



Finding Of No Significant Impact

Potomac Park Levee System Improvements

National Mall and Memorial Parks and the National Capital Region

The National Park Service (NPS), in cooperation with the U.S. Army Corps of Engineers (USACE), the National Capital Planning Commission (NCPC), and the Government of the District of Columbia (District), proposes to design and construct improvements to the Potomac Park levee system located in Washington, D.C. to improve its reliability for river flood protection in a manner that respects the resources and values of the National Mall. Without adequate flood protection measures, several downtown District of Columbia locations, including portions of the monumental core, portions of Pennsylvania and Constitution Avenues, as well as public and private facilities located south of the U.S. Capitol to Fort McNair, are at risk of flooding from a major (100-year plus) flood event and will consequently be required to acquire additional flood insurance and/or make costly upgrades to comply with building standards for facilities located in this floodplain. The proposed levee improvements address only river flooding that would likely occur during flood events. These levee improvements do not address other high-water problems or issues that may occur or have occurred in the study area from excess precipitation, interior ponding, and localized stormwater runoff.

The existing Potomac Park levee structure extends from the vicinity of 23rd Street, N.W., parallel to the Lincoln Memorial Reflecting Pool in Constitution Gardens, and ends on the Washington Monument Grounds (Monument Grounds), with 17th Street, N.W., cutting through the east end of it. Currently, in the event of a major flood, the NPS must provide a temporary sand bag closure at 23rd Street, N.W., and a temporary earthen closure across 17th Street, N.W., using a combination of sandbags, Jersey barriers, and soil taken from the Monument Grounds in order to block the flow of water into downtown Washington. This long-established method of temporary closure has not been favored by the USACE due to the large amount of work associated with constructing an earthen dike which could be further complicated by unknown weather conditions and logistical requirements. Based on new policies enacted since Hurricane Katrina in 2005, the USACE has deemed the 17th Street, N.W., closure unreliable and given it an unacceptable inspection rating. For this reason, the Federal Emergency Management Agency's (FEMA) most recently proposed 100-year floodplain map for this area identifies the larger flood rate zone which would be created if the emergency closure at 17th Street, N.W., did not exist. In addition to requiring the impacted facilities to purchase additional flood insurance and/or make costly upgrades to comply with building standards for facilities constructed in flood zones, the new maps would impact and potentially delay a number of projects that are currently in development, since they would need to be revised in order to comply with these building codes.

At the District's request, FEMA agreed to delay issuance of the new floodplain map until November, 2009, in order to allow the District and the NPS time to design and implement a solution that will, at a minimum, reliably stop a 100-year flood at 17th Street, N.W., and therefore make re-mapping unnecessary. In addition, the USACE requested that the solution be designed in such a manner as to allow it to be easily modified to meet the congressionally authorized level of protection. In 1936, Congress authorized the USACE to design and construct a permanent Potomac Park Levee system to contain a flow of 700,000 cubic feet per second (cfs). Currently the USACE does not have appropriated funds to upgrade the Potomac Park Levee. However, the District and the NPS agreed that since the original levee is a congressionally authorized project, any improvements should be consistent with the current authorization so that the congressionally authorized level of protection can ultimately be achieved once funding is appropriated.

The NPS completed an environmental assessment (EA) for this project that was prepared in accordance with National Environmental Policy Act of 1969, as amended (NEPA), its implementing regulations by the Council on Environmental Quality (CEQ), at 40 CFR 1500-1508, and NPS Director's Order #12, Conservation Planning, Environmental Impact Analysis and Decision-Making, and the accompanying Handbook (DO-12). The EA analyzed the environmental consequences of the alternatives considered for the proposed levee improvements. The scope of the analysis was limited to the impacts to the natural and cultural resources from the design and construction of the levee improvements, including the initial construction of the 100-year solution as well as the construction of the permanent improvements which would meet the congressionally authorized level of protection. Consequently, the EA did not assess impacts on resources from flood effects that could occur in the future.

SELECTED ALTERNATIVE

The NPS identified alternative 1B as the preferred alternative in the EA and has selected it for implementation. During the EA process, it became apparent that considerable cost and disturbance to the National Mall and its visitors could be avoided if the closure structure at 17th Street, N.W., were constructed to the congressionally authorized level of protection initially, rather than raising it as part of another project some time in the future. However, since the amount of funding that would be available at the beginning of the project was uncertain, all of the alternatives were evaluated in a phased approach. Phase 1 solutions satisfy the FEMA requirements for reliably stopping the 100-year flood at 17th Street, N.W., (16.7 feet per the North American Vertical Datum¹ (NAVD)). Phase 2 solutions achieve the congressionally authorized level of protection (18.7 feet NAVD) at 17th Street, N.W., as well as along the rest of the levee running parallel to the Lincoln Reflecting Pool and along 23rd Street, N.W.

Under alternative 1B, the closure structure at 17th Street, N.W. would take the form of two exposed, arc-shaped flood walls, approximately 253 feet south of the centerline of Constitution Avenue, N.W., which flank 17th Street, N.W. Full closure of the levee would be achieved with a removable post and panel system, approximately 140 feet in length, which would be erected in advance of a major flood event. Concrete footings would be used for both the walls and the post/panel system.

The arc-shaped flood walls would be symmetrical, set back approximately 20 feet from the curb line of 17th Street, N.W., and each would measure approximately 120 feet in length. In order to minimize the visual effects of the adjacent cultural landscapes, this alternative was designed with the shortest exposed flood walls of any of the alternatives in overall length. However, in order to achieve this design, extensive re-grading is required in order to both conceal the walls and meet the required level of protection through adjacent berming. Due to the disturbance associated with the extensive re-grading, this alternative presumes that the levee improvements at 17th Street, N.W., would be built to the congressionally authorized level of protection (18.7 feet NAVD) as part of phase I in order to minimize future disturbance to Constitution Gardens. In this alternative, the height of the exposed flood walls would be approximately 8.7 feet tall at the location of the closure.

Setting back the flood walls from the curblines reduces the impacts to views looking north up 17th Street, N.W., towards President's Park. The walls were very carefully located so that the opening between them maintained the vista of the Monument Grounds from Virginia Avenue, N.W., one of the main diagonal avenues conceived in the L'Enfant plan.

The flood walls and berming will require some re-grading of the northwest corner of the Monument Grounds and, as mentioned previously, extensive re-grading along the eastern portion of Constitution Gardens between overlook terrace and 17th Street, N.W.. Due to this re-grading, a number of trees will be lost. In order to mitigate the impact of this project on Constitution Gardens, final grading will be required to be completed as part of Phase 1. During the re-grading process, improved topsoil will also be brought in to replace much of the poor, existing topsoil which has never allowed the existing trees in this area to

¹ The North American Vertical Datum (NAVD) is the vertical control datum (elevation) established for surveying by the National Geodetic Survey (NGS 2008). All references to elevations and heights are in feet using the NAVD 88 Datum.

thrive. Final re-planting on the Constitution Gardens side of 17th Street, N.W., will also be required as part of Phase 1.

Alternative 1B also proposes to modify existing walkways in the project area as a means of mitigation. It re-centers the north/south walkway which leads from overlook terrace to Constitution Avenue and re-configures the two diagonal walkways which lead from overlook terrace towards the intersection of Constitution Ave, and 17th Street, N.W., and from overlook terrace to the southeast, just north of the pedestrian crossing at 17th Street, N.W., between the World War II Memorial and the Monument Grounds. The two reconfigured walks would be curvilinear to integrate with the arc walls and to complement the natural topography. In addition to improving circulation by redirecting pedestrian paths closer to the intersection of 17th Street and Constitution Avenue, N.W., and closer to the northern entrance of the World War II Memorial, the new curvilinear paths also forge a new relationship between two adjacent, but previously disconnected, cultural landscapes, Constitution Gardens and the Monument Grounds.

After Phase 1 has been completed and funds become available to implement Phase 2, the visible sections of the flood wall at 17th Street, N.W., will be clad in stone to match the historic character of the adjacent cultural resources and to mitigate the adverse effects of building flood walls in these cultural landscapes. In addition, a small stone plaza will be constructed to conceal the subterranean on-site storage vault for the post and panel system. The plaza will be designed in such a way as to accommodate the potential future relocation of the Lockkeeper's House which the NPS would like to relocate (south) of its current location which is uncomfortably close to Constitution Avenue, N.W. This relocation has not been scheduled or funded but would help preserve the historic structure and would provide a better opportunity for public interpretation of the Lockkeeper's House itself and the canal that it once served. The last component of Phase 2 mitigation would be the final grading and re-planting of the northwest corner of the Monument Grounds which would follow the previously approved landscape plan which was part of the June 2003 Washington Monument Perimeter Security Project.

The other requisite improvements to the remaining portions of the Potomac Park Levee which are required to bring the levee up to the congressionally authorized level of protection would also occur as part of the Phase 2. Portions of the site along 23rd Street, N.W., as it approaches Constitution Avenue, will be re-graded and raised between one and two feet. Along the levee running parallel to the Lincoln Reflecting Pool, several hundred feet of low spots will be filled to bring the height of the levee to the congressionally authorized level of protection. In addition, adjustments to overlook terrace may need to be made in order to maintain 18.7 feet NAVD all of the way to the point where Phase 2 will adjoin the Phase 1 construction.

OTHER ALTERNATIVES

The EA also analyzed the no action alternative and six other action alternatives: 1A, 2A, 2B, 3, 4, and 5. This broad range of alternatives was developed by the NPS as a result of comments received from the public, government agencies and others.

The no action alternative represents the existing plan and procedures that NPS personnel would currently use for implementing temporary closure structures at 17th and 23rd Streets, N.W., during a flood event. When notified of an impending flood, the NPS would construct a temporary earthen dike across 17th Street using a combination of Jersey barriers, sandbags and soil removed from the Monument Grounds. Sandbags would also be added along 23rd Street, N.W., up to the intersection of Constitution Avenue, N.W. While this plan has been in place since the 1930s, the USACE has decertified the temporary closure structure at 17th Street, N.W., and has deemed it unreliable. Therefore, the no action alternative does not satisfy the FEMA requirement to maintain a 100-yr level of flood protection.

The other action alternatives were addressed in two phases and varied in their proposed actions for the closure at 17th Street, N.W. These alternatives varied in terms of their respective physical characteristics: setbacks south of Constitution Avenue and from the centerline of 17th Street, length of flood walls on either side of 17th Street, length of the removable post and panel closure across 17th Street, and overall height resulting from the existing grade at each specific location. The other action alternatives also varied in landscape characteristics: the extent of re-grading versus flood wall installation and the extent

tree removal. In all of the other action alternatives, Phase 2 would include final grading and tree planting as well as stone cladding of exposed sections of the flood walls in order to match the historic character of the adjacent cultural landscapes and historic resources. Also common to all of the other action alternatives was the completion of the proposed levee improvements at 23rd Street, N.W., and along the Reflecting Pool as part of Phase 2. Unless otherwise noted, in each alternative, Phase 2 would also involve additional regarding and raising the flood walls from an elevation of 16.7 feet NAVD to 18.7 feet NAVD, unless funding became available sooner and the walls could be built to 18.7 feet NAVD initially, as part of Phase 1.

Alternative 1A would utilize two exposed flood walls flanking 17th Street, N.W., and located approximately 198 feet south of the centerline of Constitution Avenue, N.W. The east wall would be an arc-shaped wall that would appear to recede into the Monument Grounds landscape; the west wall would be a diagonal wall, running parallel to the existing diagonal sidewalk in Constitution Gardens until it turned to the east to run parallel to Constitution Avenue, N.W. At the eastern end of the arc wall, a below-grade storage vault would be built to house the posts and panels.

Alternative 2 would involve raising 17th Street, N.W., approximately one foot in height to fill in a localized depression and building flood walls on either side of the street in the form of abutments, 138 feet south of the centerline of Constitution Avenue, N.W. There would be two optional configurations of these abutments under this alternative. Option 2A is asymmetrical, relating to the adjacent walkways that currently exist on either side of 17th Street, N.W. Option 2B is symmetrical along the axis of 17th Street, N.W. In both options, moderate re-grading on both side of 17th Street is required. A storage vault for the post and panels would be built into the abutment on the east side.

Alternative 3, in contrast to the other alternatives, would have substantially different physical configurations during the two phases of construction. Phase 1 would use two concrete flood walls flanking 17th Street, N.W., approximately 365 feet south of the centerline of Constitution Avenue, N.W. The east and west walls would be chevron-shaped and symmetrical. Immediately east of overlook terrace, a subterranean storage vault would be constructed for the post and panels. Phase 2 would involve the demolition of the chevron-shaped flood walls and the re-grading of the entire area into a series of stone-clad terraces oriented parallel to 17th Street, N.W., and stepping up as they move further away from the street. This alternative has the longest run of post and panel removable closure elements, and since the profile of the permanent terraces would be stepped, the post and panels would be different lengths. Jersey barriers would also be required across the top of the walls to achieve the congressionally authorized height during an extreme flood event. Substantial re-grading and re-planting would also be completed as part of Phase 2.

Alternative 4 is essentially a hybrid of Alternatives 1 and 2B. It would use an arc-shaped flood wall to the east of 17th Street, N.W., approximately 177.5 feet south of the centerline of Constitution Avenue, and then an abutment on the west side of 17th Street, set back significantly to the west of the street to minimize impacts to significant views from 17th Street, looking north and from Virginia Avenue, looking southeast towards the Washington Monument. A storage vault for the post and panels would be built into the abutment.

Alternative 5 looked at integrating an arc-shaped flood wall on the Constitution Gardens (west) side, with an earthen berm and integrated structure on the Monument Grounds (east) side. The levee elements in this alternative would be located significantly further south than most of the other alternatives, approximately 525 feet south of the centerline of Constitution Avenue. This alternative sought to take advantage of the existing higher elevation of the Monument Grounds in this more southerly location. It also explored the idea that a structure in the form of a building might feel less intrusive than in the form of flood walls. Due to the complexities of trying to increase the height of this alternative at a future date, the building and flood wall structures would be built to 18.7 feet NAVD during Phase 1. The 25 foot by 40 foot building on the Monument Grounds would serve as the storage vault for the post and panels. During Phase 2, stone cladding would be installed on the flood wall and building to better integrate them into the cultural landscapes.

There were additional alternatives which were considered but rejected and are therefore not carried forward for further analysis because they were determined to be unreasonable, had technical or logistic problems, or had greater environmental impacts than similar options included in the analysis. These are described in the EA on pages 2-40 to 2-42. Elimination was based on:

- the alternative's lack of technical feasibility or reliability during a flood event;
- the alternative's lack of ability to obtain certification by the USACE;
- conflicts with already established park uses;
- duplication of other less environmentally damaging alternatives;
- conflicts with an up-to-date park plan, statement of purpose and significance, or other policy; or
- potentially severe environmental impacts.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

After completing the environmental impact analysis, the NPS identified alternative 1A as the environmentally preferred alternative, which is the one that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources. The environmentally preferred alternative is not necessarily the one selected for action or the agency's preferred alternative. Even though Alternative 1A was selected as the environmentally preferred alternative, all the alternatives demonstrate approximately equal impacts relative to visitor use, floodplains, public health and safety, land use and socioeconomics, traffic and transportation, utilities and infrastructure, and park management and operations. They are differentiated in their effects on vegetation, visual resources, and cultural resources.

Alternative 1A seems that it would result in the least harm to the biological and physical environment. It would best protect the vegetation of the area because it would have the smallest area of impact per phase (0.44 acres in Phase 1 and 1.87 acres in Phase 2), as compared to 5.24 acres in alternative 1B. Alternative 1A would also remove the fewest trees (15 in Phase 1 and 38 in Phase 2), as compared to 98 in alternative 1B. The majority of the trees being impacted, however, are more than thirty years old but have not fully matured. Poor soils in the eastern end of Constitution Gardens have stunted much of the tree growth. Implementation of Alternative 1B affords the opportunity to replace much of this soil with more appropriate soil which will allow the replacement trees to thrive. While alternative 1A would not enhance the visual and cultural resources in the project area, it would introduce lesser adverse impacts to the environment than the other alternatives due to the relatively small affected area and tree loss. Alternative 1A was not selected, however, because the scale, size, and location of levee walls in alternative 1B create far less adverse effects to visual and cultural resources than alternative 1A².

The placement of the arc flood walls in alternative 1B greatly reduces the impacts on viewsheds. Since the flood walls are located approximately 50 feet further south than alternative 1A, the adverse impact that the eastern arc wall has on the view of the Washington Monument from the north side of Constitution Avenue, N.W., (looking southeast) is greatly diminished, as is the impact on views looking northeast towards the White House and President's Park from 17th Street, N.W. As drivers and pedestrians travelling north on 17th Street, N.W., pass through the levee structures, the views looking northeast are more truncated the closer the structures to the street. In alternative 1B, the levee structures are set back further from either side of 17th Street, N.W., than in Alternative 1A so that the views and vistas looking north towards Constitution Avenue and northeast towards the White House and President's Park open up. The location and width of the opening between the arc walls in Alternative 1B also serve to maintain the southeasterly vista from Virginia Avenue, N.W., to the Monument Grounds, the only remaining diagonal

² The east and west walls are approximately 80 feet shorter than alternative 1A. In addition, the walls are setback approximately 25 feet east and west from 17th Street and approximately 50 feet further south from Constitution Avenue than alternative 1A.

vista towards the Washington Monument from an existing diagonal street as shown in the L'Enfant Plan. The topography of this solution works well too, as the eastern arc wall integrates well into the natural rise of the Monument Grounds only requiring a partial extension of rise towards the northwest.

The landscape design of alternative 1B, despite the tree loss, yields fewer adverse effects to cultural resources. By slightly raising the natural grade on the Monument Grounds, most of the eastern wall is concealed and the character of the Washington Monument landforms is preserved to the greatest extent possible³. On the west side of 17th Street N.W., the reconfiguration of two sidewalks into curvilinear paths helps to integrate the arc wall into the Constitution Gardens landscape. This new alignment improves site circulation by redirecting paths closer to the intersection of 17th Street and Constitution Avenue, N.W., and closer to the northern entrance of the World War II Memorial; but more importantly, it forges a new relationship between two adjacent, but previously disconnected, cultural landscapes.

MITIGATION MEASURES

The NPS places a strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. To help ensure the protection of natural and cultural resources and the quality of the visitor experience, the following protective measures will be implemented as part of the selected action alternative. The NPS will implement an appropriate level of monitoring throughout the construction to ensure that protective measures are properly implemented and to achieve their intended results. This table outlines all appropriate mitigations and they will be employed to minimize impacts to park resources.

³ The Monument Grounds is not an unaltered landscape; it has been comprehensively re-landscaped in recent years as a result of security upgrades.

Mitigation Measures of the Selected Alternative	
Resource Area	Mitigation Measures
General	The amount of disturbed earth area will be minimized, and the duration of soil exposure to rainfall will be limited. Disturbed soil or soil stockpiles will be covered with plastic sheeting, jute matting, erosion netting, straw, or other suitable cover material.
	Erosion containment controls such as silt fencing and sediment traps (e.g., hay bales) will be used to contain sediment on site.
	Erosion and sediment control best management practices will be inspected on a regular basis and after each measurable rainfall to ensure that they are functioning properly.
	Exposed soils will be stabilized and replanted with vegetation as soon as possible following completion of construction activities.
Vegetation	Prior to clearing and grading, the area to be cleared or disturbed and trees to be removed will be clearly marked to minimize the amount of vegetation loss or impacts on nearby trees.
	Only those areas necessary for construction will be cleared or disturbed and trees will be preserved wherever possible.
	Low ground pressure equipment and structural matting will be used along the levee to minimize impacts on root systems.
	Prior to clearing, vegetated areas will be assessed to determine if there are trees in the area of the proposed alignments that need protection from construction activities. Any trees selected for protection will be marked and/or fenced.
	Where vegetation was removed for construction, new/replacement planting will be installed.
	A subcomponent of the landscape plan will be a planting plan which will prescribe the measures to be taken to rehabilitate the area disturbed by the construction of the levee during both Phase 1 and Phase 2 and to improve the soils in the eastern end of Constitution Gardens. Trees that require removal shall be replaced-in-kind with similar species in compatibly designed locations and spacing. The plan will ensure that there will be no net loss of trees on the National Mall. The number of trees replanted will be equal to or greater than the number lost as a result of the proposed action. The plan will provide specific details on the number and specific species of trees that will be replaced, the locations where they will be planted, and the timing. To the extent possible, the new trees shall be replanted as close to their original location as possible but must remain outside of the levee's minimum 30-foot no plant zone. USACE guidelines for flood structures require a minimum 30-foot wide no planting zone when a flood wall is used to ensure that the root systems do not affect the integrity of the levee structure. However, this distance represents the minimum requirement based on USACE guidelines. The actual width of the zone might be greater and is dependent on the specific type of wall and foundation which will be determined in the design process. If the number of trees that need to be replaced cannot fit within the original project area due to spatial constraints or other visual concerns, the remaining trees will be replanted in another appropriate area within the National Mall.
	Vegetation in areas replanted will be monitored following construction to ensure successful establishment. Any exotic invasive species that appear in the replanted areas will be removed.
Aesthetics/ Visual Resources	A treatment plan will be developed to define how the adverse visual effects of any visible elements (e.g., freestanding concrete walls) of the Phase 1 design will be mitigated through earthwork, and/or alternative surface wall treatments (such concrete stains), until such time that the Phase 2 design is completed and implemented.
	Under Phase 2, the remaining visible sections of the levee wall will be clad in stone to match the historic character of the adjacent cultural landscapes and historic resources. The cladding will enhance the aesthetic quality and character of the landscape to mitigate against adverse effects associated with the flood walls.
	During construction, equipment will be shielded using screening to be specified in the NPS construction permit to partially obscure the view where appropriate and possible.
	Upon completion of the final design, a landscape plan will be completed and submitted for approval. The landscape plan will outline the measures that will be taken to restore the overall visual character and integrity of the original cultural landscape to the greatest extent possible.
Cultural Resources	Additional interpretation and education appropriate to historic context of the project and the site will be developed.
	Under Phase 1, the use of a surface treatment for the concrete flood walls to minimize the adverse effect upon the character of the cultural landscapes will be evaluated and implemented, if feasible.
	Under Phase 2, the exposed portions of the levee wall will be clad in stone which relates to the aesthetic qualities of the structures in the surrounding cultural landscapes.
	Similar to the visual resources mitigations, a landscape plan will be completed following the final design of the levee improvements which will outline the measures to be taken to restore the overall visual character and historic integrity of the original cultural landscapes.
Visitor Use	A stabilization plan for the historic Lockkeeper's House will be prepared. The final design of the levee improvements will also allow space for the relocation of the Lockkeeper's house in the event that it can be relocated south, away from Constitution Avenue, as part of a future project.
	Public information will be made available on the park website and on signs in the park to inform visitors of the need for and progress of the project. At 23 rd Street, re-grading associated with Phase 2 will avoid the ball fields so as to not disrupt the permitted recreational use in this area.

	<p>NPS will implement public interpretation and education that broadly addresses the historical development of the flood control system and associated themes by identifying the levee as a contributing resource to the Constitution Gardens cultural landscape and explaining the importance of the resource. Interpretive media may include, but not be limited to, interpretive posters, wayside exhibits, historical reconstruction drawings, NPS-style brochures and internet-based content. Public interpretation will also include interpretive measures to be undertaken during the archeological fieldwork. These measures will broadly address the historical development of the lower Tiber Creek waterfront, including the Washington City Canal, the 17th Street Wharf, and associated themes.</p>
	<p>Once the levee project is completed, public safety information regarding the levee closure will be communicated to the public in a variety of ways through different forms of media.</p>
<p>Public Safety</p>	<p>Construction workers and employees will follow an approved health and safety plan which incorporates all applicable regulations.</p>
	<p>Barriers and signs will be used around construction sites to divert the public away from potentially dangerous situations.</p>
	<p>Public announcements will be made on the park website and in the media to alert the public to the construction schedule and locations.</p>
	<p>In the event of a flood notification, U.S. Park Police will evacuate visitors from the area.</p>
<p>Transportation</p>	<p>Two lanes of 17th Street N.W. will remain open at all times during construction, except for brief temporary periods during off-peak hours when the full street would need to be closed for logistical reasons. Such temporary closures would be subject to Traffic Control Plans worked out with the District Department of Transportation (DDOT) and approved by NPS.</p>
	<p>As part of the construction permitting process, the contractor will submit Traffic Control Plans to DDOT for review and approval prior to the implementation of any changes (lane or sidewalk closures, temporary truck access for site excavation, etc.). The Traffic Control Plans will include measures, such as detour signs, to safely divert traffic, transit and pedestrian and bicycle traffic flows during temporary off-peak closures, or for one-way traffic during peak periods to maintain partial peak directional flow. It is anticipated that the DDOT will provide any signalization, signs, and pavement marking improvements required at the adjacent intersections to accommodate increased vehicular and pedestrian traffic resulting from the diverted traffic within the local area.</p>
	<p>NPS and DDOT will coordinate Public Advisories to notify the public of the detours, likely delays, and alternate routes including transit.</p>
	<p>Additional mitigation measures will be undertaken by NPS in coordination with the DDOT to minimize impacts. These include measures to improve traffic flow at the most heavily impacted intersections, measures to divert traffic to alternate routes before they reach the vicinity of the Mall, and measures to divert trips to transit or shared rides.</p>
<p>Traffic Flow Mitigation:</p>	<p>Signal timing at 14th Street N.W. and Constitution Avenue, 15th Street, N.W. and Constitution Avenue, 17th Street N.W. and Constitution Avenue and 23rd Street, N.W. and Constitution Avenue will be evaluated and monitored closely to determine whether modest adjustments to timing at these intersections will improve flow without major adverse effects on through traffic on Constitution Avenue.</p>
<p>Diverting Traffic to Other Routes and Modes:</p>	<p>NPS and the DDOT will develop a cooperative plan to notify travelers well in advance of the lane closures and possible delays and to notify them of potential alternative routes before they reach Independence Avenue and the Mall.</p>
	<p>Major employers and visitor attractions in the vicinity of 17th Street N.W. and Constitution Avenue will be contacted (preferably by mail as well as email) well in advance of construction with website and a phone number to contact for updates.</p>
	<p>The notice will include advice on route and mode alternatives and a request to notify all potentially impacted employees.</p>
	<p>Agencies and institutions will be advised to be aware of the partial street closure when planning any special events.</p>
	<p>Agencies and employers should include at a minimum the Commerce Department, the Interstate Commerce Commission, the National Museum of American History, the Organization of American States, the Department of the Interior, the Federal Reserve Board, the National Academy of Sciences and Engineering, the Office of Personnel Management, the General Services Administration, the American Red Cross, the Daughters of the American Revolution, the U.S. Navy Bureau of Medicine and Surgery, and George Washington University. It is recommended that advisory Variable Message Signs (VMS) should be deployed at least two weeks prior to the start of construction to let people know of the detours in time to plan alternate routes. In addition, advisories should be posted on Maine Avenue and Independence Avenue. The NPS, the DDOT and the Virginia Department of Transportation (VDOT) should ensure that all local newspapers, radio and TV stations are well aware of the impending construction, particularly the stations noted for traffic advisories.</p>
	<p>The NPS, DDOT and VDOT will work with the Washington Metropolitan Area Transit Authority (WMATA), Commuter Connections, and the employers and agencies listed above to ensure that transit, carpool, vanpool, and other options, such as telecommuting, are made known to employees and visitors. Local tour bus companies will be notified as soon as possible to let them adjust schedules and tours as necessary based on diverted traffic and the partial lane closures.</p>
<p>Utilities & Infrastructure</p>	<p>The foundation of the walls will be designed to avoid impacts on utilities to minimize impacts on water supply lines, sanitary sewer lines, natural gas lines, and underground electric lines. The water supply lines and electric lines will require the installation of sleeves to allow utilities to pass through the levee foundations unless it is determined that they must be relocated in order to ensure access for regular maintenance after construction.</p> <p>Several of the irrigation segments will be impacted by the construction of the walls. The affected lines will be relocated as necessary to provide the required irrigation.</p>

	Several underground telephone lines will be in conflict with the wall locations. If they cannot be relocated, then the wall foundation designs will be designed so as to avoid conflict with the lines in their current locations.
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WHY THE SELECTED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As documented in the EA, the NPS has determined that the selected alternative, alternative 1B, can be implemented without significant adverse effects. As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse and which on balance may be beneficial, but that may still have significant adverse impacts which require analysis in an Environmental Impact Statement (EIS): Vegetation, floodplains, aesthetics/visual resources, cultural resources, visitor use and experience, public safety, land use/socioeconomics, traffic and transportation, utilities and infrastructure, or park management and operations will experience both beneficial and adverse impacts as a result of implementing the selected alternative, however, no significant impacts were identified that will require analysis in an EIS. Impacts to these resources were assessed for both the construction and operational phases of this project.

Implementation of the selected alternative will result in long-term moderate adverse impacts on vegetation over an area of 5.24 acres due to the removal of approximately 98 trees and disruption of surface vegetation, mainly due to the re-grading. Similar effects could occur to vegetation outside of the structural footprint from construction activities and staging resulting in short-term moderate adverse impacts on vegetation. The exact volume of trees to be removed under this alternative has not been determined yet; the type and number will be identified in the design phase of the project. Adverse impacts on trees and other vegetation outside of the structural footprint will occur, such as physical damage to the trees and their root zones, resulting from construction activities and construction staging. This damage could potentially affect the overall health of surrounding trees and vegetation. Impacts on trees and other vegetation will be minimized to the maximum extent possible by implementing mitigation measures to restrict the area of disturbance and by replacing the disturbed area with turf. Replanting will occur following re-grading, so these replacement trees outside the “no plant” zone will mitigate the net loss of trees. The poor soil in the eastern end of Constitution Gardens which has contributed to the stunted growth of many of the existing trees to be removed will be replaced with more appropriate soil so that the replacement trees can thrive. These will take several years to grow to the heights of trees removed, but the replanting will be effective in replacing the initial loss of vegetation.

During the construction and operation of the selected alternative, there will be negligible short-term impacts to floodplains since the levee improvements and new construction will not noticeably alter the ability to convey flood waters, so the existing floodplain designations will remain unchanged.

At the Reflecting Pool the impacts to visual resources will be negligible since the levee improvements are landscape design solutions that will require no new construction. At 23rd Street, N.W., there will be long-term moderate adverse impacts due to the loss of six American elms along Constitution Avenue. The removal of these trees and the re-grading of portions of the project area will have a moderate long-term adverse impact on the existing visual environment, because the allée of American elms along Constitution Avenue is a prominent visual feature, and the view from Constitution Avenue to the Potomac River, known as the Potomac Belvedere, was a prominent historic visual feature. A landscape plan will ensure that the overall visual character and integrity of the cultural landscape remains compatible with the area’s original design and will mitigate against adverse visual impacts. At 17th Street N.W., there will be short-term moderate adverse impacts due to construction activity and staging. There will be a long-term adverse impact that is greater than minor but less than moderate resulting from the removal of 98 trees and the addition of the new flood walls, which despite their relatively small scale, will adversely affect some existing views. In a subsequent phase of the project, stone cladding on the visible portions of the flood walls will mitigate the adverse visual impacts.

The EA provides a detailed analysis on cultural resources for three broad categories of National Register of Historic Places (NRHP) properties: historic districts and structures, cultural landscapes, and archeological resources. At the Reflecting Pool and 23rd Street, there will be negligible impacts since the

levee improvements are landscape design solutions that will require no new construction. At 17th Street N.W., the flood walls and topographical re-grading will yield a negligible effect on some of adjacent historic structures, the Lockkeeper's House, the Bulfinch Gatehouse, and the John Paul Jones statue. A long-term moderate adverse effect will occur on the adjacent Washington Monument and Grounds and Ellipse/President's Park South historic districts due to the levee's slight intrusion to the landscape and setting of President's Park South, and will cause minimal disruption to significant views and vistas of the Washington Monument. At 23rd Street, the temporary closure will affect the Lincoln Memorial cultural landscape causing a negligible indirect short-term adverse impact on the visual character of the Lincoln Memorial Grounds cultural landscape because after the flood event, the closure would be removed and the site rehabilitated to its pre-existing condition.. At 17th Street N.W., the closure will diminish the integrity of the landscape's original design intent, vegetation, and the views and vistas resulting in direct, long-term, moderate, and adverse impacts to the Washington Monument and Grounds and Constitution Gardens cultural landscapes. Archeological investigations will be implemented prior to or during construction which will mitigate adverse impacts on archeological resources, however, long-term negligible to moderate adverse impacts are possible.

There will be negligible short-term adverse impacts to both land use and socioeconomics during the construction phase of this project. There will, however, be long term-beneficial impacts due to the overall improvement in reliability over the current levee system which will eliminate the need for affected entities to purchase and maintain what can be costly flood insurance. and new construction will not need to comply with regulations and building codes for structures located in floodplains, which can be restrictive and costly.

There will be a short-term minor to moderate adverse impacts upon visitor use and experience due to the effects of construction activities and street closures during months that draw large numbers of visitors to this area of the National Mall. Construction of the arc wall will restrict the level of pedestrian access to the northwest corner of the Monument Grounds and Constitution Gardens since barriers will be placed around the area in order to ensure public and employee safety. Pedestrian access will be blocked along 17th Street N.W. on one side, and in the area of construction at the Monument and Constitution Gardens Grounds. During construction there will be adverse impacts to pedestrian access during the Cherry Blossom Festival and the Fourth of July Independence Day activities in this area, resulting in short-term, minor to moderate, and localized. Once completed, the levee walls will have a long-term minor to moderate adverse impact on visitor experience in this area mainly because of the presence and appearance of the wall and the removal of trees, including some larger street trees. The effect on visitor use and enjoyment of the various attractions and monuments/memorials will be negligible.

There will be short-term minor adverse impacts to traffic and utilities due to temporary disruption during construction. Finally, there will be negligible short-term impacts associated with construction, but there will be a long term beneficial impact since during a flood event the selected new closure system will require less time and staff to implement than the current procedures. There will be long-term minor adverse impacts associated with the annual maintenance of this new system.

Phase I of the arc wall would have short-term negligible impacts on public safety during the construction phase when barriers would protect the public from hazardous activities. Moderate adverse effects could occur from the short-term partial closure of 17th Street N.W. if alternate routes are overly congested. Following its completion, the arc wall would provide protection for the FEMA required solution, and possibly the congressionally authorized solution, which represents a long-term beneficial impact on public safety due to the improvement in reliability over the current levee system.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, wetlands, prime farmlands, wild and scenic rivers, or ecologically critical areas:

No wetlands, prime farmlands, wild and scenic rivers, ecologically critical areas, or significant ethnographic resources occur within or adjacent to the Project Area and none will be impacted by the actions associated with this alternative.

A Statement of Findings (SOF) for floodplains was completed concluding that considerable improvements must be carried out within the 100-year floodplain because the proposed project constitutes a strategy for the reduction of flood risk. Since the proposed improvements must be undertaken at the location of the existing levees, there are no other siting alternatives that could be reasonably considered for this project, however their location within the flood zone, albeit for the purpose of flood protection, would result in risks from the possibility of flooding and storm surge damage to these structures. Therefore, efforts to preserve existing vegetation within the floodplain would be undertaken as standard procedure during site preparation and construction. There would be substantial beneficial effects in flood protection resulting from the proposed improvements floodplain values would be protected to the maximum extent possible and potential flood hazards would be minimized. The SOF is attached.

Historic or Cultural Resources

The cultural resources within the project area are included in the defined Area of Potential Effect (APE)⁴, and range from cultural landscapes, individual buildings, monuments, statues, to potential archeological sites. Thirty-three individual buildings, eight cultural landscapes, and six historic districts are within the APE, and are listed in the Appendix of the EA. Some are located in the immediate vicinity of the flood control levee along the Reflecting Pool in Constitution Gardens, along 17th Street N.W. and a section of 23rd Street.

The project is adjacent to major NRHP-listed historic properties-- the Lincoln Memorial, the Washington Monument and Grounds, the Lockkeeper's House, West Potomac Park Historic District, the Northwest Rectangle Historic District, and the *L'Enfant* and *McMillan* plans of the City of Washington, and historic resources-- the Second Divisional Memorial, the Pan American Union building, the Ellipse, and the Bulfinch Gatehouses at the northeast corner of 17th Street N.W. and Constitution Avenue, and the Monument Grounds at the intersection of 15th Street and Constitution Avenue. In addition, the project is adjacent to the World War II Memorial and other commemorative works. None of these resources will be physically impacted by alternative 1B.

The National Historic Preservation Act (NHPA) Section 106 process was conducted concurrently and in coordination with the EA. It was initiated on June 26, 2008 by the NPS with letters to the District State Historic Preservation Office (DC SHPO) and the Advisory Council on Historic Preservation (ACHP). For the purposes of compliance with NHPA Section 106, consulting party meetings were held on May 23, 2008, June 10, 2008, August 19, 2008, September 8, 2008, and November 20, 2008. The November meeting resulted in the consulting parties providing a preliminary assessment of impacts on views and historic resources, the findings of which were included in the impact analysis and mitigations in the EA and Programmatic Agreement. This process concluded in a Programmatic Agreement which was finalized on May 1, 2009, and provides that the implementation of alternative 1B will have "no significant adverse effects" on cultural resources. The Programmatic Agreement is attached.

Degree to which effects on the quality of the human environment are likely to be highly controversial:

No highly controversial effects in terms of scientific uncertainties as a result of the Potomac Park levee system improvements were identified during the preparation of the EA or the public comment period. There will be no changes to the current land use or existing flood maps as a result of the implementation of alternative 1B.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks: No highly uncertain, unique, or unknown risks were identified during either preparation of the EA or through public comment. In recent years, structures similar to those in

⁴ The APE encompasses the area from the Potomac River on the west, north to the Theodore Roosevelt Bridge approaches, north along 23rd Street to E Street, roughly along E Street including the White House, continuing southeast along Pennsylvania Avenue to the western edge of the Capitol grounds, west along Independence Avenue, and south around the Tidal Basin terminating at the Potomac River.

alternative 1B have been constructed and implemented successfully by the USACE during flood events across the country.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration: The selected alternative neither establishes an NPS precedent for future actions with significant effects nor represents a decision in principle about a future consideration. While alternative 1B does require new construction on the National Mall, the Potomac Park levee improvements were borne out of the necessity to protect the downtown Washington, D.C. area from the effects of river flooding for a 100-year event and not the desire to arbitrarily introduce new structures on the National Mall.

Alternative 1B was designed in a way to minimize adverse effects to the maximum extent possible which is consistent with other planned or ongoing projects in the study area.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts: Implementation of the selected will have no significant cumulative impacts. As described in the EA, future projects within the project area that could affect these resource areas include the construction of other facilities on or near the National Mall, including the proposed Smithsonian National Museum of African American History and Culture and the Vietnam Veterans Memorial Center; U.S. Institute for Peace; and the Martin Luther King, Jr. Memorial on the northwest corner of the Tidal Basin. It will not compound the effects of previous projects in this area such as the World War II Memorial and the changes to the Washington Monument Grounds and Lincoln Memorial Grounds.

The impacts to vegetation associated with the ongoing maintenance, improvements, and public use, as well as those associated with the future construction of new facilities on the National Mall when added to the impacts that will occur from the implementation of the selected alternative will result in minor to moderate long-term adverse cumulative impacts to vegetation. The effects on floodplain functions and values in the area of analysis from the proposed action and from other projects in the vicinity will not result in any measurable or perceptible change to floodplain functions and values. As a result, there will be negligible cumulative effects on floodplains.

There will be long-term minor to moderate adverse cumulative impacts on visual resources. During Phase 1, the effects on views and vistas would be minimized under this alternative because the walls are the shortest in length of all alternatives and pulled back from 17th Street, N.W. A planting plan will ensure that the visual character of the project area is maintained to the maximum extent possible. During Phase 2, the effects would be further minimized since the visible portion of the levee walls will be clad in stone to better integrate into the adjacent cultural landscapes.

There will be long-term minor to moderate adverse cumulative impacts on the historic districts and structures due to the presence of an intrusive structure. However, each project would be subject to specific requirements to reduce the individual impact on historic districts and structures including design review. Consequently, any impacts associated with these projects described above would range from negligible to moderate long-term. There will also be long-term minor to moderate adverse cumulative impacts on the Washington Monument and Grounds, Lincoln Memorial Grounds, and Constitution Gardens cultural landscapes. However, each project would be subject to specific requirements to reduce the individual impact on cultural landscapes including vegetation, circulation, land use, structures, and vistas. Consequently, any impacts associated with these projects described above would range from negligible to moderate and long-term. Adverse cumulative impacts to archeology will be long-term and negligible.

Long-term negligible to minor adverse cumulative impacts on visitor use and experience will occur. In addition, long-term beneficial cumulative impacts to public health and safety will occur from the increased reliability and the long-term benefits of the new levee system.

There will be long-term beneficial cumulative impacts to land use and socioeconomic since the improvements in the Potomac Park levee system would avoid placing portions of Washington, D.C. in the 100-year floodplain. As such, new construction and development projects will not be required to purchase

flood insurance, nor will they need to comply with stricter building codes in this area. In addition, the new levee would also provide added protection from floods.

Traffic in the area will experience short-term moderate impacts during construction. Once construction is complete, the proposed action's impact to traffic would be negligible. There will be long-term minor adverse cumulative impacts from other nearby projects which are proposed (the National Museum of African American History and Culture, the Vietnam Veterans Memorial Center, the Martin Luther King, Jr. Memorial) which may increase visitation and change circulation/travel patterns. However, each of these projects would be subject to its own specific requirements to reduce the individual impacts on traffic.

There would be negligible cumulative impacts to infrastructure. Given the capacity of utilities for the proposed development and the scheduling of outages related to construction, cumulative impacts on utilities in the study area would be negligible. There will be long-term minor adverse cumulative effects to park maintenance and operations associated with annual maintenance.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources: As articulated in the EA, the project area is adjacent to a multitude of historic resources and objects that are listed on the NHRP as well as other commemorative works such as the World War II Memorial. None of these will be physically impacted by alternative 1B. Pursuant to the NHPA Section 106 Process, the DC SHPO and others concluded in the Programmatic Agreement that the implementation of alternative 1B will have “no significant adverse effect.”

Degree to which the action may adversely affect an endangered or threatened species or its critical habitat: As described in the EA, because of the urban nature of the site and the fact that the proposed activities will be located entirely within previously disturbed or maintained landscapes, no impacts to any state- or federally-listed species are expected from implementation of alternative 1B. On September 16, 2008, the NPS wrote both the U.S. Fish and Wildlife Service and the District Department of the Environment regarding the potential for any state- or federally-listed species to be affected by the Potomac levee improvements. On September 25, 2008 the District confirmed that no Species of Greatest Conservation Need are known to inhabit the project area.

Whether the action threatens a violation of federal, state, or local environmental protection law: The selected alternative violates no federal, state, or local environmental protection laws. The Potomac Park levee improvements will be consistent with all laws, regulations and requirements.

IMPAIRMENT OF PARK RESOURCES OR VALUES

The impacts that will result from implementation of the selected alternative will not impair any park resources and values. This area has long been landscaped and further developed according to a series of plans, it is heavily visited and also used for large-scale public events, and it contains no endangered species. There will be no impairment to vegetation, despite the removal of trees, because the implementation of a landscape plan ensures that trees will be replaced-in-kind with similar species in locations and spacing consistent with the historic planting plans. The number of trees replanted will also be equal to or greater than the number lost as a result of the proposed action. In addition, implementation of alternative 1B will not result in any measurable or noticeable alterations to the current 100-year floodplain, or result in any changes to the current floodplain designations.

While there will be a loss of integrity to the setting and design of the Washington Monument landscape and the L'Enfant Plan, mitigations—the implementation of a planting plan, a treatment plan for the exposed portions of the flood walls, the development of a stabilization plan for the historic Lockkeeper's House, and public interpretation—will result in an overall negligible to minor adverse impact to the historic districts and structures. These historic districts and structures will not be impaired. Similarly, the selected alternative will have adverse effects to both the integrity of the Washington Monument Grounds and Constitution Gardens due to the impacts associated with contributing aspects of vegetation, views and vistas. However, implementation of the identified mitigations will make the overall adverse impacts

moderate, and these cultural landscapes will not be impaired. Finally, there would be no impairment of archeological resources because any adverse impacts will be mitigated through a program of archeological investigations that would be implemented prior to and during construction, followed by in-place preservation.

An NHPA Section 106 Programmatic Agreement between the NPS, NCPC, the Government of the District of Columbia, the DC SHPO, USACE, and the ACHP serves as the formal record document of the Section 106 Process. It outlines the stipulations of the design as well as mitigations for the Levee Improvements Project. Taken together, the stipulations and mitigations result in no impairment of historic and cultural resources in the project area. The Programmatic Agreement also outlines the development and review process for Phase 2 of the project, which ensures no impairment will occur in the subsequent design phase.

PUBLIC INVOLVEMENT

The public has been involved throughout this process and their comments have been considered in the development of the EA and the FONSI. They have had the ability to provide comments, attend sessions held by the NPS, NCPC, Commission of Fine Arts (CFA), the District, and Historic Preservation Review Board, including at the site.

Public scoping began on May 19, 2008, and concluded on June 20, 2008. Public comments were solicited by mail, email, and online via the NPS' Planning, Environment, and Public Comment (PEPC) website and in a meeting held downtown in the NCPC offices on June 10th. Notice of the meeting was posted on the PEPC website, ads were placed in the *Washington Post Express*, *Washington Hispanic*, *Current Newspapers*, and *City Paper*. NCPC and the NPS posted messages on their websites, and the NPS emailed notices to potentially interested individuals and organizations.

Scoping comments focused on the need for additional information on alternatives and appropriate maps for analysis. Clarification was requested on whether the proposal represented both a temporary FEMA required solution and a congressionally authorized solution, or simply a congressionally authorized solution to an elevation of 18.7 feet NAVD. The issue of incorporating a more aesthetic quality for the flood protection structures was raised as well as was the potential effects of excavating the Monument Grounds under the current levee plan. One commenter asked if there will be more likelihood of interior flooding in downtown DC during a severe storm event once levee improvements have been implemented.

The EA was made available for public review and comment on January 30, 2009, as announced in the *Federal Register* and emailed to those on the original public scoping mailing list and those added after the June 2008 public scoping meeting. The NPS also mailed the EA to federal and District offices, and provided it for public review at the Martin Luther King Jr. Memorial Library, the Southwest Branch Library (900 Wesley Place SW, Washington, D.C. 20024) and the Southeast Branch Library (403 7th Street SE, Washington, D.C. 20003). The EA was also placed on the PEPC website.

The comment period concluded on March 2, 2009, with the NPS receiving five comments: four letters and one email to the PEPC website. These are attached. These were from two organizations, one commercial company, and two members of the public. Those comments that resulted in changes or additions to the EA are contained in the attached errata sheets. Other comments that required responses are summarized and attached with the NPS' responses. No changes to the selected alternative or the impact analysis were made as a result of public comment.

CONCLUSION

The NPS has selected alternative 1B for implementation. The impacts that will result from the selected alternative will not impair any park resources and values. This determination is based on what we have learned in considering this proposal. Implementation of alternative 1B may occur after final design approval from NPS, USACE, NCPC and CFA. The selected alternative does not constitute an action that normally requires preparation of an EIS. The selected alternative will not have a significant effect on the human environment. Negative environmental impacts that could occur are negligible to moderate in intensity. There are no significant impacts on vegetation, floodplains, aesthetics/visual resources, cultural resources, visitor use and experience, public safety, land use/socioeconomics, traffic and transportation, utilities and infrastructure, or park management and operations. The proposed action will not cause highly uncertain or controversial impacts, unique or unknown risks, or significant cumulative effects. Implementation of the selected alternative will not violate any federal, state, or local environmental protection law.

The selected alternative does not constitute a major federal action that significantly affects the quality of the human environment. Based on the foregoing an EIS is not required for this action and thus will not be prepared. This is a finding of no significant impact.

Recommended: Lisa A. Mendelson-Ielmini May 4, 2009
Lisa A. Mendelson-Ielmini
Acting Superintendent,
National Mall and Memorial Parks
Date

Approved: Margaret O'Dell 5-4-09
Margaret O'Dell
Regional Director
National Capital Region
Date

