

METROPOLITAN WASHINGTON, DISTRICT OF COLUMBIA COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

Public Meeting

Presenters:

Katie Perkins & Amber Metallo

Baltimore District

June 2022



“The views, opinions and findings contained in this report are those of the authors(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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U.S. ARMY

NON-FEDERAL SPONSOR

Metropolitan Washington Council of Governments (MWCOCG)

- Study Restarted with Agreement in April 2021, 100% federal funds

MWCOCG representing:

- Commonwealth of Virginia
- Arlington County
- Fairfax County
- City of Alexandria
- Prince William County
- Metropolitan Washington Airport Authority

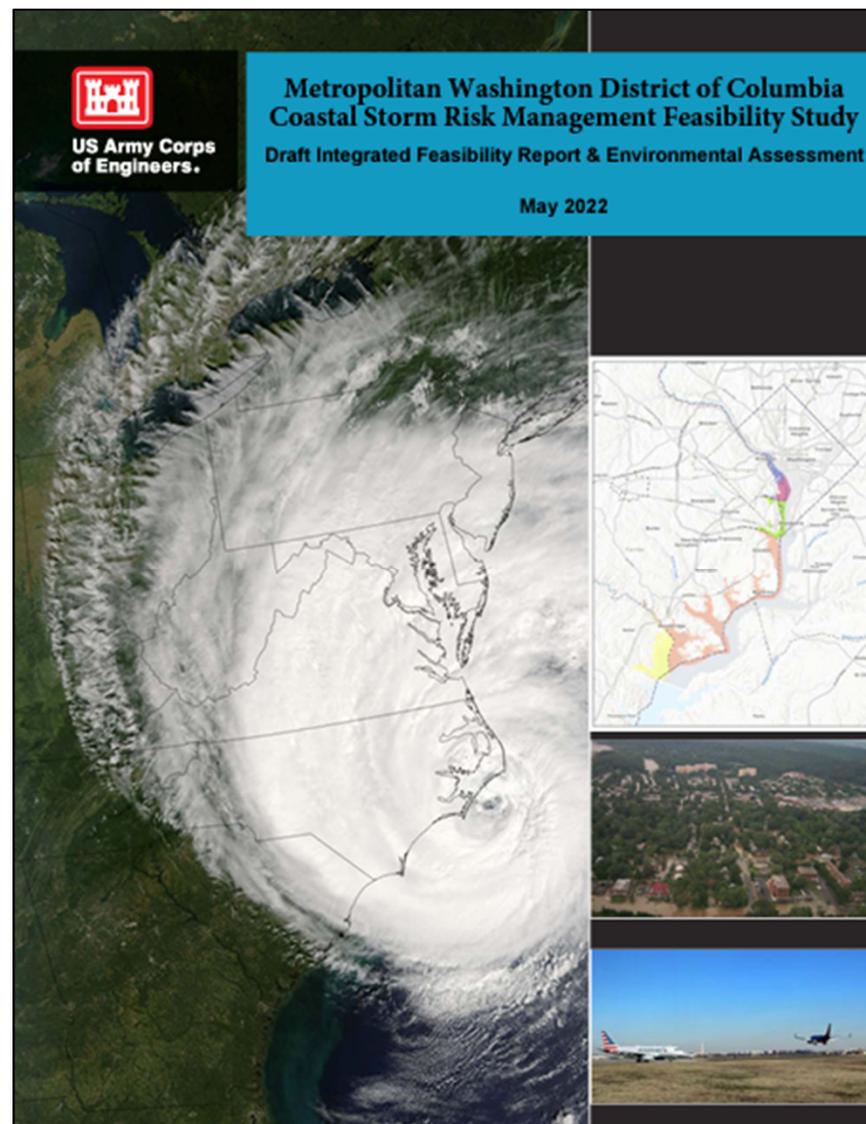


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PRESENTATION AGENDA

- Study Overview and Purpose
- Alternatives Considered
- Tentatively Selected Plan
- Draft Report
- Open Discussion with Q&A



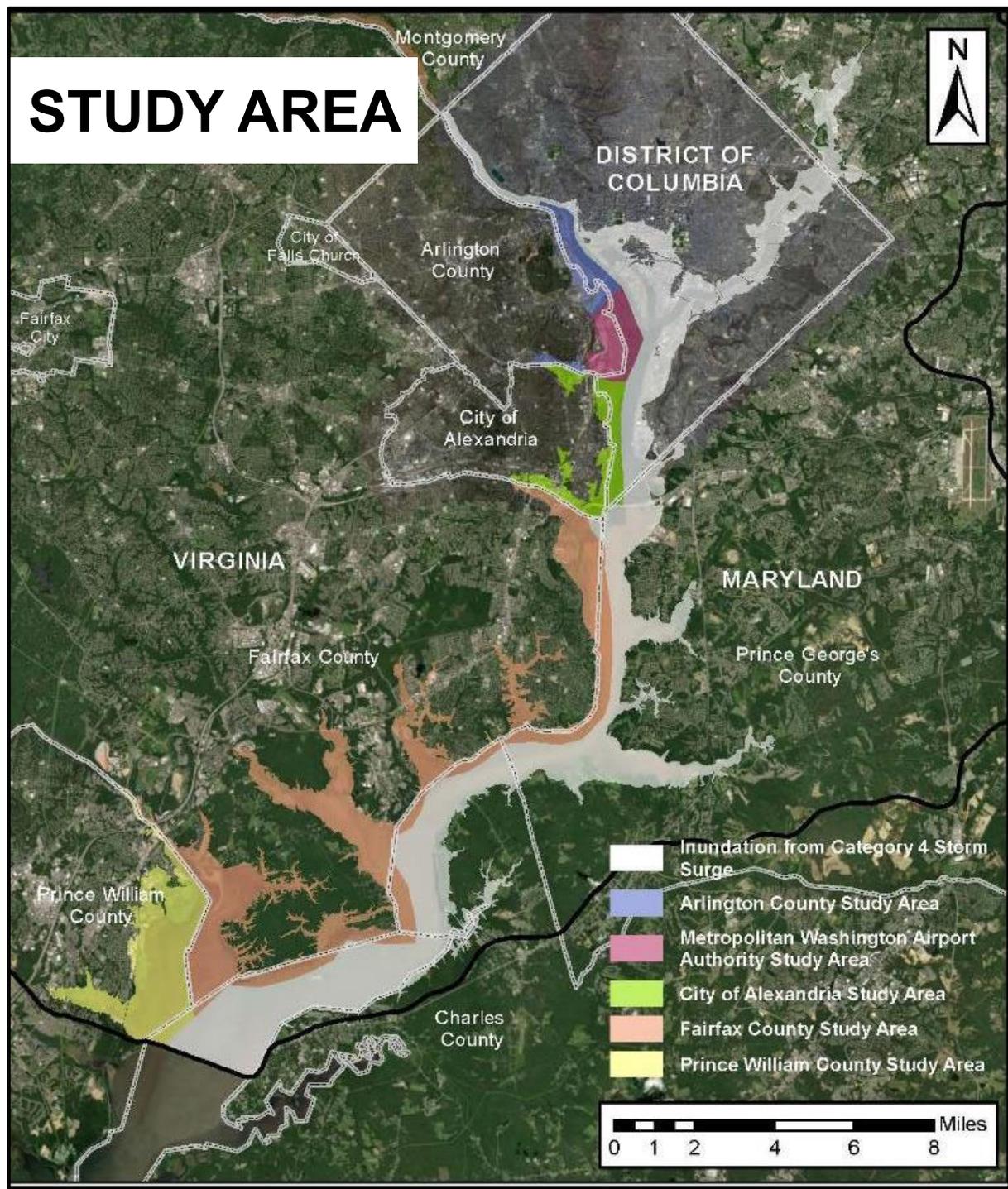
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STUDY AREA

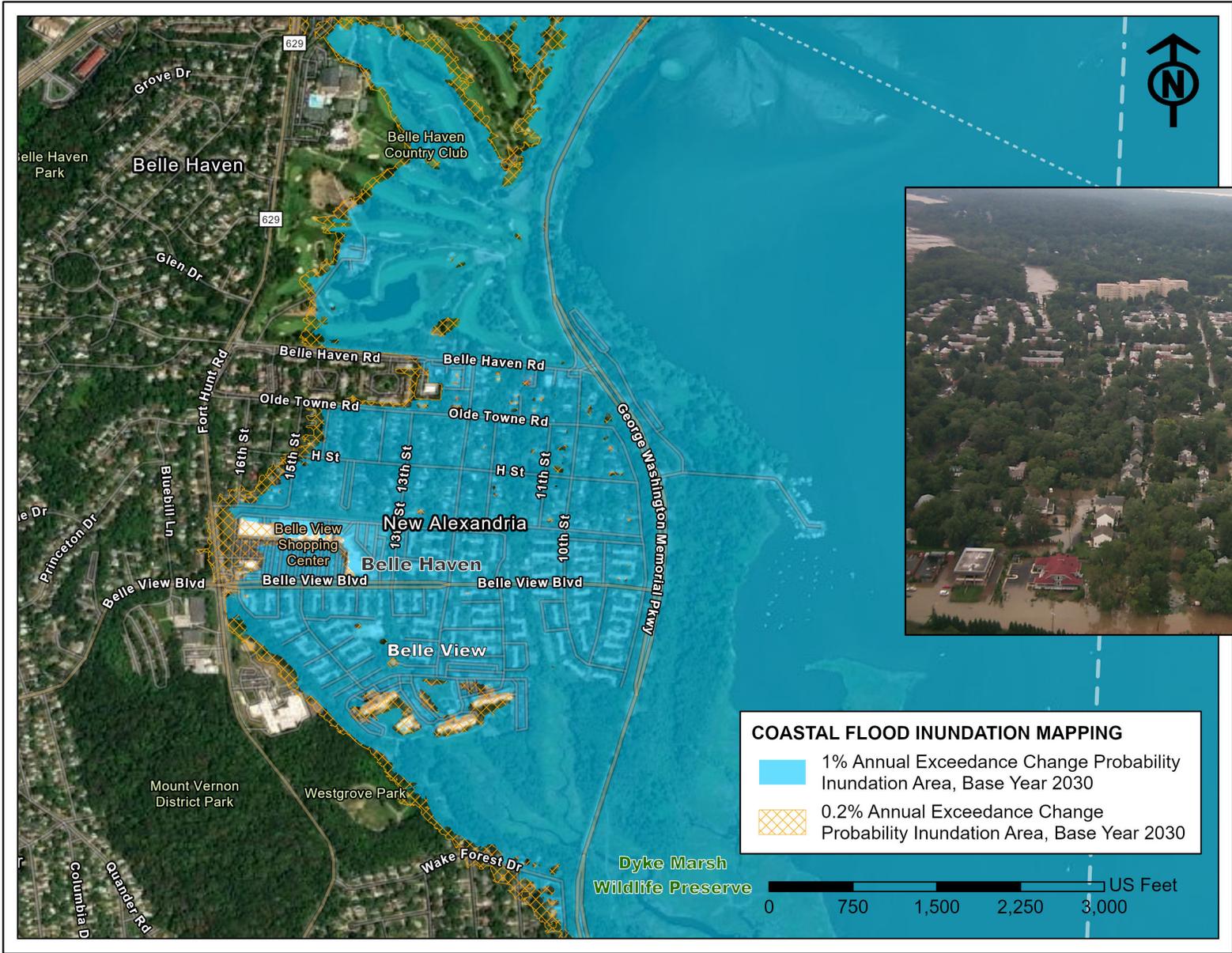


STUDY OBJECTIVES

- Reduce risk to **human health and safety**
- Reduce **economic damages**
- Reduce disruption of **critical infrastructure**
- Improve the **resiliency of critical infrastructure**

FLOOD INUNDATION MAPPING

BELLE HAVEN, 2030



COASTAL FLOOD INUNDATION MAPPING

- 1% Annual Exceedance Change Probability Inundation Area, Base Year 2030
- 0.2% Annual Exceedance Change Probability Inundation Area, Base Year 2030



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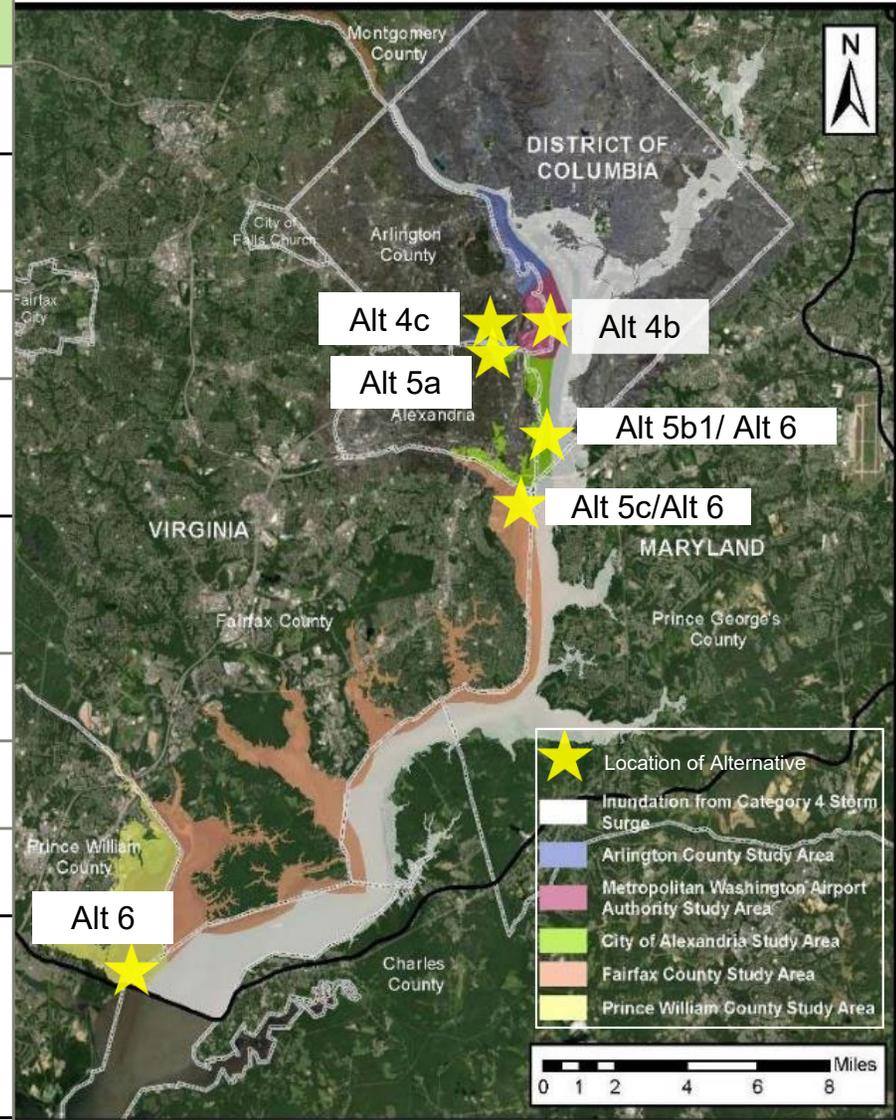
SCHEDULE

Milestone	Date
Preparing & Evaluating Alternatives	Apr 2021 to May 2022
Start Public Review Period	31 May 2022
End Public Review Period	30 Jun 2022
Respond to Comments & Revise Report	July – Sep 2022
Agency Decision Milestone	1 Nov 2022
Continue Alternative Design and Optimization	Nov 2022 – May 2023
Feasibility Study Ends	1 Mar 2024
Start Design (pending funding)	2024 - 2026
Construction (pending funding)	Late 2020's

***Agency Decision Milestone*:** Tentatively Selected Plan becomes Recommended Plan of USACE & Local Partners

FINAL ALTERNATIVES

Alt.	Description
1	No Action
4	Critical Infrastructure Plan (Reagan, Arlington WPCP)
4b	Reagan National Airport
4c	Arlington Water Pollution Control Plant (WPCP)
5	Floodwall/Levee Plan (Four Mile Run, Belle Haven)
5a	Four Mile Run Levee & Floodwall
5b1	Alexandria Deployable Floodwall
5c	Belle Haven Levee & Floodwall
6	Non-Structural Plan (Belle Haven, Old Town Alexandria, Occoquan Bay)
8	Combinations of 4, 5, 6



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STRUCTURAL ALTERNATIVE DEVELOPMENT

- Water Surface Elevation Modeling
 - Level of Performance = Top of the Wall/Levee
 - Based on Coastal Storms + Sea Level Change through 2080 (1.75 ft)

Project Area	Level of Performance (ft NAVD88)
Reagan National Airport	14.3
Arlington WPCP	14.3
Old Town Alexandria	13.2
Four Mile Run	13.9
Belle Haven	13.0



- Concept Level Engineering Design
 - Used to develop cost estimates

NAVD88 = North Atlantic Vertical Datum of 1988



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EVALUATION – BENEFIT TO COST RATIO (BCR)

Alternative Benefits Rolled-Up					
Alternatives	Total Economic Cost	Average Annualized Costs	Average Annualized Benefits	Average Annualized Net Benefits	BCR
Alt 1 (No-Action)	
Alt 4 (Reagan and WPCP)	\$96,050,000	\$3,219,000	\$243,000	(\$2,976,000)	0.08
Alt 5 (Four Mile Run, Alexandria and Belle Haven)	\$241,765,000	\$8,103,000	\$3,339,000	(\$4,764,000)	0.41
Alt 6 (Nonstructural 1% AEP)	\$209,738,000	\$7,030,000	\$1,218,000	(\$5,812,000)	0.17
Alt 6 (Nonstructural 2% AEP)	\$188,233,000	\$6,309,000	\$1,081,000	(\$5,228,000)	0.17
Alt 6 (Nonstructural 5% AEP)	\$130,742,000	\$4,382,000	\$831,000	(\$3,551,000)	0.19
Alt 8 (Combination)	\$52,606,000	\$1,763,000	\$2,213,000	\$450,000	1.3

*Alts 2, 3 and 7 were screened prior to final array due to high cost and project constraints.

Alternative 8 Benefits (TSP)					
Description	Total Economic Cost	Average Annualized Costs	Average Annualized Benefits	Average Annualized Net Benefits	BCR
Arlington WPCP	\$2,694,000	\$90,000	\$179,000	\$89,000	2.0
Belle Haven	\$49,912,000	\$1,673,000	\$2,034,000	\$361,000	1.2
TSP Totals	\$52,606,000	\$1,763,000	\$2,213,000	\$450,000	1.3



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TENTATIVELY SELECTED PLAN

Alternative 8: Combination Plan

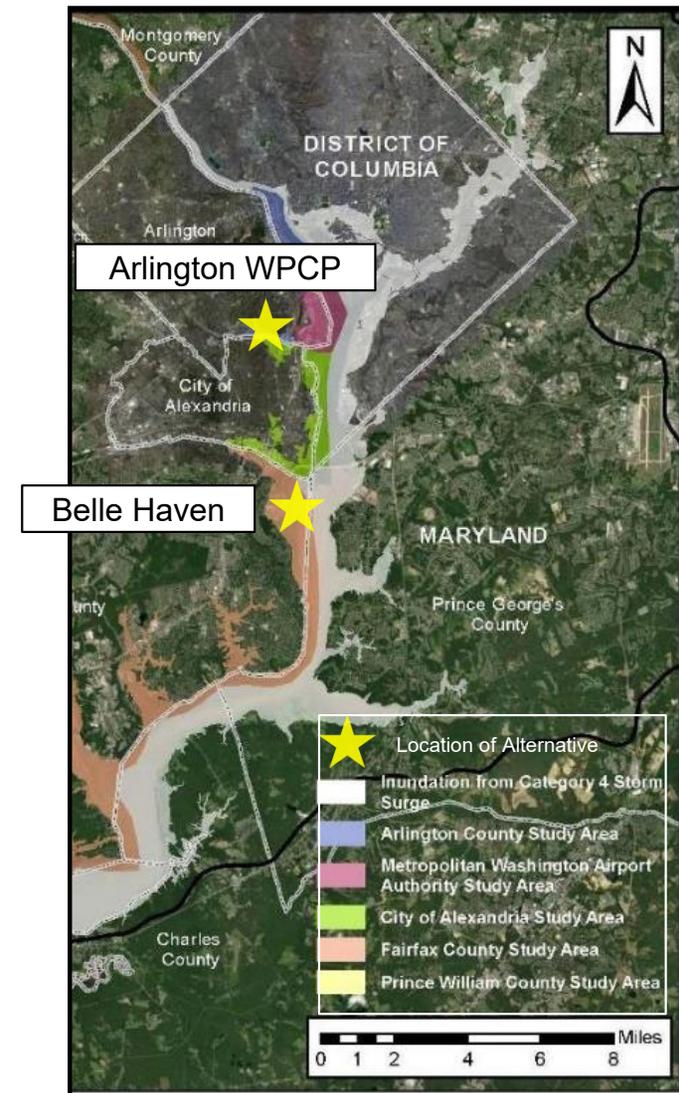
- Arlington WPCP
- Belle Haven Levee & Floodwall

Components:

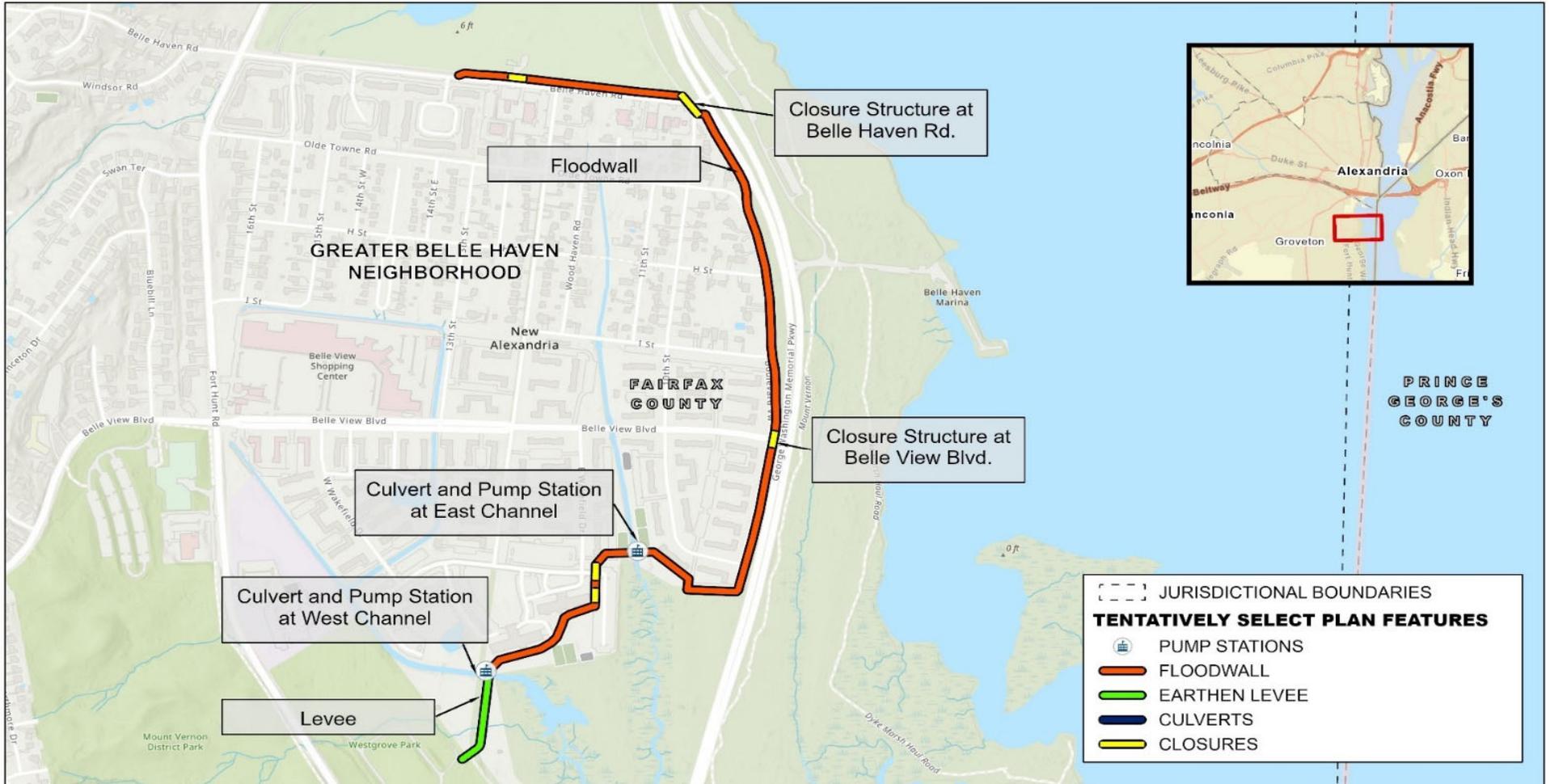
- Concrete I-walls and T-walls
- Pump Stations
- Earthen Levee
- Stop Log Closures

Alternative 8 Economic Summary:

- Total Economic Cost: \$52.6M
 - Includes 45% contingency on costs
- Total Damages Reduced: \$66M (Present Value)
- Benefit to Cost Ratio using annualized #s: 1.3



BELLE HAVEN



Tentatively Selected Plan - Alternative 8
Arlington Water Pollution Control Plant Floodwall and Belle Haven Floodwall and Levee

Map: TSP Map Zoomed.aprx
 Developed by: USACE Baltimore
 Date: 5/11/2022



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BELLE HAVEN

Concept Design:
 5,600 ft floodwall
 400 ft levee
 5 road closures



Rendering of 6.5 ft Wall

Average Wall/Levee Height:
 6 ft above Existing Ground



Top of Wall/Levee,
 Level of Performance
 @ Elev. 13.0 ft NAVD88



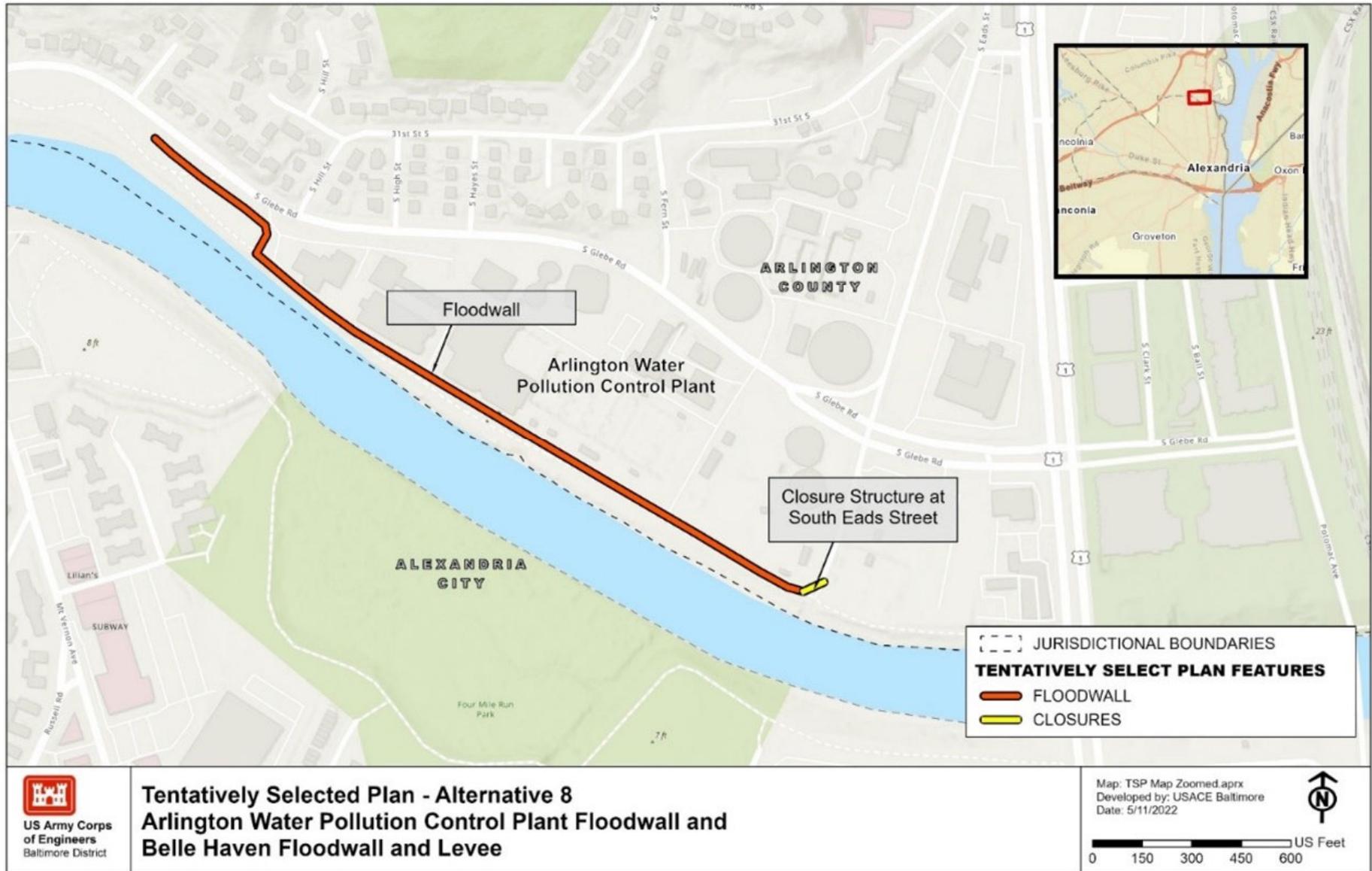
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ARLINGTON WPCP



Tentatively Selected Plan - Alternative 8
Arlington Water Pollution Control Plant Floodwall and Belle Haven Floodwall and Levee



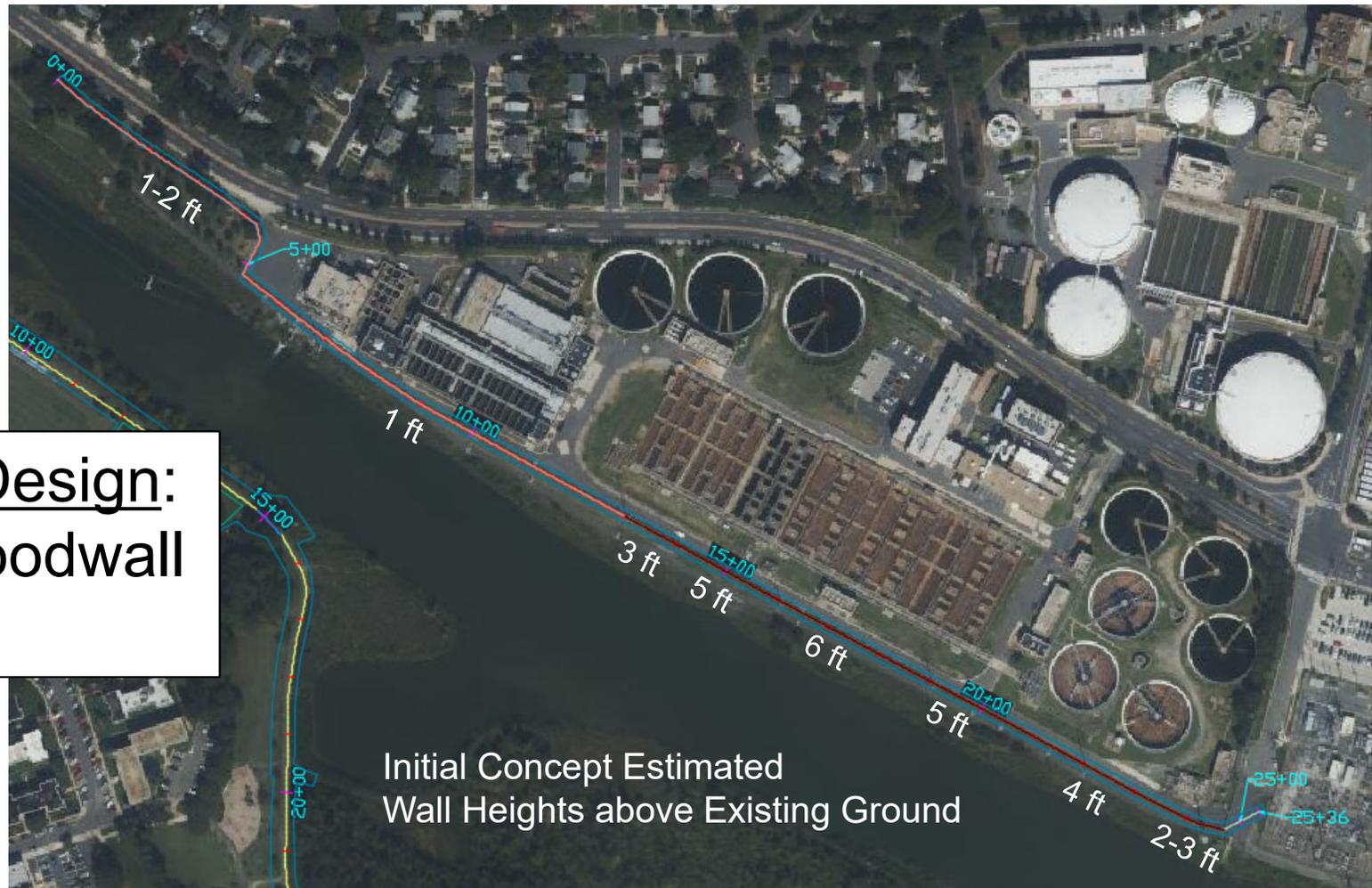
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ARLINGTON WPCP



Concept Design:
2,500 ft floodwall
1 closure

Top of Wall, Level of Performance
@ Elev. 14.3 ft NAVD88



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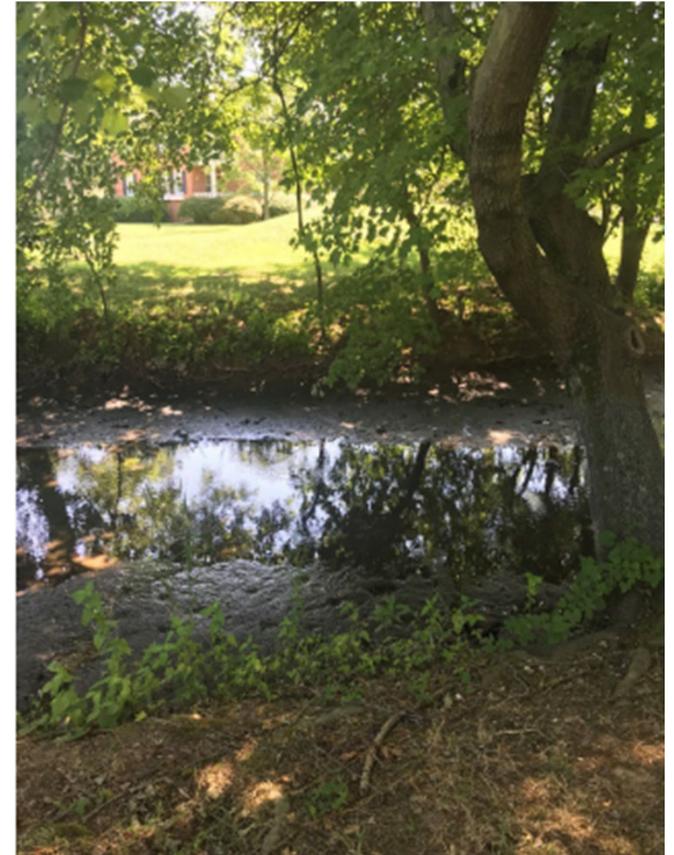


IMPACTS TO THE HUMAN ENVIRONMENT

- Temporary impacts during construction (noise, recreation)
- Investigations to determine the presence of contaminated soils and cultural resources during design phase
- Permanent aesthetic and recreation impacts at Belle Haven

Belle Haven culvert crossings

- 2,520 sq. ft. (0.06 acres) permanent stream impacts
- 2,240 sq. ft. (0.05 acres) temporary stream impacts during construction
- Mitigation required for permanent stream impacts



Location of proposed culvert crossing at Belle Haven East Channel



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PUBLIC REVIEW THROUGH 30 JUNE

https://www.nab.usace.army.mil/DC_Coastal_Study/

The screenshot shows the website's navigation menu at the top, including 'About', 'Business With Us', 'Missions', 'Locations', 'Careers', 'Media', 'Contact', and 'Coronavirus'. The main content area is titled 'Stakeholder Update - May 31, 2022' and contains information about the Coastal Storm Risk Management Study. A red circle highlights the 'May 2022 Report' section, which includes links for the Draft Integrated Feasibility Report & Environmental Assessment, Notice of Availability, and Appendices A through G. An arrow points from the text 'Download Report' to the 'May 2022 Report' section.

Download Report

All Comments Welcome:

DC-Metro-CSRMS-Study@usace.army.mil



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THANK YOU

Project Website:

https://www.nab.usace.army.mil/DC_Coastal_Study/

Project Email:

DC-Metro-CSRMS-Study@usace.army.mil

Thank You!
10+ comments
received to date



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