



STUDY BACKGROUND

Location
St. Lucie County is located along the east coast of south-central Florida, approximately 225 miles south of Jacksonville and 100 miles north of Miami. The St. Lucie County, Florida shoreline consists of a 25-mile-long narrow barrier island named Hutchinson Island, bordered by the Atlantic Ocean to the east, and the Indian River Lagoon (Atlantic Intracoastal Waterway) to the west. Fort Pierce Inlet splits Hutchinson Island into North Hutchinson Island and South Hutchinson Island. St. Lucie Inlet is approximately 7 miles south of the project area, in Martin County. The project area extends from R77 to the Martin County line.

Nearby Federal Projects
The Fort Pierce Project spans 1.3 miles, just south of the Ft. Pierce Inlet. The Martin County Project is 4 miles long, and begins just south of the Martin County line.

Purpose
The purpose of this study is to investigate the feasibility of providing coastal storm risk management within the southern five miles of the St. Lucie County, Florida coastline, and adjacent shorelines.

Problem and Need
There is a need to reduce the damages to coastal infrastructure on the shoreline of South Hutchinson Island, during hurricane and tropical storm events, and in consideration of future potential sea level rise effects.



Atlantis Condominium
September 2004
Sponsor
St. Lucie County, Florida

Authorization
Resolution Docket 2634, 11 April 2000 and
Resolution Docket 2757, 23 July 1998

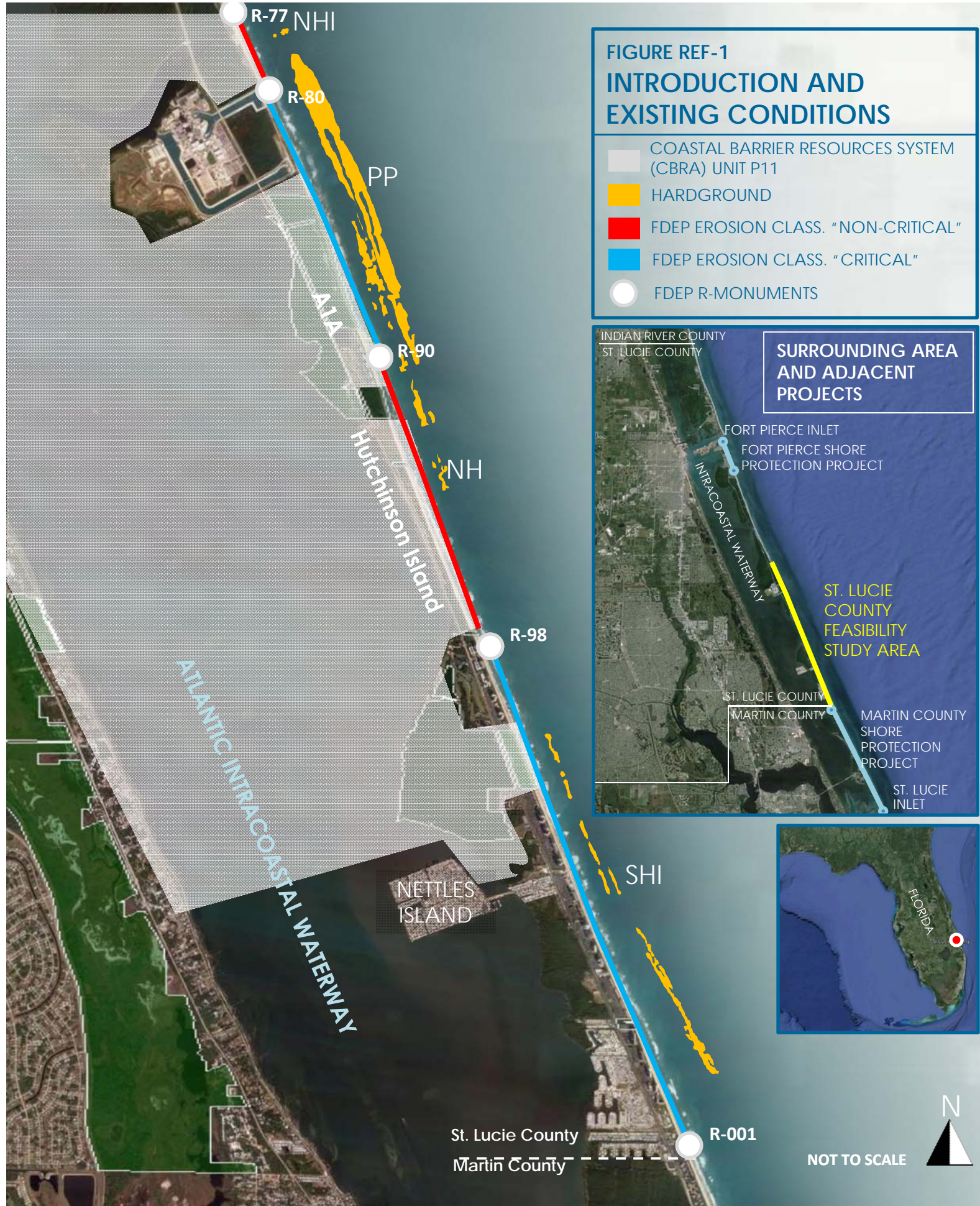
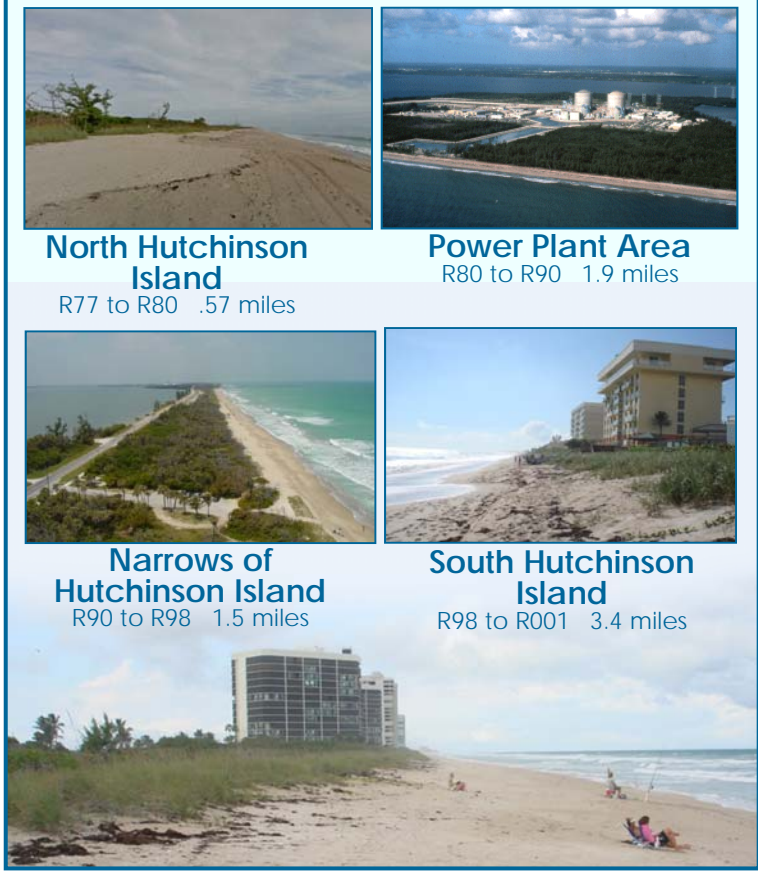


UNIQUE CONSIDERATIONS

- The study area is largely dominated by a large U.S. Fish and Wildlife Service (USFWS) designated Coastal Barrier Resource System (CBRS) unit, known as CBRS unit P11 (46% of the study area).
- The Coastal Barrier Resource Act of 1982 designated relatively undeveloped coastal barriers along the Atlantic and Gulf coasts as part of the John H. Chafee Coastal Barrier Resources System (CBRS), making these areas ineligible for most new federal expenditures and financial assistance. CBRA encourages the conservation of hurricane prone, biologically rich coastal barriers by restricting federal expenditures that encourage development, such as federal flood insurance. Areas within the CBRS can be developed provided that private developers or other non-federal parties bear the full cost.



STUDY AREA (R77 TO R001)





NATURAL/HUMAN ENVIRONMENT

Existing Conditions/Future Without Project

- Coastal Barrier Resource System (CBRS) unit P11 (refer to map)
- Hardbottom resources
- Sea turtle nesting and shore bird habitat



Turtle Nesting



Worm Rock Reefs/Hardground

Future with Project

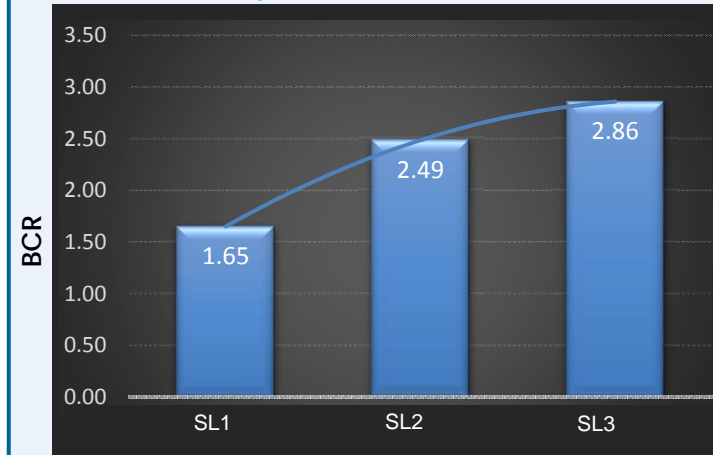
- Section 6 exception from U.S. Fish & Wildlife Service (FWS) will allow placement of sand in CBRS unit P11 on public land (R101.5 to R103.5) with Federal cost sharing
- No direct impact to hardbottom resources
- Borrow Source: St. Lucie Shoals (SL4-R98) (using Florida Department of Environmental Protection (FDEP) 50-year mining strategy); Average 4 miles offshore; adequate amount for 50 year planning horizon and compatible with native sand

PHYSICAL ENVIRONMENT

Existing Conditions/Future Without Project

- Most recent damaging hurricanes and storms: 2004 (Frances and Jeanne); 2011 (Sandy)
- Uniform erosion across reach (~.4 ft. per year)
- SLC in 50 year planning horizon ~ Base: .5 feet; Intermediate: .9 feet; High: 2.4 feet

Future with Project



TSP increasingly efficient in light of sea level rise
Note: BCR based on storm damage reduction only

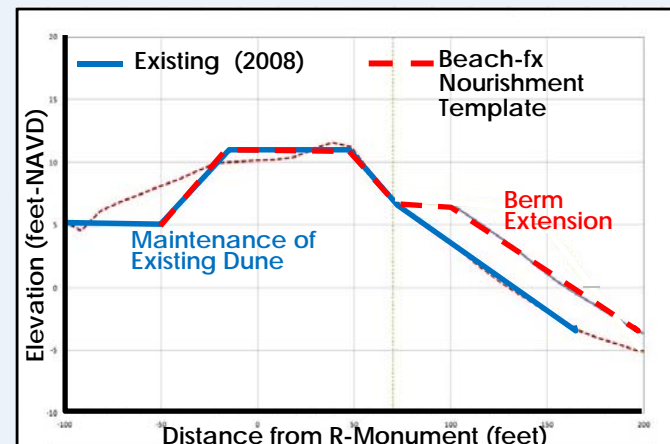
BUILT ENVIRONMENT

Existing Conditions/Future Without Project

- 2012/2013 St. Lucie County local nourishment project:
 - R88 to Martin County line
 - Dune and berm; ~ 650,000 cubic yards of sand
- No coastal armoring
- 4 public access areas
- SR A1A evacuation route

Future with Project

- NED/TSP (Base Sea Level Rise)
- Initial Placement: 20-foot extension of the berm from the 2008 dune shoreline profile
- Average of 530,400 cubic yards of sand
- Average Renourishment: 18 year interval with average 380,000 cubic yards of sand



ECONOMIC ENVIRONMENT

Existing Conditions/Future Without Project

- 241 damageable elements in the TSP area

Future with Project

- Reduces damages by 94%
- Increasingly efficient with intermediate and High SLC

ECONOMIC SUMMARY	PRIMARY STORM DAMAGE REDUCTION + LAND LOSS BENEFITS	PRIMARY STORM DAMAGE REDUCTION + LAND LOSS + INCIDENTAL RECREATION BENEFITS
Price Level	FY16	FY16
FY16 Water Resources Discount Rate	3.125%	3.125%
Average Annual Structure and Contents Benefits	\$3,179,950	\$3,179,950
Average Annual Land Loss Benefits	\$276,819	\$276,819
Average Annual Incidental Recreation Benefits	-	\$584,018
Average Annual Total Benefits	\$3,456,769	\$4,040,787
Average Annual Costs	\$1,925,977	\$1,925,977
Average Annual Net Benefits	\$1,530,792	\$2,114,810
Benefit Cost Ratio	1.80	2.10

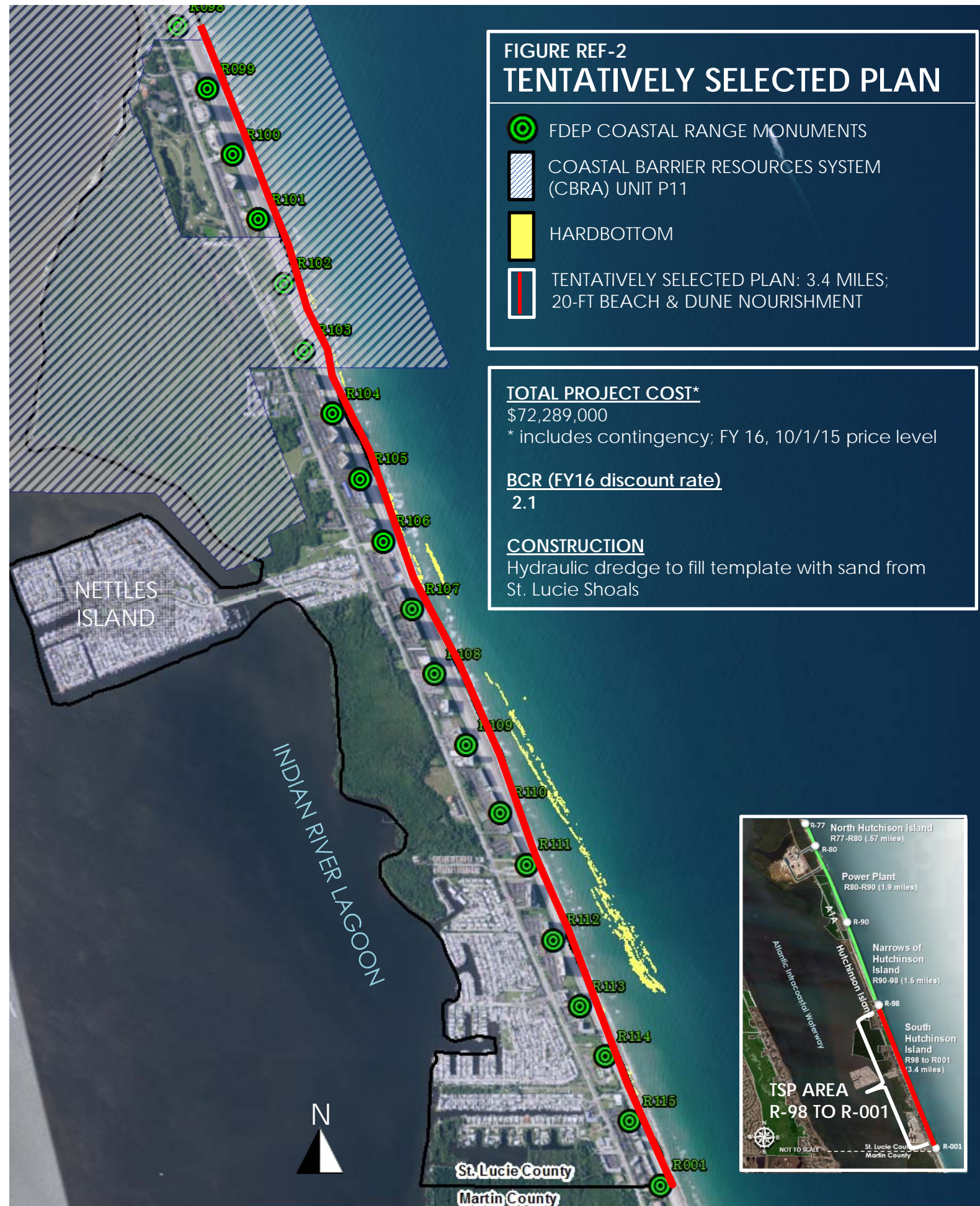




FIGURE REF-3

COST SHARING & PARKING/ACCESS

- PUBLIC ACCESS POINT WITH PARKING
- R-MONUMENT



Normandy Beach Public Access
(R98+300S to R98+400S)



Dollman Park Public Beach Access
(R101+400S to R103+300S)



Wavelands Public Beach Access
(R-110+600S to R111+200S)



Glascock Public Beach Access
(Martin County line: R001)