Welcome!

## **Alternative Concepts Meeting Agenda**

6:30pm-7:00pm 7:00pm-7:30pm 7:30pm- 8:30pm 8:30pm





## **Purpose of 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 lost or impacted in the Dyke Marsh Wildlife Preserve on the Potomac River in Virginia.

Dyke Marsh wetland resources, community structure, 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. A restoration and long-term management plan is needed at this time to:

- Protect the existing wetlands from erosion, exotic plant species, loss of habitat, and altered hydrologic regimes;
- Restore wetlands, ecological functions, and processes lost through sand and gravel mining and shoreline erosion;
- Reduce restoration and management costs associated with continued wetland loss; and
- Improve ecosystem services that benefit the Potomac River Watershed and the Chesapeake Bay.



Extent of Dyke Marsh in 1937, 1959, and 1996.







## **Objectives in Taking Action**

Objectives are "what must be achieved to a large degree for the action to be considered a success" (NPS 2001). All alternatives selected for detailed analysis must meet project objectives to a large degree and resolve the purpose of and need for action.

## **Cultural Resources**

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

## Natural Resources

- fish, wildlife, and other biota.

## Visitor Experience

• Enhance appropriate educational, interpretation, and research opportunities at Dyke Marsh, accessible to diverse audiences.

• Restore, protect, and maintain tidal freshwater wetlands and associated ecosystems to provide habitat for

• Ensure 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. • Secure populations of state rare species such as least bittern and river bulrush.





## **Alternative Concepts**

USACE examined bathymetry (water depth), flow, and sediment transport in the Potomac River and identified features that could be considered as elements of the restoration. The NPS worked with USACE to identify the four preliminary alternative concepts presented in this newsletter. One main issue addressed by the action alternatives is the loss of a protective promontory at the southern end of the marsh due to dredging and the resulting effects on the integrity of Hog Island Gut. Hog Island Gut is the principal remaining wetland gut in the marsh and is experiencing erosion that affects the overall integrity of the gut. Marsh guts are important to the overall structure of a marsh because they act as lungs and filters in large wetland systems. A second issue is the area behind (west of) the Haul Road, which is no longer hydrologically connected to the rest of Dyke Marsh and has become overgrown with several invasive plant species. A final issue is the presence of several deep channels along the eastern edge of the marsh that may have been a result of the past dredging operations. These channels affect flow through the marsh and probably exacerbate erosion rates.

## Alternative Concept A -No Action

Under this alternative, no restoration would occur. Management of the marsh would continue as it is currently, including providing basic maintenance related to the Haul Road and control non-native invasive plant species and enforcing existing regulations. No manipulation of the marsh would occur other than emergency, safety-related, or limited improvements or maintenance actions. Only natural processes would guide the evolution or deconstruction of the marsh.











## Alternative Concept B -**Minimum Restoration**

This alternative would include taking the following actions:

- Dyke Marsh to the 4-foot depth contour;
- Construction of a breakwater along the northern historic limits of the determined);
- Stabilization of the southernmost outer edge of Hog Island Gut, which is eroding, by placing a barrier at the weak point;
- Construction of breaks in the existing Haul Road to reestablish hydrologic connections with the historic tidal swamp;
- divert flows back to the Potomac River main channel.
- first.



• Placement of fill toward the main river channel along the main existing area of

promontory (final structure material, size, extent, and configuration is still to be

Placement of fill in the deep channels (with use of under water structures) to

• Cells will be filled in order of priority to provide protection to Hog Island Gut





## Alternative Concept C -**Moderate Restoration**

This alternative would include taking the following actions:

- Placement of fill along the main portion of Dyke Marsh out to the historic 1937 limits, and within the NPS boundary;
- Construction of tidal guts similar to historic flow paths;
- Construction of a new tidal gut;
- Construction of the breakwater along the southern extents of the historic promontory, and fill behind the breakwater (final break water structure material, size, extent, and configuration to be determined with further analysis);
- material becomes available (appropriate containment structures will be provided to maintain fill within the promontory area);
- Construction of breaks in the existing Haul Road to reestablish hydrologic connections;
- divert flows back to the Potomac River main channel.
- upstream and from the most inland cells outward.

• Placement of fill behind the breakwater; this would be done in segments, as

• Placement of fill in the deep channels (with use of under water structures) to

• Cells would be filled in order of priority to provide protection to Hog Island Gut first. Cells would generally be filled in each phase from downstream to







## Alternative Concept D -**Full Restoration**

This alternative entails full restoration of Dyke Marsh out to the 1937 historic limits. Restoration activities would include the following:

- Construction of a breakwater along the southern extent of the historic promontory (the final promontory structure material, size, extent, and configuration to be determined with further analysis);
- Placement of fill in the deep channels within the NPS boundary, pending further analysis and available suitable fill material;
- Construction of tidal guts similar to historic flow paths;
- connections;
- Optional: placement of fill around Belle Haven Marina.
- the promontory structure would be filled last.

• Construction of breaks in the existing Haul Road to reestablish hydro logic

• Cells would be filled in order of priority to provide protection to Hog Island Gut first. Cells would generally be filled in each phase from downstream to upstream and from the most inland cells outward. The cells downstream of











- Bathymetry (water depth);
- Sediment transport;
- confirm feasibility of the alternatives;
- One more phase of modeling is expected.

A USGS study, published in 2010, confirmed that the marsh is eroding, and is not currently in a naturally sustainable state. Researchers found the post-mining marsh remnants are shrinking rapidly, and that Hog Island Gut, the principal tidal creek in the marsh, is vulnerable.

• One- and two- dimensional hydrodynamic modeling to study existing conditions (flow velocities, flow depths, and tides) and

• Modeling demonstrated anticipated effectiveness of alternatives to redirect flow and encourage sediment deposition in the marsh.



## Phasing Approach & Possible Containment Layouts

The project is dependent upon availability of fill, and will be phased out of necessity in a way similar to the Poplar Island restoration project in the Chesapeake Bay. Necessary hard structures, such as the promontory structure, protective dike structures, and outer containment structures would be constructed first. It is likely the outsides of individual cells would be constructed early in the project, so fill could be placed as it becomes available. Cells would be filled in order of priority. Example cell configurations are shown in each of the alternative figures, and represent examples of how the containment cells could be laid out and constructed over time.



Containment cells at Poplar Island. Restoration at Dyke Marsh would use a similar approach.







# **Dyke Marsh Wetland Restoration and Long Term Management Plan**



background).



## **NEPA Process**

	April 8
2008	April 22, 2008: Puk
	Winter
2009	Spring 2009: Altern
	Fall 20
2010	Spring 2010: USGS
2011	Fall 20
	May 8
2012	
	Continue to refine th
	Prepar
	Hold public meeting
	Public
	Prepare and publish

2008: Notice of Intent to Prepare an Environmental Impact Statement – published.

olic scoping meeting.

2008/2009: Science team meetings.

natives development.

Spublished research findings related to the marsh erosion.

009: US Army Corps of Engineers (USACE) engaged to explore alternative feasibility and proposed adjustment.

011/Spring 2012: Alternatives refined based on USACE modeling.

2012: Public Meeting to present alternatives.

ne alternatives, taking public input into account.\*

e and release the Draft Dyke Marsh Restoration and Long-Term Management Plan/ EIS for public review.

s on Draft Plan/ EIS.

Final Plan/ EIS and release to the public.

h the Record of Decision.

#### We Are Here.

#### \* Future Actions in Blue





NPS is seeking comments on the conceptual alternatives or other aspects of the Plan/EIS. Specifically, NPS would like your input on the following questions:

- 1) Are there other alternatives or elements that should be considered?
- 3) What additional information or other comments do you have?

Please submit comments through the project website at *http://parkplanning.nps.gov/gwmp*, or 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 comment period will close June 20, 2012.

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, 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.

## **Please let us know what you think!**

2) Do you have any concerns regarding the conceptual alternatives or elements presented?





