

STAKEHOLDER PRESENTATIONS

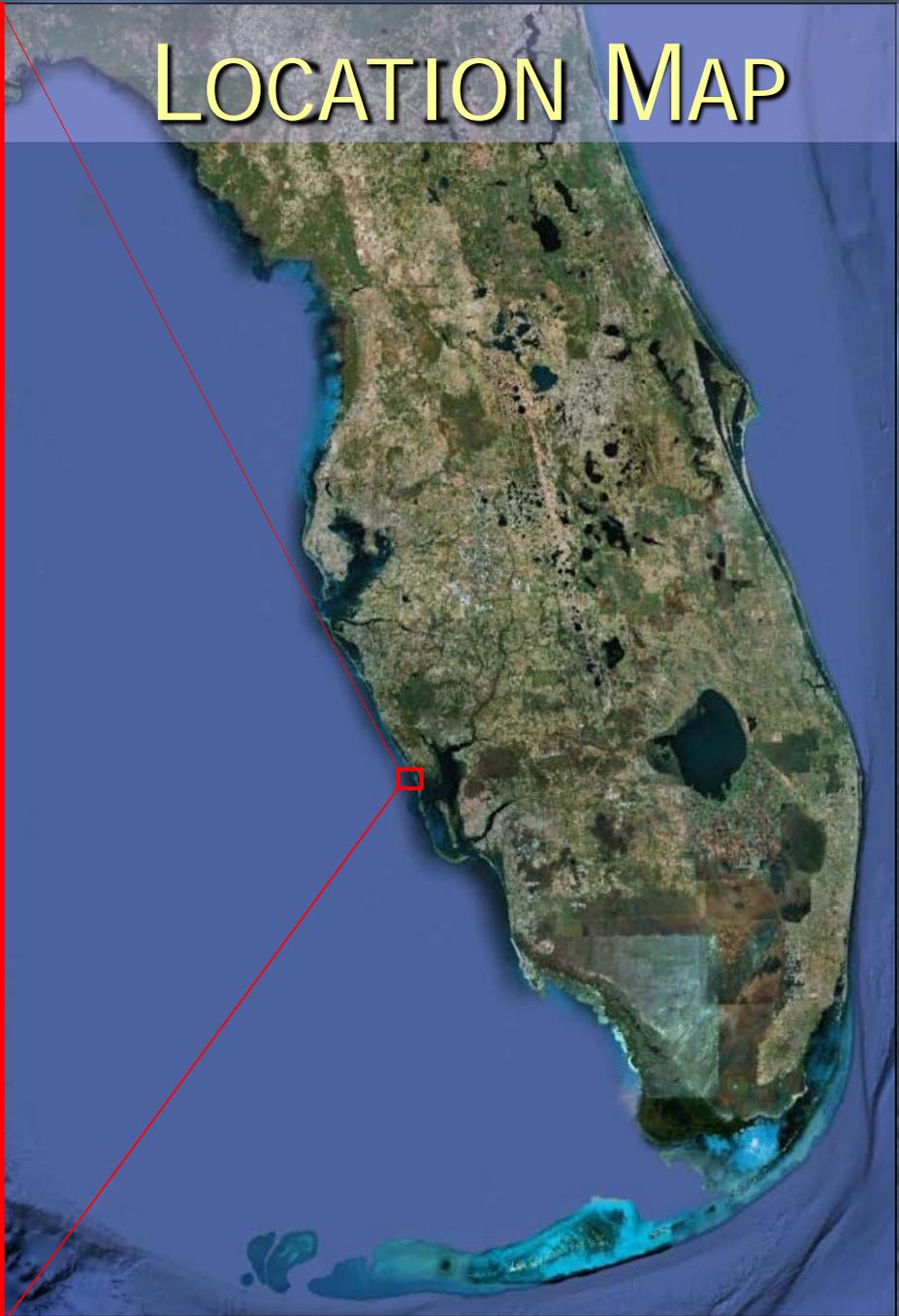
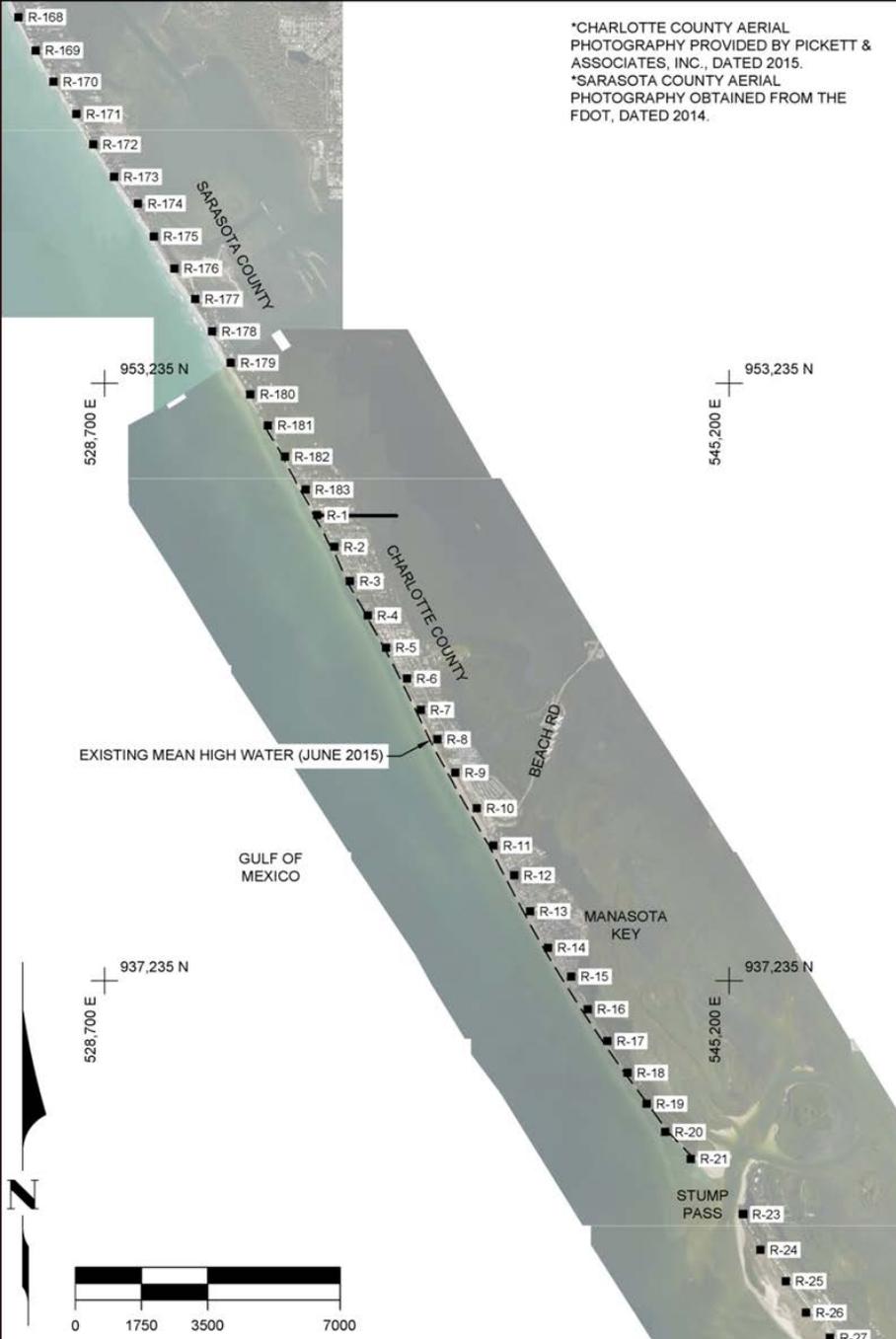
BEACH EROSION STUDY ON NORTH MANASOTA KEY CHARLOTTE COUNTY

OCTOBER 2015



LOCATION MAP

*CHARLOTTE COUNTY AERIAL PHOTOGRAPHY PROVIDED BY PICKETT & ASSOCIATES, INC., DATED 2015.
*SARASOTA COUNTY AERIAL PHOTOGRAPHY OBTAINED FROM THE FDOT, DATED 2014.



OUTLINE

- Historical Perspective
- Erosion Analysis
- Conceptual Restoration Plans
- Potential Sand Sources
- Nearshore Hardbottom Resources
- Conceptual Opinion of Probable Project Costs
- Funding Approaches
- Stakeholder Input

HISTORICAL PERSPECTIVE

- 1980: Englewood Beach Nourishment / Stump Pass Channel Dredging
 - 110,000 CY of beach compatible sand
- 2001-2003: Sarasota-Charlotte Beach Erosion Study
 - Blind Pass Park (S) to Chadwick Park (C)
 - Historical Erosion Rate ~ 0.9 ft/yr 1.1 cy/ft/yr
 - Small area of exposed hardbottom @ County Line
 - Beach Nourishment to Address Chronic Erosion
 - 42,600 ft 150-ft wide berm 52 cy/ft
 - 2.2 Mil cy **\$22 Million (2003 Dollars)**
 - 50 / 50 Split amongst stakeholders for support

HISTORICAL PERSPECTIVE

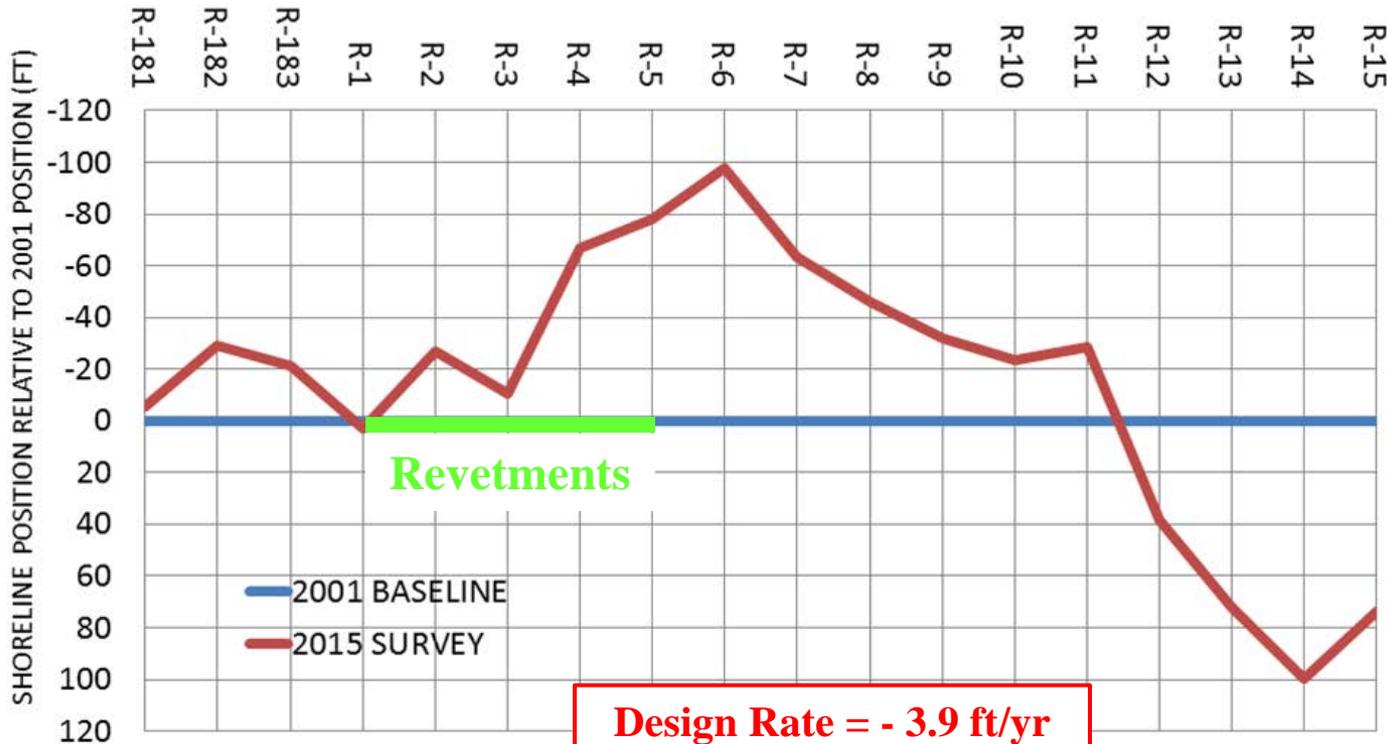
- 2003-2011: Charlotte County Beach Nourishment
 - Stump Pass utilized as sand source
 - 2003, 2006 & 2011 construction events
 - Backpassed ~ 400,000 cy to south end of Manasota Key
- 2015-2025: Erosion Control Project
 - Construction slated for 12/15 ~ 7/16
 - Offshore sand sources plus channel maintenance dredge
 - 180,000 cy to restore south end of Manasota Key
 - Low-crested permeable rock groin to stabilize shoreline
 - 240,000 cy to downdrift beaches
 - \$7.3 Mil Construction Cost

EROSION ANALYSIS

- 2001 – 2015 Shoreline Changes / Rates



MEAN HIGH WATER SHORELINE POSITION



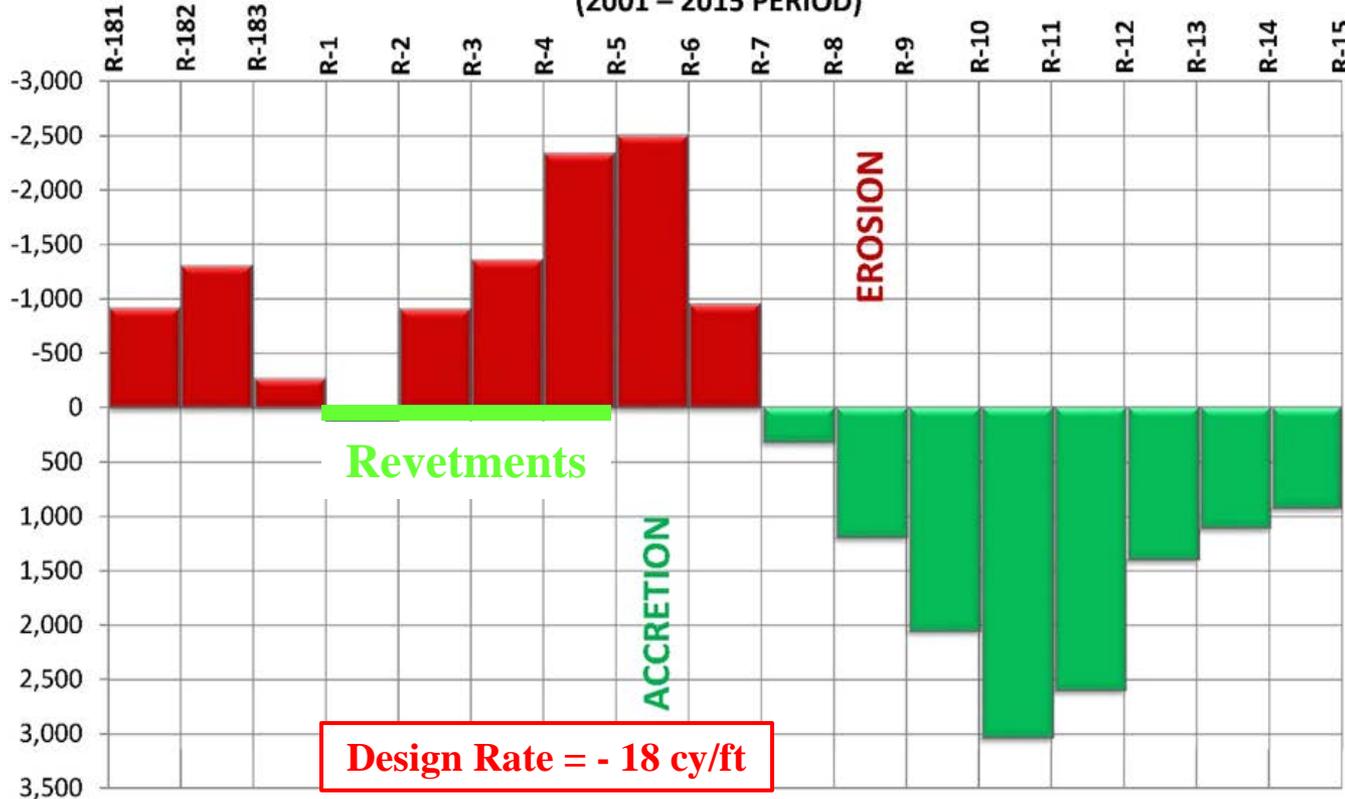
R-Mon	Change Rate (FT/YR)
	2001-2015
R-181	-0.4
R-182	-2.1
R-183	-1.5
R-1	0.2
R-2	-1.9
R-3	-0.8
R-4	-4.8
R-5	-5.6
R-6	-7.0
R-7	-4.5
R-8	-3.3
R-9	-2.3
R-10	-1.7
R-11	-2.0
R-12	2.7
R-13	5.2
R-14	7.1
R-15	5.3

VOLUME CHANGE ANALYSIS

- 2001 – 2015 Volume Changes / Rates

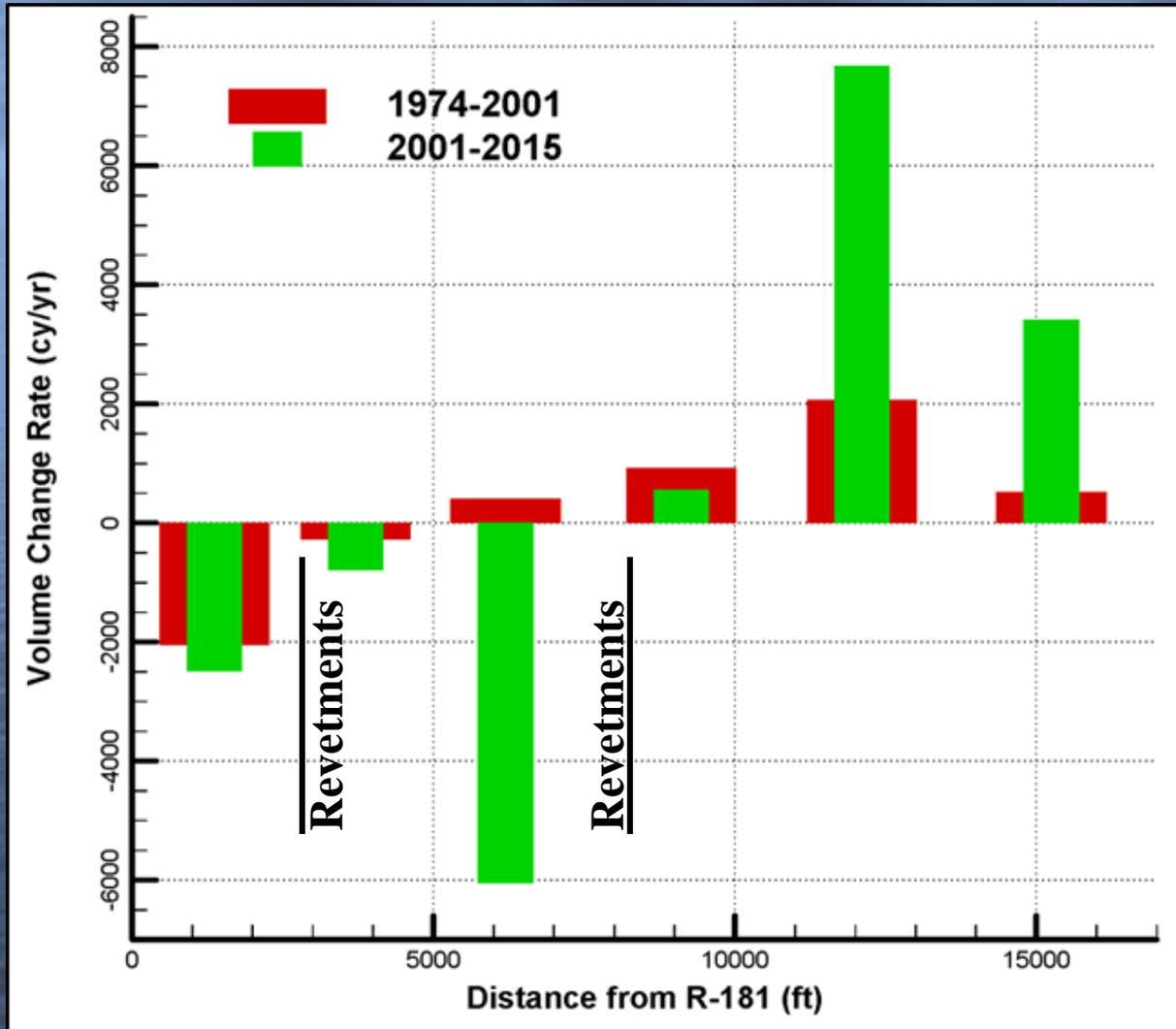


VOLUME CHANGE RATE ABOVE DEPTH OF CLOSURE (-17 FT NAVD)
(2001 – 2015 PERIOD)



R-Mon	Change Rate (CY/YR)
	2001-2015
R-181	
R-182	-916
R-183	-1,306
R-1	-269
R-2	125
R-3	-907
R-4	-1,361
R-5	-2,260
R-6	-2,422
R-7	-952
R-8	316
R-9	1,188
R-10	2,048
R-11	3,032
R-12	2,596
R-13	1,391
R-14	1,100
R-15	919

SEDIMENT BUDGET UPDATE



CONCEPTUAL RESTORATION PLANS

- Design Criteria
- Beach Berm Width
 - 40 Ft Wide Design Beach (Min)
 - +35 ft to Design Beach Along Revetments (75 ft)
 - Account for Background Erosion ~ 3.9 ft / yr
 - Account for Design Storm Event (+29 ft)
- 8-Year Nourishment Interval
- Beach Fill Volume
 - ~ 52 cy / ft (2001-03 study recommendation)
 - ~ 11 cy / ft for design storm event
- Adopt Design Template ~ Erosion Control Project

MANASOTA KEY NORTH CONCEPTUAL PLAN #1

PRIMARY PLAN

- Stand Alone Project
- R-1 through R-15
- Volume ~ 880,000 cy (Initial Nourishment) / 560,000 cy (Renourishment Interval)
- Length ~ 14,100 ft
- Berm Width
 - Exclusive of Tapers: Ranges from 146 ft to 181 ft
- Fill Density
 - Inclusive of Tapers ~ 62.5 cy/ft (average)
 - Exclusive of Tapers: Ranges from 71 to 88 cy/ft

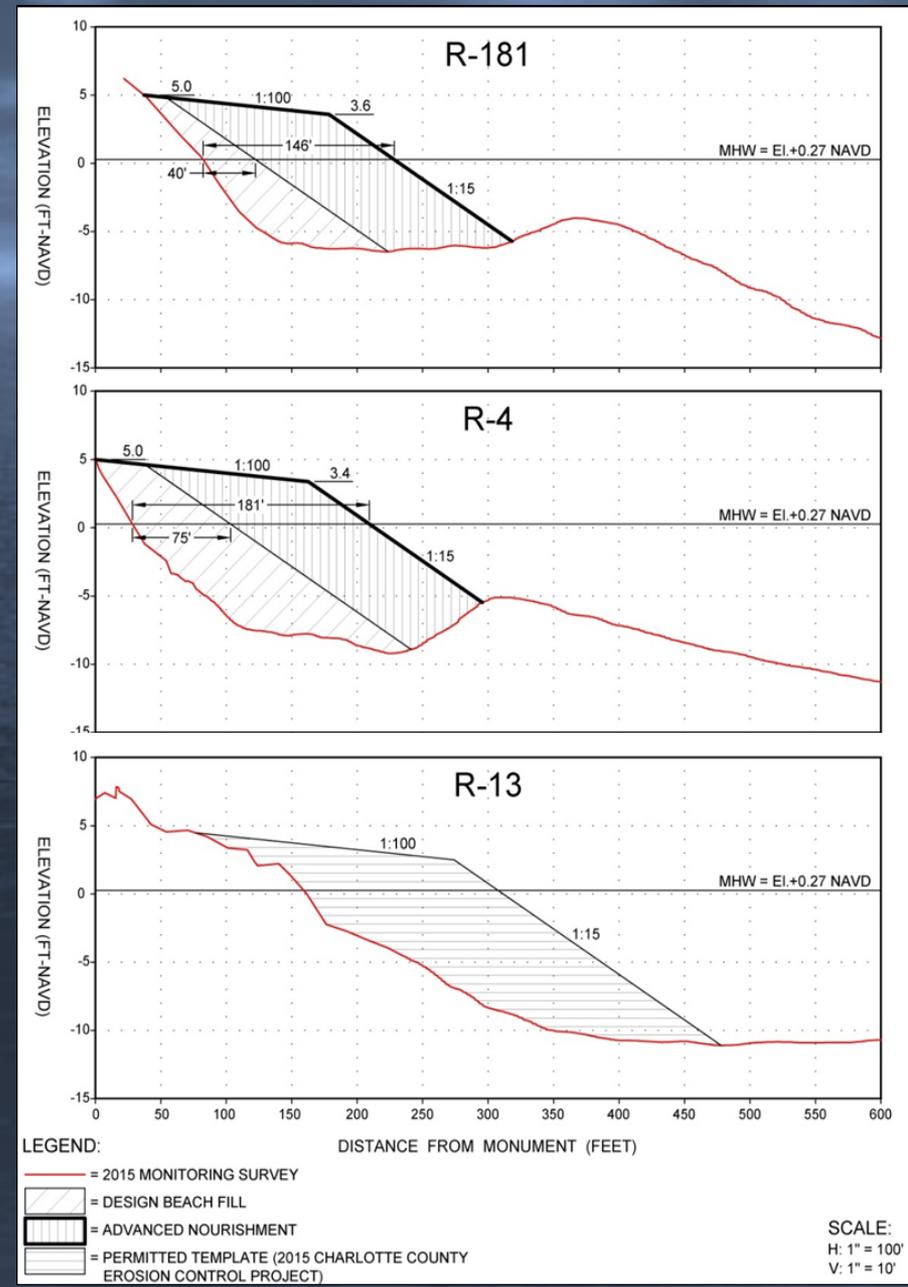
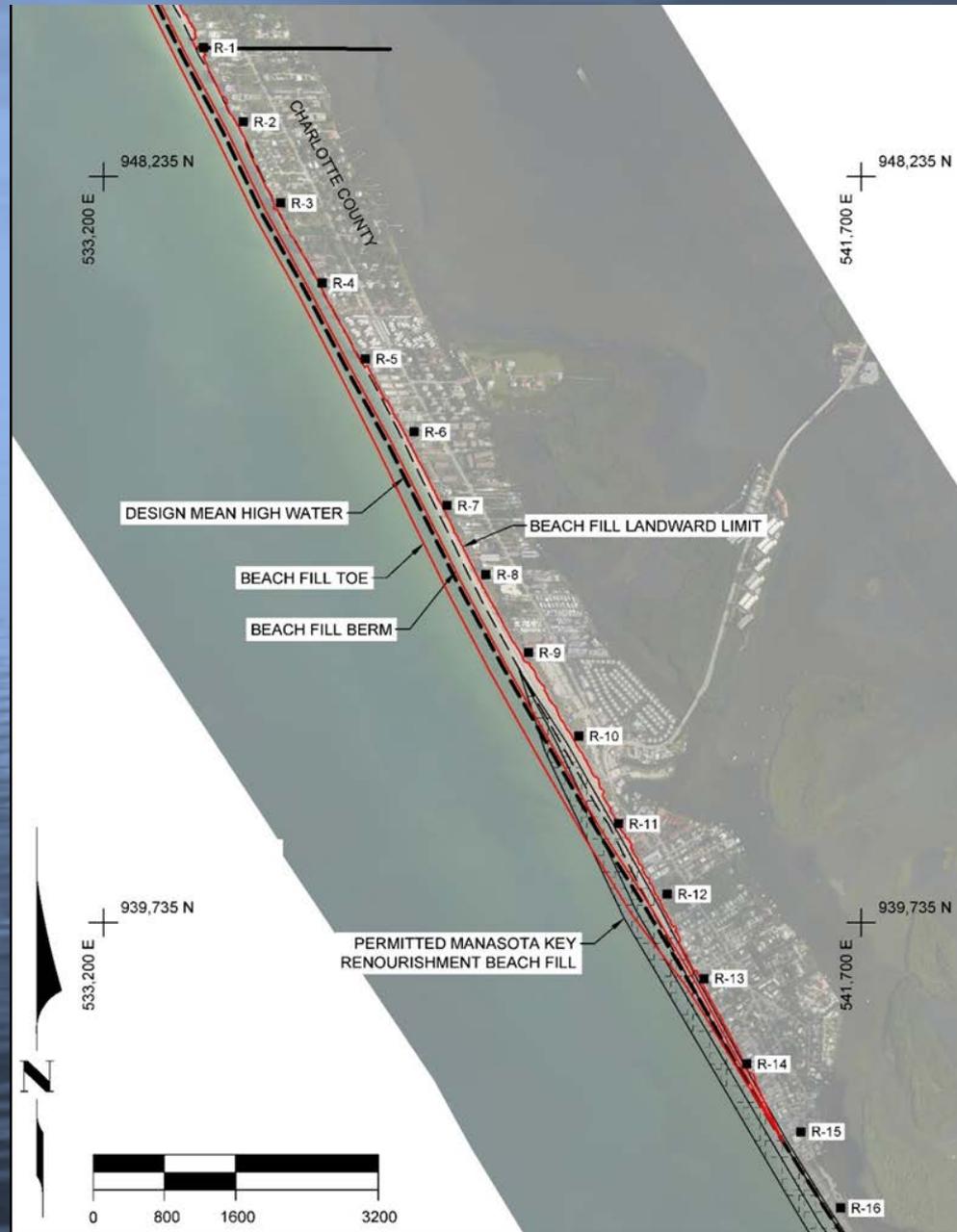
SARASOTA-CHARLOTTE COMBINED CONCEPTUAL PLAN #2

- Regional Approach
- Extend Primary Plan into Sarasota County
- R-173 through R-15
- Volume ~ 1,540,000 cy (Initial Nourishment) / 960,000 cy (Renourishment Interval)
- Length ~ 24,600 ft
- Berm Width
 - Exclusive of Tapers: Ranges from 146 ft to 181 ft
- Fill Density
 - Inclusive of Tapers ~ 62.6 cy/ft (average)
 - Exclusive of Tapers: Ranges from 57 to 88 cy/ft

EROSION CONTROL PROJECT COMBINATION CONCEPTUAL PLAN #3

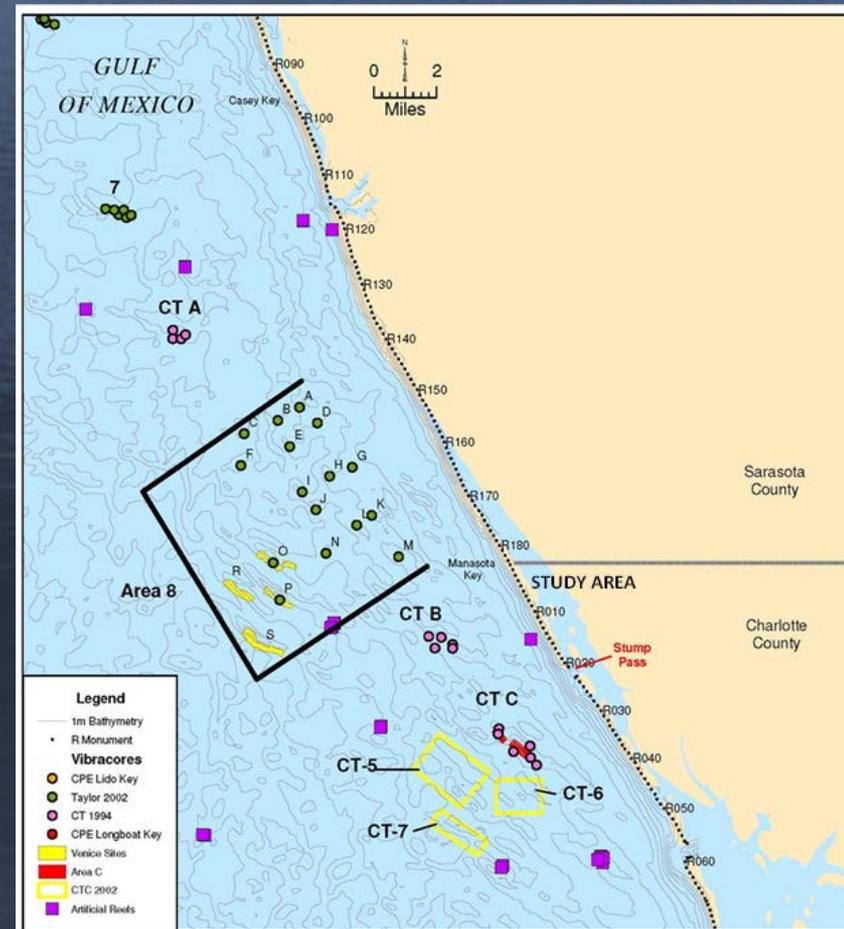
- Integrate Primary Plan ~ County's existing project
- R-1 through R-18 (Fill limit of 2016 construction)
- Volume ~ 1,070,000 cy (Initial Nourishment) / 670,000 cy (Renourishment Interval)
- Length ~ 17,100 ft
- Berm Width
 - Exclusive of Tapers: Ranges from 40 ft to 181 ft
- Fill Density
 - Inclusive of Tapers ~ 62.6 cy/ft (average)
 - Exclusive of Tapers: Ranges from 40 to 88 cy/ft

CONCEPTUAL PLAN VIEW & TYPICAL SECTIONS



POTENTIAL SAND SOURCES

- Regional Sand Source Searches
- Charlotte County Erosion Control Project
- Upland Sand Mines
- Recommendation:
Consider all three



NEARSHORE HARDBOTTOM RESOURCES

- Desktop Analysis
- Remote Sensing
- Diver Verification
- Findings
 - Exposed patches extending from Sarasota into Charlotte
 - Continuous exposure between R2.5 and R4
 - 4.25 acres within conceptual fill template
 - Low to medium relief (generally < 12 ")
 - Turf algae community (flat surfaces) with areas of sponge community (edges and crevasses)
 - Mitigation will be required (Artificial Reefs)

CONCEPTUAL OPINION OF PROBABLE PROJECT COSTS

- Prepared Order of Magnitude Budgets – Initial Const
- Elements (Expressed in 2019 Dollars)
 - Mobilization / Demobilization
 - Beach Fill
 - Mitigation (6.4 Acre Artificial Reef)
 - Soft Costs (Contingencies, Engineering and Permitting, 3 Years of Post-Construction Monitoring) ~ 25%

Concept	Total Cost	Cost/Mile	Unit Cost W/O Mitigation)	Unit Cost W/ Mitigation
Plan #1	\$24,215,000	\$9,068,000	\$18.92	\$27.52
Plan #2	\$38,808,000	\$8,488,000	\$20.29	\$25.20
Plan #3	\$26,822,000	\$8,282,000	\$18.00	\$25.07

FUNDING APPROACHES

- Federal
 - USACE
 - FEMA
 - RESTORE Act
- State
 - Beach Management Funding Assistance Program
- Local
 - Municipal Services Benefit Unit (MSBU)
 - Municipal Services Taxing Unit (MSTU)
 - Tourist Development Council Bed Tax
 - Other ?

BEACH MANAGEMENT FUNDING ASSISTANCE PROGRAM

Criteria	Max	Plan #1	Plan #2	Plan #3
Severity of Erosion	10	1.2	0.9	6.0
Threat to Upland Structures	10	1.3	1.0	0.7
Recreational/Economic Benefits	10	2.4	2.7	2.5
Congressional Authorization	5	0	0	0
USACE Project Agreement	5	0	0	0
Availability of FEMA Funding	5	0	0	0
10-Year Comp. Financial Plan *	2	2	2	2
Designated Funding Source *	2	2	2	2
Third Party Funding	2	0	0	0
Quarterly Reporting	2	0	0	2
Active Permits	1	0	0	1
Secured Local Funds	1	0	0	1
Previous Cost Sharing	1	1	1	1
Enhanced Longevity	3	0	0	3
Previously Restored Shoreline	5	0	0	5
Release of Appropriation	1	0	0	0
Nourishment Interval	8	6	6	6
Mitigating Inlet Effects	10	0	0	0
Innovative Technologies	3	0	0	0
Technologies New to Florida	2	0	0	0
Nesting Sea Turtle Refuges	5	0	0	0
Regionalization	5	0	5	0
Project Length	10	2.7	4.6	5.2
Construction Phase Projects	1	0	0	1
Economic Impact	2	1	1	1
Advanced Placement Loss	5	0	0	0
Erosion into Design Profile	1	0	0	1
Total		19.6	26.2	40.4

Potential to
Increase Ranking

State Cost Sharing Percentage
= Length of Publicly Accessible
Shoreline / Eligible Project
Length

MSBU APPROACHES

- Project Benefits
 - Primary Benefit: Storm Protection (reduced risk of storm damage)
 - Secondary Benefits: Enhanced Property Values, Recreation, Environmental, Tourism
- Benefit Allocation
 - Storm Protection: 60% - 75% of Project Benefits (Typ)
 - Secondary: 25% - 40% of Project Benefits (Typ)
- MSBU Zones
 - Zone A - all beachfront properties - 100% Storm Protection (Typ)
 - Zone B - all off-beach properties - 0% Storm Protection (Typ)

STAKEHOLDER INPUT

- Support Beach Nourishment to Address Erosion Issues
 - Construction Easements
- Preference on Conceptual Restoration Plan
- Willingness to Pay Fair Share
- Opportunities for Public Beach Access Points
- Opportunities for Public Parking
- Support MSBU to Provide Funding on Local Level
 - Zone Designation
 - Zone Apportionment

NEXT STEPS

- Stakeholder Meetings
 - Beaches and Shores Committee
 - Manasota Key ~ Englewood
 - Joint Sara-Char Commission Meeting (Nov 3rd)
- Consensus Building
 - Recommended Beach Nourishment Strategy
 - Majority Expressing Willingness to Pay Fair Share
 - MSBU Creation
- Recommendations / Final Report