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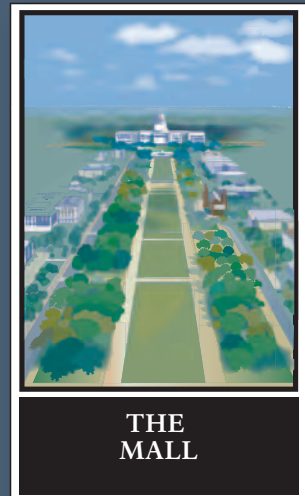
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THE AFFECTED ENVIRONMENT

DRAFT
NATIONAL MALL PLAN /
ENVIRONMENTAL IMPACT STATEMENT
THE NATIONAL MALL



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CONTEXT FOR PLANNING AND DEVELOPMENT OF THE NATIONAL MALL

The following discussion of planning for and development of the National Mall refers to some adjacent areas because of their common history. For example, the White House and President's Park are within the Reserve, but are not part of the National Mall.

lished in 1749 as a port for the shipment of tobacco, followed shortly by Georgetown, Maryland, across the river. By 1790, when George Washington selected the site for the national capital, plantation owners were struggling to farm the exhausted tobacco fields.

1790–1850

L'Enfant Plan

Toward the end of the 17th century, tobacco plantations were laid out in both Virginia and Maryland in the vicinity of present-day Washington, D.C. Alexandria, Virginia, was estab-

President Washington selected Major Pierre Charles L'Enfant to plan the new capital, which he modeled after plans of European capitals and the royal estates of European monarchs. Using plans of European cities he borrowed from Thomas Jefferson, L'Enfant envisioned a grand city built around a great open space that would establish the relationship between important

FIGURE 24: PLAN OF THE CITY OF WASHINGTON, 1791–92



This 1792 engraving by Andrew Ellicott is based on Pierre L'Enfant's plan of 1791, with some changes. Andrew Ellicott was hired by Washington in 1791 to survey the site of the future city. L'Enfant was let go from his post in 1792.

functions of government. L'Enfant's plan shows the "Presidential Palace" and the "Congress House" on two high pieces of ground connected by a broad boulevard, what would become Pennsylvania Avenue. A mile-long Grand Avenue would run west from the Congress House — a great open space lined by the ministries and houses of statesmen, with expanses of plantings and gardens. The central garden of this area, now known as the Mall, would contain a water feature and be bordered by dense groves of trees. An equestrian statue of George Washington would be at the west end of the avenue, near today's 17th Street, on the axis south of the Presidential Palace and west of the Congress House. Tiber Creek would become the Washington Canal, with a towpath for barges to bring supplies to the city's commercial establishments.

The plan consisted of a coordinated system of radiating avenues, parks, and vistas overlaid on a grid of streets. Wide diagonal boulevards would create additional visual connections, and squares and circles where the grid system and the diagonal boulevards intersected would become the focus of residential neighborhoods and civic buildings and would provide appropriate sites for monuments to the nation and its heroes. By 1800 enough of L'Enfant's plan had been implemented that the seat of government was transferred from Philadelphia.

Changes on the National Mall

Little was done to advance the development of the Mall* for many years, and the area that was

* The first use of the name "Mall" to refer to the axis extending west from the Capitol appeared in 1802 on a map, *Washington City*, in S. S. Moore and T. W. Jones, *The Travellers' Directory . . . of the Main Road from Philadelphia to Washington* (Philadelphia: Mathew [sic] Carey, 1802; in Repts 1991:60–61). The map shows a formal Mall lined by nonexistent trees. The name "Mall" came from the French game *Paille Maille*, meaning "ball-mallet," a game that resembled a cross between golf and croquet and was played on a long, narrow lawn lined with walls or trees. Imported into England in the 17th century and renamed "Pall Mall," where it was played in St. James' Park by Charles II. A nearby road was renamed Pall Mall, and the word "mall" took on the connotation of a pleasure drive.

to become the Mall was much smaller in the L'Enfant plan than it is today. In 1796 the city's first commissioners advised Washington to construct an "elegant building" on the Mall to spur its use. Washington requested that streets, squares, lots, and parcels shown in the city plan be transferred to the three city commissioners for the use of the federal government. He noted that the Mall was to provide "for the health and ornament of the city." Despite Washington's urging, however, decades passed before the Mall began to take shape.

Almost nothing of L'Enfant's vision for the Mall was realized in the 19th century. In the first half of that century Congress ceded federal rights over parcels of land on the Mall to private entities. Two new roads were created to separate the new lots from the Mall — Missouri Avenue, parallel to Pennsylvania Avenue, and Maine Avenue, parallel to Maryland Avenue. Other land on the Mall was used for private purposes. People raised produce in small gardens, grazed livestock, and stored lumber, firewood, and trash. Just north of the Mall, the triangular area bounded by Pennsylvania Avenue, 15th Street, and B Street North became known during the war as Hooker's Division, home to many saloons and brothels. Just south of the Mall was a large slave market.

The Potomac waterfront was just west of what is now the Washington Monument. Tiber Creek entered the city just south and west of the White House. It later was straightened and became the Washington City Canal, connecting the Potomac River with the Anacostia River south of the Capitol.

In the early 1830s, when the Washington City Canal was connected to the newly constructed Chesapeake and Ohio Canal, a Lockkeeper's House was constructed at the connection site. Although moved from that location, the structure still exists on the Mall near the intersection of 17th Street and Constitution Avenue.

Planning for a monument to George Washington was begun shortly after Washington took office. L'Enfant had called for an equestrian monument at the cross-axis of lines south from the White House and west from the Capitol. In 1848 Congress granted the Washington Monument Society a 37-acre site encompassing the

crossing of the two axes. The cornerstone was laid on July 4, but the location of the monument was moved to the east to provide better construction footing. Construction began the following year but was stopped by 1855 because of political agitation and lack of money; the shaft had risen to 156 feet. Construction resumed in 1876 and the monument was finally completed in 1884.

1850–1900

The Downing Plan

By the middle of the 19th century there was a renewed interest in making the Mall the nation's public park. In 1850 a group of businessmen approached President Millard Fillmore about landscaping the Mall, and the following year landscape designer Andrew Jackson Downing was hired. His objectives were threefold:

- form a federal park that would be an ornament to the capital city
- provide an example of the natural style of landscape gardening
- form a living museum of trees and shrubs

A proponent of the English romantic garden tradition, Downing prepared a plan that turned the Mall and the green south of the White House into a series of landscaped “rooms” or gardens. Downing was killed in a steamboat accident in 1852, and only his plans for Lafayette Park north of the White House, the Ellipse, and seven gardens on the Mall were completed. In subsequent years, the circles and squares were landscaped roughly following the initial principles developed by Downing. Today, only glimpses of his designs can be seen in Lafayette Park, the Ellipse, and some of the circles.

Changes on the National Mall

The Smithsonian Institution, which had been established by Congress in 1846, set the precedent for public educational and cultural institutions on the Mall. The cornerstone of the original building on the south side of the Mall, known as the Castle, was laid in 1847, and the building was completed in 1855.

In February 1835 Congress granted permission to the Baltimore & Ohio (B&O) Railroad to run its line into the city. The railroad's first depot stood by the canal, at Pennsylvania Avenue and 2nd Street NW. A later depot was built somewhat farther north, at New Jersey Avenue and C Street. In 1855, Congress allowed the Alexandria & Washington Railroad to lay tracks along First Street, at the western foot of Capitol Hill, heading to the B&O depot. Related railroad sheds and tracks crossing the Mall at about 5th Street were built during the Civil War.

One of the largest incursions on the Mall was the construction of the Baltimore & Potomac Depot in 1872. Congress gave the railroad free use of a site on the Mall itself, and construction of a temporary wooden depot allowed passenger service to begin on July 2, 1872, and a new, permanent depot was probably in use by late December 1873. Up to 30 deaths occurred annually because of the surface railroad crossing. (The station was also the site of the assassination of President James Garfield in 1881.)

An armory was constructed on the Mall near the Smithsonian Institution in 1855, and the National Museum was completed in 1881 (now the Arts and Industries Building). The Washington City Canal was covered over about 1881, with a portion becoming Constitution Avenue.

The Department of Agriculture occupied a new office building on the Mall in 1868. Later a conservatory and cultivated gardens were developed on the Mall. A successor Department of Agriculture complex was built on the south side of the mall in 1905.

Construction of a causeway and bridge over the Potomac in the 1830s had resulted in extensive mud flats and navigation shoals. Flooding required the bridge to be continually rebuilt and often caused damage to the Mall. In 1882 Congress allocated money to provide better flood control, to eliminate areas where malaria-spreading mosquitoes bred, and to create land from excessive silt that had built up along the Potomac River. Over the next 20–30 years approximately 740 acres of new land were created, one of the largest civil engineering projects of its time. This project extended the city to its current boundary on the Potomac River.

The Washington Monument was dedicated in 1885, and the monument was completed in 1888. An associated boiler house / Survey Lodge was constructed in 1885–6, and a Monument Lodge was opened in 1888.

In 1897 President Grover Cleveland signed the Potomac Park law, which was prompted by citizens' effort and stated that the land was to be "forever held as a public park for the recreation and pleasure of the people." In 1901 the Potomac Railroad Bridge was constructed by the U.S. Army Corps of Engineers and subsequently became the boundary between East and West Potomac parks. (East Potomac Park is outside the study area.)

1900–1950

The McMillan Plan

By 1900 the historic city center was in need of refurbishment. The success of the City Beautiful movement following the 1893 World's Columbian Exposition in Chicago led to a growing sentiment that the City of Washington needed to be renewed. In 1898 the American Institute of Architects (AIA) called for a redesign of the capital, whose centennial was approaching. At the 1900 AIA annual meeting, landscape architect Frederick Law Olmsted Jr. stated that a formal character for Washington, D.C., was appropriate and proposed treating the Mall as a compound, or multi-street, boulevard. There was a new appreciation of the vision in L'Enfant's plan.

In March 1901 the Senate created the Senate Park Commission, also known as the McMillan Commission. Senator James McMillan was chair of the Senate Committee on the District of Columbia. Members included architects Daniel Burnham (appointed chairman) and Charles McKim, and sculptor Augustus St. Gaudens, along with Frederick Law Olmsted Jr. The subsequent "Report of the Senate Committee on the District of Columbia on the Improvement of the Park System of the District of Columbia" (Senate Report No. 166, 57th Congress, 1st Session, 1902) included not only the printed document, but an exhibition of models, drawings, and paintings.

The commission's report, which became known as the McMillan plan, built on the L'Enfant plan. It referenced the L'Enfant plan's vision in its

formality, its concept of public spaces, and its concern with spatial relationships and civic art, but the McMillan plan expanded the vision for the central public spaces of the city. The McMillan plan emphasized the Mall as the city's ceremonial core, and the Mall would be extended onto the newly reclaimed land to the west and south.

The formal vistas that L'Enfant had intended along the axes between the primary buildings around the Mall had been gradually lost during the 1800s. For example, the view along Pennsylvania Avenue between the Capitol and the White House — one of the two critical vistas in the L'Enfant plan — was soon hidden by the construction of the south wing of the Treasury Building in 1855–60. The McMillan plan sought to redesign the central Mall area, reinforcing the axes and the vistas of L'Enfant's plan. The McMillan plan incorporated a five-point kite shaped design that would create a view of fairly open parkland. Two new monuments would be built, one to the west of the Washington Monument and in line with the Capitol, and one to the south, inline with the White House; these new monuments would form the south and west points of the kite. A ceremonial bridge would extend across the Potomac to symbolically reconnect the North and South. Subsequent plans further defined and incorporated many of the McMillan plan's underlying ideas.

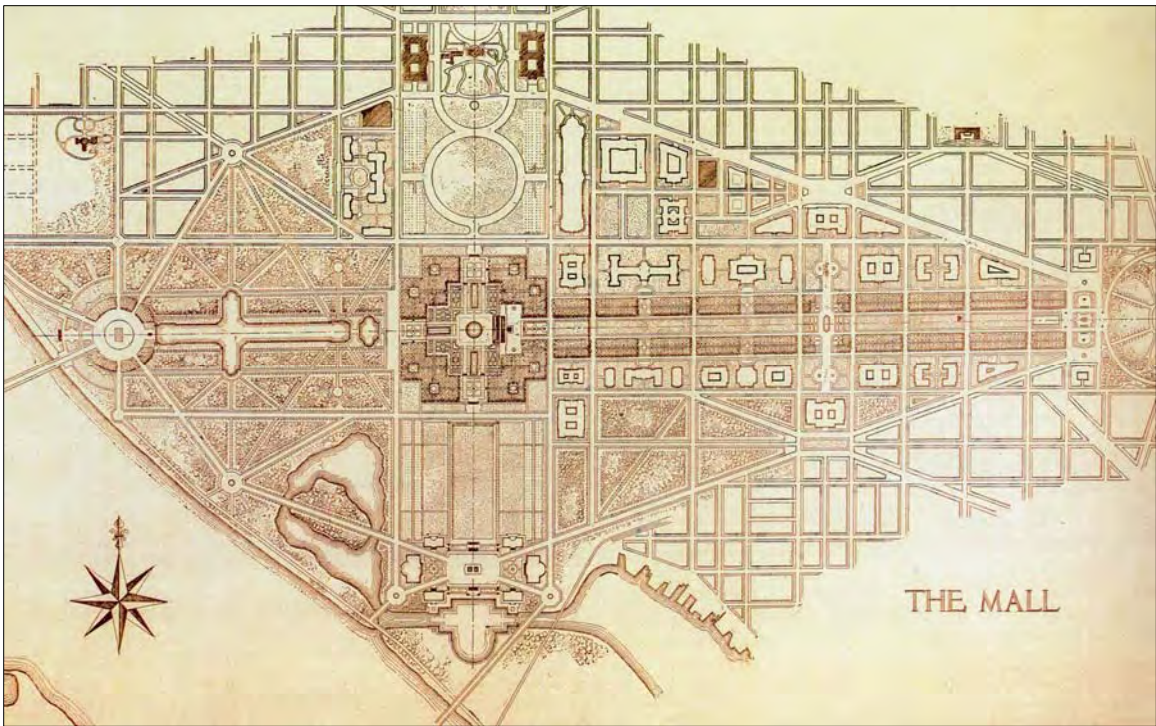
The McMillan plan called for removing the naturalistic gardens of the Downing plan and creating a more ceremonial, geometric, large-scale landscape, as favored by L'Enfant. The plan differed from L'Enfant's by replacing the grand processional avenue in the center of the Mall with a 300-foot-wide expanse of grass lined on either side by symmetrical rows of American elms.

Using the principles of the City Beautiful movement and its promotion of the Beaux Arts style of architecture, the plan recommended locations for public museums lining the Mall east of the Washington Monument and federal offices centralized within the city core. In addition to recommending that the White House be restored to its original appearance, the plan also recommended that a series of parks be developed throughout the city.

FIGURE 25: THE McMILLAN PLAN



Oblique view of the McMillan plan, which reflected the tenets of the City Beautiful movement.



McMillan plan view, which shows locations for the future Lincoln and Jefferson memorials to complete the western portion of the National Mall.

Changes on the National Mall

One of the first actions under the McMillan plan that affected the Mall was the relocation of the railroad terminal to the new Union Station, which was constructed in 1908 north of the U.S. Capitol. Other development included the following:

- In 1912 some 1,800 cherry trees that were a gift from Japan were planted around the Tidal Basin. The Thomas Jefferson Memorial was finished in 1939, completing the view from the White House, as envisioned by the McMillan plan.
- The Sylvan Theater was constructed south of the Washington Monument in 1917 to provide a venue for plays, concerts, and other outdoor presentations.
- The Lincoln Memorial was dedicated in 1922. The proposed cruciform-shaped reflecting pool proposed in the McMillan plan was modified to a rectangular form to accommodate temporary military buildings that had been erected during World War I.
- The Ulysses S. Grant Memorial was dedicated in Union Square in 1922.
- Rows of American elms were planted on both sides of the Mall, and four boulevards were laid out down the Mall, two on either side of the center lawn.

Between 1900 and 1950 active recreational facilities were incorporated into the National Mall for the first time. During the early part of the 20th century swimming facilities, athletic fields, and other recreational amenities were provided in open spaces. National Capital Parks maintained its own recreation division until 1942, when the District Recreation Board was created. The 1949 “Memorandum of Agreement between the National Park Service and the District of Columbia” formally recognized that certain areas of the National Mall were part of the D.C. recreation system.

Federal Legislation and Administration

To ensure that the visions of the L’Enfant plan and the new McMillan plan were protected, Congress created the United States Commission of

Fine Arts in 1910 to advise on the location of statues, fountains, and monuments in the public areas in the District of Columbia. Later that year President William Howard Taft signed an executive order giving the commission authority to advise on plans for public federal buildings erected in the District.

In 1924 the National Capital Park and Planning Commission (later the National Capital Planning Commission) was formed to develop a comprehensive, consistent, and coordinated plan for the parks of the national capital and its environs in Maryland and Virginia. Its mission was expanded to purchase lands for future development and to devise strategies for preventing pollution in Rock Creek and the Anacostia and Potomac rivers.

In 1930 the Shipstead-Luce Act gave the Commission of Fine Arts authority to review the designs of private construction projects within certain areas of the national capital, specifically construction that fronts or abuts the grounds of the Capitol, the grounds of the White House, the portion of Pennsylvania Avenue extending from the Capitol to the White House, and the Mall park system, as well as Rock Creek Park, the National Zoo, the Rock Creek and Potomac Parkway, the southwest waterfront, and Fort McNair.

In 1933 federal parks in Washington, D.C., were consolidated under the management of the National Park Service.

1950 TO 2000

Federal Plans

No plans for the National Mall were undertaken in the 1950s. In the 1960s and 1970s master plans for the Washington Mall area were prepared by Skidmore, Owings and Merrill. They followed the general layout of the L’Enfant and McMillan plans, while attempting to accommodate national prosperity and address the congestion caused by automobile traffic. The whole National Mall area would be pedestrian friendly. Commercial and personal vehicle traffic, as well as vehicle parking, would be removed from the Mall, and all north-south roadway crossings would be tunneled under the Mall. A hop-on and -off visitor bus service would be provided on designated lanes. Bicycle use would be encouraged. Underground

FIGURE 26: EXTENDING THE LEGACY, 1997



The National Capital Planning Commission's *Extending the Legacy* plan offers proposals for transportation, community revitalization, public building, and open space in the monumental core. Courtesy of the National Capital Planning Commission.

parking would be provided at the Ellipse and Constitution Gardens.

The 1976 U.S. Bicentennial Celebration provided the motivation for planning to accommodate large numbers of expected visitors to the nation's capital. A number of major memorials were added to the National Mall throughout this period, further underscoring its importance as the home to the great symbols of our country.

The 1997 National Capital Planning Commission's *Extending the Legacy* plan provides a framework for change that builds on the past,

plans for the future, and focuses on the use of transit rather than expanded automobile access.

Changes on the National Mall

Proposals that were implemented included the following:

- Roads were tunneled under the Mall at 9th and 12th streets NW/SW and I-395 (between 1st and 3rd street NW/SW). Washington and Adams drives were converted to gravel walkways as planned, but Madison Drive NW and Jefferson Drive SW were not closed to traffic, and parking was not removed as planned.

- The Capitol Reflecting Pool was constructed over the I-395 tunnel, and the Botanic Garden was relocated to the current area south of the Mall.
- Constitution Gardens was dedicated in 1976. It is an oasis in the midst of the city, but its proposed function as an area for programmed activities, restaurants, events, concerts, and celebrations was never achieved, nor was underground public parking developed.
- The temporary military buildings on the grounds of the Washington Monument and on either side of the Lincoln Reflecting Pool were removed in 1971.
- At the Washington Monument 15th Street NW/SW was redesigned as a symmetrical curve. The monument was restored in the 1990s, and physical security improvements were completed in 2005.

The Vietnam Veterans Memorial was added in 1982, the Korean War Veterans Memorial in 1995, and the Franklin Delano Roosevelt Memorial in 1997. These actions made West Potomac Park more commemorative in character and less recreational.

Federal Legislation

Congress passed the Commemorative Works Act in 1986. Its purposes are

- (1) to preserve the integrity of the comprehensive design of the L'Enfant and McMillan plans for the Nation's Capital;
- (2) to ensure the continued public use and enjoyment of open space in the District of Columbia and its environs, and to encourage the location of commemorative works within the urban fabric of the District of Columbia;
- (3) to preserve, protect and maintain the limited amount of open space available to residents of, and visitors to, the Nation's Capital; and
- (4) to ensure that future commemorative works in areas administered by the National Park Service and the Administrator of General Services in the District of Columbia and its environs—

- (A) are appropriately designed, constructed, and located; and
- (B) reflect a consensus of the lasting national significance of the subjects involved.

CURRENT CONDITIONS — 2000 TO 2010

Following the terrorist attacks on September 11, 2001, a new round of security planning and construction was undertaken by the National Park Service, the National Capital Planning Commission, the District of Columbia, and federal agencies. NPS perimeter security projects have been completed or are underway for the Washington Monument, the Lincoln Memorial, and the Thomas Jefferson Memorial. Museums lining the Mall also have perimeter security projects underway or completed. The new security climate has resulted in public concerns about achieving an appropriate level of protection while retaining the open access and freedom of movement expected in a democracy.

Federal Plans

The National Capital Planning Commission adopted a *Memorials and Museums Master Plan* in 2001, which stems from the *Extending the Legacy* plan and guides the selection of sites for future memorials and museums.

To relieve pressure on the National Mall, the National Capital Planning Commission and the U.S. Commission of Fine Arts have developed the *Monumental Core Framework Plan* to enhance the areas surrounding the National Mall (NCPC 2009). This plan will help provide accessible, inviting, and attractive places for public commemoration, participation, and celebration beyond the National Mall. The plan will

- provide ways to seamlessly extend desirable qualities of the National Mall to surrounding areas
- reestablish vistas of national importance, and create important new places for cultural and commemorative attractions
- improve access and connections to popular places around the city

Changes on the National Mall

Two new memorials were dedicated — the George Mason Memorial in 2002, and the World War II Memorial in 2004. The World War II Memorial on the east-west axis of the National Mall between the Washington Monument and the Lincoln Memorial was built around a reconstructed Rainbow Pool to ensure that the historic vistas between the existing memorials would be retained.

Federal Legislation

In 2003 Congress amended the Commemorative Works Act to strengthen and clarify its purpose. Congress designated the Reserve area (see Figure 27), which includes the National Mall and the White House, stating that

- (1) the great cross-axis of the [National] Mall in the District of Columbia, which generally extends from the United States Capitol to the Lincoln Memorial, and from the White House to the Jefferson Memorial, is a substantially completed work of civic art; and
- (2) to preserve the integrity of the [National] Mall, a reserve area should be designated with the core of the great cross-axis of the Mall where the siting of new commemorative works is prohibited.

A commemorative work is defined as

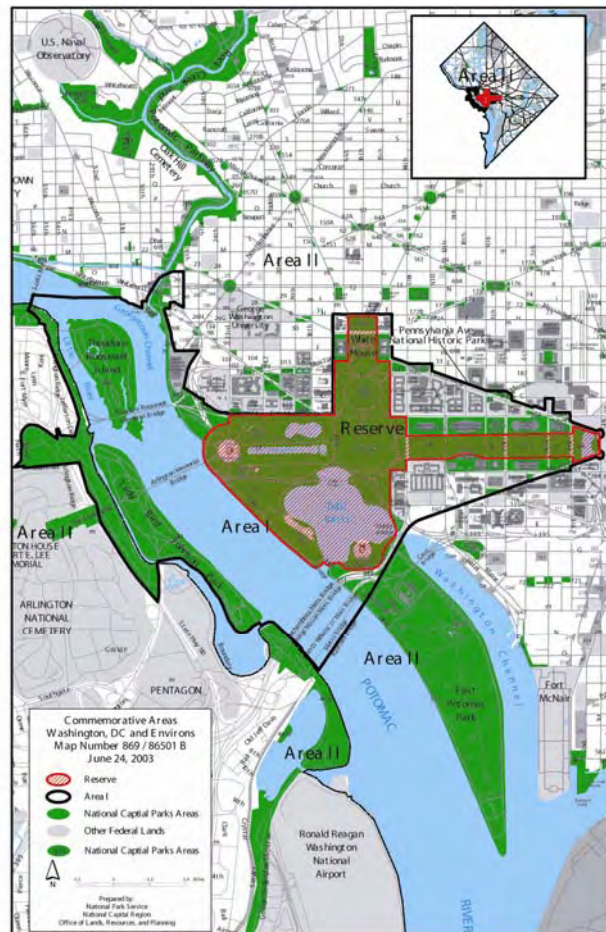
any statue, monument, sculpture, memorial, plaque, inscription, or other structure or landscape feature, including a garden or memorial grove, designed to perpetuate in a permanent manner the memory of an individual, group, event or other significant element of American history.

Congress also redesignated Areas I and II, where additional memorials could be erected in the future (see Figure 27).

The Reserve contains parkland formerly in Area I, including the National Mall, however, the 2003 amendments to the Commemorative Works Act provided for the placement of those projects that had already been approved for the National Mall, assuming that they met the requirements of the Commemorative Works Act or other applicable laws. These final projects are

- Vietnam Veterans Memorial Center
- Martin Luther King, Jr. Memorial

FIGURE 27: COMMEMORATIVE AREAS, WASHINGTON, D.C., AND ENVIRONS



- National Museum of African American History and Culture — to be located on the northeast section of the Washington Monument, the area bounded by Constitution Avenue NW, Madison Drive NW, and 14th and 15th streets NW.

The authorization for a fourth memorial on the National Mall — Black Revolutionary War Patriots — expired before its sponsor met all the requirements of the Commemorative Works Act.

Memorials within what is now Area 1 that have been authorized include a memorial to President Dwight D. Eisenhower, which will be on the south side of Independence Avenue SW near the National Air and Space Museum. A memorial to President John Adams has been proposed, but a site has not been identified. A memorial to American Veterans Disabled for Life is planned for Area II south of the National Mall.

CULTURAL RESOURCES

Archeological resources, ethnographic resources, American Indian trust resources, and museum collections have been dismissed from further consideration. The cultural resources considered here include historic districts, historic properties, cultural landscapes, and memorials.

The resources of the National Mall and Memorial Parks are covered by numerous listings on the National Register of Historic Places in compliance with section 106 of the National Historic Preservation Act.

MEMORIALS

While several major memorials are individually listed on the National Register of Historic Places (the Washington Monument, the Lincoln Memorial, and the Thomas Jefferson Memorial), other memorials are not yet historic (that is, they are not 50 years old). These newer memorials may be listed on the national register as contributing resources to a historic district, such as the Franklin Delano Roosevelt Memorial, the Korean War Veterans Memorial, and the Vietnam Veterans Memorial. All memorials are managed pursuant to the laws and regulations that may be specific to them, and changes may require congressional authorization.

Commemorative works are otherwise generally subject to review, and in some instances approval by the National Capital Planning Commission and the U.S. Commission of Fine Arts, and possibly by the D.C. Historic Preservation Office. This would depend on whether the memorial is historic or located within the historic landscape or is affecting other historic features. The Commemorative Works Act also provides protection for existing memorials from encroachment by new memorials.

As a result of the 2003 amendments to the Commemorative Works Act, no new memorials will be added to the National Mall; however, memorials could be placed in areas I and II adjacent to the National Mall.

No structures or properties have been designated as world heritage sites by the United Nations Educational, Scientific and Cultural Organization. Additional details of the resources described below are included in appendix C.

The planning and development history of the National Mall is discussed in the previous chapter, “The Context for the Plan.” Historic structures, historic districts, and cultural landscapes that could be affected by the implementation of any alternative are described in this chapter.

HISTORIC DISTRICTS

The following historic districts are listed on the National Register of Historic Places and are shown on the National Register Historic Districts and Properties map.

The Mall

The Mall, encompassed by Constitution and Pennsylvania avenues on the north, 1st Street on the east, Independence and Maryland avenues on the south, and 14th Street on the west, is slightly over 1 mile long and 1,500 feet wide, but narrowing to approximately 500 feet at its eastern terminus. The Mall is significant as the central axis of the city’s monumental core as designed by L’Enfant in 1791. The Mall was to be the foremost avenue of the city, the so-called “Grand Avenue,” running west from the Capitol to a point directly south of the President’s House, where its terminus would be crowned by an equestrian statue of George Washington. According to L’Enfant’s plan, the Mall was to be “four hundred feet in breadth, and about a mile in length, bordered by gardens, ending in a slope from the houses on each side.” Although L’Enfant was dismissed as the capital architect in 1791, his grand plan for the city was retained.

During the 19th century L’Enfant’s formal design for the Mall was largely forgotten. In 1851 Andrew Jackson Downing was hired to design a landscape plan for the Mall, but as previously discussed, his plans were never implemented. During the Civil War, the Mall grounds were used for military purposes, and

National Register Historic Districts and Properties

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Cultural Landscapes

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the Baltimore and Potomac Railroad built a depot on a 14-acre tract at 6th and B streets in 1872. The Smithsonian Castle was the earliest building on the Mall and was designed by James Renwick and built in 1847–55. The Arts and Industries Building, a national historic landmark, was designed by Cluss and Schulze, with Montgomery C. Meigs and built in 1879–81. This is a well-preserved example of 19th century “exposition” type of architecture. It was built to house the international exhibits left over from the Philadelphia Centennial Exhibition of 1876 and is a fanciful construction of polychrome brick.

By 1900 the Mall was a hodgepodge of public, private, and commercial structures loosely connected by the overgrown remnants of Downing’s naturalistic design. When the Senate Park Commission submitted its report to Congress, the plan called for the restoration, development, and supplementation of the “Grand Avenue” ideal proposed by L’Enfant. The core of the Mall was to be a broad grass carpet, typical of those in Europe, 300 feet wide and running the entire length of the Mall grounds, bordered on each side by four rows of American elm trees. Public buildings were to border the whole, separated from the elms by narrow roadways. The railroad station was removed from the area in 1909.

The Department of Agriculture was built in 1905 and designed by Rankin, Kellogg and Crane. This was the first building constructed on the Mall after the issuance of the McMillan Commission report. It took the intervention of President Theodore Roosevelt to keep the building from the middle of the Mall.

The National Museum of Natural History was designed in 1911 by Hornblower and Marshall and the wings were added in 1965 (designed by Mills, Petticord and Mills). This neoclassical building is the first building on the north side of the Mall to comply with the strictures of the McMillan Commission.

The Freer Gallery of Art was designed in 1923 by Charles A. Platt and is a neoclassical building housing Charles Lang Freer’s collection of the painting and sculpture of Asia and 20th century American artists.

The National Museum of American History, designed in 1964 by Steinman, Cain and White houses a fascinating variety of exhibits.

The Joseph Hirshhorn Museum and Sculpture Garden was designed in 1974 by Skidmore, Owings and Merrill. Lester Collins designed the sculpture garden in 1981. This round, concrete building, 231 feet in diameter houses one of the country’s greatest collections of contemporary sculpture and painting. The garden, which is sunken, provides a pleasant oasis for viewing more of the collection.

The National Air and Space Museum was completed in 1976 and designed by Hellmuth, Obata and Kassabaum. This is a monumental glass and granite building which contains 200,000 square feet. In 1988 a restaurant designed by the same firm was added to the east side of the building.

The Quadrangle Museums Project was designed in 1987 by Shapely, Bullfinch, Richardson and Abbot. The quadrangle opens south from the Smithsonian Castle and contains two small buildings which are staging areas for two underground museums, the Sackler Gallery of Asian Art and the National Museum of African Art. Another smaller kiosk-like building provides the entrance for the S. Dillon Ripley Center. The buildings are placed in the Enid A. Haupt Garden, which is centered on a diamond-shaped 19th century parterre.

The National Gallery of Art (West Building) was designed by John Russell Pope in 1941. This neoclassical building relates well to both the Natural History Museum and the Federal Triangle. The Sculpture Garden located to the west of the Museum and designed by the Olin Partnership, opening in the spring of 1999. The National Gallery of Art (East Wing) was designed in 1978 by I. M. Pei and Partners. This elegant building is based on a triangular module. The marble used on the building is from the same quarry as the West Building.

Adjacent to the Mall along 14th Street, can be found the Auditors Main Building (now used by the U.S. Forest Service) designed in 1880 by James G. Hill. This dark red-brick building provides a strong contrast to the neoclassical buildings in the vicinity. The U.S. Holocaust

Memorial Museum, designed in 1993 by Pei Cobb Freed and Partners, is between the Auditor's Main Building and the Bureau of Printing and Engraving.

East and West Potomac Parks

The area of East and West Potomac parks, situated roughly between the Potomac River and the grounds of the Washington Monument, were created as a result of lowland areas being filled by the Army Corps of Engineers in the late 1800s. In 1897 President Grover Cleveland signed the Potomac Park law, which said this land was to be "forever held as a public park for the recreation and pleasure of the people." The parks are part of the collection of national parklands in Washington, D.C., and nearby Maryland and Virginia that are collectively referred to as the National Capital Region of the National Park Service.

The two parks have a combined area of approximately 730 acres — nearly 400 acres in West Potomac Park, and 330 acres in East Potomac Park. Together, they comprise a large portion of the city's monumental core, providing recreational space for residents and tourists alike. East and West Potomac Parks are characterized by broad expanses of open space framed by mature landscape plantings and by views of the National Mall's major memorials.

Federal Triangle Historic District

The Federal Triangle lies between Pennsylvania Avenue, Constitution Avenue, and 15th Street NW and is part of the Pennsylvania Avenue National Historic Site. It is comprised of a unified group of 10 important federal office buildings designed by different architects. Two of the structures, the Old Post Office and the District Building, were constructed between 1899 and 1908. The rest were constructed between 1926 and the 1930s except for the Ronald Reagan Building and International Trade Center, which was constructed in the 1990s.

The 1926 Public Buildings Act, which permitted the federal government to hire private architects to design federal buildings, heralded the beginning of the country's largest public buildings construction program. The planning for the

Federal Triangle was one of the last City Beautiful efforts on such a monumental scale in the nation.

Northwest Rectangle

From the time of the McMillan plan the area to the west of the Ellipse was planned for monumental buildings that would frame the newly extended National Mall. The growing federal government led by the 1930s to the need for more office space, and a formal plan was conceived for a monumental complex of federal buildings that would balance the Federal Triangle on the east side of the Ellipse.

Called the Northwest Rectangle, this area soon saw a large complement of federal buildings, including the Public Health Service (1931–33), the Interior Department (1936), and the Federal Reserve (1937). Later government buildings in the area, including the Department of State (1957–60), the Civil Service Commission (1960s), and the Federal Reserve Annex (1970s), reflect modernist rather than classical designs.

Pennsylvania Avenue Historic District

Pennsylvania Avenue is among the world's most famous streets. On September 30, 1965, the Secretary of the Interior designated Pennsylvania Avenue National Historic Site, which encompasses the avenue from the Capitol to the White House and a number of blocks around it.

Congress created the Pennsylvania Avenue Development Corporation on October 27, 1972, to plan and implement the avenue's revitalization. Congress directed that the avenue be developed, maintained, and used "in a manner suitable to . . . the historic relationship to the legislative and executive branches of the Federal Government and to the governmental buildings, monuments, memorials, and parks in or adjacent to the area."

Downtown Historic District

The 800 block of F Street NW is representative of the earliest development of this area as the commercial core of Washington, D.C. Surrounded by such monumental buildings as the

old Patent Office (now the National Portrait Gallery) and the General Post Office, this block introduces a varied facade that enhances the qualities of these buildings and the L'Enfant plan itself.

HISTORIC PROPERTIES AND CULTURAL LANDSCAPES

Some cultural resources are covered in multiple national register nominations — for the National Mall, East and West Potomac Parks, the L'Enfant Plan of the City of Washington, D.C., Civil War Monuments in Washington, D.C., and American Revolution Statuary. Historic districts and properties listed on the National Register of Historic Places are shown on the National Register Historic Districts and Properties map. Documented cultural landscapes within the National Mall are shown on the Cultural Landscapes map.

Buildings facing the Mall and belonging to the National Gallery of Art, the Smithsonian Institution, and the U.S. Department of Agriculture are all individually listed on the National Register of Historic Places. Two Smithsonian Institution buildings on the National Mall — the Smithsonian Castle and the Arts and Industries Building — have also been designated by the Secretary of the Interior as national historic landmarks. The United States Capitol and the White House were also designated national historic landmarks on December 19, 1960.

In compliance with section 110 of the National Historic Preservation Act, the National Park Service maintains inventories of its cultural resources. The List of Classified Structures is the inventory for all structures and objects of historic significance under NPS jurisdiction. These resources are listed, or have been determined to be eligible for listing on the National Register of Historic Places, either as a part of a larger district or multiple resource nomination, or as individual listings. Some resources on the List of Classified Structures have not yet been evaluated for listing on the national register, but are managed as a historic resource. Cultural landscapes are documented on the NPS Cultural Landscapes Inventory. All resources listed below are included in the List of Classified Structures or the

Cultural Landscape Inventory (unless otherwise noted).

The following discussion first focuses on the National Mall in its entirety, followed by descriptions for each area (presented in the same order as for the alternatives):

- the Mall (1st to 14th Streets), including Union Square from 1st to 3rd streets, and the Mall from 3rd to 14th streets
- the Washington Monument and grounds
- West Potomac Park north of Independence Avenue, including the World War II Memorial, Constitution Gardens, the Vietnam Veterans Memorial, the Lincoln Memorial, the Korean War Veterans Memorial, the D.C. War Memorial, and Ash Woods
- West Potomac Park south of Independence Avenue, including the Tidal Basin, the Franklin Delano Roosevelt Memorial, the West Potomac Park riverfront, the George Mason Memorial, and the Thomas Jefferson Memorial

The National Mall

The National Mall is essentially a large-scale cultural landscape in the nation's capital, made up of smaller, nationally significant cultural landscapes, such as Union Square, the Mall, the Washington Monument grounds, the Thomas Jefferson Memorial, the Lincoln Memorial, and Constitution Gardens. The character-defining features of the National Mall cultural landscape include:

- *Views and Vistas* — Views and vistas date from the L'Enfant plan, which laid out the great cross axes, with east-west and north-south vistas, and the McMillan plan, which added to the L'Enfant plan by extending views to the west and south, thus creating the kite-shaped character of the National Mall today, extending from the U.S. Capitol to the Lincoln Memorial, and from the White House to the Thomas Jefferson Memorial, with the Washington Monument in the center (see the Important Vistas map).
- *Spatial Organization* — The spatial organization of the National Mall is derived

directly from the L'Enfant and MacMillan plans, and modified by later plans.

- ***Circulation Patterns*** — Circulation patterns originated in the L'Enfant plan and were enlarged and modified first by the McMillan plan and then by highway and mass transit construction for the nation's Bicentennial.
- ***Vegetation Patterns*** — Vegetation patterns originated in the L'Enfant plan and were modified by designs by Frederick Law Olmstead Jr. in the early 20th century.
- ***Constructed Water Features*** — Constructed water features originated in the

McMillan plan and were expanded in later plans. They include the Tidal Basin, the Lincoln Reflecting Pool, the Capitol Reflecting Pool in Union Square, the Rainbow Pool, Constitution Gardens Lake, and various fountains and water features.

- ***Land Use Patterns*** — Land use patterns originated in the L'Enfant plan and were modified in the McMillan plan.
- ***Monuments, Memorials, and Plaques*** — Presidential monuments and memorials include the Washington Monument, the Lincoln Memorial, the Thomas Jefferson Memorial, the Ulysses S. Grant Memorial,

Important Vistas

FIGURE 28: THE GREAT CROSS AXES ON THE NATIONAL MALL



Looking west from the U.S. Capitol toward Union Square and the Washington Monument (above) and east from the Washington Monument (right).



Looking east from the Lincoln Memorial (left) and west from the Washington Monument to the World War II Memorial and Lincoln Memorial (below).



Looking north to the White House from the Washington Monument grounds and south to the Thomas Jefferson Memorial.



and the Franklin Delano Roosevelt Memorial. War memorials include the World War II Memorial, the Vietnam Veterans Memorial, and the Korean War Memorial. Memorials to individuals include the John Paul Jones Memorial the John Ericsson Memorial, and the George Mason Memorial. There are a number of plaques and other commemorative markers.

- **Topography** — The topography of the National Mall reflects the L'Enfant design for the city on two hills — one for the White House and the other for the Capitol, with a knoll constructed for the Washington Monument.
- **Small-scale Features** — Small-scale features include lighting, benches, the Japanese pagoda, and other furnishings originating in the Olmstead plan and subsequent plans.
- **Building and Structures** — Building and structures include the Lockkeeper's House, Monument Lodge, and the Survey Lodge.
- **Cluster Arrangement** — The cluster arrangement of the National Mall was influenced by the McMillan plan. Elements include the Smithsonian Institution buildings, the National Gallery of Art, and other adjacent monumental buildings that frame and define the character of the National Mall's cultural landscape.
- **Archeological Features** — Archeological features, such as Tiber Creek, the train station, and other earlier features exist on the present site of the National Mall.

The Mall

Union Square (1st to 3rd Streets)

The focal point of Union Square is the Ulysses S. Grant Memorial, with the Capitol Reflecting Pool and plaza to the west. The following description of resources is based on the "Cultural Landscape Inventory" for Union Square (NPS 2006b).

Grant Memorial

The Ulysses S. Grant Memorial overlooks Union Square, below the west grounds of the Capitol.

The memorial is a large sculptural grouping consisting of three elements: On the north is a cavalry grouping of seven horsemen in a dramatic charge (erected in 1912), in the center an equestrian statue of General Grant protected by four lions at each corner (erected in 1922), and on the south is an artillery grouping depicting three soldiers and a horse-drawn limber carrying cannon (erected in 1916). The Grant statue is the second largest equestrian statue in the world. The memorial is listed on the National Register of Historic Places as a contributing feature of Civil War Monuments of Washington, D.C., and on the National Mall national register nomination. It is also on the NPS List of Classified Structures.

Spatial Organization

The Capitol Reflecting Pool is a 6-acre wedge-shaped pool with stone coping west of the Ulysses S. Grant Memorial. Occupying over half of Union Square, the pool was built in 1969–71 when the center leg of the Inner Loop Freeway was constructed, which passes underneath Union Square along the axis of 2nd Street. Sunken walks flank the north, west, and south sides of the pool, and a wide plaza lies to the west. Three broad steps lead down to walks, which are sunk about a foot below ground level; the pool's coping rises to about this height, so that the surface of the pool is near ground level. North and south of the Grant Memorial are narrow flights of steps leading down to the pool.

In plan view the pool's longer west end has a convex curve, and the shorter east end has a concave curve that is broken by a rectangular recess in the center, on line with the Grant Memorial and the center line of the Mall. The pool's angled sides parallel the axes of Pennsylvania and Maryland avenues. The pool's footprint is actually somewhat asymmetrical, probably to compensate for the fact that the Grant Memorial was centered on the Capitol's west facade, rather than on the dome, with the result that the memorial is several feet off the true center line of the Mall. Further consultations are needed with the D.C. Historic Preservation Office to determine the reflecting pool's eligibility for listing on the National Register of Historic Places.

Views and Vistas

From Union Square the view to the north is of large, modern office and governmental buildings, and to the northeast the Taft Carillon is visible above the trees of the Capitol grounds. To the southeast, the Botanic Garden Conservatory dominates the view, and beyond it the huge Rayburn House Office Building. Southwest of the conservatory is a fenced-off staging area and across Independence Avenue the massive concrete 1960s Health and Human Services Building. These buildings create a framework for the square that is similar, except in architectural style, to the surroundings envisioned by the McMillan Commission.

Pennsylvania and Maryland avenues are critical in defining views from Union Square. The major vista down Pennsylvania Avenue to the White House, an essential feature of the L'Enfant plan, was lost when the south wing of the Treasury Building was constructed in the 1850s. However, the vista from the Capitol down the avenue to the Treasury remains one of the most important vistas in the city, if not the country. This view is severely compromised by the discordant visual clutter of the parking lot that occupies the avenue for its entire extent between 1st and 3rd streets.

Constructed Water Features

L'Enfant had planned to divert the waters of the Tiber Creek into a canal falling into a cascade and pool at the foot of Capitol Hill; this would have been the most important among the numerous water effects with which the designer intended to embellish the city. The cascade and pool were planned in the area that is now Union Square. Andrew Ellicott simplified this design somewhat but retained it.

When the Washington Canal was built in 1815, none of L'Enfant's basins or cascades was incorporated. The canal ran down 3rd Street and crossed over the Botanic Garden site, but it soon became a notorious sewer and was channeled into a sewer line in the early 1870s. The first Botanic Garden, 1820–37, had one or more artificial ponds, which no longer remain.

The concept of the McMillan plan, inspired by European cities, particularly Rome and Ver-

sailles, was a Mall that would be amply furnished with reflecting pools and splashing fountains to cool visitors during summer. The plan depicted eight fountains in Union Square, all placed off the center axis, and a large pool along the Mall's center panel from 3rd to midway between 4th and 5th streets.

Frederick Law Olmsted Jr.'s final plan for Union Square in the 1930s did not include any pools or other water features. However, the plans of Skidmore, Owings and Merrill, from 1966 to 1974, revived the McMillan plan's concept of a Capitol Reflecting Pool to complement the Lincoln Reflecting Pool.

Vegetation

Most or all of the larger trees growing in Union Square probably date from the Botanic Garden planting. Specimens include a variety of exotics and rare native species, as well as typical eastern trees. Frederick Law Olmsted Jr. designed the lines of trees in Union Square to connect with the Mall elms and to visually merge with the trees growing on the west Capitol grounds, where the landscape design by Frederick Law Olmsted Sr. focused views on the Capitol's west facade. In Union Square Olmsted Jr. lined walks and roads with elms, clustered trees closely around the Meade (which was later relocated to Pennsylvania Avenue) and future Navy memorial sites, and placed groups of trees behind the Grant Memorial to frame it, while leaving the central vista open.

The construction of the Capitol Reflecting Pool in 1969–71 affected the integrity of the Olmsted design. Many trees were removed from the middle of the site, and the continuity of the lines of trees was interrupted. Today, isolated groups of trees occupy the square's four corners. Many large horse chestnuts and buckeyes grow in the northwest panel and an old, rare zelkova and an old ginkgo can be found in the southwest. When trees die in Union Square, they are typically replaced in kind and in the same location.

Olmsted's original landscape plan included six beds arranged symmetrically in three identical pairs around the Grant Memorial, and a 1935 plan depicts shrubs (boxwood and yews) massed in all the beds. Currently, large, spreading yews are massed with a few small boxwoods at the

northeast and southeast corners of the Grant Memorial. They frame the monument and soften the transition between the structure and its surroundings, and they also help block views of traffic on 1st Street. In the southeast huge yews overshadow smaller boxwoods. Young oak trees have been planted within the inside edges of the south and north hedges. Though overgrown, these shrubs are remnants of the Olmsted planting and retain historic integrity.

The lawns flanking the Grant Memorial curve to the north and south around the west plaza. Along the east side of 3rd Street is a grass planting strip between the walk and the street curb. No street trees are growing here.

Small-Scale Features

Union Square has only a few types of small-scale features. Contributing features include benches, streetlights, and curbs. Except for the curbs, these features conform to the standards published in the *Streetscape Manual* (Interagency Initiative for National Mall Road Improvement Program 1992), which covers benches, trash receptacles, light standards, drinking fountains, fire hydrants, post-and-chain fencing, and bike racks. It also discusses standards for curbs, sidewalks, and wheelchair ramps.

The benches used in Union Square are the same as those used on the Mall. They are black and have cast-iron frames and wood-slat backs and seats.

All of the streetlights in Union Square are the double lamp designed by Henry Bacon (architect of the Lincoln Memorial) in 1923 to provide a standard street light for the city and known as the Bacon Twin or Twin-Twenty lights. The *Streetscape Manual* designates these lights for major thoroughfares in the District, and they are placed around the entire perimeter of the paved area in Union Square.

A row of cylindrical concrete bollards stands at the west end of the plaza in front of the reflecting pool. Single bollards are located at the northeast and southeast corners of the pool at the top of the steps.

Two low semicircular retaining walls are located northwest and southwest of the Grant Memo-

rial, where the low rise in the ground is cut back for the walk along the east side of the pool. The walls curve from the steps on one side into the sloping ground on the other.

Low, flat curbs of both granite and concrete with square end blocks surround the plaza. The planting beds at the ends of the memorial have curved concrete copings with corner blocks. There are granite curbs and brick gutters along 1st Street.

Nearby Memorials

James Garfield Monument. The James Garfield Monument stands on the grounds of the United States Capitol in the circle at 1st and Maryland Avenue SW. It consists of a standing figure of the assassinated president on a pedestal surrounded by three figures representing his careers as scholar, soldier, and statesman. The monument is under the jurisdiction of the Architect of the Capitol.

Naval Peace Monument. The Naval Peace Monument, which sits in the circle at 1st and Pennsylvania Avenue NW, is dedicated to the naval personnel who died during the Civil War. It consists of two allegorical female figures and a large fountain. It is listed on the National Register of Historic Places as a contributing feature of the Civil War Monuments in Washington, D.C. The monument is under the jurisdiction of the Architect of the Capitol.

The Mall (3rd to 14th Streets)

The Mall extends from Union Square on the east to the Washington Monument on the west. It is framed on either side by lines of elm trees. The landscape of the Mall and the views along it are integral to its spatial organization, and all elements are interdependent. This interdependence defines the fundamental integrity of the design. The following information is from the "Cultural Landscape Inventory" (NPS 2006a).

Spatial Organization

The Mall encompasses 135 acres, between 3rd and 14th Streets, and Madison and Jefferson drives. The landscape is composed of flat grass panels, which are bordered on the north and south sides by four rows of American elms,

which delineate the vista between the Capitol and the Washington Monument.

Behind the rows of elm trees are the museum buildings of the Smithsonian Institution and the National Gallery of Art, which represent Victorian, Beaux-Arts, classical, and modern styles. Along the Mall beneath the elms is a more filtered space, regularly defined by the ranks of trunks but permeable, allowing physical passage between the trees and filtered views of the buildings.

The 8th Street cross-axis was given particular importance in the L'Enfant plan, where a site for a national church was shown several blocks north of the Mall and a large turning basin was located at the canal. The significance of the axis was retained in the McMillan and the 1930s Olmsted plans. This importance is noted now in the landscape by the omission of elms and the resulting open views of the Hirshhorn and National Gallery of Art sculpture gardens, as well as the National Archives. The Smithsonian Castle is only 300 feet from the Mall's centerline, and the section of Jefferson Drive in front of the Castle intrudes into the tree panel, narrowing it so that in front of the Castle there is only one row of elms.

Views and Vistas

The Mall is defined by its primary view — the grand vista between the Capitol and the Washington Monument. This vista was integral to L'Enfant's plan for a Grand Avenue or promenade extending west from the Capitol building to the proposed equestrian monument to George Washington, which would have been placed near the Potomac River, at the point where the east-west Capitol axis intersected the north-south White House axis. L'Enfant placed other features — residences, buildings, walks, and gardens — along this promenade to frame and reinforce the visual corridor.

The McMillan plan adapted this idea of the visual corridor reinforced by larger buildings and landscaping. Retaining L'Enfant's axial promenade, the McMillan plan placed institutional buildings in near symmetry on each side of the central corridor. The essential features of the 1930s version of the McMillan plan — the grass panels or *tapis verte*, the four rows of elm

trees along the north and south sides, and the orthogonal disposition of walks and buildings — all direct the eye to and from the Capitol and the Washington Monument. There are also important views from the east end of the Mall to Union Square and the Grant Memorial at the foot of Capitol Hill.

The McMillan Commission members and the planners in the 1930s had to work with the Washington Monument, which had been placed southeast of the actual intersection of L'Enfant's original axes, making it out of alignment with the cardinal directions. They adjusted the axis of the Mall, canting it to the southwest so that the Washington Monument would be directly in line with the Capitol. The Mall as a result is slightly off a true east-west alignment.

Topography

The generally level topography of the present-day Mall is a result of much grading that was done in the 1930s, especially between 9th and 14th streets, under the direction of Frederick Law Olmsted Jr. Today the Mall grade rises slightly from east to west. Between 12th and 14th streets there is a discernible downward slope from south to north, with a particularly steep slope at the northwest corner. The land north of the Mall, beyond Madison Drive and its north sidewalk, slopes down to Constitution Avenue, and the National Museum of American History (1964) and the National Museum of Natural History (1904) were built into this slope, so that their entrances on Madison Drive on the Mall are higher than the exposed basement stories on Constitution Avenue.

Vegetation

Currently, there are 585 elm trees on the Mall, planted 50 feet on center. At any point in time a few tree spaces may be vacant as dead trees are replaced. A few dozen elms remain from an early planting in the 1920s, and some portion of the rest date from the major planting in 1935. Others are replacements planted since the 1930s, and there are a few other cultivars or varieties as well, plus several trees of other species. The trees are now of various sizes because the total number of original trees was planted over a period of about 40 years, and also because of the periodic replacement of dead or diseased trees.

Original designs by Frederick Law Olmsted Jr. and others likely anticipated greater uniformity.

The American elm tree was specified for use in the McMillan plan and in the 1930s revised plans because of its growth habit. The columnar trunks of this native species and the arching, spreading branches were believed to form a natural equivalent of an architectural arcade, giving a pleasing combination of formal regularity and a picturesque openness. Even though other tree species or a combination of species was suggested in the 1930s, Olmsted strongly defended the original choice of the American elm. Elms are also drought tolerant and able to withstand urban conditions and limited soil compaction.

Some of the Mall elms are a cultivar of the American elm called ‘Augustine Ascending.’ These trees have an upright, fan-shaped form, distinctly different from and taller than the surrounding elms. They were replacement trees purchased in the 1960s or earlier; it was probably not known what their ultimate form would be. They are highly susceptible to Dutch elm disease, and when they die, they are replaced with *Ulmus americana* or disease-resistant cultivars such as ‘Jefferson’ or ‘Princeton.’ Along the alignment of 12th Street are four rows on each side of European elms. These were installed as part of the construction of the 12th Street underpass, probably to plant elms on the Mall that were less susceptible to Dutch elm disease. They have a rounder crown than American elm trees.

The rows of elms are broken along the 8th Street axis, in front of the Smithsonian Castle, in front of the National Museum of Natural History, at the Mall’s southwest corner along 14th Street, and at the base of the Joseph Henry statue. Five bald cypress trees grow in front of the Natural History Museum, in an irregular pattern, somewhat interrupting the regularity of the tree lines. The only other planting variation occurs at the end of the Mall, in the grass strip along 14th Street, where two red oak trees grow. Based on historic photographs and surveys, these oaks do not appear to have been retained from the original Mall planting, but were probably planted by the city as street trees in the 1940s. They will not be replaced when they die.

Each building or site facing the Mall has its own landscaping scheme. Many of the landscapes were designed in relation to the Mall landscape. The Department of Agriculture landscape, designed by Frederick Law Olmsted Jr., was conceived to complement the Mall design. Similar intentions motivated the original landscape plan of the National Gallery of Art West Building.

Constructed Water Features

The concept of the McMillan plan, inspired by European cities, particularly Rome and Versailles, was a Mall that would be amply furnished with reflecting pools and splashing fountains to cool visitors during summer. In addition to eight fountains in Union Square, the plan also depicted a large pool along the Mall’s center panel from 3rd Street to midway between 4th and 5th streets. This pool was never constructed.

Circulation

The Mall landscape is overlaid with a grid of walks and crosswalks. Four asphalt-paved roadways mark the Mall’s boundaries — 3rd Street on the east (two-way traffic), Madison Drive on the north (one-way going west), 14th Street on the west (two-way traffic), and Jefferson Drive on the south (one-way going east). Each drive is 35-foot wide on average and provides access to many museums. Single or paired gravel and concrete walks follow the routes of most cross-axial streets, except 11th Street. Two streets — 4th and 7th — cross the Mall on the surface, while 9th and 12th streets are tunneled beneath it. Because 9th and 12th streets are tunneled, the entire area stretch of the Mall from 7th to 14th streets is unbroken. All streets have granite curbs; handicap curb cuts are also granite. Cross streets such as 3rd, 4th, and 7th streets have D.C. parking meters, and parked vehicles affect the vistas (see NPS 2006a).

The current Mall walk system dates from the 1930s. The original walks were concrete. Wide sidewalks run along all the streets. Those along the north-south streets are exposed aggregate concrete, and grassed tree planting strips separate the sidewalk from the street. Jefferson and Madison drives have wider sidewalks, paved for half their width in gravel, half in exposed aggregate concrete. The former Adams and Wash-

ington drives, which ran parallel to Jefferson and Madison drives, were closed to traffic in 1975 and replaced with wide graveled walkways that run along the inner edges of the rows of American elms. Walks also follow the alignments of all cross axes created by the city's grid of numbered streets, except for the 11th Street axis, which has no walk.

In front of the Smithsonian Castle are two curved gravel walks, leading from concrete aprons at the sidewalks that run down the slope to the Mall walk. On each side of the Joseph Henry statue are triple flights of steps leading from the sidewalk down to the Mall walk. The stairs, and the area of sidewalk immediately behind the statue, have a polychrome design made of red granite diamonds and bands on a field of buff limestone. Several eroded social trails also cross this slope in front of the Castle. In some areas, other social trails run through the grass or tree panels immediately parallel to the east-west walks. The corners and edges of many of the grass panels are worn and eroded, particularly near the Metro entrance on the 12th Street alignment. In these places the gravel has spread into the lawns, eroding the formal distinction between walks and panels.

Buildings and Structures

The Mall itself has no contributing buildings or structures. Large buildings help define the edges, but within the park's boundaries, the only buildings are small utilitarian structures. The Joseph Henry statue stands in front of the Smithsonian Castle, and the carousel is in front of the Arts and Industries Building. Other structures include the Metro entrance, four food service stands, Tourmobile ticket booths, the carousel ticket booth, and the Hirshhorn Sculpture Garden.

Small-Scale Features

The Mall has only a few types of small-scale features, including benches and streetlights. These features conform to the standards published in the *Streetscape Manual* (Interagency Initiative for National Mall Road Improvement Program 1992). The manual covers benches, trash receptacles, light standards, drinking fountains, fire hydrants, post-and-chain fencing, and bike racks. It also discusses standards for

FIGURE 29: THE NPS WASHINGTON BENCH



curbs, sidewalks, and wheelchair ramps. Other features include four small food service stands, tables and chairs, and short sections of post-and-chain fencing. A few constructed areas interrupt the continuity of the lines of elms, but they do not detract from the monumental landscape.

All benches used on the National Mall are the same as those used at Union Square and reflect the standard developed for the National Capital Parks in 1934–35. The black cast-iron benches with wood-slat backs and seats are located along the Mall's east-west axes (along the outer walks beside Madison and Jefferson drives and along the inner walks next to the inner row of elms). All benches face the center of the Mall, except for those on either side of the carousel food pavilion grouping, which is perpendicular to the main axis. No benches are located on the 8th Street axis.

The Mall streetlights were designed especially for this area as part of the 1930s reconstruction.* The lights have cast-iron bases, with a 21-foot steel fluted post topped by a cylindrical cast-iron luminaire suspended from two supports attached to either side of the domed cap. The streetlight is on the NPS List of Classified Structures.

Street lights were to be aligned with the Mall lights, and no lights were to have been directly in

* Although commonly referred to as "Olmsted lights," the design is by J. W. Gosling, a designer employed by General Electric laboratories. The design was approved by the Commission of Fine Arts.

the vista. Some posts along Madison and Jefferson drives have cross arms attached for hanging banners.

The existing lighting system consists of high-pressure sodium lamps and mercury bulbs on the outside roads (multi-vapor type lamps), as well as incandescent on the inside walks. New lamps on the Madison and Jefferson drives consist of fluorescent lamps; incandescent lamps are still used on the inside walks.

Few barriers of any kind are used on the Mall. Varying lengths of post-and-chain fencing (black vinyl-coated steel posts topped by acorn caps, with vinyl-coated steel chains between the posts) are erected in certain areas to discourage crossing turf areas, for example, at the corners of some grass panels, along the walk leading to the Metro station entrance from Jefferson Drive, along walks leading to food service stands, and along the parking strip on 14th Street. Temporary fencing is sometimes used to protect newly seeded or sodded lawns or to channel pedestrian traffic.

Signs on the National Mall are generally confined to the edges of streets and walks or are set within the elm panels so as not to disrupt views and vistas. A Metro pylon stands near the station. A location map of the National Mall area is being replaced.

One of the few anomalous features on the Mall is a small bronze plaque on a granite base set on the west side of 4th Street. The 1951 plaque marks the historic Department of Agriculture propagating gardens, where the National Grange of the Patrons of Husbandry was founded in 1867.

Circular edgings of tan-colored bricks flush with the ground are used around some elm trees growing in gravel walks rather than lawn. Handicap-accessible drinking fountains that conform to the *Streetscape Manual* standards are placed along Madison and Jefferson drives.

Some metal bicycle racks were installed in 2008 by street curbs on the Mall sides of Madison and Jefferson drives. Movable metal café tables and chairs are placed along the wide concrete walks leading to refreshment stands.

FIGURE 30: BULFINCH GATEPOST



One of the eight remaining Bulfinch gateposts.

Historic American Buildings Survey, Library of Congress.

Other Cultural Resources

Carousel. A carousel has occupied a location on the Mall near the Smithsonian Castle since 1967, when Smithsonian Secretary S. Dillon Ripley arranged for the placement of a portable carousel. In 1981 a larger carousel (an additional 10 feet in diameter) replaced the previous one. The present carousel has an extra row of horses. The carousel's 60 horses were built in 1947 by the Allan Herschell Company of North Tonawanda, New York. Unlike the earlier one, the current carousel is covered with a canvas top and sides (Smithsonian Institution Research Information System).

Bulfinch Gatepost. This gatepost was one of only 8 remaining of the 24 original gateposts of the Capitol. Located at 1st Street and Constitution Avenue, it was moved from its original location in 1874. The Bulfinch gateposts are listed on the National Register of Historic Places. The gateposts also contribute to the cultural landscape of the Mall.

Downing Memorial Urn. A white Carrara marble urn was designed to honor Andrew Jackson Downing, landscape designer who in the 1850s began a redesign of the Mall. The memorial was moved off the Mall to the Enid A. Haupt Garden south of the Smithsonian Castle. It is a contributing element of the L’Enfant Plan of the City of Washington, D.C., and the national register nomination for the National Mall.

Joseph Henry Memorial. The Joseph Henry Memorial honors the first secretary of the Smithsonian Institution, who was also widely recognized for his scientific achievements in the field of electromagnetic and inducted current. The bronze statue in front of the Smithsonian Castle is a contributing feature of the L’Enfant Plan of the City of Washington, D.C., as well as the national register nomination for the National Mall.

Washington Monument and Grounds

The Washington Monument grounds is a cultural landscape within National Mall. It comprises U.S. Reservation 2. Containing approximately 106 acres, the inventory unit is bounded by 14th Street to the east, Constitution Avenue to the north, 17th Street to the west, and the Tidal Basin to the south.

According to the recently completed “Cultural Landscape Inventory” (NPS 2009b), contributing landscape characteristics identified for the Washington Monument grounds are views and vistas, buildings and structures, circulation, vegetation, topography, land use, spatial organization, and small-scale features.

Spatial Organization

Before the Washington Monument was constructed, the site (U.S. Reservation 2) was designated by L’Enfant for an equestrian statue of George Washington. The statue was to have been at the intersection of the White House to the north and the Capitol to the east, effectively establishing the location as the symbolic center of the city.

The 1901 McMillan plan reemphasized and expanded the role of the monument grounds as the center of the city’s monumental core. The

FIGURE 31: JOSEPH HENRY MEMORIAL



The Joseph Henry Memorial stands in front of the Smithsonian Castle.

plan expanded the central axis west to the Lincoln Memorial and south to what would be the Thomas Jefferson Memorial.

The south monument grounds (south of Independence Avenue) have served as a continuation of park grounds, as well as a connection between the Washington Monument, the Thomas Jefferson Memorial, and the Tidal Basin.

Views and Vistas

The views that connect the Washington Monument to prominent buildings, landscapes, monuments, and memorials in the city are defining aspects of the Washington Monument grounds. L’Enfant’s 1791 plan for the new city included open vistas from the U.S. Capitol and the White House to the intersection of their respective axes. L’Enfant designed an open promenade between the Capitol and what would be the monument grounds, with buildings on both sides of the promenade to reinforce the visual corridor. President’s Park was placed between the monument grounds and the White House, leaving a view unobstructed by buildings along the north-south axis. The eventual construction of the Washington Monument, begun in 1848, placed the obelisk just southeast of the cross-axis.

The McMillan plan expanded the monumental core to include park land and locations for

memorials to the south and west of the Washington Monument. The plan also called for unobstructed views of the Washington Monument and the U.S. Capitol across the Mall. The McMillan plan vistas emphasized the great cross axes between the U.S. Capitol and the site of the Lincoln Memorial, and between the White House and the site of the Thomas Jefferson Memorial, with the Washington Monument serving as a pivotal element in the design.

Eventually, the hallmark emphasis on the main axes of the McMillan plan was achieved. Planning for the Lincoln Memorial took into consideration the fact that the Washington Monument had been constructed to the southeast of the axial crossing, and the axis of the Mall was adjusted so that the Washington Monument would align with the U.S. Capitol and the same axis would continue to the Lincoln Memorial. The completion of the Lincoln Memorial in 1921 and the reflecting pool in 1924 added the western focal point for the east-west axis envisioned by the McMillan Commission. The World War II Memorial, constructed on the site of the Rainbow Pool and completed in 2004, was design to frame rather than block the view between the two monuments.

The construction of the Thomas Jefferson Memorial from 1939 to 1943 completed the cross-axial plan envisioned by the McMillan plan. The Thomas Jefferson Memorial was not built on axis with the Washington Monument, but with the original north-south alignment of the White House and the Jefferson Pier Marker. To the north, the White House is visible from the Washington Monument plaza. The designed vista along the north-south axis — between the White House, the Jefferson Pier Marker, and the Thomas Jefferson Memorial — is unobstructed.

The views from the city and the vistas looking outward from the Washington Monument have been faithfully maintained, retaining the strong visual corridors established by the L'Enfant and McMillan plans.

Buildings and Structures

The Washington Monument is constructed of white marble ashlar blocks backed by blue gneiss. The obelisk stands 555 feet, 5-1/8 inches high. The base is 55 feet wide, with 13-foot-thick

masonry walls at the base and one-foot-thick walls at top. The interior lobby is 23 feet wide and the elevator cab is 9 feet wide. The interior wall contain 193 commemorative stones that were placed starting at the 30-foot level and continuing to the 450-foot level.

Two buildings constructed on the Washington Monument Grounds during the 19th century — Monument Lodge and Survey Lodge — survive, although their uses have been modified.

Monument Lodge

Monument Lodge is rectangular, constructed of rusticated ashlar stone, approximately 25 feet by 30 feet. It is flat roofed, with one story and a partial basement. The building was opened to the public in January 1889 as a point of arrival for visitors. It was to be used as a waiting room for tours of the monument, with public restrooms. The restrooms were enlarged in 1931 to include an area formerly occupied by the office and store room. In 1942 the interior was again

FIGURE 32: MONUMENT LODGE AND SURVEY LODGE



Monument Lodge is east of the Washington Monument.



Survey Lodge is southwest of the Washington Monument.

remodeled to house a display featuring materials related to George Washington's life, and to provide space for concessioner operations. It is listed on the National Register of Historic Places as a contributing element of the Washington Monument nomination; it is also on the NPS List of Classified Structures.

Survey Lodge

Survey Lodge was originally designed as a boiler house to supply power to the Washington Monument elevator. The two-story structure was built in 1885 of waste stock granite and white marble that was used to construct the monument. The building acquired the name Survey Lodge after its use by NPS survey crews in the 1930s. The building was rehabilitated, including a complete renovation of the interior, from 1989 to 1993 (NPS 2009b). It is listed on the Washington Monument's national register nomination and on the NPS List of Classified Structures.

Bulfinch Gateposts

Several pairs of gateposts, once located on the west grounds of the U.S. Capitol, were moved to a series of intersections along Constitution Avenue (then B Street North) in 1874, including a pair that was placed to flank the 15th Street entrance to the monument grounds. The design of the gateposts is generally attributed to Charles Bulfinch, who was commissioned to do the U.S. Capitol restoration in 1814. The gateposts, which are approximately 11 feet tall by 4 feet wide, are constructed of Aquia Creek sandstone.

Seawall

The Tidal Basin seawall, including the portion within the Washington Monument grounds, was constructed from April 1895 through September 1896, the last portion to be completed. The seawall around the other portions of reclaimed land was completed in 1894. The wall was built on a footing that was already in place, and it was 6 feet high from that footing, 4 feet wide at the base, and 2.5 feet wide at the top. The portion of seawall along the south monument grounds has remained relatively unchanged, even though walks and safety rails (similar in design to those in place today) were constructed by 1919.

FIGURE 33: SYLVAN THEATER



The Sylvan Theater is south of the Washington Monument.

Sylvan Theater

The Sylvan Theater is located 150 yards southeast of the Washington Monument. The theater began as an earthen stage in 1917. A 1931 plan of the theater and its landscaped surroundings shows a stand of trees behind the stage and steps leading down either side of the front of the stage. The significance of Sylvan Theater, recognized in the national register listing for the Washington Monument and grounds, is in its continued use as an event and public gathering space.

Circulation

Circulation features of the Washington Monument grounds include most of the perimeter roads, the Independence Avenue extension through the south monument grounds, a few walks, and one set of steps. Two graphic sources indicate circulation features associated with the Washington Monument. The interior curvilinear roadways present when the site opened to the public are thought to have been inspired by A. J. Downing's mid-19th century design for the Mall. Some of these continued to exist after the adoption of the more formal McMillan plan in the beginning of the 20th century, but most were removed in the 1930s and 1940s. By the 1890s the old 14th Street entrance near the Agriculture Department had been abandoned and new entrances to the grounds were in place at 15th Street and 14th Street along the northeastern edge of the grounds. Several of the planned carriage roads were in place by this time as well. Curving drives surrounding the knoll highlighted the monument's object-like quality.

Circulation within the grounds remained little altered until the 1930s. Although road widening and regrading have occurred, Constitution Avenue and 14th Street have anchored the northern and eastern boundaries of the grounds since they were first delineated in the 19th century. Likewise, a paved plaza has existed at the base of the Monument since 1889. In 1931 Constitution Avenue was widened and its original flagstone sidewalks displaced.

The north end of 15th Street appears to have provided an entry to the Washington Monument grounds by 1889. While B Street (Constitution Avenue), 14th Street, and 17th Street are shown lined with trees on the 1901 McMillan plan, 15th Street apparently never received the same treatment, indicating that it may have been considered a secondary roadway. The alignment and function of 15th Street has shifted perhaps more than any other associated with the site. In 1936, in conjunction with the Mall plan proposed by Frederick Law Olmsted Jr., connections to Madison and Jefferson drives were established from 15th Street.

During the early 1940s a new road system was constructed through the south monument grounds and West Potomac Park. Independence Avenue was extended to the Lincoln Memorial while Maine Avenue was extended to 17th Street. The dual highway system was designed to preserve the northern neck of the Tidal Basin, views of the area, and as many trees as possible; all roads were one-way. The design included a bridge (later named Kutz Bridge) carrying eastbound Independence Avenue traffic over the north end of the Tidal Basin. Westbound traffic on Independence Avenue passed north of the Tidal Basin on a separate roadway. An overpass was constructed where eastbound lanes of Independence Avenue passed over the westbound lanes of Maine Avenue.

There has been a level paved area at the base of the Washington Monument since the completion of its construction, although the plaza has evolved over the years. Formal paving was added after 1906 to address complaints of wind-blown dust. The plaza remained without significant changes, although access roads to the plaza changed.

Most of the pedestrian circulation system on the site today has been added in recent years. While some existing circulation follows the general alignment of historic paths, the grading and materials of the walks have changed and been replaced numerous times. The many changes to pedestrian circulation in the western portion of the grounds reflect the various uses of the area.

Vegetation

The defining vegetative feature of the Washington Monument grounds is the open lawn that defines the ground plane of the site. Other predominant types of vegetation are street trees that delineate the perimeters of the grounds, groves of canopy and cherry trees, cherry trees along the Tidal Basin, and foundation plantings. The use of street trees on the monument grounds dates to the 19th century, during the early monument construction period. Groves of canopy trees appear to have been planted on the north grounds since the mid 20th century. Beginning in the early 20th century, trees were planted south of Independence Avenue. The construction of the Independence Avenue extension was planned to minimize the removal of trees there.

Mulberry trees southwest of the monument may be the only naturally occurring vegetation on the site. Ornamental vegetation was planted on the grounds as early as 1886. The first extensive planting of cherry trees along the Tidal Basin did not occur until 1912.

The German-American Friendship Garden was designed by Wolfgang Oehme and installed in 1987–88. The garden plantings originally flanked the entrance to the 16th Street oval parking lot. When the 16th Street parking lot was removed during grounds improvements in 2004–5, the former entrance to the lot between the two sections of the garden was seeded with grass. The garden continues to be characterized by the same plants as in the original planting plan. It is managed as a cultural resource and is listed on the NPS List of Classified Structures.

Topography

The existing topography of the Washington Monument grounds is the result of massive and numerous manipulations of the natural ground

plane. Thousands of cubic yards of fill have transformed the site and resulted in a man-made ground plane. The most significant feature resulting from this manipulation, the knoll that serves as a base for the monument, was designed to stabilize it and provide an attractive approach. This gentle rise in grade has undergone a number of minor alterations since 1889 as circulation patterns have been changed.

Land Use

The primary land use for the Washington Monument grounds has always been commemorative. In 1848 President Polk officially designated the same site as the location for a monument to be built by the Washington National Monument Society. Construction began later that year, and the monument has been a popular commemorative icon since its completion in 1884.

Since the late 1800s the monument grounds have been used extensively for commemorative events, including a ceremony for Abraham Lincoln after he died and a celebration after Charles Lindbergh completed the first trans-Atlantic flight in 1927. Independence Day festivities have been held there annually since before the Washington Monument was completed. Groups have been gathering on the site since the 1920s. Notable events include the Bonus March of 1932, the 1963 Civil Rights March, anti-Vietnam War marches in the 1970s, the Million Man March in 1995, and protests against war in Iraq during the 2000s.

From the early to mid 20th century, recreation facilities for swimming, tennis, baseball, basketball, soccer, football, archery, and golf were located on the grounds. Most of these major building facilities were removed by 1936. While none of the constructed recreational features established during the period of significance remain, a rugby field was constructed along Raoul Wallenberg Place sometime after the propagating garden buildings were removed in 1962. In addition to rugby, recreational activities that take place on the grounds today on designated recreational fields include kickball and softball. Other non-competitive recreation or passive uses include Frisbee, jogging, dog-walking, kite-flying, and sun-bathing. Residents

and visitors use the lawns and parklike setting to relax and enjoy the outdoors.

Established in 1917, the Sylvan Theater provides a permanent public performance space on the site.

Small-Scale Features

Most of the small-scale features on the monument grounds appear to be of relatively recent origin. A few features, such as the cobblestone gutters near the Survey Lodge and a few bench and lightpost types, may survive from the period of significance. Other features, such as the flagpoles that ring the memorial plaza, while not historic, are consistent with the site's historic character and design intent.

The elevation obelisk, placed on the site in 1898 by the Coast and Geodetic Survey, was intended to serve as a benchmark for the Washington Monument. It was placed in a manhole 150 feet south of the monument for the purpose of calculating the settlement of the monument.

West Potomac Park (North of Independence Avenue)

West Potomac Park was created as a result of dredging to improve navigation on the Potomac River, and 739 acres of land were added to the south of the Washington Monument grounds. In 1897 Congress passed legislation making the entire area a public park. The McMillan plan incorporated this area into designs for the Mall and identified locations for the future Lincoln Memorial and Thomas Jefferson Memorial.

The addition of the Vietnam Veterans Memorial (1982), the Korean War Veterans Memorial (1995), and the Franklin Delano Roosevelt Memorial (1997), West Potomac Park has become more commemorative in character and less recreational. Constitution Gardens, dedicated in 1976, is an oasis in the midst of the city, but its proposed function as an area for programmed activities, restaurants, events, concerts, and celebrations was never fully achieved, nor was underground public parking developed.

World War II Memorial

The World War II Memorial honors the service of 16 million members of the U.S. Armed Forces, the support of countless millions on the home front, and the ultimate sacrifice of 405,399 Americans. Granite, bronze, and water elements harmoniously blend with the lawns, trees, and shrubbery of the surrounding landscape. The spirit of the L'Enfant Plan for the City of Washington is reflected through successful integration of the memorial into the openness of the National Mall. Great vistas endure toward the Washington Monument, the Thomas Jefferson Memorial, and the Lincoln Memorial. The 24 bronze bas-relief panels flanking the ceremonial entrance illustrate the human experience of war at home and overseas. A wall of 4,048 Gold Stars silently pays solemn tribute to those who sacrificed their lives.

Fifty-six granite columns, split between two half-circles that frame the rebuilt Rainbow Pool with its celebratory fountains, symbolize the unprecedented wartime unity among the 48 states, 7 federal territories, and the District of Columbia. Bronze ropes tie the columns together, while bronze oak and wheat wreaths represent the nation's industrial and agricultural strengths. Two 43-foot tall pavilions proclaim American victory on the Atlantic and Pacific fronts — on land, at sea, and in the air. Several hidden treasures appear as well, such as representations of the famous “Kilroy was here” graffiti familiar to every veteran of the Second World War.

Constitution Gardens

The 43.1-acre Constitution Gardens was completed in 1976 for the nation's Bicentennial. The park's rolling topography and its relative seclusion encourage recreational activities, and there is a small food service pavilion. The following description is based on the “Cultural Landscape Inventory” for the gardens (NPS 2008a).

Spatial Organization

Constitution Gardens was designed by the architectural firm Skidmore, Owings and Merrill in the early 1970s to provide a pleasant walking environment between the Lincoln Memorial and

the Washington Monument, contrasting with the formal elm walks along the Lincoln Memorial reflecting pool. The park is somewhat hidden from view by grade changes and vegetation. The flood control levee for the city, an earthen berm constructed in the 1930s and 1940s, runs along the park's south boundary. A low berm runs along Constitution Avenue on the north and was maintained in the Skidmore, Owings and Merrill design. The Vietnam Veterans Memorial was built in a meadow at the west end of Constitution Gardens.

Topography and use divide the space of Constitution Gardens into east and west sections. On the east, the ground slopes to a low plane at the central lake. On the west, the Vietnam Veterans Memorial occupies a large central clearing. In both areas, trees massed thickly around the perimeter define interior space, with openings between massings to allow views of structures and areas beyond the boundaries. The tree massings become thinner and more open as they move towards the site's interior, their inner line advancing and retreating down the slopes. The trees are arranged to create several large clearings down the central spine of the park. Lines of trees along the outside edges of walks create a linear element curving throughout the park, an open, porous wall that defines the act of passage through the site and highlights its importance as a route between two important monuments. The landscape treatment associated with the memorials was designed to coordinate with the existing Skidmore, Owings and Merrill design.

FIGURE 34: POTOMAC PARK LEVEE



The Potomac Park levee (seen here from near the Lincoln Memorial) runs along the south boundary of Constitution Gardens.

The eastern half of Constitution Gardens gently slopes down to a 6.75-acre lake that has a continuously curving shoreline. The lake is visible from most areas within the gardens, and it forms the dominant feature of the eastern section of the gardens. Overlooking the lake at its east end is a large paved terrace. Three stone-walled terraces, designed for outdoor restaurant seating, descend the slope from the plaza to the lake and are the only components that were built for an approved restaurant.

At the northeast corner of the site stands the historic Lockkeeper's House, built when the Washington City Canal was joined to the Chesapeake & Ohio Canal in the 1830s.

Topography

Constitution Gardens has an entirely constructed topography that consists of gently rolling slopes and long berms surrounding a central depressed area occupied by a small lake and a slope descending to the partially sunken Vietnam Veterans Memorial. The highest elevation is 26 feet above mean sea level, the height of the crown of the knoll, and the flood control levee has a design height of 19.1 feet. The lake lies below the level of the park's surroundings. The flood control levee was incorporated into the design of Constitution Gardens and generally forms the southern boundary of the gardens.

Views and Vistas

Constitution Gardens is a pastoral landscape, designed to offer a series of more varied, intimate, and restful views than is typical for the Mall landscape. Views of the Washington Monument, in particular, are prominent throughout the gardens, and other structures, including the Lincoln Memorial, the Old Post Office tower, the Thomas Jefferson Memorial, the U.S. Capitol dome, and the buildings of Federal Triangle, are visible. Landmarks are partly glimpsed between trees or rising above the tree line. The Washington Monument is the only structure serving as the focal point of a dominant vista. It is prominent to the east from throughout Constitution Gardens, usually seen across the lake and mirrored in its reflective surface. One of the most striking views of the monument occurs from the walk ascending the

eastern arm of the Vietnam Veterans Memorial, which is aligned with the monument, and from which it is seen rising above the prominent central knoll of Constitution Gardens.

Similarly, the Vietnam Veterans Memorial comes into view from the crown and western side of the knoll. This reciprocity of views between important monuments was a key theme of the L'Enfant and McMillan plans. The *Three Servicemen* statue and the Vietnam Women's Memorial were situated to provide sightlines to the Vietnam Veterans Memorial and link it with Constitution Gardens.

Similar views of the park's landscape can be seen from the island in Constitution Gardens Lake, where visitors are first led to the plaza that forms the central feature of the memorial. This vantage point offers perhaps the most dramatic vista of the Washington Monument. Visible to the south is the Atlantic archway into the World War II Memorial. Visible from walks on the south, and from the levee, are filtered views to the elms along the Lincoln Reflecting Pool, the pool itself, and glimpses of the Lincoln Memorial.

Vegetation

Almost 2,000 trees grow in Constitution Gardens. A large percentage of the original trees died because of poor soil conditions, and many of the existing trees are replacements. Trees are planted regularly around the park's perimeter, creating a gradual transition from the formal lines of trees surrounding the park (the European elms along the reflecting pool on the south, and the American elms lining the streets on the north and east).

Buildings and Structures

56 Signers of the Declaration of Independence. On a 0.5-acre island near the north shore of the lake and accessible by a wooden pedestrian bridge is a memorial landscape dedicated to the 56 Signers of the Declaration of Independence. A granite walk leads to a paved semi-circular plaza that opens to the south shore and is lined on the north side by 56 granite blocks inscribed with the signatures of the signers of the Declaration of Independence. The blocks are organized into 13 groups, representing each of the original states. The island is landscaped with

FIGURE 35: LOCKKEEPER'S HOUSE

The Washington City Canal Lockkeeper's House, built in 1832–33, predates the development of West Potomac Park and is a remnant of early 19th century Washington, D.C.

trees and plantings. The memorial is on the NPS List of Classified Structures.

Lockkeeper's House. The Lockkeeper's House, built in 1832–33, is the only remnant of the Chesapeake and Ohio Canal extension, which connected the C&O Canal to Washington City, leading from the Potomac River at 17th Street to the Anacostia River. The extension was intended to ensure that the city would benefit from commerce along the major canals. The structure was converted for park purposes in 1903, and it was moved 49 feet west and 6 feet north from its original location in 1915 to accommodate the extension of 17th Street. It is listed on the National Register of Historic Places, and it is a contributing element of the East and West Potomac parks nomination. It is also on the NPS List of Classified Structures.

Circulation

In contrast to the formal, rectilinear system comprising the majority of the National Mall's circulation, Constitution Gardens is laid out with a network of winding, curving walks (see NPS 2008a). About 2 miles of meandering walks through the park are designed for use by pedestrians and bicyclists. The walks connect Constitution Gardens to other areas of the National Mall, as do views and vistas. The park's location off the central visual axis between the Washington Monument and the Lincoln Memorial, and its partial screening from view of the Lincoln

Memorial grounds by the flood control levee, allowed greater freedom in design.

The circulation system has three major features: two loop walks and a large paved plaza, known as the overlook terrace. Narrower subsidiary walks run across lawns and slopes, linking different areas within the park and leading to adjoining sites. The two major walks of the park are long loops having the general shape of a figure eight. They are oriented east to west, and each occupies roughly half of the site. The eastern loop walk is immediately adjacent to the lake and thus follows its contours. The western loop curves around the large knoll and then circles the Vietnam Veterans Memorial.

Walks lead from the 17th Street sidewalk to the overlook terrace's northeast and southeast corners and along a north-south line to the midpoint of the terrace on the north and south. The north walk runs between the Constitution Avenue sidewalk and the terrace; the south walk, slightly offset to the west from the alignment of the north walk, runs between the terrace and the World War II Memorial. On the west side of the terrace, three walled stone terraces flanked by broad stairways descend the slope to the lake, where they join with the lake's perimeter walk. Narrow walks parallel to the stairs lead from the north-south axial walk to the lake walk.

Numerous social trails have been cut across the lawns of Constitution Gardens, especially over the flood control levee, leading to the Lincoln Memorial grounds and the reflecting pool, and over the north boundary berm to the Constitution Avenue sidewalk. Social trails also run immediately parallel to many of the walks. Two walks run parallel to Constitution Avenue, both under NPS jurisdiction. A narrow concrete "step out" runs immediately adjacent to the curb of Constitution Avenue. South of this, separated by planting areas planted with grass and American elms, a wide asphalt sidewalk was built in 2003 to replace the Tourmobile access road.

Small-Scale Features

The benches in Constitution Gardens are of the standard 1930s style, with black cast-iron frames and wood-slat backs and seats.

Constitution Gardens was the first area located within the National Mall to have interior pedestrian lighting. All the lights along walks in Constitution Gardens are the variety known as the Washington Standard. The fluted classical post has a flared, molded base and capital, and supports a single Washington Globe lamp.

Vietnam Veterans Memorial

The main feature of this memorial, completed in 1982, is a black granite wall on which the names of those who gave their lives, or who remain unaccounted for, are carved. Later, two sculpture groups with additional landscaping were added south of the memorial: the *Three Servicemen* in 1984, which includes a flagpole as part of its design, and the Vietnam Women's Memorial in 1993. The "In Memory" plaque was added adjacent to the *Three Servicemen* in 2004. These statues were placed to provide views from specific locations of the Vietnam Veterans Memorial. The memorial is listed on the National Register of Historic Places and the NPS List of Classified Structures.

A large-diameter bronze flagpole bearing an exceptionally large American flag is set within the walk a short distance southwest of the *Three Servicemen* statue. The flag is lit so that it can be flown at night.

Lighting at the memorial consists of lights set flush in the granite directly in front of the wall. Five bronze "locators" (stands to hold directories that give the locations of names on the wall) are placed at either end of the walk leading past the memorial. The locators were designed to match the look and character of the other sculptural objects at the site.

The Vietnam Veterans Memorial attracts large numbers of daily visitors. Numerous annual ceremonies take place on Memorial Day, Veterans Day, Mothers Day, Fathers Day, and when new names are added to the wall.

The Lincoln Memorial

The Lincoln Memorial was conceived as the formal terminus of the Mall under the McMillan plan. The memorial opened in 1922 and rises above monumental steps. It is on the National Register of Historic Places, is listed on the

FIGURE 36: VIETNAM VETERANS MEMORIAL



The *Three Servicemen* and the Vietnam Women's Memorial (below) were located to provide views of the Vietnam Veterans Memorial.



national register nominations for East and West Potomac parks, and is on the NPS List of Classified Structures.

Spatial Organization

Three distinct landscapes compose the Lincoln Memorial grounds overall, as documented in the NPS *Cultural Landscape Report* (NPS 1999a). They include the reflecting pool area, the Lincoln Circle and radial roads, and the Watergate area. In addition, the relationship between the buildings and structural features within the landscape cannot be separated. Therefore, the

Lincoln Memorial, Arlington Memorial Bridge, Watergate plaza and steps, Parkway Drive, the reflecting pool, and the Rainbow Pool are also considered contributing features to the historic landscape. The landscaping for the Lincoln Memorial grounds was designed and planted between 1921 and 1932.

Constructed Water Feature

The Lincoln Reflecting Pool was constructed in 1922 to be an important feature of West Potomac Park between the Lincoln Memorial and Washington Monument. The landscape plan called for two rows of elm trees to be planted in parallel lines along the north and south sides of the reflecting pool. At the Rainbow Pool, elm trees were designed in a curved line to complement the circular sections of the geometric outline. The reflecting pool is listed as a contributing feature of the national register nomination for East and West Potomac parks and is on the NPS List of Classified Structures.

Vegetation

The planting plan for the Lincoln Memorial circle and radial roads featured a double row of elm trees planted in opposite positions on both sides of the radial roads. When the plan was implemented, the proposed double row of oppositely planted trees on the radial roads were scaled back to planting in alternative positions. The circular band of trees was followed for the eastern half of the circle. The western half of the outer circle consisted of the single circular band of trees that edged the curb, but the rest of the circle, outside the sidewalk, was completed with a double band of elms.

The landscape plan for the inner circle was designed to contrast the radial roads and consisted of two plans. The first plan consisted of two rectangular planting beds with various plants lining the outer edges of the pavement along the entire length of the approachway. At the base of the raised terrace wall, groups of boxwood and yews were planted. Some dwarf boxwoods were planted in front of some of these groupings. At the corners of the terrace walls, plantings extend out from the wall into the grass lawn of the circular terrace. Specimens of

American holly, common boxwood, and English yew were added to the north and south sides.

The second plan depicted plantings for the west side of the memorial. Plantings consisted of broadleaf evergreen trees, American holly, and southern magnolia. This arrangement projected the landscape from the corners of the terrace walls, as done on the east side. The distinct formal landscaped grounds were initially envisioned by the McMillan plan based on its adaptation of the L'Enfant plan.

Other Features

Watergate Area and Steps. The Watergate steps are a broad curved flight of steps descending from the Lincoln Memorial Circle to the Potomac River. Designed as a ceremonial river entrance to the Lincoln Memorial and the city, they are contributing features of the national

FIGURE 37: THE WATERGATE STEPS



Looking south from the Watergate Steps to Ohio Drive SW and Arlington Memorial Bridge.

FIGURE 38: CONSTITUTION AVENUE BELVEDERE



The belvedere overlooks the Potomac River north of the Lincoln Memorial.

register nominations of the Lincoln Memorial and East and West Potomac parks. The Constitution Avenue belvedere, Parkway Drive, and the Potomac River walls, as well as the Watergate Steps, are on the NPS List of Classified Structures.

Arlington Memorial Bridge. The Arlington Memorial Bridge marks the western terminus of the Mall and symbolically links the two parts of the Union — the North, symbolized by the Lincoln Memorial, and the South represented by Arlington House (Robert E. Lee Memorial). Two gilded bronze equestrian statues depict *The Arts of War*. The bridge is listed individually on the National Register of Historic Places and is a contributing feature in the East and West Potomac Parks Historic District and the L'Enfant Plan of the City of Washington, D.C.

Rock Creek Parkway Terminus. The Rock Creek and Potomac Parkway terminus was constructed at the same time as the Arlington Memorial Bridge and Lincoln Memorial Circle. Two sculptures depicting *The Arts of Peace* are on the NPS List of Classified Structures.

John Ericsson Memorial. The John Ericsson Memorial commemorates the Swedish immigrant and designer of the U.S.S. *Monitor*. It was sculpted by Charles Fraser and installed in 1926. It sits south of the Lincoln Memorial on Ohio Drive. The memorial is listed on the National Register of Historic Places as a contributing feature of the East and West Potomac Parks Historic District.

FIGURE 39: KOREAN WAR VETERANS MEMORIAL



The reflecting pool at the apex of the Korean War Veterans Memorial.

FIGURE 40: JOHN ERICSSON MEMORIAL



The John Ericsson Memorial sits on a parcel in the middle of Ohio Drive SW.

Korean War Veterans Memorial

The Korean War Veterans Memorial, southeast of the Lincoln Memorial, honors the patriotism, devotion to duty, and courage of Korean War veterans. Nineteen larger-than-life stainless steel sculptures stand silently under the watchful eye of a sea of faces upon a granite wall. At the upper end of the memorial is a flagpole, quotations, and a Pool of Remembrance, with shade trees and bench seating. Low walls list all the international participants, and casualties are listed near the pool. Along the south side of the memorial are polished granite walls with laser photo images that define the edge of the memorial and help create a quiet setting. The memorial, which opened in 1996, is listed on the National Register of Historic Places.

D.C. War Memorial

The D.C. War Memorial was constructed of Vermont marble in 1931 to honor D.C. citizens who served in World War I. It was originally designed to function as both a memorial and a bandstand. A domed roof is supported by 12 fluted Doric columns (NPS 2009a). The memorial is listed on the National Register of Historic

FIGURE 41: JOHN PAUL JONES MEMORIAL

The John Paul Jones Memorial is at the intersection of 17th Street and Independence Avenue SW.

Places as a contributing feature of the East and West Potomac Parks Historic District.

Ash Woods

Ash Woods is a densely wooded area between Independence Avenue and Ash Road. It was planned to be a naturalized, thickly wooded area with little understory vegetation. The U.S. Park Police stables, a restroom, and recreation fields are located in the area. Ash Woods currently is not listed as a contributing element on any national register nomination. However, it is within the viewshed of the Lincoln Memorial and other resources of the National Mall. Additional study will be conducted on this site.

Other Cultural Resources in West Potomac Park (North of Independence)

John Paul Jones Monument

The John Paul Jones Monument to the naval hero of the Revolutionary War is listed as a contributing feature of the national register nominations for East and West Potomac Parks

and American Revolution Statuary. It is also on the NPS List of Classified Structures.

West Potomac Park (South of Independence Avenue)

Tidal Basin

The Tidal Basin was constructed in 1885 as part of the reclamation of the Potomac Flats and the creation of Potomac Park. Water enters the Tidal Basin from the Potomac River under Inlet Bridge (1909) and exits through tidal gates at the Outlet Bridge (1889) to the Washington Channel, helping to flush the channel of silt. Historically recreation around the Tidal Basin included swimming, boating, and especially riding, driving, and parading around circular walk. During the Independence Avenue extension project Kutz Bridge was constructed (1943) to carry eastbound traffic over the north bay of the Tidal Basin. The Tidal Basin, and Inlet, Outlet, and Kutz bridges, are listed on the National Register of Historic Places as contributing to the East and West Potomac Parks Historic District.

First Cherry Tree Planting Plaque

The plaque commemorating the first cherry trees planted as a gift from Japan in 1912 is on the NPS List of Classified Structures.

Japanese Lantern and Japanese Pagoda

A 300-year-old Japanese lantern was given to the United States by Japan in 1954 to commemorate the visit of Commander Perry to Japan. The same year a stone pagoda was given to the U.S. in commemoration of the Treaty of Yokohama. Both are listed on the National Register of Historic Places as contributing features of the East and West Potomac parks nomination, and they are also on the NPS List of Classified Structures.

First Airmail Flight Marker

The marker commemorates the airfield that once existed in West Potomac Park and the first airmail flight from Washington, D.C. The marker is a contributing feature of East and West Potomac Parks Historic District.

Franklin Delano Roosevelt Memorial

The Franklin Delano Roosevelt Memorial (dedicated in 1997) is a series of four outdoor galleries, each representative of one of the president's four terms in office. Red granite walls, plantings, water cascades, and pools define the spaces. Quotations from the president are carved into the walls. Sculptural groupings and bronze panels depict aspects of each term in office. After the memorial was completed a sculpture of the president in a wheelchair was added to the forecourt. The memorial is listed on the National Register of Historic Places and the NPS List of Classified Structures.

George Mason Memorial

The George Mason Memorial honors Mason's advocacy for the addition of the Bill of Rights to the U.S. Constitution. Dedicated in 2002, the memorial is located near the Thomas Jefferson Memorial. The memorial consists of a bronze sculpture of George Mason seated on a marble bench beneath a pergola, along with inscriptions of quotations by George Mason or about his legacy related to the Bill of Rights. The memorial was designed around a historic fountain – (Fountain 4) and planting beds. The fountain, constructed in 1906, is the last of four fountain basins built in an evergreen nursery and garden established in 1905. The fountain is listed on the National Register of Historic Places.

West Potomac Park Riverfront

The West Potomac Park riverfront was created as a result of dredging the Potomac River in the late 1800s. The plant species that would have grown on the banks and the Potomac River floodplain before reclamation do not occur in the vicinity today. The dry-laid stone walls along the river are a contributing feature of the West Potomac Park national register nomination.

Thomas Jefferson Memorial

The Thomas Jefferson Memorial on the south shore of the Tidal Basin anchors the south end of the north-south axis developed by the McMillan plan. Designed by noted architect John Russell Pope, the memorial is constructed of Vermont white marble in a Neoclassical style, with a rotunda. It rests on a granite terrace. The

memorial is listed on the National Register of Historic Places and as a contributing feature of the East and West Potomac parks nomination. It also is on the NPS List of Classified Structures. The following information is from the "Cultural Landscape Inventory" (NPS 1998a).

The Memorial

The Jefferson Memorial, located on the southeast shore of the Tidal Basin, was constructed between 1939 and 1943, and was dedicated in 1943. A circular open-air structure modeled after the Roman Pantheon, the memorial features a shallow dome, a circular peripheral colonnade composed of 26 un-fluted Ionic columns, 12 additional Ionic columns supporting the north portico, and 4 identical columns in each of memorial's four monumental openings. A flight of granite and marble stairs and platforms, flanked by granite buttresses, leads from the Tidal Basin.

The interior of the memorial features a bronze statue of Jefferson that is centered in the chamber on a black Minnesota granite pedestal, which is inscribed with the dates of Jefferson's birth and death (1743–1826). The dome's interior is divided into two parts; the lower section has a coffered surface containing lights that illuminate the statue, and the upper section has a smooth, uninterrupted surface. The only other structure on the memorial grounds is an octagonal refreshment kiosk with a tent-like copper, standing seam roof. The stand is southwest of the memorial at East Basin Drive.

Spatial Organization

The Jefferson Memorial occupies the fifth and last of the cardinal sites as detailed in the McMillan plan. The memorial is situated on the south bank of the Tidal Basin at the southeast corner of West Potomac Park. The distance between the memorial and the other elements of the city give the memorial a feeling of openness and informality to the north and west, far removed from the rigidity of the axial location on which it is actually sited. On the south side the proximity of I-395 detracts from the parklike setting. The highway corridor and bridges not only block the visual link with the river, but create a physical barrier to the open access of East Potomac Park.

Within the memorial grounds themselves, the composition of the immediate ground plan becomes less rigid farther from the memorial. The surrounding architectural plantings of shrubs and trees within the circular roadway, together with the rectangle of grass, give way to the informal parkland composition of trees set in grass.

The Jefferson Memorial is situated within a completely engineered landscape. No natural plant species exist in the vicinity today, due to the hard edge of the Tidal Basin wall and depth of water.

Topography

The original topography of the site was the Potomac River and its edge wetlands. Since the land was created through dredging, the memorial site is essentially flat with two rings of retaining walls supporting two terrace levels that make the memorial feel like it is located on a knoll. Some minor grading has been done for the roads and to facilitate drainage. The graphics of the topography before construction in 1938 show the modeling that took place to create the memorial site. They also illustrate the alterations made to the edge of the Tidal Basin to place the memorial directly on axis with the White House. Sometime after the dedication in 1943 a 3- to 4-foot berm was added along the west side of the Tidal Basin, approximately 25 feet from the sidewalk. It is used to channel water to a drop inlet and has been planted with cherry trees. Settling has been a problem since the construction of the memorial and has been addressed at various times over the years

Views and Vistas

L'Enfant first conceived the initial inspiration for the dominant axial arrangement of buildings of primary importance around the Mall (and therefore the formal vistas between them) in his 1792 plan of the Capital City. The gradual departure from his plan in subsequent years brought about the necessity to develop a new plan for the city center in order that it might regain some cohesive structure.

The departure from the L'Enfant plan, together with the newly created lands reclaimed from the dredging of the river, influenced the McMillan

Commission to redesign the central area, reinforcing the axes and the vistas. Its plan displayed the familiar five-point composition regulating the formal linkage and views of these cardinal points. The perspective view illustrated the intended vistas between them, despite the southernmost still being a vacant plot of land. Once the site for the Jefferson Memorial was chosen, there was never any question about its visual relationship with the White House. In fact, President Roosevelt ordered trees to be cut so the view of the memorial from the White House would be enhanced.

The visual relationship between the Lincoln and Jefferson memorials was discussed by the Thomas Jefferson Memorial Commission and the Commission of Fine Arts in January 1943. The vista was opened up to the Lincoln Memorial following detailed discussion as to the line of the vista and whether it should run from portico to portico or from the center masses of the two buildings. The vista between the memorials was opened up by the pruning of trees at the end of January 1943, allowing a narrow view of one memorial from the other.

Today the Lincoln Memorial is barely visible from the Jefferson Memorial. In summer, the top of the Lincoln Memorial can be seen above the trees. The view is slightly more apparent in the winter. The location of the wall at the Korean War Veterans Memorial emphasizes the line between the Lincoln and Jefferson memorials; however, this connection is only visible from the air.

The vista to the White House is clearly visible from the steps of the Jefferson Memorial. Similarly, Jefferson's statue is clearly visible from the Truman Balcony of the White House.

The construction of the Franklin Delano Roosevelt Memorial in West Potomac Park and the removal of selected trees in 1997 created another framed view of the Jefferson Memorial from the bank of the Tidal Basin. This vista was also part of the McMillan plan. There are some flowering crab and cherry trees in this vicinity today, but the narrow vista toward the west side of the memorial is still maintained. The vista looking toward the east side of the memorial is also apparent.

Dominating the view to the south from the memorial is the elevated I-395, which leads up to the 14th Street Bridge and parallels the railroad bridge. The highway structure considerably foreshortens the original view southward, and the noise and sight of the traffic has a seriously deleterious effect on visitor enjoyment of the memorial. The intrusion of the road is intensified when standing higher up inside the memorial, or on the stylobate mall. The road as viewed from the memorial is not well screened with trees. The rectangular grassed area immediately south of the memorial is similarly dominated by the presence of automobiles. Parking to the rear of the memorial was part of the original plan.

The open view across the Tidal Basin to the north has not changed dramatically since the 1940s in terms of structural changes to the landscape. However, the view due north is interrupted by the parking lot opposite the plaza along the north edge of the Tidal Basin. While this parking area has been in existence since the memorial's construction, the increase in the number of vehicles has made it a conspicuous intrusion in an otherwise pleasant and uncluttered view across the water.

Today the historical integrity of the views and vistas dating to the period of significance remains high. To the north, vistas to the White House and Washington Monument, and the view across the Tidal Basin all remain, along with vistas to the east and west of the memorial. Only the vista to the Lincoln Memorial has been compromised.

Circulation

The circular drive and plaza, originally designed for vehicular use, are now meant to be used exclusively by pedestrians. Some pedestrians arrive at the memorial from the east around the Tidal Basin, others from the Franklin Delano Roosevelt memorial to the west. The path adjacent to the Tidal Basin on the west side is made up of sections of asphalt and concrete; the one to the east is largely asphalt. On both sides the paths abut the concrete cap on the seawall. A temporary asphalt path was added south of the Tidal Basin path on the west side in 2008. This temporary path stabilizes active erosion behind

the seawall and provides a safe pedestrian walkway between Inlet Bridge and the memorial.

To access the memorial from the south, visitors may walk on sidewalks parallel to the approach roads or take the asphalt circular roadway and then climb the north steps to enter the chamber. Others, including visitors with disabilities, take the ramp on the south side to the terrace mall level and around the memorial to the west. From there they either climb the north stairs or enter the building and take the elevator to the chamber level.

Due to the continual settlement since the memorial's construction, sections of the circular roadway were at a considerably lower grade than the main plaza. When the current plaza was installed in the 1970s a transition section had to be constructed so the plaza would meet the circular road section. The north plaza, replaces the original macadam road, curbing, gutters, and sidewalk, and the small concrete plaza, forms the base of the front steps. At the same time vehicles were prohibited from driving around the memorial.

In 1999–2000 a number of repairs to the circulation system were made. The north plaza was redone in the same colored aggregate concrete as the circular drive. The original curb-line of the circular driveway was marked with granite pavers. The north main steps were reset and repaired. The granite steps along the edge of the Tidal Basin leading to the northwest corner of the plaza were repaired, and the asphalt ramps bypassing both sets of steps adjacent to the Tidal Basin were widened and resurfaced.

A sidewalk parallels East Basin Drive for most of its length within the memorial grounds. To the west an asphalt path added in 1986 runs from the Tidal Basin, starting approximately halfway to the Inlet Bridge, across the lawn to the northwest corner of the parking area. On the east four asphalt paths merge before crossing Outlet Bridge.

The various surfacing materials throughout the memorial area create a patchwork effect of different colors and textures, detracting from the landscape setting and the grandeur of the memorial itself.

Vegetation

After reclamation and before the memorial was built, the area of newly created parkland was planted with trees and lawn. Japanese cherry trees were planted on the site in 1912 when the mayor of Tokyo presented 3,000 cherry trees to the city. They have been supplemented by subsequent plantings. The Olmsted planting plan that was installed at the time of construction featured a simple design within the circular driveway that was predominantly evergreen with limited flowering trees and shrubs. It featured clustered groups of trees and shrubs to the north and south of the memorial on both sides of the north steps and on both sides of the south view line. The plan included yews, American hollies, Japanese hollies, abelias, osmanthus, firethorns, and cotoneasters, with dogwoods and winter jasmine added for color. Because the planting was perceived as “too thin,” white pines were added to the stylobate mall, and some other replantings and additions took place before the dedication.

Outside of the circular drive, the planting featured small flowering trees, with taller shade trees underplanted with grass and limited shrub and ground cover. The taller trees edged the circular drive and approach driveways, except on the north and east vistas. Other plantings are clustered at the four cardinal points outside of the circular drive, and where the approach roads intersect with East Basin Drive. The plantings focused on dogwood, crabapple, cherry, and elm, plus maple, hawthorn, plane, oak, holly, pine, yew, and periwinkle.

The planting around the memorial today no longer reflects what was specified in the original plans, although vegetation on the stylobate mall has been restored based on the 1942 additions to Olmsted’s original planting plan, which included the addition of pine trees to fill in the original “thin planting” for which Olmsted was criticized.

The major designed change occurred in the 1970s, when additional yews were planted on the stylobate mall. The ring of zelkovas was planted inside the circular road, where none existed originally. These have grown to maturity and have become an accepted part of the current landscape. Also, an evergreen layer of American

hollies has been added along East Basin Drive since the 1970s.

Additional yews were the focus of the landscape restoration work that took place in 1993. This work removed the historically incorrect planting, which restricted the established vistas, especially those east and west. Original yews, which had been affected by the repeated addition of fill over the years to combat settlement, were removed and replaced. Today, some of the original planting remains historically correct in terms of species and location. However, the flowering shrubs and tree species (abelia, dogwood, winter jasmine, and osmanthus) that were planted on the lower terrace have been lost. In their place are several yews and a few hollies. Many of the yews have grown to such an extent that they have to be pruned severely to keep them back from the paths. This makes the yews look more formal than intended on the path side, while on the other side the yews grow in their more natural form.

To the south of the memorial, the cotoneasters have been lost, leaving yews and firethorns. The original periwinkle, which was planted beneath the groups of three pines at the north of the memorial, was replaced with grass fairly early in the memorial’s history. In 1986 the dwarf inkberry hedge along the terrace walk was replaced with a hedge of the cultivar ‘Shamrock,’ which exists today. While these plants are generally in good condition, their form is becoming less compact. Elm trees to the southwest of the memorial that were there at the time of construction were the victims of regrading that took place to raise the ground levels due to settling. In 2000 the Bicentennial planting of hollies was removed. More flowering dogwoods and yews were planted, going back to the original Olmsted plan for the site.

Constructed Water Features

While the Thomas Jefferson Memorial is located on the Tidal Basin, which is integral to its setting and the visitor’s experience of the memorial, the water is not considered part of the Jefferson Memorial grounds, but part of West Potomac Park.

Small-Scale Features

Many styles of site furniture exist on the site today. Different components within the general landscape setting appear to have been added in a piecemeal fashion to suit the immediate needs of the time rather than fit into a structured management plan for the area.

A metal trash receptacle with a fluted top is used throughout the memorial. Two round receptacles made of marble are located on the north plaza steps. There are wooden storage bins along the edge of the kiosk pad for use by the concessioner.

There are 12 Washington globe lights along East Basin Drive between the Inlet and Outlet bridges. There are also eight tall metal poles with floodlights around the memorial; the poles to the southeast and southwest are masked by mature trees. Around the stylobate mall are eight shorter poles, each with a single floodlight. There are 3-foot-high lighted bollards along the edge of the Tidal Basin walk, but none to the east. There are also no lights on the walks through the greater site. At-grade flush-mounted lighting was installed in late summer of 2000, at the seawall at the end of the plaza.

Signs at the memorial focus on regulations. Parking restriction signs are placed at close intervals around the grass rectangle. The only interpretive information is at an information kiosk on the south plaza.

ROADWAYS CONTRIBUTING TO NATIONAL REGISTER LISTINGS

The following avenues, drives, and streets are contributing features of the L'Enfant Plan of the City of Washington, D.C.:

Constitution Avenue NW
Independence Avenue SW
Jefferson Drive SW
Madison Drive NW
17th Street NW
Louisiana Avenue NW
Maryland Avenue SW
Pennsylvania Avenue NW
Virginia Avenue NW
1st Street NW
3rd Street SW and NW
4th Street SW
6th Street SW and NW
7th Street SW and NW
9th Street SW and NW
10th Street SW and NW
12th Street SW and NW
14th Street SW and NW
15th Street SW and NW
17th Street NW
18th Street NW
19th Street NW
20th Street NW
21st Street NW
22nd Street NW
23rd Street NW

NATURAL RESOURCES

As an urban oasis, the National Mall contributes substantially to the open, expansive landscaped character of Washington, D.C. The primary land use in the study area is institutional and includes museums, galleries, memorials, and other cultural uses. Nearby destinations include the Smithsonian Institution facilities, the National Gallery of Art facilities, the U.S. Holocaust Memorial Museum, and the U.S. Botanic Garden.

The District of Columbia “Generalized Land Use” map categorizes the entire area as “parks, recreation and open space.” In addition to their cultural importance, these areas provide both passive and active recreational open space, including softball fields, a polo field, and fields for other sports. The adjacent East Potomac Park contains a public swimming pool, a golf course / driving range, a miniature golf course, tennis facilities and courts, picnic areas, a food service facility, restrooms, office and maintenance buildings, a visitor transit operations facility, and a U.S. Park Police substation.

WATER RESOURCES

Surface Water

Washington, D.C., lies within the Potomac River basin and in the Middle Potomac-Anacostia-Occoquan watershed, a part of the greater Chesapeake Bay watershed. The District of Columbia contains two rivers — the Potomac and Anacostia — and several streams, such as Rock Creek.

All surface waters in the District of Columbia flow to the Potomac River either directly or through tributaries such as Rock Creek and Anacostia River. These rivers comprise the second largest tributary watershed flowing into Chesapeake Bay. The Potomac River provides about 75% of the municipal water supply for domestic use in the Washington metropolitan area. The river also receives effluent discharged from a number of wastewater systems. Other than the Potomac River, no perennial streams or other natural surface waters remain in the planning area.

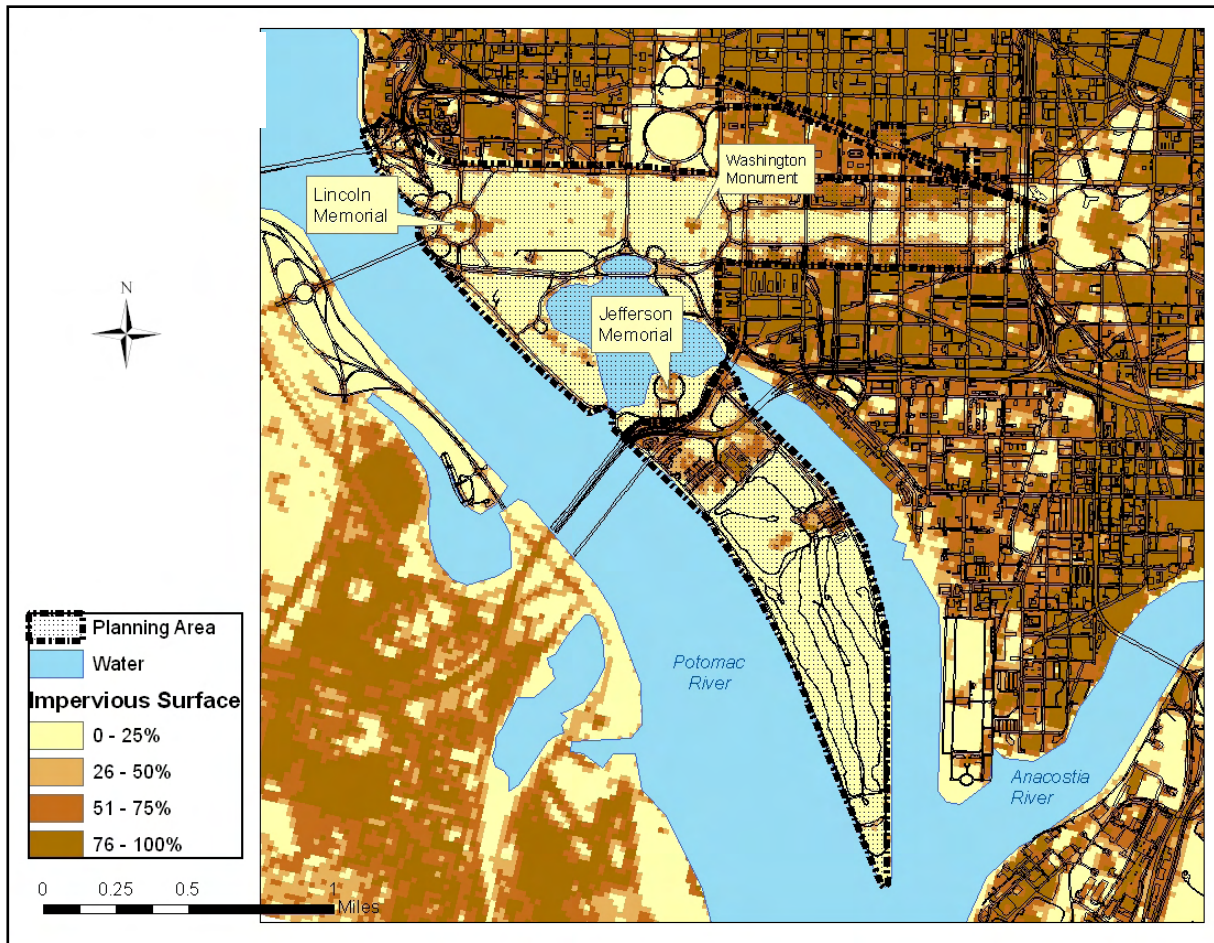
At one time natural streams ran through the area, including Tiber Creek, which flowed into the Potomac River north of the Washington Monument. The creek was converted into the Washington City Canal in 1815, running along the north side of the Mall before turning south and emptying into the Anacostia River. The canal operation failed financially, and the canal was filled in or covered over in 1871 and became Constitution Avenue. Tiber Creek still flows through artificial conduits beneath Constitution Avenue and out to the Potomac River.

The planning area is in an urban location and a large percentage is impervious. Impervious surfaces are areas that prevent the saturation of water into the surface of the soil (e.g., roads, parking lots, sidewalks, and rooftops), resulting in water running off the surface in greater quantity. Soil compaction is so great in some areas of the National Mall that the soil surfaces are considered impervious.

The Potomac River is a jurisdictional water of the United States, subject to the regulatory control of the U.S. Army Corps of Engineers (USACE). The District of Columbia, the federal government, and the states of Pennsylvania, Maryland, and Virginia are parties to the 1983 Chesapeake Bay Agreement. The goals of this program include fostering stewardship and protecting water quality through managing pollutants and land use, and also managing fisheries and habitat. Actions that could be taken to fully comply with the goals of the Chesapeake Bay Program could include upgrading the stormwater systems to retain more stormwater and reduce runoff into waterways. Upgrading the system would address some water quality and quantity issues. The park maintains the vegetation in accordance with the integrated pest management system to protect the Chesapeake Bay as well as minimizing toxicants.

The District of Columbia has ordinances for erosion, sediment control, and stormwater management that support the mission of the Chesapeake Bay Program by protecting surface runoff to the Potomac River. Although the National Park Service is not responsible for the

FIGURE 42: IMPERVIOUS SURFACES, NATIONAL MALL AND MEMORIAL PARKS



water column of the Potomac River, it is responsible for managing the bed of the Potomac River within the District of Columbia (opinion rendered July 20, 1976, USDI Office of the Solicitor).

The Tidal Basin is a 107-acre, 6-foot-deep man-made basin built originally at the mouth of Tiber Creek in 1885. It was designed by U.S. Army Major Peter C. Hains to mitigate flooding from the Potomac River. It was first dredged in 1885 and re-dredged in 1907. The basin was designed to serve a practical function of preventing stagnation by flushing waters into the Washington Channel. This self-flushing feature had stopped functioning for several years but was restored in 2006. The water in the 107-acre Tidal Basin is slightly brackish due to tidal inflows from Chesapeake Bay, but it supports a variety of native and nonnative fish. Stormwater runs off from the surrounding land and enters the Tidal Basin

by way of a system of storm drain inlets and pipes.

The Tidal Basin is connected to the Potomac River at its south end and the Washington Channel on the east side. The basin is lined with retaining walls, or seawalls, that prevent the earth fill from eroding into the water. The Tidal Basin seawall was completed in 1896. The seawalls are capped by a concrete walk, intended to provide safe access to the riverfront for recreation, including sightseeing, strolling, and fishing.

Constructed pools such as the Constitution Gardens Lake, the Lincoln Reflecting Pool, the Capitol Reflecting Pool, and other pools and fountains are artificial, concrete-lined waters. They are filled with treated, potable water supplied by the District of Columbia. The current capacity of the Capitol Reflecting Pool is 2.5 million gallons, Constitution Gardens Lake

5.5 million gallons, and the Lincoln Reflecting Pool 5 million to 6.75 million gallons. The latter pool has a leaking problem. These pools often become stagnant and must be drained annually to clean out accumulated debris from the bottom. Draining and refilling these pools one time uses up to 14.75 million gallons of treated water.

The growth of algae in pools throughout the National Mall is a management concern. This growth adversely affects aesthetics and the quality of water for other aquatic life. Treatments to control the algae include the use of fountains to aerate the water, mechanical removal, and the application of chemical algicides. The National Park Service has rules about which chemicals can be added to the water. Currently, only organic products certified by the Organic Materials Review Institute are used in all pools that are periodically drained in the Tidal Basin or another natural water body.

Shorebirds and other waterfowl are frequently seen using the larger pools. The lake contains self-maintaining game fish populations and aquatic vegetation in planters.

Floodplains and Stormwaters

The 100-year floodplain elevation is about 13.5 feet above mean sea level according to USACE studies, which are the base for the current Federal Emergency Management Agency flood maps (FEMA 2007). The area between the Thomas Jefferson Memorial and the Lincoln Reflecting Pool, as well as all of West and East Potomac parks, are within the 100-year floodplain of the Potomac River. The Lincoln Memorial and Washington Monument are built on elevations and are above the floodplain. The 100-year floodplain also includes the eastern end of the National Mall and the area between Madison Drive and Pennsylvania Avenue. The 500-year floodplain is only slightly larger but includes Constitution Gardens.

The water surface elevation of the Tidal Basin is also influenced by daily tides moving up the Potomac River. The high tide in this area may be 3 feet above mean sea level, and water overflows the subsiding southern rim of the Tidal Basin

during most high tides, inundating walkways and some cherry trees.

As a result of severe flooding in the 1930s, flood controls were built in Washington, including the Potomac Park levee, a raised berm extending from 23rd Street NW to the Lincoln Memorial Circle and along the north side of the Lincoln Reflecting Pool across 17th Street to the Washington Memorial grounds. During flood warnings in the past, NPS staff erect a temporary dike composed of earth fill and sandbags across 17th Street to complete the levee and protect downtown Washington. This was intended to provide protection from floods of the Potomac River up to 19 feet above sea level, but the Army Corps of Engineers has recently determined that the current design is no longer adequate, so a new flood control solution for 17th Street is being developed. The National Park Service will cooperate with the District of Columbia and Army Corps of Engineers to implement flood control measures under all of the alternatives in this plan.

In June 2006 several buildings in Washington's Federal Triangle flooded following torrential rains, resulting in significant damage and the temporary closure of several federal agencies. In response, the National Capital Planning Commission undertook a study to examine the various causes of flooding in the District, particularly in the low-lying National Mall, Federal Triangle, and downtown areas and to recommend protective measures. This study found that Washington is susceptible to both overbank flooding and urban drainage flooding (NCPC 2007, 2008). While the Potomac Park levee protects against overbank flooding from the Potomac River, urban drainage flooding occurs as a result of heavy precipitation, such as prolonged rain or sudden snowmelt. Many of the buildings located along the original creek beds experience frequent basement flooding as water flows tend to follow the original drainage patterns.

None of the alternative actions proposed in this plan would affect natural floodplains or cause a meaningful change in development or use of existing floodplains, so this topic has been dismissed from further analysis.

Groundwater

Fluctuations in the level of the water table result from seasonal variations in precipitation, surface runoff, and evaporation. Based on the area's topography, the natural direction of groundwater flow is to the west/southwest (toward the Potomac River). Localized groundwater flow can be affected by subsurface structures. The groundwater level at the National Mall ranges from being very near the surface along the southern edges (near the Tidal Basin and Potomac River) to 35 feet below existing grades along the northern side (NPS 2007a).

SOILS

On the north side of the National Mall two soil mapping units have been identified — the Beltsville-Urban land complex and Udorthents (SCS 1976). The western and southern areas are composed of Linside type loam immediately adjacent to the Tidal Basin, and Udorthents (largely heterogeneous fill material) on the remainder (USGS 1965).

The Beltsville-Urban land complex is composed of soils formed in the parent material of a silty layer most likely deposited by wind. They are on 0%–8% slopes and are moderately well-drained. About 20% of the complex is comprised of relatively undisturbed Beltsville soils. Another 20% has been disturbed by urbanization and covered with up to several feet of fill material. Urban land comprises about 40% of the complex and underlies areas covered by asphalt, concrete structures, or other impervious surfaces. The remaining 20% of the complex includes fine sandy loam, silt loams, and sandy loam (SCS 1976).

Udorthents formed in parent material that has been deposited or disturbed by humans as a result of cuts and excavations. Udorthents can be found on poorly drained to somewhat excessively drained soils on floodplains, terraces, and uplands. In many areas, this mapping unit is covered by structures, asphalt, concrete, and other impervious surfaces, along with material that was imported to facilitate development. Some of the mapping unit contains organic and inorganic waste from human activity, such as bricks, trash, wire metal, lumber, cinders, indus-

trial waste, incinerator ash, and pieces of concrete and stone. The diverse composition of this unit has resulted in highly variable permeability, water capacity, run-off, and internal drainage. Uncovered and nearly level areas of Udorthents are usually high in fertility and available water capacity, thereby offering high potential for trees, lawns, and ornamental shrubs (SCS 1976).

Linside loam, which occurs on nearly level floodplains, consists of very deep, moderately well-drained soils formed in alluvium washed mainly from lime-influenced soils on uplands. They offer moderate permeability with slow runoff and little to no hazard for erosion. Due to the wetness and flooding hazards, the soil has poor potential for building sites (SCS 1976). Both the Linside and the Udorthent soils have general tendencies to be used for human-deposited dredged material and cuts, fills, or otherwise disturbed land (USGS 1965).

General characteristics of urban soils include extreme heterogeneity from area to area, variability in organic matter percentages, variability in fertility and pH, a wide variability in texture, and a tendency for the compacted soils to repel moisture (NPS 1975).

Fill

About half of the 684 acres of the planning area is fill dredged from the Potomac River to create the Tidal Basin and Washington Channel and to raise the original land elevation. The fill is over 100 feet deep in some places. Most of West and East Potomac parks were created from fill material dredged from the Washington Channel and originally called the Potomac Flats. The area south and west of the Washington Monument was mostly created when the Tiber Creek valley was drained and filled.

The Jefferson Memorial was built atop pilings and caissons sunk into an artificial mud flat that is about 100 feet deep. A problem of subsidence seems to be occurring where a section of the seawall is breaking from the memorial's plaza and settling into the Tidal Basin. The western section of the seawall, which separates the memorial complex from the Tidal Basin, is currently about 6 inches below the adjoining plaza. The "ring road," which wraps around the memorial, has

also dropped several inches in spots and has been patched.

The nearby Lincoln Memorial, Franklin Delano Roosevelt Memorial, and Korean War Veterans Memorial are also built on pilings atop fill. The Lincoln Memorial's pilings go down about 40 feet; the Roosevelt Memorial's, 80 feet; and the Korean War Veterans Memorial's, 30–60 feet (Ruane 2007). No settlement problems have been observed at these memorials.

Soil Conditions

Soils throughout the National Mall have been subjected to major impacts from heavy daily foot traffic, recreational activities, and special events, which may include impacts from vehicles. These uses have severely compacted soils, resulting in compressed pore space between soil particles and increased bulk density.

National Mall soil compaction studies were done by various researchers in 1975, 1976, 1978, 1986, 1990, 1991, 1994, 2006, and 2008. The studies utilized a variety of bulk density assessment methods (clod, core, nuclear probe, and cone penetrometer). Six of the studies confirmed severe compaction on the Mall. A study done in 1978 at sites on the Mall found the mean bulk density to be 1.61 grams per cubic centimeter (g/cm^3) on the surface and $1.74 \text{ g}/\text{cm}^3$ at 30 cm, a depth spanning much of the root zone of the elm trees (Short et al. 1986). The maximum acceptable bulk density for silt loams is $1.3 \text{ g}/\text{cm}^3$ and for loams, $1.4 \text{ g}/\text{cm}^3$ (American Society of Landscape Architects et al. 2008).

One report prepared by the Alabama Agricultural Experiment Station at Auburn University for the Smithsonian Institution in 1991 had very limited parameters (the top 1–3 inches of soil) and used the clod method, which is more likely to identify less compaction than actually exists. In 1992 the NPS Center for Urban Ecology (CUE) undertook additional studies of soil compaction, sampling both at the surface and at a 12-inch depth outside the drip line and using the clod method. This study verified previous findings that soils with high bulk densities at the 12-inch depth occur throughout the Mall. This is critical when considering that the minimum soil

depth for providing adequate growth support for elm trees is 18 inches (NPS 1992a, 1992b).

Generally, soil pore space should be about 50% to allow diffusion of oxygen, water, and minerals. Reduction of the pore space restricts the movement of water and oxygen, resulting in premature death of trees and other vegetation by suffocation. Compacted soils also physically restrict root growth.

One study of soil in test pits on the National Mall has been found to be “as dense as concrete” when density and pore space were calculated (NPS 1975). The mean surface pore space on the Mall ranged from 37% at the surface to 33% at 30 cm (Short et al. 1986). Soil compaction may be the largest factor affecting vegetation in the park (Sherald, pers. comm., 2007).

VEGETATION

Vegetation within the National Mall has been highly manipulated for over 200 years, and there is no resemblance to the native vegetation patterns of the Atlantic Coastal Plain and Piedmont provinces. The entire area is considered a designed historic landscape, and landscapes in the project area have been individually designed and manipulated to establish desired settings, such as commemorative spaces, events space, recreational fields, and gardens. Perennial gardens and flowerbeds are enjoyed by visitors in several park areas. A fundamental resource of the park is open lawns that provide settings for buildings and memorials, as well as space for recreational activities, demonstrations, and special events. Most lawns are bordered by trees intended to define specific viewsheds. Trees in Union Square may have been planted when the area was the original site of the Botanic Garden, and a number of these trees are considered “witness” trees.

Washington, D.C., is a good example of an “urban forest” composed of a combination of native and introduced tree species. The U.S. Forest Service (USFS) has developed the Urban Forest Effects model to better understand the urban forest resource and its numerous values, including air pollution removal, air temperature reduction, improved water quality, reduced noise, increased property values, aesthetics, and

community cohesion (USFS 2006). Park vegetation is composed of turfgrass and ornamental trees, shrubs, hedges, and ground covers. In addition to elms and cherry trees, there are hedge maple, star magnolia, bald cypress, oaks, mulberry, hackberry, and Japanese pagoda trees, along with American lindens and various evergreens.

Many tree groves and rows are historic, include specimen-quality trees, or are intrinsic to the visitor experience or landscape of specific areas of the park. The National Park Service maintains a database of the location and species for all trees in the park. There are 18,500 trees throughout the National Mall.

Over the last two decades, there has been a substantial loss of tree cover within the District of Columbia, including the National Mall, affecting not only air quality and temperature, but quality of life (NPS 2008f). Stressors on trees and shrubs include soil compaction, insects, disease, salt and other chemicals used for deicing, and vandalism. Tree cover in the District is currently estimated to be 28.6% (Nowak et al. 2006.) The National Park Service supports a Metropolitan Washington Council of Governments initiative to increase the overall tree canopy in the city.

Elm Trees

There are approximately 2,700 elm trees throughout the monumental core. Nearly 600 elms (predominantly American elms, *Ulmus americana*) border the area of the Mall in four rows on either side of center grass panels between 3rd and 14th streets. Double rows of European elms (*Ulmus × hollandica* spp.) line the walkways along the north and south sides of the Lincoln Reflecting Pool. Both of these groups of trees are defining features within the McMillan plan landscape.

Most of the elms are under stresses caused by soil compaction, root constraints, abrasion on exposed roots, cutting of roots during construction, and air pollution/acid precipitation. In addition, Dutch elm disease continues to claim some trees every year. Leaf scorch caused by *Xylella fastidiosa* was found to affect approximately 25% of the American elms in a study conducted by the National Park Service in 1990.

The National Park Service has taken the lead in developing disease-resistant elms and is working with the District of Columbia, the General Services Administration, the Department of Defense, the Architect of the Capitol, and the Smithsonian Institution to implement a management program for elm trees. Disease-tolerant strains such as the “Washington,” “Princeton,” and “Jefferson,” as well as wild-type American and other elms, are used as replacement trees.

Cherry Trees

Over 3,000 cherry trees line the Tidal Basin and East Potomac Park, are in several groves on the Washington Monument grounds, as well as along the Washington Channel in East Potomac Park. They are considered a major character-defining component of the National Mall and are a protected feature. The Japanese government presented 3,020 flowering cherry trees (or ‘Sakura’) as a gift to the United States in 1912. Of the original 12 varieties shipped, the white Yoshino and pink Kwanzan varieties represented the largest portion and have persisted as they are best adapted to the climate of Washington, D.C. Most of the remaining 10 varieties did not prove to be cold-hardy enough for this area.

Most of the trees from the original shipment in 1910 were destroyed due to insect/disease infestation, but 15 trees in East Potomac Park are believed to be from the original shipment. Definitive identification of trees growing around the Tidal Basin cannot be made because planting records were not kept. It is well-documented that many trees died the first few years after transplanting and were replaced with trees purchased from commercial nurseries in the United States. Trees that were replaced in the first 20 years cannot be distinguished from an original tree based on visual observation of age alone and could easily be mistaken for an original tree.

Correspondence in the National Archives documents that trees from the original shipment were transplanted in 1922 to the Library of Congress grounds and the Washington Aqueduct. Nine of these trees still remain. The National Park Service, in cooperation with the National Arboretum, vegetatively propagated from these trees to

ensure that the genetic lineage of the original witness trees would be preserved.

The National Arboretum conducted a study to compare the DNA from these documented trees with the suspected original trees around the Tidal Basin. The study found that while there is genetic variability within *Prunus × yedoensis*, eight of the older (presumed original) trees from which cuttings were taken were very similar to each other and to the 1912 plantings.

Many trees are adversely affected by root trampling during the National Cherry Blossom Festival when thousands of visitors come to view the trees. High tides often cause an overflow at the south end of the Tidal Basin rim, which inundates nearby cherry trees and other vegetation in that area. As a result, on the south side of the Tidal Basin cherry trees have been planted in raised soil berms.

Turfgrass

Although usually not a native plant, turfgrass is a natural resource that is a substantial component of the desired landscape and settings throughout the National Mall. Grassy areas are very important to the visitor experience in this area. The “transition zone” climate of Washington, D.C., with its hot, humid summers and cold winters, is stressful to most turfgrass species. Only the most cold-tolerant warm-season turfgrasses (selected zoysia and Bermuda grass cultivars) and the most heat- and drought-tolerant cool-season turfgrasses (principally tall fescue) can survive from year to year. New research on native (North American) grass seed mixtures may result in more sustainable mixes than the park currently uses.

The National Park Service maintains approximately 112 acres of turf on the Mall for general public use and 50 acres on various athletic fields. The following are the selections/blends commonly used in the park. The selection is based on the best time of the year that seeding takes place, as well as shading and other environmental factors.

- *Turf Type Tall Fescue Mixture*: A 90% certified mixture of turf-type tall fescue (*Festuca arundinacea*) consisting of three varieties, of which no variety exceeds 40%

or is less than 20%, and 10% Kentucky Bluegrass (*Poa pratensis*). Recommended seeding dates: April 1 to May 15, September 1 to November 1.

- *Bermuda Grass Blend*: A certified blend of three hybrid Bermuda grasses (*Cynodon dactylon*), of which no variety exceeds 40% or is less than 20%. Recommended seeding dates: March 15 to August 15.
- *Perennial Ryegrass Blend*: A certified blend of perennial ryegrass (*Lolium perenne*), consisting of three varieties, of which no one variety exceeds 40% or is less than 20%. Recommended seeding dates: April 1 to December 15.
- *Perennial Ryegrass / Kentucky Bluegrass Mixture*: A certified mixture containing 60% Kentucky bluegrass, which consists of three varieties with no one variety exceeding 25% of the total mixture, and 40% perennial ryegrass, which consists of two varieties with no one variety exceeding 25% of the total mixture. Recommended seeding dates: April 1–30, August 16 to October 15.

Healthy turf provides many physical and social benefits and reduces nutrient runoff into waterways. However, turfgrass on the Mall has been and continues to be adversely impacted by demonstrations, special events, recreational activities, and the development of social trails (user-created trails off paved paths) and jogging paths. These uses have resulted in areas of destroyed turf (see the aerial photo of the Mall), broken sprinkler systems, and soil compaction. Soil compaction may be the largest factor affecting vegetation in the park (Sherald, pers. comm., 2007). The condition of the lawn on the Mall (from 3rd to 14th streets) is chronically in fair to poor condition (NPS 2006d). Reseeding attempts after large events have been prone to failure due to soil compaction, nonfunctioning irrigation systems, and continued heavy use. The National Park Service uses two approaches to turf maintenance — turf recovery and turf renovation. If the grass is 50% or more destroyed, then a complete renovation is conducted that involves killing all remaining vegetation and replanting. Turf renovation consists of aeration, overseeding, fertilization, and thatching.

Proper irrigation and fertilization practices, including regular applications of nutrients (based on soil tests), are essential for turfgrass survival and recovery. The timely provision of nitrogen-based compounds increases turfgrass growth and density. Annual applications of lime may also be needed to maintain the soil pH in an acceptable range (6.0–6.5) for adequate nutrient availability to the turfgrasses (Turgeon 2006). Soil-amendments with light-weight materials (e.g., expanded slate and sintered fly-ash) increased soil pore space in long-term tests at Hains Point in East Potomac Park (NPS 1975).

One way to reduce impacts on turfgrass is to control the level of traffic over a certain area. Proper traffic circulation management involves controlling both pedestrian and vehicular traffic on or around the turf so that traffic thresholds (i.e., maximum tolerable traffic intensities) are not exceeded. This can be done by reducing traffic intensity to a level below the damage threshold by various cultural interventions (Turgeon 2006). Another method might include seeding with more resilient Bermuda grass. However, this grass turns brown in the winter. Annual or perennial ryegrass could be planted in the fall to provide green lawns in winter, which would be replaced with the Bermuda grass when it comes back in spring.

The park maintains all vegetation, including turfgrass, trees, and other plantings, by using the NPS integrated pest management system. Goals of this system include protecting the Chesapeake Bay watershed by minimizing toxicants.

FIGURE 43: LANDSCAPE CONDITIONS, APRIL 2002



Grass on the Mall in front of the Smithsonian Castle has been affected by intense use.

Photo courtesy of U.S. Geological Survey.

The National Park Service closes half of the Mall area every winter for a half year of rest and rehabilitation. In fall 2007 rehabilitation efforts on the east end of the Mall included trial approaches in different areas that included more intense restoration. The most intensively treated area had a visibly healthy stand of predominantly weed-free turf until the first events took place.

FISH AND WILDLIFE

Most of the National Mall has been disturbed and landscaped, resulting in relatively poor quality habitat for terrestrial or aquatic animals when compared to undisturbed habitat. The D.C. Department of the Environment has classified some of the National Mall as “Pond and Pool” and to a lesser extent “River and Stream” habitats (DC 2007). There are no undisturbed native habitat types in the planning area.

The Potomac and Anacostia rivers and several streams provide habitat for 62 species of greatest conservation need, making these areas a high priority habitat (DC 2006). All wildlife species use the rivers and streams in some way, and the health of the rivers and streams affects most fish and wildlife species.

Fish species in nearby Rock Creek include two anadromous species that migrate from salt water to spawn in Rock Creek — the blueback herring and the alewife. The American eel is the only species found locally that lives in either fresh or brackish water. Eels migrate to the Sargasso Sea to spawn (catadromous). Other native fish that inhabit the area include shiners, catfish, sunfish, and bass. Nonnative species include carp and snakehead.

Constitution Gardens Lake has self-maintaining populations of largemouth bass, black crappie, bluegill, and yellow perch. Catch-and-release fishing is allowed. Some filamentous algae species in the lake provide food, shelter, and shade for the fish, but the uncontrolled growth of these species and blue-green algae can be detrimental to fish and water quality.

Recreational fishing is allowed in the Tidal Basin and Potomac River. However, urban pollution has adversely affected regional fish diversity and population numbers (NPS 2005f). PCBs and

other chemical contaminants continue to be found in some fish caught in the Potomac and Anacostia rivers and their tributaries, including Rock Creek (DC Department of Health 2002).

Common urban species of small birds include native songbirds as well as nonnative house sparrows, pigeons, and starlings. Larger native species include crows, common grackles, cormorants, loons, grebes, and gulls. Many birds of prey, such as bald eagles, osprey, peregrine falcons, and several species of hawks, are seen regularly. Great blue herons are also common, and a great egret is seen occasionally. Roaches Run Waterfowl Sanctuary, across the Potomac River from East Potomac Park, attracts many migratory waterfowl species.

Two species of birds are a management concern — Canada geese and ducks. The birds have adapted to human presence and have become year-round, non-migratory residents. Large groups of Canada geese are present year-round near the Potomac River, Constitution Gardens Lake, and the reflecting pools. Ducks were introduced to the area for recreational hunting purposes. Bird droppings foul waters and make lawns unattractive to human uses.

Resident wildlife includes mammals such as gray squirrels, bats, Eastern chipmunks, and Norway rats. They have become adapted to life in an ur-

ban environment and utilize nonnative vegetation for habitat needs. To some extent they have come to rely on human leftover food. When rats and squirrels are too numerous or aggressive, they become a management problem.

The open lawns and trees provide foraging habitat for several species of bats. During a recent bat inventory conducted by the National Park Service, an eastern red bat was caught in a net and three other species were heard using bat detectors — big brown bats, hoary bats, and eastern pipistrelles.

Other species that may be seen in the area include raccoons, beavers, red foxes, and white-tailed deer. Deer are infrequently seen swimming across the Potomac River from Virginia. River otters and muskrats may also be in the area.

In 1985 gray squirrels were so numerous in President's Park that they were damaging trees and flowering plants, so the National Park Service started a relocation program (Manski et al. 1981). Congregations of pigeons and gulls result in large accumulations of droppings that cover benches, statues, walkways, and plantings, causing aesthetic problems for visitors, corroded metal, and damaged painted surfaces.

DEMONSTRATIONS, SPECIAL EVENTS, AND NATIONAL CELEBRATIONS

BACKGROUND INFORMATION

The Importance of the Venue

The National Mall is a place where Americans have gathered for generations to celebrate, make their opinions known, and commemorate significant events. Popularly known as America's front yard, it is a place where citizens come together to organize events that celebrate achievements, bring focus to important issues, and provide opportunities for education. Lying between the U.S. Capitol, the Washington Monument, the national museums of the Smithsonian Institution and the National Gallery of Art, it is the nation's foremost people's space. There is no other place that conveys an equal sense of national purpose or belonging.

First Amendment demonstrations, special events, and national celebrations, and such events are permitted by the National Park Service in accordance with the *Code of Federal Regulations* (see page 16). The *NPS Management Policies 2006* define these uses, as well as fireworks displays, filming, and photography, as special park uses (NPS 2006e, sec. 8.6).

Special events and demonstrations are generally open to the public. Participation is limited only by the numbers of people that can be safely accommodated. Locations that are closer to the subway system may facilitate access and participation. The Mall, Union Square, and the Washington Monument are the areas with the easiest access to public transportation and the most popular locations for special park uses.

Regulations

Reasonable time, place, and manner regulations have evolved, and some of them have been tested, upheld, or modified through judicial proceedings. As previously described, the *Code of Federal Regulations* addresses public use limits (36 CFR 1.5; see page 16).

Specific requirements of the National Capital Region as they apply to the National Mall are

stated in 36 CFR 7.96. The regional director may impose reasonable restrictions on the use of temporary structures in the interest of protecting park areas, traffic, and public safety. This has resulted in *Requirements for Special Events Held on Parkland in the National Capital Region*, supplemented by *Standard Public Health Requirements for Temporary Food Establishments Operating in Conjunction with a Special Event Held on Parkland in the National Capital Region*. These two documents set requirements for submittals, resource protection, site plans, first aid, portable restrooms, signs, food, onsite supervision and security, liabilities, prohibition of glass containers, media, and other necessities. Within the National Mall and Memorial Parks, the 2009 *Guidelines for Special Events and Demonstrations* for the Lincoln Memorial establish procedures to protect resources at the memorial, and the 2006 "Record of Decision for Partial and Temporary Closure of a Portion of the National Mall (the Mall) for Turf Renovation" schedules the annual fall/winter closure of half the Mall for turf renovation.

NPS and NCR requirements and restrictions applying to all activities on the National Mall have not been consistently followed. For example, tent stakes are not to be installed any more than 18 inches into the ground, and no structures or parking, or equipment operated, within tree root zone areas.

Number and Size of Events

Thousands of special events take place annually on the National Mall. The event size and complexity determine the need for additional planning, submittals, and the need to provide facilities and services. The majority of demonstrations and special events are smaller, with expected attendance of 5,000, but more than 500,000 people can come to a major national celebration, such as the Fourth of July. Each year about two dozen events exceed 25,000 people. Attendance estimates are inaccurate on some permit applications; for example, organizers for large annual events (such as the Fourth of July

and the American Folklife Festival) may list expected attendance in the thousands, while hundreds of thousands of visitors usually attend; while for other events attendance falls short of estimates.

To provide a sense of the level of use that the National Mall receives, the National Park Service analyzed data for 2008 and 2009 related to permitted special events. This includes national celebrations and First Amendment activities, but not permits for commercial filming or for organized sporting activities, which are permitted either through the D.C. Department of Parks and Recreation or the National Park Service. The data show that more than 30 events are permitted every day throughout the National Mall. Table 9 shows the number of permits issued each year was similar (1,155–1,160), while total permit-days and event-days decreased by about 1,500; however, estimated participation in 2009 increased by 1.2 million.

TABLE 9: EVENT DATA FOR THE NATIONAL MALL — 2008 AND 2009

	Number of Permits	Total Permit-Days*	Total Event-Days*	Total Estimated Participation
2008	1,160	13,319	13,254	2,059,349
2009	1,155	11,815	11,723	3,270,090

SOURCE: National Mall and Memorial Parks.

* Permit-days include setup and takedown time; event-days include only the days an event actually takes place.

Special use permits are issued for some 48 locations throughout the National Mall, and some permits (such as those for marathons or triathlons) are for multiple locations. For each loca-

tion, the National Park Service tracks the number of permits, which shows the relative popularity of, and demand for, specific venues. Sometimes an event may be connected to a specific site, such as wreath laying at a memorial, or fishing day at Constitution Gardens Lake. Some venues may not be as desirable because iconic symbols are not present in views, their size is limited, or they are too far from transit. The top venues used in 2008 and 2009 are shown in Table 10.

An analysis of the statistics for 2009 shows the following:

- While the Lincoln Memorial Reflecting Pool had the most permits (138), each event averaged only about 3,000 participants.
- The Mall had the second highest number of permits (115), and each event averaged about 13,750 participants.
- Of the top sites, the Washington Monument grounds actually sustained the largest average event size (21,000).
- Places like Henry Bacon Drive and the JFK hockey fields had large average event sizes (14,000–36,000), but relatively few permits.
- Underused areas include the D.C. War Memorial (235 estimated participants), Constitution Gardens (about 2,800 participants), and the Franklin Delano Roosevelt Memorial (5,000 participants).

Comparing permit data for 2008 and 2009, 70.2% of events had 100 or fewer estimated participants, about the same number as in 2009

TABLE 10: TOP VENUES FOR PERMITTED EVENTS — 2008 AND 2009

Area	Number of Permits		Number of Permit-Days		Total Estimated Participants	
	2008	2009	2008	2009	2008	2009
1. Mall	112	115	630	821	1,033,000	1,582,000
2. Washington Monument Grounds	65	74	241	471	310,000	1,565,000
3. Lincoln Reflecting Pool	58	138	301	203	55,000	418,650
4. Multiple Areas	1	2	160	14	100,000	370,000
5. Roads and sidewalks	22	19	42	48	152,000	259,000
6. JFK Hockey Fields	5	7	32	254	11,800	252,700
7. Union Square	39	28	149	178	84,000	129,000
8. Henry Bacon Drive (Lincoln Memorial)	na	8	na	12	na	113,000
9. Lincoln Memorial	27	9	92	54	10,000	111,000
10. West Potomac Park	27	20	70	58	32,000	95,000

Total estimated participation rounded to the nearest thousand.

na — not available.

FIGURE 44: FIRST AMENDMENT DEMONSTRATION AT THE U.S. CAPITOL AND FLOWING OVER TO UNION SQUARE AND THE MALL



Attendance at events may fall short of estimated participation or exceed estimates.

(71.3%). In 2008, 9.8% of events had 1,000 or more estimated participants, which was similar to 2009 (9.9%). However, the number of estimated participants may not reflect the actual attendance. For example, the estimate for the 2009 Presidential Inauguration was 370,000, but actual attendance was estimated at 1.8 million, including those along Pennsylvania Avenue. An event permit for September 12, 2009, for Freedom Plaza listed an estimated attendance of 5,000 people. However, several times that number of people marched from Freedom Plaza to the west side of the U.S. Capitol for a rally (see Figure 44). These examples underscore the difficulty in finding ways to protect resources as well as accommodate high levels of visitor use.

The National Park Service also mapped 2009 special events that were estimated in advance to attract more than 1,000 participants and were taking place on the Mall (Mall and Union

Square) and on the Washington Monument grounds. These locations were selected because they received the majority of use that takes place primarily on turf. The maps do not include participants for the 2009 Presidential Inauguration. The maps show the number of people, the total number of days, and the total number of estimated participants by season.

- *Total number of permit-days* — The number of permit-days illustrates that the length of events on the Mall (33–119 days) was much higher than at Union Square (10 days) or the Washington Monument grounds (10–52 days).
- *Total number of estimated participants* — The highest levels of event participation occurred on the Mall from 4th to 7th streets and from 9th to 14th streets (south side of the Mall) and included national celebrations (the Fourth of July celebration and the Smithsonian Folklife Festival), as well as the Public Employees Roundtable, the Solar Decathlon, and the Library of Congress Book Festival. The second highest levels of use were from 7th to 9th streets and from 9th to 14th streets (north side of the Mall), and these levels of use were comparable to the southwest quadrant of the Washington Monument grounds, where an annual Fourth of July concert takes place.
- *Total number of estimated participants by season (spring, summer, and fall)* — During every season the Mall from 4th to 7th streets consistently attracted more than 60,000 people to events (more than 80,000 in spring and summer). During summer all of the Mall from 7th to 14th streets attracted more than 80,000 event participants, while in fall most use was concentrated on the south side of the Mall. (Winter use was not tracked because, with the exception of the Presidential Inauguration, no events attracted more than 1,000 participants.) On the Washington Monument grounds summer event participation exceeded 60,000.

Comparing summer use levels on the Washington Monument grounds with the number of permit-days illustrates two points: (1) large volumes of people attend events that are of shorter duration; and (2) permits for special

events on the Washington Monument grounds are concentrated at the Sylvan Theater.

Time Frame

Demonstrations and special events are limited to four months (36 CFR 7.96(g)(4)(ii)). Demonstrations may be extended unless another applicant's use precludes double occupancy. Time limits listed for specific special events are

- Lighting of the National Christmas Tree and Christmas Pathway of Peace — 4 weeks, plus setup and takedown between October 1 through February 1
- Cherry Blossom Festival — 2 weeks, plus 2 weeks for setup and takedown
- Fourth of July Celebration — 3 weeks, including setup and takedown
- Smithsonian Folklife Festival — 2 weeks, plus 8 weeks for setup and takedown

Other national celebrations that require lengthy setup and takedown times include inaugural ceremonies. The Lighting of the National Christmas Tree and Christmas Pathway of Peace (formerly the Pageant of Peace) takes place on the Ellipse in President's Park.

FIRST AMENDMENT ACTIVITIES

First Amendment demonstrations comprise an essential democratic right of citizens on the National Mall. As previously mentioned, the Mall's "location in the heart of our nation's capital makes it a prime location for demonstrations. . . . As the court has stated before, 'It is here that the constitutional rights of speech and peaceful assembly find their fullest expression'" (*Friends of Vietnam Memorial v. Kennedy*, 116 F.3d 495, 496 (D.C. Cir. 1997), quoting *ISKCON of Potomac v. Kennedy*, 61 F.3d 949, 952 (D.C. Cir. 1995)).

Demonstrations are usually thought of as political protests; however, they can address or support virtually any side of any issue. The National Mall accommodates over 1,000 First Amendment demonstrations annually. Demonstrations in 2008 included prayer vigils, peace vigils, religious activities and services, anti-war demonstrations, rallies to support the military

troops, support for Latin American citizens, the Longest Walk II, Children's Defense Fund, saving the salmon fishery, Amnesty International, support for Falun Gong, Greek unity, march for the U.S. Constitution, Guantanamo prisoners, march for life, vegetarian benefits, concern about torture, and Million DJ march.

While demonstrations generally last for a short time, are attended by a few hundred people, and require few temporary facilities, attendance can range up to 10,000, and some demonstrations can attract hundreds of thousands and even spawn counter demonstrations. Participants typically hand out literature in support of their cause.

Demonstrations are permitted in most areas of the National Mall, and areas can be reserved on a first-come, first-served basis. Demonstrations of less than 25 people generally do not require a permit. To protect the sanctity of visitor experiences in memorials, demonstrations are not allowed inside the ring of flagpoles at the Washington Monument, inside the Lincoln Memorial and the Thomas Jefferson Memorial, and near the Vietnam Veterans Memorial (36 CFR 7.96(g)(3)(ii)).

The Mall and Union Square are popular venues because visual backdrops include symbols of power (the U.S. Capitol) and symbols of our nation (the Washington Monument). The Washington Monument grounds also include visible backdrops or symbols of the nation — the Washington Monument, the White House, the Lincoln Memorial, the Thomas Jefferson Memorial, and a layered view of the World War II Memorial, the Lincoln Reflecting Pool, and the Lincoln Memorial. These areas are conveniently accessible to the Metro system.

The Lincoln Memorial is a prime location for demonstrations related to freedom, equality, or civil rights because of its commemoration of the Great Emancipator, and it has been the site of several historic events, including the 1939 concert by Marian Anderson, the 1963 "I Have a Dream" speech by Dr. Martin Luther King Jr., and the 1968 Poor People's Campaign.

**2009 Large-Scale Permitted
Activities: Total Number of
Permit-Days**

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**2009 Large-Scale Permitted
Activities: Total Number of
Estimated Participants**

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2009 Large-Scale Permitted
Activities: Total Number of
Estimated Participants by
Season

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Small structures related to the Vietnam Veterans Memorial, previously located near the west end of the Lincoln Reflecting Pool, are First Amendment demonstrations related to the military, the memorial, and those missing in action. These structures were relocated to complete construction on the Lincoln plaza.

NATIONAL CELEBRATIONS

National celebration events on the National Mall, which are generally very well attended, include the National Cherry Blossom Festival, the Fourth of July celebration, the Smithsonian Folklife Festival, and inaugural activities. In 2007 the National Mall and Memorial Parks undertook independent operational assessments of two national celebrations, the National Cherry Blossom Festival and the Fourth of July celebration. As a result of these assessments, a number of operational changes were made in 2008, including the location of portable restrooms and frequency of service, as well as public parking and circulation.

The National Cherry Blossom Festival is synonymous with spring in the nation's capital, and an estimate 2-4 million people annually attend the approximately two-week festival. The narrow walks around the Tidal Basin are overwhelmed and people trample the roots of the cherry trees they have come to admire. Performances take place daily on a stage on the Thomas Jefferson Memorial plaza; food, portable restrooms, and information are provided in several areas around the Tidal Basin. In 2008 the Tidal Basin parking lot (141 spaces) was closed and many temporary facilities relocated to the paved parking lot to reduce the impact of the celebration. Additional post-and-chain fencing reminded many visitors to stay away from tree roots. A free shuttle bus provided access to and from nearly 800 parking spaces in East Potomac Park, and parking for bicycles was increased.

The Fourth of July celebration attracts around a half a million people during a single day and evening and requires a great deal of logistical preparation. Some roads are closed during the entire day (Madison and Jefferson drives) and others (14th, 15th, and 17th streets, and Independence and Constitution avenues) are closed during the evening. Visitor services are

supplemented with portable restrooms, mobile food carts, and first-aid and information stations.

For the Fourth of July there are two evening concerts (one on the west lawn of the Capitol and the other on the Washington Monument grounds) that are timed so the finale is highlighted by the fireworks display. Fireworks are staged from the reflecting pool, so nearby areas are closed for public safety, and the World War II Memorial is closed in the afternoon. In 2006 and 2007 there were weather-related evacuations that tested emergency preparedness, shelter procedures, and effectiveness of mass notification. The typical Fourth of July celebration results in nearly 30 tons of trash that must be removed by the next morning.

The midsummer Smithsonian Folklife Festival has been taking place since 1967 and coincides with the Fourth of July celebration. Sponsored primarily by the Smithsonian Institution, with assistance from the National Park Service, the festival has been expanded to include international as well as American folklife. Temporary event facilities, such as tents and stages, are located in the elm tree panels to take advantage of shade (approximately a 10 degree cooling effect), even though no such facilities are allowed within any tree canopy by NPS National Capital Region requirements. Some utilities have been developed for festival use.

SPECIAL EVENTS

In accordance with NPS regulations at 36 CFR 7.96(g), special events may be permitted "when (1) there is a meaningful association with the park area and the event, and (2) the event will contribute to understanding of the significance of the park area" (NPS 2006e, sec. 8.6.2.1). They will be denied when they would result in unacceptable impacts, such as impeding the ability to achieve desired natural and cultural resource conditions, diminishing opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values; or unreasonably interfering with park programs or activities, an appropriate use, the atmosphere of peace and tranquility, or NPS concessioner or contractor operations (NPS 2006e, sec. 1.4.7.1). The park has discretionary

authority to allow and manage authorized uses that will not cause impairment or unacceptable impacts, and should consider presidential and congressional interest and enabling legislation or proclamation (NPS 2006e, sec. 1.4.3.1).

Numerous special events take place annually on the National Mall. Some special events have an association with the National Mall, such as annual commemorative ceremonies related to park areas or memorials, including Veterans Day commemorative ceremonies and birthday ceremonies for George Washington, Thomas Jefferson, Abraham Lincoln, and Franklin Delano Roosevelt. Ceremonies generally take place in or near memorials on pavement, and the impact of these events is limited. Military concerts and performances of patriotic music by visiting school groups also take place at the Lincoln Memorial, the Thomas Jefferson Memorial, the Sylvan Theater, and other areas.

Some cultural or educational events are associated with nearby federal facilities, such as the Library of Congress Book Festival (estimated attendance 50,000), or simulcasts with the Kennedy Center for the Performing Arts. The Library of Congress Book Festival, held in the autumn, is a more recent tradition and has grown annually for more than five years. Kennedy Center simulcasts are held at various locations on the National Mall. The National

Park Service also supports three annual National Symphony Orchestra concerts on the west lawn of the U.S. Capitol, each of which attract many tens of thousands of people.

The Solar Decathlon, which has been held every two years, brings together national and international institutions of higher learning to compete in the design and operation of small solar houses they have built offsite. Each spring the Public Employees Roundtable is a recognition and recruitment event with information and education, with displays by federal agencies on the National Mall. Large tents cover the entire center grass panel, and vehicles and military equipment are on display. There are no accurate estimates for these events, but tens of thousands of people usually attend.

Some events celebrate or honor a group's identity, such as Black Family Reunion (annual two-day weekend, with the permit listing 100,000). Other events honor rites of passage or significant individual celebrations, such as college graduations, weddings, enlistments/reenlistments, and citizenship ceremonies. Other events provide information about various conditions (cancer, diabetes, HIV) and offer opportunities for interested people to gather.

Inauguration Day 2009 — Lessons Learned from a Unique National Celebration

For the inauguration of Barack Obama on January 20, 2009, preparations were made for unprecedented crowds on the National Mall. The Lincoln Memorial was used for pre-inaugural concert on Sunday, when it is estimated that over 500,000 people attended and were concentrated from the Washington Monument west to the Lincoln Memorial. The inauguration ceremony took place on the west side of the Capitol on Tuesday, and an estimated 1.8 million people attended, including those along Pennsylvania Avenue. On the National Mall people were concentrated east from the Washington Monument grounds.

Resource Protection

United States Park Police, with assistance from local, state, and federal agencies, provided law enforcement services. The National Park Service increased the number of uniformed park rangers and guides in anticipation of large crowds. There were no arrests. Jumbotrons were strategically placed throughout the National Mall, but a small percentage of the attendees did climb trees to get better views.

Steps taken to protect memorials included temporary fencing to guide pedestrian flow, additional staffing to monitor resource preservation issues, and temporary environmental monitoring equipment in the Lincoln Memorial for the effects of additional lighting for the opening ceremonies. Staging on the National Mall and near the Lincoln Memorial used hardscape as much as possible, and the primary east-west viewshed was maintained. Staging at the Lincoln Memorial was installed with protection for the memorial steps and plaza.

Public Access and Wayfinding

Advance media notices were made about access, openings, and closures of roads and subway stations. Public access was by subway, bus (public or tour), walking, and bicycle. On January 20 Metro provided about 1,120,000 rail trips, 423,000 bus trips, and 1,721 Metro-Access trips (for people with disabilities who cannot use public transpor-

tation), for a total of 1,544,721 trips, the highest ridership day ever in WMATA's history (WMATA 2009). Subway announcements provided information about locations, but because of the crowds and talking, the announcements may not have been widely heard.

On inauguration day crowds began arriving by 4 a.m., and the Mall area had to be closed by 9:15 a.m. because crowds had reached unsafe levels. While many law enforcement and military staff were present to guide people to and from the National Mall, coordinated information to help pedestrians find available space was insufficient, as was accurate information about the status of Metro stations. Hundreds of pedestrians holding tickets to restricted areas on the east end of Mall were unable to reach their destinations. Areas west of 15th Street could have accommodated more people during the inaugural ceremony.

Attended bike valet parking was provided, but use was not required. In some areas people locked bikes to any structure they found, which affected pedestrian circulation.

While arrivals were staggered over many hours, crowds left on both Sunday and Tuesday in one concentrated mass, proving very difficult to manage. More electronic signs would have helped guide people to open subway stations. The Smithsonian Institution museums were very crowded after the ceremony, with people sitting and sleeping under exhibits.

Visitor Experience

Numerous media broadcast from mobile studios on the Mall. More than 20 jumbotrons were dispersed around the National Mall to accommodate expected attendance. However, more large screens would have facilitated viewing both the concert and the inauguration.

The National Park Service printed cards with educational information about the inaugurations of the five presidents with memorials on the National Mall — George Washington, Thomas Jefferson, Abraham

Lincoln, Ulysses S. Grant, and Franklin Delano Roosevelt. Commemorative buttons were also handed out.

Visitor Amenities

Restrooms — About 5,000 portable restrooms were dispersed throughout the area expected to receive the greatest use. These facilities were sufficient, and they were kept well stocked (toilet paper, hand sanitizer dispensers) and clean. However, long lines at restrooms in adjacent museums and at the Washington Monument grounds indicated that people preferred not to use portable restrooms.

Food Service — In addition to 10 refreshment stands, there were 12 tents selling food and or souvenirs. A total of 140,000 hot dogs were sold, 170,000 sodas, along with hot cocoa, Italian sausages, coffee, water bottles, and candy bars.

Retail — While the NPS concessioner was authorized to sell official Presidential Inaugural Committee souvenirs, there appeared to be many impromptu sellers of souvenirs without permits.

Public Health, Safety, and Security

Only 30 children were reported lost and reunited with their parents. First-aid tents provided service to hundreds who were not prepared for the cold weather. No arrests were reported.

Vision and breathing for some visitors on the Mall was affected by dust whipped up by winds after the inaugural ceremony.

Park Operations

Between 95 and 100 tons of trash and debris were picked up by the next morning. In addition to permanent trash containers, 300 special recycling containers were provided, and numerous cardboard boxes were available. Attendees used many of the boxes for insulation from the frozen ground.

The turf on the Mall and in other areas was destroyed, and the lack of turf cover throughout large areas contributed to windblown dust.

FIGURE 45: THE 2009 PRESIDENTIAL INAUGURATION AND ITS AFTERMATH



About 5,000 portable restrooms were brought in.



Between 95 and 100 tons of trash were removed.

ACCESS AND CIRCULATION

The National Mall is located in the midst of Washington, D.C.'s, urban circulation network. This network affects all users — whether they are pedestrians, motorists, transit users, tour bus users, or bicyclists and regardless of whether the purpose of their access is to visit the National Mall, commute to work, or travel between urban destinations.

PUBLIC ACCESS

Road Network

The road system in Washington, D.C., is an irregular grid overlaid by diagonal avenues. Along with the great civic open space of the National Mall, the road system defines the form of the capital city. Primary commuter routes that link to principal arterial entrances into the city include both park and city roads. Roads under NPS jurisdiction within the National Mall include 15th Street / Raoul Wallenberg Place, Maine Avenue, portions of 17th and 23rd streets, and Independence and Constitution avenues west of 15th Street. Roads under city jurisdiction include portions of Independence and Constitution avenues east of 15th Street, and 3rd, 4th, 7th, and 14th streets, which cross the Mall. Roads under the full jurisdiction of the National Park Service include Ohio Drive, East Basin Drive, West Basin Drive, and Jefferson and Madison drives.

The eastern half of the National Mall is shaped by the formal road patterns associated with the historic L'Enfant plan. Principal diagonal arterials converge near Union Square, where Maryland and Pennsylvania avenues terminate near 1st Street. Other roads, like 23rd Street, connect the National Mall to the city road system. A few road sections introduce a new form and include symmetrical curves or help emphasize important structures, such as the Washington Monument or the Smithsonian Castle.

The western half of the National Mall is largely the result of mid-20th century efforts to accommodate automobile traffic, with vehicular access by way of various bridges and a series of principal arterials. As a result, the McMillan plan's

Constitution Avenue, which originally terminated at a belvedere near the Potomac River, was reconfigured to connect to the Theodore Roosevelt Memorial Bridge / I-66.

Commuter Routes

Roads around the National Mall provide access to critical commuter routes into Washington, D.C., including I-395, US 1 (14th Street through the Mall), I-66, and US 50, as well as Rock Creek Parkway, Canal Road / Whitehurst Freeway / I-66, George Washington Memorial Parkway, and Maine Avenue. Three heavily used bridge corridors across the Potomac River feed traffic into the vicinity of the National Mall. From north to south these include the Theodore Roosevelt Memorial Bridge, the Arlington Memorial Bridge, and the I-395/14th Street Bridge corridor. The latter corridor consists of five bridges; three of the bridges (the George Mason, Rochambeau, and Arland D. Williams Jr. memorial bridges) are four-lane automobile bridges that carry I-395 and US 1 traffic. These three roadways merge in East Potomac Park and split into two 2-way bridges — the 14th Street bridge carries northbound traffic onto 14th Street, and the Francis Case Memorial Bridge carries I-395 (and southbound US 1) traffic onto the Southwest Freeway. Two additional bridges across the Potomac River at this location carry rail traffic, one the Metro Yellow Line and the other a main line railroad. The Metro line enters a tunnel in East Potomac Park, and the main line railroad passes over I-395 and runs over the Washington Channel just downstream of the 14th Street approach before turning northeast along Maryland Avenue.

In 2007 the three bridge corridors that feed traffic into the vicinity of the National Mall carried over 374,000 vehicles on the average weekday — approximately 104,000 vehicles on the Theodore Roosevelt Memorial Bridge, 68,000 on the Arlington Memorial Bridge, and 202,000 on the I-395/14th Street bridges (see Table 11; DDOT 2008c). Nearly 32,000 vehicles used the Potomac River Freeway on a daily basis, and 16,000 the Rock Creek and Potomac Parkway. The section of 14th Street within the National Mall carries

TABLE 11: AVERAGE ANNUAL WEEKDAY TRAFFIC VOLUMES IN AND AROUND THE NATIONAL MALL — 2002, 2006, AND 2007

(expressed in thousands, rounded to the nearest 100)

Area	2002	2006	2007
Bridges			
Theodore Roosevelt Memorial Bridge	100.0	105.1	103.6
Arlington Memorial Bridge	73.0	69.3	68.3
I-395/14th Street Bridge Corridor	250.0	213.4	202
Total	423.0	387.8	373.9
Parkway / Freeway			
Rock Creek & Potomac Parkway	NA	16	15.8
Potomac River Freeway	NA	30.4	31.6
Streets within the National Mall			
North-South Streets			
3rd Street	17.0	15.8	15.6
4th Street	7.5	7.8	7.8
7th Street	16.1	16.7	16.5
14th Street	37.2	44.3	45.8
15th Street	21.8	14.2	14
17th Street	25.1	25.7	25.4
23rd Street	22.6	22.9	22.6
Henry Bacon Drive	17.4	13.1	12.9
Subtotal	164.7	160.5	160.6
East-West Streets			
Jefferson Drive	7.0	7.3	7.3
Madison Drive	9.7	10.1	10.1
Lincoln Circle — North	NA	58.2	57.3
Lincoln Circle — South	NA	7.8	7.6
Constitution Avenue — 17th–23rd Streets	47.0	48.9	48.2
Independence Avenue in West Potomac Park	34.1	22.1	21.8
Independence Avenue to Maine Avenue	44.1	43.7	40.5
Subtotal	141.9*	198.1	192.8
Total All Surface Streets (Highest Segments)	306.6*	358.6	353.4
Mall Tunnels			
2nd Street/I-395	117.7**	98.9	107.1
9th Street	17.4	17.6	17.4
12th Street	20.9	18.2	17.9
Total	156.0	134.7	142.4
Adjacent Streets			
Constitution Avenue east of 15th Street (highest segment)	32.7	37.6	37.1
Independence Avenue east of 15th Street (highest segment)	23.4	23.8	29.3

SOURCE: DDOT 2003b, 2008c, 2008d.

NOTE: Traffic volumes are given for segments of streets; the highest segment traffic volume was used for the purposes of calculating total traffic volume.

NA — Not available.

* Counts for Lincoln Circle not available.

** I-395 headed into tunnel.

approximately 46,000 vehicles on a daily basis (DDOT 2008c). The highest used segment of Independence Avenue west of 15th Street carried about 22,000 vehicles and the highest used segment east of 15th about 28,000 vehicles. The highest used segment of Constitution Avenue west of 15th Street carried more than 48,000 vehicles, and the highest used segment east of 15th Street carried nearly 30,000 vehicles (DDOT 2008c). Altogether average annual daily traffic on surface roads traversing the National Mall in 2007 was about 300,000 vehicles. In

addition, three tunnels — at 2nd, 9th, and 12th streets — go under the National Mall and provide freeway or expressway connections to I-395. In 2007 the average annual daily traffic for these tunnels was more than 142,000 vehicles.

Commuter Mode of Access

In 2007 the Washington Metropolitan Council of Governments published the *2007 State of the Commute Survey Report*, which showed modes of access used by commuters (Commuter Connections 2008). As shown in Table 12, more than

two-thirds of commuters drive private vehicles or motorcycles, followed by trains, including the Metro, car or van pools, bus, and biking or walking. Between 2001 and 2007, driving has decreased slightly, while use of mass transit (rail and bus) has increased. Studies by WMATA show the present system can accommodate more passengers.

TABLE 12: REGULAR MODE USE — PERCENTAGES OF WEEKLY COMMUTER TRIPS

	2001	2004	2007
Drive Alone / Motorcycle	72.6%	74.1%	71.0%
Car Pool / Van Pool	7.6%	6.1%	7.6%
Bus	4.6%	4.7%	5.2%
Train / Metro	12.7%	12.8%	13.5%
Bike / Walk	2.4%	2.3%	2.7%

SOURCE: Commuter Connections 2008.

Visitor Access

The 2008 visitor study asked how visitors traveled to the National Mall from overnight accommodations. Respondents used multiple forms of transportation to travel between their overnight accommodations and the National Mall (see Table 13). With multiple responses allowed in a selection of 10 forms of transportation, the most used were public transportation (52.0%), followed by walking (39.3%) and private vehicles (36.7%). Those selecting other (4.1%) were most likely to indicate a hotel shuttle.

TABLE 13: FORMS OF TRANSPORTATION VISITORS USED BETWEEN THEIR ACCOMMODATIONS AND THE NATIONAL MALL

Form of Transportation	Response Frequency	Percentage
Public transportation	328	52.0
On foot	246	39.3
Private vehicle	230	36.7
Taxi / limousine	70	11.2
Sightseeing bus	67	10.8
Tour motorcoach / bus	57	9.1
Rental vehicle	41	6.6
Other	25	4.1
Bicycle	13	2.1
School bus	0	0.0

SOURCE: NPS 2009.

Driving Conditions

First-time National Mall visitors who are driving may be traveling at slower speeds because they are unfamiliar with the area and are looking for

landmarks, and they may expect a more relaxed park driving experience instead of a highly congested urban traffic experience.

Speed limits on park roads are most frequently posted at 25 mph, with some sections of Independence Avenue posted at 30 mph; Jefferson, Madison, East Basin, and West Basin drives are posted at 15 mph. Speed limits on park roads are typically exceeded by 8–14 mph (DDOT 2007). City arterials such as 3rd, 4th, and 7th streets, and adjacent city arterials such as 14th, Constitution, and Independence, are posted at 25 mph (Brudis & Associates 2006).

Visitor Parking

In the spring and summer of 2003 the National Park Service conducted a survey to assess the preferences and needs of visitors regarding transportation in the Washington, D.C., metropolitan area (NPS 2003d). The survey revealed that 25% of visitors preferred to drive to the National Mall and wanted to park their vehicles. There are 1,183 public parking spaces on and near the National Mall, plus 132 spaces for visitors with disabilities (see Table 14). There are also 56 tour bus loading/unloading spaces and 9 2-hour tour bus parking spaces.

The numbers of visitor parking spaces for people with disabilities is approximately 10% of total public parking, which exceeds the 4% percent standard in the Americans with Disabilities Act. Except in very high use times visitors can usually find parking, but not necessarily close to where they want to be. The city has metered parking along the Mall cross streets (3rd, 4th, and 7th streets); however, free parking provided by the National Park Service is more desirable, and motorists may drive around until they find a free parking space. There are time limits on some parking spaces, and no parking is allowed on major commuter routes during rush hours. When cars are not moved in time, they are moved onto the boulevards and sidewalks and out of the traffic right-of-way. Some free public parking appears to be used by office workers, making it less available to visitors.

On Independence Day most parking is eliminated, and some roads are closed. The subway system provides the primary mode of travel to get more than half a million people to the

TABLE 14: NATIONAL MALL PARKING LOCATIONS

Location	Public Parking	Parking for Visitors with Disabilities	Tour Bus Loading/ Unloading	Tour Bus Parking
Parkway Drive	70			
Henry Bacon Drive			9	
Daniel French Drive		8	6	
Constitution Avenue	156	10	6	
Homefront Drive		5	3	
Madison Drive	192	22	10	
Jefferson Drive	127	27		
Independence Avenue		8		9
Tidal Basin (paddleboat area)	132	9		
Homefront Drive		5	3	
12th Street (Constitution to Madison Drive)	48			
Ohio Drive SW (Arlington Memorial Bridge to I-395)	150	5		
West Basin Drive	48	5	12	
East Basin Drive	8	5		
Raoul Wallenberg Place		6	7	
South of the Thomas Jefferson Memorial				
•Lot A	98	6		
•Lot B	72	4		
•Lot C	63	4		
Survey Lodge		2		
Ohio Drive SW (East Basin to Ohio Drive)	19			
Total	1,183	132	56	9

National Mall. In the past the National Park Service explored underground parking in the park and concluded it would never be able to provide sufficient parking to meet demand.

More than 20 years ago public underground parking was closed at several Smithsonian Institution museums. About 350 public parking spaces were closed at the National Air and Space Museum in 1983 as a result of security concerns. About 150 spaces were closed at the National Museum of Natural History in 1985. Only staff parking was provided at the National Museum of American History. While up to 550 spaces are no longer available for public parking, they and some additional parking spaces have been available to staff.

Transit Access

Since the late 1960s the Washington, D.C., metropolitan area has emphasized mass transit as the preferred means of public access and transportation to and within the city, which would reduce vehicle pollution and congestion. According to the 2003 visitor survey, 60% of visitors use the Metro rail and bus system and 75% are comfortable using public transit (NPS 2003e).

The Washington Metropolitan Area Transit Authority operates the second largest rail transit system and the fifth largest bus network in the United States (WMATA 2008b). Metrorail serves 86 stations and has 106 miles of track. Metrobus serves the nation's capital 24 hours a day, seven days a week with more than 1,500 buses, all of which are accessible to people with disabilities (WMATA 2008b). Five distinct rail lines radiate out from the downtown core, and Metrobuses feed into the Metrorail stations, creating a comprehensive mass transit network.

The Smithsonian Metro station (serving the Orange and Blue lines) is directly on the National Mall, but the station name does not tell people they have arrived at the National Mall. The accessible elevator entrance is farther away, just north of Independence Avenue. Within a 5-minute walk are four other Metro stations serving four lines (Yellow, Green, Orange, and Blue), and within a 7- to 10-minute walk three additional subway stops serving five lines (Red, Yellow, Green, Orange, and Blue).

Use at the Smithsonian Metro station, which is on the Mall, was analyzed for 2008, when 439,375 people exited through this station. (The station has two exits, one north of Jefferson

TABLE 15: EXITS AT THE SMITHSONIAN METRO STATION BY TIME OF DAY — 2008

	Morning (opening to 9:30 a.m.)		Midday (9:30 a.m. to 3 p.m.)		Afternoon (3 to 7 p.m.)		Evening (7 p.m. to closing)		Total	
	Exits	Percentage	Exits	Percentage	Exits	Percentage	Exits	Percentage	Exits	Percentage
Weekdays	61,697	41%	68,138	45%	17,271	11%	3,888	3%	151,020	34.4%
Saturdays	11,282	7%	123,429	72%	32,027	19%	5,728	3%	172,495	39.3%
Sundays	9,974	9%	85,873	74%	17,398	15%	2,583	2%	115,860	26.3%
Total Exits	82,953	19%	277,440	63%	66,696	15%	12,199	3%	439,375	100%

Drive and directly on the National Mall, and the other south of Independence Avenue.) This station receives more use on Saturdays (172,495 exits, or more than 30% of the total) than on weekdays (151,020 exits, 34%), and the least amount of use on Sundays (115,860 exits, 26%). The majority of use is between the hours of 9:30 a.m. and 3 p.m., when use varies from 45% on weekdays to 72%–74% on Saturdays and Sundays (see Table 15). It is assumed that these are the hours when most visitors to the National Mall, the Smithsonian Institution, and the National Gallery of Art would arrive.

Figure 46 shows the combined monthly exits for weekdays, Saturdays, and Sundays between 9:30 a.m. and 3 p.m. Peak usage months were March and April, which coincides with the Cherry Blossom Festival, with an average of 17,380 exits each month. The next highest months are July and June.

Several public bus routes cross the National Mall. The Circulator bus service goes around the Mall and the Washington Monument on weekends, and also provides north-south service along 7th Street. Seven taxi or pedicab pickup locations have been designated on the National Mall. Water taxis have been proposed and tried at various times since the 1960s.

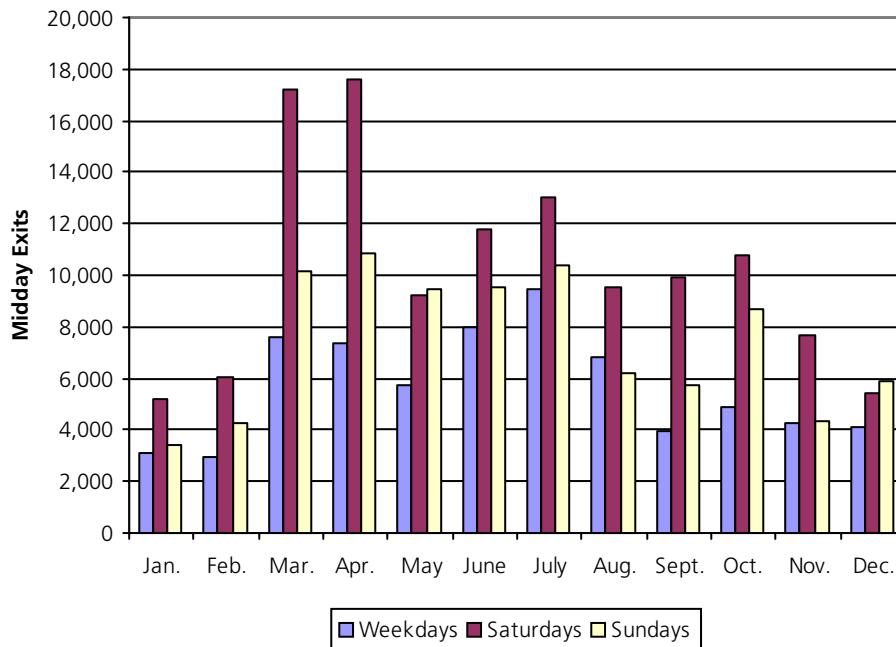
Tour and Sightseeing Bus Access
Tour Buses and School Buses

Tour and Sightseeing Bus Access

Tour Buses and School Buses

According to the local tour bus industry, up to one-third of the visitors to the National Mall

FIGURE 46: MONTHLY MIDDAY EXITS AT THE SMITHSONIAN METRO STATION — 2008
 9:30 a.m. – 3 p.m.



arrive on planned bus tours. Tour buses are defined as vehicles holding more than 15 passengers; however, the vast majority of tour buses are over-the-road coaches. The D.C. Office of Planning estimates there are 1,200 tour buses on a peak-season day. School buses are typically used by local and regional school groups.

Several companies operate sightseeing services around the National Mall, and it has been estimated that up to 1,200 tour buses travel in the District on a daily basis (D.C. Office of Planning). Through a concession contract the National Park Service offers Tourmobile, an interpretive transportation service with stops throughout the National Mall and service to Arlington National Cemetery. Tour bus pickup and drop-off locations convenient to the memorials and museums can accommodate up to 56 buses at one time. Other sightseeing buses, which include trolleys and double-decker buses, can pick up and drop off customers on the National Mall, but because of contract issues money cannot be exchanged on the National Mall. At each memorial and along Madison and Jefferson drives curbside space is allocated for tour buses, parking for visitors with disabilities, taxi cab stands, and public parking. Little to no curbside space is unallocated on the National Mall.

Tour bus parking is provided in East Potomac Park, and tour buses frequently park along Ohio Drive. Some buses use Independence Avenue for drop-offs and pickups. Outside the National Mall there are 8 off-street parking locations throughout the city and 11 curbside areas. During high-use times these locations can see a great number of people. If there are 1,200 tour

buses in the District daily, major attractions do not have adequate space to accommodate loading/unloading without causing traffic backups.

Tour bus operators frequently provide meals for their patrons, and the resulting large quantities of trash from meal boxes, bottles, etc. may exceed the capacity of trash containers near tour bus stops, detracting from the appearance of the National Mall. Trash attracts birds and squirrels, which toss garbage around, as well as vermin.

Tour Bus Parking

Based on estimates by the D.C. Office of Planning, there are 1,200 tour buses in the city daily during the peak season. Most, if not all, tours to Washington visit the National Mall, in addition to sites throughout the city, such as the National Cathedral, Georgetown, and the U.S. Capitol. There are 9 tour bus parking spaces on the National Mall along Independence Avenue (see Table 14), and an additional 10 spaces at Hains Point in East Potomac Park. Other current bus parking locations include the southwest waterfront, downtown areas, and in Virginia. The National Park Service receives numerous comments about the visual impact of tour buses affecting views on the National Mall.

To provide parking for an additional 1,180 tour buses on and the near the National Mall, the only option would be to reallocate all private vehicle parking to tours buses, including 770 spaces on Madison and Jefferson drives and on Constitution and Independence avenues.

TABLE 16: MAXIMUM STREET PARKING CAPACITY — NATIONAL MALL AND EAST POTOMAC PARK

Parking Locations	Two-Hour Turnover	Three-Hour Turnover	Four-Hour Turnover	Six-Hour Turnover
National Mall				
•Private Vehicles — 770	4,620	3,080	2,310	1,540
•Tour Buses — 255	1,530	1,020	765	510
East Potomac Park				
•Private Vehicles — 400	2,400	1,600	1,200	800
•Tour Buses — 130	780	520	390	260
Total				
Private Vehicles	7,020	4,680	3,510	2,340
Tour Buses	2,310	1,540	1,155	770

NOTE: Only street parking is included, not parking areas at the Tidal Basin or in East Potomac Park. ASSUMPTIONS: The operating day during the peak season would be 12 hours. All private vehicle parking on National Mall roads (770 spaces) and East Potomac Park (398 spaces) would be reallocated to tour bus parking, displacing these drivers. A tour bus would require approximately 60 feet of parking space, or three vehicle spaces, so the maximum number of buses that could be accommodated at one time would be approximately 385.

Assuming that each tour bus would need 60 feet to park and that each vehicle parking space is approximately 20 feet, one tour bus would occupy three vehicle parking spaces. Therefore, approximately 255 tour buses could park on the National Mall at one time, and an additional 130 in East Potomac Park. Table 16 shows the parking capacity for turnover rates ranging from two hours to six hours, assuming a 12-hour operating day. A four-hour turnover rate would allow an estimated 1,155 tour buses to be accommodated on and near the National Mall during a peak-season day, while approximately 3,510 private vehicles would be displaced. The National Park Service will continue to work with the District of Columbia, Destination DC, and other visitor industry stakeholders to identify tour bus management solutions that would meet the needs of all regional destinations, both public and private. Many initiatives, such as tour bus parking at Union Station and at RFK Stadium, have been explored, and additional collaborative efforts are needed to resolve this issue beyond the boundaries of the National Mall

NPS Interpretive Visitor Transportation

Tourmobile, the NPS concession-run interpretive visitor transportation service, has provided a range of bus services on and around the National Mall since the late 1960s. There is all-day hop-on / -off service on the National Mall route (12 stops) plus a one-way route between Arlington National Cemetery and Union Station. There is also a supplementary special visitor route at Arlington National Cemetery. In 2006 the National Park Service completed the *Visitor Transportation Study*, as described in “Interrelationships with Other Plans and Projects.”

THE PEDESTRIAN ENVIRONMENT

According to a Brookings Institution Survey, Washington, D.C., ranked as the most walkable urban metropolitan area in the nation. The National Mall provides several of the components of a walkable urban environment since it is generally accessible by multiple modes of transportation. Nearly every destination can be reached on foot, and the National Mall provides a fairly level and easily walkable environment with one prominent elevation rising to the Washington Monument. While the terrain is

quite level between destinations, memorials and museums frequently have staircases, and accessible entrances may be farther away and less convenient. Snow, ice, or rain can make stairs or some surfaces slippery.

The overall distance between the Lincoln Memorial and the U.S. Capitol is about 2 miles. A person walking at a very brisk pace without stopping could cover its length in 45 to 60 minutes. While walking is the most common and preferred way of getting around, up to 25% of the public indicated in the 2003 visitor survey that they have difficulty walking long distances (NPS 2003e).

Studies have shown that visitors typically go to up to five destinations a day, generally by walking. The result is that visitors traversing the National Mall may walk more than 5 miles to get back to their starting place. Exhaustion is a frequent complaint. Vehicle traffic affects the pedestrian experience in most areas of the National Mall because of the convergence of a number of high-volume commuter routes.

Roads and pedestrian routes intersect frequently, and most crosswalks are striped and have traffic lights and lighted crossing symbols, while in a few areas there are crosswalk buttons or audio warning announcements. Crosswalk signals are timed more to accommodate traffic flows than pedestrian movements, so people typically have long waits at crosswalks and crossing times are short. At some locations pedestrians must push a button for a crossing light. D.C. law requires vehicles to stop for pedestrians in crosswalks; however, both motorists and pedestrians engage in risky and potentially dangerous behaviors. Jaywalking or crossing against red lights may be intentional or due to inattention, visual distractions, the size of a group, or an assessment that there is adequate time to cross before a vehicle comes.

In many areas pedestrian walks are too narrow for groups or current levels of use, resulting in choke points or areas of pedestrian congestion or gridlock. Pedestrian volumes exceed walkway capacities in locations such as the Tidal Basin, near some intersections, and near the entrance to the Korean War Veterans Memorial. Extremely narrow walks on the Kutz Bridge cannot

comfortably accommodate two people, much less a stroller or bicycle.

During peak times of national celebrations, such as the National Cherry Blossom Festival, pedestrian conditions around the Tidal Basin could be described as two slowly moving masses of people going in opposite directions. Because there are few alternatives, one person stopping to take a photograph can halt hundreds of people.

Additional pedestrian challenges include varied and irregular surface materials, walking surfaces in need of repair, and lack of lighting in some locations. Some areas are without pedestrian amenities, such as sufficient seating or shaded seating, and facilities such as restrooms may be difficult to find. Outdated orientation maps are being replaced in phases and will be supplemented by pedestrian guide signs.

Pedestrians and bicycle riders share the same walks through much of the National Mall. Because bicyclists travel at different speeds and pedestrians may be distracted by sightseeing, there is a potential for accidents.

Nine wheelchairs are available at no cost for use at five memorials — Thomas Jefferson (1 wheelchair), Franklin Delano Roosevelt (2), World War II (4), Korean War Veterans (1), and Vietnam Veterans (1). Wheelchairs can only be used in the memorial where they are picked up; however, the wheelchairs at the Vietnam and Korean War veterans memorials can also be used at the Lincoln Memorial.

BICYCLING

The relatively flat terrain of the National Mall makes it conducive to bicycling, which offers a pleasant, healthy, and nonpolluting means of transportation. Bicyclists and pedestrians share walkways, creating conflicts between uses. Between 2000 and 2002, 37.3% of bicycle crashes (296) occurred in the D.C. ward that includes

the National Mall. Both commercial and NPS bicycling tours of the National Mall are offered. Bicycles must be left outside memorials or walked through them.

Bicycles can be rented in the nearby downtown area, at the Old Post Office Tower near Pennsylvania Avenue, and near Thompson's Boat Center in Rock Creek Park.

The Washington Area Bicyclist Association (WABA) is an organization dedicated to promoting bicycling and has an extensive website providing information, maps, and bicycle safety programs. WABA volunteers frequently host popular bicycle parking during special events.

In addition to recreational biking, there is a large population of bicycle commuters. The National Capital Planning Commission estimated in 2005 that there were 20,000 bicycle commuters, many of whom traverse the National Mall. In 2007 and 2008 the National Park Service installed 110 additional two-bike racks on the National Mall to supplement the 22 existing bike racks. This project was partially funded by D.C. Department of Transportation. The District of Columbia has recently embarked on a bike-sharing program, with 120 bikes available to members at 10 self-service racks in the downtown area. At this point, the program is not available to short-term users such as tourists.

Bicycling routes within other national park units, such as George Washington Memorial Parkway, Rock Creek Park, and the Chesapeake and Ohio Canal, have connections to the National Mall. The East Coast Greenway, a long-distance bicycle trail, goes through the National Mall. Midday is a popular time for competitive training rides, and East Potomac Park sees a great many of these riders.

Pedicabs, which are treated as taxicabs, are an increasingly common form of transportation on the National Mall.

VISITOR EXPERIENCE

The National Mall provides an essential American experience for citizens and guests from around the world. Located in the heart of the nation's capital, this space was originally planned to epitomize our democratic form of government, and its great memorials commemorate our history as a nation. However, the symbolic landscape has also become the nation's front yard and its premier civic forum, where citizens come to exercise their First Amendment rights, to take part in national celebrations like the inauguration of a president or the Fourth of July, and to attend various special events. In addition, recreational activities have taken place here since the late 1800s, when Congress created Potomac Park for the "recreation and pleasure of the people." All of these purposes — symbolic, commemorative, civic, and recreational — are integral to present-day visitor experiences on the National Mall.

In accordance with the NPS Organic Act and *Management Policies 2006*, one of the mandates of the National Park Service is to provide visitor enjoyment opportunities that are uniquely suited to the superlative natural and cultural resources found within the national park system, which includes the National Mall.

The types of experiences that visitors have on the National Mall depend on their backgrounds, expectations, available opportunities and facilities, needs, and desires. Specific topics discussed in this chapter include elements of the visitor experience (destinations, visual experiences, and sounds), information and education, recreational opportunities, visitor facilities and amenities, and health and safety. Visitor use trends are discussed to give an idea of future use levels at memorials on the National Mall. (Experiences of participants in demonstrations, national celebrations, or special events are described beginning on page 309, and experiences related to visitor access or circulation are discussed beginning on page 323.)

VISITOR USE CHARACTERISTICS

Visitor information was obtained in multiple ways. NPS staff annually distribute a visitor

survey. Several recent detailed surveys have provided a great deal of visitor information. Also, public comments have been solicited on the National Mall planning effort.

The annual "Visitor Satisfaction Survey," which complies with the Government Performance and Results Act, measures each park unit's performance. Visitors are asked to indicate their level of satisfaction in topic areas such as park facilities, visitor services, and recreational opportunities. The analysis of survey results over a period of several years indicates that 96% of the respondents were satisfied with their visits. However, from a facilities standpoint, restrooms need improvement, and from a visitor services standpoint, commercial services (such as food and retail) could be improved.

The 2003 *Washington, D.C., Visitor Transportation Survey* profiled the findings of visitor surveys conducted in the spring and summer of 2003 (NPS 2003d). While the focus of the report was on transportation planning in and around the central visitor core of downtown Washington, most of the information describes general visitor characteristics that are applicable to this planning effort.

In September 2008 another visitor survey was undertaken related to the socioeconomic impact of the National Mall and visitor destinations in the monumental core, which encompasses the National Mall. The survey was conducted by the School of Recreation, Health, and Tourism at George Mason University. Several questions were similar to those in the 2003 transportation survey and allowed the National Park Service to examine the impact of new destinations, such as World War II Memorial, the Newseum, and the National Museum of the American Indian.

As part of National Mall plan, a planning website (www.nps.gov/nationalmallplan) was established, and public comments were requested on three of the four newsletters that have been issued for this planning project. Newsletter 1, which was released in fall 2006, included 15 scoping topics for visitors to comment on, and the results were published in the April 2007

Public Scoping Comments Report. Comments on the preliminary range of alternatives that were presented in newsletter 3 (fall 2007) were also solicited and were summarized in *Newsletter 3 Comment Report.* Comments were analyzed by the George Mason University School of Recreation, Health, and Tourism. Comments on the preliminary preferred alternative, which was presented in newsletter 4 (winter 2009), were also solicited.

Visitor Profiles

Visitor surveys were conducted in 2003 and 2008 to identify characteristics of visitors and to identify needs to be addressed. Visitors come to experience and learn more about our national capital and its well-known memorials and the iconic symbols of our country. For many visitors, a trip to Washington, D.C., is an opportunity to learn about our government, the history of our nation, and our way of life — a shared historical journey often made with family and friends.

Most visitors come with family and friends. In the 2008 survey the six states with the highest number of respondents were Virginia, California, Maryland, New York, Florida, and Pennsylvania. International visitors were primarily from Europe, with the most visitors from the United Kingdom, followed by Australia.

Visitor Activities

The visitor study conducted in the fall of 2008 for the National Park Service presents an overview of what visitors do when they come to the National Mall (NPS 2009e). Table 17 highlights some of the trip and visitor characteristics from this study.

TABLE 17: TRIP AND VISITOR CHARACTERISTICS — 2008 NATIONAL MALL VISITOR STUDY

Questionnaire Item	Finding
Average length of stay (day-trippers)	7.2 hours (18.9% of sample)
Average length of stay (overnight guests)	4.4 days (81.1% of sample)
Average group size	2.7 people
Average respondent age	49.7 years
Average number of visits	3.7 visits

SOURCE: NPS 2009.
Number of survey respondents = 644.

The 2008 visitor study also asked respondents to indicate their primary reason for visiting the National Mall. For this question they were asked to select only one of eight responses. The most common response was the desire to visit the monuments and memorials on the National Mall (31.7%; see Table 18). Those who indicated “other” (16.4%) were asked to write out their primary reason for visiting; the most common responses were meeting/convention, reunion, a family member was visiting them, an event or concert, they were on a stopover en route to a different destination, or they had multiple reasons and could not select one response. Nevertheless, visiting the monuments and memorials far outpaced any other reason for visiting the National Mall.

TABLE 18: PRIMARY REASON FOR VISITING THE NATIONAL MALL

	Frequency	Percentage
Visit Monuments and Memorials	190	31.7
Other	98	16.4
Visit Friends/Relatives	71	11.9
Resident	63	10.5
Business	61	10.2
Visit Museums	55	9.2
Visit Federal Sites	54	9.0
Total	599	100

SOURCE: NPS 2009.

Most Important Activity

Visitors were asked to list all of the activities in which they participated and then to write out the one activity that was the most important to their visit. They were requested to list only one, and they also were given the option to indicate that no activity was most important (see Table 19). The most frequent response (67.2%) was visiting the National Mall monuments and memorials, followed by visiting museum sites (16.6%). The most common response for those indicating “other” (7.6%) was visiting the White House, either for work or family-related reasons.

Visitor study respondents were also asked to indicate from a list of 54 options which sites they visited during their entire stay. Table 20 shows the top 15 sites, the top 5 of which are monuments and memorials.

TABLE 19: MOST IMPORTANT ACTIVITY

Activity	Response Frequency	Percentage
Visit National Mall monuments and memorials	365	67.2
Visit museum sites	90	16.6
Exercise or athletics	8	1.5
Charter bus or sightseeing tour	7	1.3
Learn/research history	9	1.7
Ranger talks/walks	1	0.2
Entertainment/special events	10	1.8
Relaxing	8	1.5
Eating and drinking at restaurants/bars	4	0.7
Other	41	7.6
Total	543	100.0

SOURCE: NPS 2009.

TABLE 20: TOP 15 DESTINATIONS FOR NATIONAL MALL VISITORS

Destination	Percentage Who Visited
Lincoln Memorial	83.2
Washington Monument	81.9
World War II Memorial	81.4
Vietnam Veterans Memorial	72.1
Korean War Veterans Memorial	61.2
U.S. Capitol	54.8
The White House	52.0
Thomas Jefferson Memorial	48.5
National Air & Space Museum	48.2
Arlington National Cemetery	43.9
Downtown Restaurants	40.5
Franklin Delano Roosevelt Memorial	34.6
Union Station	33.7
National Museum of Natural History	32.6
Smithsonian Castle	31.6

Source: NPS 2009.

NOTE: The National Museum of Natural History was closed for renovation during this period, and the U.S. Capitol Visitor Center was not yet open.

The visitor survey showed that overnight guests visited on average 13.4 sites, while day-trippers visited 7.7 sites.

VISITATION

This section only looks at visitor use at certain monuments and memorials on the National Mall. It does not take into account attendance at demonstrations, national celebrations, or special events, when hundreds of thousands of people may come. For example, the Fourth of July celebration may attract 500,000–700,000 people to the National Mall, and Barack Obama’s inauguration attracted 1.8 million people. See “Demon-

strations, Special Events, and National Celebrations” (page 309) for more information.

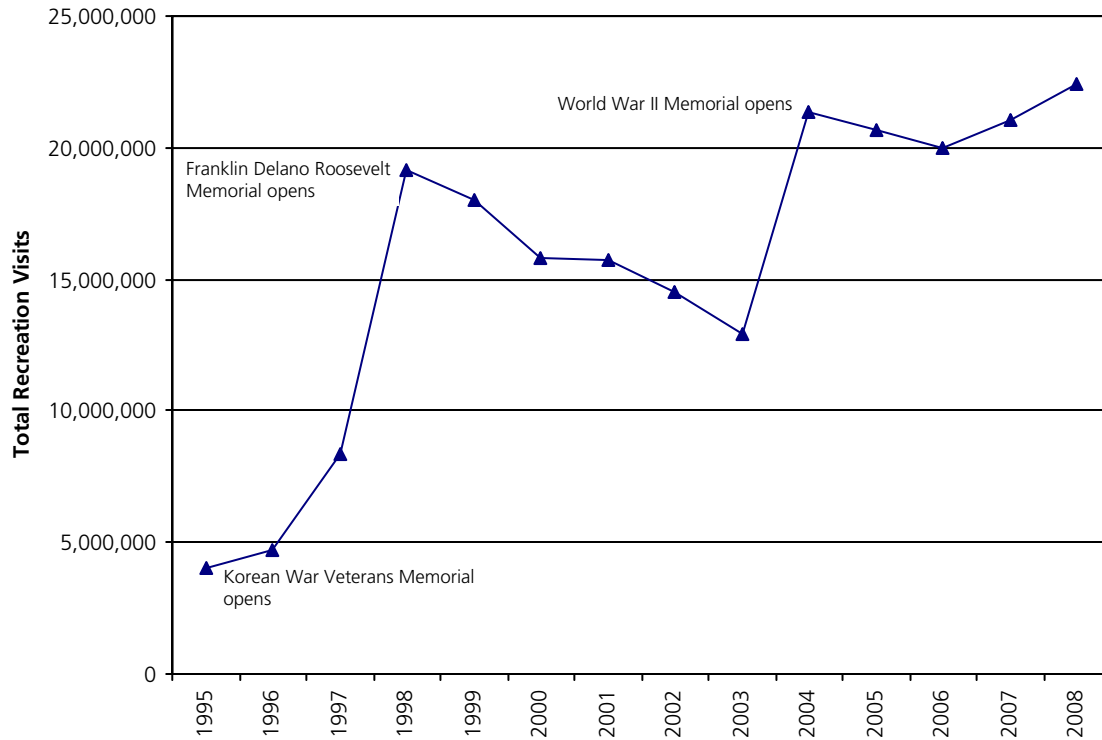
Past Visitor Use Trends

The National Park Service has policies and procedures for estimating visitation at seven sites on the National Mall — Washington Monument, World War II Memorial, Vietnam Veterans Memorial, Lincoln Memorial, Korean War Veterans Memorial, Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial. However, there are no policies or procedures for estimating the total amount of use at First Amendment demonstrations, national celebrations, permitted special events, or daily recreational use; no NPS statistics are kept for these events. Event organizers state expected attendance levels, but these estimates have sometimes been highly inaccurate.

Figure 47 shows total visitation for four memorials on the National Mall dating back to 1995 — the Washington Monument, Vietnam Veterans Memorial, Lincoln Memorial, and Thomas Jefferson Memorial; visitation in 1995 at these four sites totaled just a little over 4 million visits. After the Korean War Veterans Memorial opened in 1995, total visitation increased by about 700,000 visits (a 17% increase). After the Franklin Delano Roosevelt Memorial opened in 1997, total visitation increased by about 3.6 million visits (a 75% increase). In 1998 visitation more than doubled, from 8.3 million to 19.1 million visits, then gradually dropped to 12.9 million visits by 2003. When the World War II Memorial opened in 2004, total visitation increased to 21.4 million (a 65% increase). Visitation since 2004 has remained fairly stable, averaging about 21.1 million visits per year (see Table 21).

At the World War II Memorial visitation declined from about 5.4 million visits in 2004 to 3.6 million in 2006, then rose to over 4 million in 2007 and 2008. Visits at the Washington Monument were low in 2004 and 2005 because the monument was closed from October 2004 through March 2005 so the grounds could be rehabilitated and security provided. In July and August 2008 hours were extended until 10 p.m., resulting in 671,081 visits in 2008, an increase of about 13.5% from 2005.

FIGURE 47: TOTAL VISITATION AT NATIONAL MALL SITES — 1995–2008



SOURCE: NPS Public Use Statistics Office (<http://www.nature.nps.gov/stats/>).

NOTE: Recreational visits include Washington Monument, Vietnam Veterans Memorial, Lincoln Memorial, and Thomas Jefferson Memorial since 1995; plus Korean War Veterans Memorial since 1996; plus Franklin Delano Roosevelt Memorial since 1997; plus World War II Memorial since 2004. It is assumed that one person will visit multiple sites, and there is no way to estimate the total number of people.

It is important to remember that these numbers are only the number of visits recorded by the National Park Service, not the number of people, and according to visitor surveys most visitors go to multiple sites per day. As previously mentioned, these numbers do not include

visits by people who do not go to one of these seven sites, including participants in demonstrations, national celebrations, or special events. There are currently no user capacity limits for any areas of the National Mall.

TABLE 21: RECREATIONAL VISITS TO NATIONAL MALL SITES — 2004–2008

	2004	2005	2006	2007	2008	Average Annual Visits
Washington Monument ^a	378,416 ^b	467,550 ^b	586,603	591,081	671,031 ^c	538,936
World War II Memorial	5,382,498 ^d	4,410,379	3,865,430	4,079,606	4,153,749	4,378,332
Vietnam Veterans Memorial	3,789,889	3,799,968	3,629,739	3,633,793	4,243,573	3,819,392
Lincoln Memorial	2,988,650	3,638,806	3,810,347	4,214,167	4,678,861	3,866,166
Korean War Veterans Memorial	3,610,796	3,214,467	3,248,757	3,433,663	3,654,976	3,432,532
Franklin Delano Roosevelt Memorial	3,038,046	2,852,565	2,662,016	2,751,725	2,622,806	2,785,432
Thomas Jefferson Memorial	2,200,371	2,312,726	2,219,255	2,327,254	2,363,263	2,284,574
Total	21,388,666	20,696,461	20,022,147	21,031,289	22,388,259	21,105,364

SOURCE: NPS Public Use Statistics Office (<http://www.nature.nps.gov/stats/>).

NOTE: The National Park Service collects visitation data only for these seven sites on the National Mall. No estimates are made for demonstrations, national celebrations, or special events. The totals only represent the number of visits, not the total number of people. It is assumed that one person will visit multiple sites, and there is no way to estimate the total number of people. Impacts of use are based on the number of site visits.

- a. The number of visitors inside the Washington Monument is limited to 80 people.
- b. Washington Monument closed from October 2004 to March 2005 for landscaping of the surrounding grounds.
- c. Visitor hours extended to 10 p.m. during July and August.
- d. First year World War II Memorial opened.

Projected Visitor Use Trends

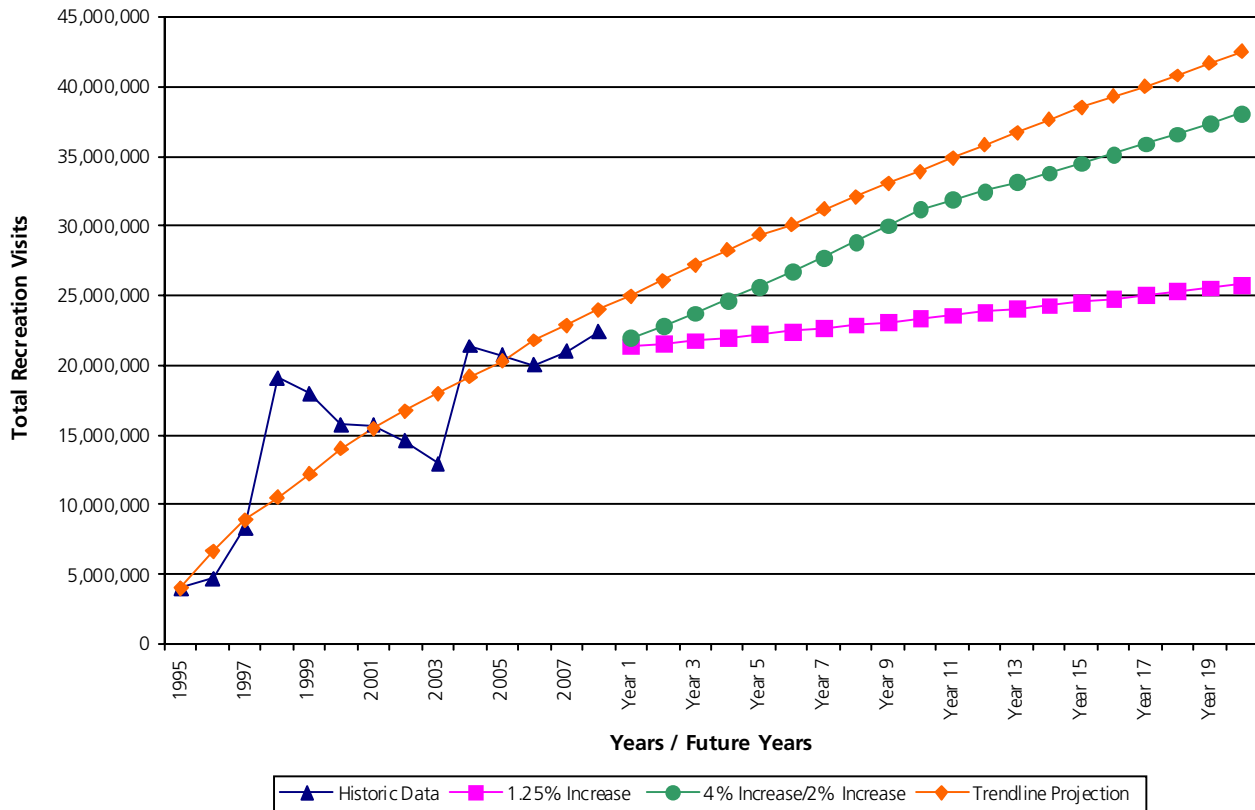
Future visitation projections to memorials on the National Mall are based on an analysis of recreational visits since 1995. As previously described, three new memorials opened during this period, and each time visitation surged and then leveled off (visitation increased by 75% after the Franklin Delano Roosevelt Memorial opened in 1997, and by 65% after the World War II Memorial opened in 2004).

Two of the three projects that Congress has authorized — the Vietnam Veterans Memorial Center and the Martin Luther King, Jr. Memorial — will be on the National Mall and will be managed by the National Park Service. The third project, the National Museum of African American History and Culture, will be managed by the Smithsonian Institution. These projects will bring more people to the National Mall, just as previous projects have. Visitation to the Smithsonian Institution museums has not been considered in projecting future visitation for the National Mall.

Three future visitation scenarios were developed, as described below and shown in Figure 48:

1. Over the past five years (since the World War II Memorial was opened) total average annual visitation has grown at about 1.25% per year. This scenario assumes that this rate of growth would continue. Using average annual visitation during this period as the baseline (21.1 million annual visits), a 1.25% growth rate would result in total annual use of 25.8 million visits in 20 years.
2. The second scenario takes into account likely visitation increases once the Martin Luther King, Jr. Memorial and the Vietnam Veterans Memorial Center open in the future. Once these memorials have opened, it is expected that visitor use would increase initially (conservatively figured at a 4% average annual increase for 10 years), but would then level off (decreasing to a 2% average annual increase for the next 10 years). Using average annual visitation over

FIGURE 48: 20-YEAR VISITATION PROJECTIONS AT NATIONAL MALL MEMORIALS



the past five years as the baseline (21.1 million visits), total annual use in 20 years would be about 38 million visits.

3. The third scenario is a trend line based on a regression analysis of historical data since 1995. Under this scenario total annual use in 20 years would be about 42.5 million visits.

These projections are only for visits to memorials on the National Mall where visitor use is tracked. It is important to remember that the number of visits does not equal the number of people. Based on survey information, visitors go to multiple sites while they are on the National Mall, so if visitors went to all seven memorials where numbers are monitored, then the number of people would be one-seventh of total recreation visits (that is, 42.5 million would correspond with approximately 6.1 million people).

ELEMENTS OF THE VISITOR EXPERIENCE

Monuments and Memorials

Some memorials, like the Washington Monument, the Lincoln Memorial, and the Thomas Jefferson Memorial, are internationally known symbols of our nation, while others are less well known. The major memorials are the primary attractions that make the National Mall the place where Americans and others contemplate our past and our ideals and values. There are five presidential memorials (George Washington, Thomas Jefferson, Abraham Lincoln, Ulysses S. Grant, and Franklin Delano Roosevelt), and four war-related memorials (the Vietnam Veterans, Korean War Veterans, the World War II, and the D.C. War memorials).

Lesser known memorials honor national heroes such as the 56 Signers of the Declaration of Independence, George Mason, John Paul Jones, and John Ericcson. Other memorials, plaques, or areas commemorate events or cultural resources (such as the First Air Mail Flight, the Jefferson Pier Marker, the former location of a canal), or international friendship (the German-American Friendship Garden, the Japanese pagoda and lantern, and the cherry trees around the Tidal Basin).

The memorials are lit at night and contribute to the special nighttime character of the National Mall. Several memorials have related extensive water features or reflecting pools nearby. Many of the monuments and memorials are outdoor facilities. The public is free to enter and walk around memorials at any time of the day or night, which is authorized by 16 USC 6802(d)(3)(C). Staffed facilities, such as bookstores and information stations associated with particular monuments and memorials, are generally open from 9:30 a.m. to 8:30 p.m.

In all visitor surveys respondents have said that they valued the National Mall as a respectful place and a place for quiet reflection, peace, and meditation. They mentioned their enjoyment of and desire to keep the open and unobstructed green space in the center of the Mall, with expansive views to the river. They also mentioned the cultural and historical ideas associated with a public cultural space to remember those who have contributed much to the country, the preservation of American history, and a place of pride, inspiration, and patriotism. Additional comments provided in response to newsletter 3 focused on the value of the National Mall as our national civic gathering space and the importance of First Amendment rights within this space.

The Washington Monument, the Lincoln Memorial, and the Thomas Jefferson Memorial are recognized as symbols of the nation, and they contribute to the unique and recognizable day- and nighttime character of Washington, D.C. Together with the White House and the U.S. Capitol, they comprise five significant icons for our nation. These visually prominent symbols are within important vistas or are the visual terminus of planned vistas. Special lighting ensures that these icons dominate the nighttime character of Washington, D.C. Activities with these symbols as backdrops help make the National Mall one of the most photographed places in our country.

Washington Monument

The Monument. The Washington Monument, the most prominent visual feature in Washington, D.C., provides a visual orientation point for people on the ground, as well as air travelers.

The monument is on the top of a hill, and its large granite plaza is encircled by 50 American flags and limestone benches. Here visitors wait for a tour or enjoy vistas in all directions.

After visitors enter through a security checkpoint (the current checkpoint on the east side is temporary), they see several exhibits and a statue of George Washington before taking the elevator to the top of the monument. From that vantage point they can look out windows in all directions. To the north the view focuses on the White House and the city beyond; to the east, the Capitol, with the symmetrically planted rows of elm trees and a wide panel of turf on the Mall in the foreground; to the south, the Thomas Jefferson Memorial and the Tidal Basin; and to the west, the World War II Memorial, the Lincoln Memorial and the reflecting pool, and Arlington National Cemetery across the Potomac River.

Guides and exhibits at the ground and upper levels provide a variety of educational content. In addition, the elevator pauses in several locations on the way down so that visitors can see some of the nearly 200 carved commemorative stones that line the interior walls. Beginning in the summer of 2008 tour hours were extended to 10 p.m., which almost doubled the number of people going to the top of the memorial. Visitation is limited to approximately 80 people within the monument at any one time because of safety codes, so visitors must get free, timed tickets on the day they visit. Tickets are obtained at Monument Lodge and for a small fee are available on the internet. Frequently there is a visitor queue waiting for tickets, and most tickets are issued by 9 a.m. when the office opens. When hours were extended until 10 p.m., tickets were available until about noon.

The Grounds. Within the last six years new walkways and walls have been constructed, changing use patterns at the Sylvan Theater. Small men's and women's restrooms are also available near the Sylvan Theater on the southwest corner of 15th Street and Independence Avenue. Recreation fields used by teams are north of the monument, but visitors may enjoy all of the grounds for various activities, from concerts to kite flying, and from demonstrations to the Fourth of July celebration. A recreation

field is also located south of Independence Avenue.

Monument Lodge is a short distance to the east of the monument and offers restrooms, a ticket window, and a bookstore. Survey Lodge is southwest of the monument and is used as the park ranger office, with an information desk and two public restrooms; this building is not easily found or identified by the public.

Lincoln Memorial

The Memorial. The Lincoln Memorial on the west end of the National Mall is approached by a series of wide stone stairs from the east. Near the top of the steps is an inscription marking the location where Martin Luther King Jr. gave his "I Have a Dream" speech during the 1963 March on Washington. From the top of the steps, visitors enter the chamber, lit by alabaster skylights and dominated by the larger than life seated statue of Abraham Lincoln. The atmosphere is generally respectful and hushed as people photograph the statue, read the Gettysburg Address or the Second Inaugural Address, or enjoy murals in the side chambers. There is no seating for visitors inside the chambers. The memorial is staffed from 8 a.m. to midnight, and no entrance tickets are required.

Visitors looking east from the memorial see a classic view of the U.S. Capitol, with the World War II Memorial and the Washington Monument in the foreground. The memorial steps also form an informal amphitheater for enjoying the Fourth of July celebration or views of the capital city. Looking west from the memorial visitors can enjoy views of Arlington Memorial Bridge and Arlington National Cemetery, with Arlington House located above the Women in Military Service to America Memorial and the Kennedy gravesites.

The Grounds. The long, narrow reflecting pool extends to the World War II Memorial and is the most visually prominent part of the grounds around the Lincoln Memorial. From the ground the Washington Monument dominates the view looking east. A narrow stone edge flanks the reflecting pool and is insufficient for the numbers of people who desire to walk along the edge of the pool and enjoy the views. Resulting social trails have made it impossible to maintain the

turf. Visitors have voiced concerns about the lack of grass and the pool's water quality and appearance. Walks to both the north and south of the reflecting pool are pleasantly shaded by elms in the summer, but the walks do not have a strong visual relationship to the memorials at either end of the pool.

To the west and north of the memorial are a number of historic elements — Arlington Memorial Bridge, the ceremonial Watergate steps, and the Constitution Avenue terminus belvedere. There are sand volleyball courts and ballfields in the area. Ohio Drive passes under Memorial Bridge and Parkway Drive adjacent to the Potomac River.

Thomas Jefferson Memorial

The Memorial. The main entrance to the Thomas Jefferson Memorial is from the north staircase. From the rotunda visitors have views in four directions, and they can use benches to rest and contemplate Jefferson and his contributions to our nation. Looking across the steps to the north, visitors can see the White House and the Washington Monument, with the Tidal Basin in the foreground. Visiting the memorial does not require an entrance ticket.

The front stairs of the memorial are frequently used for informal seating during the National Cherry Blossom Festival and at other times. The wide plaza at the base of the stairs and the wide curved walks around the memorial accommodate many people and can be flexibly used for national celebrations. The wall at the north edge of the plaza, which has been sinking, will be stabilized and repaired.

The Grounds. The Thomas Jefferson Memorial is surrounded by temporary concrete security barriers that are visually out of character with the memorial's setting. Perimeter security is to be built that would be in keeping with the memorial's historic character. South of the memorial, a rectangular turf area is surrounded by a road that was at one time a parking lot, but now provides limited maintenance access. Elsewhere the grounds are generally informal in layout, and vegetation is characterized by large shade trees and groupings of flowering cherry trees. Walks in the area are asphalt and exposed aggregate concrete.

Ulysses S. Grant Memorial / Union Square

The Ulysses S. Grant Memorial is in Union Square at the east end of the National Mall, just west of the Capitol grounds. The National Park Service has provided several wayside exhibit signs with information about President Grant and the memorial.

Looking east, the memorial is a prominent foreground for the U.S. Capitol building, and it is frequently the location for group photographs. Looking west across a 4.3-acre reflecting pool, the Washington Monument dominates the vista, with the towers of Smithsonian Castle to the south. The reflecting pool's size is an obstacle to pedestrian circulation, and its water quality frequently generates comments about smell or appearance.

World War II Memorial

The World War II Memorial is within the major east-west axis between the Lincoln Memorial and the U.S. Capitol. Many visitors to this memorial are war veterans. The layout of the memorial is formal and symmetrical. An electronic World War II database contains the names of those who submitted information about their service.

Vietnam Veterans Memorial

At the Vietnam Veterans Memorial visitors walk along the memorial wall quietly and with reverence, frequently pausing to look at the remembrances left at the wall. Some visitors look through catalogs at both ends of the wall that list where names can be found. Nonperishable items left at the wall are collected and curated by the National Park Service; the collection has now exceeded 100,000 items. Some of these items are on a rotating display at the Smithsonian's National Museum of American History.

Korean War Veterans Memorial

The design of the Korean War Veterans Memorial offers a contemplative setting to commemorate this international conflict. The polished granite wall along the south edge of the memorial helps create a quiet setting.

D.C. War Memorial

The classical D.C. War Memorial was designed as a bandstand, 40 feet in diameter and large enough to hold the 80-member U.S. Marine Corps Band. The memorial is in a grove of trees (Ash Woods) and is north of Independence Avenue between the World War II and Korean War Veterans memorials.

George Mason Memorial

Located south of Outlet Bridge and east of Ohio Drive, the George Mason Memorial was built around a historic fountain (Fountain 4) and is surrounded by a landscaped perennial garden and flowering trees.

Franklin Delano Roosevelt Memorial

The Franklin Delano Roosevelt Memorial, along the west side of the Tidal Basin, takes a landscape approach, with shade trees, waterfalls, statuary, and quiet alcoves to create the feeling of a secluded garden. The memorial's outdoor rooms entice visitors to stroll and learn more about Roosevelt's four terms as president. There are several viewpoints of the Tidal Basin under flowering cherry trees. Presidential images and sculpture are much closer to life scale than at the four other presidential memorials on the National Mall. Seating is provided in several areas, and the last room was designed to be used for programs and lectures. Water is used effectively to muffle the noise of aircraft at the nearby Ronald Reagan Airport.

Other Visitor Destinations

In addition to the iconic memorials on the National Mall, there are hundreds of visitor destinations in the metropolitan area. Nearby are the museums of the National Gallery of Art and the Smithsonian Institution, the National Archives, the U.S. Capitol, the Library of Congress, the U.S. Botanic Garden, the Supreme Court, the Bureau of Engraving and Printing, and the U.S. Holocaust Memorial Museum. Several privately owned museums or exhibitions (Newseum, Spy Museum, Crime and Punishment, Madame Tussauds) also contribute to the rich tourist environment adjacent to the National Mall. Visitor comments frequently note that they were surprised at how much there is to

do, or that they needed to plan much more time for their next visit.

Future Projects on the National Mall

As previously described, three future projects that have been authorized by Congress for the National Mall would expand visitor opportunities:

- ***Martin Luther King, Jr. Memorial*** — The Martin Luther King, Jr. Memorial is planned for the northwest area of the Tidal Basin. The memorial would increase opportunities for visitors to understand American history and the civil rights movement, and it would be likely to increase the number of African-Americans visiting the National Mall. The memorial will have restrooms, a bookstore, and an information area. After completion, the memorial will be managed by the National Park Service.
- ***Vietnam Veterans Memorial Center*** — A Vietnam Veterans Memorial Center will be constructed northwest and across the street from the Vietnam Veterans Memorial. The underground facility will include exhibits, restrooms, information, and a bookstore. It can be expected to increase opportunities for those wishing to learn more about the Vietnam War era. After completion, the center will be managed by the National Park Service.
- ***National Museum of African American History and Culture*** — The National Museum of African American History and Culture is to be built south of Constitution Avenue between 14th and 15th streets NW. The land has been transferred from the National Park Service to the Smithsonian Institution. Like the Martin Luther King, Jr. Memorial, the museum is likely to increase the numbers of African-Americans visiting the National Mall.

Demonstrations, Special Events, and National Celebrations

As previously discussed, demonstrations and special events take place nearly continually on the National Mall, and general visitors are affected to varying degrees. When tents and

stages are erected for national celebrations and special events, views to the memorials and buildings that are symbols of our nation may be periodically blocked, and recreational pursuits and league play may have to be temporarily suspended. Visitors' ability to cross streets or to use the visitor transportation system may also be occasionally disrupted.

Music, speeches, and rallies also affect visitor experiences. The sounds of an event are more evident the closer one is to an event. Sounds may interrupt visitors' desired experiences for contemplation, or they may provide education and enjoyment through stirring speeches, music, or engaging entertainment.

Visitors to the National Mall may not be aware in advance that such permitted activities are taking place and they may need to adjust their plans. Depending on why people are visiting the National Mall, they may find special park uses serendipitous, fun, and interesting, or an annoyance that affects their ability to move between planned destinations and activities.

Visual Experiences

The National Mall is one of the most photographed, visually recognizable, and symbolic locations in the United States. Visual experiences range from the monumental and formal to intimately scaled, informal areas. Visitors' experiences are dominated by this interplay of formal and informal elements of the historic landscape. The formal landscapes typically align with the east-west vista of the great cross axis of the National Mall; the informal landscapes are generally at the west end of the National Mall and lying north and south of the east-west vista. The most prominent visual features are symbols of our country, with the Washington Monument at the center, and formally placed memorials or buildings including the White House, the U.S. Capitol, the Lincoln Memorial, and the Thomas Jefferson Memorial.

Visitors have said that they expect to be proud of the nation's front yard, where citizens and guests can feel welcome. Visitors have commented that the visual appearance of landscaped areas throughout the National Mall is unacceptable. Deteriorated conditions are the result of very

high levels of use, with the most noticeable impacts being to the turf. Before planning began, social trails were found in most places where the public walks — through trees, along paved walkways, and across lawn corners. New measures such as post-and-chain fencing around lawn areas impede social trails and help protect turf conditions, improving the appearance. Visitors are also concerned about algae in water features, the appearance and odor of water, and the volume of resident duck and Canada geese droppings on walks and turf.

The Great Cross Axis

Dominating the visual experience is the planned east-west vista between the U.S. Capitol and the Lincoln Memorial and the shorter north-south vista between the Thomas Jefferson Memorial and the White House. The vistas intersect near the Washington Monument. Today visitors greatly appreciate these vistas and their symbolism.

The East-West Vista

The east-west vista has a formal feeling because of its linear layout, stretching nearly 2 miles from Union Square to the Lincoln Memorial. For much of its length multiple rows of regularly spaced trees define the view corridor. Pedestrian circulation generally aligns with the vista and draws visitors along its length. Visual and commemorative points or widened areas include Union Square, the Washington Monument grounds, the World War II Memorial, and the Lincoln Memorial.

- **Union Square** — Union Square visually connects the National Mall to the U.S. Capitol. At the east end of Union Square is the Ulysses S. Grant Memorial, a prominent foreground to the Capitol building and grounds and symbolically connecting to the Lincoln Memorial at the west end. Looking west from the Grant Memorial the vista is immediately dominated by the large curved Capitol Reflecting Pool with the Washington Monument in the distance; the Lincoln Memorial is not easily visible from this location. As visitors walk around the pool, they can see the diagonal vistas along Maryland Avenue SW and Pennsylvania Avenue NW. From Union Square looking

to the north is the open space planned for the U.S. Senate Youth Park and U.S. Botanic Garden Education and Outreach Center, and to the south the U.S. Botanic Garden.

- **The Mall** — The Mall, with broad central turf panels bordered by formal rows of American elm trees, extends from 3rd to 14th Street. Four wide parallel walkways run the length of the Mall and are crossed by north-south walks that provide visual and physical access to museums, the National Archives, and the downtown area. Thirteen buildings and two sculpture gardens flank the north and south sides of the Mall; most of the buildings are open to the public and are managed by either the Smithsonian Institution or the National Gallery of Art. Looking north on 4th Street visitors can see the red brick Pension Building/National Building Museum. At the location where 8th Street would cross the Mall, visitors can look through the National Gallery of Art Sculpture Garden to see the National Archives, and to the south the sunken Hirshhorn Sculpture Garden.

Visitors taking the Metro to the National Mall emerge at 12th Street, where they have their first view of the Mall, with the Washington Monument to the west, the National Museum of Natural History to the north, the U.S. Capitol to the east, and Smithsonian Castle to the south. The simple formal landscape continues to 14th street and the Washington Monument grounds.

- **Washington Monument and Grounds** — From the grounds of the Washington Monument, the city's most prominent visual symbol and orientation point, visitors have 360 degree views of the National Mall. The east-west vista widens into a large, open turf area edged by street trees, with the Washington Monument rising on a knoll. To the east visitors see the tree-lined Mall and the U.S. Capitol, with Union Square and the Grant Memorial subordinate features from this vantage point. To the south is the Thomas Jefferson Memorial, and to the north the Ellipse and the White House. To the west, the World War II Memorial around Rainbow Pool, the

Lincoln Reflecting Pool, and the Lincoln Memorial dominate the vista.

- **World War II Memorial** — The World War II Memorial continues the formal, symmetrical design around the Rainbow Pool to maintain the vista to the Lincoln Memorial. The 17th Street entry is flanked by flagpoles and walls with bas-relief sculptures that step down to the elliptically shaped Rainbow Pool. On the west side of the memorial the wall of honor with gold stars becomes foreground for views to the Lincoln Memorial. For visitors making their way to the Lincoln Memorial, they leave to the north or south through the Pacific and Atlantic entries.
- **Lincoln Memorial Reflecting Pool** — The Lincoln Memorial reflecting pool, flanked to the north and south by double rows of American elms with shaded walkways, dominates the central foreground to the Lincoln Memorial. To keep the memorial in view as they approach, visitors usually walk along the sides of the reflecting pool, which has resulted in a packed-earth social trail on each side. Visitors who use the elm walkways do not have clear views of the memorial.
- **Lincoln Memorial** — The west end of the reflecting pool is the lower approachway to the Lincoln Memorial. Stone and cobble paving and wide side staircases are the foreground to the elevated view of the memorial and the statue of Abraham Lincoln. The broad central staircase is a prominent visual feature and also provides space for visitors to sit and enjoy the vista back to the east. This east vista at this location is enjoyed by many on the Fourth of July for the stunning display of fireworks with the background of the Washington Monument and the Capitol.

From adjacent areas the Washington Monument, the Lincoln Memorial, and the Thomas Jefferson Memorial can be readily seen from Arlington National Cemetery, the Marine Corps Memorial, and the Air Force Memorial, as well as from points along George Washington Memorial Parkway. As previously discussed, the Washington Monument is visible for miles, espe-

cially on roads leading into the city, visually drawing people toward the National Mall.

The North-South Vista

The planned vista between the Washington Monument and the White House was extended to the Thomas Jefferson Memorial when the Potomac River flats were reclaimed. Less formal in character than the east-west vista, the prominent visual features of the north-south vista are the Washington Monument, the White House, the Tidal Basin, and the Thomas Jefferson Memorial. Unlike the east-west axis, vistas along the north-south axis do not align with pedestrian circulation. Vistas can be glimpsed through planned openings in trees.

- ***Washington Monument and Grounds*** — The central point in the north-south axes is the Washington Monument, which sits just to the east and helps define the vista. To the north are the monument grounds, the symmetrical but informal German-American Friendship Garden, and the White House. The view to the south is defined by the monument knoll and trees, with the Thomas Jefferson Memorial visible through openings in the trees. Sometimes this vista is blocked by buses and traffic.
- ***The White House and President's Park*** — The view from the White House to the Thomas Jefferson Memorial is well known from photographs, even though it is not generally available to visitors. Openings in the trees on the south grounds of the White House and on the north and south sides of the Ellipse maintain the north-south vista. Visitors near the south fence of the White House may not be aware of that the Thomas Jefferson Memorial is visible to the south.
- ***Thomas Jefferson Memorial*** — The south terminus of the planned vista is the classical Thomas Jefferson Memorial. The memorial's center broad staircase is where many visitors sit and enjoy views of Tidal Basin, the Washington Monument, and the White House, with the top of the Lincoln Memorial visible above the trees. The memorial and the Washington Monument are reflected in the waters of the Tidal Basin.

Informal Landscapes

Visual experiences in the more informal landscapes of the National Mall are as rewarding as views along the great cross axis, but they are more intimate in character. These visual experiences are provided in more human-scale memorials such as the Vietnam Veterans Memorial, the Franklin Delano Roosevelt Memorial, the Korean War Veterans Memorial, and the George Mason Memorial, as well as around the Tidal Basin, in Constitution Gardens and all along the Potomac River. The visual informality is reinforced by meandering pedestrian pathways. Smaller memorials, such as those to John Ericcson and John Paul Jones, are located within road intersections.

- ***Constitution Gardens*** — Constitution Gardens is characterized by rolling, wooded terrain around the 6.75-acre artificial lake, providing a visual sense of separation from the city and an intimacy defined by terrain. From Constitution Gardens visitors have pastoral views of the lake and gardens, with the Washington Monument dominating views near the lake.
- ***The Tidal Basin*** — The asymmetrical 107-acre Tidal Basin is the setting for the Thomas Jefferson Memorial, the Franklin Delano Roosevelt Memorial, several small commemorative markers, and the future Martin Luther King, Jr. Memorial. The informal character of the basin is prized by photographers during the spring and fall, when blossoms and color are reinforced by the spreading and overhanging tendencies of the Japanese cherry trees. Views and reflections around the basin are dominated by the Washington Monument and the Thomas Jefferson Memorial. Seasonal visual interest is provided by the tulip and annual flower displays east of Kutz bridge. Bridge railings provide immediate visual interest, with long views of the basin and memorials.
- ***George Mason Memorial*** — The visual character of the George Mason Memorial is informal, intimate, and gardenesque, with flowering trees and plants surrounding a round pool. The statue of George Mason,

in an informal pose located under an arbor, reinforces the relaxed visual character.

- **Franklin Delano Roosevelt Memorial** — At the memorial to Franklin Delano Roosevelt visitors experience a series of four landscaped, outdoor rooms featuring quotations, stone, walls, plants, sculpture, and water features. Many of the sculptural elements were designed to encourage interaction and photography.
- **Vietnam Veterans Memorial** — The visual experience of walking along the highly polished black granite wall is highly emotional for many visitors, as they view the names and items left at the wall. Additional visual interest is provided away from the wall by two sculptures and a flagpole. The open area around the wall is surrounded by more wooded terrain.
- **Korean War Veterans Memorial** — The visual experience at the Korean War Veterans Memorial is defined by the 19 soldiers moving up a hill. Visitors walk on each side of the patrol, and can look at photographs etched in black granite or read inscriptions in the walkway.
- **Arlington Memorial Bridge, Watergate Steps, Constitution Avenue Belvedere** — West of the Lincoln Memorial visitors see Arlington Memorial Bridge, flanked by large gilded sculptures representing the *Arts of War*, and the entrance to George Washington Memorial Parkway, flanked by statues representing the *Arts of Peace*. The Watergate steps lead down to Ohio Drive and the Potomac River. Arlington National Cemetery and the Robert E. Lee House are visible from these areas. The Constitution Avenue belvedere is to the north. The organization and visual setting is informal within a simple landscape of shade trees and turf highlighting views to and across the Potomac River.
- **Potomac Riverfront** — South of Arlington Memorial Bridge the visual experience is informal, with the Potomac riverfront characterized by informal groupings of flowering trees closer to the river and taller shade trees nearer Ohio Drive. River views are dominated by a serene, vegetated

parklike setting, with views of recreational boating. Visitors also enjoy views across the river toward George Washington Memorial Parkway, Arlington National Cemetery, and the U.S. Air Force Memorial.

Sounds on the National Mall

The urban environment surrounding the National Mall brings with it the sounds of people and traffic. The location of the National Mall on the flight path of Ronald Reagan Washington National Airport contributes to noise levels. Because this is the national capital, the sounds of helicopters and police escorts are also frequent. While sounds of crowds can be energizing for people, unwanted sounds can interfere with visitor opportunities for contemplation.

To balance the noise aspects, several memorial designs have made use of waterfalls and jets, terrain changes, orientation, walls, and vegetation to muffle the undesirable urban sounds. The Franklin Delano Roosevelt Memorial and the World War II Memorial effectively use the sound of active water to muffle urban noises. The primary entrances to the Thomas Jefferson, Lincoln, Korean War Veterans, and Franklin Delano Roosevelt memorials are oriented away from major thoroughfares. Sounds of traffic on 3rd Street next to Union Square contribute to a somewhat unfriendly pedestrian environment in this area.

INFORMATION AND EDUCATION

Orientation and Information

Advance Information

NPS websites are available for the National Mall as a whole and for specific units within it (such as the Lincoln Memorial). The websites receive about 11 million users a year. Web pages for each site contain basic information on operating hours, parking, public transportation, bicycle use, contact phone numbers, and climate; additional links are provided for trip planning, fees, and reservations. The web pages also refer visitors to public transportation and Tourmobile websites. The most popular web pages are for the Washington Monument and the National Mall and Memorial Parks.

The visitor survey conducted in 2008 found that while 20% of visitors got no advance planning information, the visitors who did get pretrip information used several sources. The most popular information sources were friends (58%) and guidebooks or tour providers (45%), while 17% looked at park websites, and 30.5% checked other websites. Visitors were also asked what sources they would check for future visits; 60% said they would check park websites, and 30% would continue to check other websites.

Onsite Information

Orientation, Maps, and Brochures

Washington: The Nation's Capital is the NPS map that shows all kinds of visitor destinations in central Washington and Arlington National Cemetery, including museums, government buildings, and memorials. It also lists general hours of operation, programs, and contact information. The National Park Service has individual brochures for the following locations through the internet, at the sites, or at NPS offices: the Mall, Washington Monument, Lincoln Memorial, Thomas Jefferson Memorial, Franklin Delano Roosevelt Memorial, World War II Memorial, Vietnam Veterans Memorial, Korean War Veterans Memorial, and the Ulysses S. Grant Memorial.

Staff

Uniformed park rangers and staff, volunteers, nonprofit partners and concession employees provide visitors with basic information, directions, and orientation.

Directional Signs and Display Boards

Free-standing pedestrian maps and interpretive signs are located throughout the National Mall. These outdated, uncoordinated signs are being replaced throughout the park area.

Educational Information and Programs

Staffed Sites and Exhibits

NPS park rangers provide interpretive programs to thousands of U.S. and international visitors at the Washington Monument and six memorials (Lincoln, Thomas Jefferson, Vietnam Veterans,

Korean War Veterans, Franklin Delano Roosevelt, and World War II). However, the volume of visitors at an area like the Lincoln Memorial may mean that there is only one ranger for every 9,000 visitors. Seven interpretive wayside exhibits are provided at various locations to deepen visitor understanding of our national heritage. Roving rangers on bicycles also answer questions

Cell phone tours have been provided since 2008, and more than 12,000 users have participated.

NPS Programs

NPS interpretive and educational programs are based on current scholarship, and various means are used to convey educational information to diverse visitors and to encourage support for resource stewardship and protection. Regular programs are scheduled at staffed memorials. The Junior Ranger Program offers specialized activities and programs for children. One very popular educational offering is the "I Have a Dream" program during the winter months when students can recite Dr. King's famous 1963 speech from the same location on the steps of the Lincoln Memorial. Educational programs for special events are also presented during annual presidential birthday commemorations, the birthday of Martin Luther King Jr., and the National Cherry Blossom Festival, as well as presidential inaugurations.

Park programs, events, and activities are publicized through the media and the park radio station, posted on signs at memorials, and listed on park websites. Living history programs portray portions of American military heritage. Guided bicycling tours provide visitors with different ways to learn about the National Mall's cultural and natural history.

Ranger staff provide educational information about history and resources to area teachers through annual teacher workshops, share current information about park sites with the local tour guides, and assist and/or train concessioners with accurate park information. Curriculum-based programs are scheduled onsite and as outreach visits to schools in the District of Columbia, Virginia, and Maryland.

ENJOYMENT AND RECREATION

Gardens

Seasonal and perennial gardens include those at the George Mason Memorial, Constitution Gardens, the World War II Memorial, and the Ulysses S. Grant Memorial. The floral library and perennial beds are on the south side of Maine Avenue north of the Tidal Basin. Other flowerbeds include those at the Constitution Avenue belvedere and the German-American Friendship Garden.

Recreational Activities

A variety of informal and active recreational opportunities are available. The National Mall has historically been the site for numerous local recreational activities, and these activities have changed over time to reflect current recreational interests. Swimming and tennis have been re-

placed by turf spaces that can be used for picnicking, strolling, and sunbathing, as well as informal or organized active recreation (e.g., pickup ballgames and amateur league sports). Few facilities are provided for recreation; some backstops are provided near the Potomac River, and there are sand volleyball courts northwest of the Lincoln Memorial. Athletic fields are well used and worn, and many fields lack an irrigation system. Most active recreation takes place on open turf areas, and groups supply needed equipment, such as goals or bases. Activities include softball, soccer, football, kickball, Frisbee, kite flying, rugby, and catch. Bicycle riding and in-line skating generally take place on roads. Paddleboats can be rented and used at the Tidal Basin. The National Park Service will continue to work with the National Capital Planning Commission on the best method of mitigating the loss of one ballfield at the Vietnam Veterans Memorial Center site.

Recreational Opportunities

Under a memorandum of agreement with the D.C. government, the city issues permits for field use (DC Recreation Board 1972). NPS special regulations restrict use in case of wet grounds (36 CFR 7.96). Activities are permitted at the discretion of the superintendent. Bathing, wading, and swimming are prohibited in all commemorative water features.

The National Mall is conveniently located to fill the recreation demand of the federal and local workforce. Many workers take advantage of park areas to lunch, read, visit, or jog. Agencies and branches of government have recreational sports teams; for example, many of the approximately 200 teams of the congressional softball league, which has existed since the 1970s, practice on the National Mall.

Walking

Washington, D.C., is one of the most walkable cities in the nation. While there are some grade changes on the National Mall, primarily near the Washington Monument and east of Union Square, all areas are accessible to people with disabilities. The distance between the Capitol and the Lincoln Memorial is about 2 miles, but most visitors find that as they explore memorials or museums they walk far more than they planned. Pedestrian amenities such as lighting and seating contribute to the enjoyment of visits. Based on the 2003 *Visitor Transportation Survey*, most visitors walk to their destinations. However, nearly 25% said they had an individual in their party who could only walk a limited distance because of age, youth, discomfort, breathing difficulties, or disabilities that required use of a wheelchair, walker, or cane.

Many walkways need to be replaced. The two center walkways on the Mall are gravel, and the two outer walkways are paved with exposed aggregate that resembles the gravel center walks. The gravel surfaces make it difficult for people with disabilities or those pushing strollers to maneuver; the surface can also be slippery, and the public has complained about the dusty conditions created by the gravel.

Jogging

Individuals, military units, and local running clubs use the National Mall for jogging. Joggers

prefer softer surfaces and frequently run next to sidewalks, resulting in dirt jogging trails. Over time these paths have hardened, making it difficult to reestablish turf. The 2-mile length of the National Mall makes it easy to measure jogging routes.

Bicycling

Bicycle rentals or tours are available at several locations off the National Mall and are used by visitors. The flat terrain and moderate distances between sites make visiting the National Mall by bicycle convenient and attractive. Park staff schedule and lead bicycle tours, generally meeting near the Thomas Jefferson Memorial. Bicycles are permitted on sidewalks. Bicycle racks are provided, and bicycle parking is provided during some special events.

Because bicyclists and pedestrians share walkways, during busy periods, particularly rush hours and lunch time, use conflicts are more likely as pedestrians, people with baby strollers and in wheelchairs, and bicyclists all try to use the same rights-of-way.

Entertainment

Three areas on the National Mall are designed for performances — the Sylvan Theater on the Washington Monument grounds, which hosts a variety of performances; the D.C. War Memorial, which was designed as a bandstand; and Room 4 at the Franklin Delano Roosevelt Memorial, which was designed for programs and lectures. In addition the lower approachway to the Lincoln Memorial and the plaza at the Thomas Jefferson Memorial are used for special events, but no utility connections or other infrastructure is provided. The steps at both of these memorials are used for seating.

Lawn areas on the Mall and the Washington Monument grounds are also used during entertainment events. Organizers bring in stages or video screens for events such as the Fourth of July, Screen on the Green movies, Kennedy Center simulcasts, the Tchaikovsky's *1812 Overture*, the World War II series on PBS, and the Smithsonian Folklife Festival.

VISITOR FACILITIES AND AMENITIES

Visitor facilities and amenities include food service, retail locations, information stations, bookstores, and restrooms. Frequently, food and retail facilities are combined. Park furniture includes seating and tables, light fixtures, and trash and recycling containers. NPS facilities on the National Mall are described briefly below by type and also by area, and they are summarized in Table 22. Facilities in adjacent buildings (such as the Smithsonian Institution and the National Gallery of Art) are summarized in Table 23.

Types of Facilities

Restrooms

The National Park Service maintains just over 100 stalls or urinals at 10 locations on the National Mall (Monument Lodge, Survey Lodge, and the Sylvan Theater at the Washington Monument; at the World War II Memorial and Constitution Gardens; inside the Lincoln Memorial; at Ash Woods; at each end of the Franklin Delano Roosevelt Memorial; and inside the Thomas Jefferson Memorial). There are no NPS restrooms east of 15th Street. Restrooms are available at Smithsonian Institution museums, the National Gallery of Art facilities, and the U.S. Holocaust Memorial Museum (see Table 23). Comments noted by the public include inadequate and outdated facilities that are poorly maintained, and the lack of facilities near food service locations.

For national celebrations (e.g., the National Cherry Blossom Festival and Fourth of July), up to 500 portable restrooms are provided. For the 2009 inauguration 5,000 portable restrooms were provided.

Seating

Seating is distributed throughout the National Mall and depending on the time of day and the season can easily be found in both sunny and shaded locations. Most seating is inadequate for large groups. Stone seating is provided at the Ulysses S. Grant Memorial, the Washington Monument, the Thomas Jefferson Memorial, the World War II Memorial, the George Mason Memorial, the Franklin Delano Roosevelt Memorial, and the Korean War Veterans Memorial. No seating is provided in the Lincoln Memorial chamber or near the Vietnam Veterans Memorial. The steps of the Lincoln and Thomas Jefferson memorials are frequently used for informal seating, as well as for groups.

The 1930s park bench, consisting of a metal frame with wood slats, is most frequently used for seating, and each bench seats two to three people. Of the more than 800 benches on the National Mall, over 70% are the NPS standard Washington benches. Benches are placed along walks, but they are not located for people to enjoy views and vistas. The simple form of the bench, without arms, does not meet standards for accessibility. Other styles of wood benches include some with no backs and others that have been designed specifically for certain areas.

Tables and Chairs

Tables and chairs are most frequently found around food and picnicking locations. Metal tables and chairs are generally provided near refreshment stands. Wood or concrete picnic tables are provided in a few locations.

TABLE 22: NPS PUBLIC FACILITIES ON THE NATIONAL MALL

Area	Public Restrooms			Seating	Visitor Services / Information	Food Service	Bookstore / Retail Sales	Notes
	Men's Toilets/ Urinals	Women's Toilets	Family/ Assisted Companion					
Union Square	0	0	0	Built into Grant Memorial	None	None	None	No visitor facilities or services
Mall	0	0	0	Benches	Information	4 year-round refreshment stands; tables and chairs	Limited souvenirs, convenience items at 4 refreshment stands	

Area	Public Restrooms			Seating	Visitor Services / Information	Food Service	Bookstore / Retail Sales	Notes
	Men's Toilets/ Urinals	Women's Toilets	Family/ Assisted Companion					
Washington Monument	0	0	0	Stone benches	Programs, interpretive rangers	Food items available seasonally at temporary facility; seating at picnic tables	Souvenirs, convenience items at temporary facility	Temporary facilities must be relocated; recreation fields
•Monument Lodge	4	6	0	Stone benches and wall	Ticketing, interpretive rangers Exhibits	None	Bookstore	Passport to Your National Parks® stamping location
•Survey Lodge	0	0	2		Information desk, interpretive rangers	None	None	Difficult to find; Passport to Your National Parks® stamping location
•Sylvan Theater	4	4	0	No	None	None	None	Performance space
World War II Memorial	4	6	1	Stone seating	Information, programs, computers, wheelchairs	None	None	Passport to Your National Parks® stamping location
Constitution Gardens	4	4	0	Stone-walled terraces	None	1 seasonal refreshment stand; limited bench seating	Limited souvenirs, convenience items at refreshment stand	Restroom outdated
Vietnam Veterans Memorial	0	0	0	None near wall; benches	Information station northeast of Lincoln Memorial; programs, wheelchair	None	None	
Lincoln Memorial	7	8	0	None in memorial Memorial steps used for seating Benches along elm walks	Exhibit area in memorial, interpretive rangers, programs	2 year-round refreshment stands, with large outdoor seating areas	Bookstore; souvenirs, convenience items at north and south refreshment stands	Passport to Your National Parks® stamping location
Korean War Veterans Memorial	0	0	0	Stone seating	Information, interpretive rangers, programs, wheelchair	None	None	
D.C. War Memorial	0	0	0	No	Bandstand; no utilities	None	None	
Ash Woods	4	4	0	None	None	None	None	Recreation fields
Tidal Basin	0	0	0	None	Seasonal	1 seasonal refreshment stand; limited bench seating		Paddleboat rental facility
Franklin Delano Roosevelt Memorial	12	11	0	Stone seating	Information, interpretive rangers, programs, wheelchair	None	Bookstore, souvenirs	
West Potomac Park Riverfront	0	0	0	Limited	None	None	None	Recreation fields
George Mason Memorial	0	0	0	Stone seating	None	None	None	

Area	Public Restrooms			Seating	Visitor Services / Information	Food Service	Bookstore / Retail Sales	Notes
	Men's Toilets/ Urinals	Women's Toilets	Family/ Assisted Companion					
Thomas Jefferson Memorial	6	9	1	Memorial steps used for seating	Exhibit area in memorial, information, interpretive rangers, programs, wheelchair	1 year-round refreshment stand; limited bench seating	Bookstore; souvenirs, convenience items	Refreshment stand difficult to find
Total	45	52	4			10 refreshment stands, 6 with outdoor tables, 4 with nearby benches; no indoor seating		

NOTE: All NPS locations have wheelchair accessible restrooms.

TABLE 23: PUBLIC FACILITIES ADJACENT TO THE NATIONAL MALL

Facility and Location	Restrooms				Visitor Services	Public Food Service — Seating Capacity	Retail Sales	Notes
	Men's Toilets/ Urinals	Women's Toilets	Wheelchair Accessible	Family/ Assisted Companion				
Bureau of Engraving & Printing, 14th and C St., SW	4	4	8	0			Educational items, souvenirs, convenience items,	Only open during public tours.
Capitol Visitor Center, East Plaza	8	8		10	Information desk, exhibit halls, programs, tours, films	Dining facility – 550 seats	Two gift shops, site-specific items	Opened Dec. 2, 2008
National Archives Building, 700 Pennsylvania Ave. NW (Rotunda on Constitution Ave.)	37	29		0	Wheelchairs, public lockers, coatrooms	Café/food court — 56 seats	Site-specific items, educational items, convenience items, souvenirs	
National Gallery of Art, 6th St. and Constitution Ave., NW	51	40	22	4	Wheelchairs, strollers, coatrooms	Café/food court — 619 seats Restaurant — 135 seats Outdoor café/ seating areas — 136 seats Seasonal outdoor carts (drinks, ice cream)	Site-specific items, educational items	Rental audio tours/ downloads available
Smithsonian Institution								
•Castle, 1000 Jefferson Dr. SW	4	4	2	0		Café/food court — 48 seats Outdoor café/ Seating Areas — 60 seats Seasonal outdoor carts (drinks, ice cream)	Site-specific items, educational items, souvenirs	
•Freer Gallery of Art, Jefferson Dr. and 12th Street, SW •Arthur M. Sackler Gallery, 1050 Independence Ave., SW	16	5	1	1	Wheelchairs, public lockers, coatrooms	NA	Site-specific items, educational items, souvenirs	
•Hirshhorn Museum and Sculpture	3	5	4	2	Wheelchairs, public lockers, coatrooms	Seasonal outdoor carts (drinks, ice cream, popcorn, other)	Site-specific items, educational items,	

Facility and Location	Restrooms				Visitor Services	Public Food Service — Seating Capacity	Retail Sales	Notes
	Men's Toilets/Urinals	Women's Toilets	Wheel-chair Accessible	Family/Assisted Companion				
Garden, 7th St. and Independence Ave., SW							convenience items, souvenirs	
•National Air and Space Museum, 6th St. and Independence Ave., SW	32	44	12	2	Wheelchairs	Café/food court — 900 seats Restaurant — 100 seats Outdoor café/ seating area — 35 seats Seasonal outdoor carts (drinks, ice cream, popcorn, other)	Site-specific items, educational items, convenience items, souvenirs	
•National Museum of American History, 14th St. and Constitution Ave., NW	28	26	54	0	Wheelchairs, strollers, public lockers	Café/food court — 450 seats Restaurant — 100 seats Seasonal outdoor carts (drinks, ice cream, popcorn, other)	Site-specific items, educational items, convenience items, souvenirs	
•National Museum of Natural History, 10th St. and Constitution Ave., NW	56	55	1	1	Wheelchairs, public lockers, coatrooms	Café/food court — 100 seats Restaurant — 500 seats Year-round outdoor carts (drinks, ice cream, popcorn)	Site-specific items, educational items, convenience items, souvenirs	Rental audio tours/downloads available
•National Museum of the American Indian, 4th St. and Independence Ave., SW	31	49	18	4	Wheelchairs, strollers	Café/food court — 360 seats	Site-specific items, educational items, souvenirs	
•National Museum of African Art, 950 Independence Ave., SW	26	16	7	2	Wheelchairs, public lockers	NA	Site-specific items, educational items, souvenirs	
U.S. Holocaust Memorial Museum, 100 Raoul Wallenberg Pl., SW	22	22	10	2	Wheelchairs, coatrooms	Café/food court — 80 seats	Site-specific items, educational items, souvenirs	
Total	318	307	129	745		Cafés/food courts — 1,303 Restaurants — 1,345 Outdoor cafés — 136 Outdoor carts — 5 locations Total food service seating — 2,794		

NOTE: All Smithsonian Institution museums, the National Gallery of Art, and the U.S. Holocaust Memorial Museum are generally open to the public everyday and have security checkpoints.

Food Service

There are 10 permanent refreshment stands on the National Mall that offer snacks, sandwiches, and salads. They are supplemented by seasonal pushcarts that are used primarily to sell drinks and ice cream. During events, particularly those on the Mall, these stands may provide additional food service to meet demand. However, for a very large event, such as the 2009 inauguration,

food service was increased at temporary facilities throughout the National Mall. Public comments indicate desires for more food choices and support for restaurant-type facilities.

Retail

Most refreshment stands offer souvenirs and retail items related to National Mall destina-

tions. Retail locations stock convenience items such as batteries, aspirin, film, and rain ponchos. Bookstores are provided at several memorials and offer thematic educational materials.

Trash/Recycling Containers

Trash containers have been replaced in recent years with metal containers, similar to those used throughout the city. In a few locations the former container types (wood, wire basket, plastic, metal, and concrete) may remain. Custom-designed trash containers are used at the Thomas Jefferson Memorial (marble) and Franklin Delano Roosevelt Memorial (granite). Some recycling containers were part of an early recycling program in the 1990s.

Most trash containers do not have lids, so squirrels and birds scavenging for food may spread trash around the immediate area. Trash containers near tour bus drop-offs and pickups frequently overflow when bus passengers and operators deposit large amounts of trash. Public comments indicate that visitors expect the National Mall to be clean, and for the National Park Service to be a leader in recycling practices.

Lighting

The night lighting of memorials and water features creates a special nighttime ambience at the National Mall that is more intimate or evocative. Light fixtures in some areas contribute to the historical character of the National Mall, but the lack of lighting in areas such as the Tidal Basin makes some visitors uncomfortable.

Facilities in Specific Areas

Union Square

No facilities are provided at Union Square.

The Mall

The National Park Service has authorized four small refreshment stands and a visitor contact station; however, no public restrooms are provided. Benches facing north and south line the east-west walkways, but they are not oriented to take advantage of views and vistas toward the important monuments, memorials, or major buildings. Light fixtures have been designed specifically for the Mall, but the

distance between fixtures creates intervening dark areas. Visitors have said that this makes them feel uncomfortable because they cannot clearly see their surroundings or other people.

Washington Monument

Monument Lodge has restrooms, a ticket window, and a bookstore. Survey Lodge has an information desk and two public restrooms. There are 26 parking spaces nearby for government vehicles and staff parking; no public parking is available.

Food and retail services have been provided for years in a temporary facility north of Madison Drive between 14th and 15th streets. This facility, while unattractive, is popular and serves visitor needs. It must be relocated to allow for the construction of the National Museum of African American History and Culture.

World War II Memorial

There is a nearby restroom, a staffed information station, and parking and access for people with disabilities at the World War II Memorial. There are frequent complaints about insufficient parking. Tour bus access is provided on Constitution Avenue and along Homefront Drive. Wheelchairs are available for visitors to use.

Constitution Gardens

Outdated facilities (restrooms and a refreshment stand) are located on the west end of the lake at Constitution Gardens. A series of stone-walled terraces on the east end of the lake were planned to provide outdoor seating for a restaurant that was not built.

Vietnam Veterans Memorial

There is an information station. Rangers are available to answer questions and give talks from 8 a.m. to midnight. A wheelchair is available.

Lincoln Memorial

The Lincoln Memorial has a bookstore, exhibit area, and two small restrooms. Ramps and an elevator make it accessible to people with disabilities.

Two refreshment stands (one to the north and one to the south of the memorial) offer both food and retail services. They are currently the largest visitor facilities on the National Mall; however, neither has public restrooms. Both have large outdoor seating areas.

Staffed visitor contact stations are located diagonally from the steps, toward the Korean War Veterans and Vietnam Veterans memorials, and information is generally geared toward those memorials.

Korean War Veterans Memorial

There is an information station at the Korean War Veterans Memorial, with educational materials and computer databases. Rangers are available to answer questions and give talks from 8 a.m. to midnight. A wheelchair is available.

Tidal Basin

Visitors enjoy the picturesque, shaded path around the Tidal Basin. The asphalt walkway is 8–10 feet wide. West of the Thomas Jefferson Memorial the walkway was frequently under water due to sinking seawalls; this walkway has been replaced by a walk farther from the basin. These walkways are often inadequate to handle current pedestrian volumes, resulting in people walking on tree roots where there is no post-and-chain fencing to control access.

Three bridges around the Tidal Basin — Kutz, Inlet, and Outlet bridges — are too narrow to accommodate both pedestrians, visitors with strollers, and bicycles.

A small seasonal refreshment stand and paddleboat rental facilities are located near the Tidal Basin parking area on the east side of the basin, but there are no restrooms.

Franklin Delano Roosevelt Memorial

Rangers are on duty to answer questions. An information area and bookstore at the north entrance are open daily. Restrooms are available near the north and south entrances. No food service is available, but wheelchairs are available.

West Potomac Park Riverfront

Dry-laid stone seawalls south of Arlington Memorial Bridge, constructed in the 1880s, have deteriorated, and the river edge is stabilized by rip-rap. This area contains highly used recreation fields.

George Mason Memorial

There are no visitor services. Public parking is available nearby, and the tour bus drop-off is at the Thomas Jefferson Memorial.

Thomas Jefferson Memorial

A bookstore, retail space, exhibits, and restrooms are located inside the memorial, and it is accessible by elevator. A wheelchair is available. An older, small, outdated refreshment stand is located on the access road, where many visitors may not find it. The stand is near the visitor transit stop and tour bus drop-off/pickup areas, and there is limited bench seating. There are no other nearby restrooms, but a wheelchair is available.

Adequacy of Visitor Services and Amenities

A 2007 analysis of public scoping comments for this planning project showed that visitors to the National Mall wanted improved services and higher quality of the landscape (NPS 2007d). Based on close to 3,000 comments from the general public, 6 categories and 18 associated themes of needs were identified (see Table 24). The public comment analysis showed a clear desire for increased services, such as bathroom access, information, transportation, walkway improvements, and food access, as well as a significant need for greenspace improvements.

In the 2008 visitor study respondents were asked to indicate, from a list of options, the desired services and activities they would like to have available on a future visit to the National Mall. Table 25 shows the frequency of responses (from 644 respondents) in the order that services and activities were desired.

TABLE 24: VISITOR NEEDS FOR SERVICES AND AMENITIES IDENTIFIED DURING PUBLIC SCOPING

Grouping/Theme	Count	Percentage
I. Facilities	909	31.33
1. Bathrooms*	275	9.48
2. Monuments / Memorials	212	7.31
3. Walkways	153	5.27
4. Furniture	133	4.58
5. Water	75	2.58
6. Lighting	33	1.14
7. Museums	28	0.97
II. Services	731	25.20
8. Information*	294	10.13
9. Transportation*	261	9.00
10. Food*	163	5.62
11. Retail	13	0.45
III. Landscape	505	17.41
12. Greenspace*	460	15.86
13. Sustainable Practices	45	1.55
IV. Activities	333	11.48
14. Events	196	6.76
15. Recreation	114	3.93
16. Entertainment	23	0.79
V. Vision	328	11.31
17. Purpose of National Mall	328	11.31
VI. Regulation	95	3.27
18. Safety and Security	95	3.27
Total	2,901	100.00

SOURCE: NPS 2007d.

* Area where needed improvements were noted.

TABLE 25: DESIRED SERVICES AND ACTIVITIES FOR FUTURE VISITS

Service / Activity	Frequency Indicating Interest	Percentage Indicating Interest
Roving Rangers Available to Answer Questions	371	61.3
Self-guided Audio Tours	315	51.9
Historian/Expert Lecture/Talks	248	40.8
Ranger Talks/Programs	240	39.6
Living History Programs and Dramatic Presentations (people in costumes)	190	31.5
Outdoor Exhibits	183	30.1
Indoor Exhibits	141	23.2
Interactive Exhibits (displays on computers/PDAs, etc.)	130	21.4
Special Events	110	18.2
Movies/Films	108	17.8
Children's Programs	96	15.9
Recreation Rentals (e.g., boats)	75	12.3
Other	69	11.5

SOURCE: NPS 2009.

NOTE: Sample size = 644.

The results were also analyzed to determine if there were any statistically significant differences in desired services / activities when comparing day-trippers and overnight guests (see Table 26), where day-trippers stayed in the area less than 24 hours and overnight guests stayed 24

TABLE 26: DESIRED SERVICES / ACTIVITIES FOR FUTURE VISITS — DAY-TRIPPERS COMPARED TO OVERNIGHT GUESTS

Service / Activity	Percentage of Day-Trippers Indicating Interest	Percentage of Overnight Guests Indicating Interest
Roving Rangers Available to Answer Questions	60.7	61.4
Self-guided Audio Tours	47.7	52.8
Historian / Expert Lectures / Talks	38.3	41.3
Ranger Talks / Programs	35.5	40.5
Living History Programs and Dramatic Presentations	40.2	29.6
Outdoor Exhibits	32.7	29.5
Indoor Exhibits	26.2	22.6
Interactive Exhibits	20.6	21.6
Special Events	20.6	17.7
Movies / Films	19.6	17.4
Children's Programs	22.4	14.5
Recreation Rentals	14.0	12.0

SOURCE: NPS 2009.

NOTE: Sample size: day-trippers = 112, overnight guests = 482.

TABLE 27: DESIRED SERVICES / ACTIVITIES FOR FUTURE VISITS — LOCALS COMPARED TO NONLOCAL VISITORS

Service / Activity	Percentage of Locals Indicating Interest	Percentage of Nonlocals Indicating Interest
Roving Rangers Available to Answer Questions	55.7	61.9
Self-guided Audio Tours	45.5	52.7
Historian / Expert Lectures / Talks	51.1	39.9
Ranger Talks / Programs	46.6	38.4
Living History Programs and Dramatic Presentations	34.1	31.4
Outdoor Exhibits*	42.0	27.1
Indoor Exhibits*	34.1	20.6
Interactive Exhibits*	30.7	19.2
Movies / Films	22.7	16.9
Special Events*	31.8	15.1
Children's Programs*	28.4	13.9
Recreation Rentals*	23.9	10.7

SOURCE: NPS 2009.

Sample size: local visitors = 90, nonlocal visitors = 525.

* Indicates a statistical difference when comparing the two groups.

hours or more. Analyses were also conducted to see if there were any differences when comparing local visitors and nonlocal visitors (see Table 27). Locals are defined as those living in Washington, D.C.; Charles, Montgomery, and Prince George's counties, Maryland; and Arlington, Fairfax, Loudoun, and Prince William counties, Virginia, as well as the independent cities adjacent to these areas.

When comparing day-trippers and overnight visitors, the only statistically significant difference was that day-trippers were more interested in living history programs and dramatic presentations for future visits than overnight guests.

When comparing local and nonlocal visitors, the desire for six services / activities was statistically different, including interactive exhibits, recreation equipment rentals, indoor exhibits and outdoor exhibits, children's programs, and special events. In all cases locals were more interested in these services and activities than nonlocal visitors. Because the average number of visits to the National Mall is radically different when comparing the two groups (18.3 visits for locals versus 1.1 visits for nonlocals), it is not surprising that locals would want more specialized services / activities, while nonlocals would be more likely to be content with current activities.

HEALTH AND SAFETY

Security

Perimeter security work remains to be completed at the Lincoln and Thomas Jefferson memorials. Lighting along streets, walks, and at crosswalks helps visitors safely find their way during the evening. Light fixtures are provided in many areas of the National Mall, generally along walks on the Mall, near memorials, and within Constitution Gardens. Temporary lighting has been provided along the elm walks north and south of the Lincoln Reflecting Pool. There is no pedestrian lighting around the Tidal Basin.

Public comments indicate that some areas, such as the Mall and the Tidal Basin, are too dark. On the Mall light fixtures are spaced too far apart, leaving darker areas between pools of light. This situation causes many visitors to feel uncomfortable because they cannot see walkway surface conditions or other people in the area.

Access for People with Disabilities and the Elderly

Free wheelchairs are available in several areas; however, they cannot be taken to other sites. Some surfaces (gravel and exposed aggregate) may be difficult for people with disabilities to move on.

Other modes such as bicycles and Segway® Human Transporters (HTs) are used by some visitors unable to walk long distances or people with disabilities, even though these devices were not designed for this purpose. The policy of the National Mall and Memorial Parks is to permit the use of these devices for mobility access within all park sites where pedestrians are allowed.

Weather

Many people visit Washington, D.C., during the summer months when weather is frequently hot and humid. Temperatures during these months, particularly in July and August, can be 90°F and more and very humid. This can cause heat-related illnesses, such as headaches, dizziness, and confusion. Visitors most susceptible to heat-related illness are those with disabilities, seniors, and children. Staying cool, drinking plenty of water, and having places to rest are critical to the health of visitors. Occasionally the National Park Service uses sprinklers to help cool people. Some visitors, particularly children, do take advantage of the interactive fountains at the German-American Friendship Garden.

Both tents and fans are used in temporary event facilities during hot and humid weather to provide a cooling effect. Rain, snow, and ice can occasionally affect the experiences of people on the National Mall. Areas can be slippery, and park staff put out warning signs.

Drinking Water

More than 40 drinking fountains are dispersed throughout the National Mall. However, most function on a delay, so visitors may assume that they do not work. Bottled water is for sale at all refreshment stands and push carts, as well as at museums, and from street vendors.

Shade

The National Mall has many mature trees with branches that span sidewalks and provide large shaded areas. During the hot and humid summer, these trees provide welcome protection from the sun, and visitors enjoy sitting, picnicking, jogging, walking, resting under the trees. The health of the trees is directly tied to visitor health and safety.

SOCIOECONOMIC ENVIRONMENT

While the United States as a whole is facing a recessionary period, the business economy of the Washington, D.C., area has remained comparatively robust, with strong current and projected performance in the following sectors of the local economy: local and federal government, tourism (hotels, restaurants, arts and entertainment), retail trade, and transportation (Downtown Business Improvement District 2007). The parks managed by the National Mall and Memorial Parks are almost exclusively contained within the District of Columbia; however, tourist resources are readily accessed in counties in adjacent states. Therefore, the commercial and economic influence of park areas, while centered in Washington, D.C., extends west to Arlington County and Fairfax County in Virginia, and east to Montgomery County and Prince George's County in Maryland. The first part of this description of the socioeconomic environment focuses on Washington, D.C., and the latter part on the regional communities.

WASHINGTON, D.C., DEMOGRAPHIC CHARACTERISTICS

Population

Between 1990 and 2000 population declined by 5.7% in Washington, D.C.; however, growth slowly increased by 1.7% between 2000 and 2006 (see Table 28). In 2006 the District of Columbia had a higher percentage of female residents (53.1%) than the national percentage (50.7%).

The racial composition of the city is distinct from that of the United States as a whole. In 2006 the percentage of African-American residents was 55.4%, while the national percentage was 12.8%. The percentages for other races were lower than the national average: white residents — 34.5% in D.C., 66.4% nationally; Hispanic/Latino — 8.2% in D.C., 14.8% nationally; and Asian — 3.4% in D.C., and 4.4% nationally.

TABLE 28: POPULATION CHARACTERISTICS OF WASHINGTON, D.C.

		1990	2000	2006
Total Population		606,900	572,059	581,530
Median Age		*	34.6	35.0
Sex	Male	46.6%	47.1%	46.9%
	Female	53.4%	52.9%	53.1%
Race	Black/African-American	65.8%	60.0%	55.4%
	White	29.6%	30.8%	34.5%
	Hispanic/Latino	*	7.9%	8.2%
	Other	2.5%	3.8%	4.8%
	Asian	1.9%	2.7%	3.4%
	Two or more races	*	2.4%	1.5%
	Native American	0.2%	0.3%	0.3%
Pacific Islander		**	0.15%	0.0%

SOURCE: U.S. Census Bureau.

*Information not determined in 1990.

**Combined with Asian in 1990.

Income

Total personal income increased by 44.2% between 1990 and 2000, and it further increased by 44.4% between 2000 and 2006. The influence of the housing market on income is evidenced by the median home value increasing by 178% from 2000 to 2006 (see Table 29). While housing values have more recently fallen dramatically in some of the outlying counties, values in the District have remained comparatively stable.

TABLE 29: INCOME CHARACTERISTICS

	1990	2000	2006
Population in Labor Force (16 and over)	606,900	298,225	320,402
Average Wage	\$33,529	\$52,634	\$69,114
Total Personal Income	\$16,024,876	\$23,102,223	\$33,355,583
Median Home Value	\$123,900	\$157,200	\$437,700

SOURCE: Bureau of Economic Analysis and U.S. Census Bureau.

Employment

Major Industries by Earnings

Earnings in Washington, D.C., are driven largely by government, which accounted for two-fifths (40%) of the overall industry earnings in 2007 (see Table 30). The strong role of professional and technical services, which encompass about a fourth of District earnings, is indicative of the urban core status of the District. Tourist- and hospitality-related sectors, including contributions from industries such as retail trade; trans-

portation; arts, entertainment, and recreation; accommodation and food services; and other services have a combined influence that supports the functioning of this economic area.

TABLE 30: EARNINGS BY INDUSTRY, 2007
(in thousands of dollars)

Industry Sector	Earnings	Percentage
Forestry, Fishing and Related	\$958,883	1.31
Mining	\$10,352	0.01
Utilities	\$282,993	0.39
Construction	\$880,173	1.23
Manufacturing	\$181,532	0.25
Wholesale Trade	\$572,614	0.78
Retail Trade	\$668,374	0.92
Transportation and Warehousing	\$347,033	0.48
Information	\$2,692,433	3.83
Finance and Insurance	\$2,849,239	3.90
Real Estate and Rental and Leasing	\$1,157,953	1.59
Professional and Technical Services	\$17,398,117	23.83
Management of Companies and Enterprises	\$463,576	0.64
Administrative Support / Waste Management	\$2,145,826	2.94
Educational Services	\$2,282,093	3.13
Health and Social Services	\$3,681,552	5.04
Arts, Entertainment and Recreation	\$441,151	0.60
Accommodation and Food Services	\$1,799,193	2.46
Other Services, except Public Administration	\$4,876,346	6.68
Government and Government Enterprises	\$28,177,502	39.97
Total	\$72,997,483	100.00

SOURCE: Bureau of Economic Analysis, 2007 North American Industry Classification System (NAICS) data.

Major Industries by Employment

In 2007 the Washington, D.C., economy supported over 800,000 full- and part-time positions (see Table 31), with the government sector providing almost one-third (33.6%). Various service industries, including those related to administration, education, health, lodging, food and other services, also provided about one-third of the district’s positions. These employment figures support the notion that Washington, D.C., like most of the nation, has almost completely shifted away from manufacturing and agriculture to a service-based economy.

TABLE 31: EMPLOYMENT BY INDUSTRY, 2007

Industry Sector	Full- and Part-time Jobs	Percentage
Forestry, Fishing and Related	9,829	1.21
Mining	322	0.04
Utilities	2,422	0.30
Construction	15,567	1.88
Manufacturing	2,111	0.26
Wholesale Trade	5,760	0.71
Retail Trade	21,737	2.67
Transportation and Warehousing	6,901	0.85
Information	24,568	3.02
Finance and Insurance	21,478	2.64
Real Estate and Rental and Leasing	22,631	2.78
Professional and Technical Services	128,530	15.80
Management of Companies and Enterprises	1,744	0.21
Administrative Support / Waste Management	49,737	6.11
Educational Services	52,289	6.43
Health and Social Services	62,138	7.64
Arts, Entertainment and Recreation	12,075	1.48
Accommodation and Food Services	51,820	6.37
Other Services, except Public Administration	73,385	9.02
Government and Government Enterprises	248,990	36.60
Total	813,734	100.00

SOURCE: Bureau of Economic Analysis; 2007 NAICS data.

Unemployment

As shown in Table 32, unemployment rates since 2004 in Washington, D.C., have ranged from a low of 5.5% in 2007 to a high of 10.7% in 2009, substantially exceeding national percentages. Therefore, while the business economy remains strong, unemployment is high.

TABLE 32: UNEMPLOYMENT RATES

	2004	2005	2006	2007	2008	2009
District of Columbia	6.9	6.5	5.8	5.5	7.0	10.7*
Fairfax County, VA	2.7	2.5	2.2	2.1	2.8	NA
Loudoun County, VA	2.6	2.4	2.1	2.1	2.8	NA
Prince William County, VA	2.9	2.7	2.4	2.4	3.3	NA
Montgomery County, MD	3.2	3.1	2.8	2.7	3.2	NA
Prince George’s County, MD	4.5	4.5	4.1	3.7	4.5	NA

SOURCE: Bureau of Labor Statistics.

* May 2009 data for District of Columbia; 2009 data not available at the county level.

REGIONAL COMMUNITIES

The Washington, D.C., metropolitan area, as previously described, encompasses the four adjacent counties — Fairfax and Arlington counties in Virginia and Montgomery and Prince George’s counties in Maryland. Commuting patterns radiate beyond these counties and branch into Pennsylvania and West Virginia. Similar to other urban cores, the citizens in the regional communities often reap the benefits of the district more so than its own residents. For example, unemployment rates in what is commonly referred to as Northern Virginia, including the city of Alexandria, Arlington County, Fairfax County, and more recently, Prince William County and Loudoun County, have held steady at around 3% for the past several years, which is roughly half of the unemployment rate in Washington, D.C. These gateway areas offer an abundance of supply resources pertaining to retail trade, accommodations, cultural resources, dining establishments, and other services.

VISITOR SPENDING CHARACTERISTICS

According to the 2008 visitor study, 96.9% of visitors spent time at monuments and memorials on the National Mall, but only 64.5% ate and drank at the restaurants and bars (and fewer still in the downtown locales based on primary destinations, see Table 33), and just 22.7% indicated

TABLE 33: ACTIVITIES THAT VISITORS COMPLETED DURING THEIR VISITS TO NATIONAL MALL

Activity	Percentage Completing Activity
Visit National Mall monuments and memorials	96.9
Visit museum sites	74.6
Eating and drinking at restaurants/bars	64.5
Relaxing	72.1
Shopping	22.7
Learn/research history	22.6
Charter bus or sightseeing tour	21.6
Ranger talks/walks	14.3
Entertainment/special events	14.3
Other (results were primarily work/business)	12.2
Exercise or athletics	11.3

SOURCE: NPS 2009.

shopping activity (NPS 2009e). It is important to note that all monuments and memorials on the National Mall are free of charge, so once visitors arrive, they are not paying admission fees (16 USC 6802(d)(3)(C)).

Table 34 shows the percentage of visitors to the National Mall who made purchases during their stays within Washington, D.C., or the metropolitan area (within a one-hour drive). The percentage of people staying in Washington, D.C., and making purchases was higher in every category that those making purchases within the metropolitan area. Presumably these percentages would grow under any alternative where the number and variety of services and activities would be enhanced, which would be projected to increase the average length of stay.

TABLE 34: PERCENTAGE OF VISITORS REPORTING EXPENDITURES BY CATEGORY AND AREA

Category	Percentage of Visitors Who Made Purchases while at the National Mall and in Washington, D.C.	Percentage of Visitors Who Made Purchases outside Washington, D.C., but within the Metropolitan Area (1-hour drive)
Lodging (hotels, camping, B&B, etc.)	45.5%	36.3%
Restaurants and Bars	88.5%	52.0%
Food Stands / Refreshment Stands	71.8%	16.0%
Gas and Oil (auto, RV, boat, etc.)	25.2%	39.1%
Public Transportation (subway, bus, taxi)	65.4%	23.9%
Other Transportation Fees (rental cars, auto repairs, but NOT airfare)	14.6%	11.2%
Admissions, Recreation, and Entertainment Fees (e.g., tour guide fees, sightseeing tours, movies)	44.7%	19.8%
Other Services (e.g., barber / beauty shops, laundry)	8.8%	4.2%
Retail Purchases Related to Sites Visited (souvenirs, books, t-shirts, etc.)	59.6%	22.5%
All Other Retail Purchases Not Site-Specific (books, groceries, sporting goods, clothing, etc.)	33.1%	22.2%
Other Expenses	9.9%	4.2%

SOURCE: NPS 2009.

TABLE 35: AVERAGE PER PARTY EXPENDITURES — ALL VISITORS

Category	Average per Party Expenditures during Entire Stay in Washington, D.C.	Average per Party Expenditures during Entire Stay outside Washington, D.C., but within the Metropolitan Area (1-hour drive)
Lodging (hotels, camping, B&B, etc.)	\$340.52	\$181.29
Restaurants and Bars	\$178.82	\$93.04
Food Stands / Refreshment Stands	\$27.75	\$7.72
Gas and Oil (auto, RV, boat, etc.)	\$13.56	\$31.34
Public Transportation (subway, bus, taxi)	\$28.06	\$10.76
Other Transportation Fees (rental cars, auto repairs, but NOT airfare)	\$22.53	\$16.10
Admissions, Recreation, and Entertainment Fees (e.g., tour guide fees, sightseeing tours, movies)	\$37.74	\$12.61
Other Services (e.g., barber / beauty shops, laundry)	\$5.94	\$1.21
Retail Purchases Related to Sites Visited (souvenirs, books, t-shirts, etc.)	\$52.75	\$21.97
All Other Retail Purchases Not Site-Specific (books, groceries, sporting goods, clothing, etc.)	\$32.86	\$23.69
Other Expenses	\$19.39	\$2.40
Total	\$759.92	\$402.13

SOURCE: NPS 2009.

Note: Sample size = 644.

Table 35 summarizes average expenditures per party during their entire stay in Washington, D.C., and in the metropolitan area (within a one-hour drive). In Washington, D.C., average expenditures totaled \$759.92, while average expenditures within the metropolitan area totaled \$402.13. As expected, the highest expenditure category was lodging, followed by restaurants and bars. Retail purchases related to sites visited totaled \$52.75 per party during the entire stay within Washington, D.C.

Per party expenditures by day-trippers, defined as people who spent less than 24 hours in the metropolitan area (with an average stay of 7.2 hours), averaged \$109.28 in Washington, D.C., and \$150.56 in the metropolitan area (see Table 36). The highest expenditure categories for these visitors were food service (restaurants and bars, food stands and refreshment stands) and retail purchases related to sites visited.

Per party expenditures by overnight guests (who stayed an average of 4.4 days) spent an average

TABLE 36: AVERAGE PER PARTY EXPENDITURES — DAY-TRIPPERS ONLY

Category	Average per Party Expenditures during Entire Stay in Washington, D.C.	Average per Party Expenditures during Entire Stay outside Washington, D.C., but within the Metropolitan Area (1-hour drive)
Lodging (hotels, camping, B&B, etc.)*	\$4.66	\$58.25
Restaurants and Bars	\$32.88	\$31.03
Food Stands / Refreshment Stands	\$16.13	\$1.62
Gas and Oil (auto, RV, boat, etc.)	\$8.60	\$16.08
Public Transportation (subway, bus, taxi)	\$8.96	\$3.84
Other Transportation Fees (rental cars, auto repairs, but NOT airfare)	\$3.17	\$11.82
Admissions, Recreation, and Entertainment Fees (e.g., tour guide fees, sightseeing tours, movies)	\$10.17	\$3.75
Other Services (e.g., barber / beauty shops, laundry)	\$1.15	\$0.68
Retail Purchases Related to Sites Visited (souvenirs, books, t-shirts, etc.)	\$15.03	\$10.91
All Other Retail Purchases Not Site-Specific (books, groceries, sporting goods, clothing, etc.)	\$2.03	\$12.57
Other Expenses	\$6.50	\$0.01
Total	\$109.28	\$150.56

SOURCE: NPS 2009.

Note: Sample size = 112.

* Lodging expenditures are included for day-trippers because a few may stay overnight in the city.

TABLE 37: AVERAGE PER PARTY EXPENDITURES — OVERNIGHT GUESTS ONLY

Category	Average per Party Expenditures during Entire Stay in Washington, D.C.	Average per Party Expenditures during Entire Stay outside Washington, D.C., but within the Metropolitan Area (1-hour drive)
Lodging (hotels, camping, B&B, etc.)	\$422.65	\$180.31
Restaurants and Bars	\$214.90	\$107.64
Food Stands / Refreshment Stands	\$32.41	\$9.67
Gas and Oil (auto, RV, boat, etc.)	\$14.72	\$35.28
Public Transportation (subway, bus, taxi)	\$33.50	\$12.25
Other Transportation Fees (rental cars, auto repairs, but NOT airfare)	\$29.11	\$17.98
Admissions, Recreation, and Entertainment Fees (e.g., tour guide fees, sightseeing tours, movies)	\$45.92	\$14.11
Other Services (e.g., barber / beauty shops, laundry)	\$7.71	\$1.12
Retail Purchases Related to Sites Visited (souvenirs, books, t-shirts, etc.)	\$63.65	\$25.78
All Other Retail Purchases Not Site-Specific (books, groceries, sporting goods, clothing, etc.)	\$41.43	\$24.66
Other Expenses	\$24.35	\$3.11
Total	\$930.35	\$431.91

SOURCE: NPS 2009.

NOTE: Sample size = 482.

of \$930.35 in Washington, D.C., and \$431.91 in the metropolitan area (see Table 37). The highest expenditure categories within Washington, D.C., were lodging, restaurants and bars, and retail purchases related to sites visited.

For day-trippers an average of \$34.26 per person per day was spent in Washington, D.C., while for overnight guests an average of \$94.37 was spent per person per day (with nights configured for lodging). Therefore, every 1,000 new day-trippers are estimated to bring \$34,260 per day into the Washington, D.C., economy, while every 1,000 new overnight guests are estimated to bring \$94,370 per day/night into the Washington, D.C., economy in direct spending. In terms of the metropolitan area (outside Washington, D.C., but within a one-hour drive), day-trippers spent an average of \$47.20 per person per day, while overnight guests spent an average of \$43.39 per person per day (with nights configured for lodging). Therefore, every 1,000 new day-trippers are estimated to bring \$47,200 per day into the metropolitan area, while every 1,000 new overnight guests are estimated to bring \$43,390 per day/night into the metropolitan area in direct spending.

Visitor expenditures by nonlocal and local residents were also analyzed. Local residents were defined as those living in Washington, D.C.; Charles, Montgomery, and Prince George's counties in Maryland; and Arlington,

Fairfax, Loudoun, and Prince William counties in Virginia, as well as the independent cities adjacent to these areas.

Total expenditures on the National Mall and in Washington, D.C., by nonlocal visitors averaged about \$849 per party, compared to \$163 for local visitors. As would be expected, nonlocal visitors spent the most for lodging, then restaurants and bars; retail purchases related to sites visited was the third highest spending category (see Table 38). The highest expenditure category for local visitors was restaurants and bars, followed by admission, recreation, and entertainment fees (e.g., tour guide fees, sightseeing tours) and retail purchases related to sites visited (see Table 39).

Transportation-related expenditures show that nonlocal visitors within Washington, D.C., spent more on public transportation than on gas and oil or other transportation fees (such as rental cars), while parties staying outside Washington, D.C., but within a one-hour drive of the city, spent 25% more on gas and oil and other transportation fees.

Comparing transportation-related expenditures for local visitors shows higher public transportation expenditures for local visitors within Washington, D.C., than for those coming from outside the District (within a one-hour drive). Visitors coming from outside the District also spent 60% more on gas and oil than visitors within the District.

TABLE 38: AVERAGE PER PARTY EXPENDITURES — NONLOCAL VISITORS ONLY

Category	Average per Party Expenditures during Entire Stay at the National Mall and in Washington, D.C.	Average per Party Expenditures during Entire Stay outside Washington, D.C., but within the Metropolitan Area (1-hour drive)
Lodging (hotels, camping, B&B, etc.)	\$387.51	\$211.94
Restaurants and Bars	\$195.83	\$104.71
Food Stands / Refreshment Stands	\$30.15	\$9.28
Gas and Oil (auto, RV, boat, etc.)	\$14.44	\$34.34
Public Transportation (subway, bus, taxi)	\$31.01	\$12.51
Other Transportation Fees (rental cars, auto repairs, but NOT airfare)	\$25.87	\$19.29
Admissions, Recreation and Entertainment Fees (e.g., tour guide fees, sightseeing tours, movies)	\$41.22	\$14.20
Other Services (e.g., barber / beauty shops, laundry, etc.)	\$7.01	\$1.39
Retail Purchases Related to Sites Visited (souvenirs, books, t-shirts, etc.)	\$58.89	\$24.37
All Other Retail Purchases That Were Not Site Specific (books, groceries, sporting goods, clothing, etc.)	\$34.02	\$24.48
Other Expenses	\$23.04	\$2.12
Total	\$848.99	\$458.63

SOURCE: NPS 2009.
 NOTE: Sample size = 525.

TABLE 39: AVERAGE PER PARTY EXPENDITURES — LOCAL VISITORS ONLY

Category	Average per Party Expenditures during Entire Stay at the National Mall and in Washington, D.C.	Average per Party Expenditures during Entire Stay outside Washington, D.C., but within the Metropolitan Area (1-hour drive)
Lodging (hotels, camping, B&B, etc.)*	\$14.47	\$21.21
Restaurants and Bars	\$69.48	\$37.46
Food Stands / Refreshment Stands	\$12.48	\$0.34
Gas and Oil (auto, RV, boat, etc.)	\$8.90	\$15.08
Public Transportation (subway, bus, taxi)	\$7.81	\$2.32
Other Transportation Fees (rental cars, auto repairs, but NOT airfare)	\$3.29	\$1.02
Admissions, Recreation and Entertainment Fees (e.g., tour guide fees, sightseeing tours, movies)	\$19.06	\$5.47
Other Services (e.g., barber / beauty shops, laundry, etc.)	\$0.68	\$0.45
Retail Purchases Related to Sites Visited (souvenirs, books, t-shirts, etc.)	\$15.10	\$8.18
All Other Retail Purchases That Were Not Site Specific (books, groceries, sporting goods, clothing, etc.)	\$9.80	\$16.25
Other Expenses	\$1.81	\$3.92
Total	\$162.88	\$111.70

SOURCE: NPS 2009.
 NOTE: Sample size = 90.

* Lodging expenditures are included for locals because while locals live in the area, they could have guests in town and all could choose to stay overnight in a D.C. hotel.

PARK OPERATIONS

The National Mall and Memorial Parks (NAMA) has a staff of around 330 people, who are organized in five divisions — park programs, administration, resource management, maintenance, and interpretation and education — and the superintendent's office. In addition to caring for the National Mall's historic landscape and commemorative works, the National Mall and Memorial Parks operate 156 reservations, parks, circles, and triangles throughout a large area of north-central Washington, D.C. These areas include the Law Enforcement Officers Memorial, Dupont Circle, McPherson Square, and Columbus Circle, as well as Pennsylvania Avenue National Historic Site and East Potomac Park. Ford's Theatre National Historic Site, a separate national park system unit, may continue to rely on NAMA staff for some tasks. President's Park, also a separate national park system unit, also relies on NAMA staff, primarily for special events and maintenance.

PARK ORGANIZATION

The Office of the Superintendent provides management and planning leadership. The office has six to nine employees, including the superintendent, two deputy superintendents, a special assistant, a management and program analyst, and support staff. A partnership office typically has three to four staff members and deals with wide-ranging partnerships, transportation, business services, and volunteer programs. The volunteer office coordinates more than 29,000 donated hours of labor annually for activities such as painting, weeding, and river cleanup.

The Park Programs Division handles special events and demonstrations for the National Capital Region of the National Park Service. This small division of about five people processes more than 6,000 permits annually, which result in about 3,000 events, including commercial filming and recreation field use, as well as First Amendment gatherings and national celebrations, plus permits for other national park system units in Washington, D.C. Because of the limited staff, only limited onsite monitoring of events can be provided. Depending on the

number of people expected to attend an event, different levels of advance planning, logistical preparation, requirements, and monitoring are necessary.

The Administration Division includes a chief and staff who address financial/budget management, human resources, communications, contracting, and computer/information technology. The division averages around 20 staff members.

The Resource Management Division includes a chief, cultural and natural resource specialists, and preservation staff who work on memorials and statues. The division ranges from 15 to 20 employees.

The Division of Maintenance recently changed its name to the Division of Facility Management. The division, which includes the East Potomac Park and the NPS Brentwood facilities, is responsible for facility maintenance, grounds and trees, roads and trails, and transportation. In 2008 this division, the largest in the park, had 177 permanent employees and 25 seasonal employees; there are an additional 20 maintenance employees for the Centennial Initiative. Over the last 12 years annual staffing in this division has averaged 248 employees, with a high of 301. The staff at park headquarters is small, consisting of a chief of maintenance, deputy, civil engineer, landscape architect, facility assessment IT specialist, facility management specialist, and an administrative assistant.

The Division's Facility Maintenance Branch includes trades and specialties such as carpentry, electrical, masonry, metal craft, painting and signs, plumbing, and special events. Staff also provide technical craft and trade support for other national park system units.

The Division of Facility Maintenance has a number of contracts to perform the following types of work:

- elevator maintenance
- heating, ventilating, and air conditioning (HVAC) maintenance

- mowing of East Potomac Park and areas north of Constitution Avenue
- catch-basin cleaning
- tree services (tree removal, stump grinding, trimming, etc.)
- security system maintenance
- maintenance of the World War II Memorial water features, including the electrical systems and pool cleaning
- pool cleaning for the U.S. Navy Memorial and Korean War Veterans Memorial
- street light maintenance (PEPCO)

The Division of Interpretation and Education provides interpretation, education, and informational programs and helps provide visitor safety as well as first-line response for medical emergencies. The division currently has 79 people, who are organized in three work shifts. Over the last 10 years the division has remained fairly constant, with an average of 80 employees and a high of 93.

OPERATIONS BACKGROUND

Operating Budget

The park's operating budget in 2006 was \$29.8 million; in 2007, \$30.4 million; and in 2008, \$31.1 million.

Staffing Levels

The National Park Service is conducting a process known as core operations planning to align staffing with the core or essential operations that are performed in a park unit. Core activities are linked to legislative mandates, the park purpose, and significant park resources. This core operations planning process is coordinated with the foundation statement that was developed for the National Mall plan (see page 9).

Since 1996 the park staff has averaged 378 full time equivalent employees (FTEs) annually, with a high of 450 and a current near low of 330. (The park has operating increase requests for technical and trade, engineering, xxx). The greatest impact of staff reductions has been in the Maintenance Division, and contracts have been used to make-up the shortfall.

Law enforcement is provided by the United States Park Police (USPP) rather than park rangers. The Park Police are not part of the park staff, but they work closely with all national park system units in the National Capital Region.

Park Asset Management Planning

All national park system units are required by NPS *Management Policies 2006* to have a program of preventive and rehabilitative maintenance and preservation (NPS 2006e, sec. 9.1.4.1). For the last few years national park system units have been converting to new computer databases for tracking park facilities, which are referred to as assets. The asset management process is being used to identify current assets, their condition and management priority, and deferred maintenance needs throughout the national park system. The data are then used to identify projects that will be submitted for implementation funding.

As previously described, the National Mall and Memorial Parks (NAMA) is the managing entity for the National Mall. According to its "Park Asset Management Plan," the National Mall and Memorial Parks maintain 311 assets valued at \$2.1 billion, with \$508 million of deferred maintenance. New memorials that will be managed by the National Mall and Memorial Parks include the Martin Luther King, Jr. Memorial and the Vietnam Veterans Memorial Center, both of which will be on the National Mall, and the Americans Disabled for Life Memorial and the Dwight D. Eisenhower Memorial, which will be adjacent to the National Mall.

On the National Mall there are 126 separate assets distributed throughout the following areas — the Mall, Washington Monument, World War II Memorial, Constitution Gardens, Vietnam Veterans Memorial, Lincoln Memorial, Korean War Veterans Memorial, Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial. Assets on the National Mall account for more than three-quarters of the total park current replacement value for the National Mall and Memorial Parks, but deferred maintenance amounts to 93.7% of the total. Table 40 shows assets as of December 2008 for the National Mall and Memorial Parks.

**TABLE 40: NAMA PARK ASSET MANAGEMENT PLAN
(DECEMBER 2008)**

	Assets	Total Deferred Maintenance	Current Replacement Value	Facility Condition Index
NAMA Total	311	\$508.1 million	\$2.1 billion	0.24
National Mall	126	\$475.9 million	\$1.7 billion	0.25
Percentage of Total	40.5%	93.7%	78.5%	NA

NOTES: The facility condition index is calculated by dividing the deferred maintenance by the current replacement value. This index is used by facility managers to better understand the relative condition of park assets. The closer the score is to zero, the better the condition of the asset.

Deferred maintenance shows the total before projects were funded by the American Recovery and Reinvestment Act of 2009.

Nearly 60% of the assets managed by the National Mall and Memorial Parks were built before 1960. Construction occurred in waves (e.g., pre-1901, 1910s, and 1970s), indicating that component renewal needs will follow a similar pattern in future years.

In 2008 the National Park Service examined the deferred maintenance and capital improvement requirements for the National Mall and ensured that these deficiencies and needs were captured in projects in the project management information system (PMIS). For the National Mall the deferred maintenance backlog totaled \$476 million, and capital improvement needs totaled \$122 million. Additional capital improvement needs are identified in the alternatives.

A substantial portion of the deferred maintenance need is attributed to the repair and rehabilitation of seawalls, including the West Potomac Park seawall (south of Arlington Memorial Bridge), the Tidal Basin seawall, and the East Potomac Park seawall (outside the National Mall). Emergency repairs to address

settlement at the Thomas Jefferson Memorial plaza seawall are currently funded. These projects added up to \$419.5 million in total NAMA project costs.

Identified capital improvement projects, before completion of the National Mall plan include installation of a vehicle barrier system around the Jefferson Memorial (\$16.2 million) and enhanced and improved visitor screening at the Washington Monument (\$5.1 million).

Operations and Maintenance and Deferred Maintenance

Operations and maintenance (O&M) benchmarks, which are based on standardized industry data, are used to help the National Park Service fully account for and address maintenance needs or deferred maintenance. Proper maintenance of any asset requires a mix of operational, recurring, and preventive maintenance. A standardized plan is similar to a manufacturer's recommended guidelines and might include:

- *operational activities* — trash removal, mowing, basic utility costs, etc.
- *recurring maintenance* — regularly scheduled repairs such as exterior painting, fence repair, road patching or re-grading, and masonry repointing
- *preventive maintenance* — tasks undertaken at least once a year and including activities, such as visual inspecting assets, water quality testing, replacing filters, lubrication of equipment
- *corrective maintenance* — unplanned or unscheduled maintenance accomplished by shifting resources from other areas

**TABLE 41: DIFFERENCE BETWEEN ANNUAL MAINTENANCE REQUIREMENTS AND BUDGETS,
NATIONAL MALL AND MEMORIAL PARKS**

Asset	Requirement	Budget	Difference	Percent Funded
Road Assets*	\$833,513	\$250,619	(\$582,894)	30%
Maintained Landscapes	\$4,732,278	\$1,817,619	(\$2,914,659)	38%
Buildings**	\$11,353,514	\$4,651,790	(\$6,701,724)	41%
Waterfront Assets	\$644,605	\$140,793	(\$503,812)	22%
Unique Assets	\$7,411,667	\$6,363,934	(\$1,047,733)	86%
Other***	\$737,681	\$641,028	(\$96,653)	87%
Total	\$25,713,258	\$13,865,783	(\$11,847,475)	54%

* Includes all roads, parking areas, bridges, and one FHWA-inspected trail bridge

** Includes large monuments (e.g., Washington Monument, Lincoln Memorial, Thomas Jefferson Memorial).

*** Includes water, wastewater, and electrical systems (from World War II Memorial), IT system, fuel system, and the Sylvan Theater.

The current gap between NAMA's budget and estimated total O&M benchmark is \$11.8 million per year. Table 41 characterizes parkwide asset types and funding gaps between what industry standards indicate is needed and current park budgets.

Additional Park Responsibilities and Special Demands

Since 1995 three new memorials have been built on the National Mall — the Korean War Veterans Memorial, the Franklin Delano Roosevelt Memorial, the George Mason Memorial, and the World War II Memorial. When completed, the Martin Luther King, Jr. Memorial and the Vietnam Veterans Memorial Center will be two additional park responsibilities.

The National Mall and Memorial Parks has additional responsibilities outside the National Mall that affect work load. In 1996 what was then referred to as Pennsylvania Avenue National Historic Park was transferred to park management. Additional memorials have included the African-American Civil War Memorial, the Gandhi Memorial, the Masaryk Memorial, the National Japanese American Memorial to Patriotism, and the Victims of Communism Memorial. The Dwight D. Eisenhower Memorial, which will be constructed south of the Mall, will be a future park responsibility, as will as the Veterans Disabled for Life Memorial.

The parks and facilities managed by the National Mall and Memorial Parks also complement the D.C. park system. Because of the National Mall's prominent location in the center of Washington, D.C., park staff are frequently called on to quickly undertake unscheduled or special work. As a result, scheduled and regular maintenance is often postponed. To help address this situation, in 2008 the park established a visual quality team and a response team to quickly identify and address problems and concerns to improve the park's appearance. This approach is similar to best practices that are used at other sites where teams are used for special situations or to address special but infrequent maintenance needs.

Annual national celebrations, such as the Fourth of July and the National Cherry Blossom Festival, require significant staff time among various

divisions to plan, as well as provide programs, visitor services, and maintenance. Presidential inaugural activities, formal state functions, and visits by foreign heads of state also alter or place additional demands on day-to-day park operations.

Park staff also manage or support annual events that occur outside park boundaries but still affect park operations. These include managing three annual concerts on the Capitol west lawn and providing support for the annual Lighting of the National Christmas Tree and Christmas Pathway of Peace in President's Park (support is provided for construction, special events management, and maintenance). Considerable support is provided to President's Park because that park has limited maintenance resources. The NAMA Division of Facility Management provides a variety of support services, including special events, tree work, plumbing, electrical, paint, sign, masonry, carpentry, and metal work.

ENERGY AND WATER USE

National Mall and Memorial Parks

The National Park Service completed a required initial energy and water audit in July 2009. Each unit of the more than 390 units of the national park system was included. Audit findings will be used to develop energy conservation measures to meet NPS and federal goals for reduced energy and water use. The National Park Service requires sustainable, energy-efficient facilities, and new facilities must meet the LEED silver standard (NPS 2006e, sec. 9.1.1.6). The NPS *Management Policies 2006* also require that water be used efficiently and sustainably (NPS 2006e, sec. 9.1.5.1).

According to the July 2009 audit, the National Mall and Memorial Parks was first throughout the national park system for energy and water use. As previously described, the National Mall and Memorial Parks is larger than the focus of this planning effort, which focuses only on the National Mall. The ranking is for all park areas managed by the National Mall and Memorial Parks, which includes the National Capital Regional Office, park headquarters, two maintenance yard areas, and a visitor transportation bus facility, as well as numerous small parks

throughout central Washington, D.C., some with designed water features.

NPS facilities in Washington, D.C., are generally older, and many use energy and water inefficiently because of out-of-date systems. Power requirements in buildings have increased with computer use, lighting systems may need to be updated, and heating, ventilation and air conditioning (HVAC) systems replaced.

National Mall

Energy Use

Energy consumption on the National Mall is largely due to lighting systems, water feature pump operations, and HVAC systems, as well as small-scale visitor and park facilities, several with elevator systems. Two visitor facilities constructed in 2006-7 north and south of the Lincoln Memorial have been designed to be energy efficient and sustainable. These facilities use a closed-loop geothermal system in their cooling and ice-making operations, reducing energy consumption, improving air quality, and saving millions of gallons of water.

The largest energy use on the National Mall is from lighting streets, memorial areas, and walkways. The lighting of the Lincoln Memorial, the Washington Monument, and the Thomas Jefferson Memorial on the National Mall, along with the U.S. Capitol and the White House, establish the nighttime character of the monumental core in Washington, D.C. In addition to memorial lighting, there are over 20,000 light fixtures throughout the National Mall, including street lights, pedestrian pole lights, in-ground lights, wall-mounted lights, bollard lights, spotlights, landscape lights, and underwater lights in water features.

Street lights generally use metal halide lighting; compact fluorescent lights are being used where feasible; and the park is experimenting with LED lights. Some types of light systems have not proven suitable for outdoor locations. Park rangers and the U.S. Park Police report lighting outages. The park stocks a wide variety of replacement parts and bulbs because of different fixtures and requirements.

Water Use

The high level of water use is primarily the result of designed water features, which use potable water; other uses such as irrigation, restrooms, and drinking fountains make a smaller contribution. Designed water features on the National Mall include the Lincoln and Capitol reflecting pools, Constitution Gardens Lake, the World War II Memorial, the Franklin Delano Roosevelt Memorial, the Korean War Veterans Memorial, the George Mason Memorial, and the John Paul Jones Memorial. Between 100 million and 110 million gallons of water are used annually in just three designed water features — Constitution Gardens Lake, the Capitol Reflecting Pool and the Lincoln Reflecting Pool (see discussion of water resources under “Natural Resources”). Water features on the National Mall are subject to evaporation and leakage, and they need to be emptied, cleaned, and refilled, generally twice a year. With the exception of the reflecting pools and lake, most water features are winterized and drained. Permanent irrigation systems are supplemented occasionally by temporary irrigation when needed. The park has successfully used nonpotable Potomac River water for irrigation, and the low saline levels have not adversely affected plant materials.

GENERAL MAINTENANCE

Written grounds maintenance standards for the National Mall are out of date and do not address issues related to facilities, buildings, or memorials. Based on the best practices information collected during this planning effort, the park has four projects at the World War II Memorial, the Lincoln Memorial, the Korean War Veterans Memorial, and the Vietnam Veterans Memorial to explore implementing more comprehensive operations and maintenance standards.

Signs

There are more than 400 visitor signs within the National Mall (not including road signs). Signs are not coordinated or consistent, resulting in confusing information for visitors and sign clutter. More than 40% of the signs (185) regulate activities to protect the visitor experience or provide necessary warnings. New, coordinated regulatory and operational signs are included in

a 2008 Centennial Project for improved signs. The National Park Service requires a sign plan that reflects the character of the park and meets servicewide standards for consistency (NPS 2006e, sec. 9.3.1.1).

Sites and Facilities

Many National Mall facilities such as restrooms, paving, and Tidal Basin seawalls, have exceeded their life expectancies. Also, they were built to accommodate far fewer visitors than the park currently serves. Facilities were not designed to withstand vandalism, so doors to some restrooms have been repeatedly damaged. Ease of maintenance and ergonomic designs were not considered, so floor-mounted toilets are more difficult to clean around. Circulation routes do not provide operational access in all locations; for example, Constitution Gardens does not have operational access for maintenance or delivery vehicles. Around the Tidal Basin, walks are too narrow to accommodate the electric carts used by park rangers.

Special Events

Frequent special events and associated high levels of use result in wear and tear on park facilities and infrastructure that is difficult to immediately address, resulting in negative public comments about the appearance of the National Mall. During major events like the Fourth of July, staff work overtime through the night to remove more than 30 tons of trash by the next morning, and during some events contract staff supplement park staff.

Vehicle routes are identified for heavy delivery trucks for special events, but due to insufficient staffing, special events are not consistently monitored for compliance. Vehicles of all kinds park on turf areas and contribute to soil compaction.

The installation of large amounts of temporary fencing for presidential inaugural activities, the Fourth of July celebration, and some First Amendment demonstrations is a time-consuming activity that reduces time spent on other maintenance activities. Complaints have been received about the use of snow fencing, and the park has been trying different products.

Waste Management and Recycling

The **Division of Facility Management** now operates on two work shifts (6 a.m.–3 p.m., and 1:30 p.m. to 10 p.m.) to better align with hours of visitation. Currently, waste containers are emptied throughout the day and problems are addressed in a timely fashion, thus improving conditions for visitors.

Repeated frequent cleanings at memorials can adversely affect these resources, and park regulations prohibit food and drinks within memorials to protect them from damage, stains, spills, and difficult-to-remove gum.

There are between 650 and 700 trash receptacles within the National Mall, and the park has been consolidating styles as it replaced more 555 on the National Mall in the last year. The park empties trash containers by hand, and lifting heavy trash bags from containers may result in staff injuries. The mechanized emptying of trash requires side-loading trash containers and modified trucks for lifting and dumping.

A recycling program conducted by a corporate donor in the early 1990s was successful because the donor paid to have the trash removed and the different types of recyclables sorted. Since then, recyclable materials have been frequently mixed with trash, which is not acceptable to recycling centers. The National Park Service, the Trust for the National Mall, the Environmental Protection Agency, and others have been working on a number of recycling programs as well as solid waste (garbage) management studies and recommendations.

Today lightweight plastic bottles have replaced glass as the most common drink containers. Currently well over 90% of drink containers are plastic, and around 40% of trash is comprised of food packaging. While glass breakage is no longer a major concern, a large amount of plastic containers blow around, spill out of trash containers, and float in water features. Solid waste and recycling containers are not concentrated near areas where trash is generated (such as food service facilities), so litter is not confined to specific areas. *NPS Management Policies 2006* support solid waste management practices to reduce trash and to encourage reuse and recycling (NPS 2006e, sec. 9.1.6.1).

The National Park Service has recently signed a contract with Urban Service Systems Corporation for transfer station waste disposal. The company is advertised as a “Going Green” company that collects solid waste, which is then burned to generate up to 23 megawatts of electricity and sold to Dominion Virginia Power Company. Contracts for single-stream recycling, florescent bulb recycling, and composting of food waste are being studied to further improve recycling efforts.

Communication Infrastructure

There is no comprehensive communication infrastructure on the National Mall. Temporary telephones and communications are provided as needed for events. Mass notification is undertaken by police and park rangers through personal contact, announcements on stages, bull-horns, and electronic message signs. These means are also used to provide directions during events like the Fourth of July celebration. Mass communication and fiber optic lines run near the National Mall boundaries.

PARTNERSHIP, BUSINESS, AND JURISDICTIONAL ISSUES

Partnerships

Partnerships are vital to the operation, preservation, and enjoyment of the National Mall. Partnership agreements detail the requirements, limits, and extent of the activities. Partnership activities must not (1) violate legal or ethical standards, (2) reflect adversely on the NPS mission or image, or (3) imply an unwillingness to perform an inherently governmental function.

As of fall 2006 the park’s partnership office has 23 written agreements on a range of subjects. The Trust for the National Mall is the authorized NPS fundraising partner, and Eastern National is the cooperating association that operates bookstores. There are partner groups for specific memorials, such as the Washington Monument, the World War II Memorial, the Korean War Veterans Memorial, and the Vietnam Veterans Memorial. There are also partner groups for certain activities, such as the National Cherry Blossom Festival.

Public and other activities and programs such as Fourth of July celebrations, inaugural activities, the Smithsonian Folklife Festival, and the National Cherry Blossom Festival involve facilities and locations under multiple jurisdictions. The Smithsonian Institution and the National Park Service co-sponsor the Folklife Festival on the Mall each summer. The National Park Service also works with the Architect of the Capitol on annual concerts and support for state events.

The National Park Service has consultation partnerships with the Commission of Fine Arts, the National Capital Planning Commission, the D.C. Historic Preservation Office, the Advisory Council on Historic Preservation, the Inter-agency Workgroup for the Mall, and the American Battle Monuments Commission.

Under a memorandum of agreement with the D.C. government, the city issues permits for the use of some athletic fields on the National Mall.

The U.S. Park Police have primary law enforcement jurisdiction on the National Mall, but also work with the U.S. Capitol Police, U.S. Secret Service, D.C. Metropolitan Police, and others to provide safety and security within the area.

Lawn care services and irrigation improvements at the Vietnam Veterans Memorial have been funded by the Vietnam Veterans Memorial Fund, as an extension of their ongoing preservation work at the memorial. Overall, the Memorial Fund’s efforts will improve approximately 13.5 acres on the National Mall, including the knoll east of the memorial. The Memorial Fund has been a partner with the National Park Service in memorial preservation from the beginning, taking an active role in the physical needs of the wall, *The Three Serviceman* statue and flagpole, and the rest of the memorial site. Services routinely provided by include insurance of the wall against damages, provision of copies of the names directory to assist visitors, and wall maintenance. The Memorial Fund also adds names to the wall and makes status changes for those whose remains have been returned home.

Volunteers-in-Parks

Volunteers-in-Parks supplement NPS staff in many areas managed by the National Mall and Memorial Parks. While the statistics for 2009 are

**TABLE 42: VOLUNTEER HOURS, OCTOBER 2008–
JULY 2009**

2008 Volunteer Category	2008 Volunteer Hours
Cultural Resource Management	1,503
Interpretation	13,969
Maintenance	12,251
Natural Resource Management	662
Protection/Operations/Law Enforcement/Public Health	2,159
Training	130
Total Hours	30,674
Number of Volunteers	3,265
Value of Volunteer Hours at \$20.25/hour	\$621,148
Program Costs	\$36,430

incomplete, for the 10 months of the fiscal year beginning October 2008, more than 30,000 hours of labor have been donated to the park. The National Park Service values contributions at \$20.25 per hour. The volunteer contribution thus far in fiscal year 2009 is valued at over \$621,000 (see Table 42).

More than half of volunteer hours fall under maintenance types of work, including staining park benches, painting post-and-chain fencing, weeding, raking and bagging leaves, pruning, picking up trash, picking up river debris, general cleanup, and summer student help in the paint and carpentry shops. Volunteers also support special events and provide a variety of services ranging from recycling to staffing first-aid facilities. Volunteers support interpretation and education by staffing information kiosks and by putting on programs at World War II Memorial, at the Vietnam Veterans Memorial, and during the National Cherry Blossom Festival.

Commercial Visitor Services

In accordance with NPS *Management Policies 2006* (sec. 10.2.2), commercial visitor services that are necessary and appropriate for visitor use and enjoyment are provided on the National

Mall. Two businesses have contracts with the National Park Service to operate on the National Mall. Guest Services, Inc., (GSI) provides refreshments, gifts, and recreation equipment rentals (paddleboats). Landmark Services, Inc., operates the Tourmobile service, an interpretive visitor transportation service. Both contracts are nearing the end of their contract time periods.

Other businesses, such as taxis or pedicabs, and guided tours (walking, bicycling, sightseeing, or Segway® HTs), can operate within the National Mall in compliance with laws and federal regulations for the National Park Service. Areas of operation and stops related to these services are designated by the superintendent.

Jurisdictional Issues

Various jurisdictions overlap on the National Mall. The National Park Service and Washington, D.C., each maintain different roads within the National Mall, and city roads run through or tunnel under the park. A mix of NPS, city, federal highway, and downtown D.C. Department of Transportation signs provide information. The city has some maintenance facilities in the Watergate area, and city parking meters provide income to the city. The Washington Metropolitan Area Transit Authority (WMATA) Metrobus lines run through and stop on the National Mall, and four Metrorail (subway) lines run beneath it. An interagency working group of federal and local agencies addresses streetscape issues (Interagency Initiative for National Mall Road Improvement Program 1992).

There are some uniquely federal coordination concerns, such as the condition of the GSA steamlines that traverse the park, or the security needs of federal office and museum buildings on or adjacent to the National Mall.