Appendix C

NCDOT Presentations at Peer Exchange Meeting
Bonner Bridge Replacement Project - Phase II Peer Exchange Meeting

October 24-25, 2011

Meeting Purposes

• Evaluate the changes in coastal conditions (shoreline position, dune stability, habitat) that resulted from Hurricane Irene
• Identify issues, constraints, and concerns associated with the future maintenance of NC 12
• Provide engineering advice on design parameters for long-term transportation options at the two breach sites

Overview of Bonner Bridge Replacement Project Studies

Project Area

• Bodie Island to Rodanthe
• Includes three NC 12 “hot spots”
• 50-year project life

Coastal Studies

• Oregon Inlet migration, profile, and gorge alignment
• Impacts of overwash
• Historical and future shoreline position
• Accelerated sea level rise
• Potential locations for/ Impacts of an island breach
• Offshore coastal processes

Natural Systems

• Surface waters and water quality
• Biotic communities
• Wetlands and open water habitat
• Unique and rare habitats
• Fisheries and wildlife
• Threatened and endangered species
Project Alternatives

- Beach nourishment
- Road relocation
- Bridging
  - In NC 12’s current location
  - West of the forecasted 2060 shoreline
- Phasing

Selected Alternative (2010)

- Parallel Bridge Corridor with NC 12 Transportation Management Plan
- Includes construction of “short” bridge across Oregon Inlet, and.....

Selected Alternative (2010)

- Coastal monitoring program within project area
- Refuge habitat/NC 12 vulnerability forecasting study
- Environmental review/determine alternatives for study
- Use NEPA/Section 404 Merger Process to study, select, and finalize future phases

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Pea Island

Rodanthe
Proposed Schedule – Long-term Repairs

- Scoping – Oct 18, 2011
- Merger Team Meeting (CP2/2A) – Dec 2011
- Public Involvement – Dec 2011
- Merger Team Meeting (CP3) – Jan 2012
- Contract awarded for Pea Island – Aug 2012
- Design-Build contract awarded for Rodanthe – Dec 2012
Bonner Bridge Replacement Project - Phase II Peer Exchange Meeting

October 24-25, 2011

Overview of Future Coastal Studies

Selected Alternative (2010)

- Coastal monitoring program within project area
- Refuge habitat/NC 12 vulnerability forecasting study
- Environmental review/determine alternatives for study
- Use NEPA/Section 404 Merger Process to study, select, and finalize future phases

Coastal Monitoring Program

- Collect data on:
  - Geomorphological characteristics of corridor
  - Distance of critical features (dunes, shorelines) to NC 12 roadway
  - Location and extent of overwash
  - NC 12 roadway maintenance activities
  - Changes in biotic communities/habitat
  - Data on dredge disposal/nourishment projects
  - Data on major storm events

Coastal Monitoring Program

- Methodology:
  - Aerial photography, four times per year
  - Bathymetric data
  - Grain size analysis
  - Analysis of NC 12 maintenance data
  - Annual field surveys to determine changes in biotic communities
  - Collect agency data on storm events, dredge disposal/beach nourishment projects

Coastal Monitoring Program

- Summarize data collection into:
  - Annual reports that discuss findings of the program, changes in project area conditions
  - Annual reassessment of predicted shorelines
  - Additional report every five years - includes data from other university or agency studies
Vulnerability Study

• Work with USFWS to assess possible scenarios

• Study to be conducted by an independent panel

• Results to be reviewed every five years

Permit Conditions

• Analyze change to Refuge habitat due to terminal groin
  – Use STELLA or similar modeling software

• Re-evaluate historical rate of shoreline erosion

• Geo-spatial monitoring plan to analyze Refuge habitat changes

• Quarterly monitoring of physical and biological parameters along ocean shoreline

Pea Island

Rodanthe

Proposed Schedule – Long-term Repairs

• Scoping – Oct 18, 2011

• Convene Expert Panel re: Coastal Conditions – Oct 24-25, 2011

• Merger Team Meeting (CP2/2A) – Dec 2011

• Public Involvement – Dec 2011

• Merger Team Meeting (CP3) – Jan 2012

• Contract awarded for Pea Island – Aug 2012

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Hurricane Irene Impacts to NC 12
August 27, 2011

Rodanthe Breach
aka: South Pea Island
Mirlo Beach, S-Curves
Mid-Pea Island Breach
aka: Old Sandbag Area
Ranger Station
New New Inlet
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