ST. JOHNS COUNTY, FLORIDA COASTAL STORM RISK MANAGEMENT | FEASIBILITY STUDY

RECOMMENDED PLAN

The Recommended Plan is for periodic beach nourishment, including dune and berm features, at the southern end of the study area in South Ponte Vedra from R-78 to R-103.5 (5.1 Miles). The proposed dimensions include:

- A **dune** at the existing (April 2021) crest elevation of 15-25ft NAVD88, and a profile width increase that would extend the entire equilibrated profile up to 20ft seaward.
- A **berm** at a design elevation of 13ft NAVD88, with a 20ft seaward extension from the dune toe.

Federal Participation: 50-year project period of analysis (after initial construction)

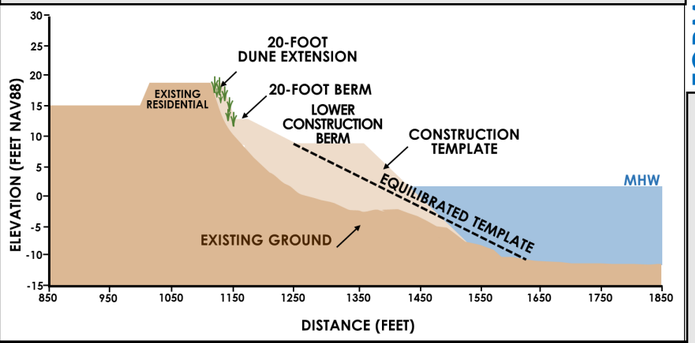
Initial Sand Volume: ~ 2,145,000 cubic yards

Renourishment Volume: ~ 662,000 cubic yards

Borrow Sources: N-2 Offshore Borrow Area
- ► N-1 and N-3 may be used in future nourishment events if needed

Renourishments: ~ 10-years, 1 initial construction, 4 periodic nourishments

Typical Project Profile:
- ► Reflects the average need for sand across the project area
- ► Berm: 20-foot equilibrated berm
- ► Dune: 20-foot dune extension



The Recommended Plan provides coastal storm risk management for South Ponte Vedra Beach through the construction of dune and berm features that restore natural habitat while protecting adjacent infrastructure. The recommended plan is capable of reducing coastal storm damages in South Ponte Vedra up to 96%

FORMULATED IN CONSIDERATION OF THE FOUR P&G ACCOUNTS

Primary – $3,719,000 in reduced damage to structures and infrastructure, reduced private armor expenditures
Incidental – $359,000 in recreation

An estimated 225 sea turtle nests with 18,000 hatchlings will benefit annually with 12.4 acres of nesting habitat.

Enhances marine and terrestrial ecosystem by supporting breeding, feeding, and shelter for wildlife

Maintains or improves life safety reduced risk of inundation to SR A1A

Promotes coastal resiliency for Northeast Florida

Direct and Secondary - $125,911,000 of local value added (calculated with RECONS)

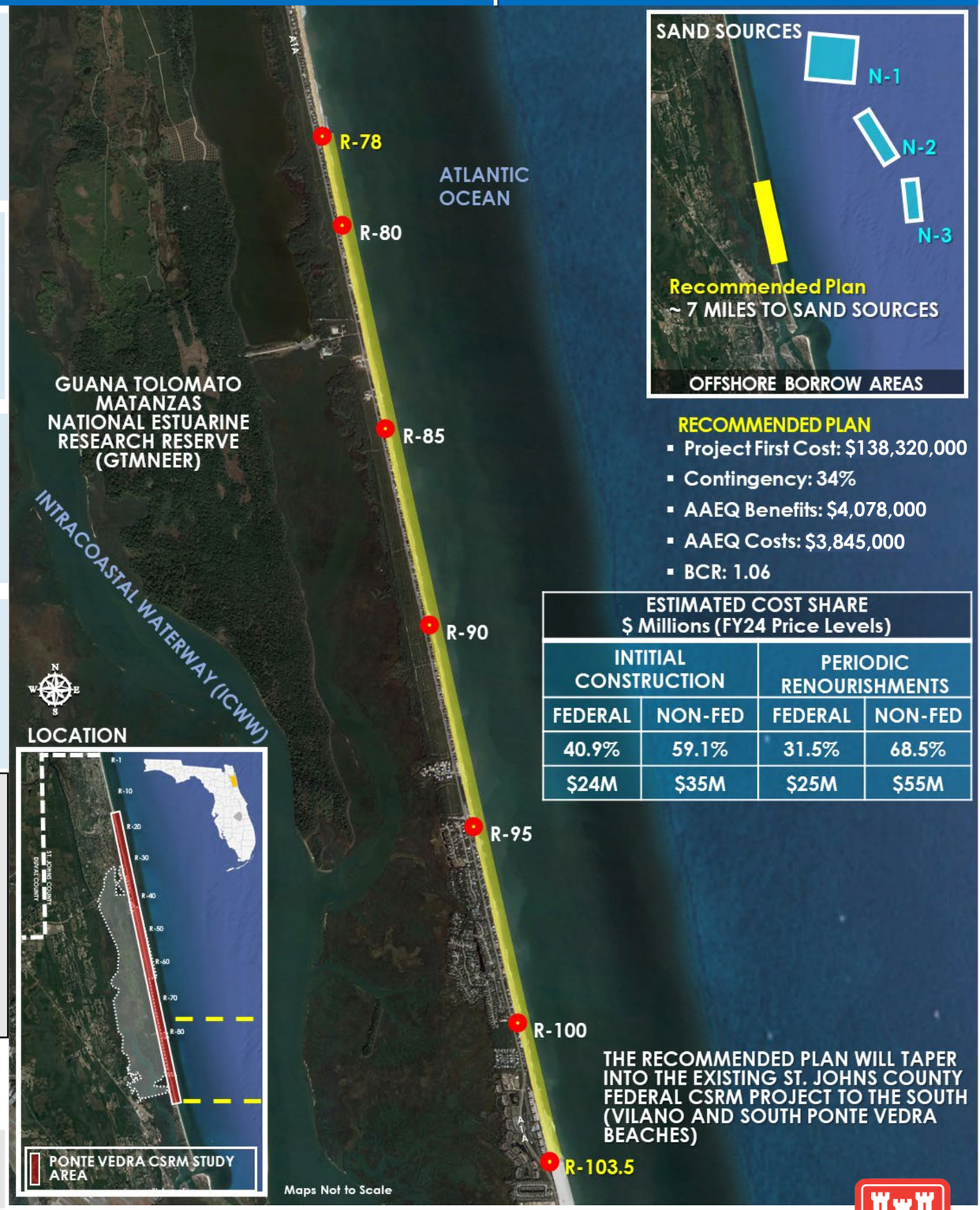
Increased local tourism

ENVIRONMENTAL COMPLIANCE

- The Recommended Plan was coordinated with State and Federal agencies and is compliant with applicable Federal statutes and regulations.
- Public Review of Draft IFR/EA occurred April 17 - May 17, 2023
- No Environmental Mitigation is expected
- The Bureau of Ocean Energy Management is a NEPA Cooperating Agency for this Study
- The study is in compliance with E.O. 12898, and there are no disadvantaged communities in the study area

Parking and Access: The non-Federal sponsor is actively working to improve parking and access in the Recommended Plan area and will submit proof during PED for cost share improvements.

- *This plan will tie into the existing Federal St. Johns County CSRM – Vilano Beach project, where the tapers for both projects will overlap.*
- *The Recommended Plan was formulated on the Intermediate SLC curve and is adaptable to the High SLC curve by nourishing more frequently or with larger volumes. It is possible that SLC could occur at various rates within the range of the low to high SLC curves.*



RECOMMENDED PLAN
- Project First Cost: $138,320,000
- Contingency: 34%
- AAEQ Benefits: $4,078,000
- AAEQ Costs: $3,845,000
- BCR: 1.06

ESTIMATED COST SHARE
$ Millions (FY24 Price Levels)

INTITIAL CONSTRUCTION		PERIODIC RENOURISHMENTS	
FEDERAL	NON-FED	FEDERAL	NON-FED
40.9%	59.1%	31.5%	68.5%
$24M	$35M	$25M	$55M

ST. JOHNS COUNTY, FLORIDA COASTAL STORM RISK MANAGEMENT | FEASIBILITY STUDY

STUDY OVERVIEW

STUDY AREA:
17 miles of shoreline in northeast St. Johns County, starting 3 miles south of the Duval County Line down to the Federal Vilano Beach CSRM project.

STUDY FUNDING:
Public Law 117-58; Infrastructure Investment and Jobs Act 2022

STUDY OBJECTIVE/PURPOSE:
Reduce storm damages to property and infrastructure within the project area over a 50-year period of analysis.

NON-FEDERAL SPONSOR:
St. Johns County, Florida

Study Authority: House Resolution 2646

"Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That in accordance with Section 110 of the Rivers and Harbors Act of 1962, the Secretary of the Army, acting through the Chief of Engineers, is requested to survey the shores of St. Johns County, Florida, with particular reference to the advisability of providing beach erosion control works in the area north of St. Augustine Inlet, the shoreline in the vicinity of the Matanzas Inlet, and the adjacent shorelines, as may be necessary in the interest of hurricane protection, shore damage reduction, beach erosion control, and other related purposes."

3-YEAR STUDY SCHEDULE

SCOPING	ALTERNATIVE FORMULATION & ANALYSIS	FEASIBILITY-LEVEL ANALYSIS	CHIEF'S REPORT
①	②	③	④
ALTERNATIVES MILESTONE 8/5/2021	TENTATIVELY SELECTED PLAN (TSP) MILESTONE 2/15/2023	AGENCY DECISION MILESTONE (ADM) 8/17/2023	CHIEF'S REPORT ant. 4/19/2024
FCSA 04/19/2021	Start of Public Concurrent Reviews 4/17/2023	Final Report to HQ 1/23/2024	

PLAN FORMULATION

PROBLEMS

1. Economic damages due to coastal storms. St. Johns County has documented up to $70 Million in damages over the last five years. Over the next 50 years, it is projected that similar storms will cause economic damages within the same range to residential and commercial structures and their contents.
2. Erosion, inundation, and waves caused by coastal storms threatening critical infrastructure and roadways.
3. Degradation of natural ecosystems, such as loss of habitat, an erosion of shoreline and potential damages to cultural resources.

OBJECTIVES

- Reduce coastal storm damages to structures in study area over the 50 year period of analysis from 2028 to 2077 (NED)
- Reduce coastal storm damages to critical infrastructure in the study area over the 50 year period of analysis from 2028 to 2077 (RED)
- Reduce damages to cultural resources in the study area over the 50 year period of analysis from 2028 to 2077 (EQ)
- Reduce risk of natural resource loss in the study area over the 50 year period of analysis from 2028 to 2077 (EQ)
- Reduce risk to life safety in the study area over the 50 year period of analysis from 2028 to 2077 (OSE)

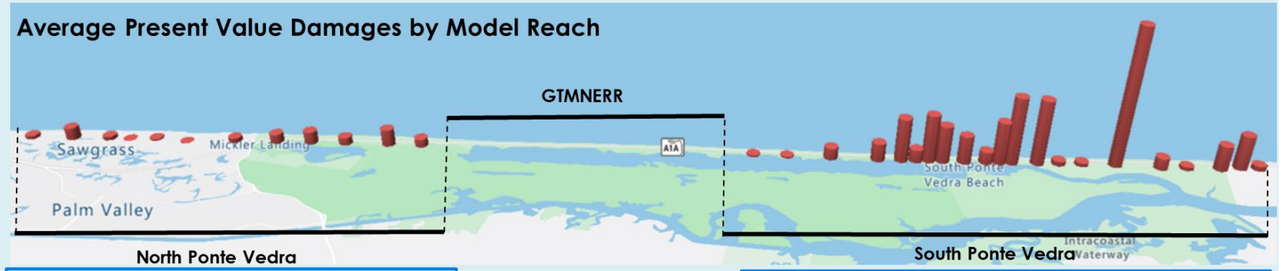
FUTURE WITHOUT-PROJECT CONDITION

The Study area was broken out into three study segments based off of shoreline characteristics and existing boundaries:

- **North Ponte Vedra (R16.4 to R-46)***
- **Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR, R-46 to R-67)****
- **South Ponte Vedra (R-67 to R-103.5)**

The Corps certified model Beach-fx version 1.1.6 (patched) was used to model Future Without-Project (FWOP) conditions. The Intermediate SLC curve was chosen for alternative formulation, with sensitivity analysis conducted against the Low and High SLC curves

Average Present Value Damages by Model Reach



North Ponte Vedra FWOP damages, totaling $16.4M, consist primarily of armor costs occurring early in the 50-year POA

Primary FWOP damages in **South Ponte Vedra** occur to single-family residences (~75%) and armor costs (~25%), uniformly over the 50-year POA

**North Ponte Vedra was screened during alternative evaluation. The lower damages in North Ponte Vedra can be attributed to higher dunes, a less erosive shoreline, and structures sitting further back from the MHW line. The best performing alternatives evaluated were not economically justified*

***Due to the lack of infrastructure, robust beach and dune system, and lack of predicted erosion, the GTMNERR reach was screened from further consideration during FWOP analysis with support from the Guana Reserve, St. Johns County and FDEP.*

ALTERNATIVE EVALUATION

MANAGEMENT MEASURES

Management measures were screened based on project objectives, constraints, and the four Policy and Guidance (P&G) accounts.

Structural
~~S-1 Groins~~
~~S-2 Breakwaters~~
S-3 Seawall
S-4 Revetment
~~S-5 Geotubes~~
~~S-6 Submerged Artificial Reefs~~

Natural and Nature-Based
NNBF-1 Berm Construction
NNBF-2 Dune Construction
NNBF-3 Dune Construction & Vegetation
~~NNBF-4 Nearshore Placement~~

Non-Structural
NS-1 No-Action
~~NS-2 Flood Proofing Structures (Dry)~~
~~NS-3 Flood Proofing Structures (Wet)~~
~~NS-4 Flood Warning & Evacuation~~
~~NS-5 Acquisition & Relocation~~
NS-6 Buy-outs
~~NS-7 Structure Elevation~~

To be used in combination with Natural and Nature-Based Features

Management measures were combined into alternatives that would be implementable in the study area:

- NNBF-1, NNBF-2 and NNBF-3 are all forms of beach nourishment and were all combined into a "Beach Nourishment" alternative
- S-3 and S-4 were combined with Beach Nourishment into a "Reinforced Dune" Alternative

FOCUSED ALTERNATIVES (NED shown in bold)