

4.0 ENVIRONMENTAL CONSEQUENCES



View of proposed Memorial from southwest entrance.

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4.1 Socio-Economic Environment

4.1.1 Land Use

Proposed Memorial

The proposed Memorial would return the site and its abutting street network to their original configuration as established in the L'Enfant Plan of 1791. This reconfiguration of the site would transform the existing underutilized traffic triangle and the surrounding road network into a landscaped and maintained commemorative space. The proposed Memorial would result in a positive impact on the site.

The proposed Memorial at the approved site would complement the existing cultural attractions, memorials, monuments, museums, and facilities located in the Monumental Core. The use of materials and high quality finishes, such as granite and marble, would be consistent with other memorials and would complement the architectural character of buildings in the study area.

The proposed Memorial would support and strengthen the cultural character of the surrounding area, enhancing the visual relationships with the Bartholdi Fountain, the U.S. Capitol, and the National Mall. The proposed Memorial would bring cohesiveness to the fragmented streetscape of the immediate area, resulting in a positive impact to the area.

An additional new project in the vicinity of the Monumental Core may contribute to a cumulative impact on land use in conjunction with the proposed Memorial. The Smithsonian is planning construction for an outdoor National Garden as a supplement to the existing Botanic Garden Conservatory. The construction phase of the proposed Memorial and other nearby projects may displace existing parking, and disrupt pedestrian and vehicle routes. Once completed, however, the proposed Memorial would be compatible with surrounding uses and, in conjunction with other Mall projects, would enhance the cultural character of the Mall's southeast end and result in a positive impact on the area.

Mitigation: Proper signage, detour routes, and way-finding measures can be placed around the site so that pedestrians and traffic can be redirected to alternate routes during Memorial construction. Construction barriers, such as fences, can be used to ensure that pedestrians do not enter the site during construction and minimize the impact of disrupted routes.

No Action Alternative

Under the No Action Alternative, the approved site would remain as a vacant parcel, and the study area would remain without a new Memorial. Thus, there would not be a positive land use impact to the area.

4.1.2 Planning Controls and Policies

Proposed Memorial

The proposed Memorial has been designed to be consistent with the site parameters established for the Memorial site by the government agencies that participated in the Technical Advisory Committee. In addition, the proposed Memorial would comply with applicable planning controls by conforming local and federal policies and plans governing the study area. These include:

- The proposed Memorial would comply with the Commemorative Works Act of 1986, which established standards for locating works of commemorative value in the Monumental Core. The approved site is located within Area II as defined by the Act, and where works of “lasting significance can be placed.”
- The site of the proposed Memorial is in compliance with NCPC’s *Memorials and Museums Master Plan*, which recommends the project site as a location for a future memorial.
- The proposed Memorial would enhance an underutilized urban open space by creating an identifiable commemorative place.
- The proposed Memorial would restore an historic street that was inappropriately disrupted during the construction of Interstate 395. The realignment of C Street to its historic configuration would enhance the C Street view corridor.
- The proposed Memorial would reinforce and enhance existing uses and historic character of the area by virtue of its orientation to the Bartholdi fountain and the Capitol dome.
- The proposed Memorial would enhance the general views along adjacent vistas and prominent locations by creating a special feature that is currently characterized as a minimally maintained vacant parcel.
- The proposed Memorial would provide a canopy of trees in an area that is currently low on vegetation, thus reinforcing the historic green character of the Nation’s Capital.
- The proposed Memorial would include high quality materials and craftsmanship that is consistent with the high aesthetic standards already established in and around the Monumental Core.
- The proposed Memorial would provide visitors to the District of Columbia with a new cultural attraction within walking distance of two Metrorail stations and in proximity to a popular tourmobile stop.

The proposed Memorial would also help enhance the areas between future congressional buildings and the surrounding vicinity of South Capitol Street. The proposed Memorial would contribute to more cohesive spatial relationships as highlighted in the Master Plan for the United States Capitol.

No Action Alternative

Under the No Action Alternative, the approved site would not be developed as the proposed Memorial. In this case, a commemorative work of “lasting significance” would not be established on the site at this time. The site would remain available for another undetermined memorial project.

4.1.3 Visitation

Proposed Memorial

The proposed Memorial would not add substantially to the long-term total visitation to the Monumental Core. Aside from the dedication of the Memorial, and annual national holiday celebrations, it is not anticipated that the proposed Memorial would be the site of special events or demonstrations. As a distinct destination and novel attraction near the National Mall, the Memorial would most likely experience greater than average visitation in the first few years before becoming stabilized at a more typical visitation level. This has been the general experience with other new memorials such as the Korean War Veterans and FDR Memorials. Accordingly, the projected visitation during the first year is estimated at approximately 3 to 5 million visitors. Based on current visitation to the Lincoln, Vietnam Veterans, Korean War Veterans, and FDR Memorials, stabilized annual visitation is estimated to average up to 1.2 million persons. This rate translates to a maximum of approximately 100,000 visitors per month, including 2,000 per weekday to 5,000 on peak weekend days.

The construction of a well-landscaped plaza framed by design elements of commemorative appeal would enhance the visitor experience to the study area. The proposed Memorial would generate a positive impact by creating a new special place in the Nation’s Capital that extends the tourist experience beyond the Mall.

In conjunction with several nearby existing or planned cultural attractions (e.g., NMAI, National Garden, U.S. Capitol), the

Memorial would help create a new focus area for tourist destinations. By drawing Monumental Core visitors to this portion of the Mall, the proposed Memorial could help eventually attract visitors down Washington Avenue to South Capitol Street and beyond. The addition of this Memorial could, therefore, have a positive long-term impact on pedestrian movement in the area by creating a new node of activity in the proposed location.

Since the site is situated among a series of other attractions, it will be important to properly maintain the proposed Memorial and its adjacent grounds. The National Park Service will maintain the site and ensure that the site remains free of rubbish, and dirt and debris from the nearby roadway.

No Action Alternative

Under the No Action Alternative, the site would remain void of the proposed Memorial and the visitor experience on and around the site would not be enhanced. The site's potential as an area of interest to visitors within the Monumental Core would not be realized.

4.1.4 Community Facilities and Services

Proposed Memorial

There are no public restrooms planned as part of the proposed Memorial. The use of nearby public restroom facilities at the NMAI and Botanic Garden could be slightly impacted by visitorship to the Memorial.

No Action Alternative

Under this alternative, existing conditions would not be modified. Therefore, there would be no increased demand and no impact on existing community facilities.

4.1.5 Safety and Security

Proposed Memorial

The long-term operation of the proposed Memorial would result in a slight increase in demand on safety services by increasing the number of people in an area where there previously have been few or no visitors. This could potentially increase the need for police patrol, fire protection, and emergency medical service responsibilities of the U.S. Park Police, who have jurisdiction for the project site. The nearby 24-hour presence around the site by the Capitol Hill Police, however, would help reduce the need for police services.

No Action Alternative

Under this alternative, there would be no increased demand for safety services.

4.2 Cultural Resources

Standards for evaluating potential effects on historic resources are derived from Section 106 of the National Historic Preservation Act (NHPA). NHPA requires federal agencies to consider the potential effects of a proposed federal or federally assisted undertaking on any district, site, building, structure, or object that is included in or eligible for listing in the National Register of Historic Places. This includes above-ground (historic) and below-ground (archaeological) resources.

Supporting NHPA regulations define “effect” as an “alteration to the characteristics of an historic property qualifying it for inclusion in or eligibility for the National Register” (36 CFR 800.16). An “adverse effect” occurs “when an undertaking may alter, directly or indirectly, any of the characteristics of the historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association.

4.2.1 Archaeological Resources

Proposed Memorial

The construction of the Interstate 395 tunnels in the 1960s beneath the site would have destroyed any potential archaeological resources existing at the time. Therefore, it is highly unlikely that the proposed Memorial would have any effect on archaeological resources.

Mitigation: In the event that any archaeological resources were to be found during construction, all construction activities would be ceased until the proper studies were conducted. At that point, NPS would resume its Section 106 responsibilities by coordinating the new information with the DC SHPO and ACHP.

No Action Alternative

The No Action Alternative would result in no modifications to the existing site, and would therefore have no effect on archaeological resources.

4.2.2 Historic Resources

Proposed Memorial

There are no historic resources located on the project site, and the site itself is not eligible for inclusion in the National Register. However, there are several historic resources in the area that could be affected by the proposed Memorial (see Section 3.2.2 for a full description of resources). Since the proposed concept design for the Memorial calls for a landscape solution that is sympathetic to surrounding historic resources, the setting for historic resources would not be adversely affected.

The proposed Memorial would have several positive effects on the area's historic resources. It would result in the realignment of C Street to its historic lateral configuration, as represented in the L'Enfant Plan of 1791. This would restore an historic view corridor, thus positively affecting historic resources. In addition, the proposed walls of the Memorial would be considerably

smaller than those of its neighboring six-story buildings, allowing for views to and from historic properties to be maintained. The Memorial would be oriented toward the Capitol Building, which in effect enhances the view of that resource from the Memorial site. This represents a positive effect on a major historic resource. In addition, only high quality finishes are proposed for this project, and these finishes would be consistent with the quality of materials represented in various historic resources surrounding the Memorial site, such as the Botanic Garden, the Capitol Building, the Rayburn Building, and Bartholdi Park.

The Memorial design concept will be subject to a strict review by public agencies prior to implementation. Ground surfaces and plantings would be of the highest quality and appropriate with historic precedents. Overall, the proposed Memorial would have no adverse effects on historic properties.

No Action Alternative

The No Action Alternative would not modify the existing conditions at the proposed site; therefore, implementation of this alternative would result in no effect on historic or cultural resources at the site. Under this alternative, the existing road network would not be returned to its' historic alignment.

4.2.3 Visual Resources

Proposed Memorial

Despite recent attempts to beautify the site with plantings, the existing open space is characterized by poor visual quality due to its confusing street pattern and relationship to the highway. Development of the Memorial would enhance the visual quality of the area by simplifying the street pattern and creating a tree cover that doesn't currently exist. The Memorial would provide a place of contemplation and reflection, and the inherent beauty associated with the design's water and fire elements would provide a fresh new visual focus for visitors. In addition, its walls would provide a sense of enclosure, helping to screen out the negative conditions associated with highway traffic to the south.



Internal view of proposed Memorial.

The Memorial would be partially visible from all directions. From a distance, the Memorial's trees, both along the street edge and framing the pool of water, would have the greatest visual impact. The Memorial's white granite and translucent glass walls, which would range from eight to thirteen feet high, would be visible from closer locations. This height, appropriate for human scale as it is comparable to the size of indoor walls, creates a sense of enclosure without being overwhelming. The stone walls would be of a honed finish, consistent with the area's other memorials and public buildings such as the Capitol and Rayburn Buildings.



View of proposed Memorial, from the southwest, looking to the northeast.

Due to the configuration of the Memorial's walls, views of the pool of water and central flame would generally occur from the north and east of the project site, with the fullest view provided from the northeast. Most views from the south and west would be of the Memorial's stone walls and trees. Planting at the walls is proposed to help soften their appearance.

The opening created by the Memorial's walls would be oriented toward the Capitol dome, thus enhancing the view corridor to that resource. The view corridor to the Botanic Garden and National Mall along Washington Avenue would be maintained.

The overall impact on visual resources would be positive because the proposed walls would buffer views to the south and open up views to the north and east, creating a new positive visual experience. Proposed plantings and street trees would help soften any impacts on views from the south and west.

Mitigation: The concept design for the proposed Memorial received positive comments during presentations before CFA and NCPC. Consultation will continue with both agencies as refinements are made during design development.

During construction, contractors should attempt to limit their work to the project site. The site should be fenced off with a timber board-on-board fence to maintain a pleasant appearance. Staging and laydown areas should be located within this fence.



View corridor along Washington Avenue looking northwest toward National Mall.



View corridor to the Capitol Building from Memorial site.

No Action Alternative

Under the No Action Alternative, the site would continue to offer the same views to nearby buildings and roads. Likewise, the site would continue to appear as an underutilized traffic triangle and associated infrastructure, lacking aesthetic value and focal purpose.

4.3 Natural Resources

4.3.1 Geophysical Resources

Proposed Memorial

Under the proposed action, the current alignment of C Street would be modified to reflect its original east-west configuration as illustrated in the L'Enfant Plan of 1791. The repositioning of this small section of C Street would not result in any modification to the slope or contour from its existing flat and level condition.

While the establishment of the proposed Memorial would not require significant cut and fill of the landscape on site, surface soils may be reworked and recompact under structures, paving and fill. The soils that would be disturbed by the development are likely fill soils that were previously added during the re-alignment of C Street for the construction of the I-395 ramp and tunnel. In addition, there should be no impacts to geologic resources as a result of the Memorial's construction, since the I-395 tunnel runs under the site.

The construction phase could contribute to erosion through the run off of soils as they are reworked and recompact. However, through the utilization of best management practices during construction, erosion and resulting runoff would be minimized.

No Action Alternative

Under the No Action Alternative, the site would remain in its current state. Thus, there would be no impact to geology, topography or soils.

4.3.2 Vegetation and Wildlife

Proposed Memorial

Current vegetation at the site consists of trees, grasses and soils that would be disturbed during construction of the proposed Memorial. Although the AOC has improved the site with temporary plantings, this existing vegetation is not ecologically significant. Surrounding parkland, such as Bartholdi Park, the Botanic Garden, and the U.S. Capitol Grounds, are not expected to be affected by the establishment of the proposed Memorial. Chemicals, such as paints or solvents, used during construction would be contained to avoid drifting and blowing of fumes to adjacent areas.

The limited on-site wildlife community, consisting of various species typically associated with the urban setting, would be displaced during the construction phases. None of the urban wildlife, however, is endangered, threatened or sensitive, and should be able to adapt quickly and easily to habitats surrounding the approved site. Suitable habitats may include areas

within Bartholdi Park, the U.S. Botanic Garden, and the U.S. Capitol Grounds. The implementation of this alternative would return the site to a state that could be potentially suitable for urban species such as birds and small mammals, particularly with new trees and water features that would attract wildlife.

No Action Alternative

Under the No Action Alternative, the existing on-site vegetation and wildlife would remain in their current state and would not be affected.

4.3.3 Noise Levels

Proposed Memorial

Noise levels at the project site would increase during the construction phase, which is expected to last for approximately one year. However, Memorial construction would be conducted in accordance with the D.C. Noise Control Regulations and any disturbance to the quiet enjoyment of visitors on the National Mall, National Garden and Bartholdi Park would be of limited duration.

The District of Columbia has established maximum allowable sound levels, described in the Noise Control Regulations (Municipal Regulation Title 20, Chapters 30 and 31) for any sound that emanates from an operation, activity, or noise source at the property line of the site on which the noise source is located. Noise derived from construction activity is addressed in Title 20, Chapter 30, Section 3004.2 of the D.C. Municipal Regulations which states that “individual pieces of construction equip-

ment shall be exempt at all times.” Construction activities are restricted to the hours between 7:00 AM and 9:00 PM on weekdays, and construction and demolition noise levels (excluding pile drivers) shall not exceed 80 dB(A) Leq unless granted a variance. From 9:00 PM to 7:00 AM, maximum noise levels of 55, 60, and 65 dB(A) apply for residential, commercial, and industrial, respectively, with no averaging time period specified. For construction noise, measurements should be made 25 feet from the outermost limits of the construction site. No permit for construction or demolition should be issued until the permit applicant provides written documentation that construction noise would comply with District noise regulations.

Noise from idling tour buses is not expected to have a significant impact when the Memorial is in operation. The tour buses would be directed to a designated tour bus parking area that has been approved by the D.C. Government and relevant planning bodies.

No Action Alternative

This alternative would not modify the existing conditions at the approved site; therefore, the implementation of this alternative would result in no impact on noise levels.

4.4 Transportation

4.4.1. Roadways and Traffic

Proposed Memorial

A traffic study was performed to determine the physical /geometric and operational feasibility of the proposed C Street realignment, and its accessibility to the adjacent freeway. The Memorial site is physically constrained by the adjacent roadways and building facilities. The study recognizes that the realignment must be fully responsive to the needs of the major governmental agencies within the area as well as roadway users in general. The study further proposes that the realignment address: (1) calming effects that would create a more pedestrian-friendly environment; (2) potential reductions in travel widths along the adjacent section of Washington Avenue, compatible with the traffic calming objectives; (3) the provision of parking and service access for the site; and (4) compatibility with other planning initiatives within the area.

The construction of the proposed Memorial would temporarily constrain, and/or close specific parking spaces, roadway lanes, or roadways in the immediate project area. In addition, the movement of construction materials, equipment, and workers on-site would further constrict roadways, thereby reducing roadway capacity and creating traffic delays on roadways near the Memorial site. Therefore, traffic would be diverted to other roadway lanes or other roadways. This would result in moderate, short-term increases in traffic congestion and delays on project roadway segments during peak traffic periods.

Maintenance of traffic (MOT) plans will be required to address specific construction activities.

Long-term impacts to roadways include the realignment of C Street, SW and elimination of an underutilized ramp to I-295 (See Figure 4-1). Once realigned, C Street, SW would be a continuous linear roadway, crossing 2nd Street, Washington Avenue, and 1st Streets, SW. The number of lanes on the realigned C Street segment would remain unchanged and thus, would not alter the road's capacity.

The turning angles on and off C Street would change; however, this would not affect vehicle turning capabilities or efficiencies. The realigned C Street would provide direct access to the I-295 on-ramp. As part of the realignment, it is anticipated that the ramps would need to be modified to meet access configuration requirements. According to a 2002 traffic study of the area, the I-295 ramp currently accessed from Washington Avenue is underutilized and can be eliminated, and the District of Columbia Department of Transportation traffic engineers concurred with this recommendation. The roadway improvements associated with the proposed Memorial would help simplify the street geometry while improving access through and around the site and to adjacent highways. Thus, the proposed action would create positive impacts on the roadway system.

According to the 2002 traffic study, traffic in the vicinity of the project site does not operate optimally during peak traffic periods. One intersection in proximity to the Memorial site operates at the minimal acceptable Levels of Service (LOS) of D: Washington Avenue at 1st Street in the peak AM and

PM periods. In addition, Washington Avenue operates at LOS D as a street segment in the southbound direction in the peak AM and PM periods, and in the northbound direction, operates at LOS D in the peak AM period and LOS F in the peak PM period. This poor traffic condition may be partly attributed to the closing of 1st and C Streets, SW and Washington Avenue and D Streets, SW for security purposes. In an effort to facilitate garage access for congressional employees along closed streets, the Capitol Hill Police are stationed at Washington Avenue and C Street, SW during AM and PM peak hours to personally direct traffic. At these times, hand directions are based on vehicular access needs, regardless of traffic signaling.

Although there would be a direct increase in visitation and associated traffic volumes in proximity to the project site, most visitors would not be attending the Memorial during peak hours. Annual visitation is estimated to average 1.2 million people, which translates to approximately 2,000 visitors per weekday and 5,000 on peak weekend days. However, the Memorial would not likely add substantially to the long-term visitation and traffic to the Monumental Core because most visitors will already be attending other local memorials and museums. The proposed Memorial's proximity to other memorials and museums, as well as two major Metrorail stations, significantly lessens the potential impact on local traffic.

Mitigation: Prepare a Maintenance of Traffic (MOT) plan to manage construction-related traffic, parking, and materials delivery, including coordination with other construction projects occurring at the same time in the area. This will

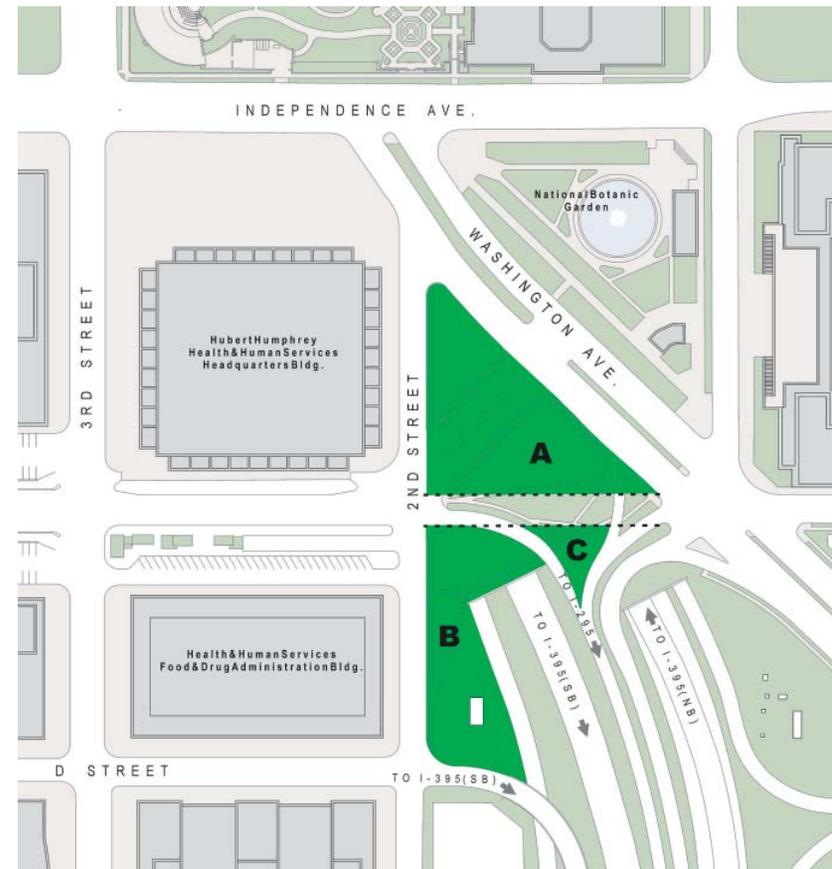


Figure 4-1: Proposed roadway network

require close coordination with the Office of the Architect of the Capitol

No Action Alternative

Under the No Action Alternative, the proposed Memorial and realignment of C Street would not occur. Therefore, there would be no improvement to the local roadway network.

4.4.2 Vehicular Parking

Proposed Memorial

The existing on-street parking situation would be modified under the proposed Memorial. The establishment of a bus and car drop-off point on 2nd Street, SW would eliminate four to five existing metered parking spaces. Another four to five existing spaces would be eliminated by the construction of a small 10-space parking lot in parcel B located south of the Memorial site (see Figure 4-1). The cumulative loss of eight to ten parking spaces, however, would be mitigated by the construction of metered parking spaces in the parking lot in parcel B.

The new parking lot would be accessed from 2nd Street between C and D Streets, SW. Pedestrians from the parking lot would reach the Memorial by moving north on the east side of 2nd Street, crossing C Street, and entering the site at its southwest corner. In addition, the site has been configured to accommodate a metered lay by area on C Street for approximately eight special need vehicles. Given the identified guidelines for the site, such a feature would require approval

from appropriate government agencies. With the lay by on C Street, there would be a slight increase in metered parking spaces that would result in a positive impact on parking.

Construction of the proposed Memorial would temporarily encroach on the roadways adjacent to the site. This may require temporary lane closures and/or occupation of parking spaces for construction equipment and vehicles. The displaced parking around the site would result in a shift in parking patterns and an increased demand for parking in the blocks near the site.

No Action Alternative

Under the No Action Alternative, the proposed Memorial and realignment of C Street would not occur. Therefore, there would be no impact on parking.

4.4.3 Public Transportation

Proposed Memorial

With implementation of the proposed Memorial, there would be a direct increase in visitors specifically to the Memorial site area. However, the project would not significantly increase the overall level of total visitation to the Monumental Core because the Memorial would attract visitors already visiting the Mall. Therefore, ridership on DC transit systems is not anticipated to increase due to the project. However, ridership would increase for the transit lines and stations/stops in the vicinity of the Memorial site.

No Action Alternative

Under the No Action Alternative, the proposed Memorial and realignment of C Street would not occur. Therefore, there would be no change in transit activity in the study area.

4.4.4 Pedestrian and Bicycle Circulation

Proposed Memorial

The sidewalks located on the periphery of the current undeveloped lots are traversed by pedestrians on a daily basis. The construction phase of the proposed Memorial would temporarily disrupt current pedestrian flow as well as traffic

routes around the site. Over the long term, establishment of the proposed Memorial would result in increased pedestrian traffic to the site. The proposed Memorial would introduce a new system for pedestrian walkways organized around the physical features of the site design and coordinated with controlled intersection crossings (Figure 4-2). The current diagonal walk crossing the 295 south ramp would be removed and thereby eliminate a dangerous crossing and improve pedestrian safety. In addition, there would be fewer access ramps, and the remaining ramps would be narrower. As a result, pedestrian circulation would be improved with the operation of the Memorial, resulting in a positive impact on the site.

No Action Alternative

Under the No Action Alternative, the proposed Memorial and realignment of C Street would not occur. Therefore, there would be no change in pedestrian/bicycle circulation in the project area.

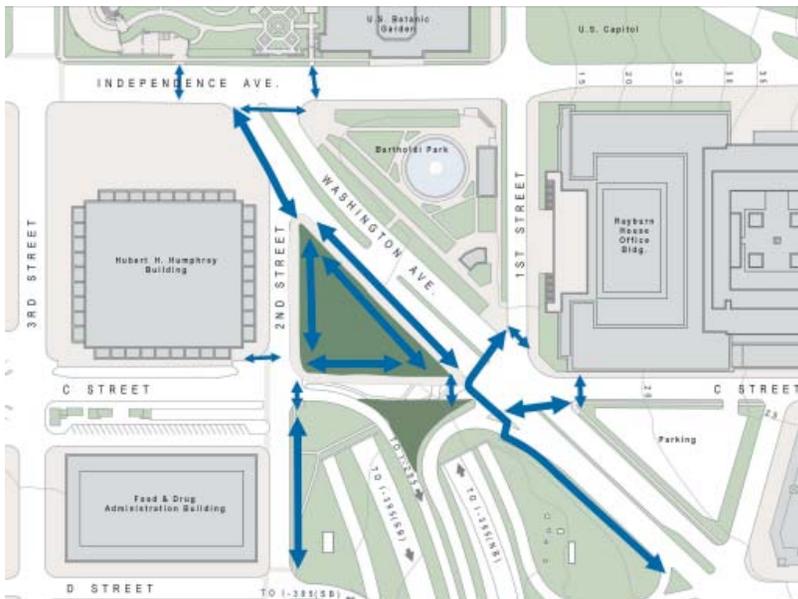


Figure 4-2: Proposed Pedestrian Access

4.5 Utilities and Infrastructure

4.5.1 Stormwater Management

Proposed Memorial

The establishment of the proposed Memorial would significantly increase the amount of impervious surface area on the project site, resulting in an increased potential for impacts related to runoff. Currently, on-site stormwater can be conveyed through intakes surrounding the Memorial site. All stormwater would eventually be conveyed to the combined sewer lines located to the south of the site. The District of Columbia Department of Consumer Regulatory Affairs (DCRA) will require 2-, 15-, and 100-year post development discharge control as well as water quality control. Depending on review by DCRA, this may be achieved by directing stormwater to an underground concrete holding tank with mechanical and sand filters and an oil-water separation system.

No Action Alternative

There would be no impact on stormwater management systems under the No Action Alternative.

4.5.2 Sanitary Sewer

Proposed Memorial

Since the proposed project will not generate additional wastewater, the capacity of the sanitary sewer system of the

project site would not be impacted.

A combined sanitary and stormwater sewer line currently runs adjacent to the I-395 southbound tunnel, potentially under parcel B, which is proposed for the construction of a screening wall and surface parking. The depth and footprint of this structure is unknown.

Mitigation: Prior to any ground-disturbing activities beginning, the precise depth and location of this sewer line will be identified to avoid encounters during construction.

No Action Alternative

There would be no impact on the sanitary sewer system under the No Action Alternative.

4.5.3 Site Utilities

Proposed Memorial

The proposed Memorial would utilize electrical energy for use in lighting systems, electrical powered equipment, and circulation pumps. The proposed Memorial will be an outdoor, hardscaped pedestrian plaza without substantial indoor areas requiring systems to support climate control.

Water: The Memorial site is surrounded by water lines of various sizes. Water supply service to the site is contingent upon the existing line capacity, rather than the supply or treatment of water. The District of Columbia's water treatment and supply capacity is sufficient for meeting the projected fountain and irrigation needs of the proposed Memorial during stabilized

operations. The approved site is adequately served for fire protection by fire hydrants located adjacent to the Hubert Humphrey Building.

Gas Service: Some of the existing gas lines surrounding the Memorial site may have to be moved and reconfigured to accommodate the Memorial. The Memorial's projected operations (primarily the central flame), would require approximately 3.5 million cubic feet of natural gas (similar to that needed for a commercial kitchen) and the existing system is adequate to serve the Memorial site. Modification to the existing system, by means of relocation, construction, up-sizing or extension, is the responsibility of the Washington Gas Company.

Electrical Service: The approved site is currently served with adequate power for the proposed development. PEPCO would be responsible for any necessary upgrades or extensions.

Telephone Service: The proposed Memorial would not require enhancements to the existing telephone lines. However, two large electrical/communications manholes serving the Interstate tunnels would need to be modified for the Memorial.

Steam Facilities: Steam would not be required for the proposed Memorial.

I-395 Tunnel Air Shafts: Air shafts providing ventilation to the I-395 tunnels are located under the project site. These large girder boxes extend from the Hubert H. Humphrey Building's mechanical room across the below-grade sewer line to the tunnel. The proposed Memorial would not significantly affect the function of the shafts.

Mitigation: In order to avoid encountering underground utility lines, including the tunnel air shafts, during construction, the location and depths of lines will be identified in areas proposed for excavation prior to any ground-disturbing activities.

No Action Alternative

Under this alternative, impacts on utilities would be minimal.

4.5.4 Highway Tunnels

Existing I-395 tunnels extend under a significant portion of the Memorial site. The depth of soil from the top of the tunnel slab varies from three to eight feet.

The proposed Memorial would be designed to be structurally compatible with existing underground tunnels. Construction would consist of one continuous floating concrete structural slab built on piers over the highway tunnel and supplemented by a high-quality waterproof membrane. Water elements would be designed using the most advanced materials to avoid leakage. Construction of the proposed Memorial would provide a potential opportunity to re-waterproof the tunnel.

