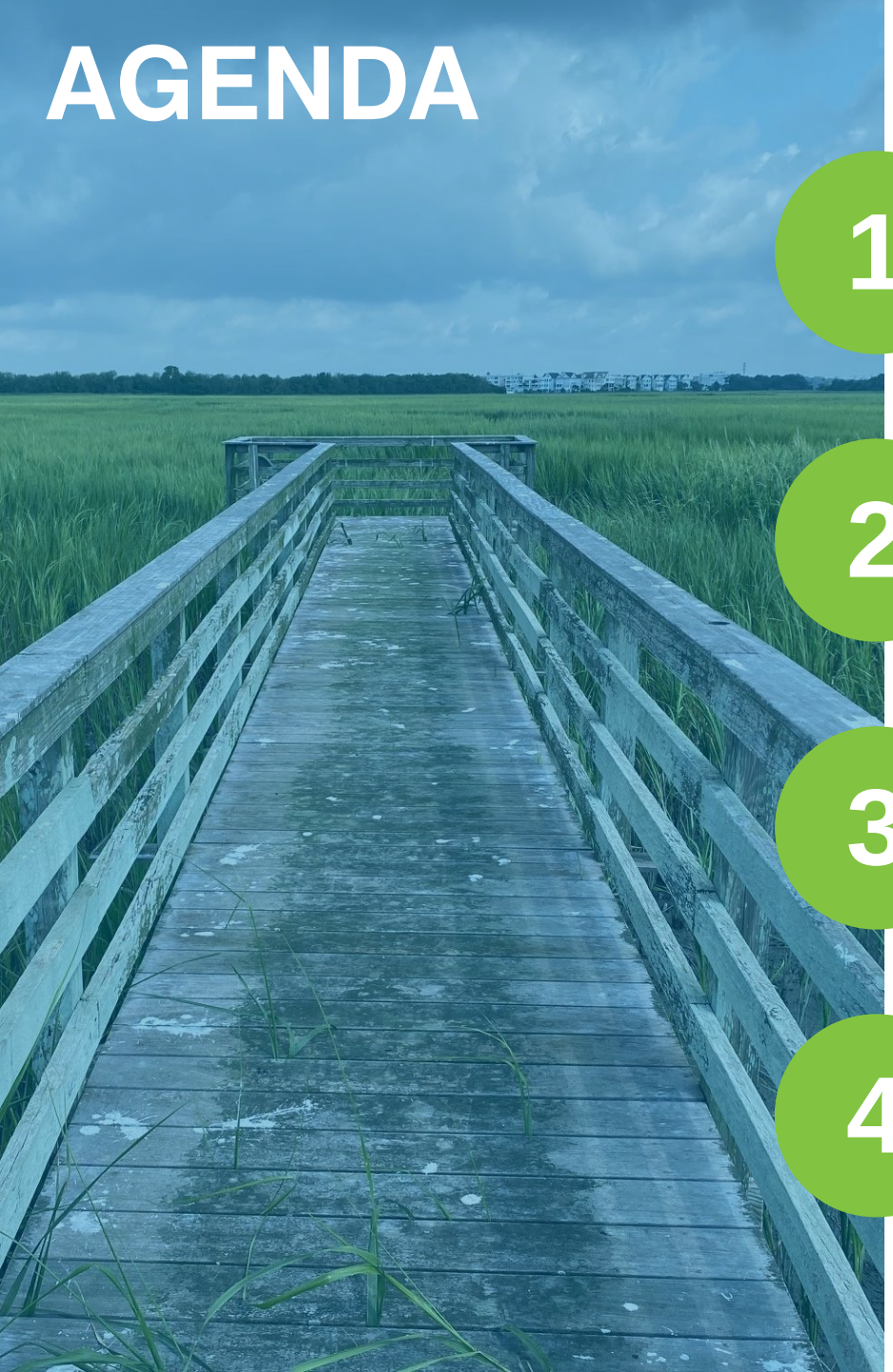
Town of Sullivan's Island
Resilience & Sea Level Adaptation Plan

May 14, 2025

AGENDA



1. Phase 1 Review
2. Project Schedule
3. Phase 2 Update & Plan Vision Discussion
4. Draft Adaptation Strategy Discussion

Phase 1: Data Gathering & Public Outreach

- ✓ **Interviews with 12 key stakeholders** (Fire Department, Water & Sewer, Police Department, Design Review Board, National Park Service, business leaders, contractors, and residents)
- ✓ **12 personal or small group interviews with community members and/or local experts** (SC-DOT, SC Sea Grant Consortium, Sullivans Island & IOP town staff, non-profit organizations, business owners, cultural resource experts, and residents).
- ✓ **Document and code feedback** from interviews for inclusion in the project.
- ✓ **Review of up to 10 Plans** relevant to the project to include the Town's Comprehensive Plan 2018-2028, the Town's Stormwater Master Plan, and relevant regional and statewide plans.
- ✓ **Compile & visualize sea level rise data** and associated impacts.
- ✓ **Compile all available data on existing storm drainage system,** including system deficiencies.
- ✓ **Coordinate and facilitate 2 public engagement sessions** before Plan is drafted.

Phase 1: Data Gathering & Public Outreach

Task	May 2024	June	July	Aug	Sept	Oct	Nov	Dec
Project Kick-off								
Plan Review								
Develop List for Interviews								
Conduct Personal/Small Group Interviews								
Compile Sea Level Rise Data								
Compile Available Storm Drainage System Data								
Public Workshop								

This project seeks to work with the Town, community members, and the consultant team to co-create and develop an actionable adaptation plan that assesses vulnerabilities of the Island community, identify strategies to mitigate risk from sea level rise, and increase community resilience.

Phase 2: Draft Plan Development

Task	Dec	Jan 2025	Feb	Mar	Apr	May	June
Develop Goals & Vision for the Plan							
GIS Analysis & Flood Modeling							
Assist with ArcGIS online StoryMap							
Draft 10 Adaptation Strategies							
Draft Cost Estimates & Priority Ranking							
Draft Potential Funding Sources							
Present Key Findings & Gather Input							

Phase 2: Draft Plan Vision

The Sullivan's Island Sea Level Adaption & Resilience Plan will provide **strategies on diverse scales**, ranging from community-wide to site level opportunities, that **honor the history** of the Island and learn from past applications, identify open areas for **storage and protection**, and further understand challenges to provide **adaptive solutions**.

Phase 2: Draft Goals

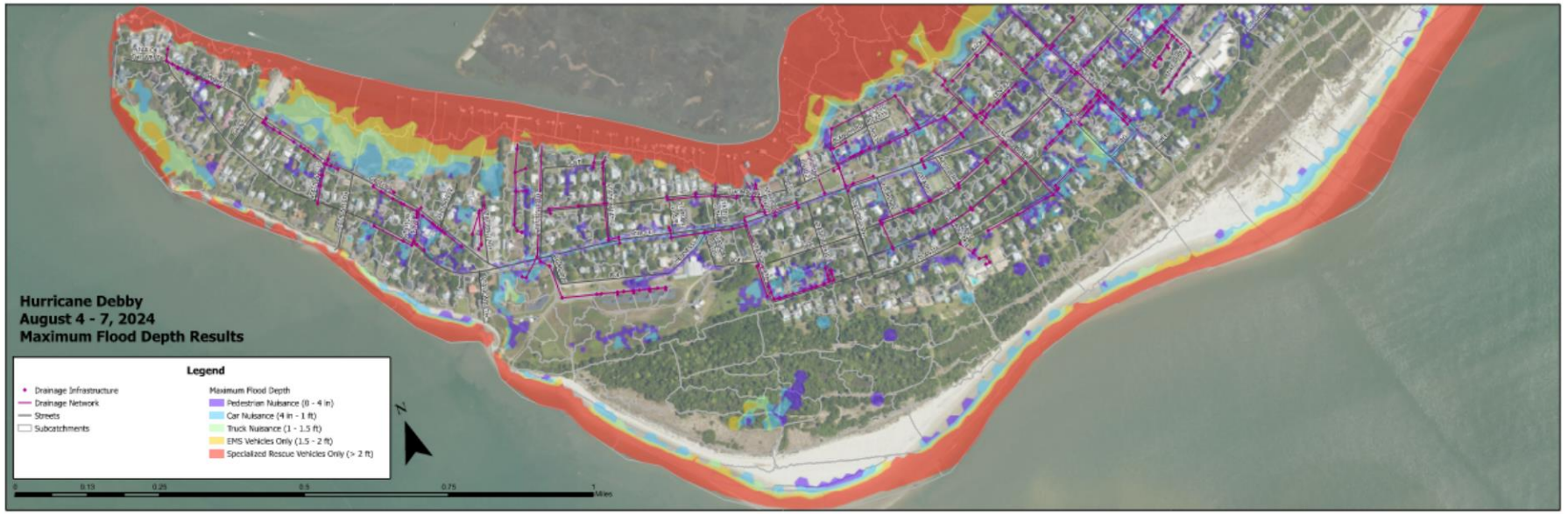
Goal #1 Engage: Plan is co-developed with the community to increase buy-in and ensure a place-based approach where strategies for continued community involvement are established.

Goal #2 Protect: natural and cultural resources through management and policy efforts.

Goal #3 Restore: natural systems on the Island using nature-based solutions that provide improved hydrology, ecological function, and enhanced aesthetics.

Goal #4 Adapt: on diverse scales that consider parcel-level strategies to community-wide approaches.

Phase 2: Draft Flood Modeling & GIS Analysis

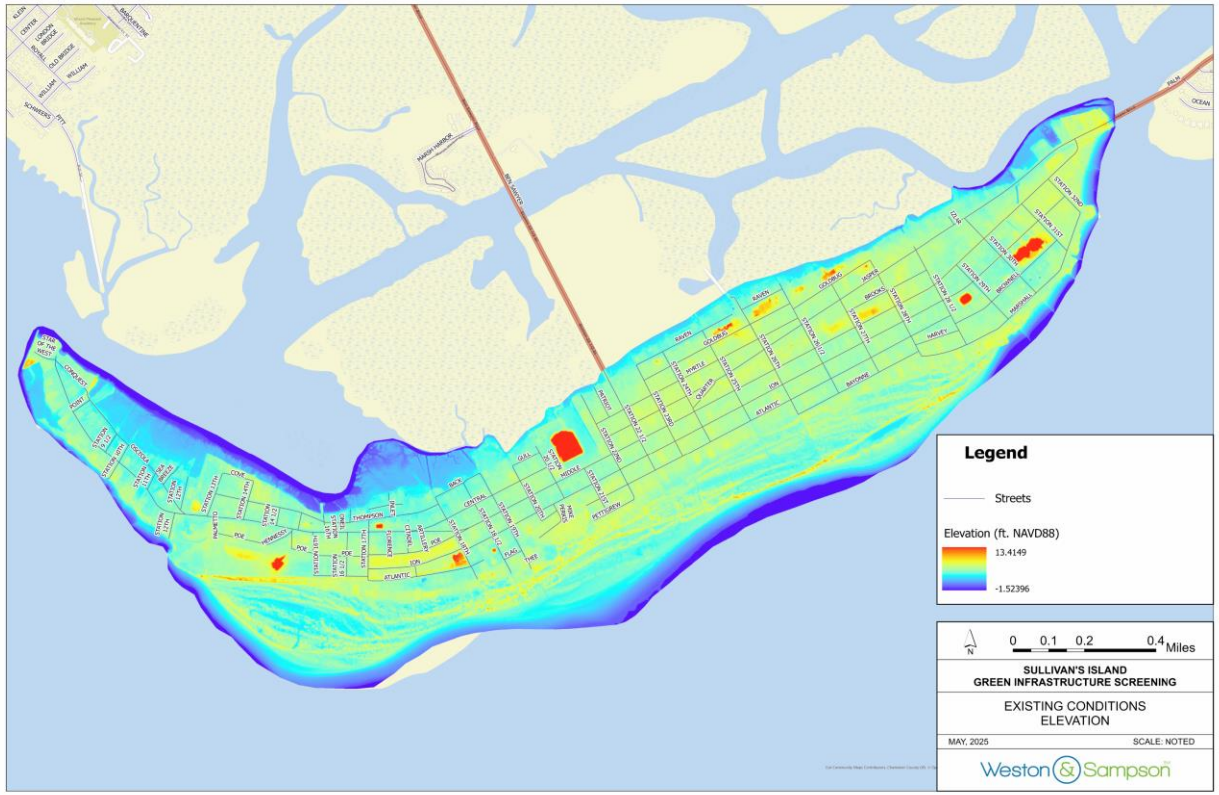


Hurricane Debby

August 4-7, 2024

Maximum Flood Depth Results

Phase 2: Draft Flood Modeling & GIS Analysis



Elevation map

Soils map

Phase 2: Draft Flood Modeling & GIS Analysis

Drainage Infrastructure

Open Space

Phase 2: Draft Flood Modeling & GIS Analysis

Preliminary Green Infrastructure Siting

Phase 2: Draft Adaptation Strategies

1. Residential-Scale Nature-Based Solutions: Establish zones on the island that determine what residential-scale practices are effective. Zones are based on soil types and elevation.

WATER MANAGEMENT MEASURE MATRIX

CHARLESTON CITY PLAN
REGION

WATER MANAGEMENT MEASURE	DESCRIPTION	APPROPRIATENESS FOR IMPLEMENTATION IN ELEVATION RISK ZONES (High Ground, Adapt Zone, Compound Flood Risk, Tidal Flood Risk)	WMM ANCILLARY BENEFITS (Yes, Partially, No)	
			AMENITY VALUE	HABITAT VALUE
Preservation	Practice of protecting a natural area from development	● ● ● ●	●	●
Reforestation	Practice of planting trees and associated plant communities	● ● ● ●	●	●
Salt Marsh Restoration	Altering a former/degraded salt marsh's physical, chemical, or biological characteristics to regain natural function	●	●	●
Living Shoreline	A structure composed of natural materials to stabilize shorelines and prevent erosion and enhance habitat	●	●	●
Wetland Restoration	Altering a former/degraded wetland's physical, chemical, or biological characteristics to regain natural function	● ● ●	◒	●
Stormwater Wetland	Constructed wetland; Shallow vegetated depressions that receive stormwater inputs for water quality treatment	● ● ● ●	◒	●
Channel Naturalization	Practice of redesigning a waterway's course and re-grading and stabilizing its banks to regain natural functions	●	◒	●
Bioretention	Shallow depressional areas filled with an engineered soil media and planted with woody and herbaceous plants	● ●	●	◒
Open Channel System	Channels and swales that capture and treat the water quality design storm and safely convey larger storm events	● ● ●	●	◒
Green roof	Rooftop practices that capture and store rainfall in an engineered growing media that supports plant growth	● ● ● ●	●	◒
Wet Detention Pond	Stormwater storage practices that consist of a permanent pool with a littoral shelf	● ●	●	◒
Rainwater Harvesting	Systems that store rainfall for future use	● ● ● ●	●	○
Infiltration Basin	Shallow excavations designed to intercept and infiltrate post-construction stormwater runoff	● ●	○	○
Permeable Paving	Alternative paving surfaces that allow stormwater infiltration or storage by filtering runoff through surface voids	● ● ●	○	○
Dry Detention Practices	Underground vaults and tanks that detain stormwater and provide an alternative for space-limited areas	● ●	○	○
Tide Gates	Mechanical gates that close to prevent high tides from reaching lowland areas	● ●	○	○
Storm Sewer	Gray infrastructure that drains stormwater from impervious surfaces to waterways or treatment facilities	● ● ●	○	○
Flood Barrier	Gray infrastructure that prevents high tides or storm surge from reaching certain areas, up to a certain level	● ●	○	○

Ex. Water Management Measure Matrix provided as pat of the City of Charleston's Land & Water Analysis.

Identify site-level (residential) practices that may vary based on location on the island.

Phase 2: Draft Adaptation Strategies

2. Engage & Involve: Establish roles, responsibilities, and opportunities for collaboration for internal staff as well as partnering agency staff. Establish methodology for communication with the community & involvement opportunities. Framework for Sullivans Friendly Yard Certification Program. Plan will provide high level outline of communication strategy.

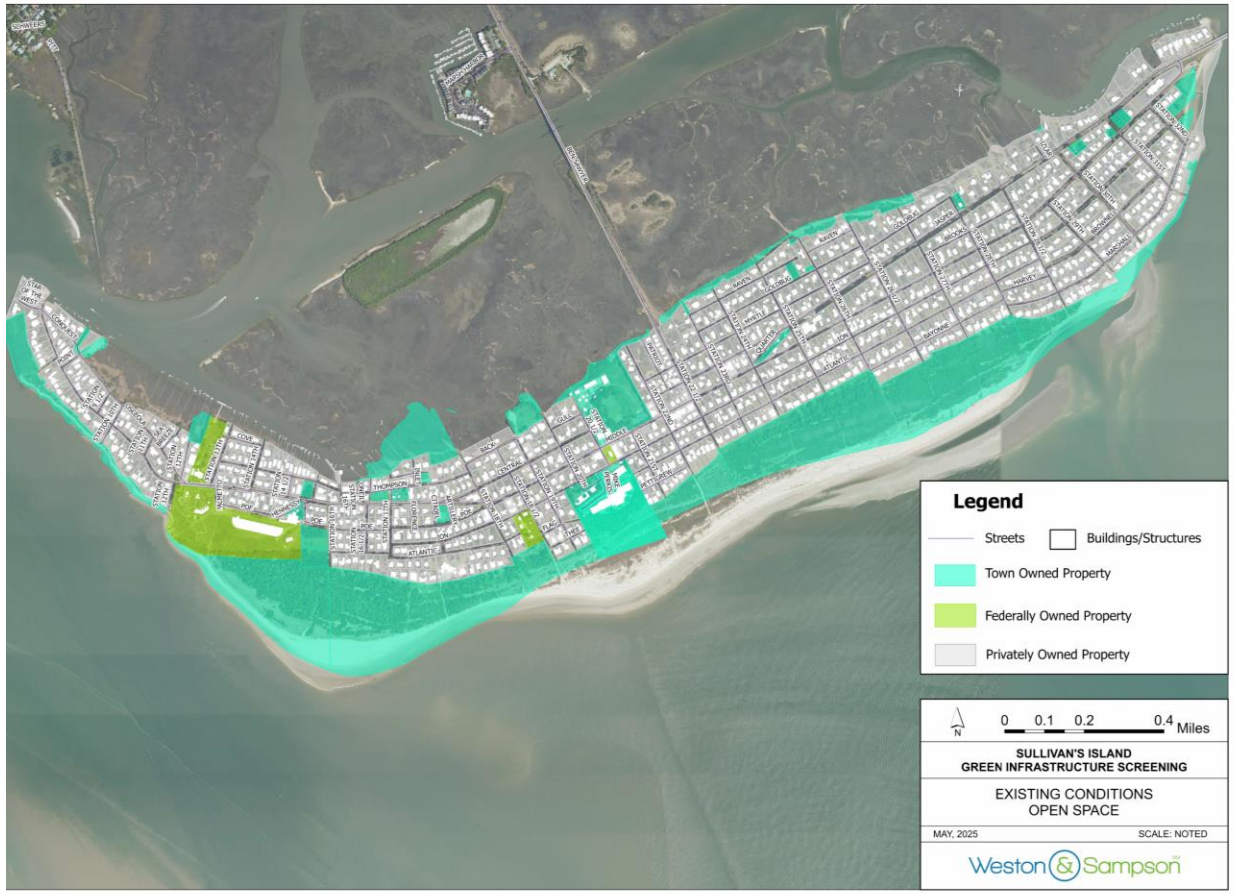
Task	Lead Entity	Support Groups	Details
Coordinate with Parks & Recreation Departments	Dorchester County Planning & Development Staff	Dorchester County Parks & Recreation Staff; Local Government Staff from Municipalities; Dorchester County Conservation and Greenbelt Advisory Commission	County Staff should coordinate with Parks & Recreation staff at both the County and municipal level to understand their open-space needs and goals. Consider implementing a standing meeting with Parks & Recreation representatives from each municipality.
Coordinate with local land trusts and non-profit organizations	Conservation/ Greenbelt Planner	Dorchester County Planning & Development Staff; Local Land Trusts; Non-Profit Organizations; County Council;	Work with local land trusts to facilitate education and outreach regarding conservation opportunities in Dorchester County. Local land trusts can be partners in conservation efforts.
Disseminate information to local landowners	Conservation/ Greenbelt Planner	Local Land Trusts; Dorchester County Planning & Development Staff; Dorchester County Conservation and Greenbelt Advisory Commission; Local Government Staff from Municipalities; Non-profit organizations	Work to create outreach and education materials for landowners interested in conserving their property. Materials can be hosted on the website or distributed via newsletter. Consider hosting a landowner workshop in conjunction with local land trusts.

Ex. Dorchester County Greenbelt Master Plan roles and responsibilities table for continuation of greenbelt program.

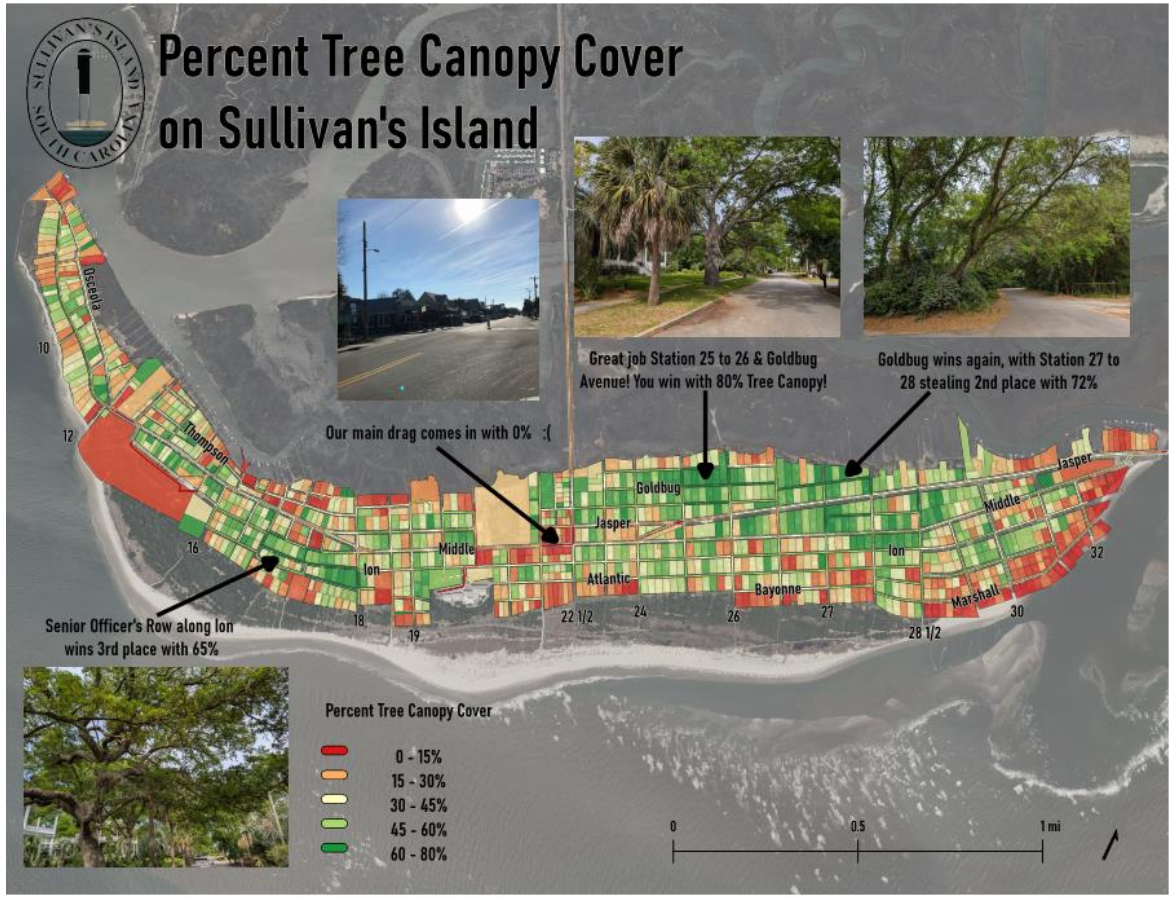
Sullivan's Island resident uses leaves that fall on their property for mulch which has ecological benefits.

Phase 2: Draft Adaptation Strategies

3. Open Space Planning: Map open space in conjunction with flow paths, provide information on enhancement and protection strategies (ex. vegetative buffers), and identify Town-owned properties where demonstration areas could be established.



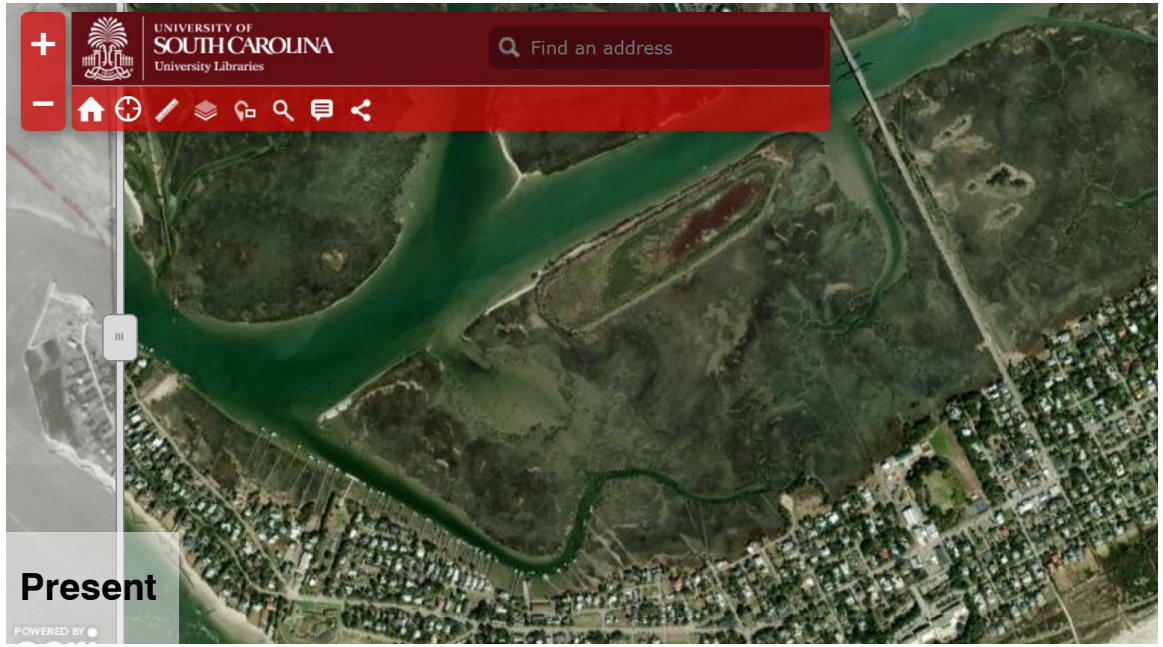
Town and Federally owned properties.



Percent Tree Canopy Cover on the Island would support open space mapping.

Phase 2: Draft Adaptation Strategies

4. Marsh Management & Protection: Ordinance review and proposed revisions. Promotion of living shorelines and marsh stewardship activities.



Phase 2: Draft Adaptation Strategies

5. Business District Complete Street: High level siting and analysis of opportunities for incorporation of street level bioretention, permeable pavement, rainwater harvesting systems, and green roofs, in the Middle Street focus area.

6. Roadway Elevation or Berm at Osceola Ave: See work from Seamon Whiteside. Provide concept on extents and methodology. This could serve as a pilot project to be incorporated in other portions of the Island.

Example from City of Folly Beach Center Street Drainage Improvement. Siting of street level rain gardens

Osceola Ave

Phase 2: Draft Adaptation Strategies

7. New / Re-Development Policy Review: Review of existing codes and ordinances, compare to other coastal communities. Are there places for improvements (building footprint, vegetative buffers, etc).

8. Dune System Management & Restoration: Opportunity for raised walkways (current walkways may act as a conduit for storm surge) and restored dune to act as a seawall.

Phase 2: Draft Adaptation Strategies

9. Underground Detention: Identify opportunities including long-term considerations such as locations in dune system (like Folly pilot) or in the “golf course” area.

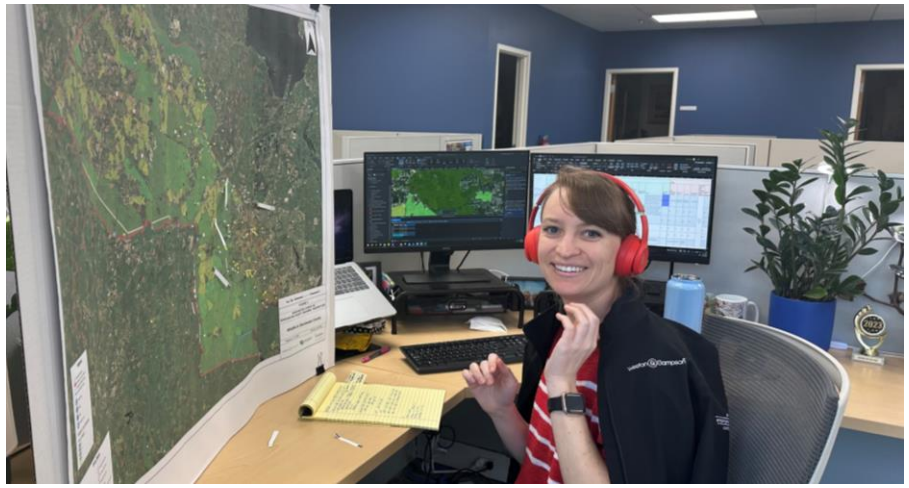
Examples of underground detention chambers about to be installed on Johns Island, SC.

10. Maritime Forest: Invasive species management, community engagement & interpretation, and restored plantings in wetland areas.

Depressional areas within the maritime forest can provide an opportunity for stormwater to slow down and to infiltrate.

Phase 3 Final Plan Development

- Conduct **2 meetings** with Town staff for final revisions.
- Provide **1 presentation** on the final Plan to key stakeholders.
- Present **1 presentation** to Town Council for Council adoption.



Task	May 2025	June	July
Plan Visualization & Revisions			
Presentation to Stakeholders			
Presentation to Town Council for Adoption			

Phase 3: Draft Plan Outline

I Background/History
II Existing Conditions
Maps (SLR present & future, Island elevation, soil types, critical infrastructure)
Plan Review
III Stakeholder Engagement
Interview Results
Survey Results
Community Engagement Sessions
IV Adaptation Strategies
Methodology (H&H model, GIS analysis, Prioritization matrix)
10 distinct strategies including overview on form and function and concepts
Cost estimating
V Proposed Conditions
Island mapping / anticipated results
VI Conclusion
Appendices

Phase 3: Draft Outcomes

A physical Resilience Plan through 2050 that is place-based & actionable.

Locations, form & function, and cost estimating for in-the-ground adaptation strategies.

Improved communication for diverse audiences through established and proposed channels.

Policy update recommendations to guide future decision making and land use.

Open Discussion

ELKO COASTAL CONSULTING INC.

Weston & Sampson℠

McCORMICK TAYLOR

May 14, 2025