

# CONTINUING AUTHORITIES PROGRAM, SECTION 204, BENEFICIAL USES OF DREDGED MATERIAL, CEDAR ISLAND, VIRGINIA

## MEASURES WORKSHOP



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*"The views, opinions and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."*



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# SPONSOR AND USACE ROLES

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Virginia Marine Resource Commission submitted a letter of intent to USACE on November 24, 2015 that documents their commitment to be the non-federal sponsor for the project.

<u>Feasibility Cost Share Federal/Non-Federal</u>	<u>Implementation Cost Share Federal/Non-Federal</u>	<u>Federal Project Limit</u>
federal 100%	federal 65%/non-federal 35%	\$10,000,000.00



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# PROJECT AUTHORITY: SECTION 204 OF THE WATER RESOURCES DEVELOPMENT ACT OF 1992, AS AMENDED

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“(a) IN GENERAL.—The Secretary is authorized to carry out projects for the protection, restoration, and creation of aquatic and ecologically related habitats, including wetlands, in connection with dredging for construction, operation, or maintenance by the Secretary of an authorized navigation project.

(b) SECRETARIAL FINDINGS.—Subject to subsection (c) of this section, projects for the protection, restoration, or creation of aquatic and ecologically related habitats may be undertaken in any case where the Secretary finds that—

(1) the environmental, economic, and social benefits of the project, both monetary and nonmonetary, justify the cost thereof; and

(2) the project would not result in environmental degradation.”



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# CEDAR ISLAND BACKBARRIER

- ❑ Barrier island located in the Delmarva Peninsula in the Virginia Coast Reserve, the largest expanse of protected coastal habitat in the United States.
- ❑ Consists of channels, tidal wetlands and marsh islands, lagoons, and mudflats.
- ❑ Virginia's barrier islands provide significant ecological habitat on the Atlantic Coast.
- ❑ Most productive chain of barrier islands for nesting and foraging colonial and shorebird bird species in the Mid-Atlantic Region.
- ❑ Nursery habitat for juvenile loggerhead and Atlantic ridley sea turtles.
- ❑ Habitat to valuable commercial and sport fisheries.
- ❑ Productive oyster harvesting grounds.
- ❑ Tidal wetlands areas improve water quality.



(Messmore 2015)



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# BACKGROUND



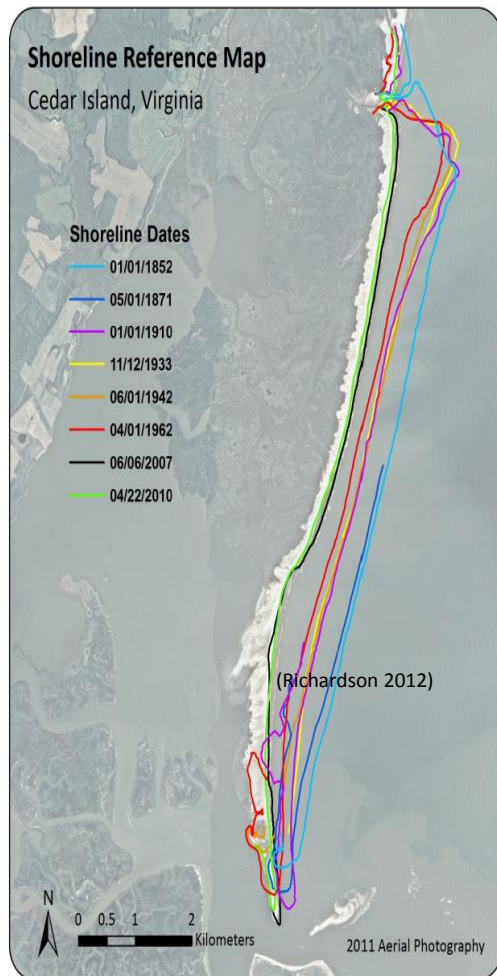
- ❑ Cedar Island is located centrally within the barrier island chain with the Metompkin Inlet separating Parramore Island.
- ❑ The coastal mainland Town of Wachapreague is located on the mainland, west of the Cedar Island back-barrier.
- ❑ The Town of Wachapreague has 236 people, 133 households, and 69 families residing.
- ❑ Long famous for its inshore and offshore sports and commercial fishing.
- ❑ Part of the most pristine stretch of barrier islands in the Atlantic coast region.
- ❑ Stakeholders from the Town of Wachapreague have vetted support for beneficial dredged material use projects.



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# PROBLEMS, NEEDS, AND OPPORTUNITIES



- ❑ Open water dredged material placement has impacts to the benthic (bottom) community.
- ❑ Shoreline wetlands and marsh islands are at risk of loss due to erosion, subsidence, and sea level rise.
- ❑ Cedar Island is in an accelerated rate of shoreline retreat (-15.4 meters/year; Richardson (2012)).
- ❑ Cedar Island has breached in multiple areas including adjacent to the U.S. Coast Guard Base.
- ❑ The tidal wetland lagoon system flanking Cedar Island is at risk of being fragmented and lost.
- ❑ Loss of wetlands and marsh islands would potentially negatively impact the Wachapreague shoreline and mainland.
- ❑ Colonial water bird and foraging and nesting shorebird habitat is at risk of being fragmented and lost.



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# GOALS, OBJECTIVES, AND OPPORTUNITIES



***Primary goal is to beneficially use the dredged material from the Cedar Island Bay Channel, Burtons Bay Channel\*, Finney Creek Channel, and the Bradford Bay Channel for enhancement, expansion, and protection of the Cedar Island back-barrier shoreline wetlands and marsh islands.***

## **Objectives and Opportunities:**

- Expand and enhance the existing wetlands and marsh islands to enhance fish habitat, fishery resources, and wildlife habitat;
- Increase the area of intertidal mudflat habitat to provide increased foraging opportunities for avian fauna;
- Incorporate a long-term, sustainable solution to reduce tidal wetland erosion rates, increase sediment accretion rates, and increase shoreline protection;
- Create more suitable wetland elevations for shoreline tidal wetlands and marsh islands;
- Enhance existing shoreline protection to the Town of Wachapreague through wetland and marsh island creation, enhancement, and protection (opportunity); and
- Adaptively manage the dredged material environmental use project sites.

\*Material from this channel may not be dredged in the future.



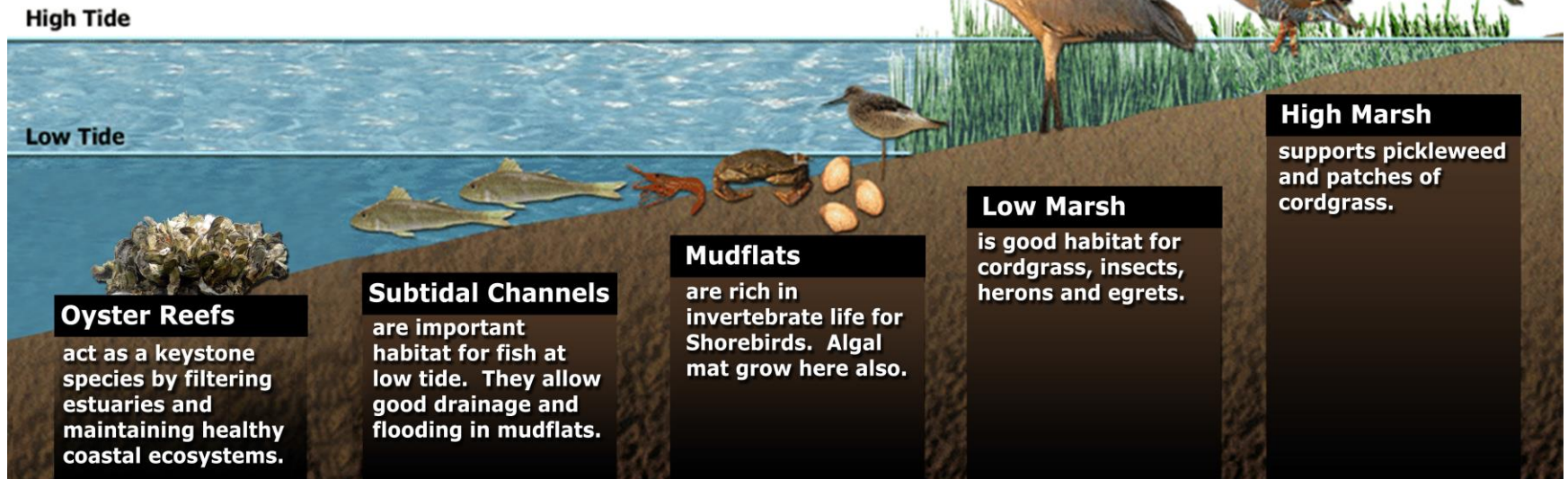
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# Backbarrier Conceptual Diagram

\*Plan to use dredged material to enhance the natural ecosystem features and tidal zonation

## Salt Marsh Zonation



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# FEDERAL NAVIGATION CHANNELS AND DREDGED MATERIAL PLACEMENT SITE



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# POTENTIAL CONSTRAINTS



- ❑ Hydraulic cutterhead dredge pumping distance (assuming two miles)
- ❑ Volume of material available during lifetime of project
- ❑ Federal cost limit: \$10 MY

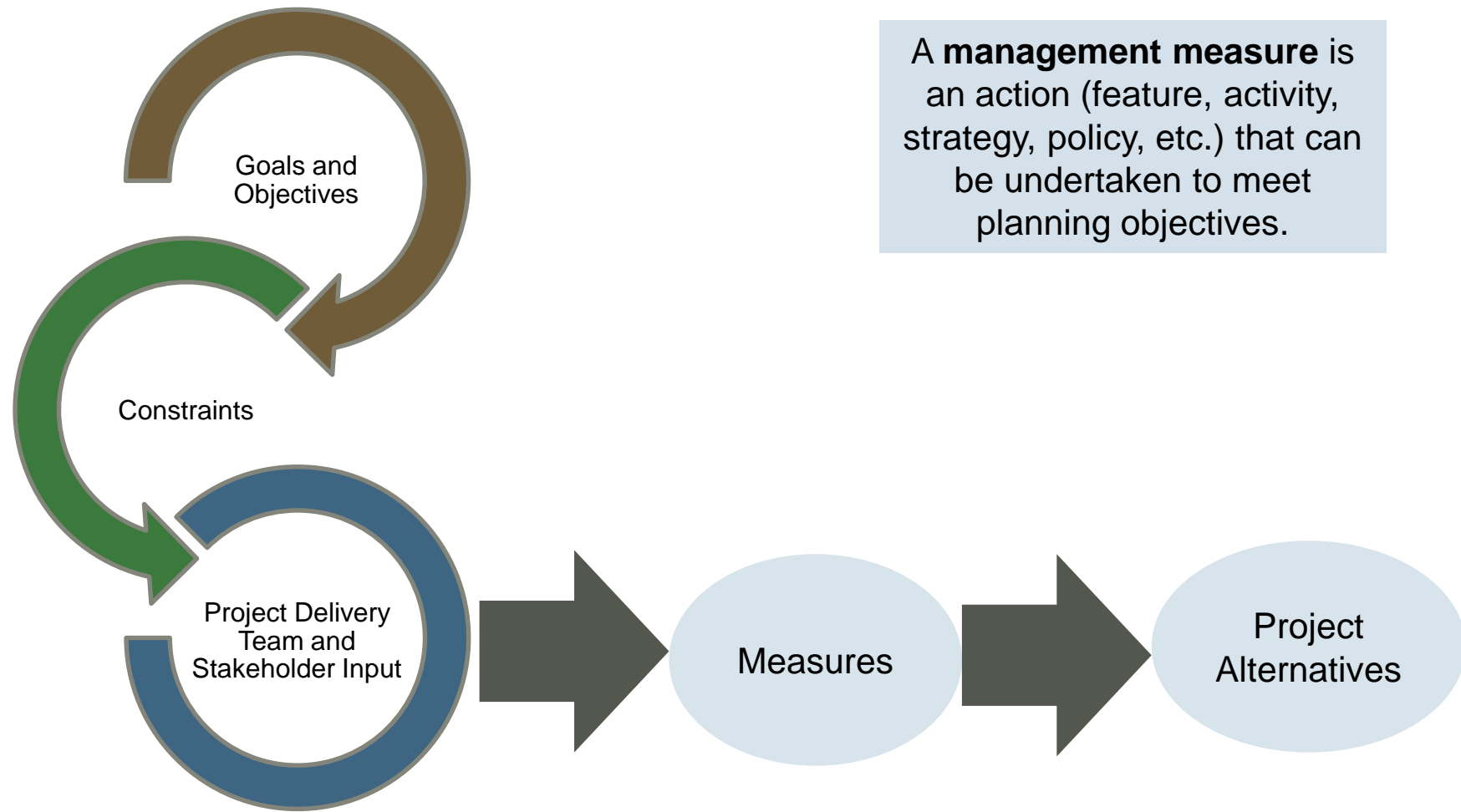


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# CEDAR ISLAND BENEFICIAL USE OF DREDGED MATERIAL MANAGEMENT MEASURES

A **management measure** is an action (feature, activity, strategy, policy, etc.) that can be undertaken to meet planning objectives.



# POTENTIAL MEASURES

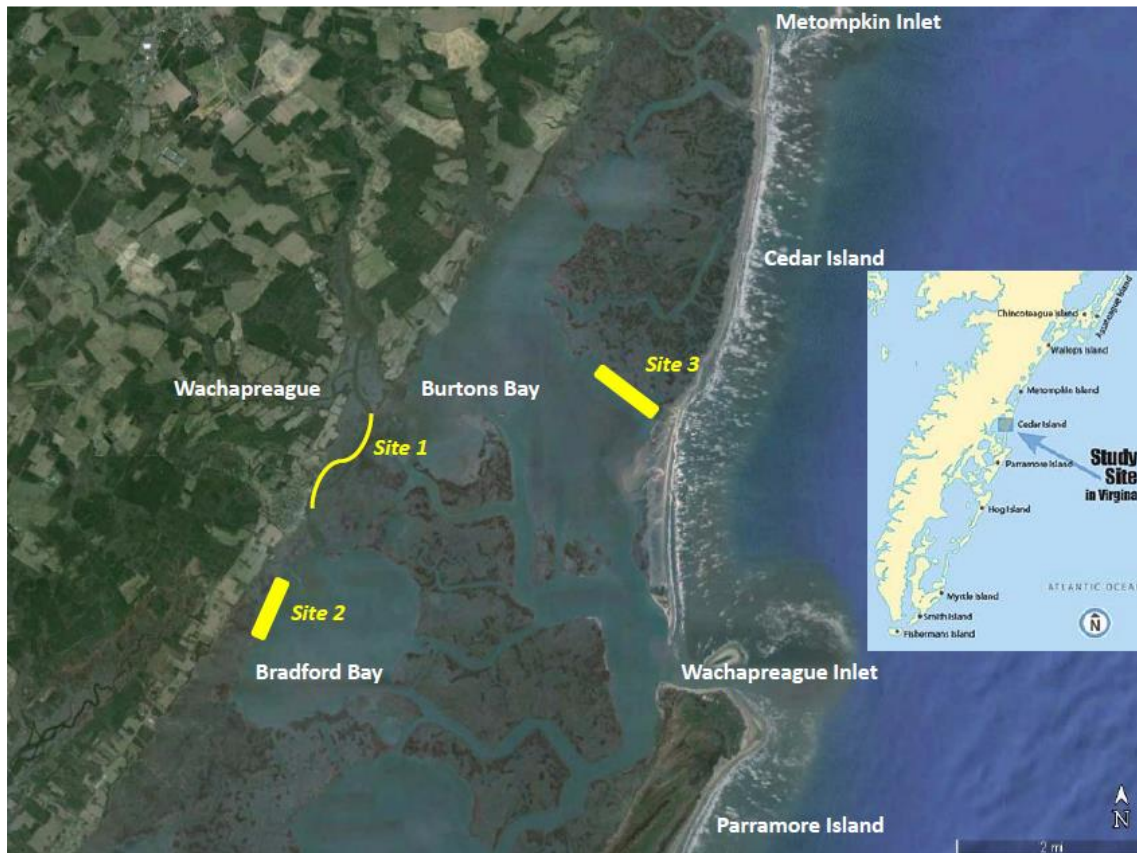
Measure	Environmental Benefits
Wetland Creation	Increase the value and quantity of migratory and nursery habitat for valuable commercial and sport fisheries such as clams, oysters, red drum, seatrout, summer flounder, and striped bass.
Mudflat Creation	Supports a large population of wildlife, and are a key habitat that allows migratory shorebirds to migrate from breeding sites. Helps prevent coastal erosion.
Intertidal Reef Creation	Filters the water and increases water clarity by extracting organic and inorganic particles. Supports critical fisheries by providing habitat.
Subtidal Reef Creation	Filters the water and increases water clarity by extracting organic and inorganic particles. Supports critical fisheries by providing habitat.
Thin Layer Spraying of Tidal Wetlands	Helps maintain surface elevations above rising sea levels. Wetlands also use the nutrients in the supplemental material to increase plant cover and surface stability.
Beach Nourishment	Crabs to clams to smaller organisms depend on their tiny sandy ecosystems for habitat. Provides nesting areas for sea turtles. <i>Considered but screened out as sediment is not suitable for placement at the Cedar Island Beach.</i>



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# CONCEPTUAL MEASURES PREVIOUSLY IDENTIFIED



- ❑ Site 1 – Thin layer placement of dredged material to the tidal (wetland) marsh island.
- ❑ Site 2 – Thin layer placement of dredged material at shoreline tidal wetlands along Bradford Bay. Create saltmarsh shoreline wetlands, intertidal mudflat habitat, and a fringing, subtidal reef.
- ❑ Site 3 – Create tidal wetlands, intertidal mudflat, and a fringing, subtidal reef.



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# MEASURES SCREENING CRITERIA-SITE 1

Potential Measures	Dredged Material Volume Available ?	Site Suitable?	Within \$10 MY cost limit?	Within two miles of federal channel?
Thin Layer Spraying – Site 1	Yes	Yes	Yes	Yes
Wetland Creation – Site 1	?	No	Yes	Yes
Mudflat Creation-Site 1	?	No	Yes	Yes
Subtidal Reef Creation-Site 1	N/A	No	Yes	Yes

 = measure screened out



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# MEASURES SCREENING CRITERIA-SITE 2

Potential Measures	Dredged Material Volume Available ?	Site Suitable?	Within \$10 MY cost limit?	Within two miles of federal channel?
Thin Layer Spraying – Site 1	Yes	Yes	Yes	Yes
Wetland Creation– Site 1	?	Yes	Yes	Yes
Mudflat Creation-Site 1	?	Yes	Yes	Yes
Subtidal Reef Creation-Site 1	N/A	Yes	Yes	Yes

 = measure screened out



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# MEASURES SCREENING CRITERIA-SITE 3

Potential Measures	Dredged Material Volume Available?	Site Suitable?	Within \$10 MY cost limit?	Within two miles of federal channel?
Thin Layer Spraying – Site 1	Yes	?	Yes	Yes
Wetland Creation – Site 1	?	Yes	Yes	Yes
Mudflat Creation-Site 1	?	Yes	Yes	Yes
Subtidal Reef Creation-Site 1	N/A	Yes	Yes	Yes

 = measure screened out

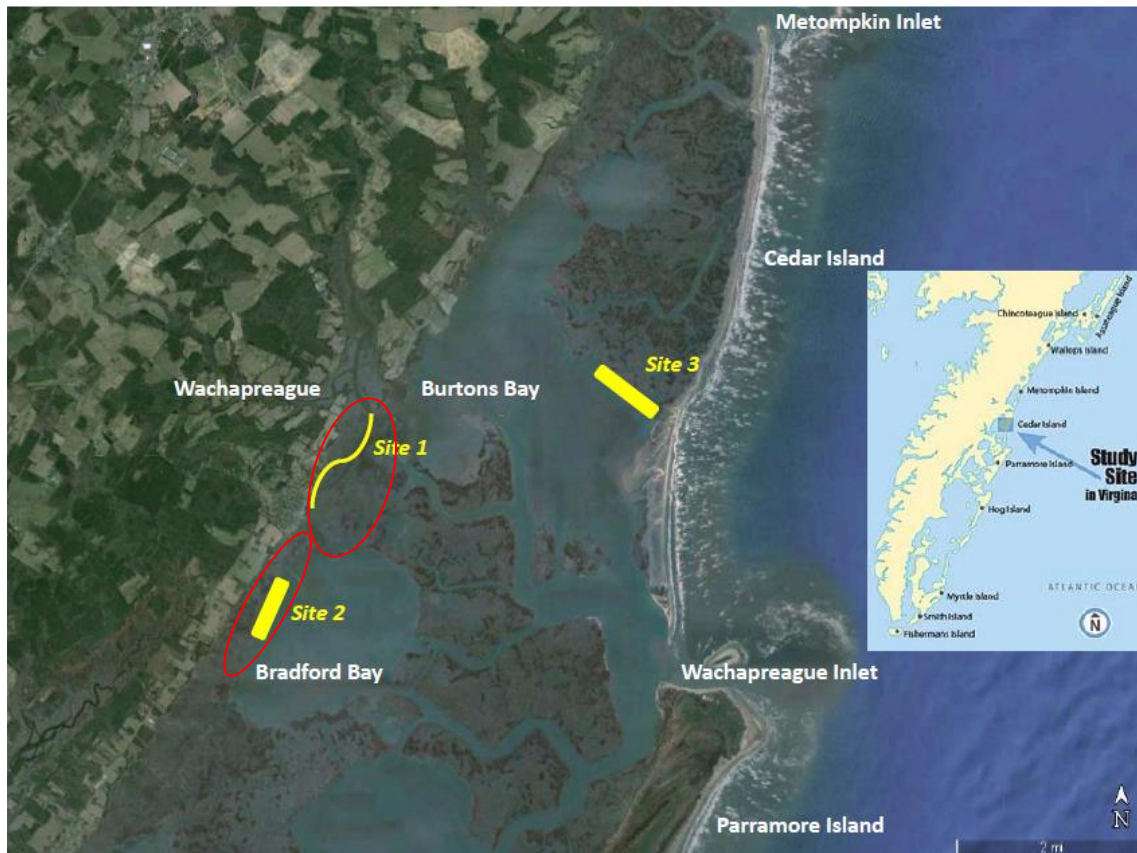


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# POTENTIAL MEASURES & ALTERNATIVES PREVIOUSLY IDENTIFIED



- ❑ *Based on stakeholder input and site visits, the suggested focal area is the tidal shoreline marshes and marsh islands near the Wachapreague marina.*
- ❑ *Shoreline wetlands adjacent to Bradford Bay are another potential viable location.*
- ❑ *Burton's Bay Channel will not likely be dredged and therefore, Site 3 will not be within a two-mile pumping distance of actively dredged channels.*



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# MEASURES BREAK OUT SESSION

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Get into teams

Brainstorm potential  
measures  
individually and as a  
team

Report  
measures for  
your team



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# STAKEHOLDER DISCUSSION



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# PROJECT ALTERNATIVES BUILDING AND SCREENING CRITERIA

Potential Measures	Dredged Material Volume Available?	Site Suitable?	Within \$10 MY cost limit?	Within two miles of federal channel?
Alternative 1 -				
Alternative 2 -				
Alternative 3 -				

 = alternative screened out



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