

Surf City and North Topsail Beach, NC Coastal Storm Damage Reduction Study Integrated Feasibility Report and EIS

Civil Works Review Board (CWRB) Briefing

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Commander, Wilmington District

Aug 27, 2010



Non-Federal Sponsors



Purpose of CWRB Briefing

- Provide an overview of the Surf City/North Topsail Beach (SCNTB) Coastal Storm Damage Reduction (CSDR) Study and EIS.
- Answer questions and address comments.
- Obtain CWRB approval to release final report for State and Agency review.



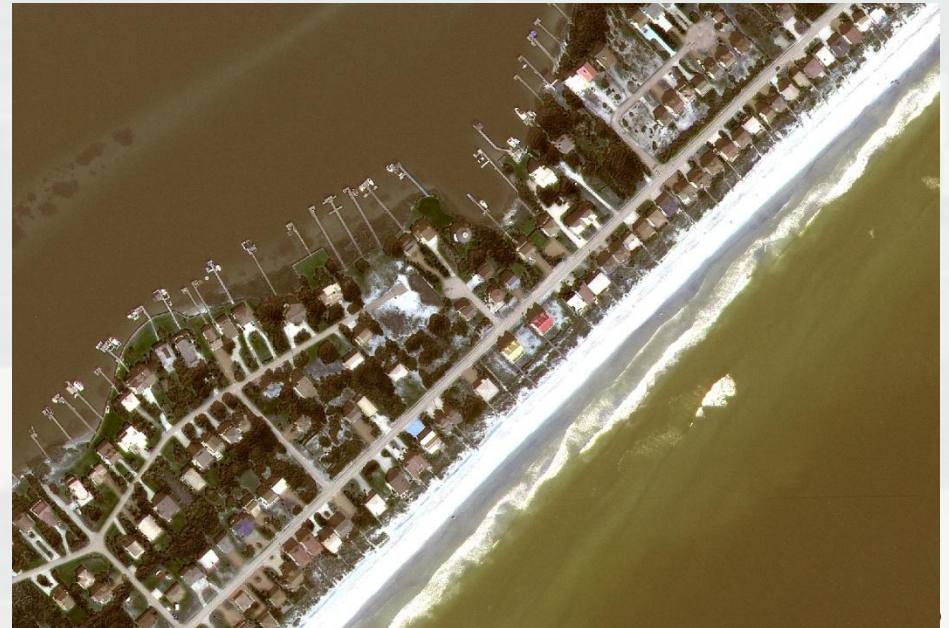
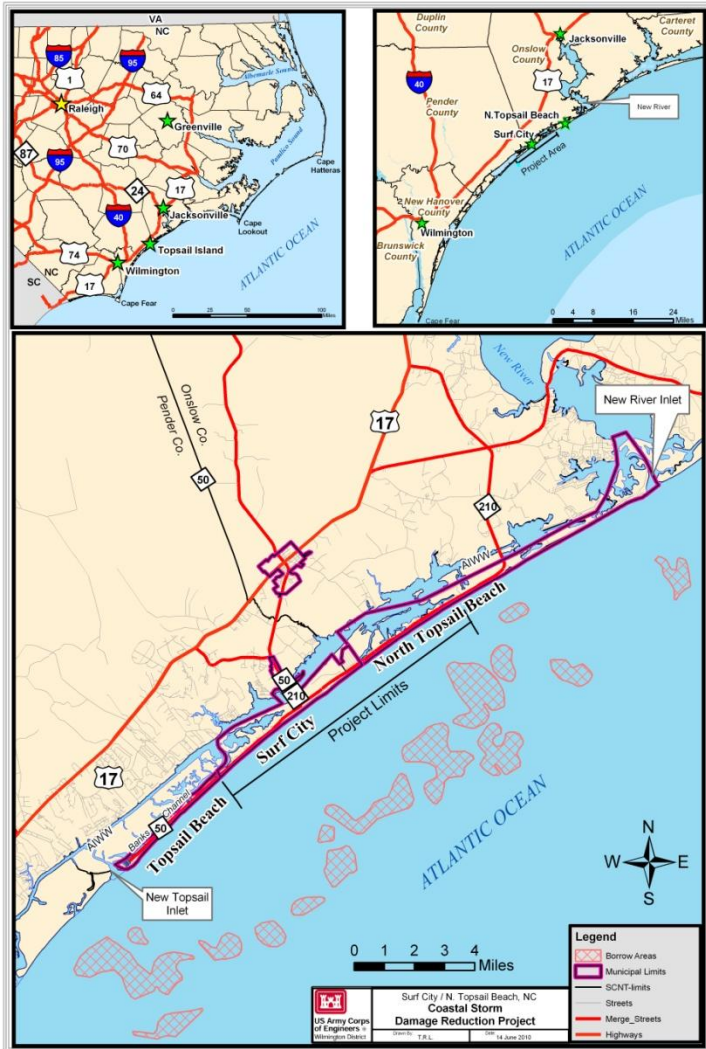
District Presentation Agenda

- Overview of Feasibility Study and Recommended Plan
 - ▶ Study Area Description
 - ▶ Problems and Opportunities
 - ▶ Recommended Plan
 - ▶ Study Background and Authority
 - ▶ Plan Formulation
- Study Reviews
- Questions



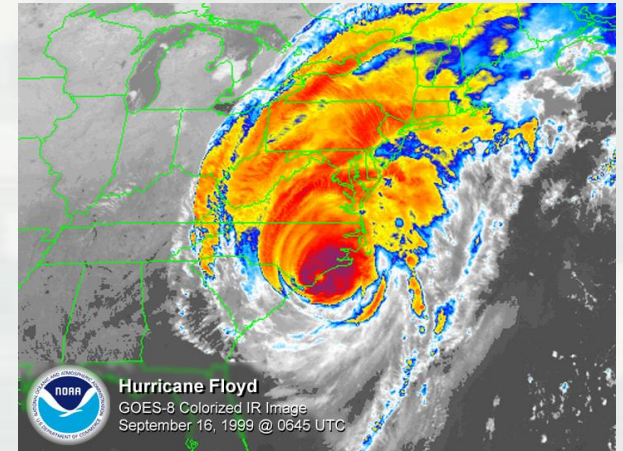
Study Area Description

17 miles of shoreline extending from Topsail Beach/Surf City, NC town limits to the northern end of Topsail Island.

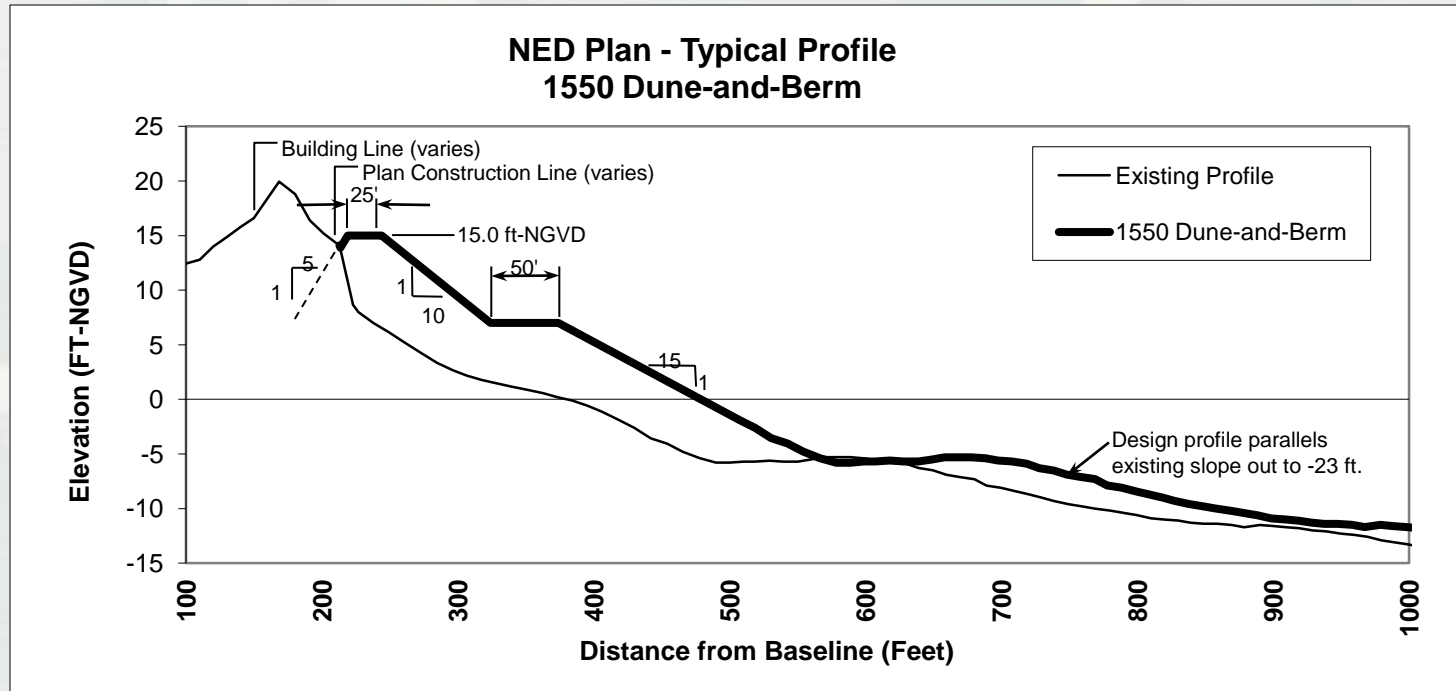


Problems and Opportunities

- Coastal North Carolina has been hit by 4 major hurricanes in the past 15 years. Two of these (Floyd, 1999 and Fran, 1996) caused significant economic damages to Topsail Island.
- Shoreline erosion is 2-3 ft a year in some portions of the study area.
- There is an opportunity to reduce damages in the area with a CSDR project.



Recommended Plan – NED Plan



- 15' dune 25' wide + 7' berm 50' wide.
- 52,150 ft total project length
- 11.9 M cu yds (initial construction, over 4 years)
- 2.6 M cu yds (renourishment every 6 years)
- \$128 M initial construction cost
- \$216 M total renourishment cost (7 renourishments)
- \$40.8 M avg. annual benefits
- \$11.6 M avg. annual cost
- \$29.2 M avg. annual NET benefit
- BCR = 3.5 to 1
- Cost sharing – 65/35 (Initial Construction), 50/50 (Renourishments)



Study Background and Authority

- “West Onslow Beach and New River Inlet, NC” CSDR GI study initiated in 1980.
 - ▶ Study included all of Topsail Island.
 - ▶ Recommended plan for the study was authorized in 1992; plan included beachfill for the southern portion of Topsail Beach.
 - ▶ CSDR was found not to be economically feasible for the rest of the island (Surf City and N. Topsail Beach) at the time.
 - ▶ West Onslow GRR completed in 2008, ROD signed in 2010.
- SCNTB feasibility study authorized by 2 congressional resolutions in 2000, following hurricanes that damaged the area in 1996 and 1999.



Without Project Condition



Without Project Condition



Without Project Condition



Plan Formulation

Initial Screening

- ~~Non structural measures~~ regulatory measures, retreat, relocation, demolition.
- **Structural measures** – Beachfill, ~~breakwaters, seawalls, groins.~~



Plan Formulation

Second Screening

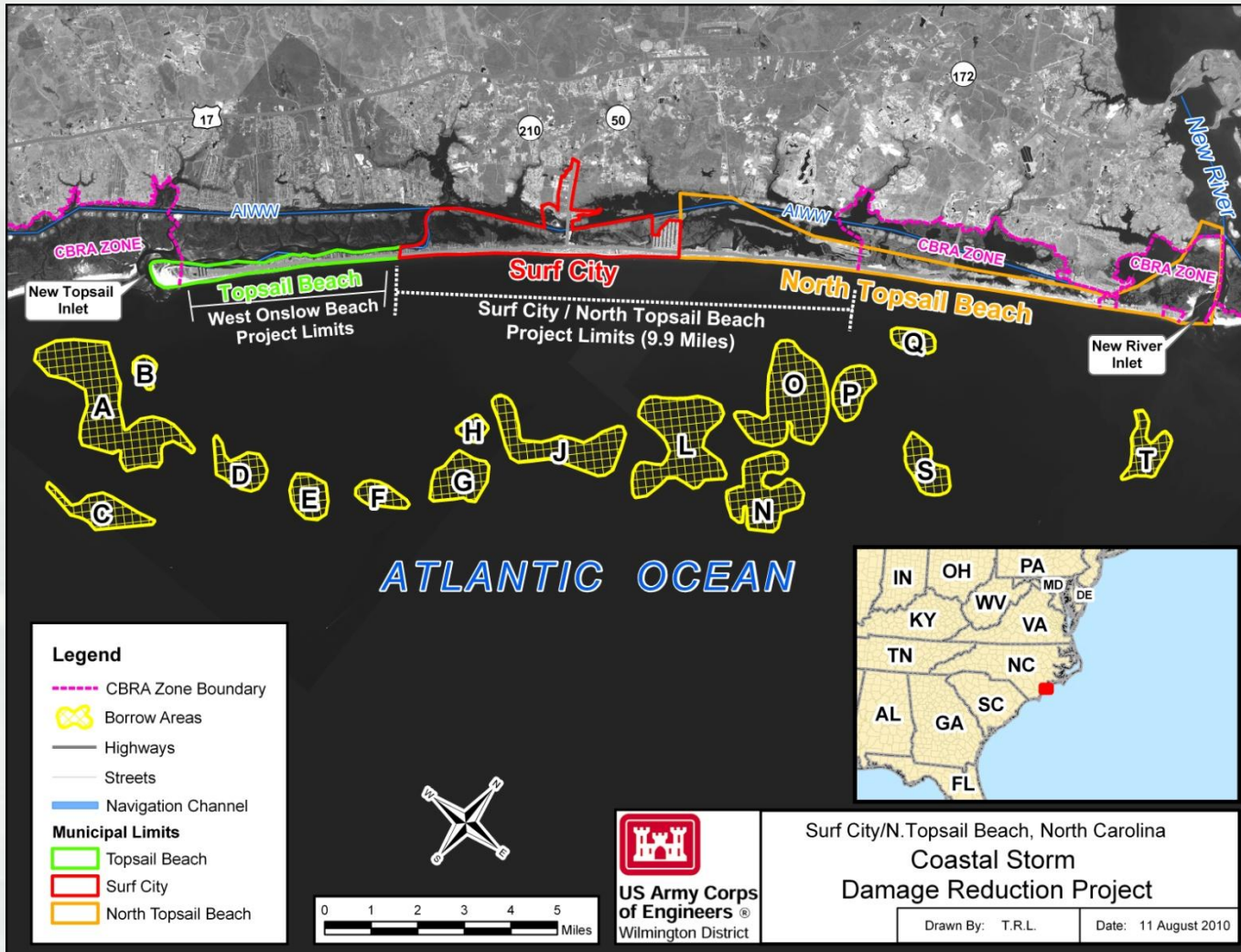
Beachfill plans

- **Berm only:** ~~750, 7100, 7150~~
- **Dune and Berm:** ~~1125, 1150, 1325, 1350, 1450, 1525, 1150, 1350, 1550, 1650, 1750, 1175, 1375, 1575~~



Borrow Areas

16 offshore borrow areas

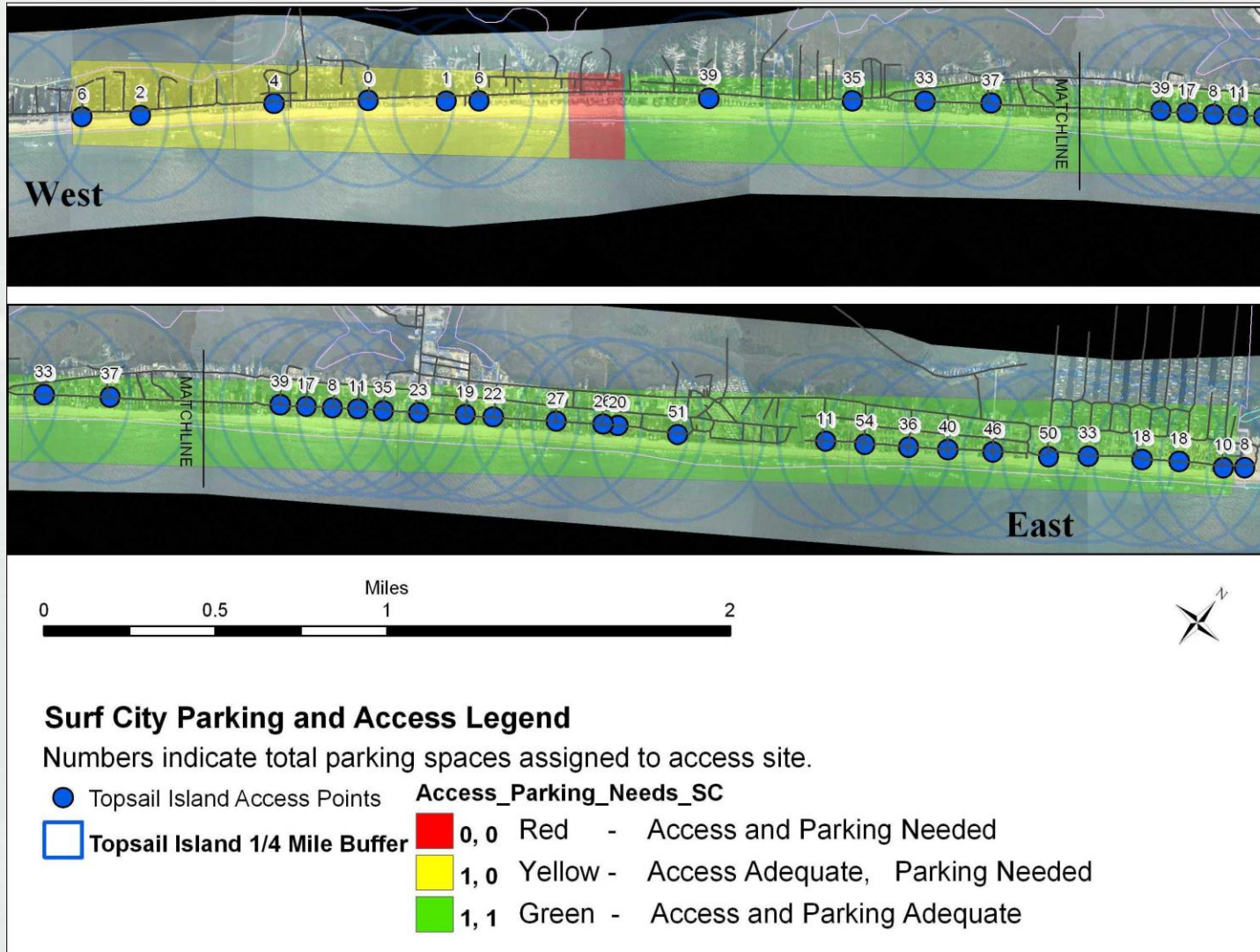


Offshore Borrow Areas – Regional Sediment Needs

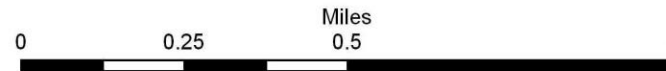
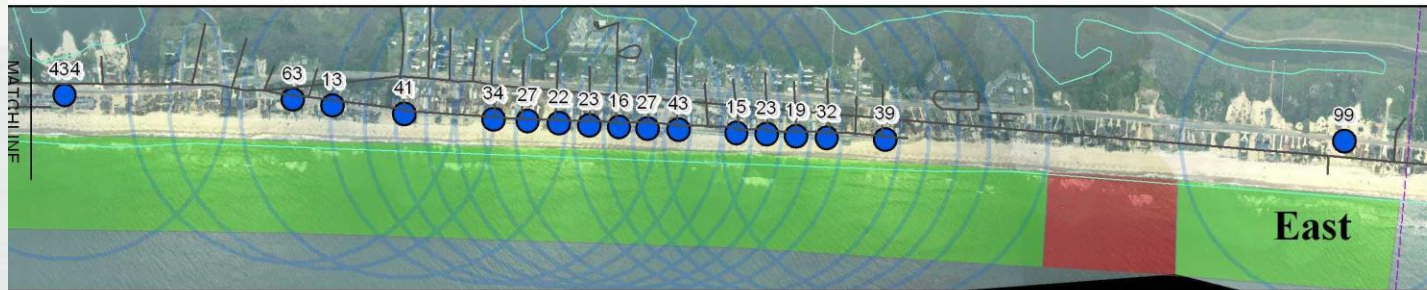
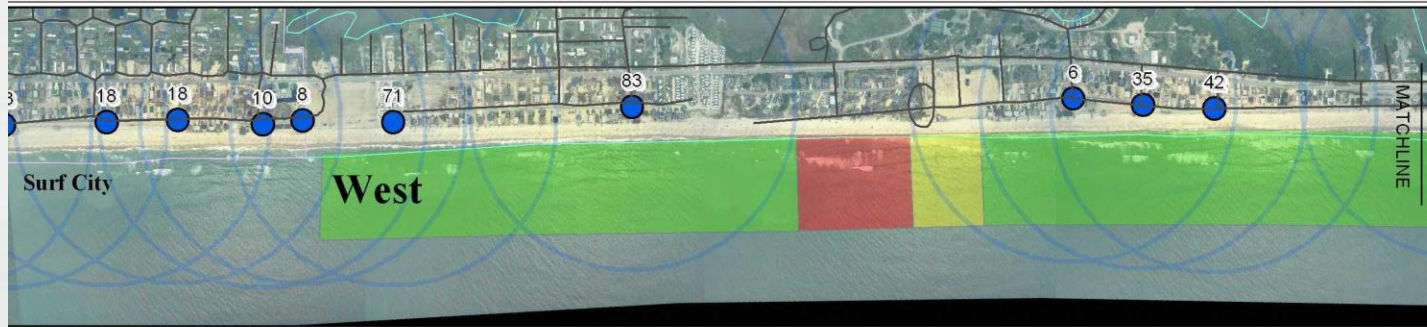
Project	Volume, Million CY
Surf City/North Topsail Beach Federal	32.3
North Topsail Beach Non-Federal	0.34
Topsail Beach Federal	13.6
Topsail Beach Non-Federal	0
Total, required	46.2
Total, available	50.5



Surf City Parking & Access



North Topsail Parking & Access



North Topsail Beach Parking and Access Legend

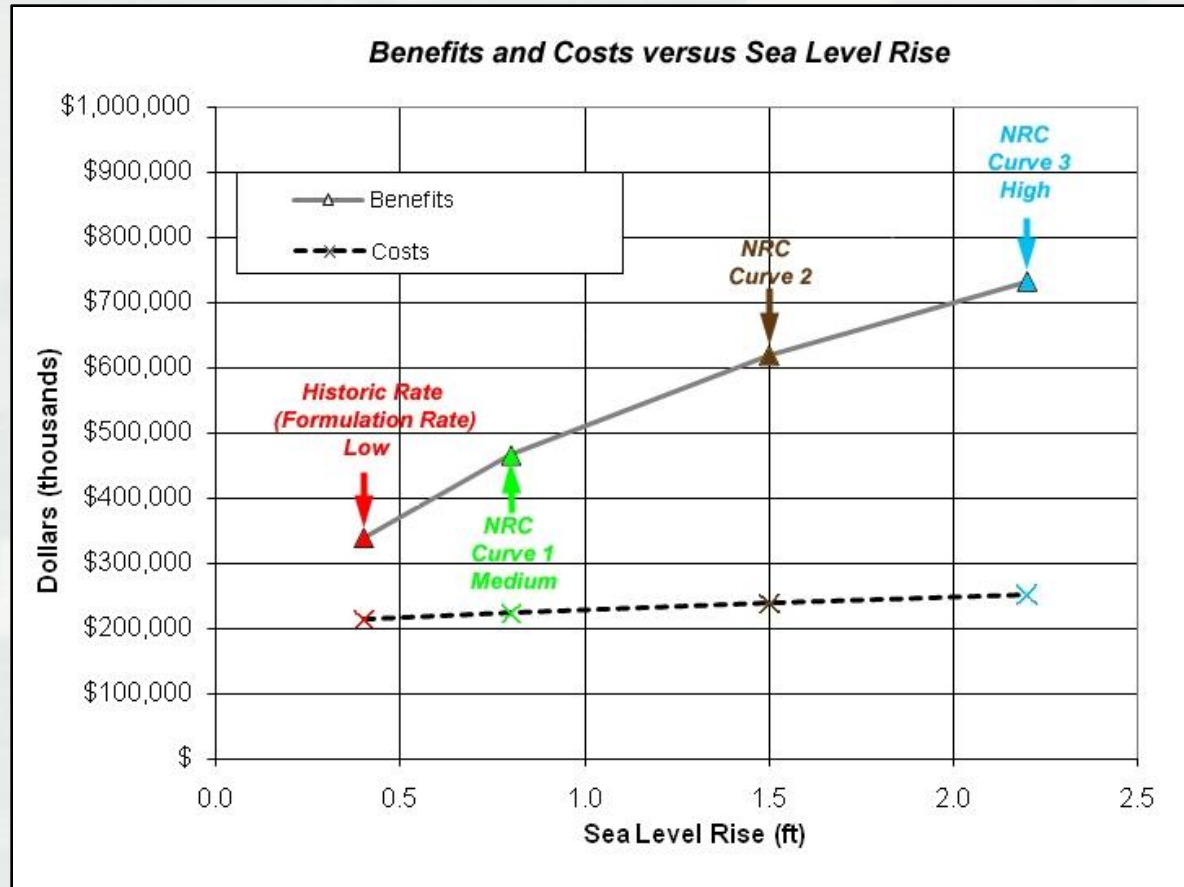
Numbers indicate total parking spaces assigned to access site.

- Topsail Island Access Points Access_Parking_Needs_NTB
- Topsail Island 1/4 Mile Buffer Access, Parking
- CBRA
- 0, 0 Red - Access and Parking Needed
- 1, 0 Yellow - Access Adequate, Parking Needed
- 1, 1 Green - Access and Parking Adequate



Sea Level Rise

Sensitivity analysis performed on recommended plan, using different rates of accelerated rates of sea level rise.



Costs increase under higher sea level rise, however, benefits increase even more.



Residual Risk

- \$2.3 million (~12%) in residual annual damages from waves and erosion in first 3 rows.
- Wind damages will still occur.
- Flood damage in first 3 rows is minimal (<1% of damages).
- Beyond first 3 rows, structures could be subject to back bay flooding during major storm events.

Project purposes not intended to reduce risk to loss of life – local evacuation plans must still be followed!



Economic Summary

ITEMS	NED PLAN
Total Initial Construction	\$127,973,000
Interest During Construction	\$10,520,000
Total Investment Cost	\$138,493,000
Renourishment Cost (avg)	\$30,612,000
Total Annual Costs	\$11,585,000
Total Annual Benefits	\$40,779,000
BCR	3.5 to 1
Annual Net Benefits	\$29,194,000

October 2010 (Escalated) Price Levels



Future Schedule

Federal Fiscal Year	FY 2011	FY 2012	FY 2013	FY 2014	FY2015-2018
Task / Quarter	D M J S	D M J S	D M J S	D M J S	15 16 17 18
30-Day Public Review of Final Report	(Complete by Oct 30, 2010) ◆				
Signed Chiefs Report	(Signed by Dec 14, 2010) ◆				
Project Authorized in Water Resources Development Act (WRDA) - <u>CONTINGENT AUTHORIZATION</u>					
Signed Record of Decision and Report Transmitted to Congress					
Initial Plans and Specifications					
Receive New Construction Start (Appropriation of Construction Funds)					
Dept. of Army and Towns execute Project Partnership Agreement					
Towns Acquire Real Estate Easements					
Final Plans and Specifications					
Advertise & Award Contract					
Initial Construction (4 Hopper Dredge Seasons)					

Legend

Wilmington District

Outside Wilmington District

Surf City & North Topsail Beach



Strategic Campaign Plan

Goal 2: Deliver Enduring and Essential Water Resource Solutions Through Collaboration With Partners and Stakeholders

- Study coordinated closely with resource agencies.
- Systems perspective – planning done with consideration of other projects on the island.
- Monitoring commitments to ensure environmental sustainability throughout the project life.
- Provisions for adaptive management throughout the project life.



Environmental Operating Principles

✓ **Strive to Achieve Environmental Sustainability**

Utilizes adaptive management framework including inspection and monitoring throughout the 50-year project life

✓ **Consider Environmental Consequences**

Avoids construction in critical seasons and locations; Avoids CBRA zone and hardbottoms; Ensures sediment compatibility

✓ **Seek Balance and Synergy**

Provides economic benefits to the nation, Town of Surf City, and Town of North Topsail Beach and recreation and environmental benefits to the beach environment

✓ **Accept Responsibility**

Complies with National Environmental Policy and Endangered Species Act

✓ **Assess and Mitigate Cumulative Impacts**

Maximizes benefits to the system while avoiding and minimizing impacts to significant resources.

✓ **Understand the Environment**

Engages all stakeholders, interests groups and agencies in an inclusive and open process. Meets full intent of NC Coastal Zone Management Program.

✓ **Respect Other Views**

Encourages and considers Public input throughout planning process



Comparison: Areas With and Without a Storm Damage Reduction Project



REVIEWS



Agency Technical Review

PCX for Coastal Storm Damage Reduction (PCX-CSDR) Review of Draft and Final Feasibility/EIS Report

ATR Team Leader – John Winkelman

Draft report reviewed February 2009

- Sea-level rise sensitivity analysis was added to the report.
- Expanded discussion of risk and uncertainty
- Expanded discussion of cumulative effects
- Draft ATR certified by Coastal PCX on October 19, 2009.

Final report reviewed June 2010

- No significant modifications were needed to the report.
- Final ATR certified by Coastal PCX in July 2010.



Cost Review

Cost PCX (Walla Walla District) Review

- Costs for Draft Report were certified September 2009.
- Costs were updated in the final report to reflect changes in borrow volume required and borrow availability.
- Costs were re-certified July 2010.



HQ Policy Review

2010 Policy review of draft report

- Selected plan changed from 4 to 6-year renourishment cycle.
- Revision of two Endangered Species Act commitments
 - ▶ Sea Turtle Nest Temperature Monitoring
 - ▶ Sea Beach Amaranth Monitoring



Public Review

Draft FEIS was provided for public review in January 2010.

All Public Review comments were considered and responses provided in Appendix T of the Final Report

No significant changes were made based on Public comments

There has been no documented opposition to the project



Planning Model Certification

- GRANDUC – Generalized Risk and Uncertainty – Coastal
- Use of GRANDUC coordinated through Coastal Storm Damage Reduction PCX
- PCX-CSDR endorsed use of GRANDUC in letter to HQ dated July 12, 2010
- HQ approved use of GRANDUC model in a memo issued on August 12, 2010



Independent External Peer Review (IEPR)

Draft FEIS was reviewed by 5 independent experts selected by Battelle.

16 comments were received (8 were of high significance)

- No changes to the recommended plan were made based on the IEPR review
- Borrow volumes required and borrow material availability were changed . Negligible impact on B/C ratio.
- Additional information on coastal analysis and processes was added to the report

IEPR certified by Coastal PCX on June 28, 2010



Recommendation

The Civil Works Review Board approve release of the report for State and Agency Review for the Surf City/North Topsail Beach, NC Coastal Storm Damage Reduction project.



Lessons Learned

- Vertical teaming with SAD and HQ is essential at the latter stages of the study.
- Concurrent reviews (IEPR, HQ, Public) speeds up the schedule, but requires a tremendous amount of effort by the PDT.

