Potomac Park Levee Project
ENVIRONMENTAL ASSESSMENT

January 2009
POTOMAC PARK LEVEE SYSTEM

ENVIRONMENTAL ASSESSMENT

(NATIONAL CAPITAL REGION – NATIONAL MALL AND MEMORIAL PARKS)

Environmental Assessment

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PROJECT SUMMARY

The National Park Service (NPS), in cooperation with the U.S. Army Corps of Engineers (USACE) and the National Capital Planning Commission (NCPC), has prepared this Environmental Assessment (EA) to evaluate a range of alternatives for the design and construction of improvements to the Potomac Park levee system located in Washington, D.C. This EA presents five action alternatives for the construction and operation of a redesigned levee system and assesses the impacts that could result from the continued use of the current levee system (the baseline condition, or no action alternative). Upon conclusion of this EA and decision-making process, one of the five alternatives or an alternative that incorporates features of these five will be selected as the preferred alternative.

The purpose of this action is to improve the reliability of river flood protection provided by the Potomac Park levee system to a portion of the monumental core and downtown Washington, D.C. in a manner that respects the resources and values of the National Mall. Without adequate flood protection measures, several downtown District of Columbia (the District) locations, including portions of the monumental core, portions of Pennsylvania and Constitution Avenues, and other 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.

The existing Potomac Park levee structure extends from the vicinity of 23rd Street, parallel to the Lincoln Memorial Reflecting Pool in Constitution Gardens, and ends on the Washington Monument Grounds (Monument Grounds) east of 17th Street. Currently, during a flood event, the NPS must provide temporary closures at 23rd Street (using sandbags) and at 17th Street. The temporary closure at 17th Street consists of using a combination of sandbags, Jersey barriers, and soil (i.e., an earthen dike) to create a temporary barrier across the street to block the flow of water into downtown Washington, D.C. This system has not been favored by the USACE, due to the large scope of this type of emergency closure, coupled by unknown weather conditions and logistic requirements. Based on new policies since Hurricane Katrina, the USACE deemed the 17th Street closure unreliable and consequently gave the levee an unacceptable inspection rating. For this reason, the Federal Emergency Management Agency’s (FEMA) most recently proposed 100-year floodplain map for this area reflects a 100-year flood event as if the currently designed 17th Street closure did not exist. This new mapping puts a portion of downtown Washington, D.C. and the monumental core within the 100-year flood insurance rate zone, which would require additional flood insurance and/or costly upgrades to comply with building standards for those facilities that now fall within the new 100-year floodplain. In addition, a number of projects that are currently in development would need to be revised and could be delayed in order to comply with these building codes.

FEMA has agreed to delay the final issuance of the new floodplain mapping to allow the District and the NPS to design and implement a solution that would, at a minimum, reliably stop the 100-year flood at 17th Street south of Constitution Avenue. This solution would remove the necessity for FEMA to map this area within the 100-year floodplain. However, unless a solution is implemented and accredited by FEMA by November 2009, FEMA will issue the proposed floodplain maps and the affected area will be subject to new constraints and more stringent requirements for development.

In 1936, Congress authorized the USACE to design and construct a flood protection project to contain a flow of 700,000 cubic feet per second (cfs)\(^1\). At this time, the USACE has not received funds to construct a permanent levee that would meet this level of protection. Nevertheless, since the original levee is a congressionally authorized project, it is necessary that any modifications are consistent with the original authorization. Therefore, the 100-year solution will be designed in a way that ensures that the congressionally authorized level of protection can ultimately be achieved once funding is appropriated.

\(^{1}\) 700,000 cfs exceeds the anticipated flow of a 100-year flood event.
During the completion of this EA, it became apparent that considerable costs and time of construction, and therefore time of disturbance to the National Mall and visitors, could be avoided if the levee at 17th Street was constructed to the higher level of protection initially, if funding would be available. However, since funding is not certain, the alternatives in this EA are presented in a phased approach:

- Phase 1 solutions satisfy the FEMA requirements for reliably stopping the 100-year flood at 17th Street, although it is recognized that they may be built to the congressionally authorized level of protection if funding becomes available at the time of construction and the design lends itself to this. A few Phase 1 alternatives would be built to Phase 2 elevation standards, based on specific design requirements.
- Phase 2 addresses design solutions to satisfy the congressionally authorized level of protection at 23rd Street, the Reflecting Pool, and 17th Street and includes measures to enhance the visual character of the levee and the surrounding landscape.

OBJECTIVES IN TAKING ACTION

Objectives are “what must be achieved to a large degree for the action to be considered a success” (NPS Director’s Order 12) and represent more specific statements of purpose and need. All alternatives selected for detailed analysis should meet these objectives and must resolve the purpose of and need for action. The following objectives were identified by the planning team for this project:

- Provide immediate protection to downtown Washington, D.C. and the monumental core in the event of a 100-year flood, thereby meeting the National Flood Insurance Program (NFIP) requirements (FEMA required level of protection).
- Ensure that the selected design can be easily modified or enhanced to provide a solution that meets the congressionally authorized level of protection.
- Avoid or minimize adverse impacts on the cultural landscapes, historic structures, and other cultural resources of the National Mall and the project area.
- Avoid or minimize adverse impacts on the viewsheds of the National Mall and the monumental core, and the visual quality of the project area.
- Minimize disruption to visitor use and experience in the National Mall and monumental core.
- Minimize adverse impacts on park management and operations and provide the NPS with the most effective and reliable closure system in advance of a flood event.
- Avoid additional costs of insurance or construction to property owners in the project area.
- Minimize disruption of traffic in the downtown Washington, D.C. project area during construction.

ALTERNATIVES CONSIDERED

The NPS explored and objectively evaluated a range of alternatives, and six alternatives (the no action and five action alternatives) were carried forward for further analysis. These are briefly summarized below:

No Action Alternative - The no action alternative represents the existing plan for the levee system and the implementation of existing NPS operations and procedures during a flood event. The current Potomac Park levee system extends from the vicinity of 23rd Street, parallel to the Lincoln Memorial Reflecting Pool in Constitution Gardens, and ends on the Monument Grounds east of 17th Street. When notification of an impending flood is received, the NPS would implement temporary closures at 17th Street (construction of a temporary earthen levee, using a combination of Jersey barriers, sandbags and soil/fill),
and sandbags would be added at the 23rd Street location across Constitution Avenue if the flood would meet or exceed the 100-year level. The no action alternative does satisfy the FEMA requirement at the north edge of the Reflecting Pool levee. However, no part of the existing levee currently meets the congressionally authorized solution.

**Action Alternatives (alternatives 1, 2, 3, 4, & 5)** - All of the action alternatives are presented in two phases:

Phase 1 satisfies the FEMA 100-year floodplain requirement, and is referred to as the “FEMA required” solution. Phase 1 provides for a minimum level of closure at 16.7 NAVD, although the closure at 17th Street could be initially constructed to the permanent level of protection if funding is available and the design lends itself to this, since that would reduce the overall project construction costs and duration of disturbance. Phase 2 satisfies the congressionally authorized level of protection (a flow of 700,000 cfs) and is referred to as the “congressionally authorized” solution (see Chapter 1, Background, for more detail). Phase 2 provides a level of closure at 18.7 NAVD.

At 23rd Street and along the existing levee along the Reflecting Pool, the five action alternatives all propose the same actions:

- The Phase 1 action for both locations is the same as the no action alternative since the no action scenario at these locations currently meets the FEMA 100-year floodplain standards.
- The Phase 2 action at 23rd Street consists of re-grading the northeast portion of the site to raise the ground elevation by approximately one to two feet.
- The Phase 2 action at the existing levee along the Reflecting Pool consists of filling in of numerous low spots comprising several hundred feet of the levee to meet the congressionally authorized level of protection.

The 17th Street closures vary among the five action alternatives although all would use a post and panel system to achieve the closure across 17th Street. The five alternatives would use different walls or re-grading approaches at different locations along the area of 17th Street, near the alignment of the current levee. The main closure features of five action alternatives at 17th Street are summarized below and are described in detail in chapter 2 of the EA.

**Alternative 1 – “Arc Wall”** – This alternative (Phase 1) would utilize two concrete flood walls to the east and west of 17th Street. There are two options for this alternative that are differentiated by their respective distances south from the centerline of Constitution Avenue and physical configurations which would be either asymmetric (option 1A) or symmetric (option 1B) to the north and south axis of 17th Street.

Option 1A would use two concrete walls to the east and west of 17th Street, approximately 198 feet south of the centerline of Constitution Avenue. The east wall would be an arc-shaped exposed concrete wall that would appear to recede into the landscape. The west wall would be an exposed concrete wall that runs parallel to Constitution Avenue then bends back to the southwest, aligned to the existing sidewalk. The east wall would incorporate a partially submerged storage vault for the post and panels which would be incorporated into the design of the landscape and flood wall.

The implementation of Phase 2 would involve meeting the congressionally authorized level of protection would involve re-grading against the concrete walls and raising the elevation from 16.7 NAVD to 18.7 NAVD, which would be done under Phase 2 unless funding became available sooner. Under Phase 2, the remaining visible sections of the levee wall would be clad in stone to match the historic character of the adjacent cultural landscapes and historic resources. The cladding would enhance the aesthetic quality and

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2 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.
character of the landscape to mitigate against adverse effects associated with concrete walls. On the west side of 17th Street, the wall would frame the southern edge of the northeast-southwest pedestrian path connecting to the Constitution Gardens, disappearing into the ground as the grade rises to the Gardens level. On the east side of 17th Street, the wall would appear as a stand-alone structure, gradually disappearing into the ground as the grade rises towards the Washington Monument. Tree planting and final landscaping would also be completed as part of Phase 2.

Option 1B would use two symmetrical curved concrete flood walls on either side of 17th Street, approximately 253 south of the centerline of Constitution Avenue. The flood walls would require the re-grading of both the northwest corner of the Monument Grounds as well as the eastern edge of Constitution Gardens between the Overlook Terrace and 17th Street. Each wall would be set back approximately 23 feet east and west of 17th Street. The Phase 1 walls would be built to the congressionally authorized solution to accommodate the re-grading proposed under this option. Tree planting and final landscaping would also be completed as part of Phase 1. The implementation of Phase 2 would involve cladding the remaining visible sections of the levee wall in stone to match the historic character of the adjacent cultural landscapes and historic resources. The cladding would enhance the aesthetic quality and character of the landscape to mitigate against adverse effects associated with concrete walls. Option 1B is the NPS Preferred alternative.

Alternative 2 – “Gate Walls” - This alternative (Phase 1) would involve raising 17th Street approximately one foot in height at a location approximately 138 feet south of the centerline of Constitution Avenue to fill in the current depression. In addition, alternative 2 would use two concrete walls to the east and west of 17th Street. There are two options for this alternative that are differentiated by their Phase 1 west walls and their Phase 2 solutions, which would be either an asymmetric (option 2A) or symmetric (option 2B) design.

Both options would include the use of concrete walls to the east and west of 17th Street, approximately 138 feet south of the centerline of Constitution Avenue. The west wall would run parallel to Constitution Avenue and bend back to the southwest. The west walls of options 2A and 2B would be similar, but there is a slight variation in the bend of their angles to the southwest. In both options, the east wall abutment would require the re-grading of the northwest corner of the Monument Grounds. A storage vault for the post and panels would be built into this east wall abutment.

The implementation of Phase 2 would involve raising the height of the walls by re-grading against the concrete wall and raising the elevation of the wall from 16.7 NAVD to 18.7 NAVD (unless already funded and completed in Phase 1). The remaining visible sections of the levee wall would be clad in stone to match the historic character of the adjacent cultural landscapes and historic resources. The cladding would enhance the aesthetic quality and character of the landscape to mitigate against adverse effects associated with concrete walls. The concrete walls would be either asymmetrically (option 2A) or symmetrically placed (option 2B) on either side of 17th Street. Tree planting and final landscaping would also be completed as part of Phase 2.

Alternative 3 – “Constitution Garden Walls” - This alternative (Phase 1) would use two concrete walls to the east and west of 17th Street, approximately 365 feet south of the centerline of Constitution Avenue aligned on the centerline of the area known as the “Overlook Terrace.” The east and west walls would be symmetrical and chevron-shaped, and the far east and west ends of the wall would appear to recede into the landscape. To the west of 17th Street and to the south of the Lockkeeper’s House, there would be a partially submerged storage vault for the post and panels. In alternative 3, the walls would be constructed to 16.7 NAVD, since the Phase 2 solution is a totally different design.

Phase 2 would involve more than just raising the height of the walls—in this alternative, Phase 2 involves re-grading of the entire area and the creation of a terraced landscape with walls leading up to 17th Street on either side. The post and panel length would need to be extended to meet the edge of the lowest terraced wall abutments. Since the profile of the terrace walls would step down, and the entire height
would not be uniform, Jersey barriers would be placed on top of the walls to achieve the required height. The terraced walls would be clad in stone to match the historic character of the adjacent cultural landscapes and historic resources. The cladding would enhance the aesthetic quality and character of the landscape to mitigate against adverse effects associated with concrete walls. Tree planting and final landscaping would also be completed as part of Phase 2.

**Alternative 4 – “Hybrid”** - This alternative (Phase 1) would use two concrete walls to the east and west of 17th Street, approximately 177.5 feet south of the centerline of Constitution Avenue. The east wall would be an arc-shaped exposed concrete wall that would appear to recede into the landscape. The west wall would be an exposed concrete wall that runs parallel to Constitution Avenue then bends back to the southwest, to the west of the existing walkway. A storage vault for the post and panels would be built into the landscape west of 17th Street to the south of the Lockkeeper’s House, surrounded by a retaining wall and visual screen to conceal it from views along Constitution Avenue.

The implementation of Phase 2 would involve re-grading against the concrete walls and raising the elevation from 16.7 NAVD to 18.7 NAVD (unless already funded and completed in Phase 1). The remaining visible sections of the levee wall would be clad in stone to match the historic character of the adjacent cultural landscapes and historic resources. The cladding would enhance the aesthetic quality and character of the landscape to mitigate against adverse effects associated with concrete walls. On the west side of 17th Street, the wall would frame the southern edge of the northeast–southwest pedestrian path connecting to the Constitution Gardens, disappearing into the ground as the grade rises to the gardens’ level. On the east side of 17th Street, the wall would appear as a stand-alone structure, gradually disappearing into the ground as the grade rises towards the Washington Monument. Tree planting and final landscaping would also be completed as part of Phase 2.

**Alternative 5 – “3B”** - This alternative (Phase 1) would use a concrete wall to the west of 17th Street and a stand-alone structure to the east of 17th Street, on the Monument Grounds, at a location approximately 525 feet south of the centerline of Constitution Avenue. The west wall would be arc-shaped and would extend to the southeast off of the existing walkway from Overlook Terrace. The Phase 1 structure would be built to the height of the congressionally authorized solution (18.7 NAVD), since it would be difficult to increase the height of a building at a later time. Given that, the west wall would also be built to 18.7 NAVD in Phase 1.

The structure on the Monument Grounds would measure 25 x 40 feet, with an extending unit built into the slope measuring 19.5 x 17 feet, and would serve as the storage vault for the post and panels. 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 plant material, earthwork, and/or alternative surface wall treatments, such as color, texture, and formwork, until such time that the Phase 2 design is completed and implemented.

The implementation of Phase 2 would involve cladding the remaining visible sections of the levee wall in stone to match the historic character of the adjacent cultural landscapes and historic resources. The cladding would enhance the aesthetic quality and character of the landscape to mitigate against adverse effects associated with concrete walls. Tree planting and final landscaping would also be completed as part of Phase 2.

**ENVIRONMENTAL CONSEQUENCES**

The five alternatives were assessed in accordance with NPS Director’s Order 12: Conservation Planning, Environmental Impact Assessment, and Decision-Making. The Director’s Order 12 handbook requires that impacts on park resources be analyzed in terms of their context, duration, and intensity. Methodologies were developed to assess the impacts that would occur with the implementation of the alternatives. Thresholds for adverse impacts were established for each impact topic to understand the severity and magnitude in the effects on resource conditions. Each action alternative (alternatives 1, 2, 3,
4, and 5) is compared to a baseline to determine the context, duration, and intensity of resource impacts. The baseline, for purposes of impact analysis, is the continuation of the current levee system, or the no action alternative.

The following table summarizes the results of the impact analysis for each resource area analyzed in this EA, including Vegetation, Aesthetic/Visual Resources, Cultural Resources (Historic Districts and Structures, Cultural Landscapes, and Archeology), Visitor Use, Public Safety, Land Use and Socioeconomics, Traffic and Transportation, Infrastructure and Utilities, and Park Operations and Maintenance. Each resource area has detailed descriptions regarding methodology and assumptions and definitions of impact thresholds for evaluating degree of effect in “Chapter 4: Environmental Consequences.”
<table>
<thead>
<tr>
<th>Resource Area</th>
<th>No Action Alternative</th>
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<td>Vegetation*</td>
<td>Minor short-term adverse impacts on vegetation as a result of continued visitor use.</td>
<td>Moderate long-term adverse impacts on vegetation as a result of construction activities related to floodwall improvements and removal of 15 trees, including four older, mature trees (alternative 1A) up to 98 trees and three older trees (alternative 1B). Minor to moderate long-term adverse cumulative impacts.</td>
<td>Minor and moderate short- and long-term adverse impacts as a result of construction activities related to floodwall activities related to floodwall and removal of an additional 38 trees. Minor to moderate long-term cumulative impacts.</td>
<td>Moderate long-term adverse impacts on vegetation as a result of construction activities related to floodwall improvements and removal of 25 (alternative 2A) or 26 (alternative 2B) trees, including three older, mature trees. Minor to moderate long-term cumulative impacts.</td>
<td>Minor and mostly moderate short- and long-term adverse impacts on vegetation as a result of construction activities related to floodwall improvements and removal of an additional 38 (2A) or 38 (2B) trees. Minor to moderate long-term cumulative impacts.</td>
<td>Moderate long-term impacts on vegetation as a result of construction activities related to floodwall improvements and removal of 28 trees, including one older, mature tree. Minor long-term cumulative impacts.</td>
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<td>Floodplains</td>
<td>No impact. While FEMA would re-map under the no action, there is no inherent alteration to the floodplain (i.e., flows, effect on water table).</td>
<td>Negligible short-term adverse impacts. The proposed improvements would not alter the ability to convey flood waters, and existing floodplain designations would remain unchanged.</td>
<td>Since this alternative presents relatively similar area of impact as alternative 1, the effects are the same as alternative 1.</td>
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*In all alternatives, the volume of trees removed in each alternative is an estimate, based on the conceptual design. The exact type and number trees that would need to be removed will be determined in the design process. It is also important to note that additional grading and tree loss will likely be required beyond what is identified here as a result of an updated USACE soil and flow analysis.
**Table 1.1: Summary of Environmental Consequences**

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<tr>
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<td>Aesthetics and Visual Quality</td>
<td>Same as no action at Reflecting Pool &amp; 23rd Street. During construction, there would be a moderate short-term impact resulting from the activity and staging. During a flood event, there would be a minor short-term impact due to the presence of the pool and panels. For alternative 1A, there would be a long-term minor adverse effect on views and viewsheds. A landscape plan would ensure that the overall visual character and integrity of the cultural landscape would be compatible with the original design of the project area. In addition, stone cladding would enhance the visual character to mitigate the Phase 1 impacts. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds.</td>
<td>Same as alternative 1 at 23rd Street and Reflecting Pool levee. Same effects as Phase 1 during construction and a flood event. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds.</td>
<td>Same as alternative 2 at 23rd Street and Reflecting Pool levee. Same effects as alternative 1 during construction and a flood event. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds.</td>
<td>Same as alternative 3 at 23rd Street and Reflecting Pool levee. Same effects as alternative 1 during construction and a flood event. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds.</td>
<td>Same as alternative 4 at 23rd Street and Reflecting Pool levee. Same effects as alternative 1 during construction and a flood event. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds.</td>
<td>Same as alternative 5 at 23rd Street and Reflecting Pool levee. Same effects as alternative 1 during construction and a flood event. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds. There would be a long-term first degree moderate adverse effect on views and viewsheds.</td>
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* documented as a cultural landscape.
### Table 1.1: Summary of Environmental Consequences (continued)

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<tr>
<th>Resource Area</th>
<th>No Action/Alternative</th>
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<tr>
<td>Visitor Use &amp; Experience</td>
<td>Short-term minor to moderate adverse impacts from excavation of Washington Monument Grounds during a flood event; otherwise no impacts.</td>
<td>Short-term minor to moderate adverse impacts from construction and street closures. Long-term minor to moderate adverse impact on visitor experience due to presence of walls and removal of trees; negligible impacts on visitor use.</td>
<td>Minor adverse impacts during construction.</td>
<td>Same as alternative 1, Phase 1.</td>
<td>Minor adverse impacts during construction.</td>
<td>Same as alternative 1, Phase 1.</td>
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<td>Mainly beneficial long-term cumulative impacts from other projects and plans.</td>
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<td>Same as alternative 1, Phase 1.</td>
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<td>Public Health &amp; Safety</td>
<td>Negligible to possible minor impacts on employee safety due to the possibilities of accidents occurring during construction of an earthen levee under adverse conditions. No immediate impact to the public, which would be evacuated from the area. Negligible adverse impact on the delivery of emergency services under expected traffic conditions. Overall, the low relative reliability of the earthen closure represents a moderate adverse impact to public safety.</td>
<td>Short-term negligible impact on public safety during the construction phase. Following its completion, the arc wall would provide a, congressionally authorized level of protection, which represents a long-term beneficial impact on public safety due to the improvement in reliability over the current levee system.</td>
<td>Since each alternative has similar construction requirements and each would provide the same level of protection from the 100-year flood, the effects from alternatives 2 – 5 would be the same as Phases 1 and 2 of alternative 1.</td>
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<td>Land Use and Socio-Economics</td>
<td>Major adverse impacts on residents, businesses and government entities with buildings located within the 100-year floodplain. If FEMA issues the new 100-year floodplain map, entities would be required to obtain insurance from the NFIP, which would likely approach $55 million per year. Cumulative impacts would occur as new development properties would not only have to purchase the costly insurance but comply with new building codes which would increase total cost of development, making some projects less financially feasible, or eliminate usable commercial space on lower levels of buildings.</td>
<td>Long-term beneficial impact to the residents, businesses and government entities that reside or have facilities within the study area. Existing building owners would not have to purchase costly flood insurance on an annual basis and new construction would not need to comply with regulations and building codes for structures located in floodplains. Long term beneficial impact on socioeconomic resources.</td>
<td>Since each alternative has similar construction requirements and each would provide the same level of protection from the 100-year flood, the effects from alternatives 2 – 5 would be the same as Phases 1 and 2 of alternative 1.</td>
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<tr>
<td>Traffic and Transportation</td>
<td>Minor short-term adverse impacts from disruptions during flood events Minor long-term cumulative impacts, mainly from other sources.</td>
<td>Short-term moderate adverse impact on travel in the area with two lanes open (one lane in each direction) during peak and off-peak hours for the anticipated intense construction period, and if signal timing and aggressive public information mitigation actions are undertaken. Phase 2 is anticipated to have a short-term minor effect on traffic in the area due to minor disruptions while bringing in equipment and materials for construction and re-grading.</td>
<td>Since each alternative has similar construction requirements (staging activity, duration, and closure of 17th Street), the effects from alternatives 2 – 5 would be the same as Phases 1 and 2 of alternative 1.</td>
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### Table 1.1: Summary of Environmental Consequences (continued)

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<td>Phase 1</td>
<td>Phase 2</td>
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<tr>
<td>Utilities and Infrastructure</td>
<td>No impact, provided the NPS avoids existing subsurface gas and water lines beneath the Monument Grounds when excavating the area during a flood event.</td>
<td>Negligible impacts on water supply lines, sanitary sewer lines, natural gas lines, and underground electric lines. Water supply lines and electric lines would require the installation of sleeves to allow utilities to pass through constructed walls. Minor impacts on irrigation lines and moderate impacts on storm drains, sanitary sewer, and communication lines. Negligible cumulative impacts.</td>
<td>Since the design of Phase 2 is situated in the same footprint as Phase 1, the impacts associated with Phase 2 would be the same as those for Phase 1.</td>
<td>Same as alternative 1 phase 1.</td>
<td>Same as alternative 1 phase 1.</td>
<td>Same as alternative 1 phase 1.</td>
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<tr>
<td>Park Management and Operations</td>
<td>Negligible impacts except in event of a flood; short-term moderate adverse impacts as the levee plan is implemented over 24-hour period, and resources are reallocated to address the emergency. Long-term minor adverse cumulative effects.</td>
<td>Negligible to minor short-term adverse impacts during initial construction. Short-term minor adverse impacts during implementation of the post and panel system during a flood event; this would require only about 12 hours, a long-term benefit compared to current procedures. Long-term minor adverse impacts associated with annual maintenance. Long-term minor adverse cumulative effects.</td>
<td>Since implementation would take about the same level of effort, impacts would be the same as alternative 1, phase 1.</td>
<td>Same as Phase 1.</td>
<td>Since implementation would take about the same level of effort, impacts would be the same as alternative 1, phase 1.</td>
<td>Since implementation would take about the same level of effort, impacts would be the same as alternative 1, phase 1.</td>
</tr>
</tbody>
</table>
NOTE TO REVIEWERS AND RESPONDENTS:

If you wish to comment on the EA, you may mail comments directly via US Post or submit them electronically. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Mailed comments can be sent to:

Glenn DeMarr, Project Manager
Potomac Park Levee Project EA
National Park Service -National Capital Region
1100 Ohio Drive, SW
Washington, DC 20242

Comments can also be submitted on-line at:

- comments@potomaclevee.com
- http://parkplanning.nps.gov/
  And search for National Mall and Memorial Parks, Environmental Assessment for Design Alternatives for the Potomac Park Levee System
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