



August 2014

PROJECT OVERVIEW: BY ALL ACCOUNTS, A PROJECT IN THE NATIONAL INTEREST

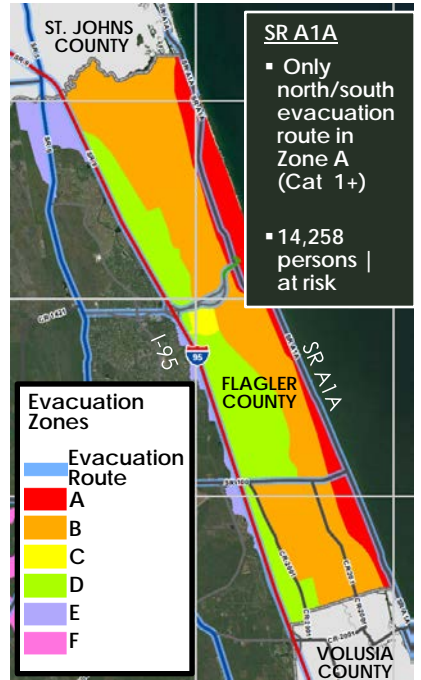


The Flagler County Hurricane and Storm Damage Reduction Project is located along the shoreline that experiences above average erosion rates and storm impacts that have challenged the county and the state since 1964 when Hurricane Dora devastated the east coast of Florida. The project sponsor is Flagler County.

National Economic Development (NED) and Other Social Effects (OSE) Accounts: This project will reduce damages by 95% over the 50-year period of Federal participation and produce \$1,168,000 in average annual benefits. The project's 10-foot beach and dune profile extension focuses on a 2.6 mile stretch of mostly armored shoreline adjacent to SR A1A that if left without a comprehensively designed project, will jeopardize the health, safety and welfare of a community by exposing a major hurricane evacuation and recovery route for over 14,000 people to continued degradation and temporary repairs. Both response and recovery emergency efforts are affected by the condition of this critical infrastructure (roadway/evacuation route) that serves as the primary means of ingress and egress for the community.

Environmental Quality Account (EQ): The project provides for ~3.15 acres of habitat for threatened and endangered species, and other wildlife, that would otherwise be "0" in the future-without project condition. Examples of endangered species include leatherback and green sea turtles, as well as piping plovers.

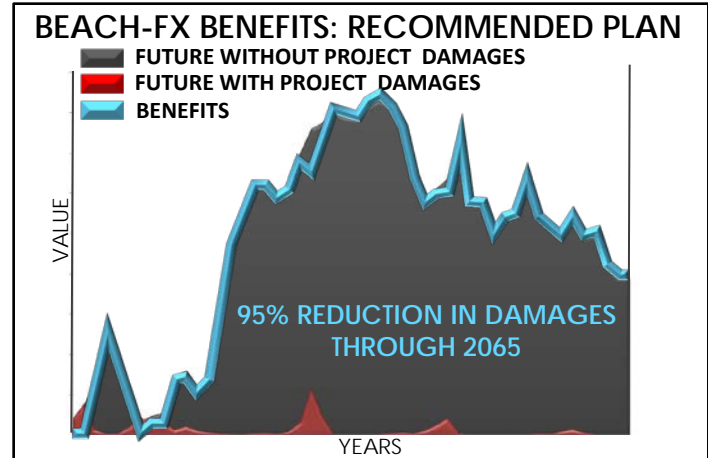
Regional Economic Development Account (RED): the project facilitates the continuity of a culturally-rich national and state scenic byway that extends north of the nation's oldest continuously inhabited European settlement in St. Augustine to the Gamble Rogers State Park in southern Flagler County. The passive recreation provided by this scenic byway fosters international, national and regional tourism, as well as the economic vitality of the local community. In Flagler County, SR A1A provides public access to a viewshed of the Atlantic Ocean unhindered by development, a unique characteristic in community development today.



ECONOMIC AND COST ANALYSIS

- BCR: 1.9 with a 3.5% discount rate
- Average Annual Net Benefits: \$1,168,000
- Total Federal Cost: \$24,608,300
- Total Non-federal Cost: \$20,353,700

ECONOMIC SUMMARY	
(FY 14 price level, 50-year period of analysis, 3.5% discount rate)	
Average Annual Investment Cost	\$1,229,000
Annual OMRR&R (100% Non-Federal)	\$10,000
Total Average Annual Cost	\$1,239,000
Average Annual Storm Damage Reduction Benefits	\$2,159,000
Average Annual Recreation Benefits	\$72,000
Average Annual Traffic Re-route Benefits	\$176,000
Average Annual Total Benefits	\$2,407,000
Average Annual Net Benefits	\$1,168,000
Benefit Cost Ratio (3.5 % discount rate)	1.9



ENVIRONMENT



Recommended plan provides ~3.15 acres of habitat that would otherwise be "0" in the future without-project condition:

Habitat for Threatened and Endangered Species: Sea turtles (Leatherback, Green, and Loggerhead) and shorebirds (e.g., Piping Plover)

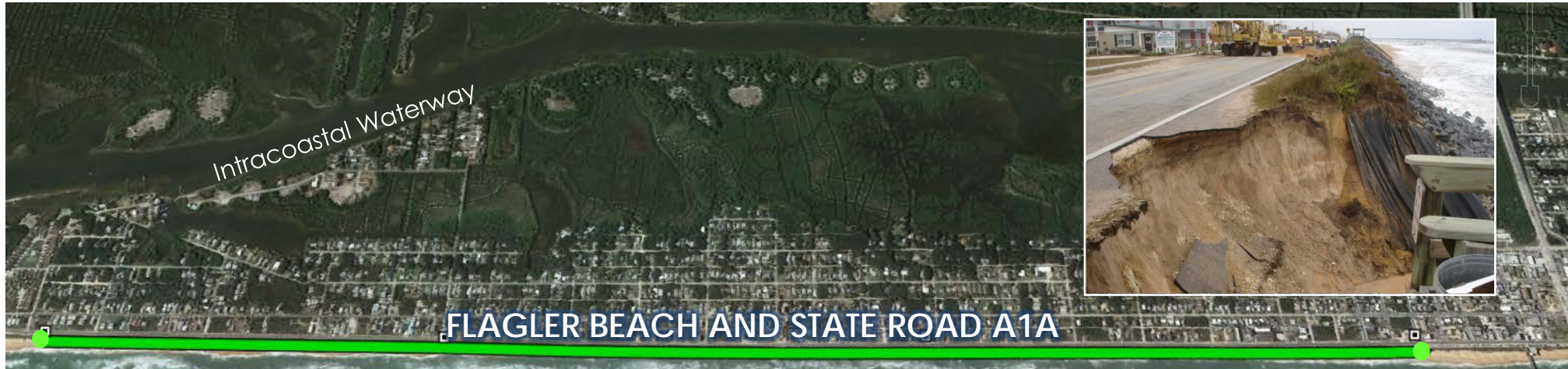
Increased Biodiversity: Dune vegetation will provide for foraging, nesting and shelter for a variety of wildlife

Compatible Sand Available for the Life of the Project: The right sand is important for the constructed beach to perform properly as well as for habitat such as for nesting sea turtles.

No mitigation is required of the project.

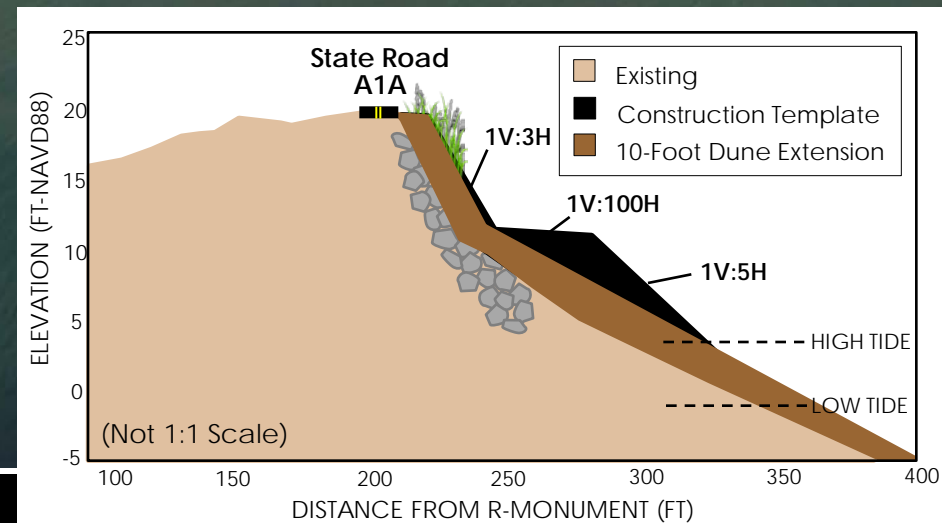


THE RECOMMENDED PLAN



FLAGLER BEACH AND STATE ROAD A1A

10-FOOT SEAWARD EXTENSION OF THE DUNE & BEACH PROFILE IN REACH C



- 2.6 mile 10-foot dune and beach profile extension
- 11-year average nourishment interval (initial + 4 renourishments)
- 320,000 cubic yards/average nourishment
- Borrow area (7 miles offshore) with compatible sand for 50-year project life



FLAGLER COUNTY HSDR STUDY PLAN FORMULATION OVERVIEW



MARINELAND REVETMENT

PROBLEMS

- Erosion, storm surge (inundation) and wave attack
- Damage to coastal structures and infrastructure including SR A1A evacuation route
- Loss of natural coastal habitat (beach and dunes)
- Threatened recreational and tourism opportunities

OPPORTUNITIES

- Reduce storm damage to coastal structures and infrastructure
- Protect the hurricane evacuation route capability
- Restore dunes to function naturally
- Protect natural habitat
- Improve community resilience
- Maintain recreation and tourism opportunities



PAINTERS HILL SINGLE-FAMILY HOMES

OBJECTIVES

- Reduce storm damages to structures and infrastructure
- Maintain a safe and reliable hurricane evacuation route
- Maintain environmental quality
- Maintain recreational opportunities

4 STUDY REACHES

- 1) Twenty initial measures screened for meeting planning objectives and 4 P&G Accounts

RESULTS: 11 Measures

NON-STRUCTURAL

- No Action
- Relocate SR A1A
- Buyout/Land Acquisition

STRUCTURAL

- Seawalls
- Revetments
- Sand Covered Soft Structure
- Beach Nourishment

- Groins
- Submerged Artificial Reef
- Submerged Artificial Multi-Purpose Reef
- Dunes and Vegetation

- 2) Eleven measures combined into 39 alternatives based on combinability/dependencies
- 3) ROM costs used to screen cost prohibitive alternatives

RESULTS: 5 Alternatives

No Action Beach Nourishment Dunes/Vegetation Revetments Sand-covered Soft Structures



BEVERLY BEACH ARMORED RV PARK & UNARMORED BEACH

4 DESIGN REACHES BASED ON BEACH-FX FUTURE-WITHOUT PROJECT DAMAGES

- 4) BEACH-FX modeling with sea-level rise of various scales and combinations of five alternatives from #3

RESULTS: Final Array of Alternatives

No Action Beach Nourishment Dunes/Vegetation

- 5) BEACH-FX modeling with sea-level rise of final array of alternatives from #4

RESULTS: Recommended Plan

10-foot dune and beach profile extension in Reach C



FLAGLER BEACH SR A1A EVACUATION ROUTE/SCENIC BYWAY WITH EROSIIVE WAVES/FDOT ARMORING & STATE PARK

FROM STUDY REACHES TO DESIGN REACHES TO THE RECOMMENDED PLAN

