.

NOTE: Results for "All Visitors" are weighted based on the estimated percentage of sightseers to non-sightseers in the general population (18% to 82%). See the NPS 2003 *Visitor Transportation Survey* for additional details.

**Figure 6. Modes of Travel between Visitor Destinations in the Visitor Core**



SOURCE: NPS 2003f.

As the region’s largest employer, the federal government’s efforts to encourage alternative commuting modes for its employees make a significant contribution to regional transportation solutions. Federal policies support transit use, ridesharing, telecommuting, and other commuter modes, providing a range of options for reducing use of the region’s congested roadways. The *Comprehensive Plan for the National Capital: Federal Elements* focuses on working with regional entities to develop solutions that offer greater transportation system efficiencies and a wider range of transportation choices, improving access and mobility for federal and nonfederal employees alike (NCPC 2004a).

**Visitor Convenience**

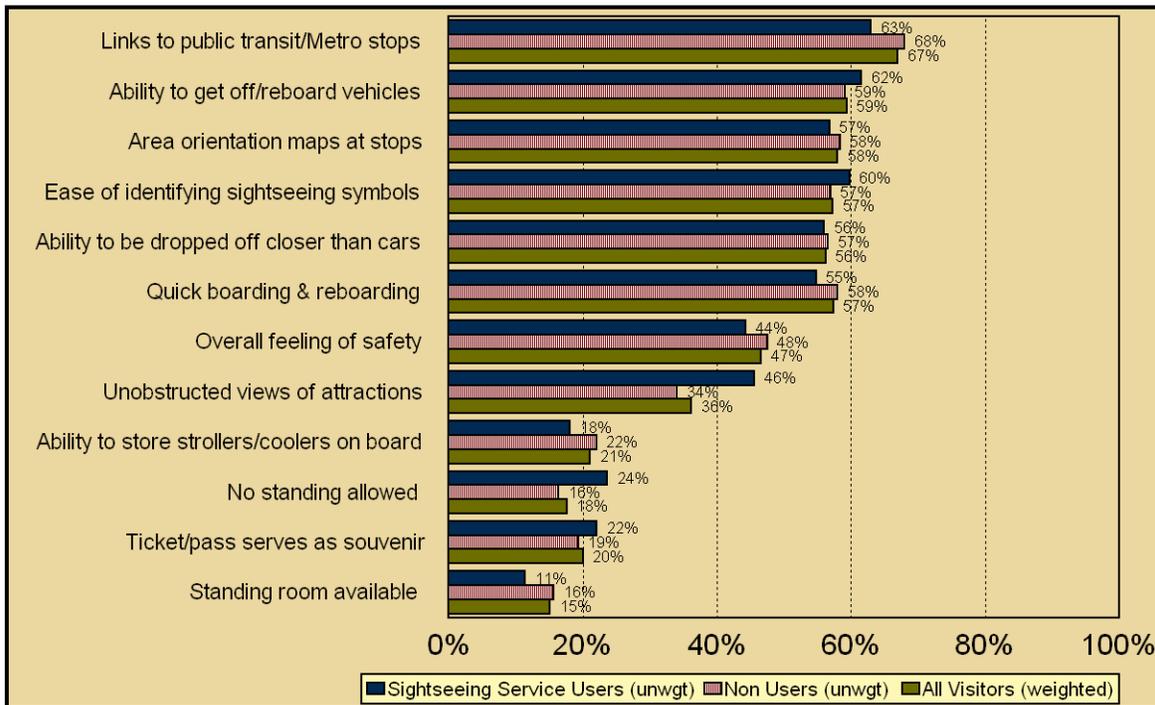
The NPS 2003 *Visitor Transportation Survey* indicates that a majority of visitors choose convenience as the most important transportation service factor (NPS 2003f). Convenience characteristics include features such as links to public transit stops, frequent

service, the ability to get off and on vehicles at designated stops, and the overall feeling of comfort. A majority of visitors identified links to public transit as the most important feature (see Figure 7).

Public transit service in the metro area is provided by the Washington Metropolitan Area Transit Authority, as well as transit services in nearby communities in Maryland and Virginia. The current visitor transportation service provides connections to the Metro at Union Station as well as other elements of the transportation network, such as rail service, tour buses, personal transportation vehicles, and pedestrian trails and sidewalks. The ability to access and connect with public transit and to pay fares with easy-to-use ticketing systems are both attractive convenience characteristics to users (non-visitors) as well.

Special events occasionally affect visitor transportation routes and services, resulting in service delays or cancellations. For example, the visitor ridership study showed four days of

**Figure 7. Desired Convenience Characteristics for a Visitor Transportation Service**



SOURCE: NPS 2003f.

NOTE: Results for "All Visitors" are weighted based on the estimated percentage of sightseers to non-sightseers in the general population (18% to 82%). See the NPS 2003 *Visitor Transportation Survey* for additional details.

service cancellation in 2000. Heightened security alerts may also affect service and routes, and security checks may result in service slow-downs or disruptions. Currently, the visitor core route only serves the west side of the U.S. Capitol because of ongoing construction and security restrictions.

**Ridership**

Tourmobile ridership\* data indicate that peak days are typically Friday, Saturday, and Sunday, with Saturday being the busiest day. Seasonally, June, July, and August are the peak months, followed by March and April. The busiest ridership month is June. Total ridership includes three routes: Arlington National Cemetery, the National Mall, and excursions (Twilight and Mount Vernon tours). Total ridership dropped by about 30% from 2000 to

2002 (from 1,357,304 passengers to 954,241), which can be attributed to the aftermath of September 11, 2001. For 2004 ridership data showed an increase of 12% over 2002 (to 1,065,365).

According to the NPS *Visitor Transportation Survey* (NPS 2003f), the transit services market of most interest to visitors is equally divided between (1) transit service with some level of interpretation / orientation, and (2) transit service only (see Figure 1 on page 26). Within each of these markets are submarkets based on the level of interpretation offered or the range of destinations served, as explained below:

- For visitors interested in interpretation, the submarkets include those transit users preferring in-depth interpretation and those who are only interested in general orientation. The current concession service focuses on the submarket preferring in-depth interpretive transit service,

\* Ridership represents the number of users who have purchased a daily fare; it does not account for total boardings by all transit users.

and it is therefore limited in its potential to also appeal to the portion of the market that wants general orientation.

- The submarkets for visitors who only want convenient transit access without interpretation include transit only to attractions or transit only to attractions and other stops.

### **Visitor Access to Destinations**

As described previously, visitors can access destinations in the visitor core area by using the current NPS concession service, as well as by automobile, tour bus, taxi, private shuttle service, and personal transportation vehicle (bicycles, Segway® HTs, and electric scooters). Sidewalks and trails also connect core area sites, and there is a self-guided walking tour of Arlington National Cemetery.

The top destinations identified in the NPS *Visitor Transportation Survey* (determined by the number of trips to destinations) are shown in Table 27, including which destinations would be accessible under each alternative. Accessible sites would be within 750 feet of a transit stop, or about a 2- to 4-minute walk. The table also indicates destinations that have opened since 2003, such as the World War II Memorial (one of the top destinations visited today) and the National Museum of the American Indian.

Current stops on the American Heritage Tour include the Arlington National Cemetery visitor center, the Lincoln Memorial, the Vietnam Veterans Memorial, the White House Visitor Center, the Washington Monument, the Smithsonian Metrorail stop, the National Air and Space Museum, the U.S. Capitol, Union Station (Metrorail), the National Gallery of Art, the National Museum of Natural History, the National Museum of American History, the U.S. Bureau of Engraving and Printing, the Jefferson Memorial, and the FDR Memorial.

Stops on the Arlington National Cemetery Tour include the visitor center, the John F. Kennedy

gravesite, the Tomb of the Unknowns, and Arlington House. Visitors are not allowed to drive vehicles in Arlington National Cemetery unless they are attending a burial service or visiting a gravesite.

### **Visitor Movements**

Visitor trip movements in the visitor core are shown on the “Visitor Movement between Top Destination Areas” map. The number of visitor trips between destination areas was determined by assessing bi-directional travel patterns (including all travel modes) as reported in the 2003 NPS *Visitor Transportation Survey*. By identifying the most predominant trip movements between top destination areas, it was possible to identify where additional or improved transportation access could be most beneficial.

The most frequent visitor movements between destination areas (in order of magnitude) are as follows:

1. Lincoln Memorial — FDR Memorial / Jefferson Memorial
2. Lincoln Memorial — Washington Monument
3. National Air and Space Museum — National Mall north side (e.g., National Gallery of Art)
4. Washington Monument — National Mall north side (e.g., National Museum of American History)
5. Washington Monument — White House Visitor Center
6. White House Visitor Center — Lincoln Memorial  
U.S. Capitol area (e.g., U.S. Supreme Court) — Union Station area
7. National Mall south side (e.g., the Smithsonian Castle) — National Mall north side (e.g., National Museum of Natural History)

**Table 27. Top D.C. Visitor Destinations, and Destinations Accessible under Each Alternative**

Site Ranking*	Destination	Sites Accessible by Transit Service				
		Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
1	Washington Monument	•	•	•	•	•
2	Lincoln Memorial	•	•	•	•	•
3	National Air & Space Museum	•	•	•	•	•
4	Vietnam Veterans Memorial	•	•	•	•	•
5	National Museum of American History	•	•	•	•	•
6	National Museum of Natural History	•	•	•	•	•
7	U.S. Capitol	•	•	•	•	•
8	White House Visitor Center	•	•	•	•	•
9	Arlington National Cemetery	○/•	○/•	○/•	○/•	
10	Jefferson Memorial	•	•	•	•	•
11	Korean War Veterans Memorial	•	•	•	•	•
12	Smithsonian Castle	•	•	•	•	•
13	Union Station	•	•	•	•	•
14	Franklin D. Roosevelt Memorial	•	•	•	•	•
15	U.S. Holocaust Memorial Museum	•	•	•	•	•
16	National Gallery of Art	•	•	•	•	•
17	Mount Vernon	□	□	□	□	
18	Georgetown				◆	•
19	Downtown DC Restaurants		•	•	•	•
20	National Zoo					
21	Ford's Theatre National Historic Site		•	•	•	•
22	U.S. Marine Corps War Memorial		○	○	○	
23	U.S. Library of Congress	•	•	•	•	•
24	National Cathedral					
25	International Spy Museum		•	•	•	•
26	Old Town Alexandria					
27	Hirschhorn Museum and Sculpture Garden	•	•	•	•	•
28	U.S. Supreme Court	•	•	•	•	•
29	Downtown D.C. Shops		•	•	•	•
30	National Postal Museum	•	•	•	•	•
31	Kennedy Center for the Performing Arts				◆	
32	Bureau of Engraving and Printing	•	•	•	•	•
33	Freer Galley / Arthur Sackler Gallery	•	•	•	•	•
34	FBI Building		•	•	•	
35	Great Falls					
36	U.S. Navy Memorial		•	•	•	
37	National Shrine					
38	National Building Museum		•	•	•	•
39	Tidal Basin	•	•	•	•	•
40	Chesapeake & Ohio Canal National Historical Park				•	
41	Renwick Gallery			•	•	•
42	Rock Creek Park					
43	National Archives		•	•	•	
44	Corcoran Gallery of Art			•	•	•
45	Frederick Douglass National Historic Site	□	□	□	□	
46	National Portrait Gallery		•	•	•	•
47	National Law Enforcement Officers Memorial		•	•	•	•
48	Decatur House			•	•	•
49	Anacostia Museum & Center for African American History					
50	Capital Children's Museum					
51	Anacostia Neighborhood Museum					
<b>Additional Sites (not included in 2003 Visitor Transportation Survey)</b>						
	World War II Memorial	•	•	•	•	•
	National Museum of the American Indian	•	•	•	•	•
	<b>Subtotal — Visitor Core Routes</b>	<b>25</b>	<b>35</b>	<b>38</b>	<b>39/41</b>	<b>34</b>
	<b>Subtotal — Arlington National Cemetery Routes</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>NA</b>
	<b>Subtotal — Excursion Routes**</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>NA</b>
	<b>Total — All Routes</b>	<b>28</b>	<b>39</b>	<b>42</b>	<b>43/45</b>	<b>34</b>

SOURCE: NPS 2003f.

\* Ranking based on number of visitors.

\*\* More destinations could be served, depending on demand.

Symbol code:

- Visitor core transit service.
- Arlington National Cemetery transit service.
- Excursion tour.
- ◆ Optional route extension.

# Visitor Core: Visitor Movements between Top Destination Areas

National Mall & Memorial Parks

June 2006 • 802/20022

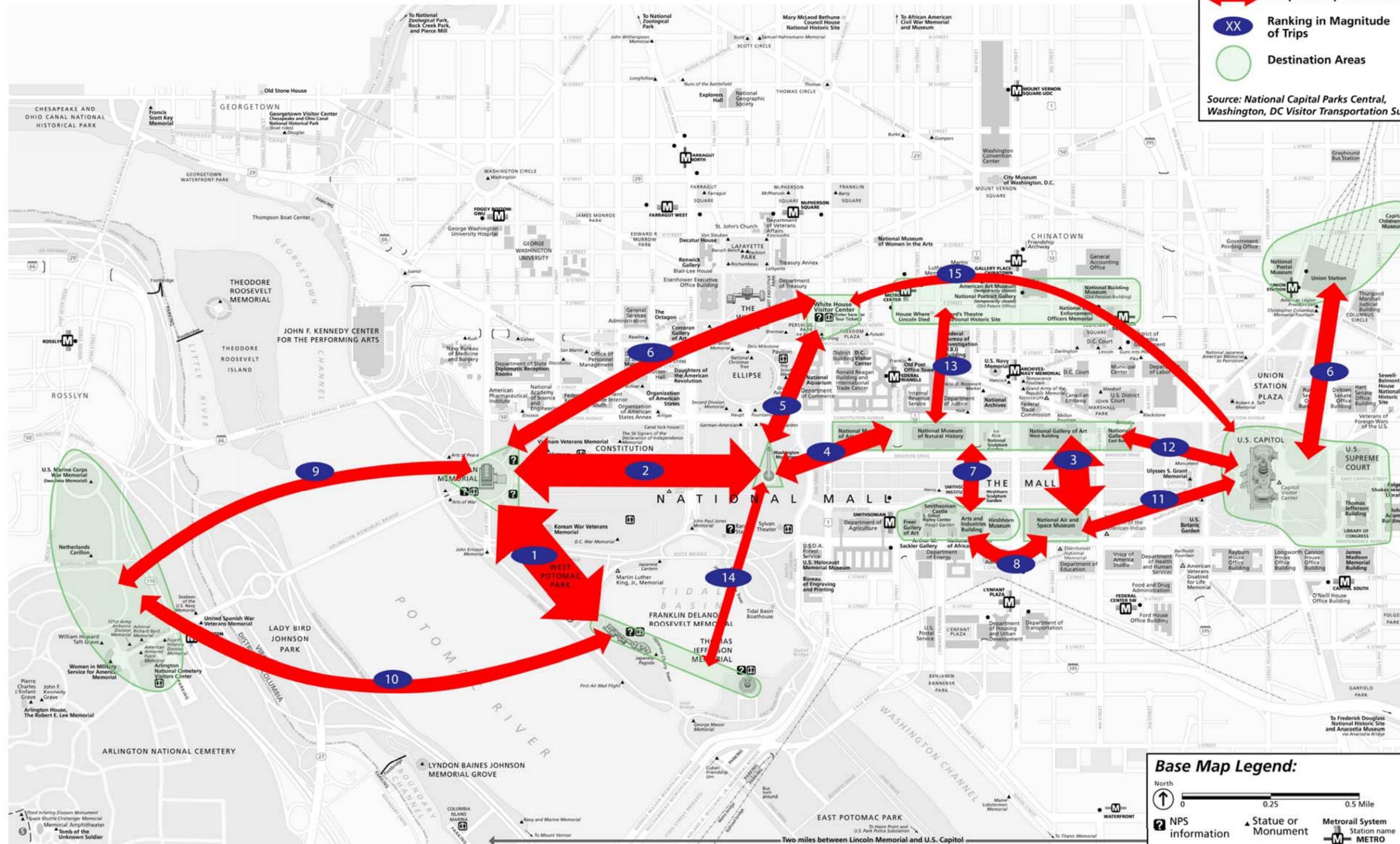
## Legend

↔ Frequent Trip Connections

XX Ranking in Magnitude of Trips

○ Destination Areas

Source: National Capital Parks Central, Washington, DC Visitor Transportation Survey



## Base Map Legend:

North

0 0.25 0.5 Mile

NPS information

Restrooms

Statue or Monument

New Visitor Destination Project

Metrorail System

Station name METRO CENTER

Entrance/exit to Metro station

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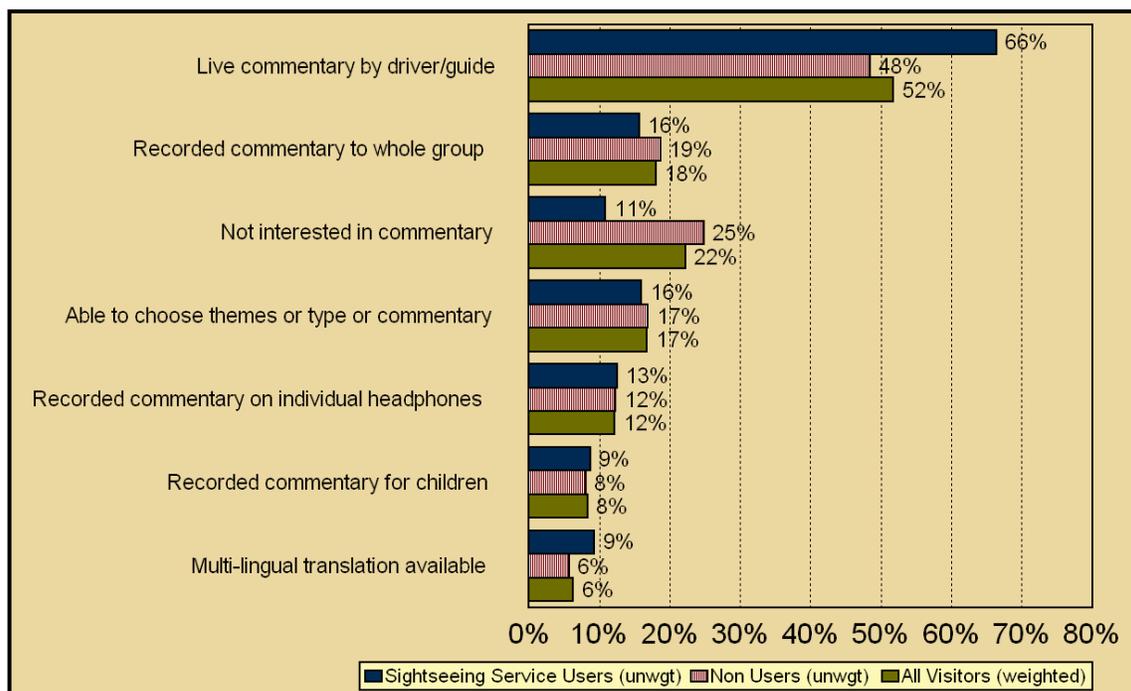
8. National Mall south side (e.g., the Smithsonian Castle) — National Air and Space Museum
9. Lincoln Memorial — Arlington National Cemetery
10. Arlington National Cemetery — FDR Memorial / Jefferson Memorial
11. U.S. Capitol area — National Air and Space Museum
12. U.S. Capitol area — National Mall north side (e.g., National Gallery of Art)
13. National Mall north side (e.g., National Museum of Natural History) — F Street area (e.g., Ford’s Theatre National Historic Site)
14. Washington Monument — FDR Memorial / Jefferson Memorial
15. U.S. Capitol area — White House Visitor Center

Many of these trip movements represent a lengthy walk and therefore could lend themselves to improved transportation services that would connect the destinations.

**Educational / Interpretive Opportunities**

According to the 2003 NPS *Visitor Transportation Survey*, about a third of the visitors to the D.C. area are coming for the first time, so orientation and information about destinations and services may be necessary. The survey indicated that educational opportunities were ranked as the third most important factor in selecting a transportation service. Educational opportunities were favored by 11%, behind convenience (53%) and ticket options (22%). Figure 8 indicates that live commentary by a driver/guide (the primary method of interpretation currently available in the local area) is the preferred method of interpretation. Approximately 22% of respondents had no interest in any form of education.

**Figure 8. Education and Commentary Preferences of Visitors on Transportation Services**



SOURCE: NPS 2003f.

NOTE: Results for “All Visitors” are weighted based on the estimated percentage of sightseers to non-sightseers in the general population (18% to 82%). See the NPS 2003 *Visitor Transportation Survey* for additional details.

On-board narrators (as opposed to drivers) currently provide in-depth information on exhibits and architecture on the American Heritage Tour, the Arlington National Cemetery Tour, and the excursion tours. In addition, interpretive programming is offered at sites managed by the National Mall & Memorial Parks, with information available from park rangers, exhibits, publications, and orientation services. NPS rangers on the National Mall provide bicycle tours of the park on the weekends, and self-guided walking tours of Arlington National Cemetery are available.

Other comparable for-profit interpretive visitor transportation services include water excursions; historical walking, bicycle, Seaway® HT, and electric scooter guided tours; thematic van tours; and sightseeing trolley or tram tours with driver guides.

## IMPACT ANALYSIS

### Impact Intensity Thresholds

The methodology used for assessing impacts is based on the potential for change in visitor and transit user experiences, which was evaluated by identifying how proposed changes to the visitor transportation service would affect convenience, ridership appeal, access to destinations, and educational / interpretive programs. For purposes of analyzing impacts to visitor and transit user experience, the following thresholds of change were defined for impact intensity:

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

- *Moderate* — The impact would be apparent and/or would affect many visitors or transit users. Visitors and/or transit users would be aware of the effects associated with transportation management actions, and their satisfaction or dissatisfaction would be measurably affected.
- *Major* — The impact would be readily apparent and/or would affect the majority of visitors or transit users. Visitors or transit users would be highly aware of the effects associated with transportation management actions, and their satisfaction or dissatisfaction would be measurably affected to a high degree. If transit users were highly dissatisfied, they would likely seek other options.

All impacts would be long term unless specifically identified as short term in the analysis.

### Impacts Common to All Alternatives

#### *Visitor and Transit User Convenience*

Changes that could affect visitor and transit user convenience include improved wayfinding programs, the replacement of transit vehicles, and improved facilities at some transit stops.

- New wayfinding programs would include maps, brochures, onsite kiosks, and expanded visitor information on the Internet. These programs would offer better trip planning information and opportunities to acquire information on site.
- New transit vehicles would include easy and safe on/off attributes (low floors, multiple doors, and wheelchair accommodations); large windows to maximize viewing potential; visible storage areas (including no overhead or below seating storage) for improved security screening; and reduced noise levels. The new transit vehicles would meet all current safety and security standards. New vehicles would improve the overall comfort and safety of all passengers.

- Transit stop improvements would include signs, area orientation maps, benches, information kiosks, bicycle racks, and shelters depending on the type of stop. These stop improvements would add to the overall comfort and safety of visitors and transit users while waiting for buses.

These actions would result in negligible to minor, long-term, beneficial impacts to visitor and transit user convenience

Potential detours near heightened security areas and construction zones, as well as detours and closures during special events, would temporarily adversely affect visitors and transit users to a minor to moderate degree. To minimize visitor and user frustration, the service operator would provide information about any necessary service changes. The resulting impacts to visitor convenience would be negligible, long term, and adverse.

### **Cumulative Impacts**

Programs that have already been undertaken in the downtown D.C. area include wayfinding signs, walking tour signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and Smart-Trip cards. As a result, the overall visitor and transit user experience has been improved, resulting in moderate, long-term, beneficial impacts.

Long-term projects that are planned in the Washington, D.C., area include

- implementing transit projects, such as the Pike Transit Initiative, the K Street Busway Project, and the Anacostia Corridor Project
- expansion of Metro transit service and facility improvements
- the redevelopment of the downtown and Arlington, Virginia, areas and the construction of future memorials and museums, implementation of the *Compre-*

*hensive Plan for the National Capital: Federal Elements*, and urban renewal projects

Resulting impacts on visitor and user experiences would be moderate, long term, and beneficial.

## **Alternative 1: No-Action**

### **Analysis**

#### Visitor and Transit User Convenience

As described under “Impacts Common to All Alternatives,” new wayfinding programs, replacement transit vehicles, and transit stop improvements would be made, with negligible to minor, long-term, beneficial impacts. Also, potential detours due to security checks and closures during special events would temporarily adversely affect visitors and transit users to a negligible degree.

Service frequency would continue at 15-minute intervals during the peak season and 20- to 25-minute intervals during the off-peak season, resulting in potential visitor frustration due to extended waits for buses and occasionally insufficient capacity when a bus arrives already full.

Tickets would continue to provide all-day hop-on / -off access. One- or two-day passes could be purchased for adults, children, and groups. However, tickets would not be integrated into a joint-ticketing system with other transit systems, so users could not use a single ticket to seamlessly transfer between transit services.

The visitor core route would continue to serve only one Metrorail station with one directional stop (within a half block), offering very limited opportunities for passengers to connect with the Metro. Metrobus routes would be accessible along several route segments.

The visitor core service would remain one-way, so visitors would have to travel the entire route to return to a previous stop. There would be no direct connection to public transit from

the Arlington National Cemetery service. Excursion tours would provide connections to public transit only from Union Station.

In summary, the visitor transportation service would be less convenient for visitors looking for a convenient form of transportation in the visitor core because of a separate ticketing system, limited opportunities to connect with public transit, and a single one-way route. These potential riders would likely look for another transit option.

#### Visitor Access to Destinations

Visitor access to top destinations would continue to be limited because of one-way service. The existing visitor core service would continue to serve 28 top visitor destinations in the visitor core area.

- Two-way access would continue to be provided to the Washington Monument.
- One-way access would continue to be provided to the following sites:

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

No direct access from Home Front Drive would be provided to the World War II Memorial; instead access would be from a stop along Constitution Avenue and would require what some would consider a lengthy walk. The U.S. Marine Corps War Memorial, the top destination that visitors said they wanted to reach by visitor transit, would still not be served. Impacts would continue to be minor to moderate, long term, and adverse.

#### Educational / Interpretive Approach

The present visitor transportation service would continue to provide only narrated, in-depth interpretation / education on transit vehicles, appealing to about 22% of the visitor market according to the NPS *Visitor Transportation Survey* (NPS 2003f). The continued use of an on-board interpreter would provide a forum for visitors to get answers to their questions. Occasionally visitors may not hear what is being said due to surrounding conversations, other distractions, or technical difficulties. Conversely, visitors who do not want to hear the program would have no choice but to do so. The quality of interpretive programs would depend on the capabilities of the individual guides, which would likely vary.

The delivery of educational / interpretive programs would continue to be varied, based on a wide range of interpreters presenting information. Providing in-depth educational programs that appeal to only a limited portion of the visitor market would result in negligible to minor, long-term, adverse impacts.

#### Ridership

Current ridership trends would continue into the future. Projected annual ridership for visitor core service under Alternative 1 would be approximately 398,000 by 2015 and 433,000 by 2025, an increase of less than 1% per year. Annual projected ridership for the Arlington National Cemetery service would be approximately 883,000 by 2015 and 963,000 by 2025, also an increase of less than 1% per year. The visitor transportation service would continue to appeal to a limited potential market because the service would only focus on in-depth education. Continuing the present transportation service would result in no impacts over the long term.

#### Cumulative Impacts

As described under "Impacts Common to All Alternatives," ongoing programs in the downtown area (wayfinding signs, walking tour

signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and SmarTrip cards) have resulted in moderate, long-term, beneficial impacts to convenience and transit user experiences. Long-term projects (e.g., implementing the Pike Transit Initiative, expanding Metro transit service and improving transit facilities, and urban renewal projects) would result in moderate, beneficial impacts on visitor and transit user experiences.

Alternative 1 would contribute a negligible beneficial increment to cumulative effects because of better wayfinding and information services, new vehicles, and improved transit stop facilities. However, the service would not be convenient to all potential users and would appeal to less than 25% of the transit user market. Past, present, and reasonably foreseeable actions, in combination with the actions of Alternative 1, would result in negligible, long-term, beneficial cumulative impacts.

### **Conclusion**

Long-term impacts would be both beneficial and adverse:

- Negligible, beneficial impacts would result from better wayfinding programs, new transit vehicles, and upgraded transit stop facilities.
- Moderate, adverse impacts would result from relatively infrequent transit service in the visitor core, a separate ticketing system that was not integrated with the Metro system, limited opportunities to access public transit, and a single one-way route around the visitor core, all of which would make the visitor transportation service less convenient for access within the downtown area.
- Minor, adverse impacts would result from not providing additional direct access to top destinations (such as the U.S. Marine Corps War Memorial and the World War II Memorial).

- Negligible to minor, adverse impacts would result from only providing in-depth educational / interpretive programs, with varied content.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 1, would result in negligible, long-term, beneficial cumulative impacts. Separate ticket systems, limited access to public transit, and educational / interpretive programs would not appeal to a wide range of users.

## **Alternative 2: Preferred Alternative**

### **Analysis**

#### Visitor and Transit User Convenience

As described under “Impacts Common to All Alternatives,” new wayfinding programs, new transit vehicles, and transit stop improvements would be made, with negligible to minor, long-term, beneficial impacts. Also, potential detours due to security checks and closures during special events would adversely affect visitors and transit users to a negligible degree on a temporary basis.

Alternative 2 would provide sufficient service capacity and more frequent service, resulting in shorter waits for buses. Impacts on both visitors and users would be moderate and beneficial.

A more efficient ticket-purchasing system would seek to use joint-ticketing technology with regional transit providers. This would increase the overall convenience of accessing various transit systems with a single ticket. Impacts on all transit users would be moderate and beneficial.

Two-way service in the visitor core would offer more efficient access to destinations and more convenience to users because they would no longer have to travel the entire route to return to a previous stop. The two interconnected visitor core routes would include (1) a two-way route between Arlington National Cemetery, the U.S. Capitol, and Union

Station, and (2) a separate route between prominent monuments and downtown attractions and services. These routes would serve seven Metrorail stations, which would be within a half block, an increase of six stations compared to Alternative 1. Each route would connect to four different stations. Metrobus routes could also be accessed from each visitor core route. Impacts would be moderate, long term, and beneficial.

Transit service to the U.S. Marine Corps War Memorial by way of the extended Arlington National Cemetery service would be provided every 20 minutes. There would be no direct connection from the Arlington National Cemetery route to public transit, a negligible adverse impact. However, if a future route extension to the Netherlands Carillon and the Rosslyn Metrorail station was added, one stop connecting to public transit service could be provided. Extending a segment to planned memorials and the Pentagon City Metrorail station would add access to three more stops.

#### Visitor Access to Destinations

The proposed visitor core routes would serve 11 additional sites compared to Alternative 1 (a 39% increase), making 39 attractions accessible by transit.

- Two-way service would be provided to the following destinations:
  - Washington Monument
  - Lincoln Memorial
  - National Air and Space Museum
  - Vietnam Veterans Memorial
  - National Museum of American History
  - National Museum of Natural History
  - U.S. Capitol
  - White House Visitor Center
  - Arlington National Cemetery
  - Jefferson Memorial
  - Union Station

One-way service would be provided to the following:

- World War II Memorial (by way of direct service on Home Front Drive)
- U.S. Marine Corps War Memorial (by way of the extended Arlington National Cemetery service)

There would be no short-term impacts on visitor access to destinations under the preferred alternative. Long-term impacts would be moderate and beneficial because of increased access to 39% more top destinations than Alternative 1, two-way service to top destinations in the visitor core, direct access to the World War II Memorial, and access to the U.S. Marine Corps War Memorial.

#### Educational / Interpretive Approach

The proposed visitor transportation service would allow visitors to tailor their educational experiences by selecting which type of service they wanted to use, instead of only being offered in-depth education. In addition, personal interpretive devices would be used, allowing visitors to hear the programs if they wished, while other passengers could carry on separate conversations. Educational content would be consistent and high quality, and foreign language service could be more easily accommodated. Depending on the technology selected, costs and convenience to visitors could vary. Use of the on-board public address systems would be primarily to inform passengers about stops. Long-term impacts of this interpretive / educational approach would be moderate and beneficial. However, visitors who prefer live commentary from an onboard guide would not be accommodated, a minor adverse impact.

#### Ridership

Projected annual ridership for visitor core service would be approximately 563,000 by 2015 and 614,000 by 2025, a 41% increase over Alternative 1. Annual projected ridership for Arlington National Cemetery service would be approximately 998,000 by 2015 and 1,088,000 by 2025, a 13% increase over Alternative 1.

Increased ridership would result from more opportunities for visitors and transit users to connect with public transit and two-way travel along the National Mall. Also, a choice in the type of educational / interpretive programs would likely appeal to a broader visitor market, ranging from visitors who only want transit service to visitor destinations to general orientation to the D.C. area to in-depth education. The proposed service would now be more responsive to both primary transit market types. Long-term impacts would be moderate and beneficial.

### **Cumulative Impacts**

As described under “Impacts Common to All Alternatives,” ongoing programs in the downtown area (wayfinding signs, walking tour signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and SmarTrip cards) have resulted in moderate, long-term, beneficial impacts to convenience and transit user experiences. Long-term projects (e.g., implementing the Pike Transit Initiative, expanding Metro transit service and improving transit facilities, and urban renewal projects) would result in moderate, beneficial impacts on visitor and transit user experiences.

The actions of Alternative 2 would result in moderate, long-term, beneficial contributions to cumulative effects because of more convenient visitor transportation service, increased interconnections with public transit, a choice in programs for visitor orientation and interpretation of significant historic sites and events, and an easy-to-use ticketing system that was coordinated with other transportation providers.

Past, present, and reasonably foreseeable actions, in combination with the actions of Alternative 2, would result in moderate, long-term, beneficial cumulative impacts. These cumulative impacts would be due to providing better access to public transit and visitor destinations, a choice in high-quality visitor orientation and interpretation, support for a

fully integrated regional transit service, and an easy-to-use joint-ticketing system.

### **Conclusion**

Long-term impacts would be negligible to moderate and beneficial because of

- improved wayfinding programs, new transit vehicles, and upgraded transit stop facilities, the same as Alternative 1
- more frequent service, a joint-ticketing system with Metro, transit access to six more Metrorail stations than Alternative 1, and two interconnected, two-way loops in the visitor core area
- access to 11 more top visitor destinations compared to Alternative 1 (a 39% increase)
- a choice of high-quality interpretive programs that would be geared to various user needs
- increased ridership potential by offering a service that was more responsive to transit user needs

Alternative 2 would provide a combination of transportation convenience and an educational / interpretive approach that would appeal to a wider range of potential transit users.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 2, would result in moderate, long-term, beneficial cumulative impacts. Better access to public transit and visitor destinations, improved visitor orientation and interpretation, a visitor transportation service integrated with other regional transit systems, and a joint-ticketing system would contribute to the beneficial cumulative effects.

### **Alternative 3**

#### **Analysis**

##### Visitor and Transit User Convenience

As described under “Impacts Common to All Alternatives,” new wayfinding programs, new transit vehicles, and transit stop improve-

ments would be made, with negligible to minor, long-term, beneficial impacts. Also, potential detours due to security checks and closures during special events would adversely affect visitors and transit users to a negligible degree on a temporary basis.

Similar to Alternative 2, sufficient service capacity and more frequent transit service would result in shorter waits for buses. Impacts on both visitors and transit users would be moderate and beneficial.

The proposed visitor core service would serve nine Metrorail stations, eight more stations than under Alternative 1. Each route would provide at least one stop at a Metrorail station. Metrobus routes could also be accessed along the visitor core routes. There would be no direct connection to public transit from the Arlington National Cemetery service. However, a route extension to the Netherlands Carillon could provide a stop at the Rosslyn Metrorail station, and a route extension to future planned memorials and the Pentagon City Metrorail station could provide three additional stops, similar to Alternative 2. Excursion tours would continue to provide connections to public transit at Union Station. Impacts on users from increased access to public transit would be moderate, long term, and beneficial.

Similar to existing conditions, tickets would not be integrated into a joint-ticketing system with other regional transit agencies, and there would be no additional impact. The lack of two-way service under this alternative would continue to prevent bi-directional travel along the National Mall, somewhat limiting the system's usefulness because riders could not go back to a previous stop, instead they would have to complete the entire loop. Overall impacts would be minor, long term, and beneficial.

#### Visitor Access to Destinations

The proposed visitor core routes would serve 14 additional destinations compared to Alter-

native 1 (a 50% increase), making 42 sites accessible by transit.

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

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

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

Lincoln Memorial  
National Air and Space Museum  
Vietnam Veterans Memorial  
National Museum of American History  
National Museum of Natural History  
White House Visitor Center

- Access to the World War II Memorial would remain from a stop along Constitution Avenue (the same as Alternative 1); no direct service on Home Front Drive would be provided.
- Similar to Alternative 2, the Arlington National Cemetery service would be extended to the U.S. Marine Corps War Memorial, the top destination that visitors want to reach by transit.

Similar to Alternative 1, no additional provisions would be made for multimodal access for personal transportation vehicles to sites within the National Mall & Memorial Parks.

Long-term impacts would be minor to moderate and beneficial because of increased access to 50% more top destinations than Alternative 1, expanded one-way service to top destinations in visitor core, and access to the U.S. Marine Corps War Memorial. However, not providing direct access to the World War II Memorial would be a minor, long-term, adverse impact, the same as Alternative 1.

### Educational / Interpretive Approach

Under Alternative 3 a single type of in-depth interpretive program would be offered, similar to the current service, which according to the NPS *Visitor Transportation Survey* appeals to about 22% of the visitor market (NPS 2003f). The difference from Alternative 1 would be that programs would be provided to individual visitors by using personal listening devices. Visitors would be able to hear the program if they wished, while other passengers could converse around them.

Educational content would be consistent, and foreign language service could be more easily accommodated through the listening devices. Depending on the technology selected, costs and convenience to visitors could vary. On-board public address systems would be used primarily to tell passengers about stops. Long-term impacts of this educational / interpretive approach would be moderate and beneficial for visitors seeking in-depth educational opportunities. However, visitors who prefer live commentary from onboard guides would not be accommodated, a minor, adverse impact.

### Ridership

Projected annual ridership for visitor core service in Alternative 3 would be approximately 539,000 by 2015 and 588,000 by 2025, an increase of 35% over Alternative 1. Annual projected ridership for Arlington National Cemetery service would be the same as Alternative 2, approximately 998,000 riders by 2015 and 1,088,000 by 2025, a 13% increase over Alternative 1.

The number of riders on the visitor core routes could increase due to three interconnected routes, more access to public transit stops, and new transit vehicles with better features. This type of service could appeal to a broader market base, specifically more non-traditional transit users of the current visitor transportation service. However, the lack of a joint-ticketing system and one-way loop service along the National Mall

would adversely affect the potential to attract more riders. Also, offering only limited educational / interpretive programs would appeal to a smaller visitor market.

Long-term impacts would be negligible to minor and beneficial. Visitors wanting in-depth educational / interpretive programs and improved transit service to destinations and other downtown locations would benefit the most.

### **Cumulative Impacts**

As described under “Impacts Common to All Alternatives,” ongoing programs in the downtown area (wayfinding signs, walking tour signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and SmarTrip cards) have resulted in moderate, long-term, beneficial impacts to convenience and transit user experiences. Long-term projects (e.g., implementing the Pike Transit Initiative, expanding Metro transit service and improving transit facilities, and urban renewal projects) would result in moderate, beneficial impacts on visitor and user experiences.

The actions of Alternative 3 would result in minor, beneficial contributions to cumulative effects because of improved wayfinding and information services, new vehicles, upgraded transit stop facilities, better service frequency, connections to public transit, broader route coverage, access to more destinations, improved delivery of educational / interpretive services, and the potential for increased ridership.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 3, would result in minor, long-term, beneficial cumulative impacts. Better access to public transit and visitor destinations, higher quality visitor orientation and interpretation of significant historic sites and events, and support for an integrated regional transit system would contribute to cumulative impacts.

## **Conclusion**

Long-term impacts would be both beneficial and adverse. Negligible to moderate, long-term, beneficial impacts would result from

- improved wayfinding programs, new transit vehicles, upgraded transit stop facilities, the same as Alternative 1
- more frequent service, transit access to eight more Metrorail stations than Alternative 1, and two interconnected transit routes in the visitor core area plus two-way service by means of separate one-way routes
- access to 14 more top visitor attractions compared to Alternative 1 (a 50% increase)
- more flexible, high-quality, and consistent educational / interpretive programs that would better meet user needs for in-depth education
- increased ridership because of being responsive to more market types

The system would be less desirable for transit users wanting convenient services within the downtown area, resulting in minor, long-term, adverse impacts from the following:

- a ticketing system not linked to the Metro system
- one-way transit access in the visitor core
- not providing direct service to the World War II Memorial
- offering only in-depth educational services with a limited choice of alternative programs would appeal to a smaller visitor market

Overall, alternative 3 would provide a combination of transportation convenience and educational / interpretive approach that would appeal to a wider range of potential transit users but a more limited visitor market.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 3, would result in minor, long-term, bene-

ficial cumulative impacts. Better access to public transit and visitor destinations, improved visitor orientation and interpretation, and a visitor transportation service that was somewhat integrated with regional transit systems would contribute to the cumulative impacts.

## **Alternative 4**

### **Impact Analysis**

#### Visitor and Transit User Convenience

As described under “Impacts Common to All Alternatives,” new wayfinding programs, new transit vehicles, and transit stop improvements would be made, with negligible to minor, long-term, beneficial impacts. Also, potential detours due to security checks and closures during special events would temporarily adversely affect visitors and transit users to a negligible degree.

Similar to Alternative 2, providing transit vehicles with greater capacity and more frequent service would result in shorter waits for buses. Impacts on both visitors and users would be moderate and beneficial. A joint-ticketing system technology with regional transit providers would use a single ticket to link with other regional transit providers, increasing overall convenience by providing seamless access to other transit systems. Impacts on all transit users would be moderate and beneficial.

The two interconnected visitor core routes would include (1) a two-way route between prominent monuments and downtown attractions and services, and (2) two separate one-way routes between Arlington National Cemetery and Union Station, and between Washington Circle and Union Station. The proposed visitor core routes would serve 12 Metrorail stations within a half block, an increase of 11 stations compared to Alternative 1. Metrobus routes could also be accessed on several visitor core segments. There would be no direct connection to public transit from the Arlington National Cemetery route; however, similar to Alternative 2, if a future seg-

ment to the Netherlands Carillon and the Rosslyn Metrorail station was added, access to one Metrorail station could be provided; and a future segment to planned memorials and the Pentagon City Metrorail station would provide access to the Metro at three additional stops. Impacts on user convenience from increased access to public transit would be moderate, long term, and beneficial.

The visitor core service would offer expanded two-way service, so visitors would no longer have to travel the entire route to return to a previous stop. Offering more efficient service to destinations would result in a moderate, long-term, beneficial impact.

#### Visitor Access to Destinations

The proposed visitor core routes would serve up to 17 additional top destination sites than under Alternative 1 (up to a 61% increase), making 43 to 45 of the top destinations (depending on additional route options) accessible by transit.

- Two-way service would be provided to all of the following destinations:
  - Washington Monument
  - Lincoln Memorial
  - National Air and Space Museum
  - Vietnam Veterans Memorial
  - National Museum of American History
  - National Museum of Natural History
  - U.S. Capitol
  - White House Visitor Center
  - Arlington National Cemetery
  - Jefferson Memorial
  - Union Station
- One-way service would be provided to the following destinations:
  - World War II Memorial (by way of Home Front Drive, the same as Alternative 2)
  - U.S. Marine Corps War Memorial (by way of an extension of the Arlington National Cemetery service, the same as Alternatives 2 and 3)

Long-term impacts would be moderate and beneficial as a result of access to up to 61% more top destinations than Alternative 1, two-way service to top destinations in visitor core, and direct access to the World War II Memorial and the U.S. Marine Corps War Memorial.

#### Educational / Interpretive Approach

Similar to Alternative 2, the proposed visitor transportation service would allow visitors to tailor their educational experiences by choosing the type of program they were most interested in, potentially appealing to a larger market. In addition, visitors would use personal interpretive devices, allowing them to hear programs they chose without interfering with other passengers who might not be interested in interpretation. Educational content would be consistent and high quality, and foreign language service could be more easily accommodated. Depending on the technology selected, costs and convenience to visitors could vary. On-board public address systems would be used primarily to tell passengers about stops. Long-term impacts of this educational / interpretive approach would be moderate and beneficial. However, visitors who prefer live commentary from an onboard guide would not be accommodated, a minor adverse impact.

An introductory tour would be offered under this alternative, helping visitors understand the area's cultural and educational opportunities and plan subsequent sightseeing activities. This additional service would result in a minor, long-term, beneficial impact.

#### Ridership

Projected annual ridership for the visitor core would be approximately 587,000 by 2015 and 641,000 by 2025, an increase of about 48% compared to Alternative 1. Annual projected ridership for the Arlington National Cemetery service would be the same as Alternative 2, approximately 998,000 by 2015 and 1,088,000 by 2025, an increase of 13% over Alternative 1.

The visitor transportation service would likely appeal to a wider variety of riders because of increased opportunities for visitors and transit users to connect with public transit and two-way travel along the National Mall. In addition, because the visitor transportation service would offer a choice in the type of educational / interpretive programs, the service would appeal to a broader visitor market, including visitors or users who want in-depth education, general orientation, and transit service to other downtown locations. The proposed service would be more responsive to other market types.

Long-term impacts would be moderate and beneficial because the proposed service would offer a choice in educational / interpretive programs, improved convenience, and transit service to visitor destinations and other downtown locations.

### **Cumulative Impacts**

As described under “Impacts Common to All Alternatives,” ongoing programs in the downtown area (wayfinding signs, walking tour signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and SmarTrip cards) have resulted in moderate, long-term, beneficial impacts to convenience and user experiences. Long-term projects (e.g., implementing the Pike Transit Initiative, expanding Metro transit service and improving transit facilities, and urban renewal projects) would result in moderate, beneficial impacts on visitor and user experiences.

Alternative 4 would result in moderate, long-term, beneficial contributions to visitor and transit user experiences because of improved wayfinding and information services, new vehicles, upgraded transit stop facilities, better service frequency, connections to public transit, broader route coverage, access to more destinations, improved delivery of educational / interpretive services, and the potential for increased ridership.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 4, would result in moderate, long-term, beneficial cumulative impacts. Better access to public transit and visitor destinations, a choice in high-quality visitor orientation and interpretation of significant historic sites and events, support for a fully integrated regional transportation service, and an easy-to-use joint-ticketing system would contribute to cumulative impacts.

### **Conclusion**

Long-term impacts would be negligible to moderate and beneficial because of

- improved wayfinding programs, new transit vehicles, and upgraded transit stop facilities, the same as Alternative 1
- more frequent service, a joint-ticketing system with Metro, transit access to 11 more Metrorail stations than Alternative 1, and two interconnected transit routes in the visitor core area, plus a two-way loop service
- access to up to 17 more top visitor attractions compared to Alternative 1 (up to a 61% increase)
- more flexible and consistent interpretive programs that would better meet user needs
- increased ridership because of being responsive to more market types

Alternative 4 would provide a combination of transportation convenience and educational / interpretive approach that would appeal to a wider range of potential users.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 4, would result in moderate, long-term, beneficial cumulative impacts. Convenient transportation service to public transit and visitor destinations, visitor orientation and interpretation, support for a visitor transportation service that was integrated with the regional transit system, and an easy-to-use

ticketing system would contribute to cumulative impacts.

## **Alternative 5: Downtown Circulator**

### **Analysis**

#### Visitor and Transit User Convenience

As described under “Impacts Common to All Alternatives,” new wayfinding programs, new transit vehicles, and transit stop improvements would be made, with negligible to minor, long-term, beneficial impacts. Also, potential detours due to security checks and closures during special events would adversely affect visitors and users to a negligible degree on a temporary basis.

Similar to Alternative 2, sufficient service capacity and more frequent transit service would result in shorter waits for buses. Impacts on both visitors and users would be moderate and beneficial.

The proposed joint-ticketing system with Metro would increase overall convenience for all users by providing seamless access to the entire Metro system with a single ticket. This would be a moderate, long-term, beneficial impact.

The two interconnected routes (including one route providing two-way loop service along the east-west axis of the National Mall) would offer more connections to other transit systems. The proposed visitor core transportation service would serve six additional Metrorail stations within a half block, an increase of five stations compared to Alternative 1. Metrobus routes could also be accessed along several segments of the visitor core routes. Impacts on user convenience would be moderate, long term, and beneficial. There would be no Arlington National Cemetery service under this alternative, and no direct connection to public transit, resulting in a moderate, long-term, adverse impact to visitors.

The visitor core service would offer expanded two-way service, so visitors would no longer

have to travel the entire route to return to a previous stop. This would offer more efficient service to destinations, resulting in moderate, long-term, beneficial impacts.

The lack of an orientation or educational / interpretive component could limit the appeal and usefulness of the service for some visitors and possibly make the system more difficult to use, a moderate, long-term, adverse impact.

#### Visitor Access to Destinations

The proposed visitor core service would serve 6 additional top visitor destinations compared to Alternative 1 (a 21% increase), making 34 sites accessible. Access would be provided to fewer sites than under Alternatives 2, 3, and 4.

- Two-way service would be provided to the following top destinations:
  - Washington Monument
  - Vietnam Veterans Memorial
  - National Museum of American History
  - U.S. Capitol
  - Union Station
- One-way service would be provided to the following top destinations:
  - Lincoln Memorial
  - National Air and Space Museum
  - National Museum of Natural History
  - White House Visitor Center
  - World War II Memorial
  - Jefferson Memorial
- No access would be provided to or within Arlington National Cemetery.
- No access would be provided to the U.S. Marine Corps War Memorial, one of the top destinations that visitors want to reach by transit, but were unable to do so on public transit or sightseeing service.

Access to the World War II Memorial would be from a stop along 17th Street. However, because the street is not wide enough to accommodate a bus stop, buses stopping for passenger loading or unloading would adversely affect traffic operations. This would

make access to the memorial from 17th Street infeasible.

Long-term impacts to visitor access would be minor and beneficial because of increased access to 21% more top destinations than Alternative 1, and expanded two-way service to top destinations in the visitor core. However, there would be no direct access to Arlington National Cemetery or the U.S. Marines Corps War Memorial. Access to the World War II Memorial would not be feasible from 17th Street. Resulting impacts on visitors would be negligible to moderate, long term, and adverse.

#### Educational / Interpretive Approach

No educational / interpretive programs would be provided on transportation services in the visitor core, and no service would be provided to Arlington National Cemetery. The proposed visitor transportation service might not appeal to visitors who want some level of education and general orientation. According to the NPS 2003 *Visitor Transportation Survey*, 22% of the visitor market desired in-depth interpretation, and not providing any interpretation would adversely affect these visitors. Long-term impacts would be moderate and adverse.

#### Ridership

Projected annual ridership for visitor core service in Alternative 5 would be approximately 2.9 million by 2015 and 3.2 million by 2025, more than six times the projected ridership under Alternative 1.\* (It should be noted that ridership projections for Alternative 5 are based on a different source and set of assumptions; see “Planning Considerations and Assumptions,” page 26.)

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\* The District Department of Transportation reported in July 2006 that ridership on the three currently operating Circulator routes, including one route not previously presented in the *Circulator Implementation Plan*, is 1.6 million annual riders.

While various factors would likely increase ridership by local residents, the lack of an educational component could limit the service’s attractiveness and usefulness for some visitors. In addition, the lack of transit service to Arlington National Cemetery would adversely affect some visitors. However, with increased opportunities for visitors and users to connect with public transit and providing two-way travel along the National Mall, the transportation service would likely appeal to a wider variety of riders who were looking for convenient service in the downtown area.

Long-term impacts would be minor and beneficial because of the service’s potential to appeal to a larger user market, but visitor needs would not be fully met.

#### **Cumulative Impacts**

As described under “Impacts Common to All Alternatives,” ongoing programs in the downtown area (wayfinding signs, walking tour signs, introduction of real time information at transit stops to let users know when the next bus is arriving, and SmarTrip cards) have resulted in moderate beneficial impacts to convenience and user experiences. Long-term projects (e.g., implementing the Pike Transit Initiative, expanding Metro transit service and improving transit facilities, and urban renewal projects) would result in moderate, beneficial impacts on visitor and user experiences.

Alternative 5 would result in minor, long-term, beneficial contributions to visitor and transit user experiences because even though educational / interpretive opportunities would not be offered for visitors, other elements of the service would be enhanced as a result of improved wayfinding and information services, new vehicles, upgraded transit stop facilities, better service frequency, connections to public transit, and a joint-ticketing system.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 5, would result in minor, long-term,

beneficial cumulative impacts. Better access to public transit and visitor destinations, support for a fully integrated regional transportation service, and an easy-to-use joint-ticketing system would contribute to cumulative impacts.

### **Conclusion**

Long-term impacts to visitor and transit user experiences would be both beneficial and adverse. Negligible to moderate, beneficial impacts would result from

- improved wayfinding programs, new transit vehicles, and upgraded transit stop facilities, the same as Alternative 1
- more frequent service, a joint-ticketing system with Metro, transit access to five more Metrorail stations than Alternative 1, and two interconnected transit routes in the visitor core area with two-way loop service
- access to six more top visitor attractions compared to Alternative 1 (a 21% increase)

- increased ridership because of being more responsive to user markets

Negligible to moderate, long-term, adverse impacts would result from

- inconvenience and delays due to security checks on portions of roads closed to public traffic
- the lack of transit service to and within Arlington National Cemetery and to the U.S. Marine Corps War Memorial
- not providing any educational / interpretive services, thus not serving 22% of the visitor market who desire in-depth interpretation
- infeasible access to the World War II Memorial from 17th Street

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 5, would result in minor, long-term, beneficial cumulative effects. Opportunities to provide a range of educational / interpretive opportunities would not be realized.

# PUBLIC HEALTH, SAFETY, AND SECURITY

## **AFFECTED ENVIRONMENT**

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The National Park Service and its concessioners, contractors, and cooperators seek to provide a safe and healthful environment for visitors, and the National Park Service works cooperatively with other federal, state and local agencies, organizations, and individuals to carry out this responsibility (NPS 2006b).

### **Visitors and Users with Special Mobility Needs**

According to the 2003 NPS *Visitor Transportation Survey*, approximately a quarter of the respondents indicated that one or more individuals in their immediate travel party could only walk limited distances because of age or a physical condition (for example, pain or discomfort, breathing or respiratory problems, traveling with small children, or using a walker, stroller, cane, or wheelchair; NPS 2003f). Current concessioner vehicles have priority seating for such individuals, and they have wheelchair storage. For individuals who require a wheelchair lift, an on-call service is provided as directed by the National Park Service to the current third-party operator. Individuals can request this service at the operator's ticket booths or stops (Landmark Services, Inc. 2005).

Metrorail trains are equipped with priority seating for individuals with special needs, and Metro stations are equipped to provide access to and from any of the underground stations. Approximately 90% of the Metrobus fleet is currently equipped with wheelchair lifts, and all WMATA buses are expected to be wheelchair accessible by 2006. In addition, the transit authority operates Metroaccess exclusively for persons with disabilities, which provides curb-to-curb transportation for eligible riders to any D.C. location, to Montgomery and Prince George's counties in Maryland, and to Arlington and Fairfax counties, as well as to

Alexandria, Fairfax, and Falls Church in Virginia (WMATA 2005c).

The National Park Service currently permits the use of Segway® HTs and electric scooters within visitor core federal parkland for persons with a disability or mobility impairment.

### **Visitor Transportation Safety and Security**

Results of the 2003 NPS *Visitor Transportation Survey* indicated that approximately half of the visitors to the National Mall & Memorial Parks believe that feeling safe is an important characteristic of a transportation service in the metropolitan area. Of the visitors who used sightseeing services, 90% indicated that their highest level of satisfaction was the feeling of vehicle safety (NPS 2003f).

### **Trail and Sidewalk Safety**

Existing multi-use trails within the National Mall & Memorial Parks include more than 16 miles of trails for pedestrians, bicyclists, and vehicles. No areas within memorials are designated as multi-use trails. Safety concerns are related to potential conflicts between different access modes (e.g., between pedestrians and Segway® HT or electric scooter users, or between pedestrians and bicyclists). Issues also arise because Segway® HTs may be used on sidewalks within the District, with certain operational restrictions. However, recreational Segway® HT and electric scooter access on the National Mall, as previously discussed, is currently allowed only on NPS sidewalks adjacent to roadways maintained by the District of Columbia (3rd, 4th, 7th, and 14th streets NW/SW). No trail accident statistics are available to indicate the severity of safety problems.

In 2005 the Federal Highway Administration undertook a study to begin collecting empirical data about Segway® HT operating characteristics (such as speed and braking) because many people feel that Segway® HTs should not be allowed to operate on sidewalks since they are able to travel much faster than the average pedestrian, thus creating the potential for conflicts. The findings indicate that study participants comfortably traveled near the top speed allowed by each speed key, taking 20–50 feet to reach their top speed. Braking distances ranged between 6 and 21 feet for various stopping conditions, depending primarily on speed (FHWA 2005). It is expected that the results of the study can be used by policy makers and planners when deciding how to accommodate this use.

In 2005 the superintendent of George Washington Memorial Parkway adopted an interim restriction on the use of Segway® HTs, motorized skateboards, and motorized scooters. The restriction was based on “the lack of objective data on operational safety and transportation mode interaction associated with these technologies, as well as concerns on how these technologies impact park visitors, park resources and memorials” (NPS 2005f).

Bicycles are permitted on designated multi-use trails within the National Mall & Memorial Parks.

## IMPACT ANALYSIS

### Impact Intensity Thresholds

The methodology used for assessing impacts to public health, safety, and security is based on the proposed project’s ability to improve transportation opportunities for visitors and transit users with special mobility needs, the overall safety and security of the visitor transportation service, and trail and sidewalk safety. The thresholds of change for intensity of an impact on public health, safety, and security are defined below:

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

## Impacts Common to All Alternatives

### Visitors and Users with Special Mobility Needs

All proposed stops, information material (kiosks), and related facilities and services under all alternatives would meet the *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities* (U.S. Architectural and Transportation Barriers Compliance Board 2004). Resulting impacts would be negligible, long term, and beneficial.

All new transit vehicles would be accessible to people with physical disabilities, an improvement to the current NPS-directed provision of an on-call system. Approximately 25% of visi-

tors say they cannot walk long distances. Impacts to users would be moderate, long term, and beneficial as a result of improvements to transit vehicles.

### ***Transportation Service Safety and Security***

As described under “Visitor and User Experience,” new transit vehicles would meet all current safety and security standards, including easy and safe on/off features (low floors, multiple doors), and visible storage areas (including no overhead or below seating storage) for improved security screening. Impacts would be moderate, long term, and beneficial.

Safety and security programs would be included as part of any contract for operating the visitor transportation service. This would include requirements that each transit driver has a valid operator’s license, safety training for all employees, and security background checks, resulting in a safe and secure transit system for employees and transit users. These programs and requirements would result in negligible, long-term, beneficial impacts.

### ***Cumulative Impacts***

Improvements to regional transit service operations and infrastructure include plans and projects for the regional transportation system (including Metro and local and regional transportation service providers), the implementation of the *Comprehensive National Capital Plan: Federal Elements*, Transportation Improvement Plan projects, and the redevelopment of areas in downtown D.C. and Arlington. In addition, under all alternatives new and safer transit vehicles, upgraded transit stops and related facilities and services, and safety and security programs would have negligible to moderate, long-term, beneficial impacts. The cumulative impacts on public health, safety, and security would be minor, long term, and beneficial.

## **Alternative 1: No Action**

### ***Analysis***

#### ***Visitors and Transit Users with Special Mobility Needs***

As described under “Impacts Common to All Alternatives,” new transit vehicles and transit stop facilities would be fully accessible to passengers with physical disabilities. Impacts would be minor, long term, and beneficial.

#### ***Transportation Service Safety and Security***

As discussed under “Impacts Common to All Alternatives,” long-term impacts from new transit vehicles equipped with security features, along with safety and security programs undertaken by the service operator, would be moderate and beneficial.

#### ***Trail and Sidewalk Safety***

Recreational Segway® HT and electric scooter use would continue to be allowed only on National Mall & Memorial Parks sidewalks adjacent to roadways maintained by the District of Columbia (3rd, 4th, 7th, and 14th streets NW/SW). Personal vehicle use would not be fully addressed on park lands through a clear management policy, creating some confusion and resulting in continued recreational Segway® HT and electric scooter use that is inconsistent with park policy. Impacts from continued potential conflicts between pedestrians and multimodal users, as well as recreational Segway® HT and electric scooter use on park trails, would result in minor, short- and long-term, adverse impacts on pedestrian safety.

### ***Cumulative Impacts***

As described under “Impacts Common to All Alternatives,” improvements to regional transit service operations and infrastructure would have minor, long-term, beneficial impacts on public health, safety, and security.

In the long term Alternative 1 would have negligible to moderate, long-term, beneficial

impacts because visitor transit vehicles and transit stops would be accessible to people with disabilities, and safety and security programs would help ensure safer experiences for transit users.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternative 1, would result in minor, long-term, beneficial cumulative impacts. Improvements in overall safety and security of the regional transportation system, as well as improvements in vehicle and facility standards that would offer better access for people with disabilities, would contribute to cumulative impacts.

### **Conclusion**

The potential for continued conflicts between pedestrians and multimodal users, and continued inconsistent recreational use of Segway® HTs and electric scooters on park trails, would result in minor, short- and long-term, adverse effects on pedestrian safety. Making transit vehicles and transit stops accessible to people with disabilities, using new transit vehicles equipped with security features, and ensuring that the transportation service provider undertook safety and security programs, would result in negligible to moderate, long-term, beneficial impacts.

Past, present, and reasonably foreseeable actions, combined with those of Alternative 1, would result in minor, long-term, beneficial cumulative impacts. This would be due to improvements in overall safety and security of the visitor transportation service, as well as regional transportation systems, and improvements in vehicle and facility standards that offer better access for people with disabilities.

## **Alternative 2: Preferred Alternative**

### **Analysis**

#### Visitors and Transit Users with Special Mobility Needs

As described under “Impacts Common to All Alternatives,” new transit vehicles and transit

stop facilities would be fully accessible to passengers with physical disabilities. Impacts would be minor, long term, and beneficial.

#### Transportation Service Safety and Security

As discussed under “Impacts Common to All Alternatives,” long-term impacts from new transit vehicles equipped with security features, along with safety and security programs undertaken by the service operator, would be moderate and beneficial.

#### Trail and Sidewalk Safety

Recreational Segway® HT and electric scooter use would be allowed on designated multi-use trails under the jurisdiction of the National Mall & Memorial Parks under a new NPS policy. Segway® HTs and electric scooters would continue to be allowed on sidewalks adjacent to 3rd, 4th, 7th, and 14th streets NW/SW that are under the jurisdiction of the District of Columbia. Segway® HT and electric scooter users would be required to use pedestrian warning devices, yield to pedestrians, and stay within speed limits. The proposed management of these personal transportation vehicles would be safer than current conditions. While allowing recreational Segway® HT use on designated NPS routes would be more consistent with D.C. regulations and would alleviate confusion for personal transit users, additional recreational multimodal users on park trails could result in negligible, long-term, adverse impacts on visitor safety.

#### **Cumulative Impacts**

As described under “Impacts Common to All Alternatives,” improvements to regional transit service operations and infrastructure would have minor, long-term, beneficial impacts on public health, safety, and security.

In the long term Alternative 2 would have negligible to moderate, beneficial impacts because visitor transit vehicles and transit stops would be accessible to people with disabilities, and

safety and security programs would help ensure safer experiences for users.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternative 2, would result in minor, long-term, beneficial cumulative impacts. Improvements in overall safety and security of the regional transportation system, as well as improvements in vehicle and facility standards that would offer better access for people with disabilities, would contribute to cumulative impacts.

### **Conclusion**

The preferred alternative would have a negligible, long-term, adverse impact on trail and sidewalk safety because recreational use of personal transportation vehicles on designated routes could interfere with pedestrian use. Making transit vehicles and transit stops accessible to people with disabilities, using new transit vehicles equipped with security features, and ensuring that the transportation service provider undertook safety and security programs, would result in negligible to moderate, long-term, beneficial impacts.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 2, would result in minor, long-term, beneficial cumulative impacts. This would be due to improvements in overall safety and security of the visitor transportation service, as well as regional transportation systems, and improvements in vehicle and facility standards that would offer better access for people with disabilities.

## **Alternative 3**

### **Analysis**

#### Visitors and Transit Users with Special Mobility Needs

As described under “Impacts Common to All Alternatives,” new transit vehicles and transit stop facilities would be fully accessible to

passengers with physical disabilities. Impacts would be minor, long term, and beneficial.

#### Transportation Service Safety and Security

As discussed under “Impacts Common to All Alternatives,” long-term impacts from new transit vehicles equipped with safety and security features, along with safety and security programs undertaken by the service operator, would be moderate and beneficial.

#### Trail and Sidewalk Safety

Recreational Segway® HT and electric scooter use would continue to be allowed only on National Mall & Memorial Parks sidewalks adjacent to roadways maintained by the District of Columbia (3rd, 4th, 7th, and 14th streets NW/SW). Personal vehicle use would not be fully addressed on park lands through a clear management policy, creating some confusion and resulting in continued recreational Segway® HT and electric scooter use that is inconsistent with park policy. Impacts from continued potential conflicts between pedestrians and multimodal users, as well as recreational Segway® HT and electric scooter use on park trails, would result in minor, short- and long-term, adverse impacts on pedestrian safety.

#### **Cumulative Impacts**

As described under “Impacts Common to All Alternatives,” improvements to regional transit service operations and infrastructure would have minor, long-term, beneficial impacts on public health, safety, and security.

Alternative 3 would result in negligible to moderate, site-specific, beneficial contributions to cumulative effects on public health, safety, and security.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternative 3, would result in minor, long-term, beneficial cumulative impacts. This would be due to improvements in overall

safety and security of the regional transportation system and improvements in vehicle and facility standards that would offer better access for people with disabilities.

### **Conclusion**

The potential for continued conflicts between pedestrians and multimodal users, and illegal recreational use of Segway® HTs and electric scooters on National Mall & Memorial Parks trails, would result in minor, short- and long-term, adverse effects on pedestrian safety, similar to Alternative 1. Making transit vehicles and transit stops accessible to people with disabilities, using new transit vehicles equipped with security features, and ensuring that the transportation service provider undertook safety and security programs, would result in negligible to moderate, long-term, beneficial impacts.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 3, would result in minor, long-term, beneficial cumulative impacts. This would be due to improvements in overall safety and security of the visitor transportation service as well as regional transportation systems, and improvements in vehicle and facility standards that would offer better access for people with disabilities.

## **Alternative 4**

### **Analysis**

#### Visitors and Transit Users with Special Mobility Needs

As described under “Impacts Common to All Alternatives,” new transit vehicles and transit stop facilities would be fully accessible to passengers with physical disabilities. Impacts would be minor, long term, and beneficial.

#### Transportation Service Safety and Security

As discussed under “Impacts Common to All Alternatives,” long-term impacts from new transit vehicles equipped with security fea-

tures, along with safety and security programs undertaken by the service operator, would be moderate and beneficial.

#### Trail and Sidewalk Safety

Recreational Segway® HT and electric scooter use would be allowed on all multi-use trails under the jurisdiction of the National Mall & Memorial Parks under a new NPS policy. Segway® HTs and electric scooters would continue to have access to sidewalks adjacent to 3rd, 4th, 7th, and 14th streets NW/SW, which are under the jurisdiction of the District of Columbia. The proposed management of these personal transportation vehicles would be safer than current use because designated routes would be marked. Segway® HT and electric scooter users would be required to use pedestrian warning devices, yield to pedestrians, and stay within speed limits.

Allowing recreational Segway® HT use on all routes would be more consistent with D.C. regulations and current enforcement trends, alleviating confusion for users. However, additional multimodal users on all park trails could result in minor, long-term, adverse impacts on visitor safety because of the use of different transit modes traveling at different speeds in this heavily visited area.

### **Cumulative Impacts**

As described under “Impacts Common to All Alternatives,” improvements to regional transit service operations and infrastructure would have minor, long-term, beneficial impacts on public health, safety, and security.

Similar to the other alternatives, Alternative 4 would result in negligible to moderate, site-specific, beneficial contributions to cumulative effects on public health, safety, and security.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternative 4, would result in minor, long-term, beneficial cumulative impacts. Improve-

ments in overall safety and security of the regional transportation system, as well as improvements in better vehicle and facility standards that would offer better access for people with disabilities, would contribute to cumulative impacts.

### **Conclusion**

Alternative 4 would have a minor, long-term, adverse impact on trail and sidewalk safety because recreational use of personal transportation vehicles on all multi-use park trails could interfere with pedestrian use. Making transit vehicles and transit stops accessible to people with disabilities, using new transit vehicles equipped with security features, and ensuring that the transportation service provider undertook safety and security programs, would result in negligible to moderate, long-term, beneficial impacts.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 4, would result in minor, long-term, beneficial cumulative impacts. This would be due to improvements in overall safety and security of the visitor transportation service, as well as regional transportation systems, and improvements in vehicle and facility standards that would offer better access for people with disabilities.

### **Alternative 5: Downtown Circulator**

#### **Analysis**

#### Visitors and Transit Users with Special Mobility Needs

As described under “Impacts Common to All Alternatives,” new transit vehicles and transit stop facilities would be fully accessible to passengers with physical disabilities. Impacts would be minor, long term, and beneficial.

#### Transportation Service Safety and Security

As discussed under “Impacts Common to All Alternatives,” long-term impacts from new transit vehicles equipped with security fea-

tures, along with safety and security programs undertaken by the service operator, would be moderate and beneficial.

However, Alternative 5 proposes reopening roads near the White House along Pennsylvania Avenue and E Street NW that have been closed for security reasons. This action would result in moderate, long-term, adverse impacts from a new use in a secured area.

#### Trail and Sidewalk Safety

Recreational Segway® HT and electric scooter use would continue to be allowed only on National Mall & Memorial Parks sidewalks adjacent to roadways maintained by the District of Columbia (3rd, 4th, 7th, and 14th streets NW/SW), as described for Alternative 1. Not fully addressing multimodal use on park lands through a clear NPS management policy would create some confusion and result in recreational use of Segway® HTs and electric scooters within the National Mall & Memorial Parks that is inconsistent with present park policy. Impacts from continued potential conflicts between pedestrians and multimodal users, and recreational use of Segway® HTs and electric scooters on park trails, would result in minor, short- and long-term, adverse impacts on pedestrian safety.

#### **Cumulative Impacts**

As described under “Impacts Common to All Alternatives,” improvements to regional transit service operations and infrastructure would have minor, long-term, beneficial impacts on public health, safety, and security.

Similar to the other alternatives, Alternative 5 would result in negligible to moderate, site-specific, beneficial contributions to cumulative effects on public health, safety, and security.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternative 5, would result in minor, long-term, beneficial cumulative impacts. Improve-

ments in overall safety and security of the regional transportation system, as well as improvements in vehicle and facility standards that would offer better access for people with disabilities, would contribute to cumulative impacts.

**Conclusion**

The potential for continued conflicts between pedestrians and multimodal users, and recreational use of Segway® HTs and electric scooters on National Mall & Memorial Parks trails, that is inconsistent with park policy would result in minor, short- and long-term, adverse effects on pedestrian safety, similar to Alternative 1. Making transit vehicles and transit stops accessible to people with disabilities,

using new transit vehicles equipped with security features, and ensuring that the transportation service provider undertook safety and security programs, would result in negligible to moderate, long-term, beneficial impacts, similar to the other alternatives.

Past, present, and reasonably foreseeable actions, combined with the actions of Alternative 5, would result in minor, long-term, beneficial cumulative effects. Like the other alternatives, beneficial effects would be due to improvements in overall safety and security of the visitor transportation service, as well as regional transportation systems, and improvements in vehicle and facility standards that would offer better access for people with disabilities.

# PARK OPERATIONS AND VISITOR TRANSPORTATION SERVICE OPERATIONS

## **AFFECTED ENVIRONMENT**

The overview of park operations and visitor transportation service operations was prepared by reviewing information from several sources, including the National Park Service, Landmark Services, Inc., public transit agencies in the D.C. area (National Transit Database), the *District of Columbia Tour Bus Management Initiative* (USDOT 2003), the *District of Columbia Downtown Circulator Implementation Plan* (NCPC/DDOT/DBID/ WMATA 2003), the *Regional Bus Study* (WMATA 2003), and the NPS concessions management program.

## **Maintenance and Management Activities**

Activities related to the current transportation service includes maintenance of transit vehicles and transit stops (including signs, benches, and other features). All equipment is currently owned by Landmark Services, Inc., and is part of their contractual responsibility. A variety of vehicles are used for the transportation service, including articulated buses,

super trams (each super tram consists of one power car and two trailers), coach vehicles, and minibuses. Super trams are used exclusively for service in Arlington National Cemetery. Articulated buses are primarily used for the American Heritage Tour on the National Mall (Figure 9), and the remainder of the fleet is used for special excursions and for visitors with special mobility needs.

The American Heritage Tour provides a total of 20 transit stops — 16 standard stops, 3 transfer stops, and 1 intermodal stop. (Amenities associated with each type of stop are described in the “Alternatives” chapter, page 28.)

The National Park Service is responsible for managing parking facilities throughout the National Mall & Memorial Parks, including parking along Madison Drive NW and Jefferson Drive SW and at Potomac Park.

## **Maintenance / Storage Facility Site**

The maintenance / storage facility for the current third-party operator is on 2.6 acres of NPS property in East Potomac Park. The maintenance building is 42,352 square feet.

**Figure 9. Articulated Bus (Tourmobile)**



Vehicles are stored both inside and outside and are maintained on site.

### **Staffing**

Staffing for the visitor transportation service includes drivers, narrators, vehicle mechanics, facility maintenance personnel, and general administrative staff. Based on local transit agency full-time employee productivity factors, as reported in the 2002 Federal Transit Administration's national transit database, it is estimated that approximately 26 full-time employees would be required for the visitor core service, and 23 for the Arlington National Cemetery service (FTA 2005). These employees would provide the basic service functions described above.

NPS staffing includes park rangers, contract personnel, and maintenance personnel, who are responsible for maintaining and overseeing 1,000 acres of some of the most significant natural and cultural resources in the United States, including monuments, memorials, national historic sites, national park areas, and 60 statues, as well as the National Mall.

### **Law Enforcement and Security Requirements**

The present visitor transportation routes are within or adjacent to the National Mall, which is the setting for numerous special events throughout the year that are attended by hundreds of thousands of people. Occasionally, routes and services are affected by events, resulting in service delays or cancellations. For example, the visitor ridership study showed four days of service cancellation in 2000 (NPS 2004b). In addition, areas around the National Mall also contain security-sensitive locations and national icons. Heightened security alerts may also affect service and routes, and security checks may result in service slowdowns or disruptions.

Coordination with event promoters and security agencies is important to maintain

uninterrupted service through event and security-sensitive areas. In addition, other law enforcement and security requirements related to the visitor transportation service include monitoring and surveillance measures on the transit vehicles and at transit stops.

NPS law enforcement activities related to personal transportation vehicles include enforcing speed limits, user requirements (helmets, etc.), and operation only in designated areas. Traffic and parking enforcement on the National Mall, including Madison Drive NW and Jefferson Drive SW, is currently performed by the U.S. Park Police.

### **NPS Contract Management**

NPS concessions staff administer all business contracts and agreements related to the visitor transportation service. They provide criteria and standards, as well as monitor the service. The National Park Service would be responsible for developing and monitoring contracts and agreements for any type of visitor transportation service considered in this document.

## **IMPACT ANALYSIS**

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### **Impact Intensity Thresholds**

The methodology used for assessing impacts to park operations and visitor transportation service operations is based on how the proposed project would affect maintenance and management activities, staffing requirements, law enforcement and security requirements, and NPS contract management. For purposes of analyzing impacts to park operations and visitor transportation service operations the thresholds of change for impact intensity are defined below:

- *Negligible* — The impact would be undetectable or barely detectable.
- *Minor* — The impact would be detectable.
- *Moderate* — The impact would be apparent and measurable.

- *Major* — The impact would be readily apparent and measurable.

**Impacts Common to All Alternatives**

Impacts would generally be the same under all alternatives, as described below.

**Analysis**

Maintenance and Management Activities

The alternatives would differ in terms of who provided visitor transportation services, either the National Park Service, an independent third-party operator, an agreement with a public transportation entity, or a service contract. The responsible party for maintenance activities, staffing requirements, and law enforcement / security requirements related to the visitor transportation service is unknown at this time and would be determined during the implementation phase.

To give an idea of the scale of operations being considered, the estimated numbers of employees, transit vehicles, and transit stops that would need to be maintained under each alternative are shown in Table 28. Staffing required for the visitor transportation service would include transit drivers, vehicle mechanics, maintenance personnel, and general administrative staff.

Impacts on the transportation service operator are not analyzed because all service-related requirements would be a cost of doing business under some sort of contract or agreement with the National Park Service. The Park Service would only provide oversight responsibilities to ensure that the transportation ser-

vice was being operated in accordance with the contract.

Maintenance / Storage Facility Site Requirements

A new transit vehicle maintenance / storage facility would be required under all alternatives. The size of a new facility is projected to range from 4.2 acres to 6.4 acres if all services were combined at one location. All of the alternatives provide for the continued use of the present 2.6-acre maintenance and storage site in East Potomac Park, if desired by the operator. This location would continue to be strategically beneficial because of its proximity to the transit service area, minimizing the length of trips between the service area and the facility. Any new facilities would be the responsibility of the operator.

NPS Contract Management

A new contract or arrangement for providing the visitor transportation service would offer opportunities to develop a performance-based contract to define service flexibility and ticketing and marketing goals, criteria to evaluate the effectiveness of the service, as well as new criteria for energy-efficient vehicles and facilities. There would be no additional impacts to NPS contract management under any alternative. The National Park Service would continue to be responsible for oversight of the service to ensure that it was operated in accordance with the contract or agreement.

Law Enforcement and Security Requirements

Law enforcement and security requirements would continue under all alternatives and would not create additional NPS responsibilities.

**Cumulative Impacts**

None of the plans or projects listed in the cumulative impact scenario, or any other past, present, or reasonably foreseeable actions, would have a cumulative effect on park operations or

**Table 28. Visitor Transportation Service Staffing, Transit Vehicles, and Stops**

Alternative	Estimated Employees	Transit Vehicles	Transit Stops
Alternative 1	49	25	20
Alternative 2	76	47 / 70*	48
Alternative 3	64	41	36
Alternative 4	88	58	72
Alternative 5	101	63	71

\* Number of vehicles required if ridership doubled.

visitor transportation service operations. Therefore, cumulative impacts are not evaluated.

**Conclusion**

The alternatives differ in terms of staffing and the number of vehicles and transit stops that would have to be maintained. All of these costs would be a cost of doing business for any service provider and would not affect park operations. A new transit vehicle maintenance / storage facility would be required under all alternatives, ranging from 4.2 acres to 6.4 acres if all services were combined at one

location. All of the alternatives provide for the continued use of the present 2.6-acre maintenance and storage site in East Potomac Park. This location would continue to be strategically beneficial because of its proximity to the transit service area, minimizing the length of trips between the service area and the facility. Any new facilities would be the responsibility of the operator. There would be no additional impacts to NPS contract management or law enforcement and security requirements under any alternative.

There would be no cumulative impacts on park operations.

# SOCIOECONOMIC ENVIRONMENT

## AFFECTED ENVIRONMENT

Existing conditions for the socioeconomic environment were assessed by reviewing data from Landmark Services, Inc., the U.S. Census Bureau, the Bureau of Economic Analysis, the Bureau of Labor Statistics, the D.C. Department of Employment Services, and the Metropolitan Washington Council of Governments. In addition, tourist data and profiles from sources such as the “2003 Visitor Statistics, Press Briefing” and the NPS *Visitor Transportation Survey* (NPS 2003f) were also referenced.

Population, employment, and personal income for Washington, D.C., and for the Washington-Arlington-Alexandria Metropolitan Statistical Area are shown in Table 29.

**Table 29. Population, Employment, and Personal Income for Washington, D.C., and the Metropolitan Statistical Area — 2004**

	Washington, D.C.	Washington-Arlington-Alexandria MSA
Population	554,239	5,157,608
Employment*	721,466	3,052,607
Personal Income (×1,000)	\$28,352,299	\$241,285,673

SOURCE: Bureau of Economic Analysis 2006.

\* Total employment comprises the number of jobs, full-time plus part-time, by place of work. Full- and part-time jobs are counted at equal weight.

As previously stated, the metropolitan Washington region is expected to grow by 1.6 million people and 1.2 million jobs over the next two decades (MWCOC 2006).

## IMPACT ANALYSIS

### Impact Intensity Thresholds

The methodology used for assessing impacts to the socioeconomic environment is based on potential economic development related to the proposed visitor transportation service.

For purposes of analyzing impacts, the following thresholds of change for impact intensity were defined:

- *Negligible* — There would be no impacts on the socioeconomic environment, or the impacts would be barely detectable.
- *Minor* — Impacts on the socioeconomic environment would be detectable.
- *Moderate* — Impacts on the socioeconomic environment would be apparent and measurable.
- *Major* — Impacts on socioeconomic conditions would be readily apparent and measurable.

### Assumptions Common to All Alternatives

It is not possible at the present time to project fares under each alternative. Factors that would affect fare levels include the scale of service and resulting implementation and operating costs, ridership levels, funding sources, choice of a system operator, and end-of-contract stipulations with the current contractor. These factors are noted in the “Transportation Service and Implementation Fares” section of the “Alternatives” chapter (page 32). Actual fares will be established during the implementation phase of the project.

### Economic Development

Proposed services are not directly associated with an economic development program. The choice by more visitors and commuters to use the visitor transportation system under any alternative could affect the use of other public or private transportation services, potentially impacting employment for those other services and associated income generation.

### **Cumulative Impacts**

Past, present, and reasonably foreseeable plans and projects in the downtown D.C. and Arlington areas, including future memorials and museums, implementation of the *Comprehensive Plan for the National Capital: Federal Elements*, and urban renewal projects, would have moderate, long-term, beneficial impacts on the socioeconomic environment. Projects would provide more opportunities for regional employment and more destinations that may be attractive to visitors and users, thus affecting visitor and user spending patterns within the area.

### **Alternative 1: No-Action**

#### **Analysis**

There would be no change on the local or regional economy under Alternative 1. Continuing the current visitor transportation service would not affect local employment opportunities or potential visitor or user spending in other economic sectors.

### **Cumulative Impacts**

Past, present, and reasonably foreseeable plans and projects in the Washington metropolitan area would result in moderate, long-term, beneficial impacts, as discussed under “Impacts Common to All Alternatives.” Alternative 1 would not contribute to cumulative effects.

### **Conclusion**

There would be no additional impact on the local or regional economy from continuing the present visitor transportation service under Alternative 1.

Past, present, and reasonably foreseeable plans and projects in the metropolitan area would result in moderate, long-term, beneficial impacts. The ongoing visitor transportation service under Alternative 1 would not contribute to cumulative effects.

### **Alternatives 2, 3, 4, and 5**

#### **Analysis**

The socioeconomic impacts of a new visitor transportation service under Alternatives 2, 3, 4, and 5 would essentially be the same. Each alternative would be expected to add more jobs to the local economy than under Alternative 1, including drivers, maintenance personnel, and administrative staff (see Table 28), as well as secondary positions generated by spending related to system operations and employee spending on goods and services within the region. However, any potential job gains would be very small relative to the entire regional employment base, as shown in Table 29. Impacts would be negligible, long term, and beneficial.

Alternative 2 recommends a new parking policy that would include paid metered parking at locations that are currently free for general public use. This strategy is aimed at meeting local travel demand management objectives by creating incentives for people to use public transit, including alternative modes, rather than to drive private automobiles. It would also provide an additional source of funding for transit service operations. However, this application would impose an economic impact on visitors currently parking for free at sites under the jurisdiction of the National Mall & Memorial Parks. Actual parking rates and fees for the system would be necessary to determine the level of impact. Specific requirements, including implementation costs, parking management needs, and parking fees, would be developed as part of a separate analysis and implementation plan.

#### **Cumulative Effects**

Past, present, and reasonably foreseeable plans and projects in the metropolitan area would result in moderate, long-term, beneficial impacts, as discussed under “Impacts Common to All Alternatives.”

Alternatives 2, 3, 4, and 5 would contribute a negligible, long-term increment to the bene-

ficial socioeconomic impacts as a result of increased employment opportunities and potential visitor and user spending in other sectors.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternatives 2, 3, 4, and 5, would result in moderate, long-term, beneficial cumulative impacts. Downtown revitalization and redevelopment projects would provide more opportunities for employment and spending in a variety of regional economic sectors.

**Conclusion**

Increased employment opportunities and potential visitor and user spending in other

sectors of the local economy under Alternatives 2, 3, 4, and 5 would result in negligible, long-term, beneficial impacts on the socio-economic environment.

Past, present, and reasonably foreseeable plans and projects, combined with the actions of Alternatives 2, 3, 4, and 5, would result in moderate, long-term, beneficial cumulative impacts. Downtown revitalization and redevelopment projects would provide more opportunities for employment and spending in various regional economic sectors, which would be supported by the proposed visitor transportation service.