

STAFF RECOMMENDATION

NCPC File No. 6481



BOUNDARY CHANNEL BRIDGE
REPLACEMENT, WIDENING AND SAFETY IMPROVEMENTS
George Washington Memorial Parkway
Commonwealth of Virginia and District of Columbia

Submitted by the Federal Highway Administration and the National Park Service

July 29, 2004

Abstract

The Federal Highway Administration (FHWA) and the National Park Service (NPS) have submitted preliminary and final site development plans to construct safety improvements along the George Washington Memorial Parkway in the vicinity of Interstate 395 by widening and flattening the Boundary Channel Bridge connecting Virginia to the District of Columbia at Columbia Island. The project includes both vehicular and bicycle/pedestrian trail safety improvements. The historic facades of the bridge will be removed and reinstalled, and any new stone required to face the expanded bridge abutments will match the existing stone.

Commission Action Requested by Applicant

Approval of preliminary and final site development plans pursuant to 40 U.S.C. § 8722(d) and Section 5 of the National Capital Planning Act of (40 U.S.C. § 8722(b)(1)).

Executive Director's Recommendation

The Commission:

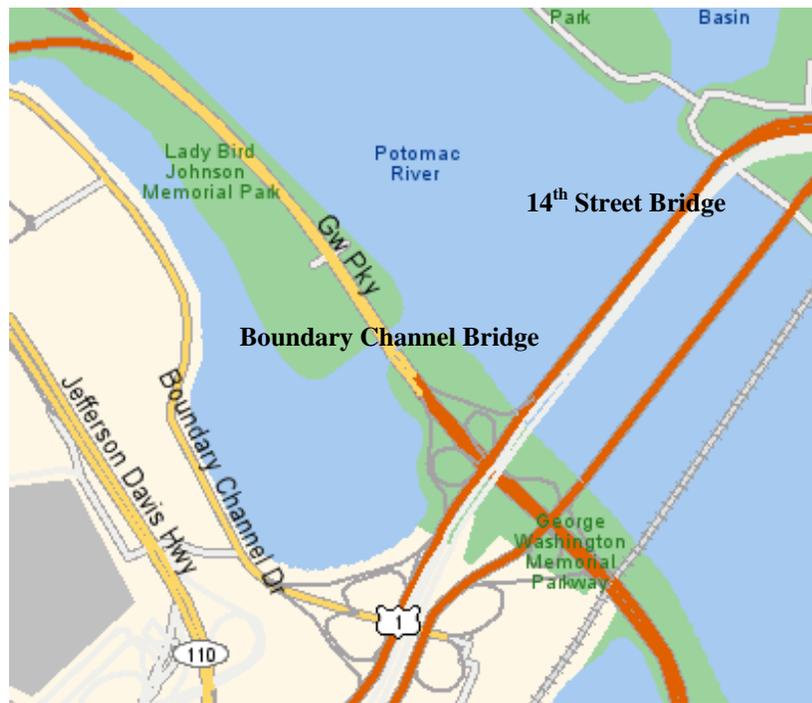
Approves the preliminary and final site development plans for the replacement of the Boundary Channel Bridge, as shown on NCPC Map File No. 1.45(05.17)-41412.

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PROJECT SUMMARY

Site Description

The project is located within the George Washington Memorial Parkway, extending from the 14th Street Bridge to the Navy-Marine Memorial on the west shore of the Potomac River. Portions of the project are located in both Arlington, Virginia and in the District of Columbia, and the Boundary Channel Bridge, also known as the Hump Back Bridge, crosses the jurisdictional line. The project site includes portions of the Mount Vernon Bicycle/Pedestrian Trail, the ramp leading from the 14th Street Bridge westbound connecting to the George Washington Memorial Parkway northbound, the Boundary Channel Bridge, a portion of the Parkway north of the bridge, and an existing surface parking lot serving the Navy-Marine Memorial. The project does not alter the memorial itself, except to improve portions of the bicycle/pedestrian trail surrounding the memorial. The entire site lies within the confines of the Parkway.



Project Site

Background

The purpose of the project is to improve safety conditions for motorists, cyclists and pedestrians in the project area. The existing vehicular movement from the 14th Street Bridge westbound to the George Washington Memorial Parkway northbound requires a difficult merge from the bridge into fast-moving through traffic on the Parkway. No merge lane exists to serve this movement, and motorists must come to a complete stop before accelerating onto the Parkway and crossing the Boundary Channel Bridge. Sight lines at the merge area are limited. The existing bridge carries four vehicular travel lanes.

Cyclists traveling southbound on the Mount Vernon Trail must climb a steep embankment and make a sharp left turn in order to cross the Boundary Channel Bridge. The portion of the trail on the bridge is narrow (approximately six feet wide) and no barrier exists between the trail and the fast-moving vehicular traffic on the bridge beside it. The trail serves two-way bicycle traffic as well as pedestrians and the narrow section that crosses the bridge is not wide enough to accommodate the traffic.

Just north of the Boundary Channel Bridge, an unsignalized at-grade crossing serves the Navy-Marine Memorial, encouraging pedestrians and motorists to cross the George Washington Memorial Parkway and creating a safety hazard for pedestrians and motorists alike.

The proposed project will correct all three of these existing safety hazards by widening the bridge to allow a merge lane for vehicular traffic, a wider bicycle/pedestrian trail section over the bridge barrier-separated from the main roadway, and by eliminating both the surface parking area and the at-grade crossing.

Proposal

New Bridge

The applicants propose to demolish the existing Boundary Channel Bridge and replace it with a wider bridge, retaining the stone facing on both the Potomac River and Columbia Marina sides for re-use on the replacement bridge. The bridge will be widened toward the west, retaining the position of the current bridge's east façade along the Potomac River. The new bridge will carry five travel lanes (each 11 feet wide), including the new merge lane, and a widened section of bicycle/pedestrian trail measuring 10 feet in width. The bridge will also carry two five foot wide shoulders.

The new bridge will also be longer than the existing bridge due to two new grade-separated Mount Vernon trail connections that will be provided beneath the bridge at each end. Because the bridge will be lengthened, additional stone facing will be required on both the east and west façades. New matching stone will join the original stone being re-used from the existing bridge. The new stone will be blended with the original stone to create an unaltered appearance.



Existing Potomac River face of Boundary Channel Bridge

A new guardrail separating the bicycle/pedestrian trail from the roadway will be constructed of stone with a steel upper section to maximize views from the bridge. A steel-reinforced stone barrier will separate north-bound from south-bound parkway traffic.

The replacement bridge will also be flatter than the existing bridge. Although this aspect of the project will remove the signature “hump” from the Hump Back Bridge, it is necessary to improve sight line for motorists. However, the profile of the bridge as viewed from the Potomac River is required by the Section 106 Memorandum of Agreement to be similar in appearance to the existing bridge.

Bike Trail Improvements

Several modifications to the Mount Vernon Bicycle/Pedestrian Trail will improve safety. First, a widened section of trail will traverse the Boundary Channel Bridge. This trail section will be separated from vehicular traffic by a new guard rail. The height of bridge’s outer wall will not be raised, in order to preserve views of the river and the city from the trail. Next, the existing steep incline leading from the southbound trail to the bridge will be eliminated and replaced by a new, gentler approach north of the Navy-Marine Memorial. Two new sections of trail will be placed in tunnels beneath the new bridge, allowing trail traffic to pass east and west without requiring at at-grade crossing of the George Washington Memorial Parkway. Finally, the existing at-grade crossing of the Parkway will be removed and modifications will be made to the trail sections south of the bridge to allow all of the new trail movements to occur smoothly.



Mount Vernon Trail Passing over Boundary Channel Bridge

Merge Improvements

As part of the project, a new merge lane will be added along the east side of the parkway between the 14th Street Bridge and the Navy-Marine Memorial. The merge lane will carry traffic from the westbound lanes of the 14th Street Bridge to the northbound lanes of the parkway, moving the merge point north of the Boundary Channel Bridge and therefore improving sight lines and creating additional time for drivers to merge into fast-moving parkway traffic. This aspect of the project will create a five-lane bridge section, whereas the existing bridge carries only four traffic lanes.



Merge Area and Section of Mount Vernon Trail south of Bridge

Surface Parking Lot Removed

In order to eliminate pedestrian and vehicular movements across the George Washington Memorial Parkway in the vicinity of the Navy-Marine Memorial, the existing 7-space surface parking lot on the east side of the parkway will be removed. Visitors to the memorial will use the existing surface parking lot near the marina on the west side of the parkway and cross the parkway using the new bicycle/pedestrian tunnel beneath the replacement Boundary Channel Bridge. A right-in/right-out only driveway will serve this parking area. The second phase of this project, not yet scheduled, will build a new bridge between the marina area and Boundary Channel Drive, eliminating the need for access from the parkway altogether. When this additional new bridge is constructed, the vehicular connection between the marina and the parkway will be eliminated.

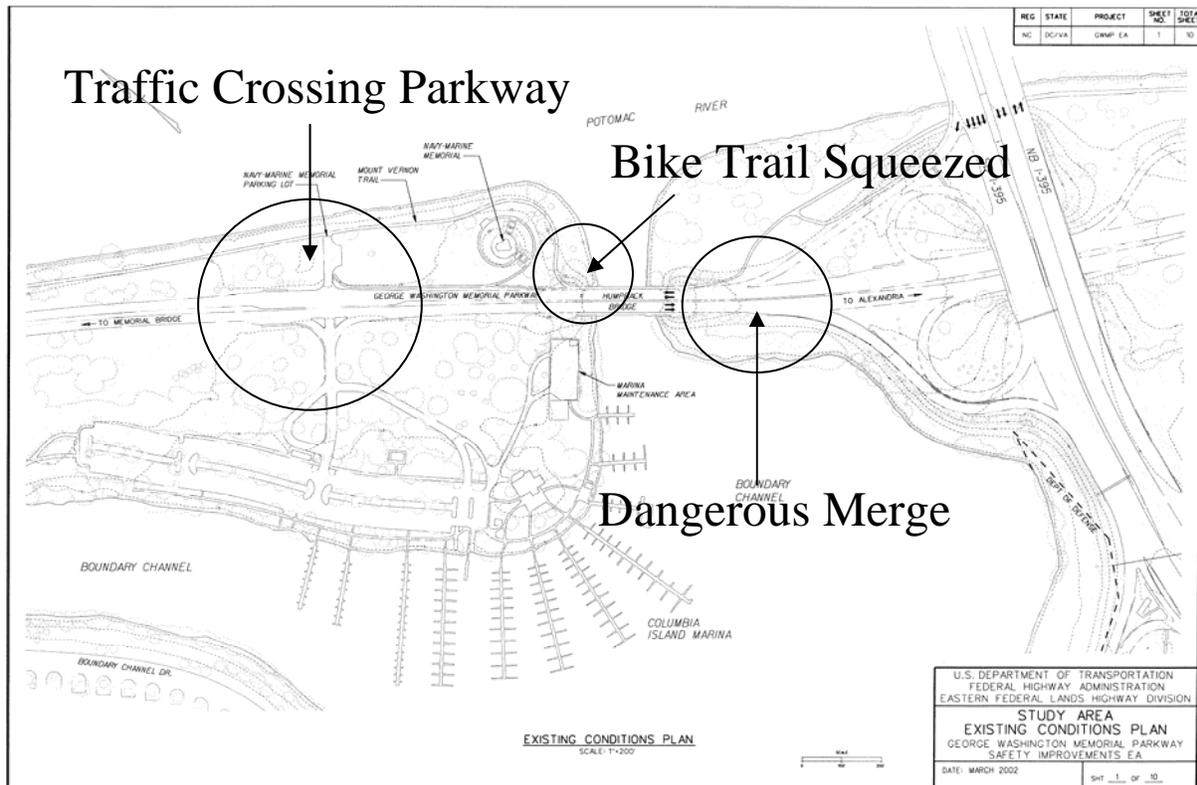
Development Program

Applicant: Federal Highway Administration and National Park Service
Architect: URS Engineers/Architects/Planners/Surveyors
Cost: \$20 million
Schedule: Project start date January 1, 2005; Project end date June 30, 2006

PROJECT ANALYSIS

Executive Summary

Staff **recommends approval** of the preliminary and final site development plans for the Boundary Channel Bridge replacement. The project will provide much needed safety improvements for cyclists, pedestrians and motorists, while respecting the historic status of the George Washington Memorial Parkway. Roadway and trail widening, bridge replacement, landscaping, signage and other project aspects have all been carefully coordinated among project stakeholders over the course of the past two years.



Identified Problem Areas

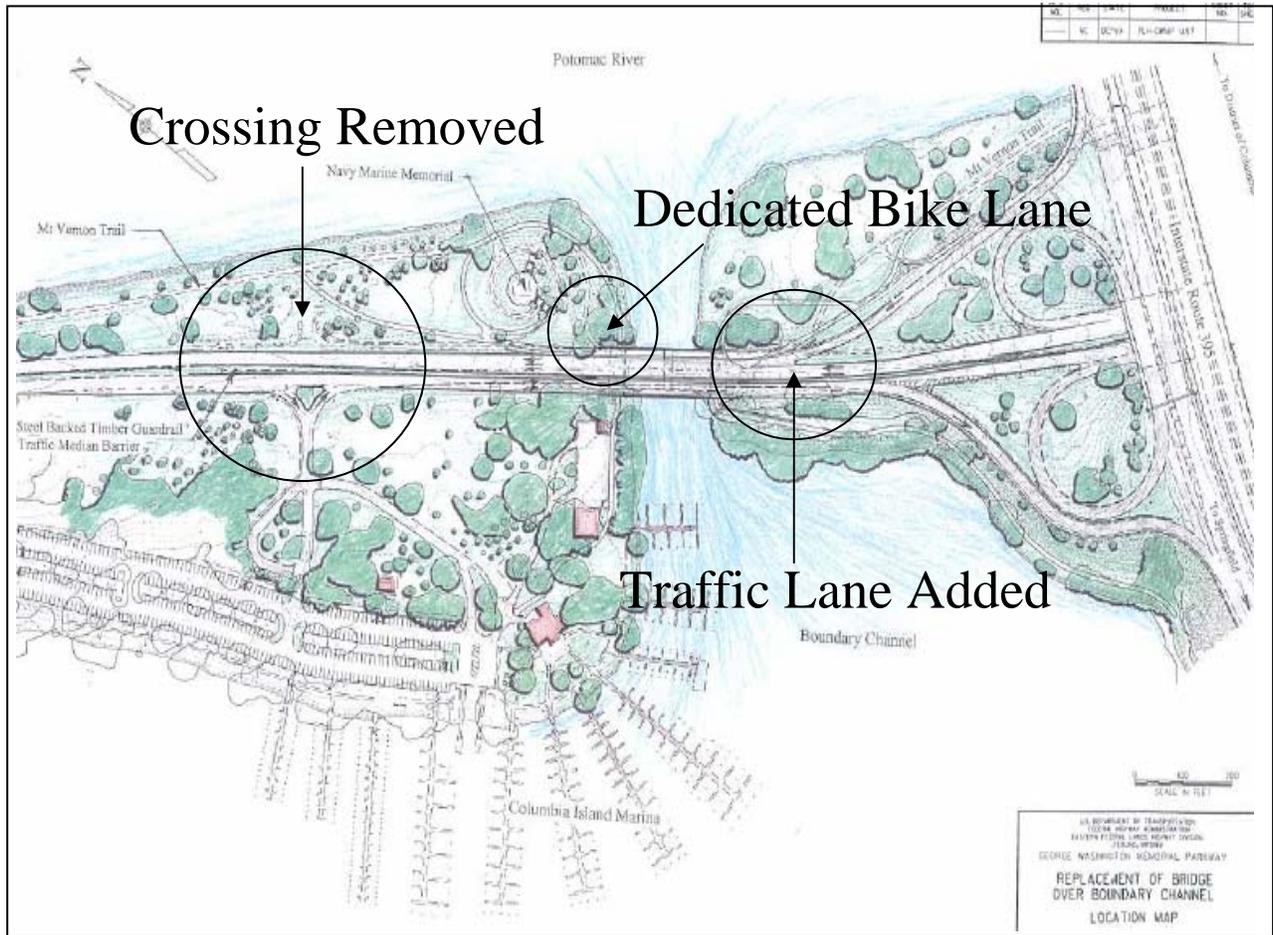
Discussion

New Bridge

The replacement Boundary Channel Bridge design has been carefully coordinated with the National Park Service, the Commission of Fine Arts, NCPC and both the District and Virginia State Historic Preservation Offices. The new bridge will re-use facing stone from the old bridge, and new stone will be selected to match. The east face of the new bridge will be located in the same alignment as the east face of the old bridge so that the relationship to the riverbank and to the Navy-Marine Memorial will be maintained. In most respects, the new bridge will appear similar to the old bridge when viewed from the water. The most significant change will be the addition of the two bicycle trail tunnels running beneath the north and south bridge abutments; the bridge will appear longer at each end. Bridge parapet heights and railing designs have been carefully controlled so as not to interfere with views from the bridge to the city beyond. Staff finds no issues with the bridge design.

Bike Trail Improvements

The project will construct new grade-separated connections among the various segments of the Mount Vernon Trail within the project area, where at-grade crossings existed previously. Additionally, the wider trail section planned for the bridge crossing itself will allow two-way traffic to pass alongside the roadway. These improvements will greatly increase safety along the trail, enhancing the trail experience. Additional improvements to the trail include rerouting a trail section north of the bridge to provide easier grades along the trail. This improvement will also enhance trail use. Staff finds no issues with the trail design.



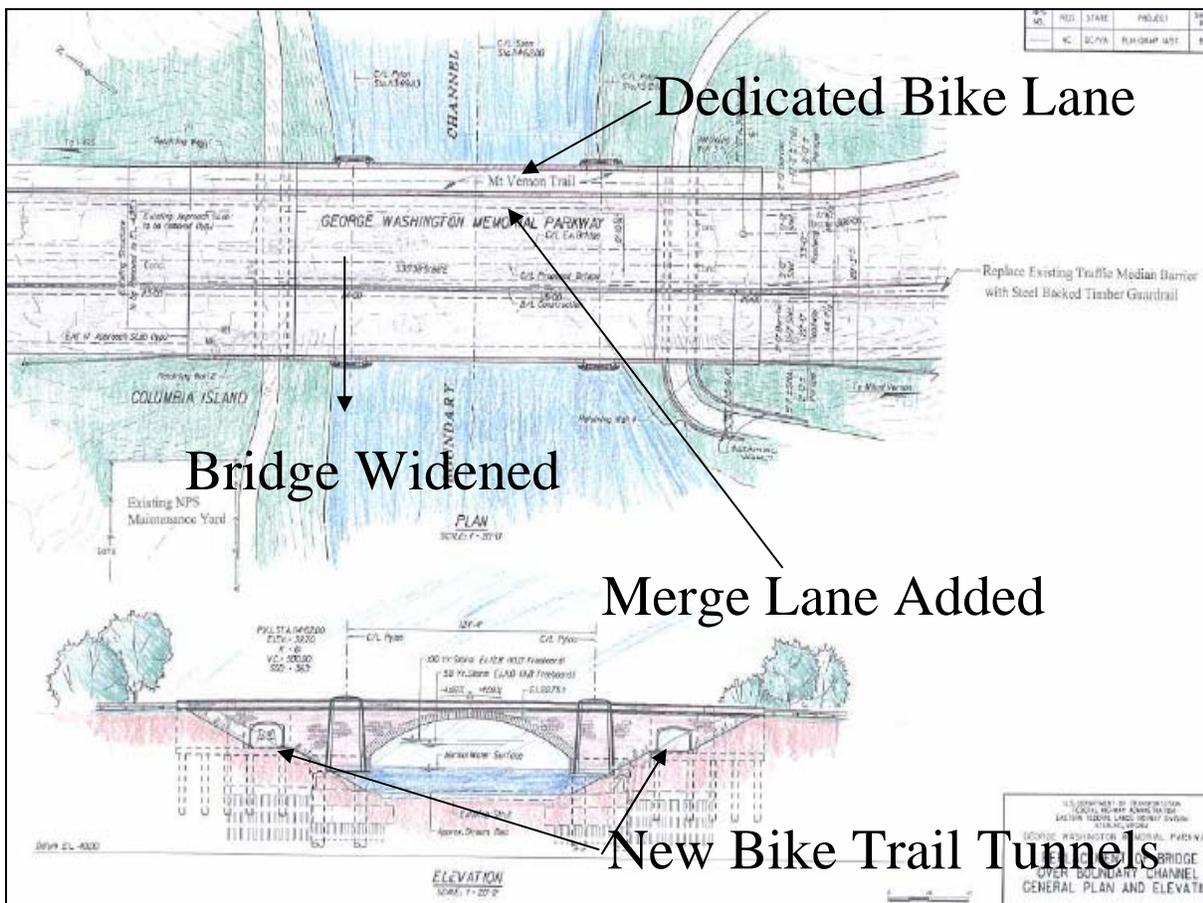
Proposed Project Improvements



Proposed Railing Design for Barrier Separating Bicycle Trail from Roadway

Merge Improvements

The project will provide a dedicated merge lane connecting the westbound 14th Street bridge ramp to the northbound lanes of the parkway. This improvement will greatly enhance driver safety by improving sight lines and driver decision time. As the existing merge lane brings merging traffic into the parkway in the direct vicinity of the Mount Vernon Trail mainline and there is no barrier separating the trail from the roadway, the planned merge improvements will enhance safety for cyclists and pedestrians as well. Because the new merge lane will be accommodated without resulting in changes to the position of the east face of the bridge, its construction will not adversely affect the parkland and trail along the Potomac Riverfront. Staff finds no issues with the merge improvements planned for this project.



Proposed Project Improvements

Surface Parking Lot Removed

The existing surface parking lot along the Potomac Riverfront just north of the Navy-Marine Memorial will be removed as part of the proposed project. As this parking lot provides parking for only seven cars, its removal will not pose a significant loss. In fact, the size and configuration of the lot sometimes result in queuing along the parkway. Adequate parking will be provided in the Columbia Island Marina parking lot on the west side of the parkway with handicapped-accessible access to the trail and the memorial using the new Mount Vernon Trail

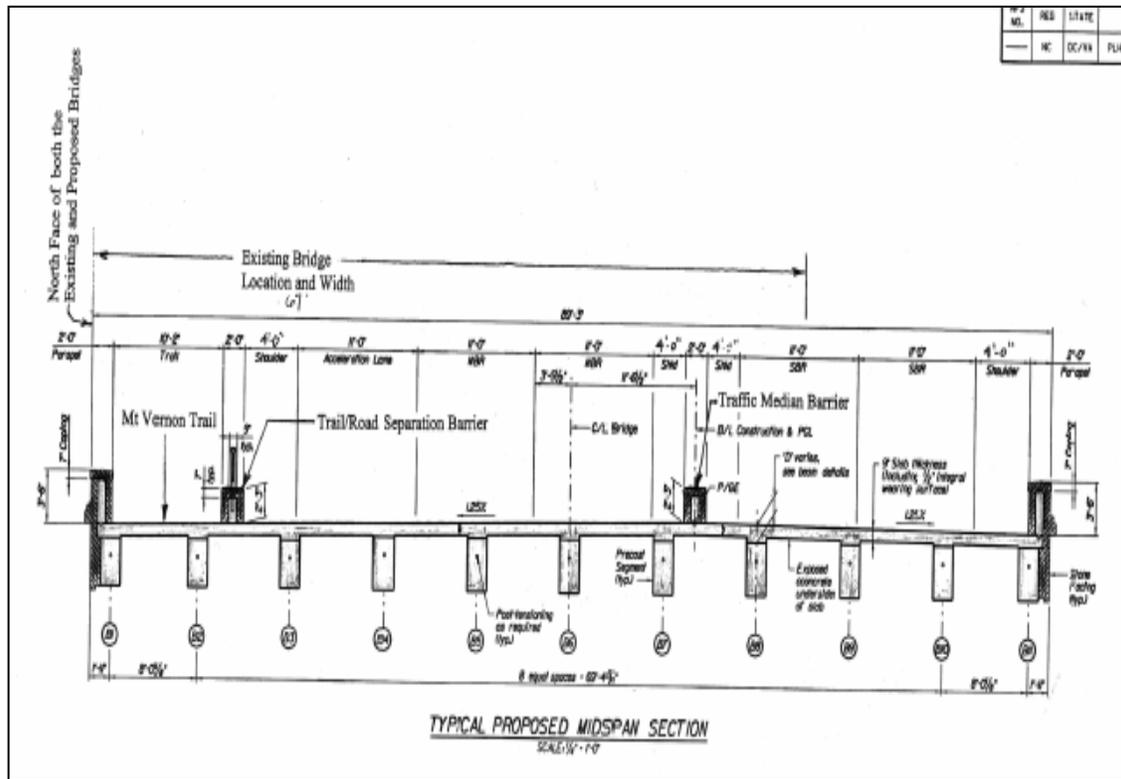
tunnel passing below the Boundary Channel Bridge. Although removal of this parking area will result in a longer travel distance between the parking spaces and the memorial, the overall safety advantages of the project justify the change. Staff finds no issues with the removal of the surface parking area.

Landscaping and Grading

Because the new bridge proposed by the project will be longer and wider than the existing bridge, and because some sections of the Mount Vernon Trail will be relocated from their existing positions, some existing landscaping and site grading will be disturbed by the project. The Memorandum of Agreement executed as a result of the Section 106 process for this project requires that the project retain as much of the existing landscaping as possible and that the design and installation of replacement landscaping be coordinated closely with the Superintendent of the Parkway. Trees that are removed will be replaced in kind and in caliper. The new longer bridge and placement of new trail sections along the channel bank will require grades along the shoreline to be modified. These modifications will not adversely impact the parkway grounds and will not result in adverse visual impacts with the exception of the south bank of the Boundary Channel west of the Boundary Channel Bridge where two sections of retaining wall will be required. Final design of the retaining wall structures will be accomplished in coordination with Park Service representatives. Although these structures may create an adverse visual impact in this limited area, the safety benefits provided by the new grade-separated trail structure will far outweigh any adverse impact. Additionally, this section of the trail is not highly visible and this is the only section where such structures are being used. Therefore, staff does not find any issues with the landscaping and grading for this project.

Signage

The District of Columbia Office of Planning (DCOP) raised two issues regarding project signage during the coordinating committee meeting. Because the project will limit vehicular access to the Navy-Marine Memorial site to the southbound lanes of the parkway, the Office of Planning was concerned that additional signage would be required to direct motorists to the site from the northbound lanes as well as to direct exiting motorists back to destinations north. The second issue was a request from DCOP to add signs indicating to motorists that they had entered the District of Columbia upon arriving at Columbia Island. Staff discussed both of these issues with the applicants at DCOP's request. During these discussions, the applicants indicated that the National Park Service strives to minimize the amount of signage placed along parkways and that the Federal Highway Administration is in fact simplifying existing signage as part of this project. Also, because Columbia Island is the only part of the parkway within the District of Columbia, additional signage would be required in close vicinity indicating that motorists had re-entered the Commonwealth of Virginia. Because of these reasons, staff is not recommending to the Commission that signage be added to the project as requested by DCOP and staff finds no other issues with the signage portion of this project.



PROJECT CONFORMANCE

Comprehensive Plan for the National Capital

This proposal is not inconsistent with the federal elements of the Comprehensive Plan for the National Capital. The project will provide needed improvements to the regional bicycle trail network, increasing connections among the network as well as safety along it, in addition to safety improvements along the parkway itself. These improvements should enhance collectively the experience of using the park system.

Federal Capital Improvements Program

The proposed project is recommended in the Federal Capital Improvements Plan as part of a larger package of traffic and safety improvements for the 14th Street Bridge and the George Washington Memorial Parkway. The project first appeared in the FY 2001-2005 program.

National Historic Preservation Act

The Section 106 consultation for this project is complete, culminating in an executed Memorandum of Agreement (MOA) signed by the Federal Highway Administration, the National Park Service, and the State Historic Preservation offices of both the Commonwealth of Virginia and the District of Columbia. The MOA requires that:

1. The Potomac River face of the replacement bridge will be in the same location along the river bank as that of the existing bridge.
2. The replacement bridge will have five vehicular travel lanes and a bicycle lane.
3. Stone from the original bridge will be salvaged and re-used for the new bridge. Required new stone will match the original stone.
4. The replacement bridge will be an exact replica of the existing bridge regarding center channel arch size, geometry and span, ribs, buttress, coping size and reveal and stone pattern. Design plans will be reviewed by the Superintendent of the Parkway for final approval.
5. The replacement bridge parapet height will allow visibility from an automobile. Steel will be used on the top section of the barrier separating vehicle traffic from bicycle traffic to maximize visibility.
6. The two bicycle/pedestrian tunnels passing through the new bridge will be placed symmetrically through the bridge faces.
7. The bicycle trail lane will be provided along the Potomac River side of the bridge.
8. Existing vegetation will be retained and protected to the extent possible. Replacement trees will be of similar total caliper to those removed for construction. Landscaping will be designed in coordination with the parkway's cultural resource, landscape and horticultural specialist.

National Environmental Policy Act

NCPC staff has analyzed, in conformance with the requirements of the National Environmental Policy Act (NEPA) the prepared Environmental Assessment (EA) completed by the Federal Highway Administration (FHWA) and the National Park Service (NPS) for planning and construction of a series of roadway and bicycle/pedestrian trail modifications to safely and efficiently accommodate motorists, bicyclists and pedestrians using the George Washington Memorial Parkway (GWMP) in the vicinity of the 14th Street Bridge and Columbia Island Marina, which includes the Boundary Channel Bridge. The FHWA and NPS determined a Finding of No Significant Impact on June 25, 2004. The staff's independent review finds that the EA conclusions represent an effective analysis of the potential environmental impacts of the plans submitted to the Commission and conform to the Commission's Environmental and Historic Preservation Policy and Procedures.

Because the purpose of the proposed action was to identify and evaluate a series of roadway and bicycle/pedestrian trail modifications to safely accommodate motorists, bicyclists, and pedestrians using the GWMP, the EA scope addresses issues beyond the bridge structure itself and extended into the environs of Virginia involving the GWMP. As a complete analysis, the EA study area involves modifications that are intended to address concerns at various locations within the GWMP and would not result in any increase in the existing roadway capacity.

The Preferred Alternative identified by NPS would include the permanent closing of the Columbia Island Marina entrance at the GWMP and construction of a new entrance on Boundary Channel Drive, to the west. The existing entrance roadway to the marina parking lot and boat ramp would be removed. The reclaimed roadway would be re-vegetated with grass, consistent with the groundcover of the surrounding open space areas. A two-lane vehicular bridge would be constructed over Boundary Channel to connect Boundary Channel Drive with the existing

marina parking lot. The bridge would accommodate two vehicle travel lanes (one in each direction) and a sidewalk on one side. It would be designed to blend with the character of the GWMP National Register historic resource as well as adjacent National Register resources (i.e., Lyndon Baines Johnson (LBJ) Memorial Grove and the Pentagon). Boundary Channel Drive is part of the Pentagon Reservation and under the jurisdiction of Department of Defense (DOD). A permit has been requested from the DOD Directorate of Real Estate and Facilities for access from Boundary Channel Drive for the new Columbia Island Marina entrance and bridge. The NPS maintains a parking area for the LBJ Grove and a pedestrian bridge across Boundary Channel that is accessed via Boundary Channel Drive under a similar permit agreement.

The Preferred Alternative also involves the demolition of the Humpback Bridge and construction of a replacement bridge structure to include: a widened Mount Vernon Trail crossing (with a physical barrier between the trail and vehicular travel lanes), a northbound acceleration lane for the ramp from southbound 1-395 to northbound GWMP, two northbound travel lanes and two southbound travel lanes. A median barrier would separate the northbound and southbound GWMP lanes. Both the median barrier and the trail barrier would be constructed in a style and with material(s) compatible with the GWMP historic resource and the character of the existing bridge. The vertical profile and sight distance deficiencies of the existing bridge would be corrected and addressed in the design of the new bridge and the GWMP approaches. The existing at-grade crosswalk would be eliminated and pedestrian underpasses would be constructed to the north and south of the Humpback Bridge to connect the east and west sides of the GWMP. The underpasses would be lighted and equipped for the potential use of security devices.

For the Columbia Island Marina entrance, the interim aspect of the planned project is to limit turning movements at the existing entrance to right in/out would result in the closure and re-vegetation of the center GWMP median at the marina entrance. The median would likely be planted with turf grass, consistent with the treatment of the adjacent median areas. This modification is anticipated to have a negligible benefit to existing vegetation resources, but would increase the amount of landscaped area by approximately 5,900 square feet (SF) or 0.1 acres.

Replacement of the Humpback Bridge would result in the clearing of trees and other vegetation on both sides of the new structure. The eastern or river face of the new structure would be located in approximately the same position as the existing bridge face in order to minimize the impact to existing plantings. Proposed pedestrian underpasses and related trails have been located to minimize the loss of existing plantings, particularly the specimens on the Potomac River side of the bridge. However, three trees, the 80-inch diameter at breast height (DBH) pin oak, a 25-inch DBH flowering dogwood and a multi-trunk flowering pear tree would be impacted. Protective measures such as the use of pile shoring and other measures would be taken during the construction of the bridge to minimize additional impacts to vegetation.

Loss of vegetation is not anticipated to have an adverse impact on wildlife inhabiting the area surrounding the Columbia Island. Disturbed areas would be replanted with vegetation consistent with that removed in order to provide the same type of wildlife habitat that would be destroyed. Construction of the bridge would also affect aquatic wildlife found in Boundary Channel; however those impacts are anticipated to be temporary. There are no state or federally listed rare, threatened or endangered species known to inhabit the Study Area, so the impacts would be negligible.

The construction of the new bridges would comply with the conditions of Section 401 and 404 of the Clean Water Act, if necessary. Wetlands permits would be obtained from the U.S. Army Corps of Engineers for the construction activity. The proposed actions would also comply with applicable state and local permit requirements. Bridge permits from the U.S. Coast Guard would also be required.

The Arlington County portions of the project area are located within the Virginia Coastal Zone. The Federal Coastal Zone Management Act (CZMA) requires development projects of federal agencies that take place within the Coastal Zone be consistent with the applicable state coastal zone management program to the maximum extent practicable. The Virginia Coastal Resources Management Program is a network of existing state laws and policies through which the Commonwealth of Virginia manages its coastal resources. Proposed actions that comply with the applicable state laws and policies are considered to be consistent with the Virginia Coastal program. The District of Columbia is not subject to the CZMA. The proposed safety improvements would be constructed in accordance with Commonwealth of Virginia and District of Columbia storm water management, sedimentation and erosion control and other water quality protection laws and policies and consequently is considered in conformance with the Virginia management program.

The Preferred Alternative for the new marina entrance and bridge is located on government-owned property that is exempt from Arlington County Chesapeake Bay Preservation regulations. The Humpback Bridge is partially located on government-owned property in Virginia that is exempt from Arlington County Chesapeake Bay Preservation regulations and partially located in the District of Columbia, which does not designate Chesapeake Bay Preservation Areas. Construction and other activities related to the implementation of the proposed safety improvements would comply with local storm water management, sedimentation and erosion control and other water quality protection regulations.

The proposed action does not increase the capacity of the GWMP transportation system; air quality levels would remain essentially the same as present conditions as a result of the construction of the new bridge and other safety measures. Minor, temporary increases in dust and other air emissions would result from construction activities. Construction activities would be conducted in accordance with the FHWA's Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (1996) and would comply with applicable local, state and federal regulations.

The submitted bridge improvements and safety measures will limit vehicle turning movements in and out of the Columbia Island Marina to right turns only, as an interim safety improvement measure, and marina access/egress options would be reduced. The change in traffic patterns is not anticipated to adversely impact traffic operations. The marina situation would be similar to other locations on the GWMP, such as Gravelly Point and the Theodore Roosevelt Island parking lot, where access is only possible from one direction of the Parkway. In the long term, marina-bound and memorial overlook visitors would be rerouted to the new entrance via a less direct route, but access in either future condition is maintained. The small parking lot serving the Navy and Marine Memorial would be eliminated, but accessible sidewalk/trail connections would be constructed to connect the Columbia Island Marina parking lot with the Mount Vernon Trail and Navy and Marine Memorial via the northern underpass at the bridge. Since the

majority of marina traffic and memorial visits are weekends in non-peak periods, the rerouting is not anticipated to result in greater congestion on the Study Area road network as analyzed by the FHWA and NPS.

Staff finds the minor environmental effects and their mitigation supportable and fully defined by the EA evaluation. Cumulative effects of the proposed action have been identified and considered in the EA. The National Historic Preservation Act, Section 106 review and mitigation actions have been determined and agreed upon by additional analysis and design efforts in consultation with the District of Columbia Historic Preservation office, and a Memorandum of Agreement developed. Staff believes the FHWA and NPS determinations are sufficient for evaluation of the affects of the proposed project and support the mitigation actions identified in the EA.

COORDINATION

Coordinating Committee

The Coordinating Committee reviewed this item at its meeting on July 14, 2004, and forwarded the proposal to the Commission with the statement that the project has been coordinated with all agencies participating, except the District of Columbia Office of Planning. The representative for DCOP noted concern about the loss of the parking lot near the Navy-Marine Memorial, and loss of access to and from the parking lot to the northbound lanes of GWMP. The other participating agencies are: NCPC; the District of Columbia Department of Transportation; the General Services Administration; the National Park Service; and the Washington Metropolitan Area Transit Authority.

Commission of Fine Arts

The project was presented at the July 15, 2004 meeting of the Commission of Fine Arts (CFA) and approved by the CFA without significant comment.