

Presentation
to the

Civil Works Review Board

Surf City and North Topsail Beach, North Carolina

Coastal Storm Damage Reduction

Project Study and Integrated Feasibility Report

Environmental Impact Statement

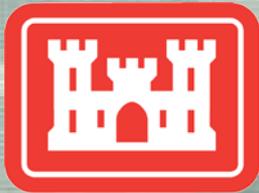
by

MG Todd Semonite

Commander

South Atlantic Division

27 August 2010



®

US Army Corps of Engineers
BUILDING STRONG®



Key Partners

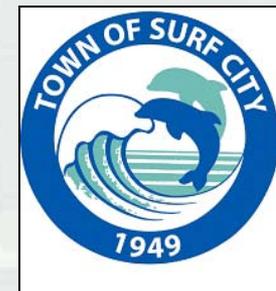
- **Town of Surf City**

- ▶ Councilman Michael Curley
- ▶ Mayor A.D. (Zander) Guy, Jr.
- ▶ Mr. David Ward, Chairman of Beach Nourishment Committee
- ▶ Mr. J. Michael Moore, Town Manager

- **Town of North Topsail Beach**

- ▶ Mayor Pro Tem Michael Yawn
- ▶ Alderwoman Deborah Lanci
- ▶ Mr. Steve Foster, Town Manager

- **State of North Carolina**



Hurricane Damage – Topsail Island After Hurricane Fran September 1996



BUILDING STRONG®

Surf City/North Topsail - HQ-DC Team Members

- Mr. James Dalton, Leader, SAD-RIT
- Ms. Stacey Brown, SAD-RIT Deputy
- Mr. Bradd Schwichtenberg, Planning Program Manager, SAD-RIT
- Mr. David Apple, SAD-RIT Planner
- Mr. Wesley Coleman, Chief, Office of Water Project Review
- Mr. Scott Nicholson, Policy Review Team, OWPR
- Mr. Jeremy LaDart, Policy Review Team, OWPR
- Mr. Mark Matusiak, Policy Review Team, OWPR
- Mr. Lee Ware, Policy Review Team, OWPR
- Mr. Scott Murphy, Counsel, SAD-RIT
- Mr. Rodney Hallstrom, Real Estate



Rationale for SAD Support

- ✓ Concur with District Commander's findings & recommendations.
- ✓ Report complies with all applicable policy & laws in place at this time.
- ✓ Plan provides a complete roll-out on all Federal and non-Federal risk reduction techniques.
- ✓ Plan supported by sponsor and congressional delegation.
- ✓ Plan is consistent with Federal, State and local laws and ordinances.
- ✓ Plan will provide positive risk reduction benefits.
- ✓ Anticipate favorable response to the draft Chief's Report.



Certification of Legal & Policy Compliance

- ✓ Legal certification of the final Report and EIS made by SAW District Counsel.
- ✓ Technical and Policy Compliance:
 - ❑ External ATR certification complete, all IEPR comments have been resolved, with one area of concern, which has been responded to in detail.
 - ❑ CSDR PCX – NAD Certification.
 - ❑ Policy compliance issues have been resolved, with re-engagement of FWS consultation.



SAD Quality Assurance Activities

- ✓ Continuous involvement throughout development of the Feasibility Report and EIS.
- ✓ Worked w/CSDR - PCX, and vertical team in establishment of peer review plan.
- ✓ Review of Policy Compliance Memo: all issues identified in Final Report have been adequately addressed.
- ✓ Examples of policy issues resolved.
 - ❑ Nourishment Interval: Adjusted for NED
 - ❑ Sea Level Rise evaluation
 - ❑ Sediment Quantity over renourishment period (50 yrs)



South Atlantic Division Recommendations

- Approve Final Report (CWRB) 27 AUG 2010
- Release for State and Agency Review 1 OCT 2010
- Complete Chief's Report 14 DEC 2010



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

Civil Works Review Board (CWRB) Briefing

COL Jefferson Ryscavage

Commander, Wilmington District

Aug 27, 2010

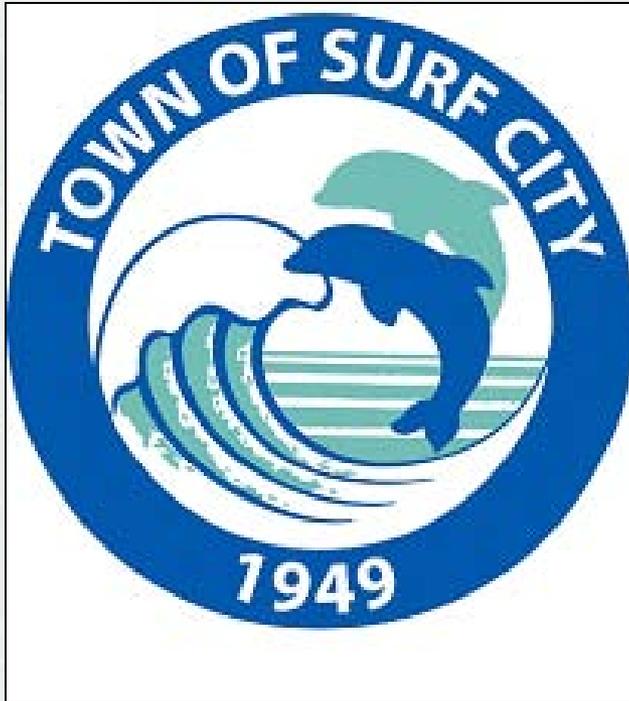


®

US Army Corps of Engineers
BUILDING STRONG®



Non-Federal Sponsors



BUILDING STRONG®

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.



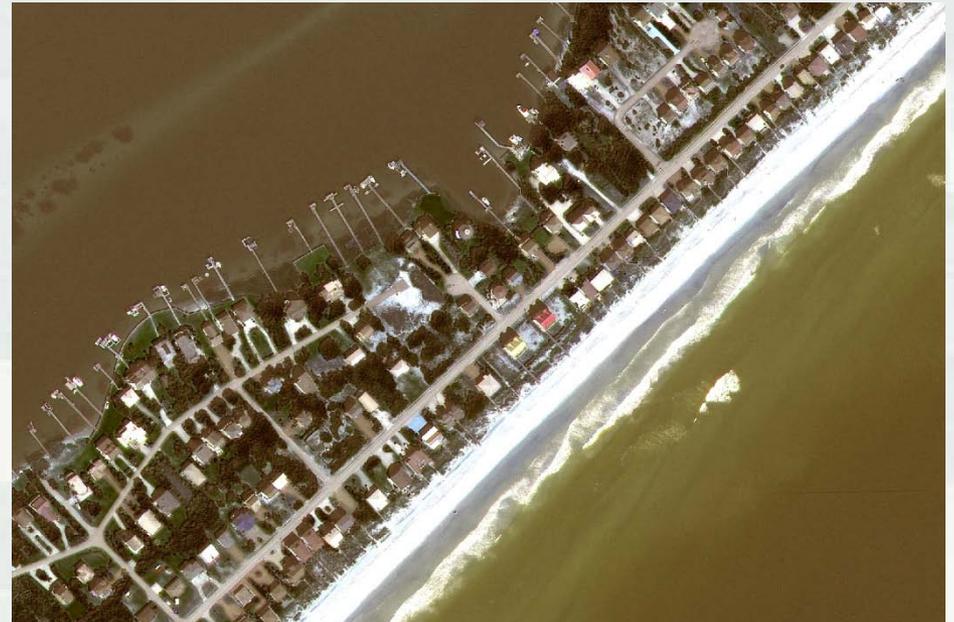
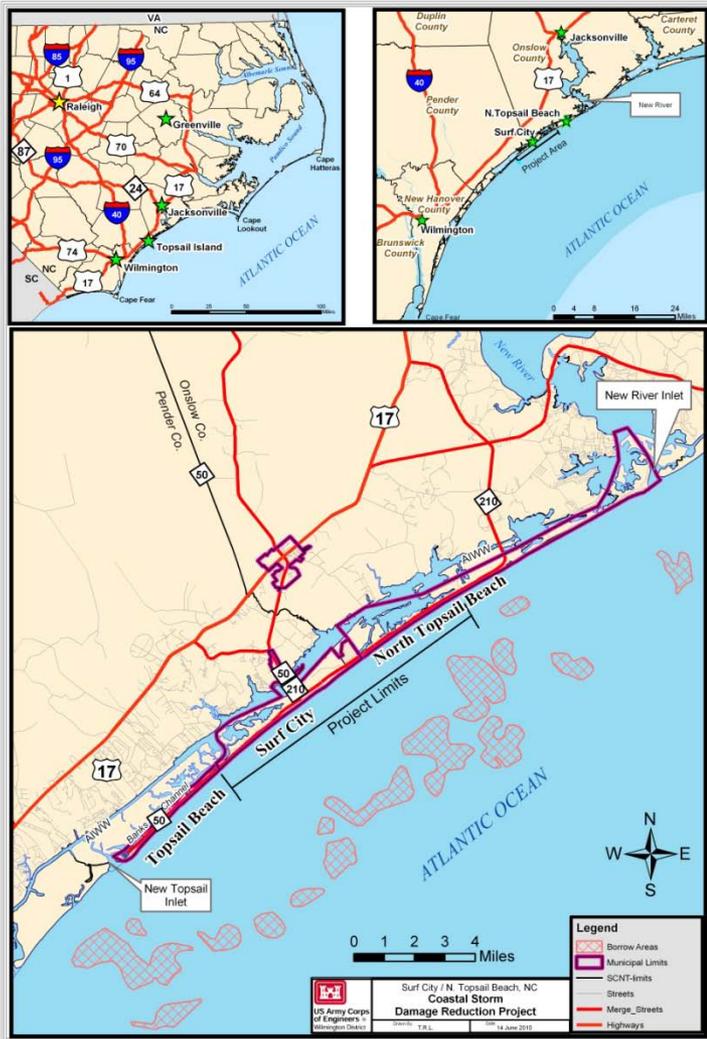
District Presentation Agenda

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



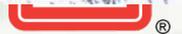
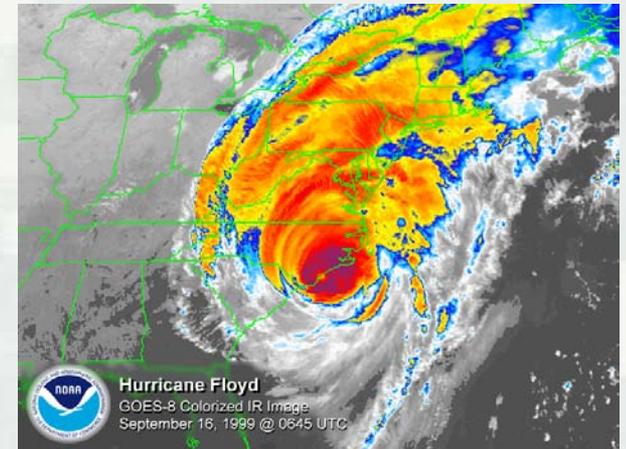
Study Area Description

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

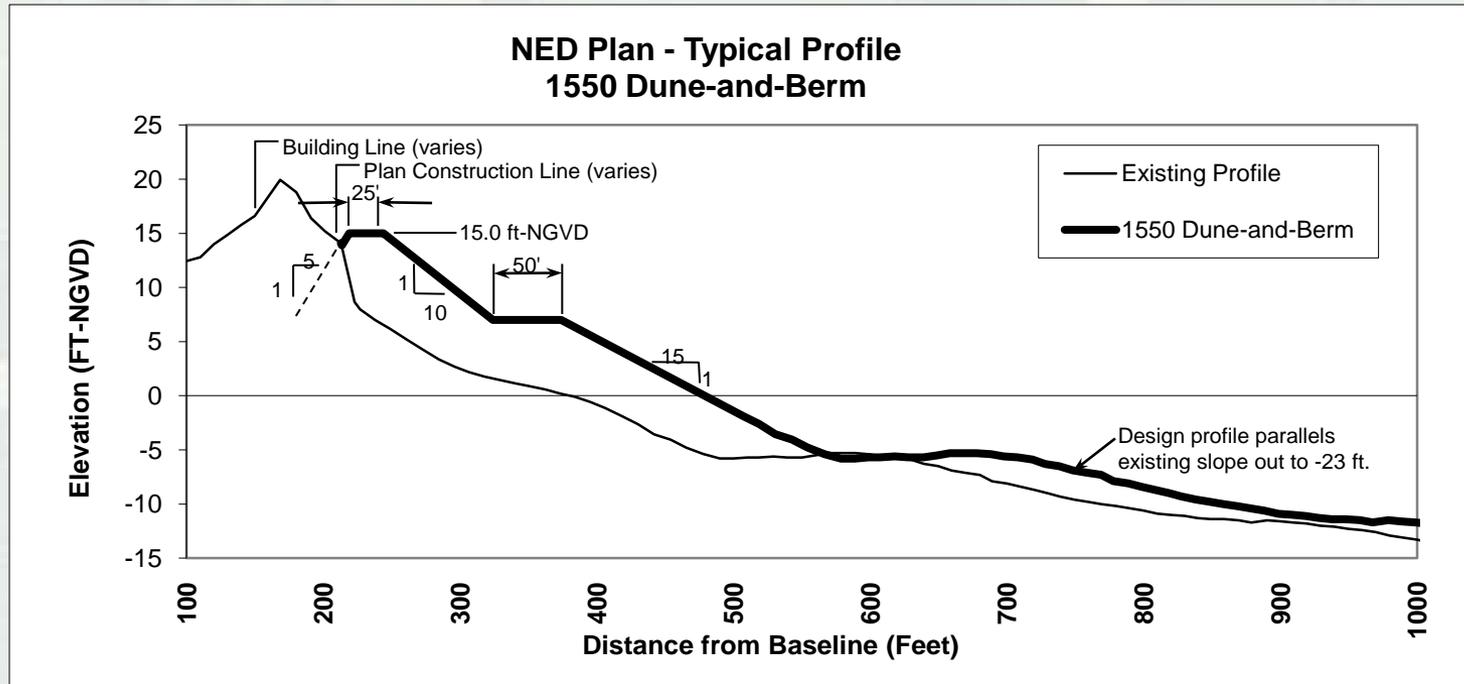


Problems and Opportunities

- 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



BUILDING STRONG®

Plan Formulation

Initial Screening

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



Plan Formulation

Second Screening

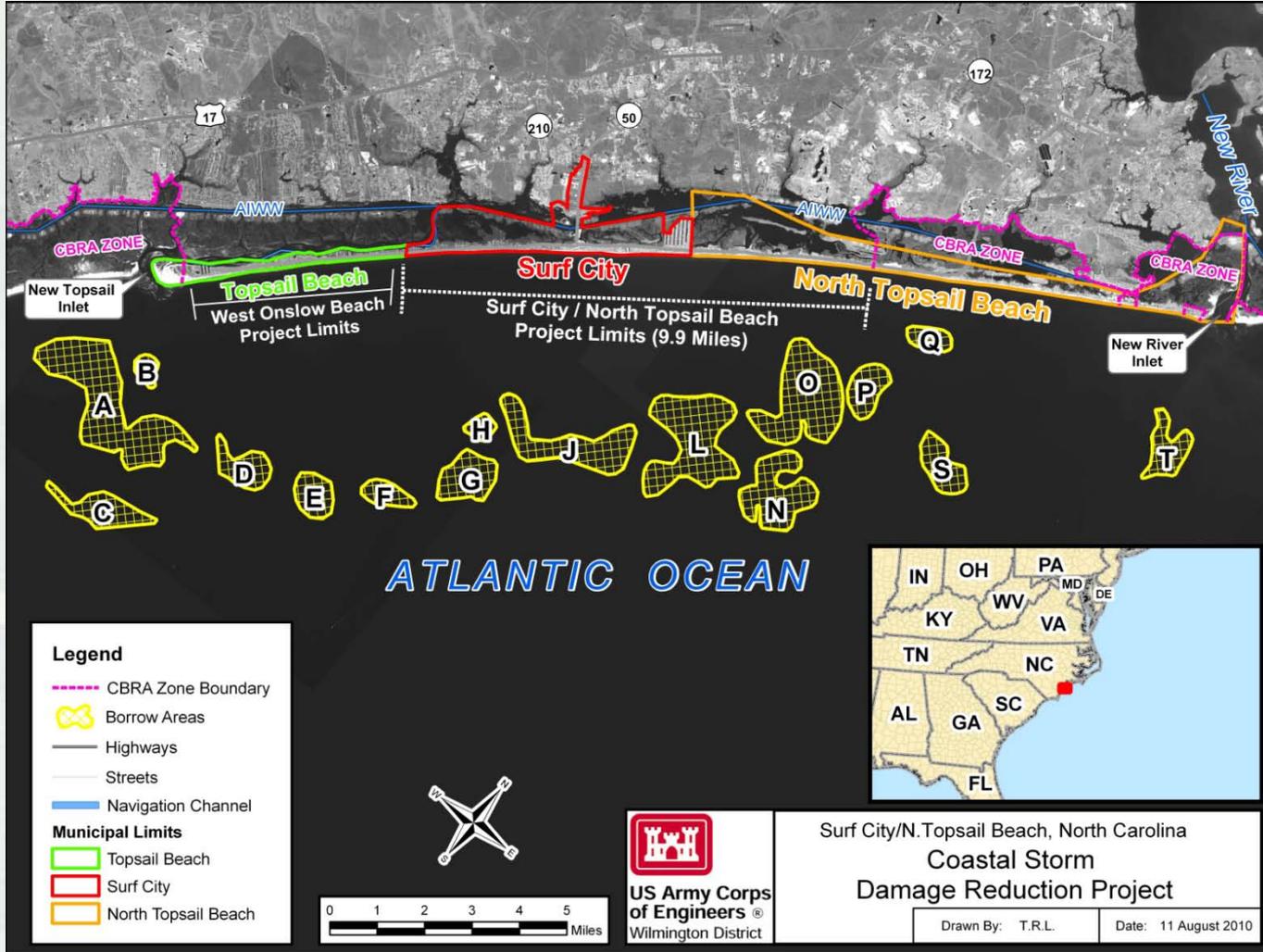
Beachfill plans

- **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

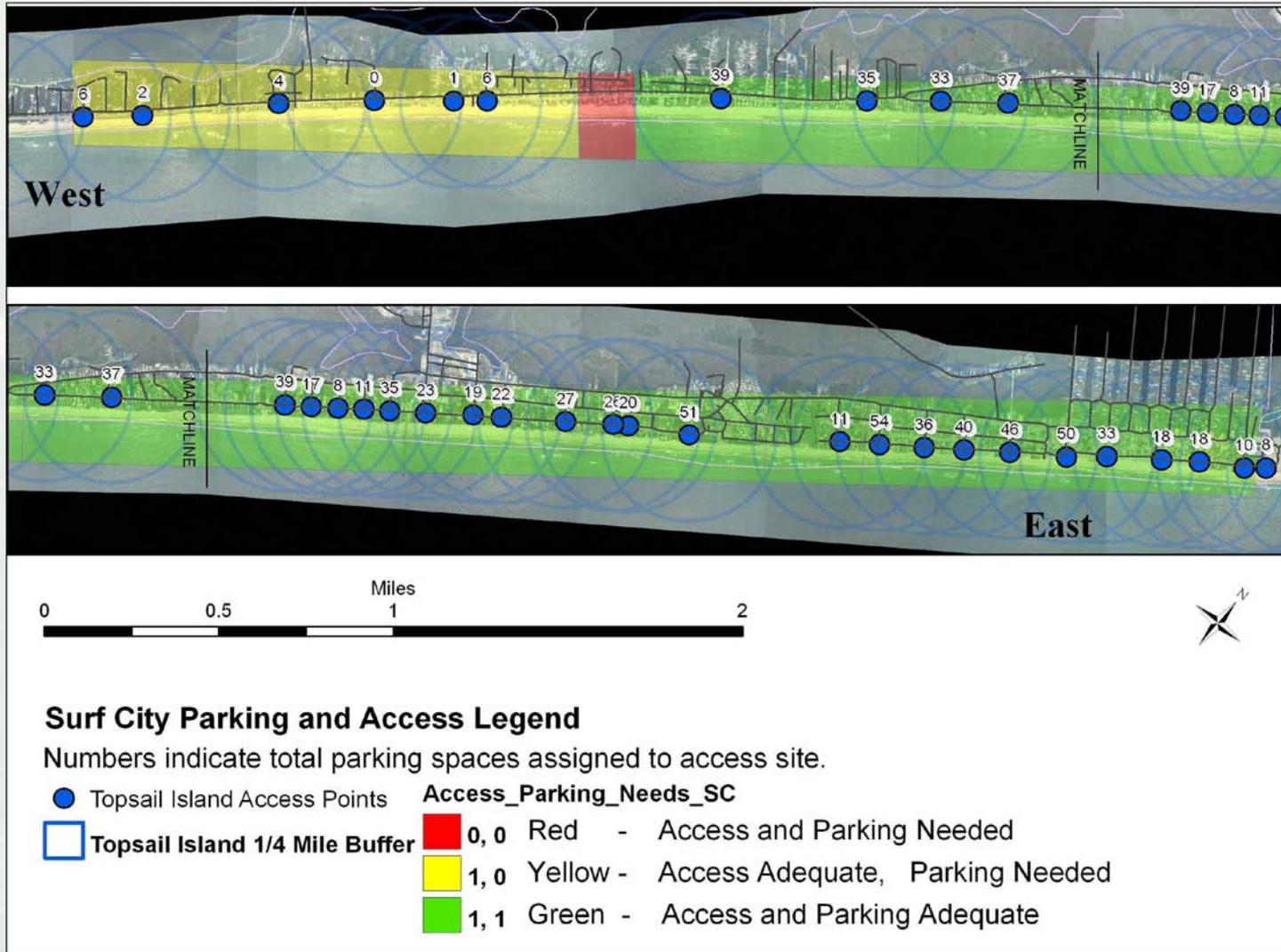


Offshore Borrow Areas – Regional Sediment Needs

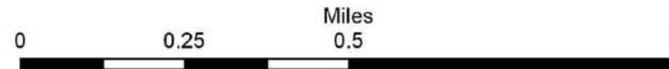
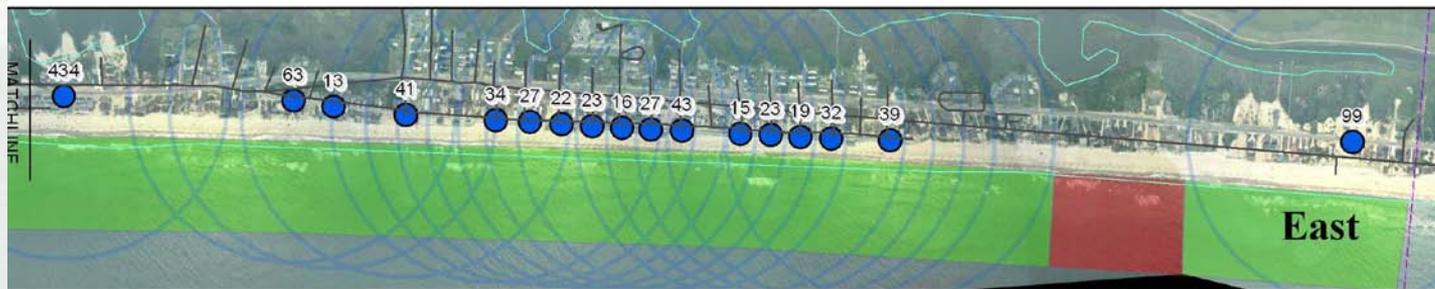
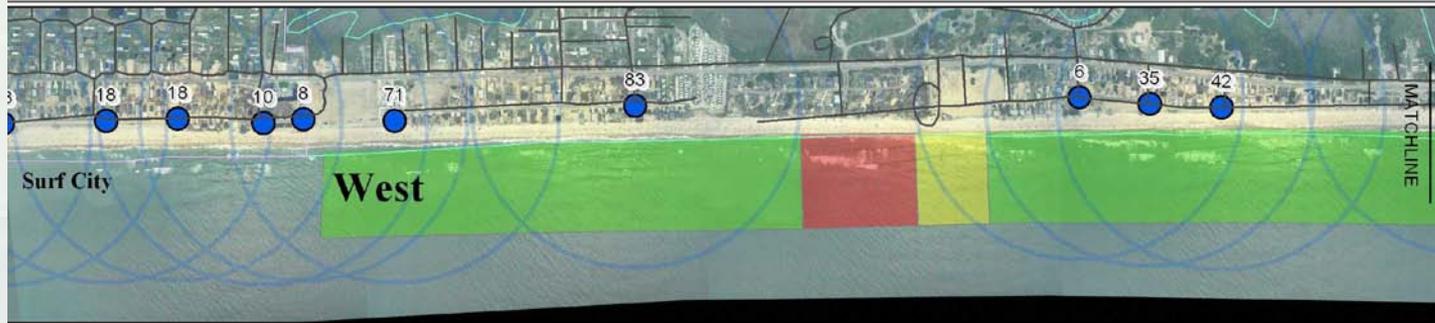
Project	Volume, Million CY
Surf City/North Topsail Beach Federal	32.3
North Topsail Beach Non-Federal	0.34
Topsail Beach Federal	13.6
Topsail Beach Non-Federal	0
Total, required	46.2
Total, available	50.5



Surf City Parking & Access



North Topsail Parking & Access



North Topsail Beach Parking and Access Legend

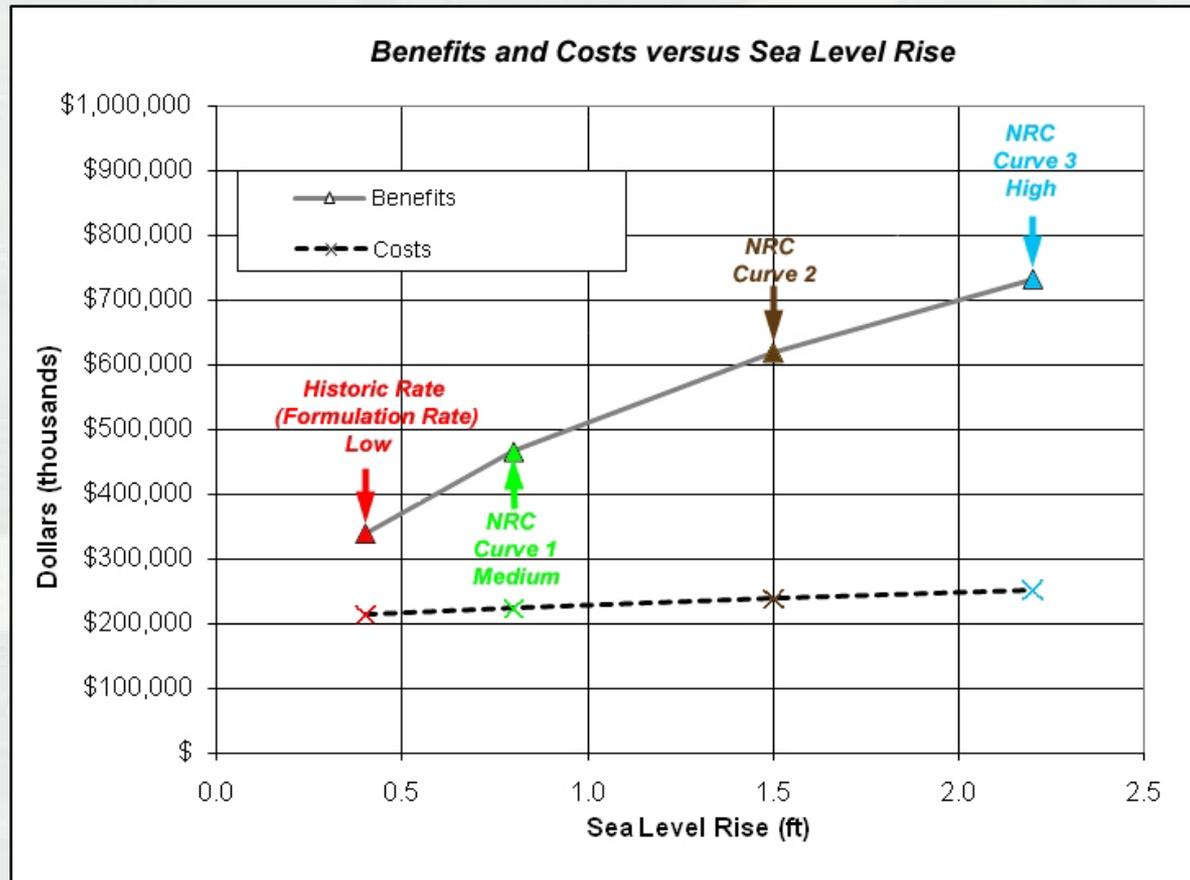
Numbers indicate total parking spaces assigned to access site.

- 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



BUILDING STRONG®

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.
 - Initial - Sea Beach Amaranth, Long term - Sea Turtles, etc.
- Provisions for adaptive management throughout the project life.
 - Consultation, physical surveying and validation prior to each nourishment



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, the Towns of Surf City and 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

Wrightsville Beach
after Fran



Surf City
after Fran



REVIEWS



BUILDING STRONG®

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.



Profile of
Town of North Topsail Beach,
NC
and
Town of Surf City, NC



Presented
To The
USACE Civil Works
Review Board
August 27, 2010





Character of Topsail Island



All three towns are primarily residential, family-oriented communities and major family vacation destinations committed to living in harmony with nature while being supportive of activities and services necessary to enhance the quality of life for our citizens and visitors. Surf City is the main commercial hub of the island.





Fact Sheet



North Topsail Beach

- Incorporated: 1990
- Residents: 875
- Summer Population: 20,000+
- Structures: 2,076
- Beach: 13 Miles
 - Project Length: 3.8 Miles
- Property Value: \$849 Million
 - Project Area: \$330 Million

Town of Surf City

- Incorporated: 1949
- Residents: 1813
- Summer Population: 20,000+
- Structures: 3,250
- Beach: 6.1 Miles
 - Project Length: 6.1 Miles
- Property Value: \$962 Million
 - Project Area; \$962 Million

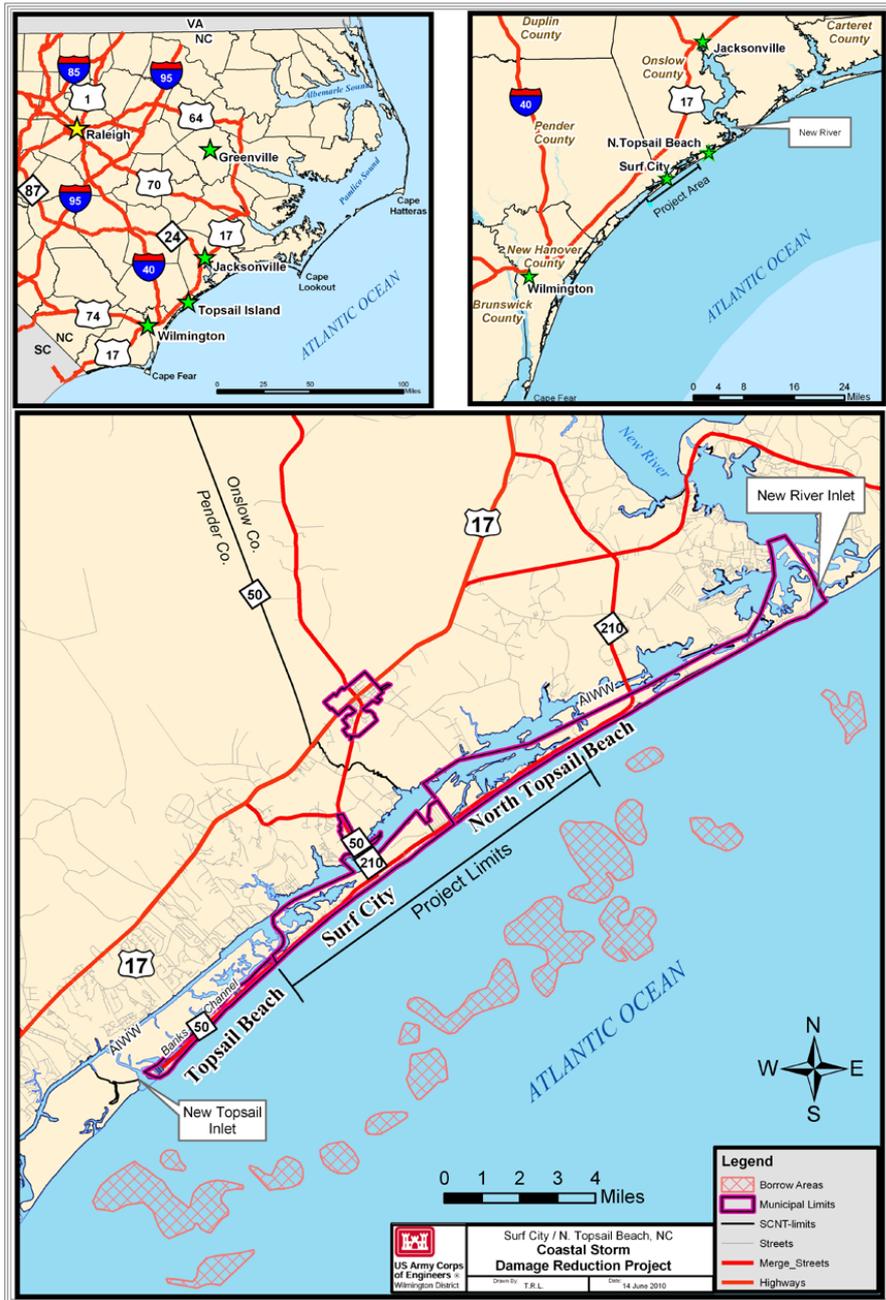


Location



Both Towns are on Topsail Island, about 28 miles from Wilmington, NC and about 23 miles from Jacksonville, NC.

They are linked to the mainland by a high rise bridge located along NC Highway 210 and a swing bridge along NC Highway 50/210.





Principal Project Purpose



The reduction of damages associated with coastal storm events and beach erosion. In addition, the project will enhance the beach strand available for recreational uses and provide habitat for a variety of plants and animals.





Our Need for the Project



- Provides Safeguards:
 - Towns' Infrastructure/Public Utilities
 - Tax Base
 - Homes & Businesses
 - Sea Turtle Nesting Areas
 - Recreational Space
 - Towns' Economy





Our Need for the Project (cont.)



➤ Tax Base

- 35% of our ocean-front homes are in imminent danger
- Our tax base also provides major support to Pender & Onslow Counties, and the State of North Carolina
- North Topsail Beach (\$849 Million - Onslow)
- Surf City (\$691 Million - Pender portion)
- Surf City (\$271 Million - Onslow portion)

➤ **TAX VALUE OVER: \$1.8 Billion**





Economic Consideration



- State and Local Economy
 - \$4 billion payroll in NC, 190,000 jobs
 - N. Topsail Beach & Surf City are national beaches
 - “Middle America” owners from all 50 states
 - Tourism, particularly beach related tourism is a major industry and source of jobs for America and the State of NC





We are Prepared for Storm Events



- Website
- Newsletter
- WEBEOC.org
- CTY (reverse 911) Phone Systems
- Low Frequency AM Station (Surf City)
- Coordination of Evacuation and Reentry
- NIMMS Training for All Emergency Personnel
- Cable TV access & Info crawl on weather channel
- Mutual Aid Agreements with Inland Emergency Agencies
- Annual review of Tropical Storm and Hurricane Evacuation Plans
- Active Reentry Pass System, for Safe Reentry after an Event
- Active Beach Renourishment Committee & Hurricane Reentry Committee
- Coordination of Evacuation and Emergency Shelters with Onslow/Pender County Emergency Management





Sponsor Financial Commitment



- Annual Town Commitments
 - Occupancy tax revenue
 - Ad Valorem tax revenue
 - County Funding
- State of North Carolina –if a federally funded project the current state policy provides excellent support



Residential Development within Flood Hazard Areas



The Towns lie on a barrier island and are extremely vulnerable to coastal flooding associated with storm events.

The Towns ensure the safety of all property within their jurisdictions through proper land use controls and enforcement of the Flood Damage Prevention Ordinances.

All structures are subject to requirements outlined in the Towns' Flood Damage Prevention Ordinances, as well as the North Carolina State Building Code.





Construction/Storm Mitigation Standards



- 5 year Update, & Adopted Hazard Mitigation Plan
- Enforcement of the North Carolina State Building Code requirements for construction in a VE Flood zone and 130 MPH exposure C
- All structures are elevated on engineer designed foundation systems to meet the requirements for high velocity wave action and scour/erosion effects
- The towns have adopted:
 - the more restrictive standard for coastal A zones to comply with VE zone standards
 - a maximum building height to minimize windborne debris hazards
 - No living space below 100 year flood elevation
 - 30 year ocean front erosion rate to establish set backs
- Conducts pre-permitting and plan review for all structures

Public Access and Parking



North Topsail Beach and Surf City are committed to providing the best public access possible that will meet or exceed USACE Standards and requirements



North Topsail Beach Public Access and Parking

- The town currently has 22 public beach access sites; two of these sites are considered regional with a total of 740 parking spaces.
- Establishing a public access every half mile as a condition of funding for the US Army Corps of Engineers.
- The town is currently identifying and acquiring additional access and parking areas to meet the USACE requirement. The Town will satisfy all parking requirements well in advance of the signing of the PPA.



Town of Surf City Parking and Beach Access

- Surf City has 33 public beach access points.
- Since August 2009 Feasibility Report the town has acquired 8 additional beach accesses in the southern portion of Surf City, which takes care of the towns beach access requirement.
- Have also acquired a lot providing 10 parking places in a required area at a cost of \$469,000.
- In the process of acquiring 4 additional lots to meet the Corps required parking requirement.



Summary



- We have a problem that is too large for local funds to resolve. We are here today seeking your help and assistance.
- **Principal Project Purpose:**
 - The reduction of damages associated with coastal storm events and beach erosion. In addition, the project will enhance the beach strand available for recreation use and provide habitat for a variety of plants and animals.
- **Our Project:**
 - **Provides Safeguards**
 - **Infrastructure/public utilities**
 - **Tax base**
 - **Homes and businesses**
 - **Habitat for sea turtles**
 - **Recreational space**
 - **Supports national and local economy**
- We are financially committed to this project.
- Our residents and owners are well aware of hurricane dangers and have responsible policies and practices in place.



Thank You for Your Consideration!!



Mayor Daniel Tuman
Mayor Pro Tem Michael Yawn
Alderman Richard Farley
Alderman Robert Swantek
Alderwoman Deborah Lanci
Alderman Dick Macartney
Town Manager Steve Foster



Mayor A.D. (Zander) Guy, Jr.
Mayor Pro Tem Doug Medlin
Councilwoman Nelva Albury
Councilman Michael Curley
Councilman Donald Helms
Councilman William Fowler
Town Manager J. Michael Moore

HQUSACE POLICY REVIEW CONCERNS

Civil Works Review Board

Surf City and North Topsail Beach, NC

Coastal Storm Damage Reduction Project

Scott Nicholson

Office of Water Project Review

Planning and Policy Division

Washington, DC –27 August 2010



Surf City and North Topsail Beach, NC Coastal Storm Damage Reduction Project

HQUSACE Team Reviews:

- Alternative Formulation Briefing: December 2006
- Pre-release review of Draft report: March 2010
- Review of Draft report concurrent with public review: May 2010
- In Progress Reviews to discuss Draft report issues: May, June, July and August 2010
- Final Feasibility Report /EIS: current review being completed by HQUSACE team August 2010



Summary of Policy Issues Addressed During AFB and Draft Report Reviews

1. Project Cost Sharing and Public Access
2. NED Plan: Optimization and Comparison of Beachfill Alternatives
3. Model Certification
4. System Analysis: Sediment Availability and Regional Sand Management
5. System Analysis: Shoreline Variability & Historic Erosion Rates
6. Proposed ESA Monitoring Actions
7. Sustainability: Effect of Sea Level Rise on Project Benefits and Costs
8. Adjacent Federal Projects: Cumulative Impacts and Shared Resources
9. Non-standard Real Estate Easements Approval
10. Nonstructural Evaluation
11. Recreation Benefits: Capacity vs. Projected Demand
12. Contaminated Sediments – Remote Possibility of Ordnance in Borrow Areas (Anti-aircraft Ammunition)
13. Risk and Uncertainty: Storm-tide Flooding
14. Risk and Uncertainty: Sea Level Rise Assumptions
15. Potential Impacts to Hard Bottom Resources
16. EO 11988 Flood Plain Management: Emergency Evacuation Planning



Surf City and North Topsail Beach, NC *Coastal Storm Damage Reduction Project*

1. PROJECT COST SHARING AND PUBLIC ACCESS

- **CONCERN:** A portion of the project currently does not meet the standards for Federal cost sharing (land use, parking, and public access). Ten percent of the project length is currently undeveloped. In addition, several segments do not currently have adequate parking and public access.
- **REASON:** The Government does not participate in cost sharing for protection of undeveloped lands or areas that lack public access (paragraph 6.g. and 6.h. of ER 1165-2-130.)
- **RESOLUTION:** Development is occurring rapidly, and the area will be completely developed by the base year. The sponsor is in the process of providing adequate parking and access. Prior to signing of the PPA parking and access issues will be resolved and cost share will be adjusted based on shore ownership and use.
- **RESOLUTION IMPACT:** Concern Resolved.



Surf City and North Topsail Beach, NC Coastal Storm Damage Reduction Project

2. NED PLAN

- **CONCERN:** The plan tentatively identified as the NED plan did not appear to maximize net NED benefits. Screening level cost estimates for the recommended plan (15 ft dune/50 ft berm) were incomplete and it wasn't clear why a 25 ft berm was not more economical. A 6-year renourishment cycle was more efficient than the tentatively selected 4-year cycle.
- **REASON:** NED plan designation is based on the plan that reasonably maximizes net NED benefits per paragraph 2-3.f.(1) of ER 1105-2-100.
- **RESOLUTION:** Additional information was provided to support the plan recommendation. The plan was revised to include the more efficient 6-year renourishment cycle.
- **RESOLUTION IMPACT:** Concern Resolved.



Surf City and North Topsail Beach, NC *Coastal Storm Damage Reduction Project*

3. MODEL CERTIFICATION

- **CONCERN:** The economic model used to estimate economic damages/benefits was a legacy model that was not certified or approved for use.
- **REASON:** EC 1105-2-412 requires that all planning models be certified or approved for use.
- **RESOLUTION:** The documentation for the model went through the peer review process (ATR and IEPR), and was approved for use by HQ on 12 August 2010.
- **RESOLUTION IMPACT:** Concern Resolved.



Surf City and North Topsail Beach, NC Coastal Storm Damage Reduction Project

4. SYSTEM ANALYSIS: SEDIMENT AVAILABILITY

- **CONCERN:** The competing sand requirements of the adjacent *West Onslow Beach and New River Inlet (Topsail Beach) Project* and local beach nourishment projects raised questions about adequacy of borrow materials that may impact project benefits and costs during the Surf City (Topsail Beach) re-nourishment period.
- **REASON:** The adjacent coastal projects identified the same borrow areas for construction and beach re-nourishment. Sufficient borrow material must be identified for the period of analysis to assure project viability and accurate costs as a basis for Section 902 cost limits per WRDA 1986.
- **RESOLUTION:** The risks associated with shared borrow sources and sediment availability for the two Federal projects have been assessed to demonstrate the feasibility of the combined beach nourishment requirements including a discussion on how additional sources may affect the project. North Carolina is conducting a Regional Sediment Management (RSM) Analysis for the entire coast of NC that will include development of a sediment budget for the Topsail Island area projects.
- **RESOLUTION IMPACT:** Concern Resolved.



Surf City and North Topsail Beach, NC *Coastal Storm Damage Reduction Project*

5. SYSTEM ANALYSIS: SHORELINE VARIABILITY & HISTORIC EROSION RATES

- **CONCERN:** The report is unclear whether the entire project shore line is uniform morph-dynamically or if variability exist.
- **REASON:** The Report shows a different shoreline response for Segment A (0.5 ft/yr erosion, westerly transport) vs. Segment B (2 ft/yr, easterly transport). There appears to be a nodal point located between Segment A and B.
- **RESOLUTION:** Text was added to the report describing how a change in erosion rates could indicate the presence of a transport direction reversal and how ongoing studies will provide more data to be used as the project proceeds to construction and re-nourishment events.
- **RESOLUTION IMPACT:** Concern Resolved.



Surf City and North Topsail Beach, NC *Coastal Storm Damage Reduction Project*

6. ESA MONITORING ACTIONS: SEABEACH AMARANTH

- **CONCERN:** Extensive monitoring of Seabeach Amaranth is proposed to assess whether availability of habitat would facilitate growth of more plants or whether burial of seeds hinders growth. It is not clear why a substantial monitoring program is required.
- **REASON:** The proposed monitoring effort for Seabeach Amaranth requires justification based on its correlation to project-induced effects.
- **RESOLUTION:** The monitoring program for the Seabeach Amaranth has been revised to include one season of monitoring in the year following initial project construction, and is justified by the need to confirm predicted effects to the species.
- **RESOLUTION IMPACT:** The report has been modified and costs adjusted. Issue is resolved.



Surf City and North Topsail Beach, NC Coastal Storm Damage Reduction Project

7. ESA MONITORING ACTIONS: POST-CONSTRUCTION MONITORING OF SAND TEMPERATURE

- **CONCERN:** The proposed monitoring of sand temperature due to color differences from native material and potential effects on turtle egg development stems from a conservation recommendation from informal consultation. The extent of the monitoring effort does not seem to be warranted given that the with-project condition represents a significant increase in sand habitat available.
- **REASON:** The beach nourishment itself is an improvement, and would not result in an adverse effect with relation to the without-project condition. Monitoring should be justified based on potential impacts and is not proposed for research.
- **RESOLUTION:** The monitoring program for the sand temperature has been revised to include one season of monitoring in the year following initial project construction, and is justified by the need to confirm predicted effects to sea turtle species related to the nourishment of the beach.
- **RESOLUTION IMPACT:** The report has been modified. Issue is resolved.



Surf City and North Topsail Beach, NC Coastal Storm Damage Reduction Project

HQUSACE POLICY COMPLIANCE REVIEW TEAM RECOMMENDATION:

Approve Release of draft Chief's Report – Feasibility Report and EIS for S&A Review

- Approve release of the draft Report of the Chief of Engineers for State and Agency Review subject to document revisions reflecting current review of the Final Report.



SAD Lessons Learned

- ❑ Importance of continuous coordination of vertical team, regularly-scheduled (bi-weekly, now weekly) vertical team discussions, on technical, environmental, plan formulation, economic and policy issues and details of recommended plan.
- ❑ Participation by other agencies with the PDT and open PDT meetings improves the quality of the decision document.
- ❑ Continuing to engage Office of Water Project Review.
- ❑ Detail schedules to help stay on track and manage actions suspense.



SAW 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.

