

Draft Dyke Marsh Wetland Restoration and Long-term Management Plan/ Environmental Impact Statement

Dyke Marsh Wildlife Preserve, George Washington Memorial Parkway, Virginia
Public Open House Meeting, February 2014



You're Invited!

Dear Friends,

The National Park Service, George Washington Memorial Parkway is pleased to announce the availability of the draft Dyke Marsh wetland restoration and long-term management plan and environmental impact (Draft Plan/EIS). Earlier in the process, we asked for your input on our goals for the plan, the issues that could arise through its implementation, and the proposed alternatives.

Using feedback we received from the public, from a team of scientists convened to inform the planning process, and the U.S. Army Corps of Engineers (USACE), we developed a range of alternatives to restore the marsh and meet the plan's goals. Our team members analyzed the impacts of those alternatives on hydrology and sediment transport, soils and sediments, surface water quality, floodplains, vegetation and wetlands, fish and wildlife, species of special concern, archaeological resources, historic structures and districts and cultural landscapes, visitor use and experience, adjacent property owners and the marina,

and park management and operations. We then identified a preferred alternative that would best meet the plan goals and objectives.

All of this information is now presented for your review in the Draft Plan/EIS, which has been prepared in accordance with the 1969 National Environmental Policy Act (NEPA); Section 106 of the National Historic Preservation Act of 1966, as amended; and other laws, policies and regulations. Because your feedback is essential to the development of the Final Plan/EIS, we are asking for your thoughtful review and comments during the 60-day comment period.

As vital contributors to the planning process, we hope you take the opportunity to provide feedback, and if possible, join us at the public meeting. Thank you.

Alexcy Romero
Superintendent

Public Open House Meeting Information

February 12, 2014

6:30 p.m. - 8:30 p.m.

Indigo Landing at the Washington Sailing Marina
1 Marina Drive at Dangerfield Island
George Washington Memorial Parkway
Alexandria, Virginia

Agenda:

6:30 p.m. -7:00 p.m. Welcome and Open House

7:00 p.m. -7:30 p.m. Presentation

7:30 p.m. - 8:30 p.m. Open House

Project Background

Dyke Marsh is an important, large tract of freshwater tidal marsh along the Potomac River in the Washington, D.C., area. Located just south of the City of Alexandria, Virginia, Dyke Marsh represents the last major remnant of once extensive freshwater tidal marshes along the Potomac River. The marsh is viewed as a national treasure because of its proximity to the nation's capital and a large urban/suburban population; its history; and its current potential for provision of ecological benefits, recreational values, and educational opportunities. It is located along a major travel corridor (George Washington Memorial Parkway) to one of the most popular tourist destinations in the Washington, D.C., area (Mount Vernon Estate and Gardens).

The NPS has managed Dyke Marsh since 1973, and it is administered by the George Washington Memorial Parkway. Previous to NPS supervision, substantial portions of the emergent marsh were dredged for sand and gravel, with resultant loss about 270 acres of marshland from 1940-1972. A recent U.S. Geological Survey (USGS) study documented ongoing erosion of Hog Island Gut and the outer edges of the marsh. Today only 60 acres remain, and erosion rates are high, at an estimated 1.5 to 2.0 acres per year.

This Draft Plan/EIS identifies management options for this restoration and also meets congressional mandates for Dyke Marsh restoration in Public Law 93-251) and, the Water Resources Development Act of 2007 (WRDA 2007, Section 5147). The NPS is considering restoring all or part of the wetlands that were lost to dredging. Restoration of Dyke Marsh will consider the most effective means of enhancing and protecting the estuarine environment to stop the continuing shoreline erosion and improve degraded habitat. Restoration of emergent marsh to the dredged areas would enhance the ecosystem and related ecological services provided by the marsh, expand the extent and quality of a relatively rare wildlife habitat, increase buffering from storms and flooding, and extend the aesthetic appeal of this urban/suburban wetland.

Purpose of and Need for the Plan

The purpose of this plan is to develop and implement actions for restoration and long-term management of the tidal freshwater marsh and other associated wetland habitats that have been lost or impacted in Dyke Marsh on the Potomac River in Virginia.

Dyke Marsh wetland resources, plant and animal communities, and natural ecosystem functions have been damaged by previous human uses and are subject to continuing threats, such as alterations to the hydrology in the Potomac River and in nearby tributaries, and other effects from urbanization in the surrounding region. In addition, the NPS is required to restore Dyke Marsh under P.L. 93-251 and WRDA 2007, Sec. 5147. Therefore, a restoration and long-term management plan is needed at this time to:

- Protect the existing wetlands from erosion, nonnative plant species, loss of habitat, and altered hydrologic regimes;
- Restore wetlands and ecosystem functions and processes lost through sand and gravel mining and shoreline erosion;
- Avoid increased costs (delayed restoration would increase restoration costs); and
- Improve ecosystem services that benefit the Potomac River Watershed and the Chesapeake Bay.

Plan Objectives

All action alternatives selected for detailed analysis must meet project objectives and resolve the purpose of and need for action. Objectives are what must be achieved for the action to be considered a success and are grounded in the enabling legislation, purpose, and mission goals of the George Washington Memorial Parkway. Objectives are compatible with direction and guidance provided by the 2005 George Washington Memorial Parkway Long-range Interpretive Plan. The following are specific objectives for this Draft Plan/EIS, presented by resource area.

Natural Resources

- Restore, protect, and maintain tidal freshwater wetlands and associated ecosystems to provide habitat for fish, wildlife, and other biota.
- Ensure that management actions promote native species while minimizing the intrusion of invasive plants.
- Reduce erosion of the existing marsh and provide for erosion control measures in areas of restored marsh.
- To the extent practicable, restore and maintain hydrologic processes needed to sustain Dyke Marsh.
- Protect populations of state-listed rare species such as swamp sparrow (*Melospiza georgiana*) and river bulrush (*Bolboschoenus fluviatilis*).
- Increase the resilience of Dyke Marsh, and provide a natural buffer to storms and flood control in populated residential areas.

Cultural Resources

- Protect the historic resources and cultural landscape features associated with Dyke Marsh and the George Washington Memorial Parkway.

Visitor Experience

- Enhance appropriate educational, interpretation, and research opportunities at Dyke Marsh, and enhance accessibility for diverse audiences.

Alternatives

The alternatives development process ensured that the scientific and technical feasibility of marsh restoration approaches was explored and important elements of the restoration were identified. Desired outcomes and objectives were established and used to develop the alternatives.

A science team that consisted of experts from the NPS, the USGS, the USACE, and academics with extensive knowledge of Dyke Marsh met several times to discuss marsh restoration and possible alternatives. It was decided at an early alternatives development meeting that more information was needed on hydrology and current conditions before alternatives could be finalized. The NPS then engaged the USACE to further update the bathymetry for the marsh, conduct hydrologic modeling, and develop conceptual alternatives based on the outcome of the models. The public and science team provided feedback during the planning process. Because these action alternatives would be technically and economically feasible, and show evidence of common sense, they are considered reasonable.

The USACE performed 1- and 2-dimensional hydrodynamic modeling and sediment transport modeling, and examined how alternative scenarios would affect the hydrologic regime in the marsh, deflect some of the erosive energies of the river during



Red-winged Blackbird (*Agelaius phoeniceus*)



View of Dyke Marsh



View along Haul Road

storms, and encourage sediment deposition in the restoration areas of the marsh.

The USACE then prepared a conceptual design for each alternative, proposed phasing for containment cells and types of materials that would be used, and reviewed these alternatives with the NPS through a series of meetings. These alternatives were presented to the public at a public meeting in May 2012. Comments from this meeting further informed development of alternatives.

In September 2013, the NPS conducted a Choosing by Advantages/Value Analysis workshop to identify a preferred alternative by determining which alternative offered the most advantages for the best value. The discussions and analysis at the workshop led to further refinement of the alternatives that had been previously presented to the public in May 2012. One alternative was dismissed because it was redundant with elements of another alternative, and elements of two alternatives were combined to create a new alternative that had more advantages than what was previously presented. Alternatives and alternative elements that were dismissed are

discussed in the "Alternatives Considered but Dismissed from Further Detailed Analysis" section of the Draft Plan/EIS.

Alternatives Carried Forward for Analysis

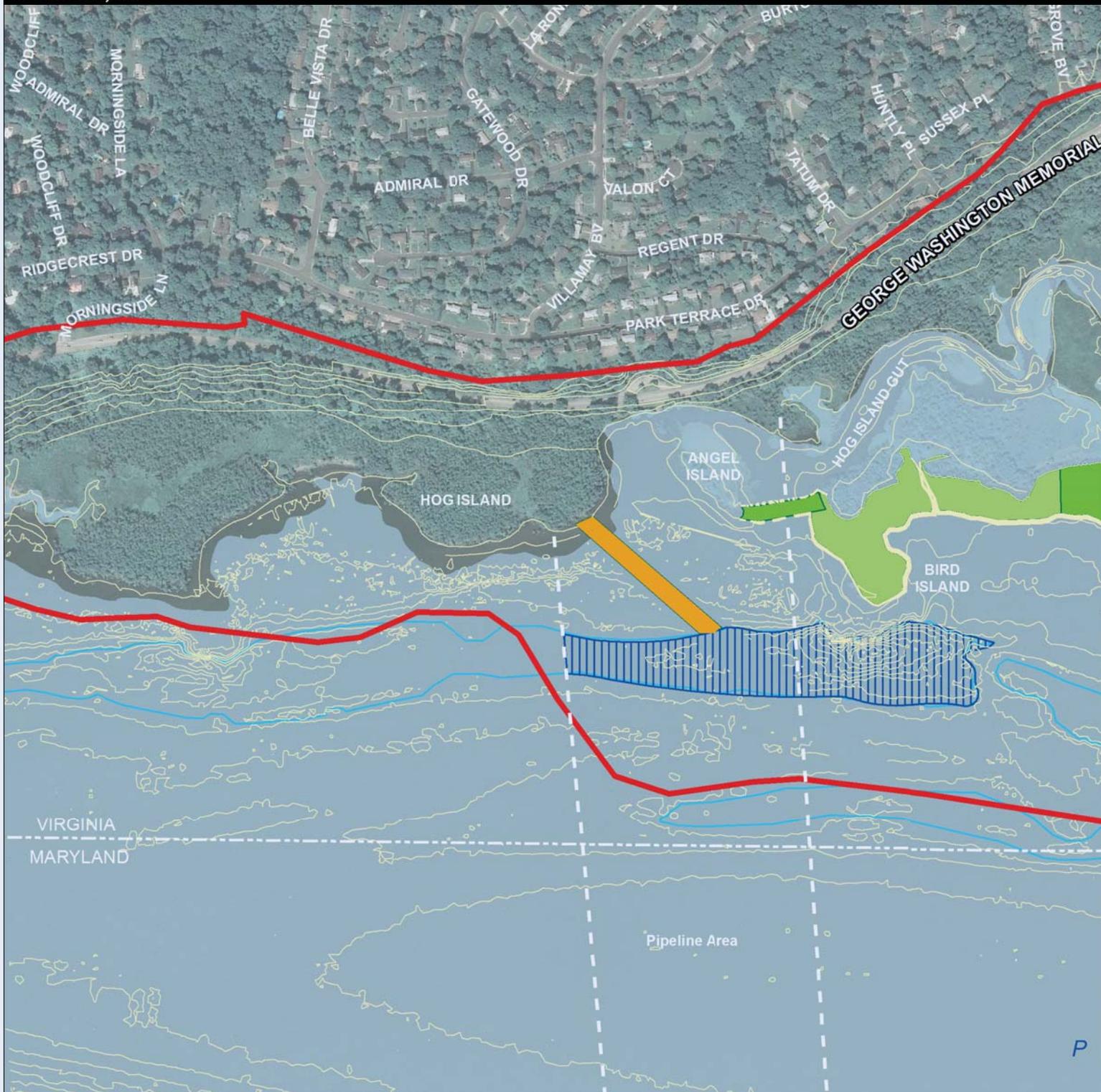
ALTERNATIVE A - NO ACTION

Under alternative A, no restoration would occur, and the marsh would be managed as it is currently, including provision of basic maintenance related to the Haul Road, control of non-native invasive plant species, and enforcement of existing regulations. There would be no manipulation of the marsh other than emergency, safety-related, or limited improvements or maintenance. The destabilized marsh would continue to erode at an accelerated rate.

Current management actions that would continue to be implemented include scientific research and evaluation in the marsh and management of nonnative invasive plants. Educational and interpretive activities would continue to inform the public about marsh ecology and natural processes in the marsh. Cooperation with various entities, such as the group "Friends of Dyke Marsh," would continue.

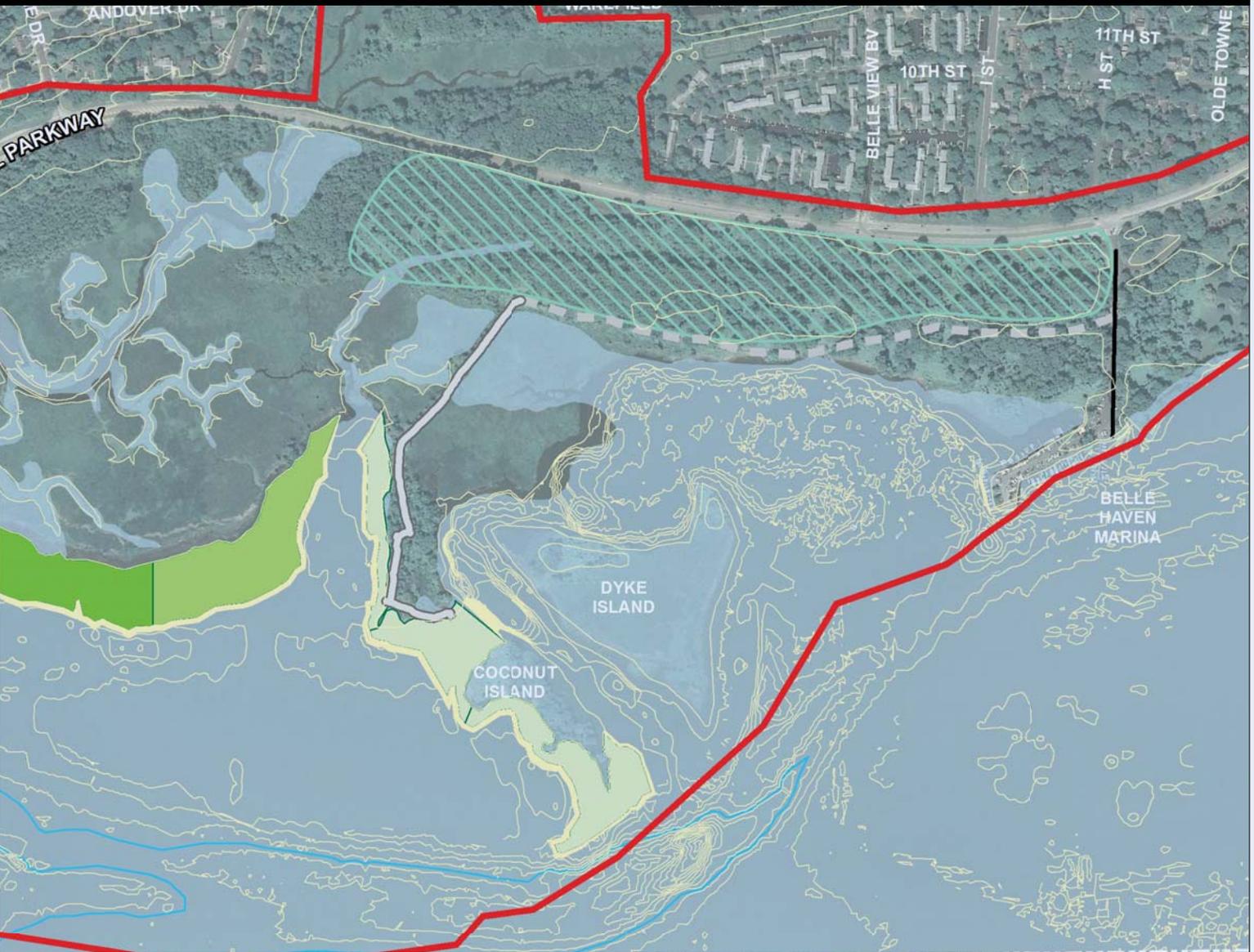
**Dyke Marsh Wetland Restoration and Long Term Management Plan/
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Alexandria, VA**

Altern



Legend

- | | | |
|--------------------------------------|------------------------|-------------------|
| NPS Boundary | Elevation Contour Line | Deep Channel Fill |
| Marina Drive | Swamp Forest | Deep Channel/Scar |
| Haul Road and Boardwalk | Breakwater | |
| Area of Proposed Breaks in Haul Road | Phase 1 Cells | |
| | Phase 2 Cells | |
| | Phase 3 Cells | |
- Elevation contour lines shown in thin light yellow line.
Steep slopes are indicated by the appearance of a thick yellow line.



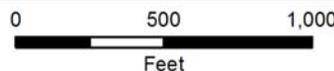
ALTERNATIVE B - HYDROLOGIC RESTORATION AND MINIMAL WETLAND RESTORATION

Alternative B would achieve a minimal level of marsh restoration and focus on the most essential actions to reestablish hydrologic conditions that would shield the marsh from erosive currents and protect the Hog Island Gut channel and channel wall.

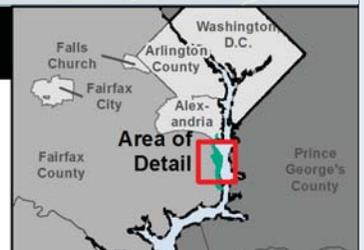
A breakwater structure would be constructed on the south end of the marsh, in alignment with the northernmost extent

of the historic promontory. Wetlands would be restored to wherever the water is less than 4 feet deep. Because the breakwater structure would be constructed in alignment with the northern extent of the historic promontory, no marsh would be created within the historic extent of the promontory.

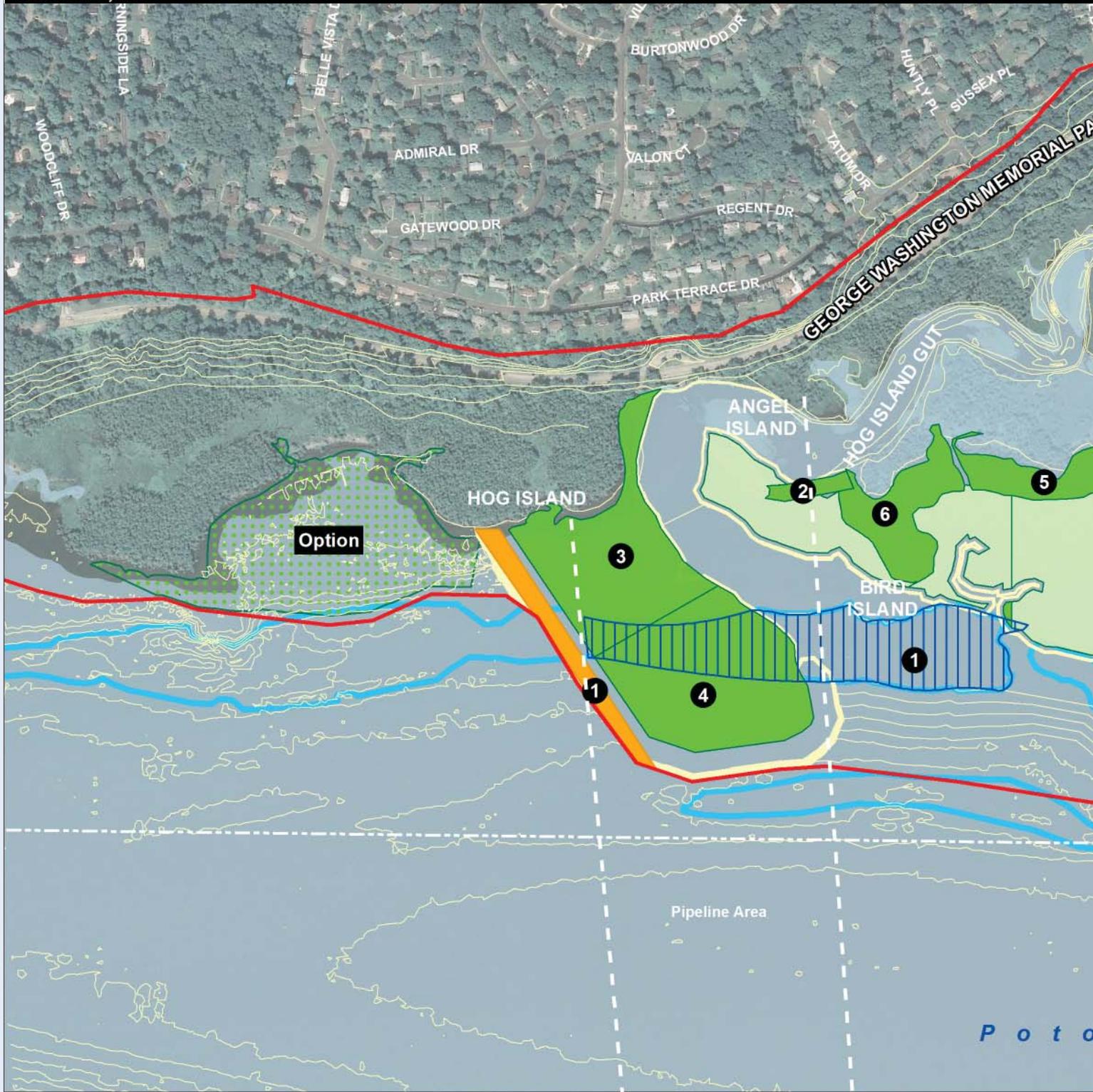
Several breaks would be created along the Haul Road to reestablish hydrologic connections and tidal flows to former swamp forest west of the Haul Road that were disconnected when the road was constructed. This alternative would create approximately 70 acres of various new wetland habitats.



Sources: USACE
RK&K, NAIP 2011
Coordinate System:
State Plane Virginia North (Feet)
North American Datum 1983



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Legend

- | | | | |
|--------------------------------------|---------------|------------------------|-----------------------|
| NPS Boundary | Phase 1 Cells | Elevation Contour Line | Swamp Forest |
| Marina Drive | Phase 2 Cells | Breakwater | Elevation Steep Slope |
| Haul Road and Boardwalk | Optional Fill | | |
| Area of Proposed Breaks in Haul Road | | | |



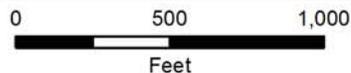
ALTERNATIVE C - HYDROLOGIC RESTORATION AND FULLEST POSSIBLE EXTENT OF WETLAND RESTORATION (Preferred Alternative)

Alternative C would restore up to 245 acres of various wetland habitats in a phased approach. The initial phase would stabilize the marsh by installing a breakwater on the southern edge of the historic promontory and restore marsh in the outline of the historic promontory and along the edge of existing marsh to wherever the water is less than 4 feet deep (approximately 40 acres). Future phases would continue marsh restoration within

the historic boundaries of the marsh. The alternative includes an optional 20-acre restoration cell in the area currently serving as mooring for the marina, which would only be implemented should the marina concession no longer be economically viable, and a second optional restoration area south of the breakwater. This alternative also includes the deep channel fill described in alternative B, and placement of breaks along the Haul Road to reestablish hydrologic connections and tidal flows to former swamp forest west of the Haul Road that were disconnected when the road was constructed.

Deep Channel Fill
 Deep Channel/Scar

contour lines shown in thin light yellow line.
 depths are indicated by the appearance of a thick yellow line.



Sources: USACE
 RK&K, NAIP 2011
 Coordinate System:
 State Plane Virginia North (Feet)
 North American Datum 1983





National Park Service
U.S. Department of the Interior

George Washington Memorial Parkway
700 George Washington Memorial Parkway
Turkey Run Park Headquarters
McLean, Virginia 22101

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The Draft Plan/EIS can be viewed at:
<http://parkplanning.nps.gov/dykemarshdeis>

How to Comment

The NPS is seeking your comments on the Draft Plan/EIS. There are several ways to provide input on the Draft Plan/EIS:

- Attend a public meeting.
- Submit comments electronically at: <http://parkplanning.nps.gov/dykemarshdeis>
- Send your comments to:

Superintendent
Attn: Dyke Marsh Wetland Restoration Plan/EIS
George Washington Memorial Parkway
700 George Washington Memorial Parkway
Turkey Run Park Headquarters
McLean, Virginia 22101

The public review and comment period will close on Tuesday, March 18, 2014.

Please include your full name and e-mail/address with your comments so we may add you to our mailing list for future notices about this process. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, however, 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.

Estimated schedule for completion of the Plan/EIS

Winter 2014	Draft Plan/EIS to Public for Review and Comment (60 days)/Public Meetings on Draft Plan/EIS
Summer/Fall 2014	NPS prepares and releases Final Plan/EIS
Fall 2014	NPS signs Record of Decision
Fall 2015	NPS begins construction design
2016	Begin implementation of restoration plan