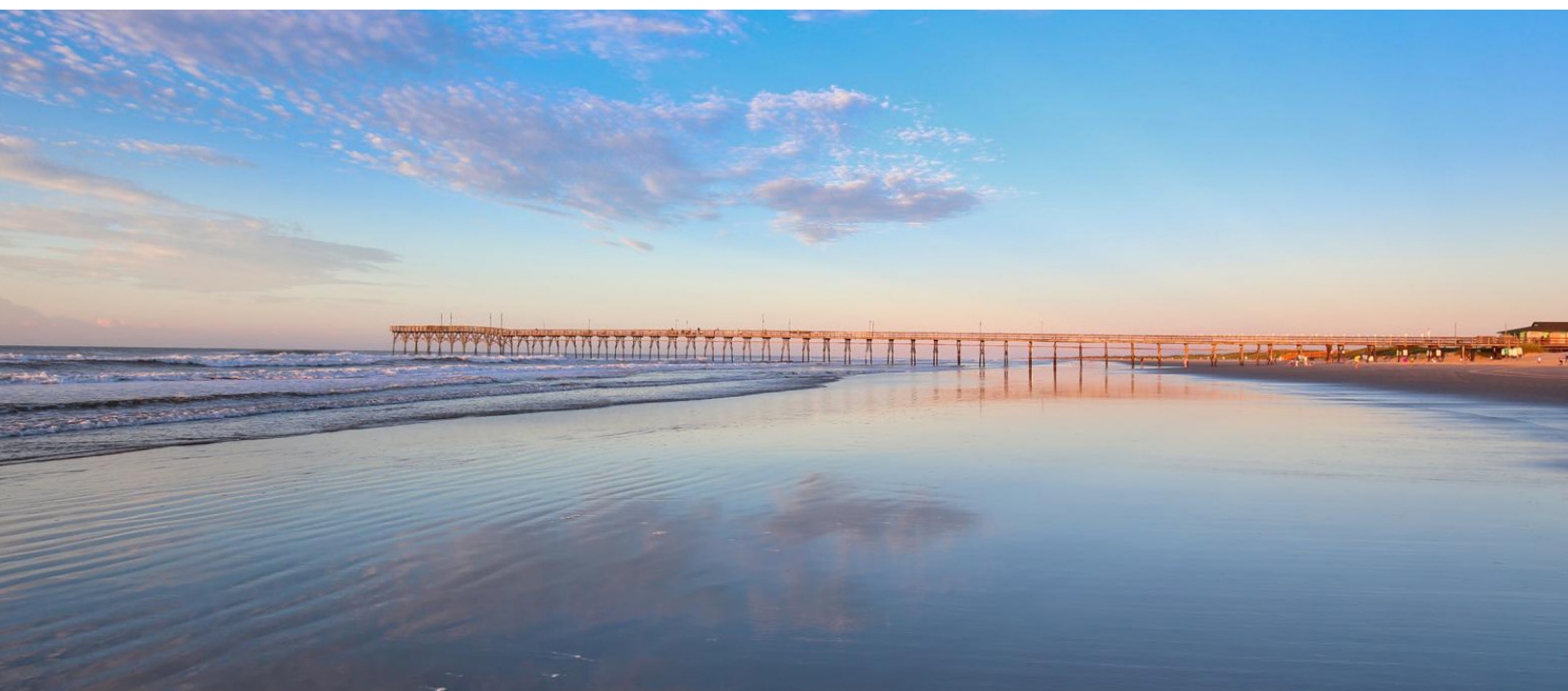




SUNSET BEACH
RESILIENT COASTAL
COMMUNITIES PROGRAM

Resiliency Strategy | January 2022



PREPARED FOR
THE TOWN OF SUNSET BEACH



FUNDED BY
N.C. DIVISION OF COASTAL MANAGEMENT



PREPARED BY
CONSULTANT



Town of Sunset Beach Resilience Strategy

1.0 Summary

In March 2021, the Town of Sunset Beach was selected to participate in Phase 1 and 2 of the North Carolina Resilient Coastal Communities Program (RCCP), administered by the North Carolina Division of Coastal Management. The Program is a federal-state-local partnership designed to help overcome barriers in coastal resilience and adaptation planning, boost local government capacity, and support a proactive, sustainable, and equitable approach to coastal resilience planning and project implementation. Since March, Moffat & Nichol (M&N), in partnership with the Town, has reviewed existing plans and resources, conducted three Community Action Team meetings, and obtained public feedback through a public survey and a public meeting to develop a Resilience Strategy. The Resilience Strategy, as described further in this report, includes a Risk & Vulnerability Assessment Report and a Project Portfolio to help better reduce exposure, reduce sensitivity, and increase adaptability to flooding and other hazards. Phase 1 and 2 of the Program were completed in January 2022. Following completion of Phase 1 and 2, the Town will be eligible for Engineering, Design, and Implementation funding through the Program's future phases, anticipated to be available in Spring 2022. The Town will continue to seek feedback from residents on priorities and implementation opportunities.

This report discusses the various components of the Sunset Beach Resilience Strategy. It consists of the following seven subsections:

- 1.1 Vision & Goals
- 1.2 Community Action Team
- 1.3 Community Engagement Strategy
- 1.4 Review of Existing Local and Regional Efforts
- 1.5 Risk and Vulnerability Assessment Report
- 1.6 Project Portfolio
- 1.7 Additional Files

1.1 Vision & Goals

The Town of Sunset Beach, M&N, and the Community Action Team (CAT) worked together to develop a community-specific vision and set of goals which established the local context for the RCCP program and guide subsequent steps. The community vision and goals drew from existing sources of information, such as:

- Previously identified goals or vision statements developed by the community as part of other planning or budget processes; or
- Natural hazard events such as hurricanes, or trends such as increased flooding frequency; or
- Community demographics such as particularly vulnerable or disadvantaged populations.

The **vision** is intended to be an aspirational statement for where the Town wants to be in the future, particularly in relation to coastal hazards.

The **goals** are intended to be specific, measurable goals to help the community identify steps that can be taken to achieve the vision. The goals could relate to preparedness, recovery, community engagement, construction and restoration, etc. The community goals reflect the triple-bottom line approach to resilience, which goes beyond traditional hazard mitigation and disaster recovery to develop a holistic strategy considering social, environmental, and economic factors.

1.1.1 Vision Statement

The approved Sunset Beach RCCP Vision statement is, “Enhance the ability to withstand the effects of natural disasters or environmental hazards and to rapidly return to normalcy after such events. This commitment to advancements in planning, preparation, and readiness with a focus on protecting critical infrastructure and saving and protecting the lives and livelihoods of people, property, and the natural habitat of the Town.”

1.1.2 Goal Statements

The approved Sunset Beach RCCP Goal Themes and Statements are:

1. Establish, through committed leadership, an open and continuous forum focused on “resilience” with direct input from citizens, informed elected officials, and Town staff.
2. Advance preparedness and resiliency by identifying and providing resources, training, and equipment to affected Town departments.
3. Reduce risks and enhanced resiliency through informed planning and focused land use.
4. Gain support from NCDOT, local utility companies, and County officials for protection and resiliency of their facilities located within Sunset Beach.

The vision and goals are listed in further detail in *Appendix A: Vision and Goals*.

1.2 Community Action Team

To begin the Risk & Vulnerability component of Phase I, the Town of Sunset Beach created a Community Action Team (CAT) of key stakeholders to provide targeted input and champion the effort. Building relationships, trust, and shared understanding among key stakeholders set the foundation for implementing resilience action. The CAT was developed by the Town, with guidance and support from Moffatt & Nichol (M&N). In keeping with the RCCP Planning Handbook, issued by The Division of Coastal Management (DCM), the CAT members were selected based on their expertise in planning and community development, hazard mitigation, utility management, engineering, the community’s economy, engaging with vulnerable and underrepresented populations, and familiarity with nature-based solutions. Members stem from roles such as municipal/county managers, planners, elected officials, utility managers, community and economic developers, business community representatives, disaster recovery coalitions/groups, councils of government (COGs), state and federal land managers, non-governmental organizations (NGOs), private organizations, and other roles which work with the community on resilience planning.

The CAT was intended to be comprised of a diverse group of at least five members. M&N worked directly with the Town of Sunset Beach to develop a CAT roster. The Town chose various individuals based on their knowledge, familiarity, and ability to contribute to the RCCP.

The following members comprised the Sunset Beach RCCP Community Action Team:

Affiliation	Contact Name*
Town of Sunset Beach – Planning Board	Tom Vincenz
Town of Sunset Beach – Planning Board	Noelle Kehlbrerg
Town of Sunset Beach – Planning Board	Peter Larkin
Town of Sunset Beach – Planning Board	Ron LaBruno
Town of Sunset Beach – Planning Board	Sybil Kesterson
Council	John Corbett
Town of Sunset Beach – Staff	Chad Staradumsky
Town of Sunset Beach – Staff	Lisa Anglin
Town of Sunset Beach – Staff	Jack Hobbs

*Contact email is listed in Appendix B: Community Action Team.

The CAT met three times over the course of Phase I and II:

- CAT Meeting #1: September 16, 2021, from 9:30 to 10:30 a.m.
- CAT Meeting #2: October 7, 2021, from 9:30 to 10:30 a.m.
- CAT Meeting #3: November 4, 2021, from 9:30 to 10:30 a.m.

All meeting minutes, presentations, and a full list of stakeholder contact information are listed in *Appendix B: Community Action Team*.

1.3 Community Engagement Strategy

To ensure participation from public stakeholders, a community engagement strategy was developed to outline a plan for engaging communities during the risk and vulnerability assessment and project planning, prioritization, and selection. The community engagement process worked towards the following:

- Promoting representation and equitable outcomes for marginalized communities and vulnerable populations;
- Building trust, relationships, and partnerships;
- Providing feedback and validation of the Risk & Vulnerability Assessment developed by the Community Action Team; and
- Assisting with prioritizing projects for Phases 3 and 4 of the Program.

M&N developed a Community Engagement Strategy to create a roadmap of the planning process for Phases 1 and 2 of the Sunset Beach RCCP. The strategy presented the Team’s initial considerations, the roles and responsibilities of the various parties, the outreach process over the course of the two (2) phases, the project schedule, and the outreach tools, techniques and strategies to be implemented by the Team. These tools, techniques and strategies

included: a Community Action Team (CAT), a Risk & Vulnerability Assessment webpage, one (1) public meeting, a project information fact sheet, planning resources (available on the webpage), one (1) public participation survey, a social media campaign, and leveraging local news outlets (newspaper, press release, and printed outreach material).

As the Sunset Beach Resilient Coastal Communities Program (RCCP) kicked off and began the process moving into Phase 1, Risk & Vulnerability Assessment, the M&N Team (Moffatt & Nichol) worked in close collaboration with Chad Staradumsky, Sunset Beach Planning Director, with support from Lisa Anglin and Jack Hobbs on the various outreach components.

1.3.1 Project Website

M&N crafted the website content to present information on the RCCP planning process. The Town of Sunset Beach took the information and built a project webpage, https://www.sunsetbeachnc.gov/index.asp?Type=B_BASIC&SEC=%7b3B8EB108-EC19-4847-AA70-52E62447B203%7d, which launched in late September, prior to CAT Meeting #2. The website provides latest news, introduction and background, program sponsor, ways to stay connected, the process forward, planning resources, and available presentations and downloads. The website is intended to be updated throughout the planning process with relevant news, documents, and meeting material for public record. The webpage outline is available in *Appendix G: Additional Files*.

1.3.2 Project Information Fact Sheet

M&N developed a project fact sheet to provide basic information on the planning process, as well as project contact information and links for interested parties to engage in the planning effort. The fact sheet was made available on the project webpage and was distributed by the Town of Sunset Beach to the community through their various outreach channels. The project fact sheet is available in *Appendix G: Additional Files*.

1.3.3 Social Media Campaign

M&N created a social media campaign, with posts, images and a posting schedule to accompany the various outreach efforts of the project and align with information presented on the project webpage. The Town of Sunset Beach shared this information on their various outreach channels and were able to have others reshare the information on their respected channels for greater outreach and engagement. The social media campaign is available in *Appendix G: Additional Files*.

1.3.4 Public Survey

M&N worked to create a public survey with Sunset Beach's input. The goal of the survey was to obtain further information from the public to further support the RCCP work for the Town of Sunset Beach. The survey was developed on SurveyMonkey. It was also provided as a hard copy survey for the Town of Sunset Beach to distribute, when appropriate. The survey launched on September 13 and closed October 26, 2021. The survey took approximately 7 minutes to complete. The Town of Sunset Beach shared the survey link through various outreach channels. 119 survey participants took the survey.

The survey provided valuable information to the project team, focusing on what the community felt were their top concerns and priorities. Sunset Beach survey participants stated wind damage caused by hurricane, loss of electricity, and flooding caused by storm surge and/or rainfall from tropical storms are residents' top concerns. Residents indicated their top planning priorities are preventing overdevelopment and loss of pervious surfaces,

preventing development in flood hazard areas, and protecting and reducing damage to utilities. The full survey report and survey summary results sheet are available in *Appendix G: Additional Files*.

1.3.5 Public Meeting

A hybrid public meeting was held on October 26, 2021, from 5:00 to 6:30 p.m. 15 attendees participated in the public meeting. The public meeting was a general presentation and discussion providing a foundation and framework of the project. The Team explained how community input will help contribute to the larger community vision for success and resilience. The community was tasked with collaborating with the Team to help develop solutions. The public meeting presentation and meeting minutes are available in *Appendix G: Additional Files*.

The Sunset Beach RCCP Stakeholder Engagement Strategy is listed in *Appendix C: Community Engagement Strategy*.

1.4 Review of Existing Local and Regional Efforts

After forming the Community Action Team (CAT), the Team conducted a review of existing plans, ordinances, policies, and programs to identify work that has already been completed. The Team began with an inventory of relevant resources, then compiled information on the following key areas:

- Critical assets and natural infrastructure
- Social vulnerability
- Risk assessments
- Resilience-related projects

The Town was advised land use/development projects may also be considered and later included in the risk assessment. Once a review of existing data and information was complete, the Team identified and documented the additional data and resources necessary to complete the community's vulnerability and risk assessment, including:

- Inventory of critical assets and natural infrastructure
- Social vulnerability data
- Best available economic data

The review of existing local and regional resources focused on the following areas of overlap: inventory of critical assets, sea level rise projections, risk assessments, and resilience-related projects. Additionally, the review identified and filled data and information gaps for risk assessment inputs.

The Sunset Beach RCCP Review of Existing Local and Regional Efforts is listed in *Appendix D: Review of Existing Local and Regional Efforts*.

1.5 Risk and Vulnerability Assessment Report

The risks, vulnerabilities, and degree of exposure to natural hazards of the Town of Sunset and its population, built environment, and natural infrastructure now and into the future was examined in this section. The assessment included a review of the direct impacts to critical facilities, natural infrastructure, property, and population. In

terms of natural infrastructure, the Town of Sunset land contains many areas of land or water that are important to protect from uncontrolled or incompatible development. Direct impacts from flooding are concentrated around the Town's major water bodies. Most critical assets and properties within the Town are located outside of the 100-year flood zone, however, some properties, including residential, lie within the floodplain and should be key considerations in future land use planning.

The Town of Sunset is vulnerable to natural hazards including flooding, sea level rise, storm surge and wind. The methodology used in this assessment helps to provide a better understanding of the degree of vulnerability of certain features as well as the associated risks. Critical facilities, natural infrastructure, property, and the Sunset population are in some cases, located in areas within the Town boundary that demonstrate higher risks and vulnerabilities to these natural hazards, providing crucial information for land use and conservation planning. These features were qualitatively assessed using Geospatial Information Systems (GIS) mapping and utilizing data from a variety of sources including local, state, federal, and non-profit agencies.

Social vulnerability was evaluated using the Center for Disease Control (CDC) guidelines. According to the results, the census block at the northeast of the Intracoastal Waterway shows the highest social vulnerability followed by the Sunset Beach barrier island.

Loss estimates obtained using GIS were used to quantitatively assess vulnerability. Loss estimates included numbers of buildings, and critical facilities located in the identified hazard areas, an estimate of the potential losses to vulnerable structures. Additionally, an overall vulnerability score was assigned to each critical asset by estimating assets exposure, sensitivity and adaptive capacity.

The Town of Sunset's Risk and Vulnerability Assessment is provided in *Appendix E: Risk and Vulnerability Assessment*.

1.6 Project Portfolio

In Phase 2, M&N worked with Town staff, the CAT, and community members to identify and prioritize a combination of policy, nonstructural, structural, and hybrid actions, including the use of natural and nature-based solutions (NNBS), organized within a Project Portfolio. The Town of Sunset Beach had identified several ongoing projects including navigation improvements to local channels and sediment management within Jinks Creek. These navigation projects were not included in the Project Portfolio as they are funded and in the permitting and implementation phase. The Town of Sunset Beach's Project Portfolio is provided in *Appendix F: Project Portfolio*.

The CAT conducted an independent canvas of the Sunset Beach municipality areas to identify and scope out potential projects for consideration under the RCCP Phases 3 and 4. Town staff and department leads were interviewed to identify potential projects and included meetings with the Public Works Director, Stormwater Manager, Fire Chief, Police Chief, and other town disciplines. The list of projects developed during Phase 2 and included within the Project Profile are considered multi-disciplined solutions ranging from communication to emergency preparedness and the feasibility analysis of expanding upon the Town's stormwater management and nature-based strategies to green infrastructure. Projects include improvements to public safety by elevating critical evacuation routes, improvements to watershed management by evaluating existing stormwater infrastructure and reductions in sources of pollution through green infrastructure. Based on feedback from the

Town staff, the CAT, and the public, the Project Portfolio includes eleven projects to be further prioritized and analyzed for Phase 3: Feasibility, Engineering and Design. High priority projects include those that can create direct and effective impact on the community through local partnerships, infrastructure improvements and shoreline protection within Town-owned property.

1.6.1. Funding Coastal Resilience

The NC DCM has received \$545,000 from the National Fish & Wildlife Foundation Coastal Resilience Fund and \$1.15 million from the General Assembly to continue and expand the RCCP. The NC DCM is currently drafting a "Request for Applications" (RFA) for Phase 3 of the RCCP. Phase 3 will fund the Engineering and Design of a prioritized project. It is estimated a total of \$40,000 will be available for each selected project. The Phase 3 RFA is anticipated to be posted in early 2022 (with an application deadline of March 2022).

Phase 4 RFA is anticipated to be posted late summer/early fall 2022.

1.7 Additional Files

1.7.1 Geospatial Information Systems Methodology

The data used in this assessment was obtained from a variety of sources, including federal, state, and local agencies, as well as nonprofit organizations. These data sources, along with their corresponding maps and feature layers, are displayed in Table 2. Some data was not explicitly given and had to be calculated. For instance, the data obtained from the US Census provided the number of individuals in the total population for each block group as well as the number of individuals in each age range in the Census data. In the social vulnerability maps displaying vulnerable age groups (65 years and older, under five years, and under 18 years), the percent of population under/over each age range was calculated using ArcMap field calculator.

Additionally, some feature layers were created manually. For instance, some critical facilities, such as government buildings, were created as new points, since Brunswick County GIS Data did not have all the newly developed facilities in its data collection. For these facilities, building addresses were provided by Town staff and latitude and longitude coordinates were identified based on the address.

Some feature layer data was modified for the purpose of readability and simplification. For example, the SLOSH (Sea, Lake, and Overland Surge from Hurricanes) data obtained from the National Oceanic and Atmospheric Administration (NOAA) for use in the Storm Surge map displayed dozens of colors and various ranges for each hurricane category. New fields were added to the attribute table in ArcMap to collate all shapefiles within the range for each category and color coding was applied to the entire field, so that each hurricane category would be represented by a single color for easy readability. To create the Municipal Zoning Parcels and Flood Zones map, a similar methodology to the Storm Surge Map was used.

Map	Data	Source
Natural Infrastructure	<ul style="list-style-type: none"> Streams Wetlands 	<ul style="list-style-type: none"> https://data-brunscopendata.arcgis.com/ https://deq.nc.gov/about/divisions/coastal-management/coastal-management-

		data/setback-factor-maps-1998-shoreline/coastal-wetlands-spatial-data#Wetlands
Critical Features and Flood Zones	<ul style="list-style-type: none"> • Fire Stations • Government Buildings • Cemeteries • Grocery Stores • Flood Hazard (NCFRIS) 	<ul style="list-style-type: none"> • https://data-brunswick.gov/dataset/setback-factor-maps-1998-shoreline-coastal-wetlands-spatial-data#Wetlands • Town of Sunset Beach • Town of Sunset Beach • https://fris.nc.gov/fris/Download.aspx?FIPS=019&ST=NC&user=General%20Public
Municipal Zoning Parcels and Flood Zones	<ul style="list-style-type: none"> • Municipal Parcels • Flood Hazard (NCFRIS) 	<ul style="list-style-type: none"> • https://data-brunswick.gov/dataset/setback-factor-maps-1998-shoreline-coastal-wetlands-spatial-data#Wetlands • https://fris.nc.gov/fris/Download.aspx?FIPS=019&ST=NC&user=General%20Public
Storm Surge Inundation	<ul style="list-style-type: none"> • Storm Surge Inundation (SLOSH model), hurricane categories 1-5 	<ul style="list-style-type: none"> • National Storm Surge Hazard Maps - Version 2 (noaa.gov)
Sea Level Rise Inundation	<ul style="list-style-type: none"> • Sea Level Rise (1-10 ft) 	<ul style="list-style-type: none"> • https://coast.noaa.gov/slrdata/
Previous Hurricane Flood Inundation	<ul style="list-style-type: none"> • Hurricane Matthew and Hurricane Florence areas of inundation 	<ul style="list-style-type: none"> • The Nature Conservancy
FEMA Flood Zones	<ul style="list-style-type: none"> • 100-Year Flood Zone • 500-Year Flood Zone 	<ul style="list-style-type: none"> • North Carolina Flood Risk Information System (NCFRIS)

Additional files, such as mapping products and all outreach material, can be found in *Appendix G: Additional Files*.

PROJECT CONTACT

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