



Dyke Marsh Wetland Restoration and Long Term Management Plan Environmental Impact Statement

Dyke Marsh Wildlife Preserve, George Washington Memorial Parkway

Alternative Concepts Newsletter

You're Invited!

The National Park Service (NPS) is requesting your input in developing the Dyke Marsh Wetland Restoration and Long Term Management Plan Environmental Impact Statement, specifically your comments on the proposed alternative concepts. There are a number of ways to be involved, including submitting written or electronic comments (see last page for more information about how to submit comments), or by attending the public meeting.

The public meeting will be held from **6:30pm- 8:30pm on May 8th, 2012 at Indigo Landing at the Washington Sailing Marina, 1 Marina Drive at Daingerfield Island, George Washington Memorial Parkway, Alexandria, VA 22315**. The meeting will consist of an open house from 6:30pm- 7:00pm, a presentation from 7:00pm- 7:30pm, and another open house period from 7:30pm- 8:30pm.

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. Since its location 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).

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

This project will identify management options for this restoration and will also meet congressional mandates for Dyke Marsh restoration (Public Laws 86-41 and 93-251). 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 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.

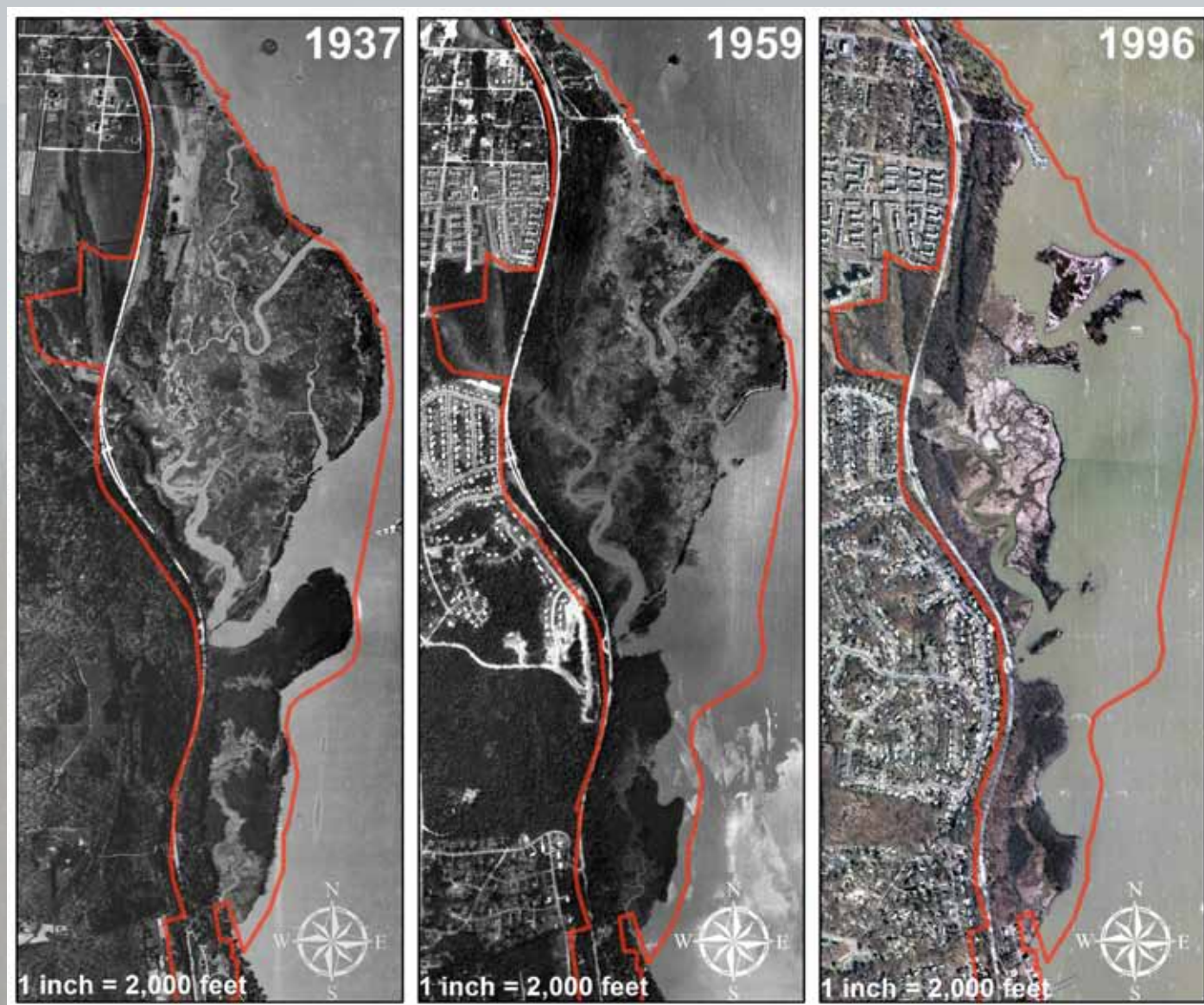


Work Completed To Date

- Notice of Intent to Prepare an Environmental Impact Statement—published *April 8, 2008*
- Public scoping meeting—*April 22, 2008*
- Science team meetings—*Winter 2008/2009*
- Alternatives development—*Spring 2009*
- US Army Corps of Engineers (USACE) engaged to explore alternative feasibility and propose adjustment—*Fall 2009*
- USGS published research findings related to the marsh erosion—*2010*
- Alternatives refined based on USACE modeling—*Fall 2011/Spring 2012*
- Public Meeting to present alternatives—*May 8, 2012*

Future Work

- Continue to refine the alternatives, taking public input into account
- Prepare and release the draft Dyke Marsh Restoration and Long-term Management Plan/DEIS and for public review;
- Hold public meetings on Draft Plan/DEIS
- Publish Final Plan/ EIS and release to the public.
- Prepare and publish the Record of Decision



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

Alternative Concepts

USACE examined bathymetry (water depth), flow, and sediment transport in the Potomac River and identified multiple features that could be considered as elements of the restoration. The NPS worked with USACE to identify the four preliminary alternative concepts that are 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 at the southern end of the marsh 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 the action alternatives address 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. The final issue the action alternatives address 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:

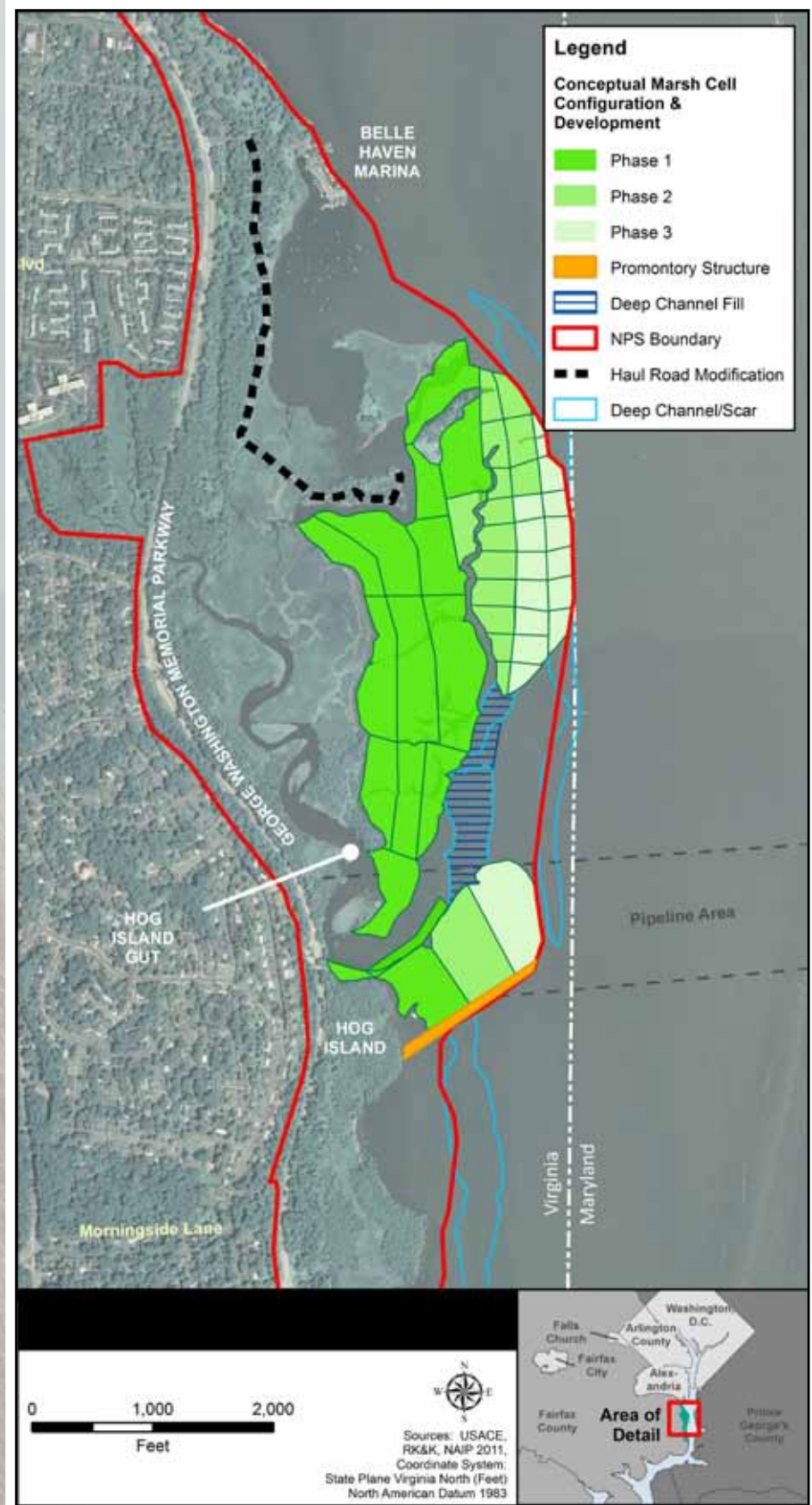
- Placement of fill toward the main river channel along the main existing area of Dyke Marsh to the 4-foot depth contour;
- Construction of a breakwater along the northern historic limits of the promontory (final structure material, size, extent, and configuration is still to be determined);
- Stabilization 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;
- Placement of fill in the deep channels (with use of under water structures) to divert flows back to the Potomac River main channel.



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 to discharge in an upstream direction;
- 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);
- Placement of fill behind the breakwater; this would be done in segments, as 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;
- Placement of fill in the deep channels (with use of under water structures) to divert flows back to the Potomac River main channel.

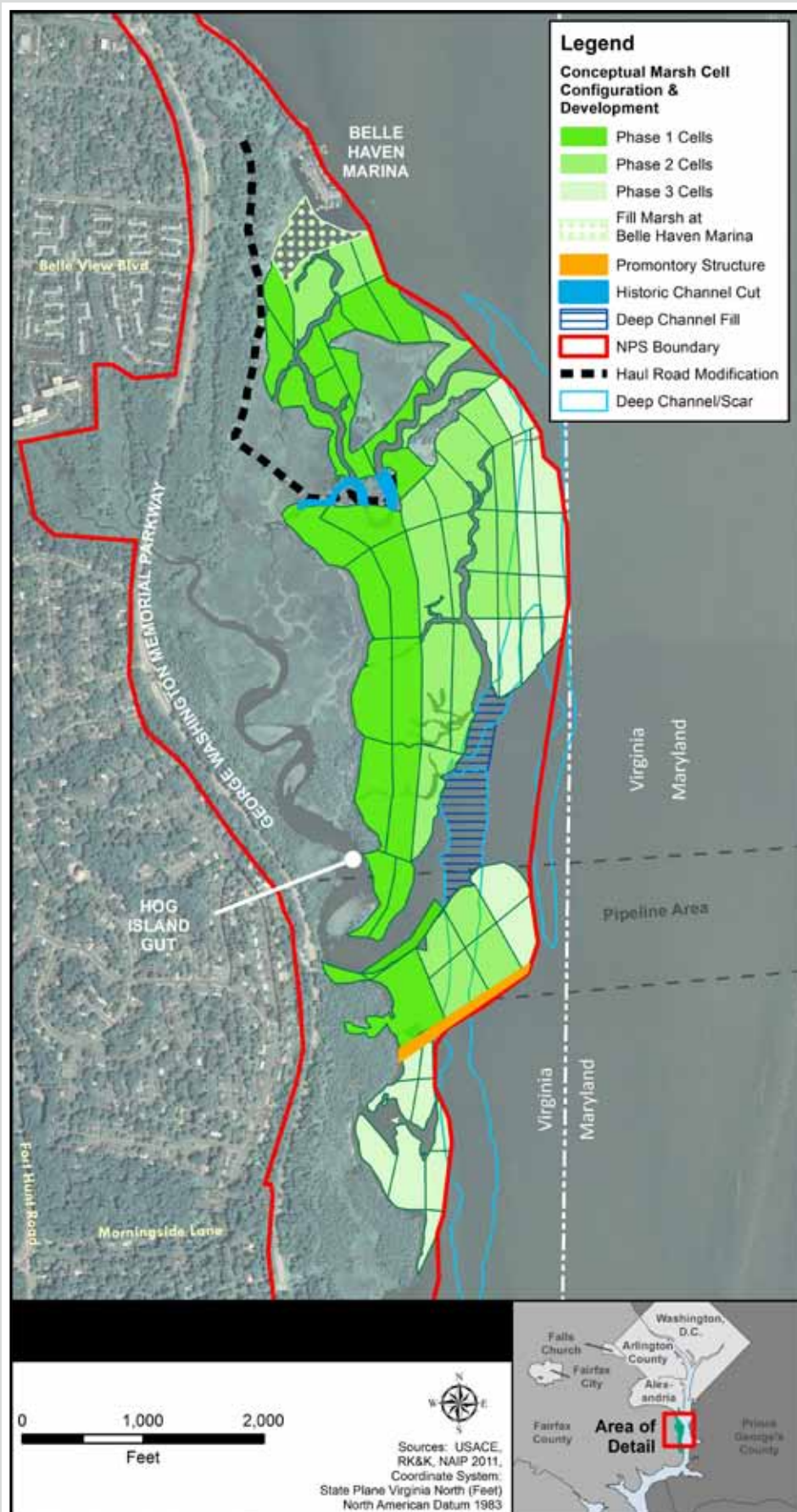




Alternative Concept D: Full Restoration

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, including a new tidal gut that discharges in an upstream direction;
- Construction of breaks in the existing Haul Road to reestablish hydrologic connections;
- Optional: placement of fill around Belle Haven Marina.



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.



Example of sheet piling.

Containment Structure Options

There are several available options for building containment structures. Some options are more rigid and more permanent, while other options are biodegradable. For example, the promontory structure and the outer edge of Hog Island Gut would require harder, more permanent structures, while temporary structures might be more appropriate for the internal cell walls. Some of the containment structures that could be used are depicted below.



Example of coconut fiber logs.



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



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

This project is on the Web!!
<http://parkplanning.nps.gov/gwmp>

Please let us know what you think!

How to Comment

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