CAROLINA BEACH RCCP
DECEMBER 2025 CAT MEETING

Town of Carolina Beach | Coastal Protection Engineering (CPE)
Inspire Placemaking Collective | NC Division of Coastal Management









TODAY'S AGENDA & MEETING OBJECTIVES

- Meeting purpose and expectations
- Brief introductions
- Reminder of CAT's role in RCCP Phase 1 & 2
- RCCP program refresher
- Work completed since last CAT meeting
- Summary of first public outreach event
- Website & questionnaire metrics
- Mission + goals discussion
- Existing data + literature review findings
- Resilience concepts matrix overview
- Next steps

CAROLINA BEACH RCCP PROJECT TEAM

TOWN OF CAROLINA BEACH

- Jeremy Hardison – Community Development Director
- Ed Parvin – Deputy Town Manager
- Sheila P. Nicholson – Administrative Services Officer
- Gigi Baggarley – GIS Administrator
- Role: Partnering with RCCP team, supporting CAT, and coordinating municipal resources.

STATE OF NORTH CAROLINA

- Kasen Wally – Coastal Resiliency Specialist
- Jennifer Fickler – Coastal Resiliency Specialist
- Makenzie Todd – Coastal Resiliency Coordinator
- Role: Providing technical guidance, reviewing deliverables and support community resilience planning.

CAROLINA BEACH RCCP PROJECT TEAM

COASTAL PROTECTION ENGINEERING

- Tara Marden – RCCP Project Manager and Senior Coastal Geologist
- Adam Priest – CPE Resident Professional Engineer (CB resident)
- Stephanie Spranger – UNCW Coastal Engineering Intern
- Role: Leading the RCCP process for Carolina Beach, managing project phases, schedules, and deliverables.

INSPIRE PLACEMAKING COLLECTIVE

- Jay McLeod, AICP – Director of Comprehensive Planning
- Robbie Addington, AICP – Planner
- Addie Sherman – Senior Graphic Designer
- Role: Leading GIS database and project website, community engagement, and public-facing resources.

CAROLINA BEACH COMMUNITY ACTION TEAM (CAT) MEMBERS



Voting Members:

- Stephen Taylor
- Joseph Starks
- Matthew Lettrich
- Stefanie Young
- Debi Haynes



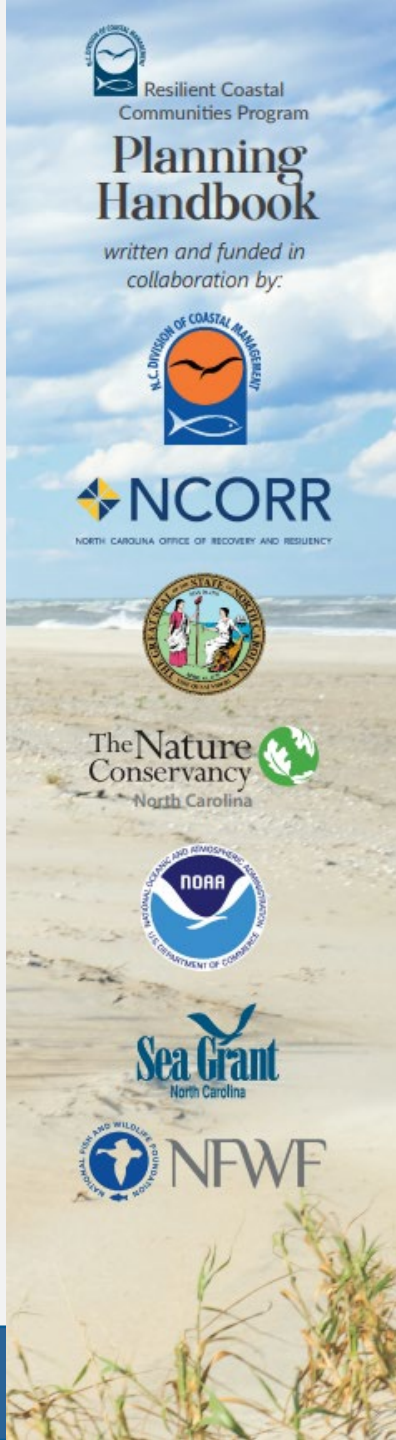
- Staff Liaison: Jeremy Hardison

Coastal Protection Engineering

THE RESILIENT COASTAL COMMUNITIES PROGRAM (RCCP) OVERVIEW

Building resilience to natural hazards is vital for communities to help maintain quality of life, healthy growth, durable systems, and conservation of resources for present and future generations.

- State/local partnership led by the NC Division of Coastal Management
- RCCP supports community-driven resilience planning across NC
- Provides technical assistance, planning support, and grant funding to help coastal communities identify risks, develop resilience strategies, and implement projects.
- Carolina Beach is in Phase 1 (Risk & Vulnerability) and Phase 2 (Project Identification)
- CAT input shapes final recommendations and concept priorities



PROGRESS UPDATE SINCE LAST CAT MEETING

- PROJECT MILESTONES
- 🛣️ Plan & Study Review Completed
  Comprehensive synthesis of all prior work
- 💡 Resilience Concepts Identified
  Key strategies distilled from each report
- 📊 Shared Priorities Framework
  Top 10 priorities + hotspot/target area analysis
- 💻 Website & Questionnaires Live
  Public portal + interactive surveys launched
- 🎤 Public Outreach Event #1 Completed
  Meaningful input gathered from residents
- 🤝 Active Coordination with Town & CAT
  Ongoing collaboration and weekly touchpoints



REVIEW OF EXISTING DATA & REPORTS
EXISTING CONDITIONS & LITERATURE REVIEW



- Reviewed 10 existing plans/studies
- Prepared summaries for each
- Extracted resilience concepts and recommendations
- Identified repeated strategies and shared priority areas
- Establishes foundation for concept development

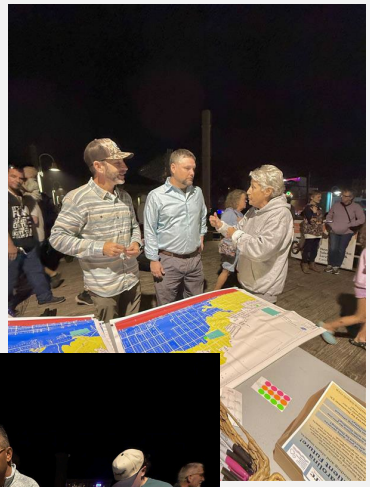
Resiliency Solutions Related to Flooding, Sea Level Rise, and Climate Change

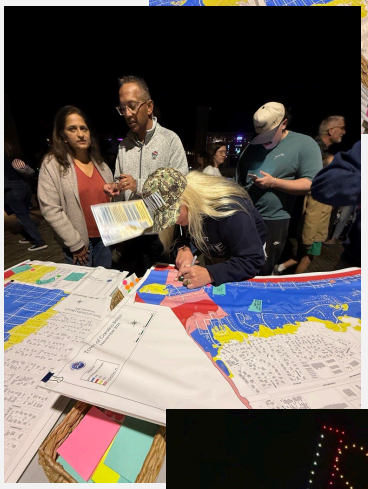
Resiliency Focus Area	Recommended Solutions	Resilience Benefit
Stormwater & Water Quality	- Implement stormwater BMPs to reduce runoff from impervious surfaces. - Retrofit Canal Drive and Carolina Beach Lake drainage systems to prevent backflow and tidal flooding. - Continue partnerships with UNCW for water quality monitoring.	Reduces nutrient loading and flood risk; improves harbor water quality resilience.
Shoreline Stabilization & Erosion Control	- Replace or retrofit aging bulkheads with more sustainable solutions that allow limited intertidal habitat. - Maintain dune and wetland buffers as natural erosion barriers. - Manage wake impacts through speed enforcement and mooring regulation.	Slows shoreline erosion, preserves habitat, and buffers against storm surge.
Floodplain Management	- Enforce development limits in AE and VE flood zones. - Update harbor ordinances to restrict permanent floating homes and structures in hazard areas. - Maintain flood-protective structures such as the Canal Drive seawall and harbor bulkheads.	Minimizes property damage and maintains navigational safety during storm events.
Habitat and Wetland Protection	- Protect remaining salt marshes and managed pine wetlands identified by NC CREWS. - Avoid dredging or marina expansion that would degrade submerged aquatic vegetation or nursery areas.	Preserves ecological resilience and natural flood storage capacity.
Harbor Infrastructure & Mooring Design	- Designate public mooring fields outside shellfish or nursery zones. - Provide pumpout facilities and enforce "no sewage discharge" policies. - Integrate CAMA and USACE standards into harbor permitting.	Reduces pollution and improves adaptive management under changing water levels.

COASTAL PROTECTION ENGINEERING

PUBLIC OUTREACH EVENT SUMMARY

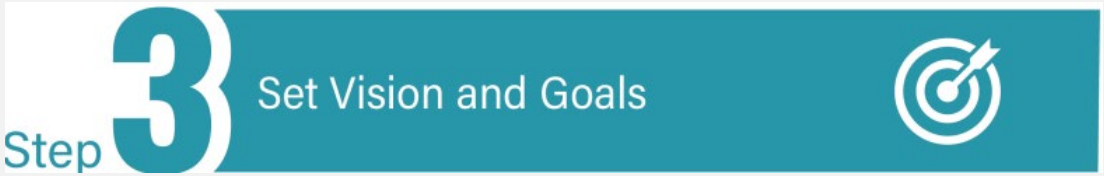








SLIDE 7 — MISSION & GOALS DISCUSSION



Program Goals

- Goal 1 — Understand and Communicate Coastal Risk
- Goal 2 — Identify and Prioritize Resilience Hotspots
- Goal 3 — Strengthen Natural Coastal Defenses
- Goal 4 — Modernize Stormwater & Flood Management Systems
- Goal 5 — Improve Community Safety, Access & Mobility During Extreme Events
- Goal 6 — Protect Critical Infrastructure & Vulnerable Neighborhoods
- Goal 7 — Foster a Culture of Resilience Through Engagement
- Goal 8 — Develop Fundable, Ready-to-Implement Resilience Projects

> *To plan for a community ready to actively prepare for increasing coastal hazards while promoting accessibility, economic welfare, and high quality of life for residents.*

Coastal Protection Engineering

COMMUNITY ACTION STRATEGY

Step 4 Develop a Community Engagement Strategy

Why Engagement Matters
- Builds shared understanding of flooding and resilience issues
- Ensures strategies reflect local values, experiences, and priorities
- Creates buy-in, transparency, and long-term support for implementation

Who We Engage
- Residents & Neighborhoods
- Businesses & Local Organizations
- Infrastructure & Policy Stakeholders
- Historically Underrepresented & Vulnerable Populations

How We Engage
- Public open houses & workshops
- Online surveys + interactive mapping tools
- QR-code feedback stations around town
- Partnerships with local organizations & HOAs
- Social media, website updates, & email campaigns
- Live polling & comment tools during meetings

Engagement Objectives
- Ensure equitable representation in the planning process
- Validate CAT-developed Vulnerability Assessment findings
- Identify priority issues and locations
- Gather input to develop resilience project ideas (Phase 2)
- Build community trust, awareness, and long-term alignment



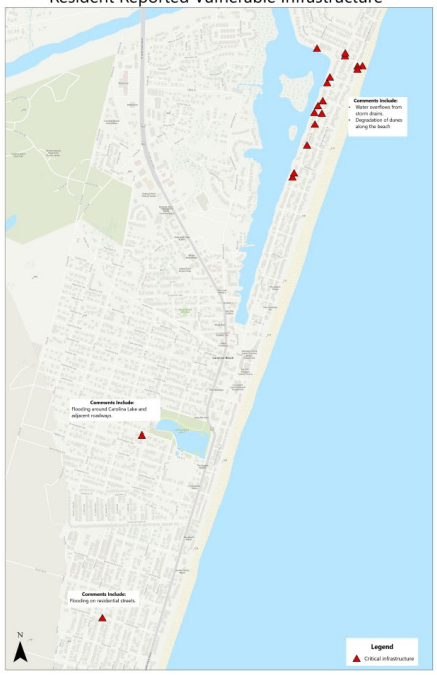
Coastal Protection Engineering

WEBSITE & QUESTIONNAIRE METRICS

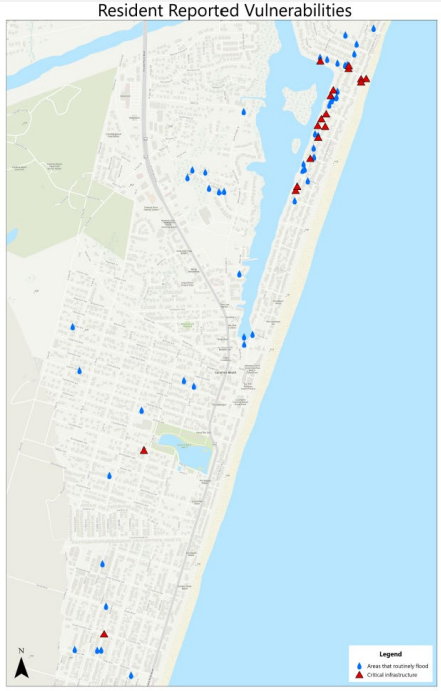
Step 5 Identify and Map Critical Assets, Natural Infrastructure, and Socially Vulnerable Populations



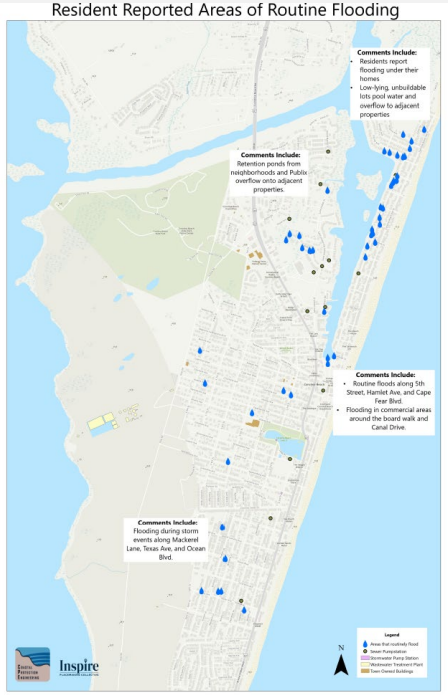
Resident Reported Vulnerable Infrastructure



Resident Reported Vulnerabilities

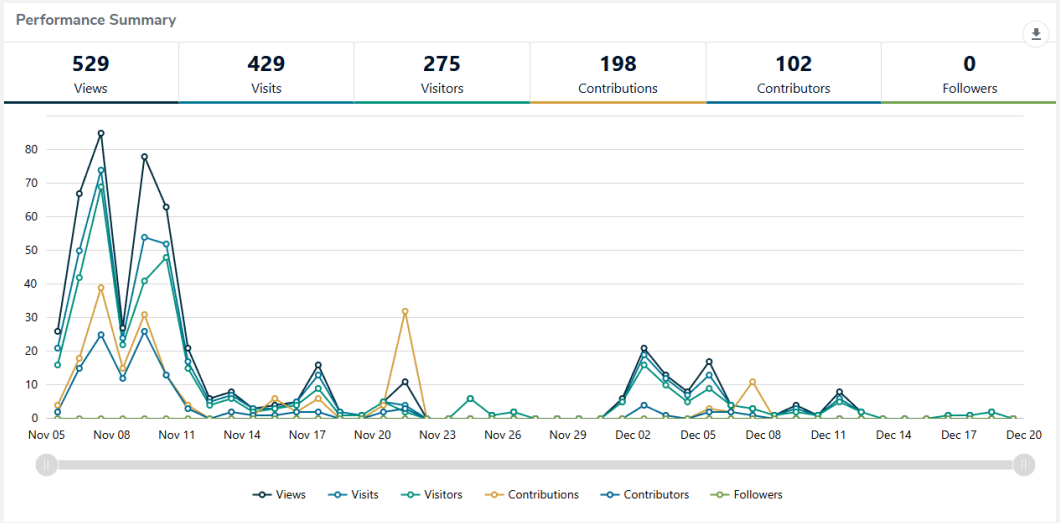


Resident Reported Areas of Routine Flooding



WEBSITE & QUESTIONNAIRE METRICS

- Number of questionnaire responses to date
- Number of map pins/comments
- Most frequently identified problem areas
- Most common resilience ideas suggested
- Two physical maps will be available today for anyone who has not yet commented online
- Community Hotspot Map (flooding, stormwater, shoreline issues)
- Critical Infrastructure Map (review to confirm all key assets are captured)
- Continued online input encouraged



RESILIENCE CONCEPTS MATRIX

- Matrix compares concepts across all reports
- Highlights frequently repeated strategies
- Top 10 shared resilience priorities
- Top 5 most frequently targeted geographic areas
- Concept types: green, gray, hybrid, policy/planning
- Will guide CAT discussion and concept screening

⭐ Top 10 Shared Resilience Priorities for Carolina Beach

1. Modernize and Retrofit the Stormwater System
2. Adapt to Rising Tides, Groundwater and Sea-Level Rise
3. Strengthen Natural Shoreline Defenses
4. Improve Water Quality Through Green Infrastructure
5. Elevate or Reinforce Bulkheads and Shoreline Structures
6. Protect and Modernize Critical Infrastructure
7. Guide Redevelopment Away from Hazard Areas
8. Expand Resilient Mobility & Evacuation Networks
9. Commit to Ongoing Monitoring and Adaptive Management
10. Engage and Educate the Community

Coastal Protection Engineering

Inspire Placemaking Collective

RISK AND VULNERABILITY ASSESSMENT



- Risk Evaluation
- Vulnerability Characterization
- High-Risk Area Identification
- Critical Infrastructure Assessment
- Priority Vulnerabilities Summary



Figure 6 | Required Critical Assets to Map

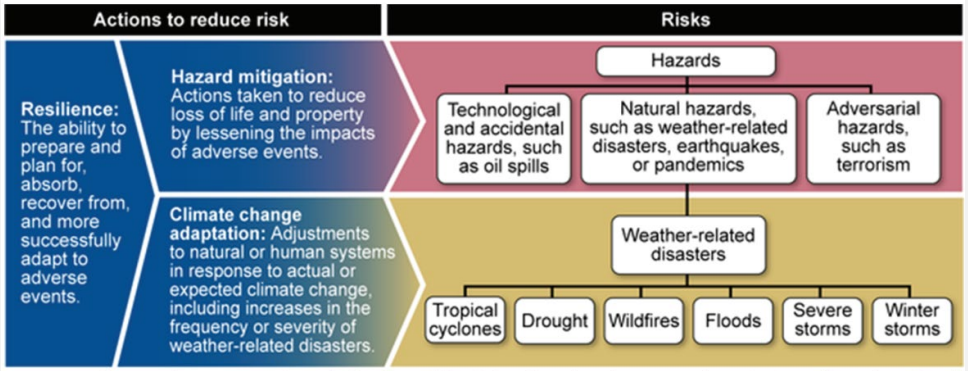


Figure 7 | Source: GAO analysis of Presidential Policy Directive 8, previous GAO work, and National Oceanic and Atmospheric Administration data. | GAO-16-454

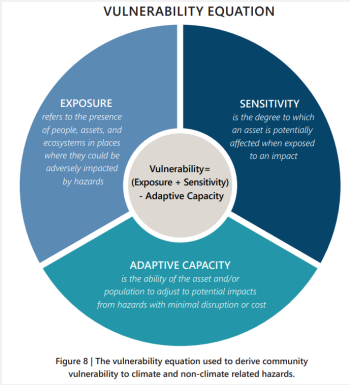
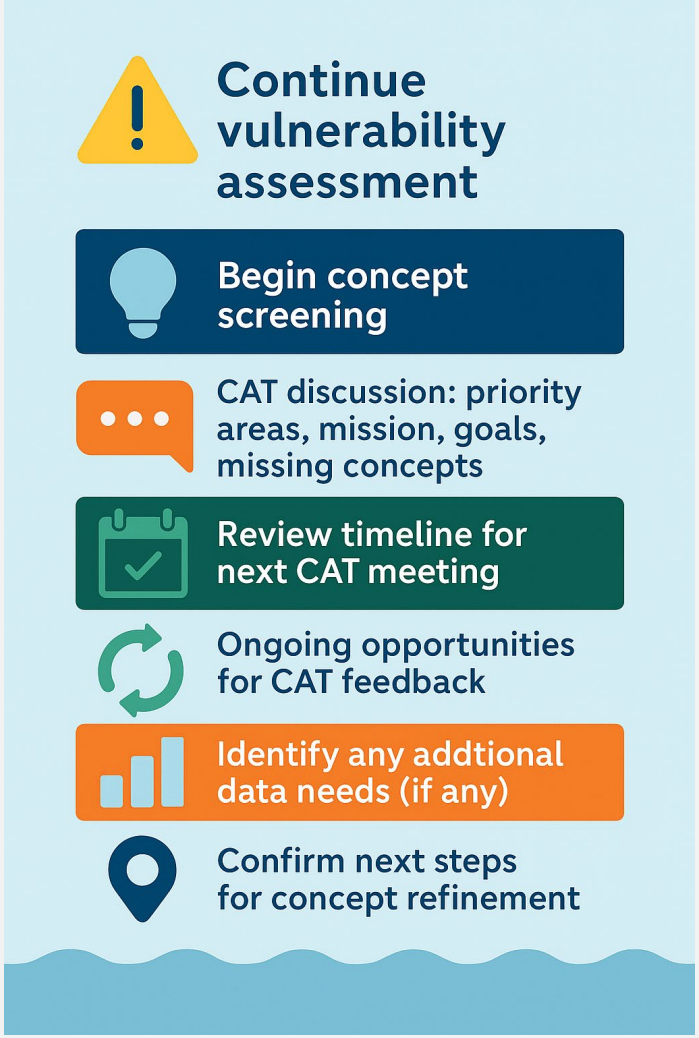


Figure 8 | The vulnerability equation used to derive community vulnerability to climate and non-climate related hazards.

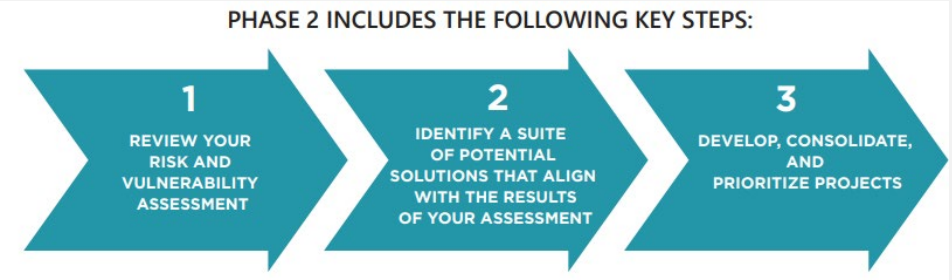
Coastal Protection Engineering

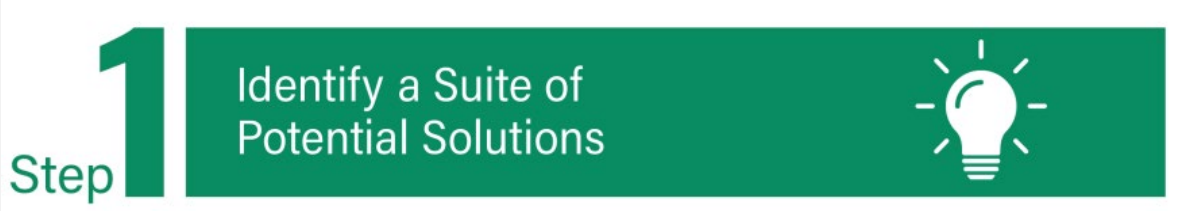
NEXT STEPS FOR PHASE 1

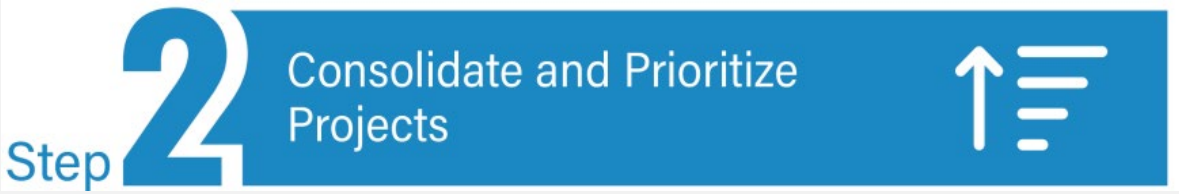


- These steps guide the transition from vulnerability assessment to concept development.
- The CAT's role is central as we refine priorities and shape draft concepts.
- This work also sets the foundation for Phase 2 of the RCCP.

NEXT STEPS - PHASE 2







- Evaluate strategies and their feasibility
- Consolidate and prioritize strategies

PROJECT CONTACTS

Town of Carolina Beach

- Jeremy Hardison – Community Development Director

jeremy.hardison@carolinabeach.org or 910-458-2991

- Ed Parvin – Deputy Town Manager

ed.parvin@carolinabeach.org

- Sheila P. Nicholson – Administrative Services Officer
- Gigi Baggarley – GIS Administrator

State of North Carolina – RCCP Program

- Kasen Wally – Coastal Resiliency Specialist

kasen.wally@deq.nc.gov

- Makenzie Todd – Coastal Resiliency Coordinator

mackenzie.todd@deq.nc.gov

- Jennifer Fickle – Coastal Resiliency Specialist

jennifer.fickler@deq.nc.gov

Coastal Protection Engineering

- Tara Marden – RCCP Project Manager and Senior Coastal Geologist

tmarden@coastalprotectioneng.com or 508-397-96989

- Adam Priest – CPE Resident Professional Engineer (CB resident)

apriest@coastalprotectioneng.com

- Stephanie Spranger – UNCW Coastal Engineering Intern

sspranger@coastalprotectioneng.com

Inspire Placemaking Collective

- Jay McLeod, AICP – Director of Comprehensive Planning

jmcleod@inspireplacemaking.com

- Robbie Addington, AICP – Planner

raddington@inspireplacemaking.com

- Addie Sherman – Senior Graphic Designer

asherman@inspireplacemaking.com

RELEVANT LINKS

https://app.climatecentral.org/coastal-risk-finder

https://www.nhcgov.com/222/Southeastern-North-Carolina-Regional-Haz

https://experience.arcgis.com/experience/203f772571cb48b1b8b50fdcc3272e2c/page/Category-1

https://sunnydayflooding.com/view-data/

https://www.climate.gov/maps-data/dataset/sea-level-rise-map-viewer

Coastal Protection Engineering