TOWN of
BEAUFORT
NORTH CAROLINA

Comprehensive and CAMA Land Use Plan

Adopted: October 9, 2023
NC Coastal Resources Commission certified: December 18, 2023

Acknowledgments

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And much appreciation to all the residents, business and property owners, and visitors who participated and contributed their time and perspectives.

Mayor and Board of Commissioners

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Adopted: October 9, 2023

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Executive Summary

Introduction and Purpose

This plan sets forth the community vision and goals for the Town of Beaufort, North Carolina. This historic, coastal community came together over a nearly 2-year period to consider where they are and where they would like to be - assets, threats, successes, shortcomings, and opportunities for the future. The result is this Plan, which will help guide growth, development, investment, and policy decisions for the coming years.

Comprehensive and Coastal Area Management Act (CAMA) Land Use Plan

This Comprehensive and CAMA Land Use Plan (aka the Beaufort Comprehensive Plan) functions to fulfill both the requirements of a land use plan, pursuant to NC General Statutes 160D-501, and a CAMA land use plan, pursuant to 15A NCAC 07B.0702. There is significant overlap between the components required to fulfill the requirements for each type of plan, and they are interwoven in this document in order to create a plan that is readable, logically organized, and easily used. See **About the Plan on page 8** for more on how the plan was created and who was involved throughout the process.

Background Information & Analysis

Part of creating a comprehensive and CAMA land use plan involves understanding the community and environment as they currently are, how it has changed through time, and using that information to extrapolate potential future conditions. A socioeconomic and demographic profile is provided in **Chapter 2 Socioeconomic Snapshot on page 35**, which also includes a 30-year population projection, as required by the CAMA legislation.

Environment, Natural, and Cultural Resources on page 69 contains information related to the environment, public facilities and infrastructure, historic and cultural resources, and the existing use of land.

Public Involvement & Community Goals

The public was involved at multiple points and in multiple ways, in order to ensure community values and input were the foundation of the plan. For more on public engagement, see **Public Engagement on page 10** and issues identified during this process are discussed in **Community Concerns and Aspirations on page 13** while a brief description of existing, adopted plans are provided in **Existing Plans on page 53**.

From the public input received in interviews, survey responses, small group discussions, large group public meetings, steering committee guidance, and an understanding of the adopted plans, a set of community Goals were drafted. These Goals capture the community values and envision an ideal future for the Town. Described in more detail in **Community Values, Vision, and Goals on page 129**, they focus on the following issues (in no particular order):

- Environmental Protection
- Resiliency
- Housing
- Infrastructure
- Economic Development
- Transportation
- Town Character
- Diversity and Inclusion

Within each Goal are housed Objectives, Policies, and Actions to achieve the goal's stated objective. These are sometimes collectively referred to as Recommendations. Case studies, examples, and context are occasionally provided. Implementation is the responsibility of Town leadership in prioritizing and budgeting resources and Town staff in executing actions to help achieve the stated Goals. Some Recommendations may not be immediately ripe for implementation.

Future Land Use

Another major component of the plan's impact on the character of the Town is through the Future Land Use Map (FLUM) and associated character areas (**Future Land Use and Character Areas on page 169**). This map depicts the idealized future of the Town in regards to built and natural environment. It builds on the analysis of existing and environmental conditions as well as the anticipated future conditions, and seeks to guide development in a way that reinforces the community Goals and their shared vision for the future.

CAMA Land Use Management Topics

Since this plan meets the requirements for being considered a CAMA land use plan, it must discuss key CAMA-related issues (**pg. 204**) and address the CAMA Land Use Management Topics (**pg. 208**), as set forth in state statutes. In order to fulfill this state requirement, the Recommendations in **Community Values, Vision, and Goals on page 129** that are relevant to these CAMA Land Use Management Topics are compiled and recategorized in the table beginning on **pg. 210**. In this new structure, they are identified as either CAMA Policies or CAMA Implementation Items. This structure is required in order to determine how the state will review consistency of CAMA permit applications (using the CAMA Policies) or assess CAMA plan implementation (using the CAMA Implementation Items).

Board of Commissioners' Guidance

As part of the adoption hearings of this plan, the Board of Commissioners considered and debated many viewpoints and issues related to the future of the Town. As part of those debates, the following issues were raised and are captured below. The contents of this plan are advisory and not regulatory, but where uncertainty exists, the following should be considered to supersede other plan guidance or policies:

- Construction and reconstruction in the special flood hazard area is possible provided that comprehensive and effective mitigation strategies are designed and installed. Especially see **Mitigation in the Non-Intensification Zone (NIZ) on page 200**.
- Wetlands should not be filled unless mitigated properly.
- As a point of clarity, the Board of Commissioners has at its discretion the ability to implement any policy recommendations including, but not limited to, ordinances pertaining to hydrology, stormwater, sea level rise, docks, piers, hardened structures, as well as resiliency strategies in an effort to mitigate potential land use impacts within the Town of Beaufort and its Extraterritorial Jurisdiction.

About the Plan

This Coastal Area Management Act (CAMA)-Certified Comprehensive Land Use Plan also functions as a comprehensive plan (per NCGS 160D). Many requirements and components overlap, and the distinction can be made by reviewing 15A NCAC 07B.0702 and NCGS 160D-501.

What's a Comprehensive Plan?

It is a document that contains a shared community vision to guide the growth, development, and natural resource conservation for the Town of Beaufort. It is a tool to be used by many people with an interest in the Beaufort community. First and foremost, it is for the citizens of Beaufort, the policy makers who represent them, and the Town's Staff who support them. It also for businesses and future citizens, and scholars or students who want to learn more about Beaufort.

This comprehensive plan considers existing conditions and trends to envision the future community, a community vision created by the people of Beaufort. It contains goals that define this vision and implementation strategies to achieve these goals. It provides an analysis of the forces that have shaped the Town of Beaufort over time, as well as the current socioeconomic qualities of the Town of Beaufort. Finally, the plan provides implementation strategies to achieve the vital elements that make the Town of Beaufort a safe and welcoming place to live, work, and play.

Who's Been Involved

» Focus Groups

- Economic Development/Business Community Focus Group
- Community Leaders and Developers Group
- Planning Board Focus Group
- Environmental and Resiliency Professional Focus Group
- Local citizens and local neighborhoods advocacy group

» Steering Committee - appointed members of the community who reviewed and guided all plan documents to enhance the plan with local perspective.

» Planning Board - reviewed the plan as part of the formal adoption process.

» Town Commissioners - reviewed the plan as a part of the formal adoption process.

» Town Staff - facilitated meetings and outreach, internal review and coordination, provided perspective and background information.

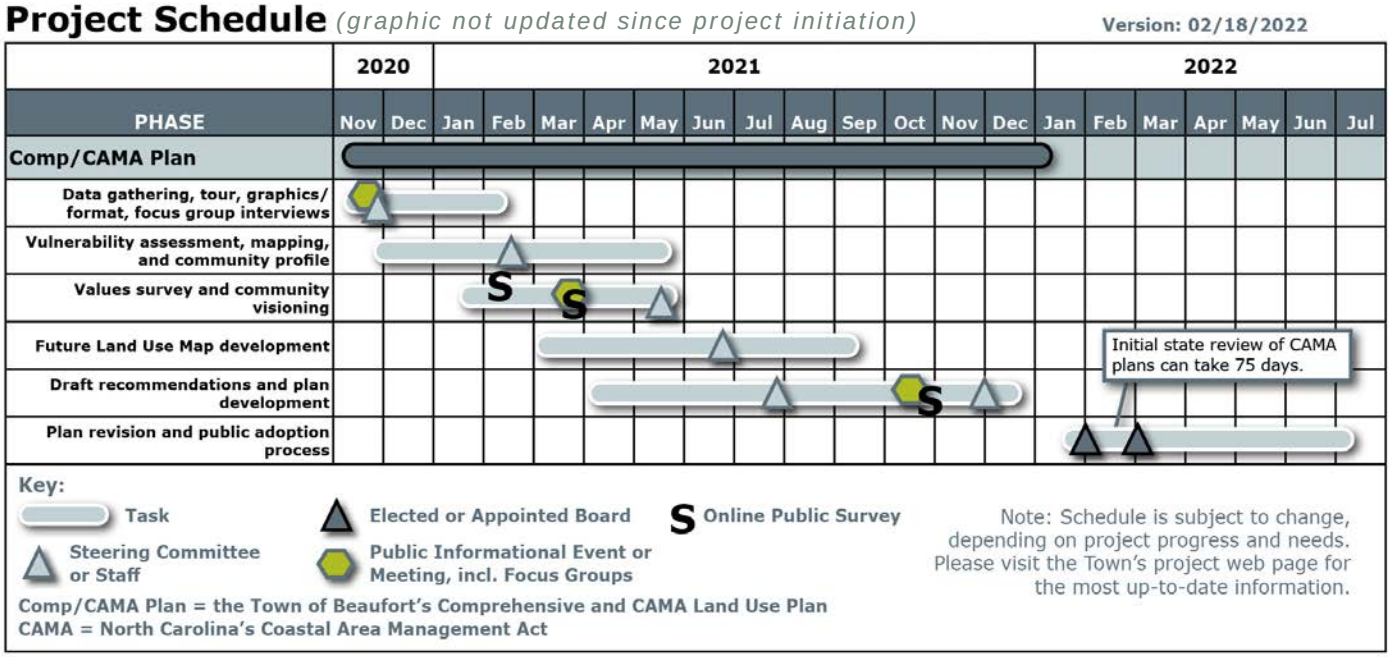
» Members of the public - participated in public meetings, plan review, surveys, and input through various methods.

"The people are the best part of Beaufort."
-Steering Committee member

Schedule

The project kicked off in November of 2020 by collecting valuable data from town staff. Next, the Stewart team visited the Town for a community tour and focus group meetings. This led to obtaining valuable insight and local perspectives related to land use and development in the town. Following the community tour, a vulnerability assessment was performed to identify areas of environmental concern, existing land use, transportation, infrastructure, water quality, stormwater, and other environmental concerns. Throughout the process, the project team met with Town staff and the steering committee to help guide the plan and address required topics by the Coastal Area Management

Project Schedule *(graphic not updated since project initiation)*



Act. A combination of public meetings and surveys were conducted to gain community insight on future growth, development, preservation, and conservation concerns. Updating the Town's CAMA-Certified Comprehensive Land Use plan is a two-year process that includes one-year of public engagement and analysis, followed by state review of the draft plan, which can take up to 75 days.

Public Engagement

Public engagement included a series of focus group sessions, steering committee meetings, three public meetings, and three surveys.

In addition to the steering committee reviewing and shaping all elements of the plan, the public also weighed in regularly.

Public Meetings

- Public Meeting #1: December 9, 2020 - introduced the community to the plan development process and reviewed preliminary information that had been collected and analyzed.
- Public Meeting #2: March 23, 2021 - reviewed existing conditions and gathered community input on draft goals.
- Public Meeting #3: October 14, 2021 - introduced the community to the draft plan document and gathered input and answered questions about the document.

Surveys

- First Survey: February 10 - March 10, 2021 - gathered information on community values and vision.
- Second Survey: March 24 - April 13, 2021 - gathered community input on draft goals and objectives of the plan.
- Third Survey: October 14 - 29, 2021 - gathered community comments related to opinion of the draft plan and the included future land use map, revised goals, and expanded objectives and recommendations, prior to the plan going to elected and appointed board for review and approval.

Outreach During COVID-19

Although COVID-19 presented challenges to public engagement across the state, the Town, project team, and Beaufort community adapted and engaged the public in meaningful ways. Focus group meetings, steering committee meetings, and public meetings were held using Zoom and streamed over Town-utilized social media platforms. Surveys were accessible online (traditional computer and mobile) and printed hard copies were available to be taken in person. Zoom allowed for interactive breakout group sessions that facilitated small group discussion. These small group sessions ensured that all attending had the opportunity to be heard.

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Beaufort
Historic
Site

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Community Concerns and Aspirations

Significant Existing & Emerging Conditions

The following description of existing and emerging conditions is not exhaustive but does capture the general state of land use and development concerns in the study area of the Town and set the stage for further discussion in the plan of relevant concerns. A discussion of Coastal Area Management Act (CAMA) related concerns is also included, and is based on the information gathered from the land use plan steering committee survey, general public input gathered early in the plan update process, and town staff and local area expert interviews.

Land Use

Context

Located on the Crystal Coast in North Carolina's Coastal Plain region, the Town of Beaufort is the seat of Carteret County. It sits on a small peninsula and is bordered on the east by the North River and the west by Newport River, with Taylor's Creek, the Rachel Carson Reserve, and the Beaufort Inlet to the south.

Existing Land Use

Residential properties comprise the majority of Beaufort's existing land use. Public and institutional lands, commercial land, and industrial land follow in relative abundance, respectively. Vacant land, agriculture, and conservation areas comprises 40% of the land within the Town's planning jurisdiction.(See **Existing Land Use & Development on page 124** for additional detail.)

Gallants Channel Bridge

Future Land Use

The Town's 2006 Future Land Use Map classifies the corporate limits and the extraterritorial jurisdiction into the following categories:

- Residential
  - Low Density
  - Medium Density
  - High Density
- Commercial
  - General
  - Downtown
- Mixed Use
- Public and Institutional
- Industrial
- Conservation and Open Space

The largest classification on the Future Land Use Map with 43% (3.19 square miles) of the total planning jurisdiction is Low Density Residential. Medium Density Residential constitutes about 10% or (0.8 square miles) of the total planning jurisdiction. There is minimal land classified as High Density Residential, but these areas are primarily located along U.S. Highway 70 North.

15.8% of the total planning area is classified for future Mixed Use, which provides a mix of medium- and high-density residential uses and commercial and institutional uses. There are several sites adjacent to Town Creek, the former Beaufort Elementary School site, properties near Cedar Street and Carteret Avenue, the Atlantic Veneer Corporation site, and the Beaufort Fisheries Industries site.

Public and Institutional uses include the Michael J. Smith Field Airport, public facilities, and schools. Approximately 12% (0.9 square miles) of the total planning jurisdiction is classified as Public and Institutional.

The Industrial future land use classification accommodates some existing and future industrial and manufacturing establishments as well as heavy commercial uses. About 2.6% (0.21 square miles) of the planning jurisdiction is identified for future industrial use.

Most of Beaufort's conservation and open space area lies in the Rachel Carson Reserve. In 2019, the North Carolina General Assembly passed SL 2019-95, annexing unincorporated portions of Rachel Carson Reserve into the Town of Beaufort. This added conservation and open space to the Town; however, further growth in this category is not anticipated.

The future land use component of this Land Use Plan update will build on the data from the previous plan.

Conservation

While owned by the State of North Carolina, the Rachel Carson Reserve, across from Taylor's Creek, is a renowned landmark and remarkable asset for the Town of Beaufort. The islands of the Reserve (Carrot Island, Town Marsh, Bird Shoal, and Horse Island) shield Beaufort from the waters of the Atlantic Ocean. In addition to the Reserve, Fort Macon State Park and Shackleford Banks are located just outside of the Town's jurisdiction but are regionally significant environmental resources.

Rachel Carson Reserve

Development Trends

Residential Growth and Needs

The approval of large subdivisions has been shaping and reshaping the landscape outside of historic downtown for sometime. Among the most recent developments, Beau Coast and Beaufort East Village will add 785 dwelling units to the Town.

Current and anticipated increases in Beaufort's permanent and seasonal populations (see **Population Estimates and Projections** in **Chapter 2**) will create a demand for new residential development and create demand for related goods and service providers. The 2006 Beaufort CAMA Land Use Plan projected that there was sufficient land to meet these needs through 2025, but available land is in high-demand. With a finite supply of property, the Town stands to face increasingly difficult land use decisions.

Uptown and Midtown

While Beaufort is best known for its shoreline, waterfront, and historic downtown, the Town's planning jurisdiction extends far beyond these districts. In fact, the Town expects that most of its anticipated growth will be north of Cedar Street, Lennoxville Road, and NC 101, approaching the limits of its extraterritorial jurisdiction (ETJ). Uptown and Midtown received less attention in years past; however, recognition of the importance of these areas moving forward is growing. Development patterns have

been inconsistent in these parts of the Town, but recent efforts to focus on these neighborhoods have been well-received. There are current plans to revitalize the commercial areas and beautify the streetscapes, as recorded in the Small Area Plan and Entry Master Plan (see **Existing Plans on page 53**). These efforts will be critical steps towards unifying the Town, reinforcing the authenticity of the community, and creating a sense of place upon entry.

Transportation

Airport

The Michael J. Smith Field Airport has good access to the state highway system and is separated from the central business district by Highway 70. The airport serves planes and jets coming to and from the Crystal Coast and is regularly used for military training exercises. It also offers educational and recreational opportunities for visitors and residents of the surrounding areas. Previous planning efforts have explored the potential of expanding the runways, which would require a realignment of Highway U.S. 101 and have impacts on surrounding properties.

Roadways

The main entrance to Beaufort is on U.S. 70. In May 2016, the U.S. 70 corridor was designated to become I-42 to connect I-40 and the greater Raleigh/Durham/Triangle area with Morehead City and the port. From start to finish, the project will span nearly a decade.

At present, it takes approximately three hours for travelers from the Research Triangle region to reach the Crystal Coast. The new I-42 will reduce that time by about one hour, improving freight movements and reducing evacuation times during storm events. Experts anticipate significant economic development to occur along the corridor and neighbors in Morehead City and Atlantic Beach are already beginning to plan for the increased demand.

In 2019, the North Carolina Department of Transportation (NCDOT) completed a $66.4 million project to replace the existing bridge on U.S. 70 over Gallants Channel with a 65-foot fixed-span bridge. The project also included widening U.S. 70 into four lanes with a median and a bridge on Turner Street. This project improved traffic flows on the highway, resulted in reduced traffic on Cedar Street and Live Oak Street (both formerly U.S. 70), and has provided an opportunity for the Town to utilize the old bridge site as a future park space. Cedar Street is also scheduled for significant improvements in mid to late 2022, including enhanced streetscape design with landscaping, low-impact development elements, pedestrian facilities, and on-street parking upgrades accompanying a road repaving.

Highway 70 bridge over Gallant's Channel

Active Transportation and Recreation

Active transportation includes modes where the person is actively propelling themselves (i.e., walking or bicycling versus riding in a car). The Town's commitment to improving active transportation (also referred to as multimodal transportation but active refers specifically to human-powered travel) options led to the adoption of the 2018 Beaufort Walk + Bike Plan. Since then, progress has been steady. Implementation of the plan's recommendations has included pedestrian amenities at Turner Street, a crossing at Tiller School, and sidewalk installation along Live Oak Street and Carteret Avenue.

ADA Improvements

The Town of Beaufort began an ADA Transition Plan in 2020 to comply with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA). The Plan identified barriers to accessibility and strategies for remediation in town-owned infrastructure and services. The Town recently installed a wheelchair ramp at Town Hall. Several other curb ramps throughout town were brought into compliance with ongoing street resurfacing projects.

Signage and Wayfinding

Signage and wayfinding play a critical role in the Town of Beaufort, especially for visitors. In August 2012, the Town of Beaufort adopted the Beaufort Entry Master Plan to evaluate opportunities to improve these elements of the Town. To create a signage plan, the Plan identified the best routes to high-traffic destinations.

Cart Culture

Beaufort residents have a unique affinity for golf carts. They typically equip the vehicles for street use. When active transportation is less feasible or desirable, the golf carts provide both an enjoyable pastime and mobility for many in the Town.

Infrastructure

Water

The Town of Beaufort has four wellheads and water treatment plants, one located on Hedrick Street and one located on Glenda Drive. There are over 3,200 service connections throughout the distribution system.

Sewer Service

Beaufort's sewer system has approximately 25 miles of gravity lines, 28 miles of force mains, 21 pump stations, and 3,300 sewer service connections. The wastewater treatment plant discharges the treated water into the eastern portion of Taylor Creek.

Town Wastewater Treatment Plant

Water Quality

Watershed Restoration Plan

In 2016 the Town established a Stormwater Advisory Committee. This committee was facilitated by the N.C. Coastal Reserve to identify flood-risk areas, advise a water quality collaborative research project led by UNC Institute of Marine Science, and develop a Watershed Restoration Plan. The North Carolina Division of Marine Fisheries identified impairments in local shellfishing and swimming waters resulting from stormwater pollution in Beaufort. In response, the Town's advisory committee collaborated with the Eastern Carolina Council and the North Carolina Coastal Federation to produce the 2017 Watershed Restoration Plan for Town Creek, Taylor Creek, and the Davis Bay watersheds. This plan seeks to reduce the volume of stormwater reaching these watersheds and emphasizes pairing capital improvement projects with stormwater reduction measures. The Town has implemented several successful stormwater reduction projects including the Tiller School rain gardens, the Lennoxville Boat Ramp rain gardens, and the Beaufort Fire Department permeable pavement.

Stormwater Management

Beaufort's 2017 Plan set a goal to reduce stormwater runoff by 0.088 gallons per square foot. Targeted methods include stormwater retrofitting and community outreach initiatives. Efforts span across public and private lands to create a multi-faceted, joint push to improve stormwater pollution and reduce volume. In 2019, the Town completed a Utility Line, Storm Water, and Street Improvements Capital Investment Plan (CIP).

Other Environmental Concerns

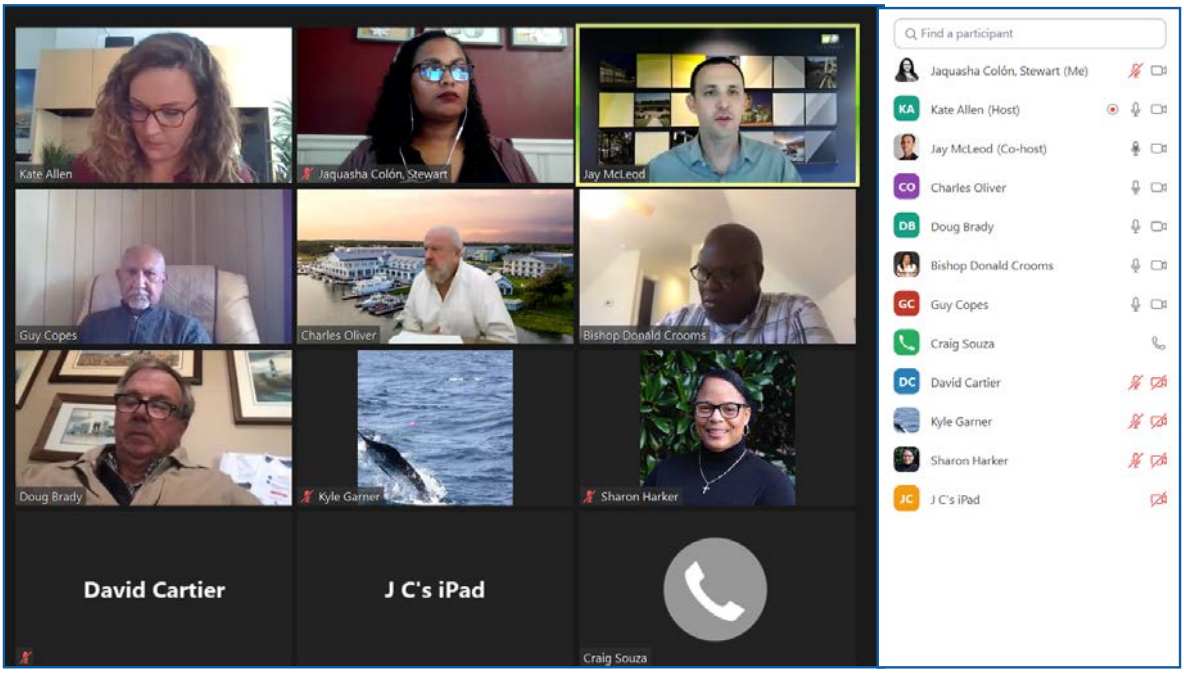
Sea Level Rise and Flooding

With sea level rise expected to be approximately 40% higher than the global average, the Town of Beaufort faces significant risks in the near future. By 2060, sea level rise is projected to increase by between 1.0 and 3.9 feet. Water levels at or above 1.8 feet create minor flooding conditions in the Town. Without strategic intervention, sea level rise could cause moderate and major flooding, threatening the economy, property, and the population.

Focus Group Interviews Summary

On December 8th, 2020, the project team and town staff led four virtual focus group discussions. Each meeting brought together participants representing varying interests in and around Beaufort to discuss the town's challenges, accomplishments, opportunities, and its future. This was held early in the planning process to provide the project team with much needed local context and history. The four meetings were organized by the town staff under these topic areas: economic development and business community, developers and community leaders, planning board, and coastal resiliency and environmental professionals. Each group was asked about Beaufort's opportunities, assets, challenges, and concerns and given the time to discuss their opinions, both professional and personal. The discussions were free-flowing and resulted in a few themes that were repeated in each meeting.

A fifth focus group meeting was held on April 1st, 2021, after the second public meeting wherein the draft goals for the project were presented to and discussed with the public. This fifth focus group consisted of residents eager to see the Town engage with the community to develop this much needed update to the Comprehensive Plan. Input from all five of these meetings was consolidated into this summary.



Focus Group Interviews were conducted on Zoom

Groups and Organizations Represented

- » Residents
- » Religious Leaders
- » Business Owners
- » Developers
- » Community Leaders
- » Beaufort Business Association
- » Carteret County Chamber of Commerce
- » Beaufort Planning Board
- » Beaufort Parks and Recreation Advisory Board
- » Carteret County Economic Development
- » Carteret County Community College
- » Crystal Coast Tourism Development Authority
- » NCDEQ Division of Coastal Management
- » NCDPS Office of Recovery and Resiliency
- » UNC-Chapel Hill Institute for Marine Sciences
- » NCDEQ - Rachel Carson Reserve Duke University Marine Lab

Key Themes Repeated Across All Five Focus Groups

- » Preserving and protecting Beaufort's Charm and Character
- » Protecting the Crystal Coast
- » Maintaining a Mixed Income Community

Focus Group Interviews included a short presentation for participants

Summary of Input:

Opportunities / Assets:

- » Celebrating small town / coastal charm
- » Preserving historic downtown and built environment
- » Growing demand for residential development
- » Strengthening safe neighborhoods
- » Thriving small businesses
- » Protecting the crystal coast ecology

Challenges:

- » Preserving the character of Beaufort
- » Protecting the coast and environmental water quality
- » Increasing infrastructure demands due to growth
- » Availability of affordable long-term rentals
- » Lack of regulations on short-term rentals

Other Areas of Concern:

- » Rising sea level and flooding
- » Gentrification of established minority neighborhoods
- » Lack of public amenities and facilities for families
- » Fostering the community feeling between new arrivals and residents
- » Accessibility for all
- » Diversifying and increasing employment opportunities (industrial and commercial growth)
- » Housing affordability

Barbour's Marine Supply Storefront

Detailed Summary of Focus Group Interviews

Small Town Charm

It is undeniable to stakeholders and visitors alike: The Town of Beaufort is a charming coastal town. From the seasonal programing, local restaurants and bars, several docks, distinctive historic district, safe neighborhoods, and the sort of Southern hospitality only found in the Carolinas – Beaufort's reputation as a jewel of the Crystal Coast is well-deserved. Long-time and newer residents both agree that this distinctive character needs to be maintained in perpetuity. Residential development has seen a boom in recent years with vacationers and retirees both flocking to find their piece of the Town, and with that change comes the concern that the small-town feeling will start to feel crowded, or perhaps worse, inauthentic, and suburbanized. Among residents, both life-long and transplants, there is some concern that Beaufort's growth will center on its tourism industry – leading it to develop in a fashion similar to larger, more commercialized, coastal, vacation destinations.

Typical housing seen in Beaufort

Refocus on Midtown and Uptown

While Beaufort is often recognized by Front Street and the historic downtown, that area alone makes up a very small portion of the whole community. North of Cedar Street, Lennoxville Road, and the Live Oak Street and Highway 101 intersection, and all the way to far edges of the ETJ is where the majority the land and year-round residents of Beaufort reside. Much of the planning, regulatory, and development focus on Beaufort has been centered around the southernmost portion of the town. Downtown and along the Front Street waterfront is where the most desirable land and development pressure has been. There is a long-growing need to place some focus on Uptown Beaufort, which has seen spotty commercial development in the recent decades.

Aging Population

Beaufort, like many of North Carolina's scenic coastal communities, has been drawing retirees in as new residents while seeing a decline in young adults and families with children.

Stakeholders in the focus groups who grew up in town before leaving to follow careers elsewhere have come back after decades away and spoke of others who have done the same. With this pattern continuing today, Beaufort has seen the median age of rise as the older adult and empty-nester popula-tion climbs.

Active and Accessible Mobility

Recently, the Town completed a bicycle & pedestrian plan which made new recommendations for improved walkability and bicycle connectivity. The Town has been moving steadily in implementing pedestrian improvements that were recommended, such as pedestrian amenities planned at Turner Street, a crossing at Tiller School, and sidewalks along Live Oak Street and Carteret Avenue. That said, some residents also rely on golf carts as their preferred method of transportation across town in a similar manner to a mobility scooter user. Meeting mobility needs for these users should be balanced with pedestrian, bicycle, and roadway improvements. There is also recognition of the need for increasing the prevalence of ADA accessible pedestrian facilities based on concerns raised during the initial public engagement efforts.

Housing Affordability

New residential opportunities have not been in short supply for the Town of Beaufort. The Beau Coast and Beaufort East Village alone will add nearly 800 homes to the Town when fully built out, and additional infill development is also occurring throughout town on a lot-by-lot basis. Much of the new housing starts in the mid to low $300,000 range. Due to the nature of Beaufort's environment and location (at the tip of peninsula with sensitive wetlands bordering either side), as well as the southernmost and central portions being largely developed already, there is not much buildable land available (especially sewer service) located nearby.

Ready-to-develop land is in short-supply and expensive near downtown and corridors. Land further away from the Town's core would be costly to connect to infrastructure and conforming with the distinct small-town charm may limit options that could improve density, leaving developers with limited flexibility or incentive to make housing more affordable for lower income levels to rent or own.

Preserving and Attracting Diversity

Beaufort has historically been more racially diverse than it is presently, particularly within the Mulberry Street neighborhood. Currently, the demographics show the Town's population is about 21% minority but has been trending down as rental availability and housing affordability have become increasingly harder to find for households with low-to-moderate incomes. Additionally, increases to taxes and a higher cost of living are making it harder for households with lower incomes to stay in town and for property owners with long-term rentals to maintain historic rates. With primarily single-family houses in resort style neighborhoods on the market and rental properties shifting to popular short-term models, current and

Picnic tables on Front Street during the winter months

Private marina on Town Creek.

Public kayak access point and storage.

Town docks.

prospective minority, young family, and low-to-moderate income residents are being pushed out of Beaufort proper to the County jurisdiction, Morehead City, or out of this region altogether.

Short-Term Rentals and the Community Atmosphere

As an attractive vacation destination, Beaufort has seen an increase in short-term rental offerings on popular listing platforms (e.g., AirBnB and VRBO). Within Town limits are ten hotels and inns in operation, and during peak tourism season and surrounding popular events, any short vacancies are limited. Homeowners who may not reside in town full-time or were able to acquire multiple properties have been able to profit on this market demand. However, no regulation currently exists for short-term rental properties, and locals who reside in the historic district find the increased presence of boisterous vacationers an unwelcome addition to their neighborhood. Large parties and rowdy groups do not contend well with the quaint charm and community feel locals have come to expect, and residents are waiting for a solution to balance their year-round needs with the economic benefits of the tourism industry.

Tourism Industry and Off Season

Late Spring through to early Fall makes up Beaufort's tourist season, with May to July seeing the Town at its busiest. While the population within the town limits and ETJ hovers just below 6,000 residents, the population peaks to 13,400 with the influx of vacationers. Here to enjoy the rich history, visit the Reserve, recreate along the coast, and soak in the small-town charm, the tourist population

drives much of the local economy. When the Cedar Street bridge was closed and replaced by the US 70 Bypass, there was a deep concern that tourism would decrease, and local businesses would see a distinct decline in revenue due to traffic from Morehead City being diverted away from Town. However, that has not been the case. Now with future Interstate 42 connection, a new hotel, and the influx of residents, summer tourism is expected to continue to build.

One change stakeholders are hoping for is growth in tourism in the fall and winter months. As it stands, the decrease of revenue is drastic once the vacationers leave. Businesses that see most of their profit from tourists are unable to maintain summer staff or hours. This extends to tours, hotels, restaurants, and shops along Front Street. There is a significant interest in the business and tourism community to capture more off-season tourism. If the Town is able to grow off-season interest, more revenue and year-round jobs can come into the community while using existing infrastructure to maximize the returns on local tourism-based investments. Many of the stakeholders agreed that maintaining a steady flow of year-round tourism would better support the service and retail industry in the town.

Jobs and Business Development

By far the retail and service industry in Beaufort takes up the biggest portion of the local workforce, however, a thriving local economy needs diversity of job opportunities. Large industry employers are typically outside of Beaufort limits, but they have tended to edge closer to town in order to tie into existing sewer utilities. Attracting and retaining

The built environment must accommodate the natural environment

Coastal wetlands are fundamental to the community

Beaufort is a water-focused community

industries has been a concern, as well as attracting the right kind of residential support businesses that make a place attractive to live.

Access to Public Trust Waters

Despite the spectacular waterfront views available in many places, direct, physical access to the water in Beaufort can be difficult to find for the general public. Private residences, rental properties, and specific neighborhoods hold most of the docks and boat launches. The Town has made improvements to several access points, but they are limited in geography and facilities. Celebrating and protecting spaces where everyone has open access to Beaufort's greatest natural asset could both increase public support and participation in environmental protections and improve access for all residents and visitors. Recent years have seen an increase of motor boat traffic in the waterways. The extra noise, pollution, and traffic can be disruptive, and even dangerous, for marine life and kayakers alike.

Fishing access

Environmental Protections

The Town was planned around the inlet and access to the ocean remains ones of the top selling points. As such, there is a vested interest by all parties to protect, preserve, if possible, restore the natural environment where loss and degradation has occurred. Past planning and industry decisions, such as widening the port, have created lasting effects that will increase impacts felt in Beaufort from sea-level rise

Kayak stand near the marina

and global climate change. Multiple agency efforts need to be coordinated to balance improvements needed to mitigate direct environmental impacts with defenses against climate change impacts, specifically increasing storm severity and sea-level rise. Decreasing run-off, reshoring against erosion, reestablishing native vegetation, and improving the stormwater collection and transport system are all key concerns that need to occur at the watershed level. Development and construction practices also need to be re-examined to ensure that site level impacts can be reduced to support Town and regional interests, such as preventing the clear cutting of established maritime forests and improving the water quality in the estuaries. In addition, the impact of a sewer system nearing capacity could exacerbate ecological degradation. Protecting Beaufort's local ecology must be a priority to consider with every planning and policy decision.

Utility Infrastructure

Beaufort is one of the few communities in Carteret County that has sewer infrastructure. However, the Wastewater Treatment Plant is over 10 years old and nearing the point at which facilities planning must occur to accommodate additional future growth. Like most wastewater treatment plants, it is expensive to operate and maintain. As such, there are high rates for users. The Town has extended wastewater treatment service to a limited number of customers outside of the corporate town limits. These users pay double what users within Beaufort's town limits pay. Sewer service connection in Beaufort is a significant factor in the cost and feasibility of development and it continues to be a priority of the Town to maintain a high value and high functioning system.

The Town's road infrastructure is also in need of improvements. While more sidewalk and cycling investments have

The Town is actively engaged in infrastructure upgrades and maintenance.

been made recently, the overall quality of the pavement in Town is in need of maintenance and repair, during which utility and mobility upgrades can also be made, which would be more cost- effective than having to come back later with further road construction.

Remote Workforce

The 2020 pandemic year brought a new opportunity for office workers that has never been seen at this scale previously: remote work capability. Stay-at-Home orders mandated by the State of North Carolina have led to employees working remotely all over the state, calling to question how far we can live from our workplace. As companies go forward, remote working flexibility is expected to be far more commonplace – opening towns previously viewed as a far-off retirement dream as a potential place to live in the present. In scenic towns across the country, newly designated remote employees are buying homes and moving to "Zoom towns," which have been experiencing significant increases in home sales since October 2020. (Zoom is a type of remote-work, virtual conferencing software.) Anecdotally, this is also happening in Beaufort, although the long-lasting impacts of remote-workforce relocations have yet to be fully understood or predicted.

Attracting Mixed Income Residents

Even though visitors may think of Beaufort as a quaint, historic small town that is ideal for retirees, there are still families and workers who live in or near the Town. Unfortunately, due to a scenario where many local jobs are seasonal, housing is largely unaffordable, rentals are short-term or unavailable, recreational opportunities for kids are in short supply, and there are more career and job opportunities elsewhere. The Town has struggled to attract and retain lower to middle income residents like young adults and families. Census data indicates that the number of jobs in Beaufort and workers who live outside of town have increased since 2000, while the number of residents who work in Town has had a slight dip. This could indicate that the people working in Beaufort cannot afford to live here, however, further analysis is needed. Providing more public amenities for families and children can also attract small and growing households back to this area as permanent residents.

Resiliency Planning with the Reserve

The Rachel Carson Reserve is a major tourist attraction and a part of the North Carolina National Estuarine Research Reserve system. The grouping of small islands, marshes, and wetlands are not only valuable habitat for native species but also function as barrier islands that protect Beaufort's waterfront. The Reserve is currently in a resiliency planning process, and the Town has the opportunity to partner with this effort. Through this collaboration, and similar ones like the Resilient Coastal Communities Program, joint projects that support both the Town and the Reserve can be identified.

A brief on the concurrent and separate Rachel Carson Reserve Habitat Resilience Planning Effort

The Rachel Carson Reserve functions as a nature preserve, outdoor laboratory and classroom, and protective storm barrier for the Town of Beaufort. As environmental and human conditions change, it is important to understand where, why, and how habitats of the Reserve have been or may be affected. These answers will help guide future actions that will support local environmental and social resilience.

Assessing Vulnerability

An understanding of the Reserve's habitats and their vulnerability to coastal flooding and severe weather is an important first step in planning for future impacts.

Marsh Vulnerability on a Site and Regional Scale

The Climate Change Vulnerability Assessment Tool for Coastal Habitats revealed that marsh at the Rachel Carson Reserve shares a "high or very high" vulnerability with other Reserve site marshes in NC (except for the Reserve site at Currituck Banks which is only "moderately vulnerable"). The tool also revealed that the main part of the Reserve site (Town Marsh, Carrot Island) is less vulnerable than Middle Marsh, which is separated from the rest of the site by the North River Channel.

Analyzing Habitat & Shoreline Change

Understanding how habitats have changed and why is key to understanding how they will respond to future conditions such as sea level rise. At the Rachel Carson Reserve, dredging projects and inlet width strongly influence habitat change.

Planning for the Future

In 2020, the Division of Coastal Management received funds from the National Fish and Wildlife Foundation to support a community resilience program and to develop a habitat resilience plan for the Rachel Carson Reserve.

Development of the habitat resilience plan is based on a knowledge base of vulnerability assessments, various analyses, published studies, and consultation with a team of experts, including staff from the Town of Beaufort. The plan will include strategies that help support the resilience of habitats at the Reserve, including habitats that are important to protecting the Town's waterfront.

Additional Resources:

Additional educational materials on the topic can be found on the Rachel Carson Resilience Hub at: https://data-ncdenr.opendata.arcgis.com/pages/dcm-rachel-carson-reserve

A Balance of Priorities

Throughout the initial information gathering activities (which included public engagement, focus group interviews, and steering committee discussions), it became apparent that there are a number of competing priorities at play in the Town. Like in many communities across the state that are adapting to growth, adapting to change while preserving the community character is a challenge. The initial public engagement that was part of this plan has resulted in a greater understanding of the competing priorities and viewpoints with which the community is currently grappling.

Community Values

Community priorities included **preservation of small-town character,** which can be achieved through density or design controls on the built environment. The Town has carefully regulated architectural controls in the historic district, and also has restrictions on building height for the entire jurisdiction.

Many survey and public meeting participants expressed concern for the **affordability of housing** and that long-time residents are feeling squeezed out or are unable to own-and-live in the town. It would appear that despite new housing being constructed, demand still outpaces supply. In addition, the appeal of cultural and environmental tourism has increased the **demand for vacation rental** housing. This has been exacerbated by the nationwide explosion of short-term rental housing (AirBnB, VRBO, HomeAway, etc.). Demand for these different rental types puts a strain on existing housing, further inflating prices.

An Affordable Housing Primer is available in the appendix of this document, but some key terms are defined as follows:

"Affordable housing" is housing that costs no more than 30% of a household's income, including utilities (HUD).

- Affordable housing can be income-restricted, meaning it is specifically developed as affordable housing and is only available to households that meet specific income limits.
- Affordable housing can also be market-rate, meaning it is affordable based on market price and is not restricted based on household income. These housing units are susceptible to market fluctuations and may increase in price, rendering them unaffordable.

"Workforce housing" is housing affordable to households earning between 60% and 120% of the Area Mean Income. Workforce housing is generally thought to be for middle- income workers which includes professions such as police officers and teachers.

Resiliency and Environmental Protection

There is also a growing concern about the environment, specifically the loss of wetlands, maritime forests, and mature tree canopy. Maintenance of environmental water quality is very important, especially since the waterfront and saltwater play a major role in everyday life and the community's identity. These areas also provide ecosystem services, such as stormwater interception and storage. Stormwater and flooding apprehensions were also frequently mentioned, and have a significant impact on water quality as well.

Erosion and higher seas are increasing the conversion of shoreline from natural to modified (sea walls, bulkheads, rock vetments, etc.). This reduction in habitat is a cost paid by all residents who enjoy the coastal habitat and benefit from high environmental water quality.

At the time of writing, the Town was also undergoing a planning effort to increase resiliency to coastal and climate hazards. This will help position the Town to respond to shocks and stressors with less disruption of services and operations.

Government Intervention and Retreat

There is very little discussion on the risk private landowners should absorb when discussing coastal development.

Some towns choose to purchase these vulnerable properties, ensuring a private landowners' investment is safeguarded by the local government. However, not all private real estate investments are guaranteed a high return. This dilemma is further exacerbated when viewing the issue through the lens: is it the responsibility of the local government to guarantee a return on investment in high-risk locations?

Maintenance of existing public infrastructure in high risk areas puts a financial burden on the overall community, while primarily benefiting the landowners. If the government were to retract services from these areas rather than purchasing them, it then may be viewed as a taking. If a town were to abandon high-risk, high-maintenance sewer lines in an area that experienced frequent coastal flooding and erosion, would those properties still be habitable or valuable if the private property owners were forced to assume those costs and infrastructure? Another option would be for the local government to charge additional user fees to maintain high- risk, high-maintenance assets. Each of these concerns are interrelated and there are tradeoffs with pursuing any course of action. The following table (next page) attempts to quantify this interrelatedness and describe the impacts that certain actions might have on other aspects of the community that are valued or seen as needing improvement.

Although this list is not all-inclusive, hopefully it provides a broader understanding of the tradeoffs that will be required in order to achieve outcomes that are different from the current course or the status quo.

Conceptual Exploration of Competing Priorities and Potential Impacts of Trade-offs					
Potential Action	**Pros**	**Cons**	**Relationship to Affordable Housing**	**Relationship to Tourism Economy**	**Notes**
Disallowing very tall structures	Maintains community character.	Prevents higher density lodging like apartments, hotels, and condos.	Reduced opportunity to develop more densely. It is unlikely this would lead to more affordable or attainable housing, but it would provide additional housing supply.	Fewer hotel rooms or rental units for tourists.	Structure height has an impact on community appearance and character.
Increased tree canopy preservation standards	Maintains environmental assets.	Potential to increase land costs for developers.	When development density is artificially kept lower (through any method) it drives up the cost of land and the cost of home construction.	Character and charm are essential to the Town's appeal. It's possible that there would be a very slight increase in tourism related to scenic beauty of neighborhoods.	Preserving tree canopy does help intercept rainfall, helps recharge ground stormwater storage capacity, lowers ambient heat, and help intercept hurricane winds.
Restrictions on short term rentals of single family housing	Maintains small-town charm and community character.	Reduces the opportunity for a unique style of tourism and/or a second income stream for local vacation home owners.	When residential housing becomes a commercial investment commodity, homes become owned and operated by investors, which decreases local supply of housing for residents.	Reducing short term and vacation rental housing supply will mean fewer tourists staying in town; tourism from in-town hotels or visitors from other towns will likely not be affected.	Some residents have adapted by renting out one or more bedrooms in their own homes to help defray the cost of living, which allows these residents to continue to be a part of the community. With the high demand for housing in Beaufort, it is uncertain if restricting short term rentals would have any impact at all on local affordability, and might just result in the short term rentals being converted to second homes.

Conceptual Exploration of Competing Priorities and Potential Impacts of Trade-offs (Continued)					
Potential Action	**Pros**	**Cons**	**Relationship to Affordable Housing**	**Relationship to Tourism Economy**	**Notes**
Restricting the conversion of property to residential uses, and protecting employment uses (commercial, industrial, etc.)	Provides an opportunity for diversifying the employment base, potentially away from such a heavy reliance on tourism.	Potentially restricts private property owners from obtaining the highest yield on their real estate; Reduces the supply of housing.	Any restriction in the supply of land available for housing has some impact on affordable housing although given the demand for coastal housing, it is unlikely that such property would result in additional "affordable" housing.	It is possible that a reduction in land available for housing (especially if some of that housing would be short term rentals or vacation rentals) would have a negative impact on the growth of the tourism economy.	While it is conceivable that this could potentially help diversify the economy, there is no guarantee that increasing the supply of commercial or industrial land will result in successful nonresidential uses if demand does not exist.
Allowing more multifamily housing types in existing neighborhoods	Adds to existing housing stock, usually via higher density.	Potential to change neighborhood character.	Additional housing supply may have some positive effect on lowering home prices of existing, affordable stock, but is less effective an adopting an official affordable housing program.	Might provide additional affordable housing for tourism related employees, but that same housing might also be consumed by second home or vacation rental market.	Multifamily housing can be introduced and regulated in a manner so that it is designed to fit within the context with existing neighborhoods.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TOWN OF BEAUFORT

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Socioeconomic Snapshot

This section examines Beaufort's existing conditions through analysis of population, demographics, and housing. The study area encompasses all the land within the ETJ and municipal boundaries. However, some statistics are given only for the area within the municipal limits, based on data availability.

Population Trends

The population of Beaufort fluctuates depending on the time of year, especially during the peak summer vacation months. The U.S. Census counts are performed decennially and estimated on years in between. Beaufort is also experiencing an influx of new residents and visitors. Several recent developments are also bringing significant residential housing construction.

Population Estimates and Projections

Beaufort's population has historically grown at a very low rate. The population grew by just 13% from 2000 to 2019, which is conservative compared to North Carolina's 30% growth over the same period. However, data shows that Beaufort will continue to grow its permanent and seasonal populations over the next 30 years.

Permanent Population Projections

The permanent population for 2019 is estimated at 4,343 within the municipal limits and 5,839 including those within the extraterritorial jurisdiction.

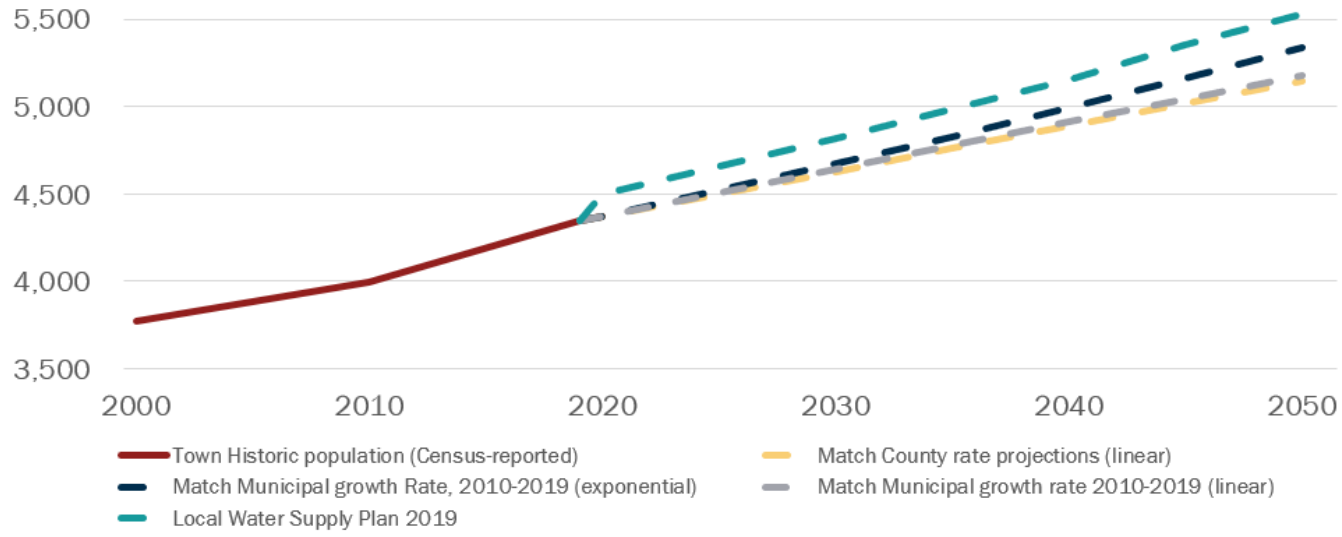
Historic Population Count

	2000	2010	2019
Municipal Pop.	3771[5]	3997[5]	4343[1]
ETJ Pop.	1490	1350	1496
Total Study Area Pop.	5261[6]	5347[6]	5839[6]

The annual growth rate for permanent residents was 0.9% from 2010 to 2020 within the municipal limits, which shows that while the permanent population is growing, it is not growing very quickly.

Permanent population projections were developed using average growth rate of the following:

Permanent Population Projections



	2019	2020	2025	2030	2035	2040	2045	2050
Match County Rate Projections, Linear[3]	4343	4,369	4,499	4,629	4,759	5,019	5,149	5,279
Match Municipal Growth Rate 2010-2019 (exponential)[2]		4,371	4,519	4,671	4,829	4,992	5,160	5,334
Match Municipal Growth Rate, 2010-2019 (linear)[2]		4,370	4,505	4,640	4,775	4,910	5,045	5,175
Local Water Supply Plan 2019[4]		4500	4658	4815	4984	5152	5352	5526

- The projected County growth rate (per NC Office of State Budget and Management (OSBM)
- The municipal growth rate from 2010-2019, compounded annually
- The municipal linear growth rate from 2010-2019

Projections from the NC DEQ state water supply projections were included as a barometer for calculated projections. As evidenced by the chart, the population projections were in line with the State's water supply projections. It is important to note, the Local Water Supply Plan projections are developed by the system and reported to the State.

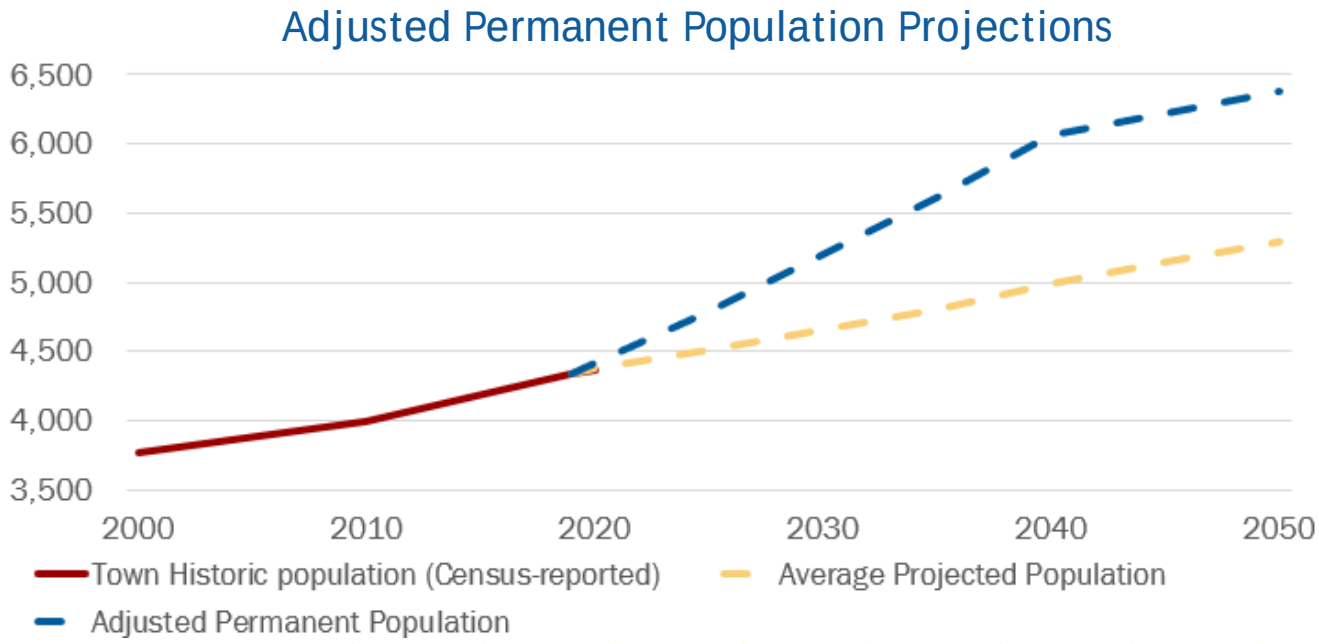
The Impact of New Development

Simply extrapolating population growth based on historical growth and government projections does not tell the whole story for Beaufort's population. The town has permitted two very large residential developments that together will bring almost 800 homes to town, which is roughly equal to the number of homes than were built in Beaufort between 2000 and 2019.

To account for the impact of these developments, first an average of the projected permanent populations was made. This average was added to a population estimate in the new developments based on known quantities:

- About 40 new homes per year (based on 2018-2020 average)[2]
- 1.8 person average household size[1]

Since prior to these developments, the Town had closer to 12 additional dwelling units constructed per year, it seemed necessary to add this



	2019	2020	2025	2030	2035	2040	2045	2050
Average Projected Permanent Population	4343	4,371	4,513	4,657	4,804	4,986	5,144	5,296
Adjusted Projected Permanent Population		4415	4,783	5,197	5,614	6,066	6,224	6,376

additional population to better project the anticipated (adjusted) average permanent population.

As with any population projection exercise, some assumptions must be made. However, other trends are more difficult to accommodate and/or trends are not decisively indicative in any particular direction. Such subjects include recent trends related to the COVID-19 pandemic, shifts in vacation housing ownership proportion, and speculative future growth based on completion of the Interstate 42 project.

Seasonal Population Projections

The peak seasonal population was created by estimating and projecting forward the amount of visitors to short-term rentals and seasonally occupied units, guests of year-round residents, and other lodging, to give an estimate for how many visitors Beaufort accommodates during the busiest time of the year, July. This was added to the adjusted permanent population to estimate the total number of people in Beaufort during peak tourist season in 2020, which is estimated at about 14,600. This does not include day trippers.

To project the seasonal population, the ratio of current visitor population to permanent population was calculated and applied to the adjusted permanent population projections. This assumes a constant ratio of tourists to full-time residents.

The chart below shows several lines demonstrating different Peak Seasonal Populations. A low and a high seasonal population estimate were calculated. These were then averaged and compared against the water supply report projections. The average estimate is slightly higher than the 2019 Water Supply Plan estimates.

For more information, including the methodology for estimation and projection, see **Appendix A: Population Projection Methods on page 218**.

Understanding Population Projections

Permanent Population

Persons who usually reside in the planning area, year-round.

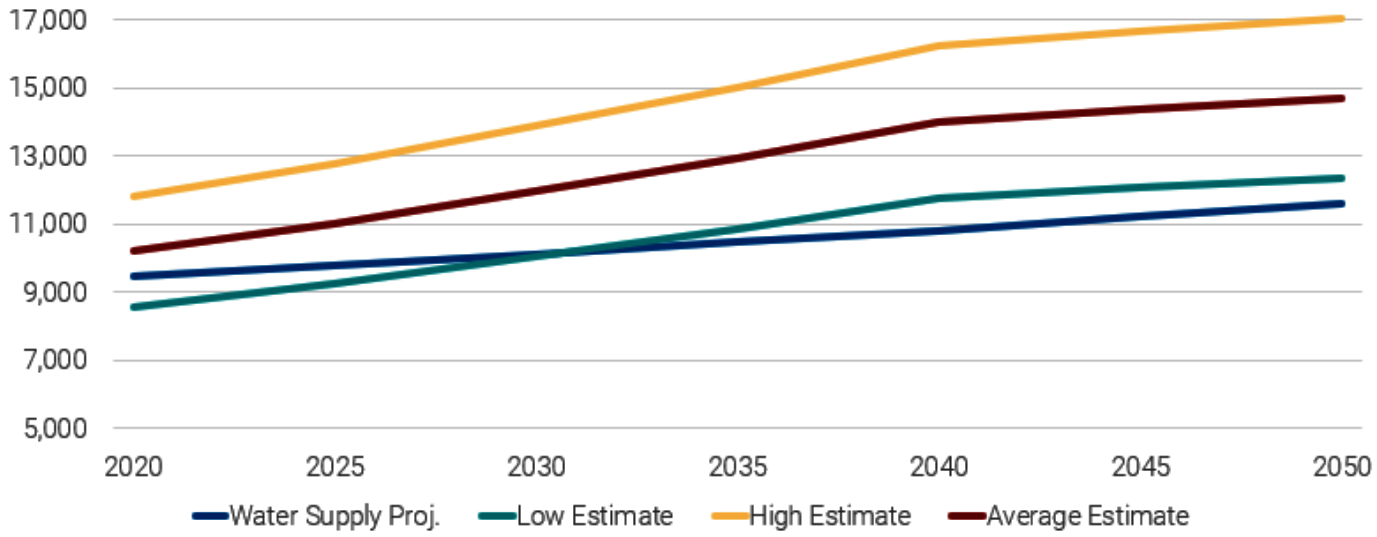
Peak Visitor Population

Persons who are temporary residents in the planning area, such as tourists and vacationers, but who normally reside in another location; does not include day-trippers.

Peak Seasonal Population

Permanent plus visitor population. This is an approximation of the planning area's population on a "typical" peak day during the high season. Does not include day trippers.

Total Peak Seasonal Population Projections



	2020	2025	2030	2035	2040	2045	2050
Water Supply Estimate[4]	9,450	9,781	10,111	10,465	10,819	11,199	11,579
Low Estimate	8,570	9,263	10,065	10,873	11,748	12,054	12,348
High Estimate	11,830	12,787	13,894	15,009	16,217	16,640	17,046
Average Estimate	10,200	11,025	11,980	12,941	13,983	14,347	14,697

Data Sources:

1. American Community Survey 5-year estimates (2019)
2. Town of Beaufort
3. NC State Demographer
4. Local Water Supply Plan 2019, NC DEQ DWR
5. Decennial Census (2000, 2010)
6. ESRI via ArcGIS Online

Demographics

Age and Ethnicity Makeup

The largest individual age cohort in Beaufort is people aged 55-64. The median age for the study area is 50.3, which is up from the median age of 46.9 in 2010. This is older than the median age for North Carolina, 39.1, but in line with Carteret County's median age, 50.0.[1] Similarly, the share of residents aged 65 and older has increased from 19.8%[7] to 25% as of 2019.

In the study area, 18% of the residents self-identify as a racial or ethnic minority, which is the same as in the previous CAMA plan. The largest minority group represented is Black or African-American.[1] This is a decrease in minority population from the 2006 CAMA plan, which stated that 21% of the population identified as non-white.

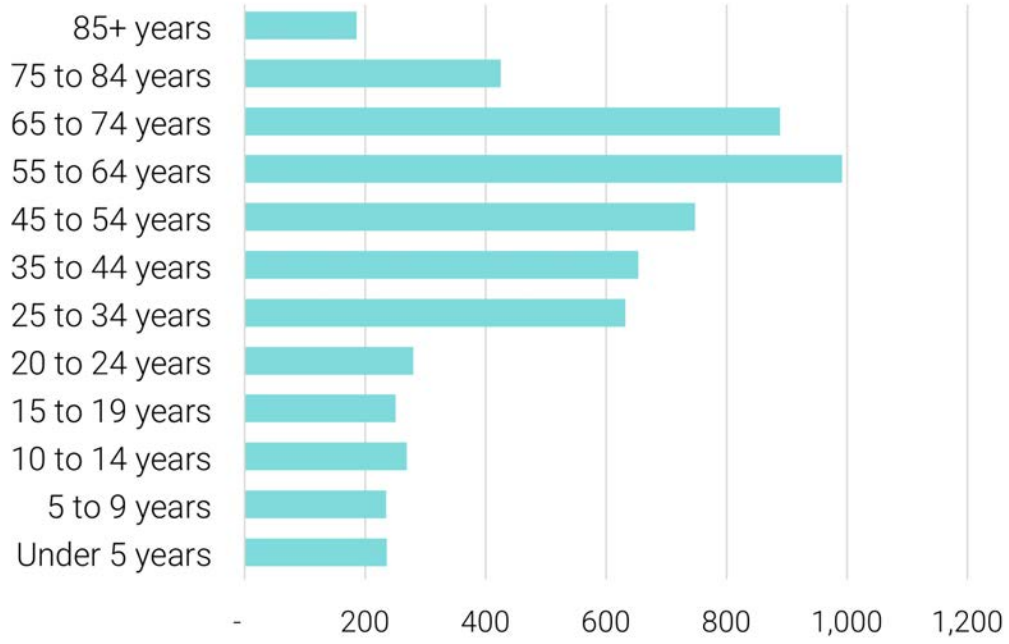
Commuting

Commuting in Beaufort is primarily via car, truck, or van, which accounts for 83% commuting residents. 4% of the population walks to work, and 5% take either a bicycle, taxi, motorcycle, or other form of transportation. The remaining 8% of the working population works from home and does not commute. For those who do commute, the mean travel time to work is 17.8 minutes.[6] There are 336 people who both live and work in the study area.

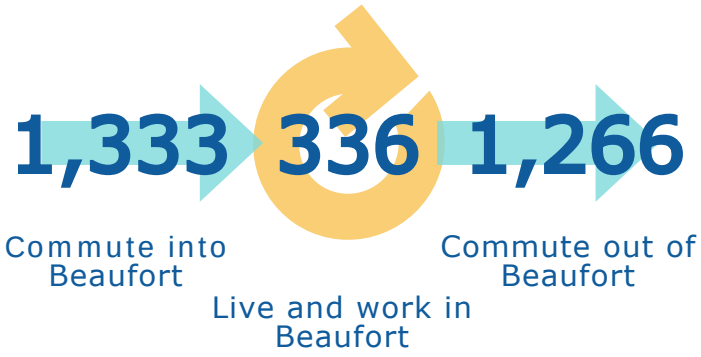
Economy

As of 2018, the Beaufort economy is mainly driven by hospitality-related services (arts, entertainment, recreation, accommodation and food services) (26.33%) and education and health services (18.32%). The hospitality sector grew 44% from its share of the workforce in 2010, indicating that more of Beaufort's economy is becoming tourism-focused.[6]

Age Cohorts[1]



The share of residents aged 65 and older has increased from **19.8%**[7] to **25%**[1] since the last CAMA plan



Housing

Residential units in Beaufort are predominantly detached single family homes. As of 2020, there are 3,831 total housing units of all types in the study area, with 2,672 of those located within municipal boundaries. Of those within the corporate limits 2137, or 74%, of those are primary residences, while the remaining 26% are secondary residences.

Employment by Industry (Residents of Beaufort)[6]	2010	2018
Retail Trade	11.12%	9.41%
Arts, entertainment and recreation, and accommodation and food services	16.85%	26.33%
Educational services, and health care and social assistance	11.12%	18.32%
Finance and insurance, and real estate and rental and leasing	4.41%	5.41%
Public administration	11.01%	8.21%
Construction	9.36%	7.91%
Professional, scientific, and management, and administrative and waste management services	9.69%	7.71%
Information	1.54%	0.4%
Manufacturing	12.22%	7.21%
Wholesale Trade	1.1%	0.6%
Other services, except public administration	7.82%	3.7%
Agriculture, forestry, fishing and hunting, and mining	3.74%	4.8%

Housing Units	2000[5]	2010[1]	2019[1]
Municipal Limits	1,946	2,364	2,672
ETJ	897	1,052	1,159
Total Municipal + ETJ	2,843	3,416	3,831

Defining Primary and Secondary Residences

How do we know who lives in Beaufort full-time? Using the US Census data definitions of occupied and vacant housing units, we can determine how many homes are primary residences and extrapolate secondary residences.

Occupied Housing Units are defined as those that are the "usual place of residence" for persons or a family.

Vacant Housing Units are defined as units where no one is living, or units owned by people whose "usual place of residence" is elsewhere. In popular tourist locations, "vacant" units are generally second homes or vacation rentals.

Income & Affordability

Beaufort's median household income (HHI) is significantly below those of North Carolina and Carteret County. The median income across all households of all types in Beaufort for 2019 is $40,926, which is up from the median HHI income of $37,075 in 2010[5] (*2010 median HHI has been adjusted for inflation*).

The median HHI for family households in Beaufort is $54,757[1]. The North Carolina Justice Center states that $49,500 is the "livable income" for a family of four in Carteret County. According to the latest data, 19% of the municipal population lives below the poverty level.[1]

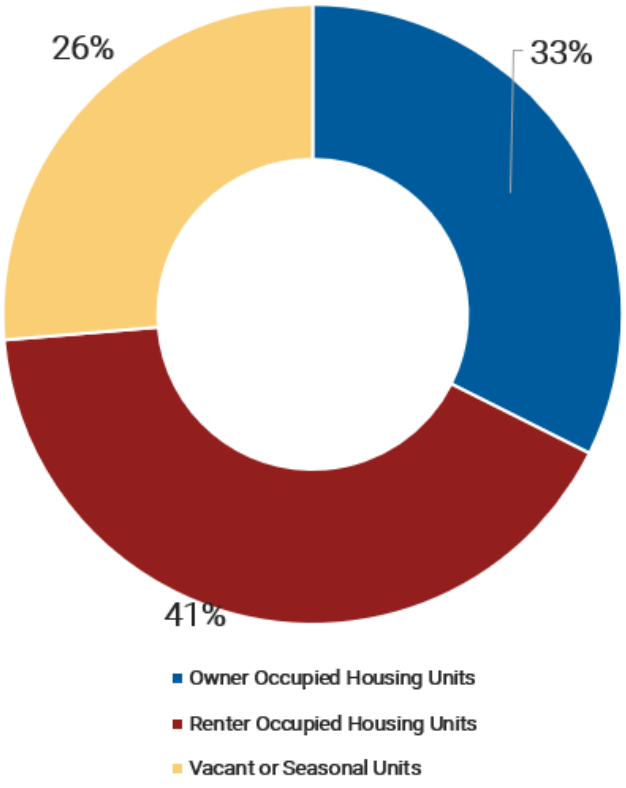
2018 Median Home Value[1]

$226,647 within Municipal Limits

$241,061 within Study Area

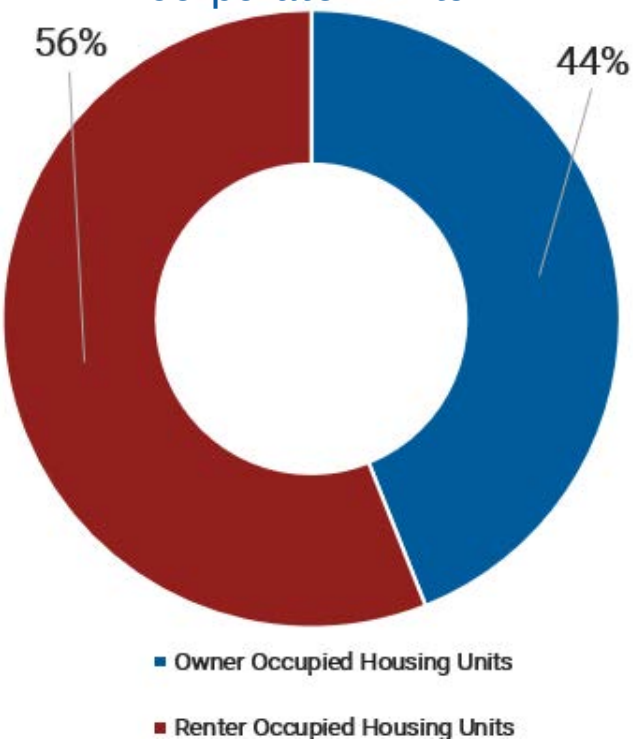
$180,600 North Carolina

Seasonal vs Primary Units[1]



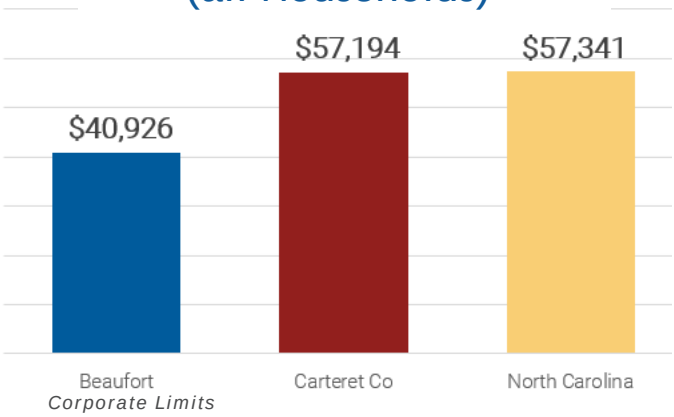
Data is for corporate limits only.

Permanent Occupied Housing Tenure, Corporate Limits[1]



Data is for corporate limits only.

Median Household Income (all Households)[1]



Beaufort has a lower median household income and higher median home value than the state average. High home values and relatively low household income indicate a degree of unaffordability in the town.

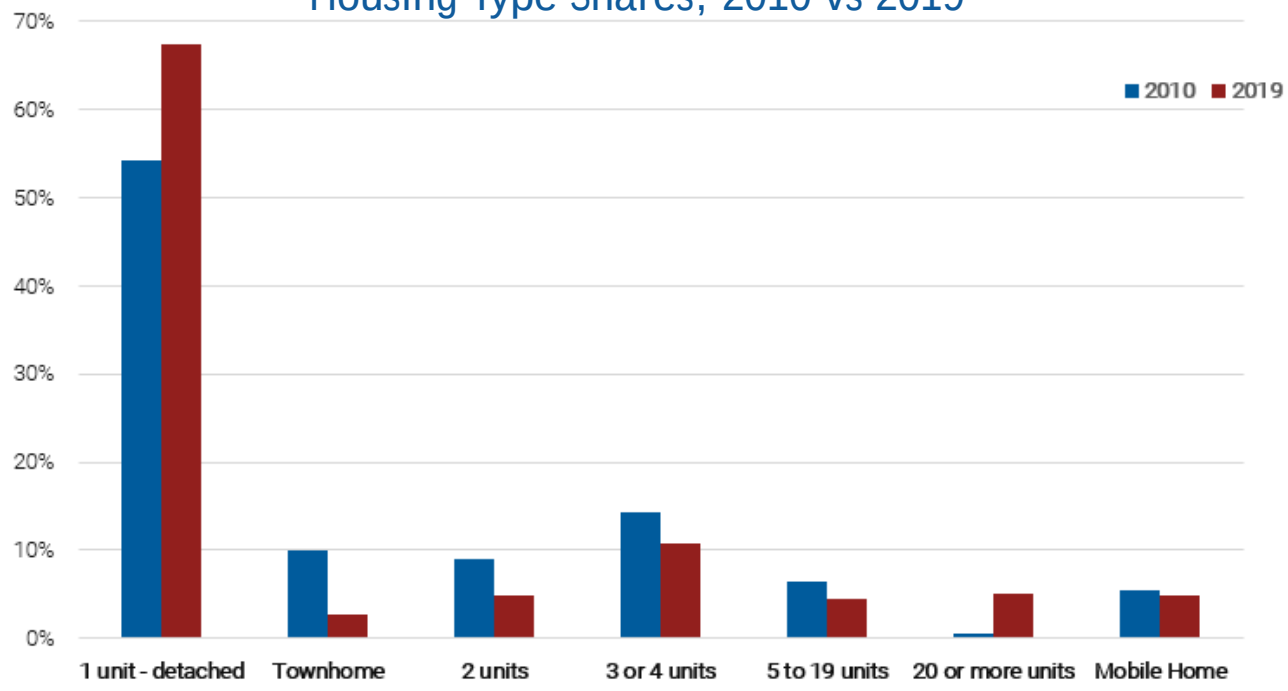
Data shows that the portion of Beaufort housing units used as seasonal homes or rentals is increasing. The table shows

Vacant homes in relation to total housing stock

The number of homes being used as vacation homes has **more than doubled** since 2010, with vacation homes representing 10% more of the overall housing supply. This means fewer homes are available for permanent residents, which can have an impact on affordability.

	2010[1]	2019[1]
Vacant	19%	27%
Vacant - for seasonal or occasional use	7%	17%

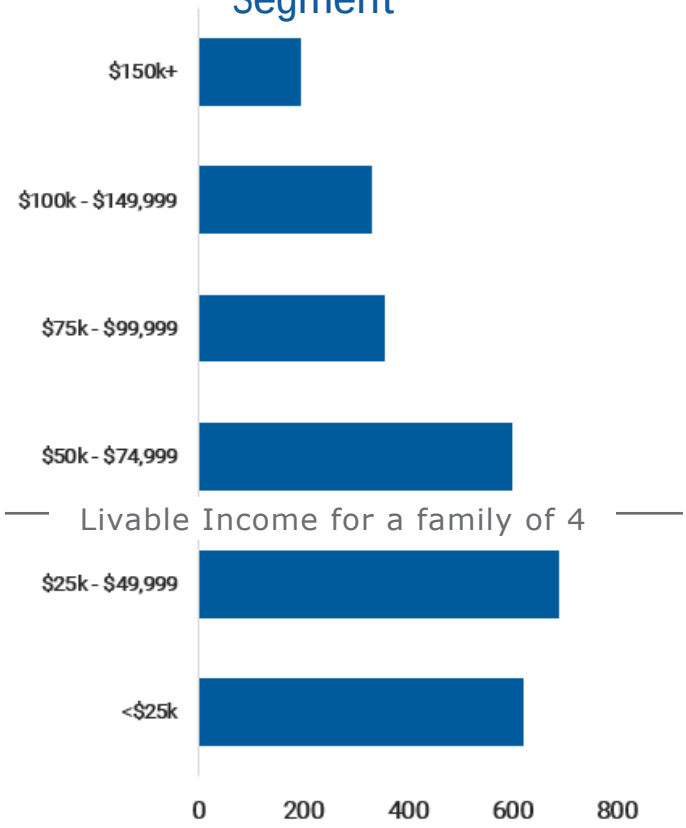
Housing Type Shares, 2010 vs 2019[1]



There has been a reduction in the share of multifamily units in Beaufort, indicating that new development is mostly single-family detached homes.

Data is for corporate limits only.

Households by Income Segment[1]



Data for municipal boundaries. "Livable Income" as defined by North Carolina Justice Center.

the percentage of housing stock that is vacant, and the specific percentage of housing stock that is for recreational use. As more housing is used as secondary homes, it restricts the housing stock available for permanent residents, which can also exacerbate affordability issues.

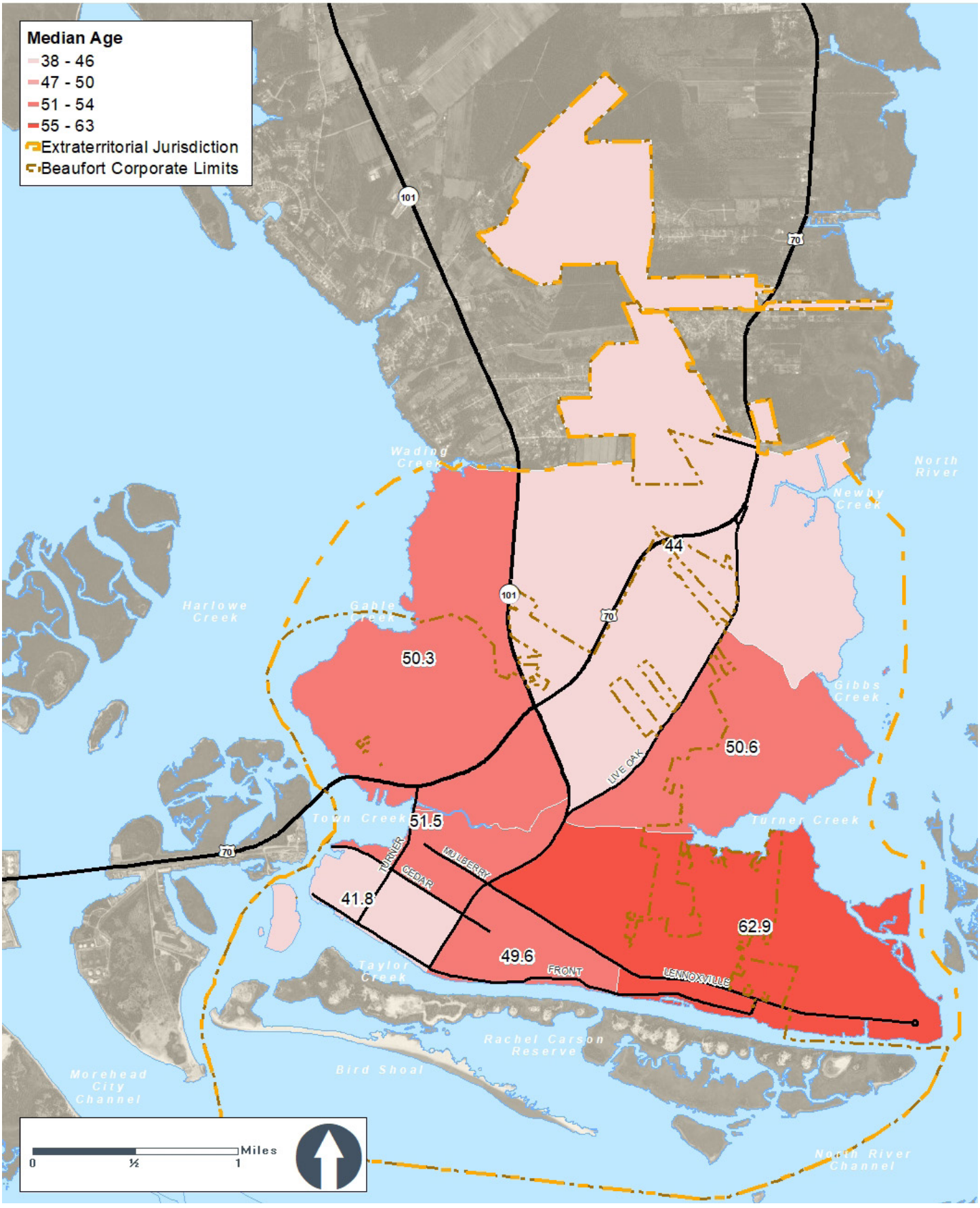
Socioeconomic Mapping

The geospatial distribution of demographic and socioeconomic data in Beaufort can provide valuable insight into historical context and current existing conditions. These maps show data collected from the 2019 American Community Survey 5-year estimates, mapped by Census Bock Groups or Tracts.

Sources:

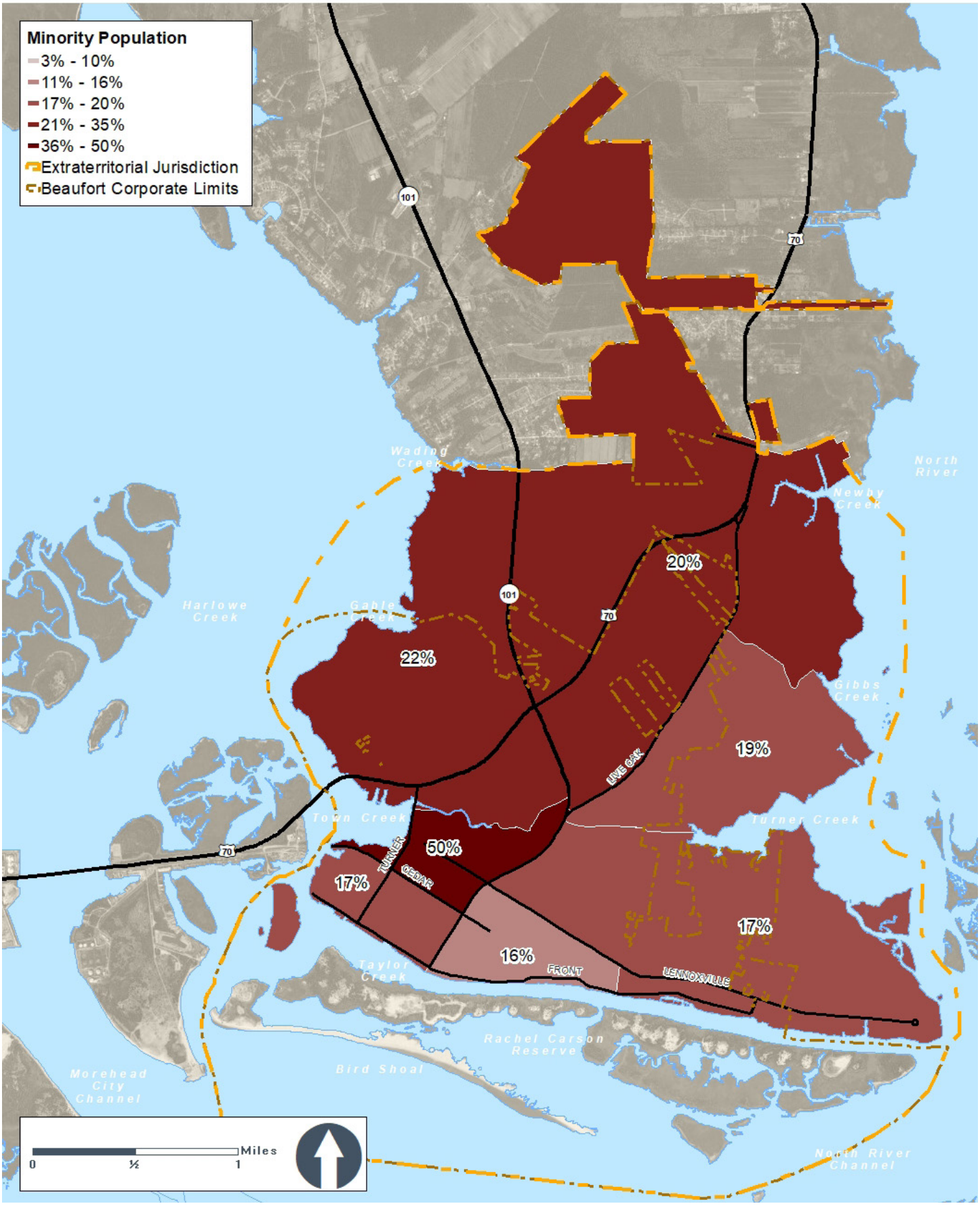
1. American Community Survey 5-year estimates (2019)
2. Town of Beaufort
3. NC State Demographer
4. Local Water Supply Plan 2019, NC DEQ DWR
5. Decennial Census (2000, 2010)
6. US Census OnTheMap
7. 2006 Beaufort CAMA Plan

Median Age



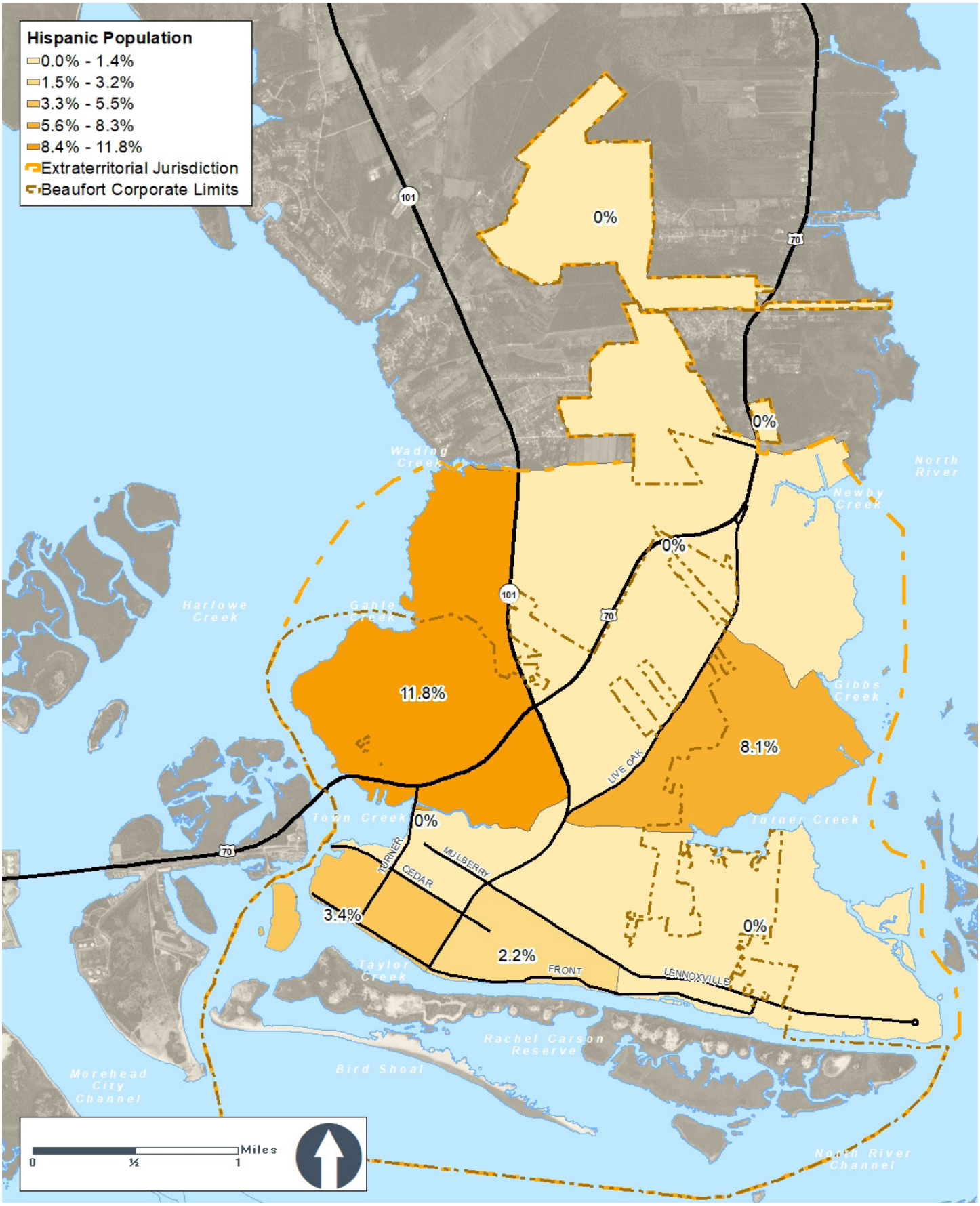
The median age for the study area is 50.3, with the block groups around Downtown and in the northern sections having slightly lower median ages. As mentioned earlier, the median age and share of residents over 65 years has increased since the previous CAMA Plan.

Minority Population



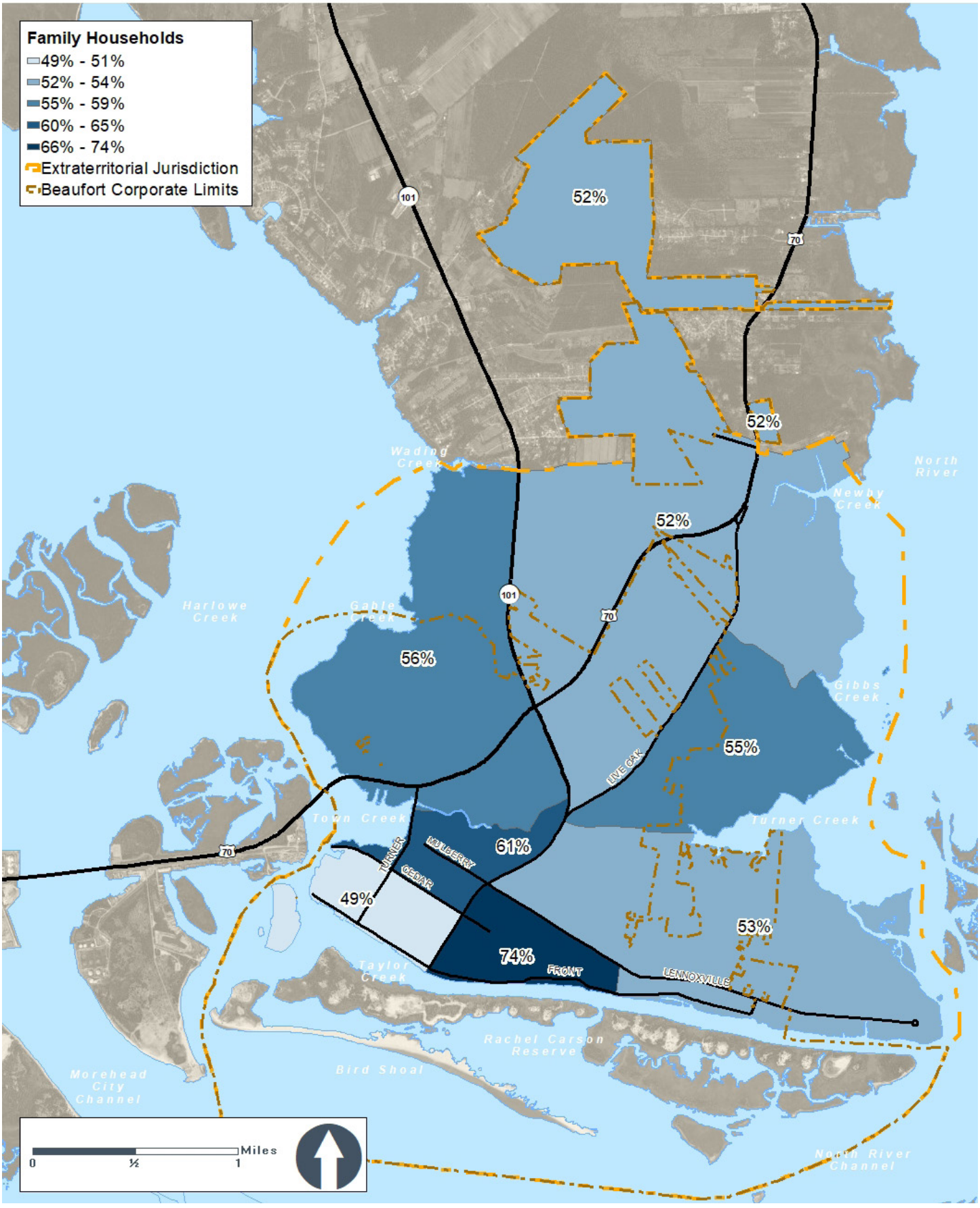
Beaufort's minority population, which represents 21% of residents within corporate limits, has its highest concentration in the Mulberry Street area.

Hispanic Population



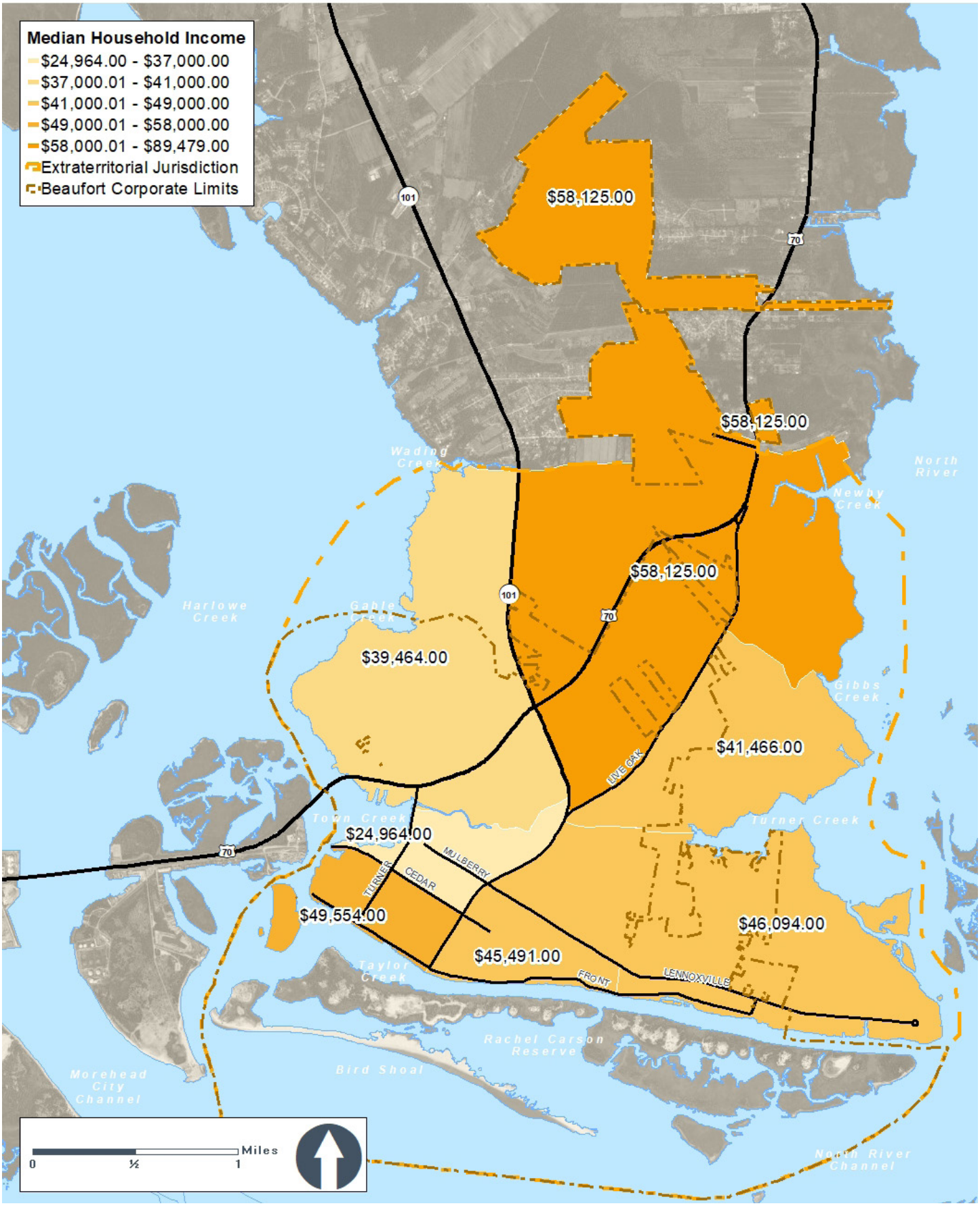
Beaufort's Hispanic population, is distributed varyingly throughout the study area.

Family Households



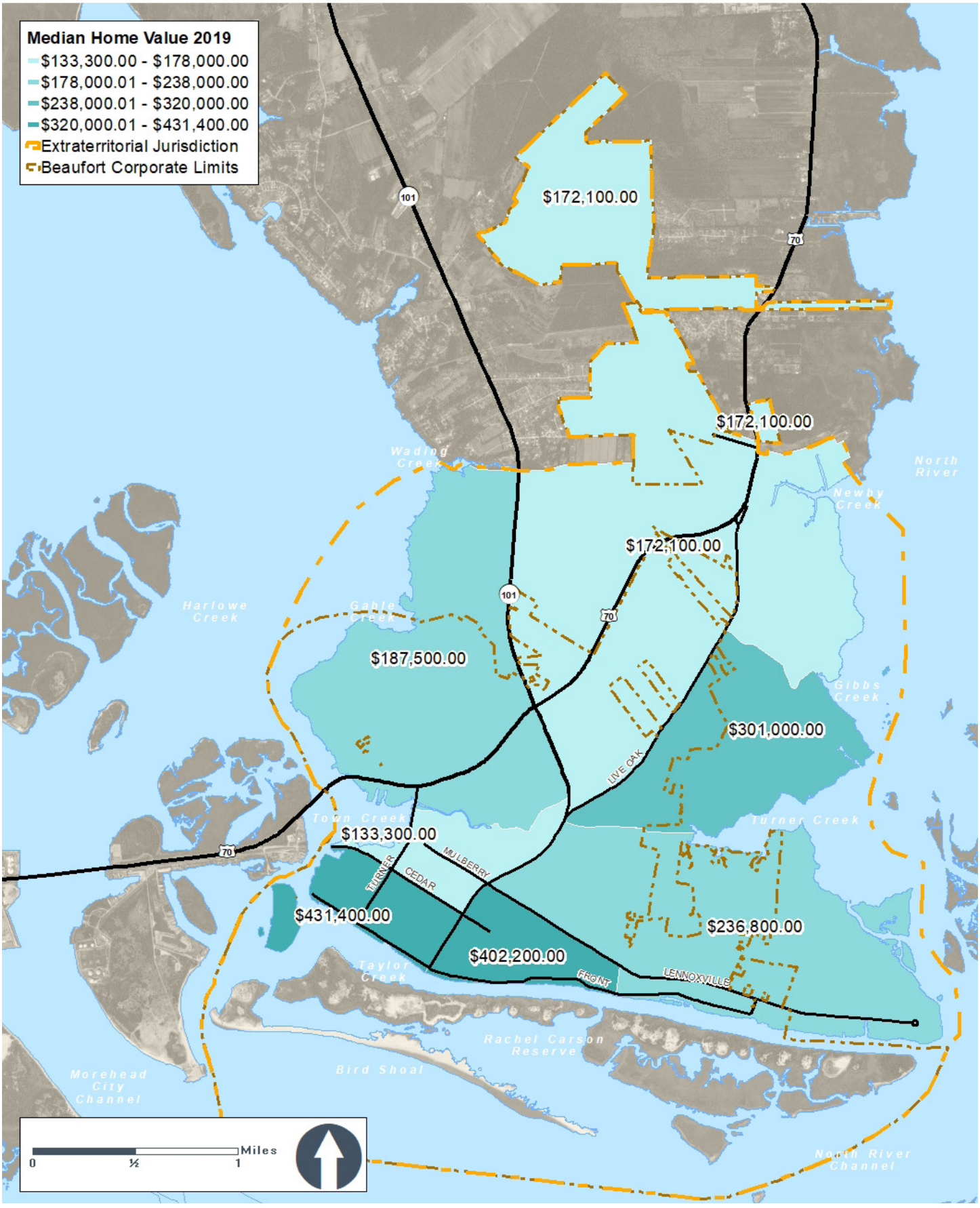
Family households, or those with two or more people related by marriage or blood, are dispersed throughout the study area, but are least common around Downtown.

Median Household Income



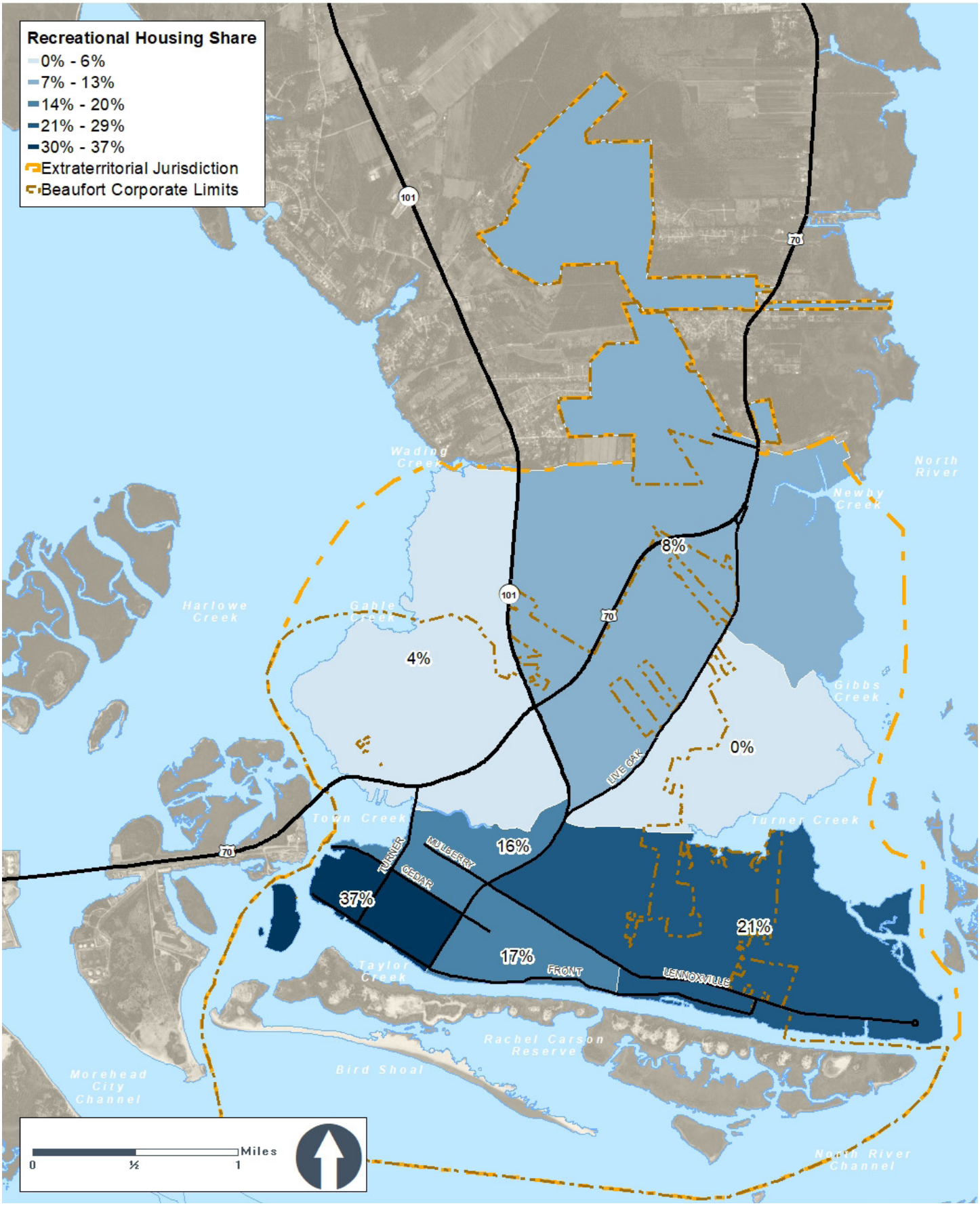
The median household income for Beaufort is about $40,000 per year. Most census block groups have medians that are higher than that, except for the area around Mulberry Street and its neighboring block group to the North.

Median Home Value



Home values are highest in Downtown and other areas close to Taylor Creek. Overall, median home values varies widely by Census Bock Group in Beaufort.

Recreational Housing Share



Recreational housing (housing used for vacationing or not as primary residence) is most common in Downtown and other areas that are accessible to Taylor Creek and Downtown


HANDICAPPED
PARKING

3

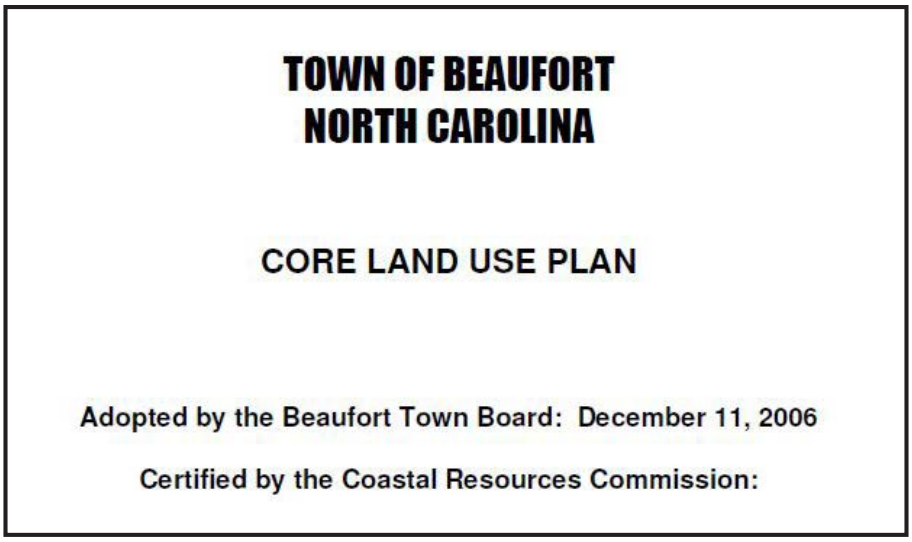
Existing Plans

Existing Plan Assessments

No planning effort can be conducted in a vacuum. Great accomplishments are made by standing on the foundations of previous efforts. The following plans are integral to the Town and were considered during this plan development process.

Town of Beaufort Core (CAMA) Land Use Plan, 2006

Adopted in 2006, this plan served as both an avenue of compliance with CAMA regulations and a comprehensive plan. The document identified goals and objectives to guide land development in a coastal context. Since then, the Town has undertaken different initiatives to reach those goals. Some efforts are still underway. Beaufort's efforts are listed by categories of implementation actions in the following table. The table also tracks the fiscal year (FY) in which the Town engaged in activity.



5.4.1. Public Water Access Implementation Actions	
FY 05	Beaufort will undertake improvements to water accesses and recreational facilities. • Gordon Street water access, which includes additional storage for kayaks and canoes, as well as improvements to the public dock • Grayden Paul Water Access – has a new dock as well as a new floating dock for transient boaters • The Boardwalk has had renovations made in the replacement of new decking. • Plans underway for future Cedar Street Park, which will include a public water access component • Topsail Park – has had its floating gangway cleaned and repaired and is in the process of the addition of new landscaping in the near future • Harborside Park – Is a partnership project between the NC Maritime Museum and the Town to provide additional water access by way of an overlook on Front Street adjacent to the Watercraft Center. It is anticipated that this project will begin and end in 2017.
Ongoing	Review, through the subdivision plat and site plan review and approval process, proposed waterfront land development projects to ensure consistency with the Town's public access goals and policies. • The Planning and Inspections Department reviews all development permits to include building permits to ensure that they meet compliance with the Towns public water access goals and policies on a daily, weekly basis.
5.4.2. Land Use Compatibility Implementation Actions	
FY 05	Zoning ordinance amendments regarding residential boat docks and piers and commercial marinas. • In 2013, the Land Development Ordinance was adopted, which made commercial marinas a Special Use and required additional information and impact criteria from an applicant in order to be approved. Residential boat docks also have very strict criteria in the R-8 and other residential districts and are limited in the number permitted.
FY 06	Comprehensive Zoning Ordinance update • In 2013, the Town adopted a new Land Development Ordinance to replace the last Zoning Ordinance from 1998.

FY 07	Review, and revise as determined appropriate, the County land use and development regulations to include development principles and techniques that promote land use compatibility as open space subdivision design, clustering, innovative stormwater management design, etc. • The Town participated in the development of the Pamlico Sound Regional Hazard Mitigation Plan which addresses most of these items and meets in a Planners forum regularly to discuss CRS and FEMA related issues and strategies for mitigation.
Ongoing	Review the zoning ordinance, subdivision regulations, and other Town land use and development regulations to ensure that residential densities and building intensities are consistent with the Town's land suitability goals and policies. Prepare revisions and updates as determined appropriate. Coordinate the review with the Carteret County Health Department. • Even though the Land Development Ordinance was adopted in 2013, amendments have already been made to keep up with changes in the State Statues as well as other revisions needed for clarification or stricter standards.
5.4.3. Infrastructure Carrying Capacity Implementation Actions	
FY 06	Completion of a comprehensive water system improvements plan. • The Public Utilities Department hired Rivers & Associates Engineers to develop this Plan in 2009, with revisions in 2010 and 2011.
FY 06	Annexation boundary agreement with Town of Morehead City • Attempted in 2009/2010
FY 09	Completion of sewer system improvements • The wastewater treatment system was completed in 2009-2010 and is fully operational. • In 2020, the Town submitted an application to the USDA for funding to address water and sewer infrastructure needs.
FY 10	Completion of water system improvements • In 2011, several new water wells were completed, which should provide enough water for the next 15 years. The Town is currently looking into a new treatment facility.
Ongoing	Utilize the Land Use Plan, zoning ordinance, subdivision ordinance, and utilities extension policies to guide public infrastructure and services to areas where growth and development are desired. • This is an ongoing process through the Capital Improvements Plan as well as large development proposals
5.4.4. Natural Hazard Areas Implementation Actions	
Ongoing	The Town will review its zoning ordinance, subdivision ordinance, and flood damage prevention ordinance to determine if more specific locational and density regulations regarding development or redevelopment activities within identified flood hazard areas and storm surge areas are warranted. Issues to be addressed include restrictions on land uses that utilize or store hazardous materials on-site, establishment of riparian buffers, increasing the minimum freeboard height above base flood elevation, etc. • The Town updated the Flood Damage Prevention Ordinance in 2015, which included the addition of a one-foot freeboard requirement
Ongoing	The Town will avoid zoning areas susceptible to storm surge for high density residential or intensive nonresidential use. • The Town discourages development in areas of potential storm surge through its zoning regulations
Ongoing	Based upon the availability of federal and state grant funds, land acquisition programs will be utilized in the most hazardous areas to minimize future damage and loss of life • N/A

Ongoing	If any portion of the Town's public infrastructure is significantly damaged by a major storm, consideration will be given to the feasibility of relocating or modifying the affected facilities to prevent the recurrence of storm damage • The majority of the Town's critical facilities are located in non-special flood hazard areas. In the future, consideration will be given to other infrastructure/facilities to limit damage due to storm surge
Ongoing	Coordinate the review and approval of development plans for major subdivisions, multifamily developments, and large public and institutional uses located within identified natural hazard areas with the County Emergency Management Agency. Continue the active enforcement of the State Building Code provisions regarding wind- resistance requirements and participation in the National Flood Insurance Program. • The Town is an active participant in the National Flood Insurance Program and Community Rating System • The Town follows and enforces the State Building Code; in 2019, the Town received a Building Codes Effectiveness Grading Schedule score of 3/3 for residential and commercial building codes respectively
5.4.5. Water Quality Implementation Actions	
FY 06	The Town will investigate the feasibility of developing and implementing a stormwater management plan. • The Town hired the Wooten Company to develop a stormwater plan for the Town. In 2009, the Town received Phase I of the plan and used it to guide repair and mitigation of stormwater utilities • The Town enacted a stormwater committee comprised of residents of the community and professionals to provide improvement recommendations to the Town • The Town finalized a Stormwater Capital Improvements Plan in 2019 which includes an implementation schedule and rough cost estimates associated therein
FY 06	The Town will prepare and implement a wellhead protection program. • The Town has a wellhead protection program The Town adopted a stormwater ordinance in 2008 • The Town created the RS-5 zoning district in 2010, which restricts impervious surface coverage to a maximum of 50%
FY 07	The Town will review its zoning ordinance and subdivision regulations to determine if revisions are needed to include additional measures, such as riparian buffers and impervious surface limitations, to control stormwater discharges. A stormwater management ordinance will be developed. • The Town continues to work on infrastructure improvements which are identified in the Capital Improvements Plan
FY 08	Beaufort will make significant advances in the rehabilitation of its sewer infrastructure to reduce infiltration, thus preventing overflows and reducing the amount of discharge released into Taylor's Creek. • The Town continues to require adequate stormwater drainage systems for new developments • The Town regularly works with state agencies to ensure compliance with state requirements • The Town has two full-time engineers on staff who are responsible for the review of proposed development stormwater systems

Ongoing	The Town will continue to require, through its subdivision regulations and technical specifications manual, adequate stormwater drainage systems for new developments. The Town will continue to promote the use of best management practices to minimize the degradation of water quality resulting from stormwater runoff. The Town will continue to coordinate the approval of land development projects with the applicable State agencies. • The Town continues to require adequate stormwater drainage systems for new developments • The Town regularly works with state agencies to ensure compliance with state requirements • The Town has two full-time engineers on staff who are responsible for the review of proposed development stormwater systems
5.4.6. Areas of Environmental Concern Implementation Actions	
FY 06	The Town will review its zoning ordinance to determine if revisions are needed to include additional protective measures for AECs • The Town continues to review its ordinance to ensure that environmentally sensitive areas are protected through good land use planning and development practices • The Town, in partnership with the Eastern Carolina Council of Governments and NC Coastal Federation, created a Watershed Restoration Plan in 2017
5.4.7. Areas of Local Concern Implementation Actions	
FY 05	The Town will employ a Town Planner to coordinate land development and growth management plans and to oversee the administration of land use regulations. • A full-time planner position was created in 2008 • A second planner position was created in 2016
FY 08	The Town will prepare a comprehensive community services/facilities plan. This plan will identify major municipal services and facilities needs and deficiencies, prioritize those needs, and prepare cost estimates and a budgeting plan for the recommended improvements. • The Town developed a Capital Improvements Plan in 2011 which is discussed and updated annually

<Plan assessments continue on next page>

Small Area Plan & Bicycle and Pedestrian Plan, 2018

Downtown Beaufort, particularly along the waterfront, is heavily trafficked by pedestrians and bicyclists. The rest of Beaufort, however, is not as bicycle and pedestrian friendly. Sidewalks are limited, streets are narrow, and crosswalks are not prevalent. All of this combined results in potentially hazardous conditions for alternative modes of transportation.

The Town realized that completion of the Gallant's Channel Bridge project and new US-70 bypass would significantly impact the traffic patterns in and around Beaufort. Given the magnitude and timeline associated with the project, the Town identified an opportunity to reexamine the future of Beaufort. This paired with a desire to create a more multi-modal friendly community began the Town's Small Area Plan and Comprehensive Bicycle and Pedestrian Plan initiative.

Initially, the scope of the Small Area Plan was comparable to a corridor study, focusing on the two main entry corridors for the Town. Over time, however, it developed into a more comprehensive plan. The Small Area Plan focuses on a study area of approximately one square mile, most heavily impacted by the pending traffic changes. The study includes design elements, land use recommendations and much more.

The Comprehensive Bicycle and Pedestrian Plan identifies areas for improvement for walkers and cyclists, ultimately promoting safety and connectivity throughout town. Contrary to the Small Area Plan, the Bicycle and Pedestrian plan study area encompassed the entire corporate limits.

The Town determined it would be more practical to utilize the same firm to develop the plans. As such, the Town retained Stantec, a consulting firm comprised of urban designers, planners, engineers, landscape architects and much more for the plan development. The finished documents include recommended projects, implementation schedules, funding sources, and anticipated costs associated therein.

Small Area Plan, 2018

This project encompassed a comprehensive multimodal Complete Streets strategy (accommodating vehicles, pedestrians, cyclists, and transit users), a preliminary Market Analysis, two Catalyst Site Investigations, detailed concept street designs, and a phased improvement program.

The Small Area Plan promotes smart growth through a mix of land uses, compact building design, sense of place, and preservation of natural beauty and critical environmental areas.

The Key Goals identified in the plan:

1. **Corridor Transformation** — Cedar Street and Live Oak Street should become vibrant multi-modal corridors with an emphasis on pedestrian safety.
2. **Navigate the Changes** — With significant changes to the entrances and exits into the Town, it is vital that local wayfinding signage help navigate the new patterns.
3. **Protect Neighborhood Streets** — The overall shift in the traffic pattern because of the new US-70 bypass must not negatively impact neighborhood streets.

4. **Strive for Diversity & Authenticity** — Authentic neighborhood fabric should be preserved and built upon if possible; the range of housing choices must be expanded to allow people of all incomes and ages to live together as one community.
5. **Maintain the "Beaufortness"** — Beaufort has a unique history and nature that should be incorporated into all physical improvements.

The study area for the Beaufort SAP serves many functions to many travelers. Whether by foot, bike, car or truck, this study area transitions through a diverse built environment. The core study area bounded by Ann Street, Moore Street, Live Oak Street, and Mulberry Street is represented by a mix of predominantly single family with pockets of commercial (primarily along Cedar and Live Oak) and institutional uses.

The Plan includes concept designs for Cedar Street and Live Oak Street, along with intersection improvements throughout the study area.

The concept designs for Cedar Street include the following recommendations:

- Replace and maintain damaged curb & gutter and drainage inlets where appropriate
- Add bulb-outs and plantable median islands at several locations along this segment of the corridor to improve aesthetics and slow down vehicles (traffic calming)
- Add canopy street trees, ADA compliant ramps, and on-street parking

The concept designs for Live Oak Street include the following recommendations:

- Replace and maintain damaged curb & gutter and drainage inlets where appropriate
- Add canopy street trees and ADA compliant ramps

Bicycle & Pedestrian Plan, 2018

Guiding Principles

1. Pedestrian and Bicyclist Considerations Come First
2. Stormwater and Maintenance are Important Here
3. Safety is a Priority for Everyone
4. Quality Design is as Important as Quantity
5. Connectivity Supports a Lot of Other Objectives

Projects recommended in this plan include sidewalk facilities, crossing improvements, signage and pavement marking needs and bicycle facilities. Attention to traffic volumes, safety concerns, connectivity, community needs and overall improvement needs were considered when making recommendations for the Town. Typical facility recommendations include 6' sidewalks, 12' travel lanes, high-visibility crossings near schools and high pedestrian activity areas, pedestrian signals, sharrow markings, bike boulevards and bicycle lanes. In general, the projects have common design features.

The plan includes a detailed investigation into five (5) areas in Beaufort that were identified as having a high presence of pedestrians, cyclists and need to calm traffic. Photographic

renderings were completed of each area to depict potential enhancement solutions identified in the Plan. Recommendations including sidewalks, crossings, signals, and small width medians were recommended in many of the areas to increase pedestrian safety as well as dedicated cycling lanes for safe bike travels.

» **Lennoxville Road:** Lennoxville Road is currently a popular corridor for cycling. It provides a connection from the east side of Town to the popular water front area. A twelve-foot multi-use trail is proposed along Lennoxville Road from Carteret Avenue to Front Street.

» **Queen Street & Ann Street:** Queen St is a one-way collector street traveling from Front St to Mulberry St. Land use is primarily residential with on street parking and sidewalk for most of the corridor. Data shows a report of a bicycle accident at this location. Citizens difficult area to cross. The proposed recommendations for this area include increasing the curb radii and adding extra pavement to prevent on street parking in and near the crosswalk and intersection.

» **Carraway Drive & NC-101:** This intersection serves as the gateway entrance to the Beaufort Elementary School where significant foot traffic as well as vehicular traffic occurs on a daily basis when school is in

Priority Scores for proposed improvements (Source: Bicycle & Pedestrian Plan, Stantec)

session. Compounding this issue is a large residential development planned for the area surrounded by Professional Park Drive. It is expected that this development will use Carraway Drive to access NC 101. With this in mind, it is recommended that this intersection be improved to include a new signal, high visibility crosswalks with a pedestrian refuge (NC 101), and pedestrian countdowns. Sidewalks are proposed on the southside approach of NC 101 as well as a new 10' meandering multi-use path along Carraway Drive to the existing sidewalks at the school entrance. Utility impact could pose development constraints and increase the final cost of the project.

- **Cedar Street:** The Cedar Street corridor (Live Oak St to Moore St) will likely be the most-impacted place in Beaufort from the opening of the new high-rise bridge over Gallants Channel and bypass of US 70. Formerly crowded with traffic moving through at high speeds, the road has served as a barrier to pedestrian travel and access to the waterfront areas. With re-envisioned intersections and the conversion of five lanes to three with on-street parking to support business redevelopment, a new perception of Cedar Street, one more in line with the quieter streets to the north and south, is coming.
- **Live Oak Street:** New housing developments on the north end of town bring more opportunities with them and their residents, but connecting them together is Live Oak Street. Long a car-centric connection between two very different feeling places, the roadway cross section proposed for the future will take advantage of reduced through traffic and help promote quality redevelopment, carefully transitioning a "stroad" (the worst parts of a street and a road) into a true multimodal corridor that announces the importance of place, regardless of the direction of travel.

In addition to specific project and facility recommendations, the Plan also encourages the creation and adoption of a Complete Streets Policy and encourages the development of bicycle/pedestrian programs. The Plan also identifies numerous potential bike/ped projects intersection improvement projects with priority rankings and project scores.

The following are examples of completed projects identified in the plan that have since been implemented or are currently underway:

- Randolph Johnson pedestrian park access; raised crosswalk on Carteret Avenue
- Tiller School Pedestrian Crossing
- Town wide sidewalks (as funding is available)
- Pedestrian crossing at Live Oak Street and Campen Road (NCDOT committed project; TIP ID W-5802A)

Statewide Transportation Improvement Program 2020-2029

The North Carolina Department of Transportation Statewide Transportation Improvement Program (STIP) identifies transportation projects that will receive

funding between 2020 and 2029. Projects are selected and prioritized through the Strategic Prioritization Office of Transportation (SPOT) process. Federal law requires the STIP to be updated at least every four years. NCDOT, however, updates it every 2 years.

The following projects were programmed in the STIP 2020-2029:

- U-6058 — One Lane Roundabout at the intersection of Live Oak Street/ NC-101.
- R-5945* — Live Oak Street Access Management from NC-101 to Olga Road.
- R-5946 — Upgrade Intersection at Live Oak Street/ Lennoxville Road/ Mulberry Street.
- R-5962* — Roundabout at the intersection of Cedar Street and Live Oak Street.

The asterisk (*) denotes project programmed in developmental program portion of the STIP and subject to reprioritization in the 2023-2032 STIP.

Beaufort Entry Master Plan (2012)

Beaufort wanted to be prepared for the future changes that the new alignment of US Highway 70 would Plan was developed to guide the creation of the new gateways and corridors that Highway 70 will create. The purpose of the Beaufort Entry Master Plan is to provide recommendations for the following components throughout town:

- Beautification
- Gateways
- Wayfinding projects

This plan is credited with the aesthetic design of the new Turner Street Bridge which was constructed as a part of the Gallants Channel Bridge and new US-70 project. The following are examples of projects identified in the plan that have since been implemented or are currently underway:

- Turner Street Bridge — the original proposed NCDOT bridge design was modified to better reflect the character and history of Beaufort.
- Future roundabout at Live Oak Street and NC-101.

Concept Plan (Source: Beaufort Entry Master Plan)

Carteret County Comprehensive Transportation Plan (2014)

In February of 2010, the Transportation Planning Branch of the North Carolina Department of Transportation (NCDOT) and Carteret County initiated a study to cooperatively develop the Carteret County Comprehensive Transportation Plan (CTP), which includes the following municipalities: Atlantic Beach, Beaufort, Bogue, Cape Carteret, Cedar Point, Emerald Isle, Indian Beach, Morehead City, Newport, Pine Knoll Shores, and Peletier.

This is a long-range multi-modal transportation plan that covers transportation needs through the year 2040. Modes of transportation evaluated as part of this plan include: highway, public transportation and rail, bicycle, and pedestrian. The county CTP Encourages the use of alternative forms of transportation and emphasizes building a more sustainable community centered around alternative modes of transportation. The plan further recommends increasing connectivity between neighborhoods, streets, and transit systems and highlights the need to improve safety for pedestrians, cyclists, and motorists. Arguably the project most impactful to Beaufort included in the CTP are the Gallants Channel Bridge and US-70 bypass which have since been completed.

The following are examples of completed projects identified in the plan that have since been implemented:

- Turner Street Bridge
- Gallants Channel Bridge
- New US-70 Bypass

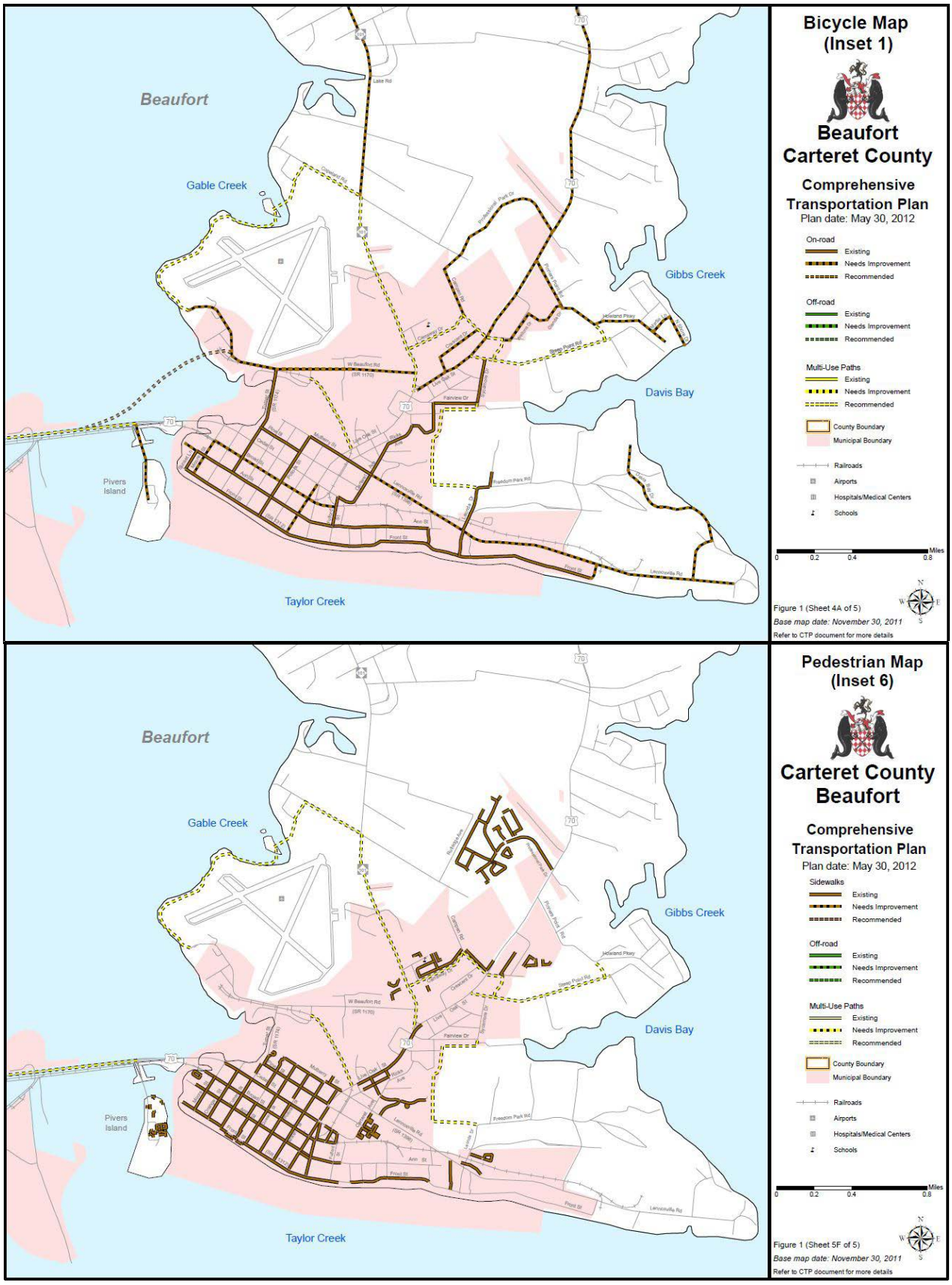
In addition to the projects listed above, the Town has two additional committed projects through the NC Department of Transportation identified in the 2020-2029 Statewide Transportation Improvement Program (STIP):

- Live Oak Street & Lennoxville Road – Upgrade intersection (TIP ID R-5946)
- Live Oak Street & NC-101 – Install one-lane roundabout (TIP ID U-6058)

Pamlico Sound Regional Hazard Mitigation Plan (2020)

The Pamlico Sound Regional Hazard Mitigation Plan establishes the vision and guiding principles for reducing natural hazard risk and proposes specific mitigation actions to eliminate or reduce identified vulnerabilities. A hazard mitigation plan ensures that all possible activities are reviewed and implemented so that the problem is addressed by the most appropriate and efficient solutions. It can also coordinate activities with each other and with other goals and activities, preventing conflicts and reducing the costs of implementing each individual

Plan cover



Transportation maps (Source: Carteret County Comprehensive Transportation Plan)

activity. This plan provides a framework for all interested parties to work together toward mitigation.

This plan was developed in a joint and cooperative manner by members of a Hazard Mitigation Planning Committee (HMPC) which included representatives of County, Town, and Town departments, federal and state agencies, citizens, and other stakeholders. This plan ensures all jurisdictions in the Pamlico Sound Region remain eligible for federal disaster assistance.

The Plan includes 24 "action items" for the Town to implement, continue, or improve upon. The following focus areas define the various aspects of mitigation and provide guidance toward the development of a truly comprehensive solution to mitigation planning.

- **Prevention Mechanisms** include regulatory methods such as planning and zoning, building regulations, open space planning, land development regulations, and stormwater management.
- **Natural Resource Protection** can soften hazard impacts through mechanisms such as erosion and sediment control or wetlands protection.
- **Emergency Services** measures include warning, response capabilities, Town critical infrastructures protection, and health and safety maintenance.
- **Structural Mitigation** controls natural hazards through projects such as reservoirs, levees, diversions, channel modifications and storm sewers.
- **Public Education** includes providing hazard maps and information, outreach programs, real estate disclosure, technical assistance and education.
- Craven County will take the lead in undertaking all strategies outlined within this plan relation to the region overall, with support and assistance from Beaufort, Carteret, Hyde, and Pamlico counties, as well as participating jurisdictions.

The Town conducts annual reviews of the action items and implementation status. Since the 2006 Core Land Use Plan adoption, the Town has improved its Community Rating System (CRS) rating to a Class 7, which provides a discount in flood insurance premiums to residents. The Town continues to explore grant opportunities to improve resiliency following disasters. Of note, one of the mitigation action items identified in the Plan includes integration of new greenway and public park improvements into comprehensive planning and capital improvements to include coordination with the CAMA Land Use Plan. At the time of writing the Town was also engaged in a coastal hazards resiliency planning effort through the state, called the Resiliency Coastal Communities Program.

Watersheds Restoration Plan (2017)

This plan provides "an overview of the past and present conditions of the Beaufort Watersheds and proposes methods and strategies intended to reduce the volume of stormwater runoff to improve water quality in the watersheds." Community outreach, implementation schedules, and monitoring are key components of this plan to help improve water quality and manage stormwater flooding. The Beaufort Watershed Restoration Plan includes

strategies to restore hydrology and reduce polluted runoff. These include cost effective retrofits that direct stormwater to infiltrate into the ground or collect it for later use. The goal of the plan is to: "Turn back the clock" on water pollution, reduce instances of flooding, align future capital improvements with stormwater retrofits, increase community awareness, and position the town for future funding opportunities.

The following are examples of completed projects identified in the plan that have since been implemented or are currently underway:

- Lennoxville Road boat ramp improvements; reduced overall impervious surface coverage.
- Stormwater BMPs to be included in Cedar Street improvements project.

Town of Beaufort ADA Transition Plan (anticipated 2022)

In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, the Town of Beaufort is completing an ADA Transition Plan. Although currently still in development at the time of writing of this

Locally important watersheds

section, this plan will examine barriers to accessibility and strategies to address a variety of issues that impact the accessibility of Town services, facilities, sidewalks and streets in the public right-of-way. When the plan is complete, it will include a table of barriers, methods, cost estimates, funding sources, and recommended schedules for implementation.

Other Planning Efforts:

NC DEQ Water Supply Planning

The State Department of Environmental Quality (NC DEQ) Division of Water Resources releases yearly Local Water Supply Plans (LWSP) for municipalities in the state. An LWSP is an assessment of a water system's current and future water needs and its ability to meet those needs. These plans contain usage data for the previous year and future population projections so that local water system operators can predict their future needs. The population projections in the LWSP are developed by the system and reported to the State.

Collaborative Resilience Planning and Engineering to Strengthen Ecosystems at the Rachel Carson Reserve, currently in-process

A team, including but not limited to the Town of Beaufort, Carteret County Shoreline Protection Office, U.S. Army Corps of Engineers, multiple universities, and private and non-governmental groups, and the Rachel Carson Reserve, have partnered to investigate recent environmental changes at the Reserve and to anticipate and plan for potential climate adaptation and resilience measures to protect the Reserve and surrounding areas.

Resilient Coastal Communities Program

In 2021 through early 2022, semi-concurrently with this plan, Beaufort participated in the State's Resilient Coastal Communities Program (RCCP). During this planning effort, the Town set resilience goals, identified and assessed community asset and infrastructure exposure to coastal hazards, and developed a portfolio of prioritized projects to enhance community resilience. This initiative, entitled Resilient Beaufort, was championed by a Community Action Team, consisting of the members of this Land Use Plan Steering Committee and additional members from the Division of Coastal Management and N.C. Sea Grant. Resilient Beaufort was intended to build upon and supplement the Comprehensive & CAMA Land Use Plan.

Stormwater Capital Improvements Plan

This 2019 document includes analysis of the existing conditions related to stormwater management by watershed as well as a prioritized list of needed improvements.

4

Environment, Natural, and Cultural Resources

Outside of the cultural and social amenities, the experience of residents and visitors of Beaufort is inextricably linked to the area's natural systems.

Ecotourism is a major economic driver. This Comprehensive Plan, functioning also as a CAMA Land Use Plan, must establish a rational and coordinated local management program for maintenance and enhancement of coastal resources.

Identification and recognition of Areas of Environmental Concern (AECs) and other environmental assets is critical to the plan.

Areas of Environmental Concern

Areas of Environmental Concern (AECs) are areas of natural importance designated by the NC Coastal Resources Commission (CRC). The State Guidelines for Areas of Environmental Concern (15A NCAC 7H) require that local land use plans give special attention to the protection of appropriate AECs because of their environmental, social, economic, and aesthetic value.

There are four categories of AECs that have been established by the CRC:

Estuarine and Ocean System

This system is the broad network of brackish sounds, marshes, and surrounding shores. CAMA permits are required for development in the four subcomponents of this system, which include:

- **Estuarine Waters.** These areas are the dominant component of the entire estuarine and ocean system and provide important habitat for a diverse range of shellfish, birds, and other marine wildlife. Conservation of estuarine waters is usually the highest priority use for these areas. Development activities which are water dependent and require water access and cannot function elsewhere (e.g. simple access structures, structures to prevent erosion, boat docks, marinas, wharves and mooring pilings) may be allowed within this AEC.
- **Coastal Wetlands.** Coastal wetlands provide vital ecosystem services to the Town. Wetlands serve as nursery areas for commercially and recreationally important fish species, sequester carbon from the atmosphere, stabilize shorelines, and provide storm and flood protection benefits. These areas are considered to be unsuitable for all development activities and other land uses that alter their natural functions. They are defined as any salt marsh or other marsh subject to regular or occasional flooding by tides (including wind tides) and contains one or more of the following plant species: Cord Grass, Black Needlerush, Glasswort, Salt Grass, Sea Lavender, Bulrush, Saw Grass, Cat-tail, Salt Meadow Grass, or Salt Reed Grass.
- **Public Trust Areas.** Public trust areas include coastal waters and submerged tidal lands below the mean high water line (MHWL). The water and submerged tidal lands are held in trust for the public to use through such activities as fishing, swimming, and boating. The state's policy is to ensure that the public is able to maintain access to these waters. Structures and activities in public trust areas must not be detrimental to the public trust rights and the biological and physical functions of the estuary or ocean. Projects which would directly or indirectly block or impair existing navigation channels, increase shoreline erosion, deposit spoils below normal high water, cause adverse water circulation patterns, violate water quality standards, or cause degradation of shellfish waters are considered incompatible with the management policies of public trust areas.
- **Estuarine and Public Trust (i.e. - Coastal) Shorelines.** The estuarine shoreline is the non-ocean shoreline, extending from the normal high water level or normal water level along the estuarine waters, estuaries, sounds, bays, fresh and brackish waters and public areas (15NCAC 7H.0209). Coastal Shorelines include all lands within 75 feet of the normal high water level of estuarine waters. This definition also includes lands within 30 feet of the normal high water level of public trust waters located inland of the dividing line between coastal fishing waters and inland fishing

waters. Generally, development in this area must not cause significant damage to any estuarine resources, must not interfere with public access to navigable waters or public resources, have limited hard (impervious) surfaces, preserve natural barriers to erosion, and must take steps to prevent pollution of the estuary by sedimentation and runoff.

This AEC is described on **page 111**.

Ocean Hazard Areas

Oceanfront beaches and dunes protect buildings and the environment behind them by absorbing the force of wind and waves. The Town of Beaufort is located on a peninsula between North and Newport River. Barrier islands are dynamic environments subject to shoreline changes and flooding which may be exacerbated by storms. The Ocean Hazard Areas include the following:

- **Ocean Erodible AEC.** This covers North Carolina's beaches and any other oceanfront lands that are subject to long-term erosion and significant shoreline changes. Due to Beaufort's unique location behind the barrier islands, there is no Ocean Erodible AEC within their jurisdiction, although in some respects the Rachel Carson Reserve does have some of these characteristics.
- **Inlet Hazard AEC.** This covers the lands next to ocean inlets, which are often highly unstable and subject to high rates of erosion of accretion. This Beaufort Inlet AEC is just outside of Beaufort's jurisdiction, off the southern shores of the Rachel Carson Reserve.
- **Unvegetated Beach AEC.** These beach areas have no stable natural vegetation and generally stretches from the ocean to the first line of stable natural vegetation in the dune. Rachel Carson Reserve has habitat with some of these characteristics.

This AEC does not exist in the study area.

Public Water Supplies

Protection of fresh water supply sources is vital to human health. Protection of public water supply areas prevents damage to fresh water supplies which are vulnerable to pollution, sea-level rise, and salt water intrusion. The Town of Beaufort receives all of its drinking water from groundwater that comes from the Castle Hayne-Aquia aquifer and there are four dedicated wells for the Town of Beaufort system.

Natural and Cultural Resources

These are specific sites designated to receive protection because they contain environmental or cultural resources that are important to the entire state. The NC Coastal Resources Commission (CRC) formally designates these resources through a nomination process.

- **Coastal Areas that Sustain Remnant Species:** Coastal areas that sustain remnant species are those that support native plants or animals determined to be rare or endangered (synonymous with threatened and endangered), within the coastal area. Such places provide habitats necessary for the survival of existing populations or communities of rare or endangered species within the coastal area.

The continued survival of certain habitats that support native plants and animals in the coastal area is vital for the preservation of our natural heritage and for the protection of natural diversity which is related to biological diversity. These habitats and species provide valuable, educational, and scientific resources that cannot be duplicated. (15A NCAC 07H.0506)

- **Coastal Complex Natural Areas:** Coastal complex natural areas are defined as lands that support native plant and animal communities by providing habitat areas of notable scientific, educational, or aesthetic value. They may be surrounded by landscape that has been modified but does not drastically alter conditions within the natural area. Such areas may have been altered by human activity and/or subject to limited future modifications, e.g. the placement of dredge spoil, if the CRC determines that the modifications benefit the plant or animal habitat or enhance the biological, scientific or educational values which will be protected by designation as an AEC. Coastal complex natural areas function as key biological components of natural systems, as important scientific and educational sites, or as valuable scenic, or cultural resources. Often these areas provide habitat suitable for threatened or endangered species or support plant and animal communities representative of pre-settlement conditions. (15A NCAC 07H.0506)
- **Unique Coastal Geologic Formations:** Unique coastal geologic formations that are rare or otherwise significant components of coastal systems, or that are especially notable examples of geologic formations or processes in the coastal area. Unique coastal geologic areas are important educational, scientific, or scenic resources that would be jeopardized by uncontrolled or incompatible development. (15A NCAC 07H.0507)
- **Significant Coastal Archaeological Resources:** Significant coastal archaeological resources are defined as areas that contain archaeological remains (objects, features, and/or sites) that have more local significance to history or prehistory. Significant coastal archaeological resources are important educational, scientific, or aesthetic resources. Such resources would be jeopardized by uncontrolled or incompatible development. (15A NCAC 07H.0509)
- **Significant Coastal Historic Architectural Resources:** Significant coastal historic architectural resources are defined as districts, structures, buildings, sites, or objects that have more than local significance to history or architecture. Significant coastal historic architectural resources are important educational, scientific, associative, or aesthetic resources. Such resources would be jeopardized by uncontrolled or incompatible development.

Environmentally Fragile Areas

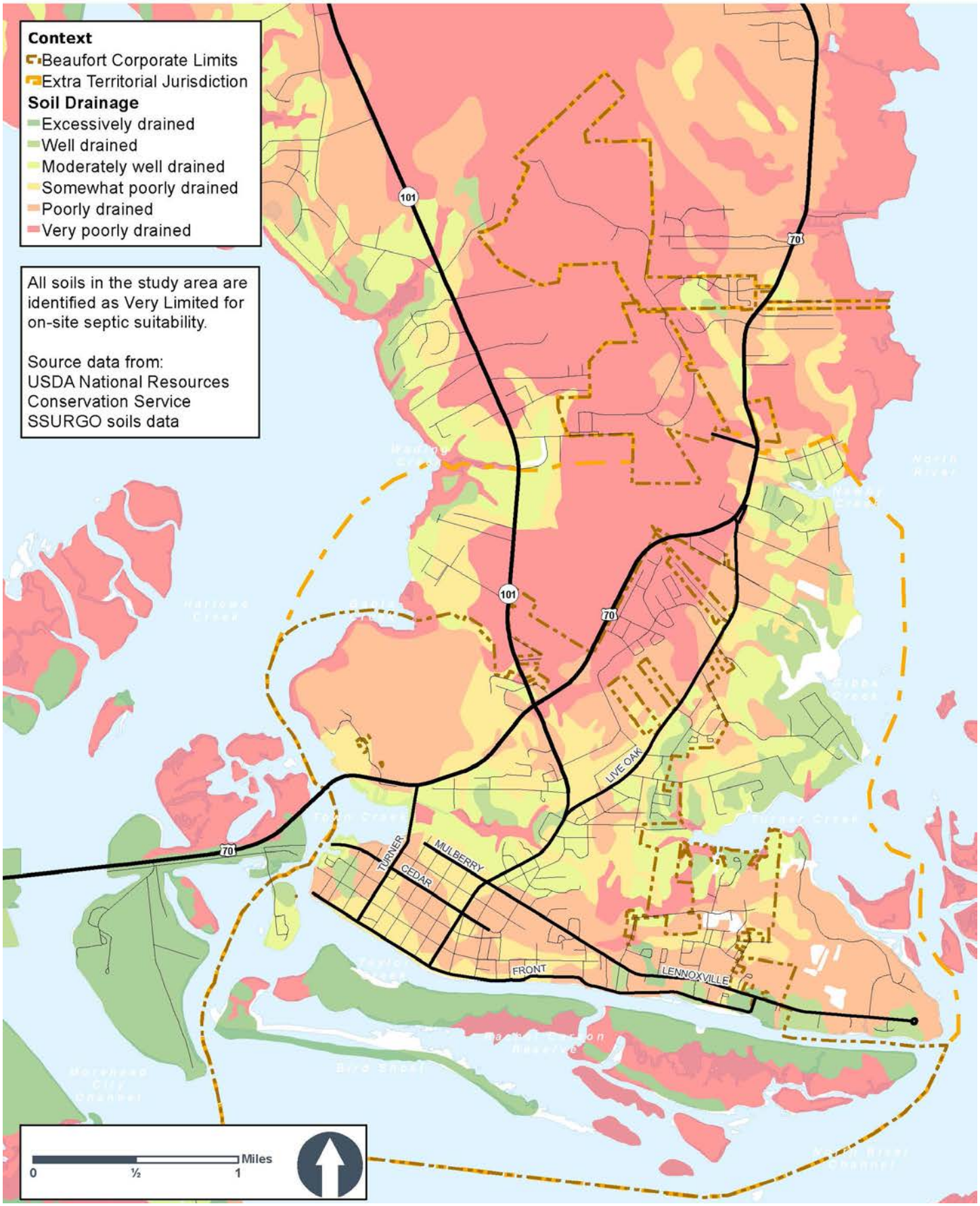
Map of environmentally sensitive and natural resource areas.

Erosion, Soils, and Septic Suitability

The primary soil types in Beaufort are hydric soils. These soils contain an abundance of moisture and generally lack oxygen. They are generally categorized as soils that are very poorly to poorly drained by the USDA National Resources Conservation Service (NRCS). Soils such as Carteret sand, Tomotley fine sandy loam and Leon-Urban sand are the predominant soils in Beaufort. These soils present limitations for development and septic suitability. The NRCS designates these soils as "very limited" for septic system suitability. These limitations can be overcome with special engineering considerations, but are often expensive, may have limited or poor performance and generally require a lot of maintenance. While engineering can often solve problems presented by soil conditions, there are sites that are not suited for development and these soil conditions should be taken into consideration when planning for land use.

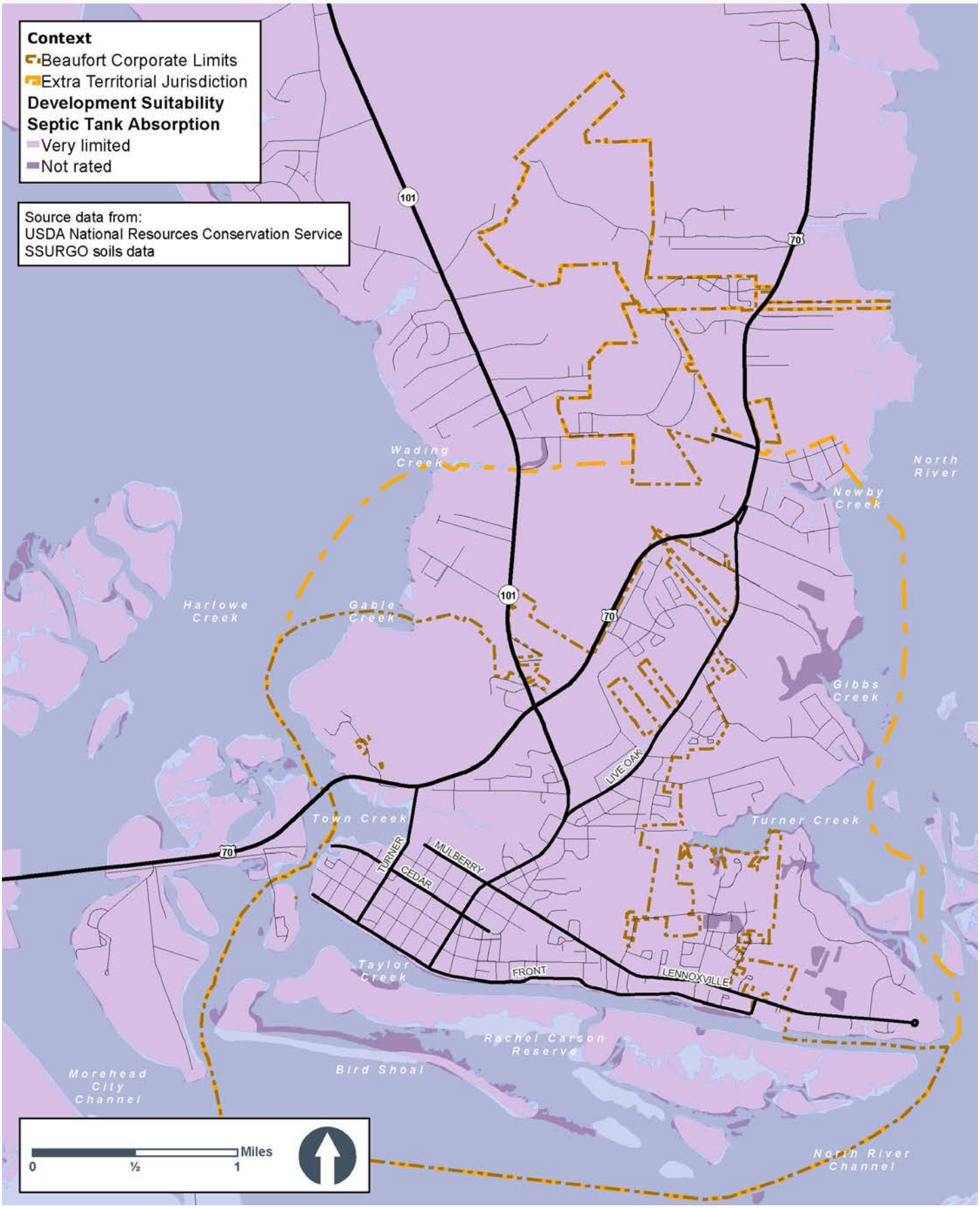
Over 90% of the soils in Beaufort have severe limitations for septic tank absorption due to wetness, low strength, and restricted permeability. Septic systems are not permitted in the corporate limits of Beaufort; however, they are allowed in the ETJ following a site-specific analysis required by Carteret County Environmental Health Services. The low absorptive capacity of the soils also indicates a higher runoff potential as well.

Soils



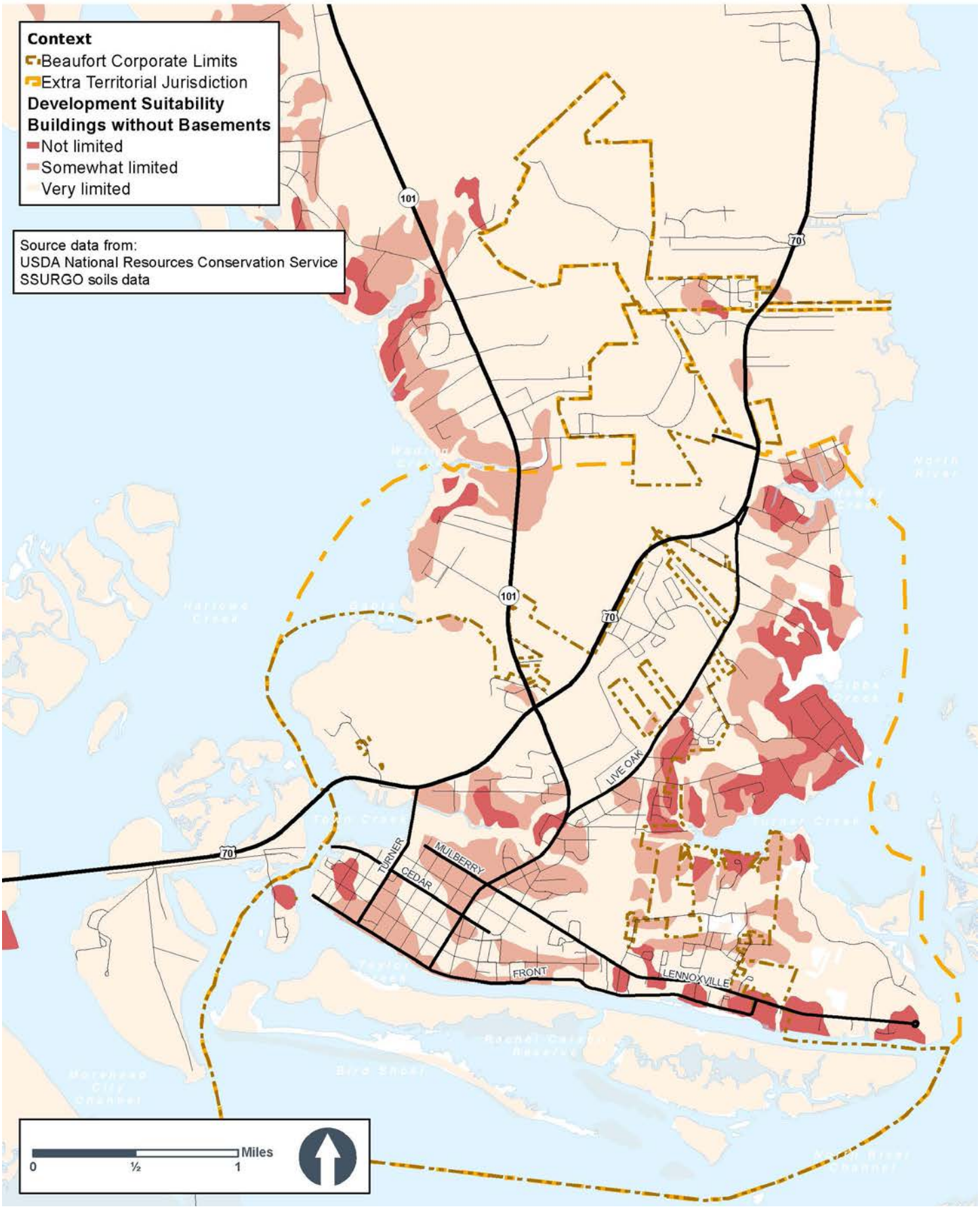
Soils are typical of a coastal region.

Soil Suitability for Septic Absorption



Soils are generally not suitable for on-site septic infiltration. Poor absorptive capacity of the soils generally means relatively high runoff potential as well.

Soil Suitability for Development



Many of the soils in the study area are not deemed suitable for development with basements.

Water Quality

Water Quality Classifications

Surface waters in North Carolina are assigned a primary water classification by the North Carolina Division of Water Quality under the authority of the Environmental Management Commission. These classifications and their associated rules are designed to protect water quality, fish and wildlife and are required by the Federal Water Pollution Control Act (Clean Water Act). All surface waters in North Carolina area assigned a primary classification and some include a supplemental classification added by the NC Division of Water Resources (DWR). All waters must at least meet the standards for Class C, meaning the waters are suitable for aquatic life and secondary recreation. SA waters are saltwater bodies that are suitable for shellfish harvesting and primary recreation. SC water bodies are suitable for aquatic life and secondary recreation. Water bodies surrounding Beaufort are classified as "SA" or "high quality" waters suitable for shellfish and primary nursery areas harvesting and primary recreational activities as well as, "SC" or "outstanding resource" waters for fish habitat and have federal or state significance. For local water quality classifications, view the table on this page titled, "Water Quality Classifications." There is currently a watershed restoration plan to reduce stormwater runoff and improve water quality in Beaufort Watersheds, including Town Creek watershed, Taylor Creek watershed, and Davis Bay watershed.

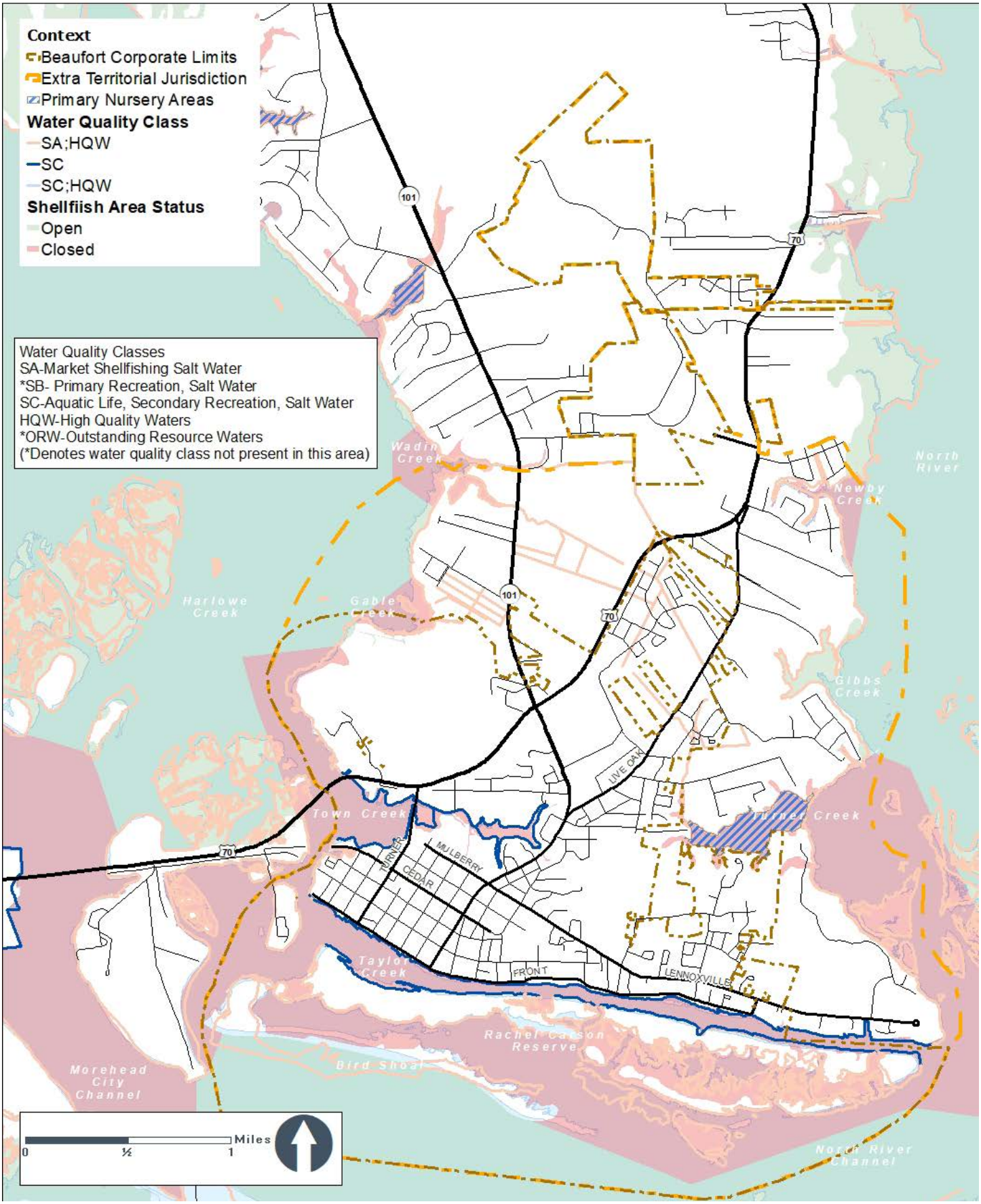
Water Quality Classifications

Water Body Name	Classification
Back Sound	SA:HQW
Davis Bay	SA:HQW
Gable Creek	SA:HQW
Gibbs Creek	SA:HQW
Newby Creek	SA:HQW
Newport River	SA:HQW
North River	SA:HQW
Taylor Creek	SC
Town Creek	SC
Turner Creek	SA:HQW
Wading Creek	SA:HQW

Source: White Oak River Basinwide Water Quality Plan, 2007

The NC Division of Water Quality prepared the third edition of the White Oak River Basinwide Water Quality Plan in 2007. The first and second edition to the plan were prepared in 1997 and 2001. Since the 2001 revision of the White Oak River Basinwide Water Quality Plan the use support methods have changed significantly. In the previous plan, surface waters were rated fully supporting (FS), partially supporting (PS), not supporting (NS) and not rated (NR). The 2002 Integrated Water Quality Monitoring and Assessment Report Guidance issued by the Environmental Protection Agency (EPA) requests that states no longer subdivide the Impaired category. In agreement with this guidance, North Carolina no longer subdivides the Impaired category and rates waters as Supporting (S), Impaired (I), Not Rated (NR), or No Data (ND). These ratings refer to whether the classified uses of the water are being met.

Water Quality, Primary Nursery and Shellfish Harvesting Areas



Beaufort has high quality salt water resources that benefit from regular "flushing" out from the tides through the inlet.

Summary of Use Support Ratings by Category in Subbasin 03-05-03						
Use Support Rating	**Aquatic Life**		**Recreation**		**Shellfish Harvesting**	
	Freshwater	Saltwater	Freshwater	Saltwater	Freshwater	Saltwater
Monitored Waters						
Supporting	0	5,847.9 ac	11.2 mi	17,764.7 ac	0	19,357.1 ac
Impaired*	0	140.2 ac (2%)	0	8 ac (.04%)	0	5.2 mi (100%)
Not Rated	15,1 mi	0	0	140.2 ac	0	
Total	**15.1 mi**	**5,988.1 ac**	**11.2 mi**	**17,912.9 ac**	**0**	**5.2 mi**
Unmonitored Waters						
Not Rated	0	166.3 ac	0	0.8 mi	0	0
No Data	54.1	5.2 mi	58 mi	5.2 mi	0	0
Total	**54.1 mi**	**5.2 mi**	**58 mi**	**5.2 mi**	**0**	**0**
Totals						
All Waters*	**69.2 mi**	**5.2 mi**	**69 mi**	**5.2 mi**	**0 5.2 mi**	

Subbasin 03-05-03 is located in the center of Carteret County, extending from the Croatan National Forest to Beaufort and Beaufort Inlet. Subbasin 03-05-04 lies to east and north of the Town of Beaufort in Carteret County. Major water bodies in this subbasin include the North River, Jarrett Bay and Nelson Bay, plus the landward halves of Back Sound and Core Sound. Most of this subbasin is estuarine with freshwater drainage from adjacent land including Open Grounds Farm. The Oak River Basinwide Water Quality Plan did not indicate any public health issues related to non-point source pollution.

North Carolina coastal waters are known for their plentiful shellfish. Shellfish include clams, oysters, and mussels. All shellfish growing areas are surveyed every three years by the NC Marine Fisheries to assess the bacteriological quality of the water and to determine the hydrographic and meteorological factors that could affect the water quality. This information is then used to classify each shellfish growing area as either approved, conditionally approved, restricted, or prohibited. Approved areas are consistently open to shellfishing, while prohibited areas are permanently closed.

According to NC Marine Fisheries, all tributaries, Taylor Creek, Davis Bay, and the waters surrounding the Rachel Carson Reserve are permanently closed for shellfishing. The waters in the Newport River, North River, and Back Sound are conditionally approved and/or open for shellfishing. Conditionally approved areas are generally open but can be closed after a significant rainfall event. On the map these shellfishing areas are labeled

Summary of Use Support Ratings by Category in Subbasin 03-05-04						
Use Support Rating	**Aquatic Life**		**Recreation**		**Shellfish Harvesting**	
	Freshwater	Saltwater	Freshwater	Saltwater	Freshwater	Saltwater
Monitored Waters						
Supporting	0	2,991.7 ac	0	11,316.7 ac	0	26,053.9 ac
Impaired*	0	6,251.3 ac (68%)	0	0	0	13,374 ac (33.9%)
Total	**0**	**9243 ac**	**0**	**11,316.7 ac**	**0**	**39,427.9 ac**
Unmonitored Waters						
Not Rated	0	234.5 ac	0	0	0	0
No Data	0	30,271.8 ac	0	28,432.6 ac	0	0
Totals						
All Waters*	**0**	**2.9 mi 39,749.3 ac**	**0**	**2.9 mi 39,749.3 ac**	**0**	**39,427.9 ac**

*The noted percent Impaired is the percent of monitored miles/acres only. Source: NC Division of Water Quality

as open and closed with the open areas including the conditionally approved areas.

The biggest threat to the water quality along the Newport River is associated stormwater runoff for this rapidly developing area *(Source: Report of Sanitary Survey Area E-4,Newport River Area, May 2015 through March 2020)*. The most significant threat to the water quality in Taylor Creek Area is nonpoint pollution associated with stormwater and runoff. The area adjacent to the Beaufort Docks is heavily crowded with boats. The large number of private sailboats and live-aboards in the creek increase the potential for fecal coliform contamination from illegal marine head pumping (DEH, Shellfish Sanitation and Recreational Water Quality Section, October 2002). According to the Sanitary Survey of North River Area, there are some improvements in water quality in portions of this growing area *(Source: Report of Sanitary Survey, Area E-6, North River Area, December 2015 though July 2021)*. Several areas within North River have been reclassified from conditionally approved closed to conditionally approved open as a result from this survey.

Impaired Waters

Impaired waters are waters that only partially support their designated uses. North Carolina must perform a water quality assessment every two years and report results to the EPA; the 303(D) list is a list of waters that exceed water quality criteria and are considered impaired because they exceed water quality criteria. All of the impaired waters

Impaired Water Bodies		
Water Body Name	**Classification**	**Total Acres Impaired**
Back Sound	SA:HQW	706.1
Davis Bay	SA:HQW	912.9
Gable Creek	SA:HQW	46.3
Gibbs Creek	SA:HQW	65.4
Newby Creek	SA:HQW	10.4
Newport River	SA:HQW	7,990.5
North River	SA:HQW	6,514.1
Taylor Creek	SC	166,3
Turner Creek	SA:HQW	51.8
Wading Creek	SA:HQW	19.6

Source: North Carolina 303(d) List, 2020

that are within or directly adjacent to Beaufort's planning jurisdiction are listed in the table on the following page.

Portions of the Newport River, Wading Creek, Gable Creek, in subbasin 03-05-03 and portions of Back Sound, North River, Gibbs Creek, Turner Creek, and Davis Bay in subbasin 03-05-04 remain on the 303(d) list of impaired waters. The impaired use is for shellfish harvesting dues to high levels of fecal coliform. These water bodies have been impaired since 2002.

Primary Nursery Areas, Shellfishing Areas, and Associated Waters

Primary nursery areas, as defined by the Marine Fisheries Commission, are those areas in the estuarine system where initial post-larval development takes place. The purpose of primary nursery areas is to protect the habitat of these areas, especially the bottom structure (sea grasses, oyster rocks, sand and mud) and adjacent wetlands. These areas are typically located in the uppermost sections of a system where populations are uniformly very early juveniles. The North Carolina Division of Marine Fisheries is responsible for preserving, protecting and developing these areas for important finfish and shellfish. Turner Creek is the only primary nursery area within the Beaufort's planning jurisdiction.

Nursery areas are necessary for the early growth and development of important marine or estuarine fish or crustacean species. These areas need to be maintained, as much as possible, in their natural state, with as little interference from man as much as possible. The North Carolina Marine Fisheries Commission's rules prohibit the use of gears (trawls, dredges, long haul seines) that can severely impact the habitat regardless of who uses the gear. Shoreline development is also limited by North Carolina Coastal Resources Commission.

Shellfishing areas are open or closed

Beaufort Docks Marina

areas where shellfishing is allowed or prohibited. Shellfish includes clams, oysters, and mussels. Shellfish are filter feeders, and pump water through their gills almost constantly. This pumping action is how shellfish area are able to gather food particles, but this action also allows them to take up any bacteria, viruses, or pollutants that may be present in the water. If shellfish with high concentrations of bacteria or viruses are consumed raw or undercooked, they could cause severe illness to the consumer.

The North Carolina Department of Marine Fisheries assesses the bacteriological factors that affect water quality and then classify shellfish growing areas as either approved, conditionally approved, restricted, or prohibited. Approved areas are consistently open to shellfishing, while prohibited areas such as Taylor Creek, Davis Bay, and the waters surrounding the Rachel Carson Reserve are permanently closed. Conditionally approved waters such as the waters in the Newport River, North River, and the

Marinas and Docks in Beaufort's Planning Jurisdiction

Marina	Number of Slips	Pump-Out Facilities	Body of Water
William Smith Seafood	6	No	Taylor Creek
TB Smith Seafood	3	No	Taylor Creek
Beaufort Marina Village Yacht Club/Beaufort Paddle	31	No	Taylor Creek
Pivers Island Marina	11	No	Taylor Creek
Gallants Landing Marina	29	Yes	Taylor Creek
Beaufort Inn Marina	12	No	Taylor Creek
Beaufort Town Docks	97	Yes	Taylor Creek
Taylor Creek Marina	22	No	Taylor Creek
Beaufort Landing Village Marina	44	No	Taylor Creek
Duke Marine Lab Marina	9	No	Taylor Creek
The Boathouse	43	Yes	Taylor Creek
North Carolina Maritime Museum Marina	39	Yes	Town Creek
Town Creek Harbor	19	Yes	Town Creek
Beaufort Yacht Basin	82	Yes	Town Creek
Town Creek Marina	106	Yes	Town Creek
Discovery Diving Marina	35	Yes	Town Creek
Airport Marina	13	No	Town Creek
Homer Smith Docks and Marina	86	Yes	Town Creek

Source: Report of Sanitary Survey area E-5 Taylors Creek area, 2015-2020 and Report of Sanitary Survey area E-4, Newport River area, 2015-2020

Back Sound are generally open but may be closed when the area has significant rainfall. The area will remain closed until water samplings indicate the water quality has returned to acceptable levels. Water pollutants fall into two general categories: point and nonpoint sources. Point sources refers to pollution that enters into surface waters through "any discernible, confined, and discrete conveyance, such as a pipe, ditch, channel, tunnel, conduit, discrete fissure, or container" (US EPA, 2019). Nonpoint source pollution is defined as "any source of water pollution that does not meet the legal definition of "point source" in Section 502 (14) of the Clean Water Act" (US EPA, 2020) Nonpoint pollution can result from a number of activities and land uses.

Town of Beaufort Wastewater Treatment Plant

Stormwater runoff is the one of the biggest threats to water quality and has the potential to carry bacteria from adjacent land into surface waters, which may increase the amount of bacteria consumed by shellfish. Living shorelines and beneficial wetlands help to mitigate the effects from stormwater runoff by filtering pollutants before they enter the adjacent waters. Additionally, the presence of conflicting uses, such as a marinas or a wastewater treatment plant automatically make areas ineligible for shellfishing because of the discharges that are associated with them. See the table listing the marinas in Beaufort on **pg. 83**.


Beaufort Water Tower

Point sources that exist in Beaufort's planning jurisdiction include three town owned facilities and Beaufort Fisheries, Inc. All wastewater discharges to surface waters in the State of North Carolina must receive a permit to control water pollution. The National Pollutant

Discharge Elimination System (NPDES) program at North Carolina Division of Water Resources is responsible for the issuance of wastewater discharge permits. This process includes determining the quality and quantity of treated wastewater that the receiving stream can assimilate, incorporating input from stream modeling, collaborating with regional office staff, and evaluating discharger location. (NCDEQ, 2020) According to the National Pollutant Discharge Elimination System (NPDES), the Town of Beaufort has four discharge permits in its planning jurisdiction. These include the following:

- NC0021831 Beaufort Wastewater Treatment Plant, Taylor Creek
- NC0072699 Pine Street Water Treatment Plant, Town Creek
- NC0000728 Menhaden Oil Processing Plant, Taylor Creek
- NC0072702 Glenda Drive Water Treatment Plant, Turner Creek

While some waters are closed due to water quality testing, others are closed due to the presence of conflicting uses, such as marinas or wastewater treatment facilities. When such uses are present, areas automatically become ineligible for shellfishing. The town's marinas are located along Taylor Creek and Town Creek. Additionally, bays along the North River and Newport River remain closed for shellfishing.

Fishing boats

Flooding and Other Natural Hazards

Beaufort lies in the physiographic province known as the Coastal Plain in North Carolina. The Town has several tidal rivers that drain from it. The Newport River on the west opens into the Beaufort inlet, just south of the Rachel Carson Reserve. The east side of Town is the North River. Elevations in Beaufort range from 4 to 33 feet above sea level.

Floodplains and Flood Zones

The 100-year floodplain is land subject to a one percent or greater chance of flooding in any given year. Whereas, the 500-year floodplain is land subject to a one in five hundred (0.2%) chance of flooding in any given year. In Beaufort, the parcels that are adjacent to North River, Turner Creek, Taylor Creek, Town Creek, and Newport River are the areas within the 100-year floodplain. The parcels within the 500-year floodplain lie adjacent to the 100-year floodplain and run slightly north of Live Oak St., along NC Highway 101 and where Live Oak St. and Highway 70 meet.

The Federal Insurance and Mitigation Administration defines repetitive loss property as "any insured structure with at least two flood insurance losses, each of at least $1,000, in any rolling 10-year period". During this 10-year period, Beaufort had 1 repetitive loss property with 12 reported losses at an amount of $252,477.35.

Currently, more than 30% of the Town's structures, not including the airport, are within the horizontal boundaries of the 100-year floodplain, also known as the Federal Emergency Management Agency Special Flood Hazard Area (FEMA SFHA). Beaufort participates in the National Flood Insurance Programs by adopting and enforcing a floodplain management ordinance to reduce risks of future flood damage.

Local Stormwater Flooding Concerns

At the second public meeting, attendees were asked about where they have knowledge of flooding or stormwater back up concerns. These areas were noted in breakout group sessions on slides. Flooding concerns primarily were noted in areas in proximity to Town Creek and Taylor Creek, especially in low-lying areas.

Home Flooding Statistics

» 30% of flood claims are in low or moderate risk flood areas.

» There is a 26% chance that a non-elevated home in the floodplain will be damaged during a 30 year mortgage period.

Source: FEMA

Stormwater drainage area

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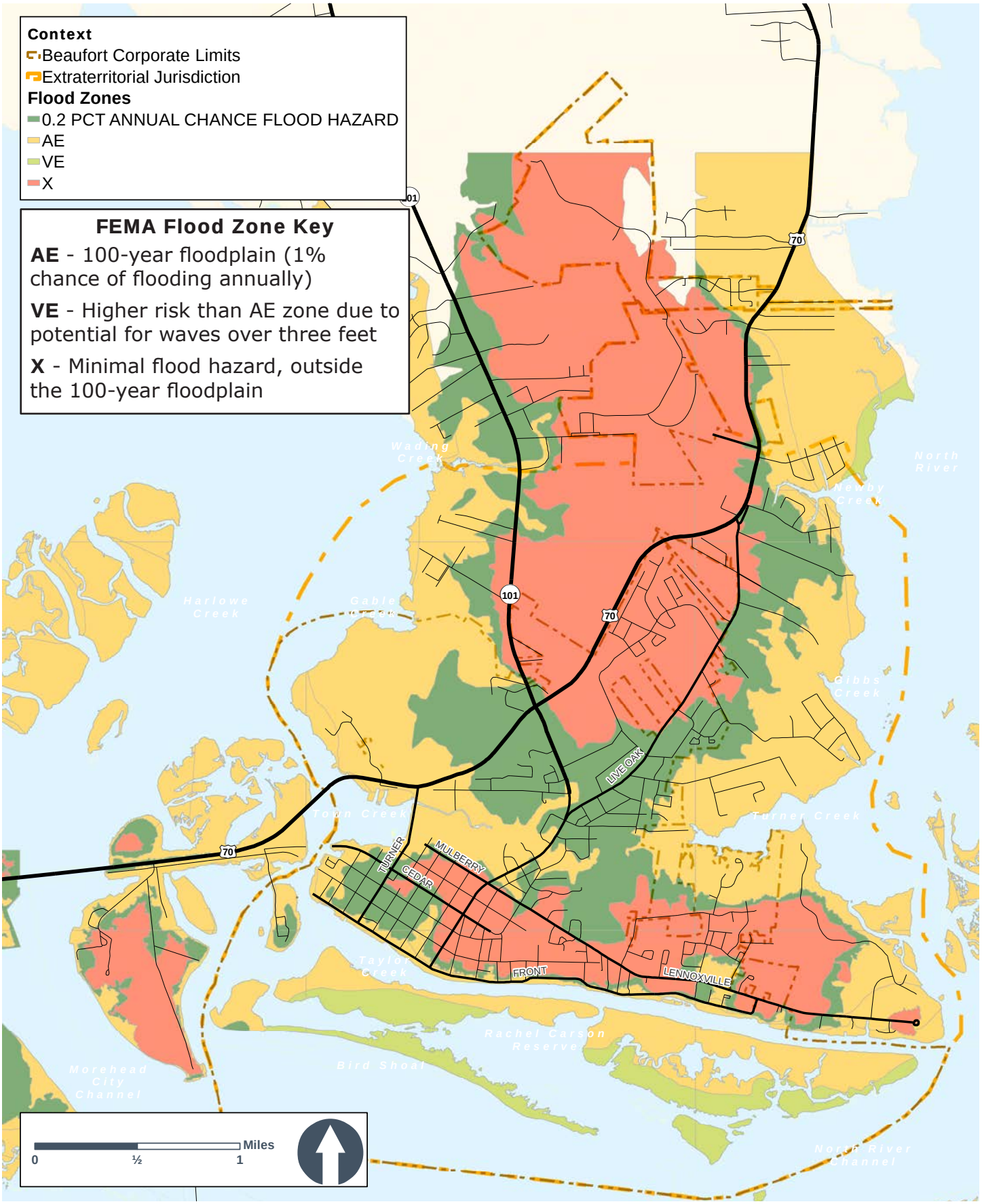
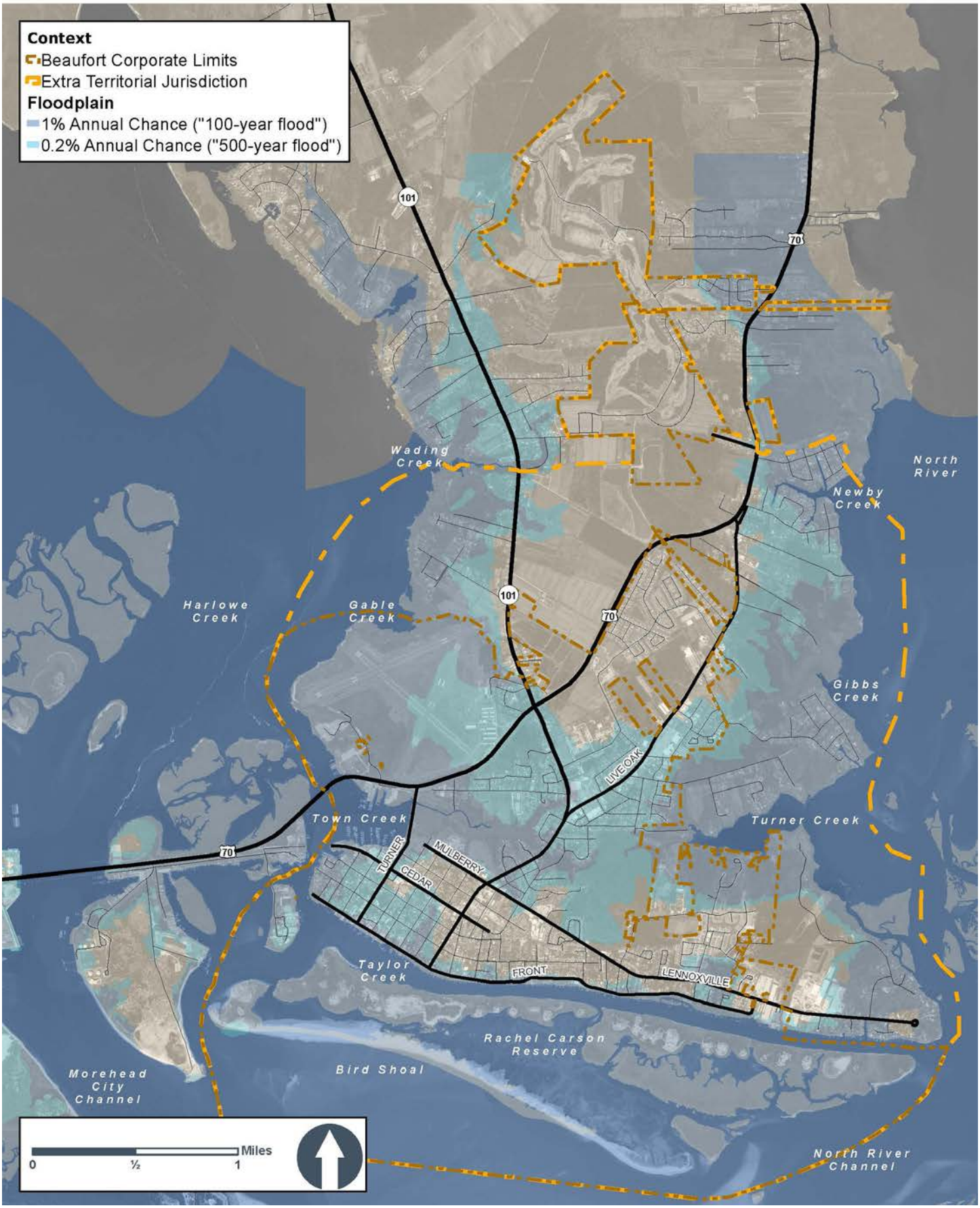
Flood Zones



The Town's flood zone maps are currently in the process of being updated by FEMA.

Floodplains



Vast areas of the town and study area are in either the 1% or 0.2% annual flood chance floodplains.

Community flood record from Ocracoke. Source: Village Craftsman of Ocracoke Island, NC.

Hazards, Storm Surge, and Flooding

The Town of Beaufort is susceptible to flooding from wind-driven storm surge associated with hurricanes, tropical storms, and nor'easters. Storm surge is water that is pushed toward the shore by the force of winds swirling around the storm. (Pamlico Sound Regional Hazard Mitigation Plan, 2020) Storm surge and heavy rainfall increases the mean water level to heights impacting roads, homes, and other critical infrastructure.

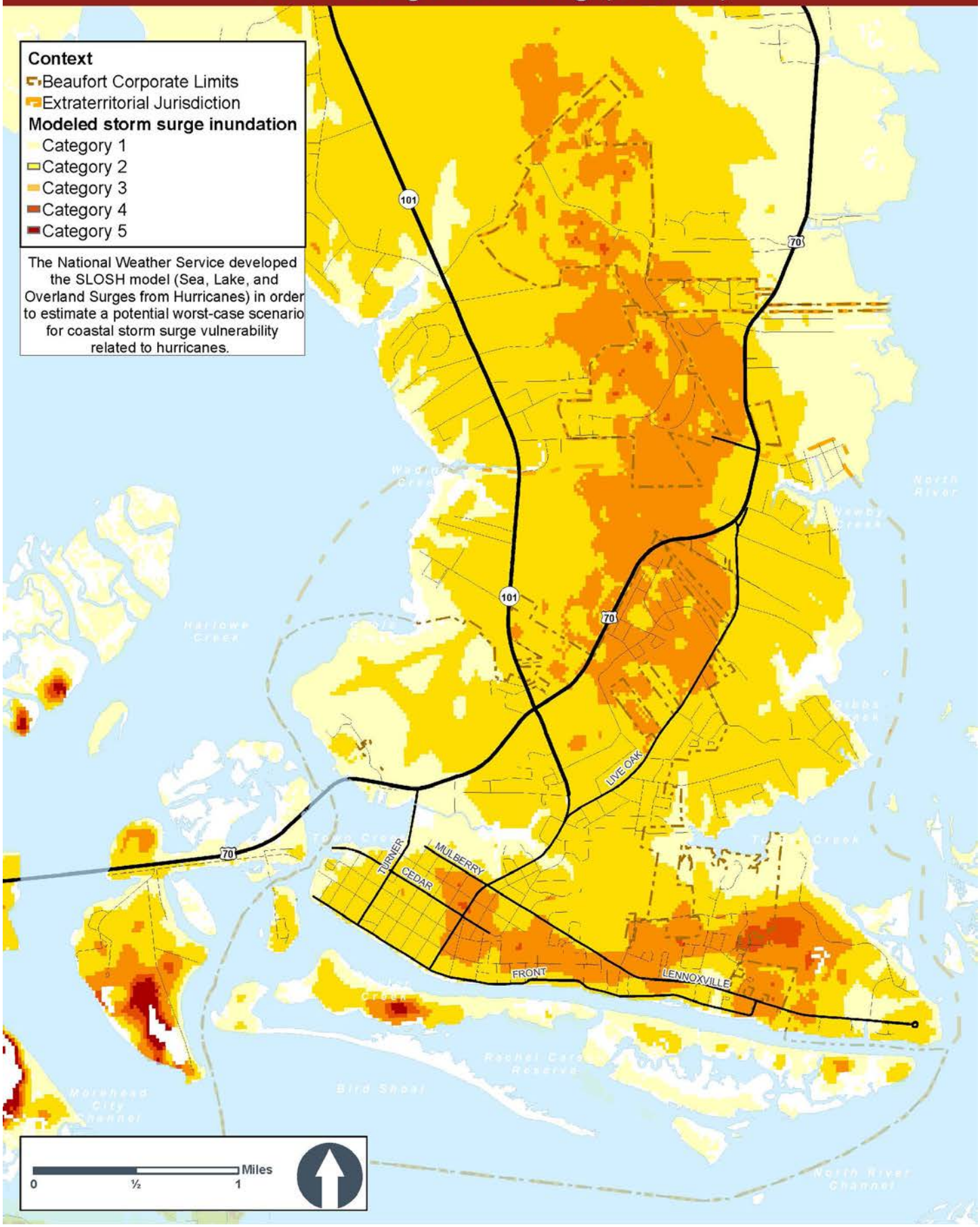
Areas likely to be inundated by storm surge have been modeled by the National Weather Service SLOSH (Sea, Lake, and Overland Surges from hurricanes) model, in order to estimate a potential worst-case scenario for coastal storm surge vulnerability related to hurricanes. These areas have been mapped to show the extent of hurricane induced flooding.

Flooding and high winds impact the Town of Beaufort during major storms. The table below describes the impact of from various hurricane categories. A significant majority of the town is vulnerable to inundation during a Category 2 hurricane and nearly the entire town might experience flooding during a Category 3 hurricane. Under the worst-case scenario, a direct hit by a Category 5 hurricane, the entire Beaufort planning jurisdiction is subject to flooding from storm surge. Fortunately, these types of storms are rare because they are destructive to the extent that economies of impacted places take decades to recover, if they ever do.

Description of Hurricane Categories

Category	Winds	Storm Surge	Damage Expected
Category 1	74-95 mph	4-5 feet	Minimal Damage
Category 2	96-110 mph	6-8 feet	Moderate Damage
Category 3	111-130 mph	9-12 feet	Extensive Damage
Category 4	131-155 mph	13-18 feet	Extreme Damage
Category 5	155+ mph	18+ feet	Catastrophic Damage

Storm Surge Modeling (SLOSH)



Not surprisingly in a low-lying coastal area, Beaufort is highly vulnerable to storm surge flooding during mid- to high-intensity hurricanes.

Storm Event Intensity and Probability of Occurrence

People frequently talk about storm events as 1-in-100 year storms or 1-in-500 year storms. These concepts are useful for designers and regulators to ensure a community can endure different intensity storm events with less disruption to normal life. However, in these discussions, it is also important to discuss the probability that these events might occur over the lifespan of the structure or facility in question.

As illustrated in the table below, the probability of occurrence of a 1-in-100 year storm in any given year is not particularly alarming; only 1-in-a- hundred chance, or a 1% chance over a one-year period. However, over the lifespan of a typical, 30-year home mortgage, the aggregate chance that a 1-in-100 year storm might occur is actually 26%. For the length of time that many of the historic homes have existed in Beaufort, the probability that they have lived through higher intensity storms is fairly certain. And in fact, storm records show that these events have occurred and are becoming increasingly common.

Current scientific data informs us that the coast will begin to see higher intensity storms on a more regular basis due to a number of factors related to climate change. In particular, as the atmosphere warms, it is more able to hold moisture, with a roughly 7% increase in moisture holding ability for every 1 degree Celsius increase. This will mean that future storms will be more intense with more precipitation. As discussed further in this document, the impact of future storms will also be exacerbated by other factors related to climate change, such as rising seas, coastal erosion, and more frequent hurricanes. This will especially be more apparent in coastal towns affected by high tides or king tides, which will impede the routing of stormwater to creeks and waterways.

Probability of occurrence of various storm events over spans of time

	1 year	10 years	30 years	50 years	100 years
1-in-10 year storm (10% annual chance)	10%	65.1%	95.8%	99.5%	99.9%
1-in-100 year storm (1% annual chance)	1.0%	9.6%	26.0%	39.5%	63.4%
1-in-500 year storm (0.2% annual chance)	0.2%	2.0%	5.8%	9.5%	18.1%
1-in-1,000 year storm (0.1% annual chance)	0.1%	1.0%	3.0%	4.9%	9.5%
Significance			Length of a typical mortgage	Within the lifespan of most structures	Within the lifespan of many sturdy structures

Note that the percentages above show the probability of the occurrence of at least one of the specified storms of a particular intensity. More than one storm of a given intensity during a certain time period are certainly possible.

A warmer ocean surface also has the potential to foster stronger storms. The storms of the future will be stronger than those of the present. Stronger winds from these storms may lead to greater debris cleanup and tree maintenance needs.

As a generality, the federal government has determined that properties within the 1% annual flood chance floodplain should purchase flood insurance. This is the bare minimum requirement that the federal government has established to help mitigate flood damages across the nation. This does not prevent communities from doing more to protect their citizens, structures, and operations from disruption due to flooding. It is up to each community to determine their own tolerance for disruption from flooding and storms and do what is in the best interest of their residents and businesses.

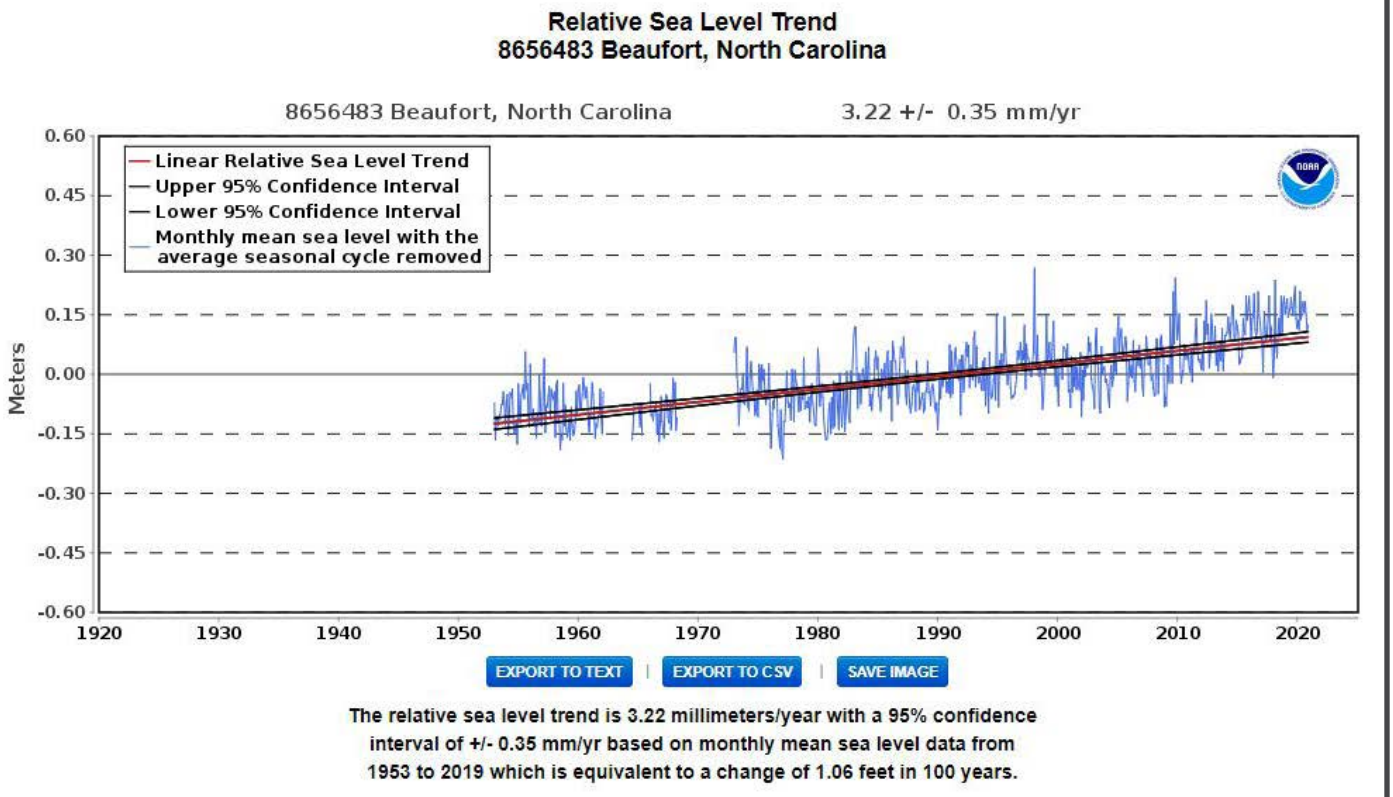
Vulnerability and a Changing Climate

For the measurable past, more than six decades, relative sea level has been rising in the Beaufort area, as recorded at the NOAA tide gauge. Recent evidence also suggests that global greenhouse gas emissions are not being effectively curtailed, which indicates that seas will continue to rise and likely at an increasing rate.

(Source: Intergovernmental Panel on Climate Change. 2018. Special Report, and sealevelrise.org/states/northcarolina).

Rising seas and consequently higher water tables will also impede the ability of septic systems to function, and for stormwater systems to functions with backflow. Saltwater intrusion can also contaminate public drinking water wells. Underground salt water intrusion or overwash from storm-driven waves into areas where infrastructure exists (pipes, wires, foundations, parking areas, etc.) has the potential to reduce the operational lifespan of those facilities and lead to increased maintenance costs. Concrete, in particular, is vulnerable to salt water corrosion, and infiltration of salt water also can create problems balancing the chemical levels necessary for wastewater treatment.

Flood zones will continue to move upland as seas rise. This may lead to a future condition where many structures are not adequately protected from flooding or do not meet best practices for building code standards.



The plot shows the monthly mean sea level with regular seasonal fluctuations controlled for. The long term trend is shown, including its 95% confidence interval. The calculated trends are in mm/yr and in ft/century. *Source: NOAA*

Although rain events are predicted to be stronger, the weather will also likely be more erratic and irregular, such that drought intensity will also increase. Overall, the climate is expected to be hotter, and possibly also slightly drier, in the year 2100. Severe heat days are predicted to be more common in the future. This will present hazards to people partaking in outdoor activities, both for work or recreation.

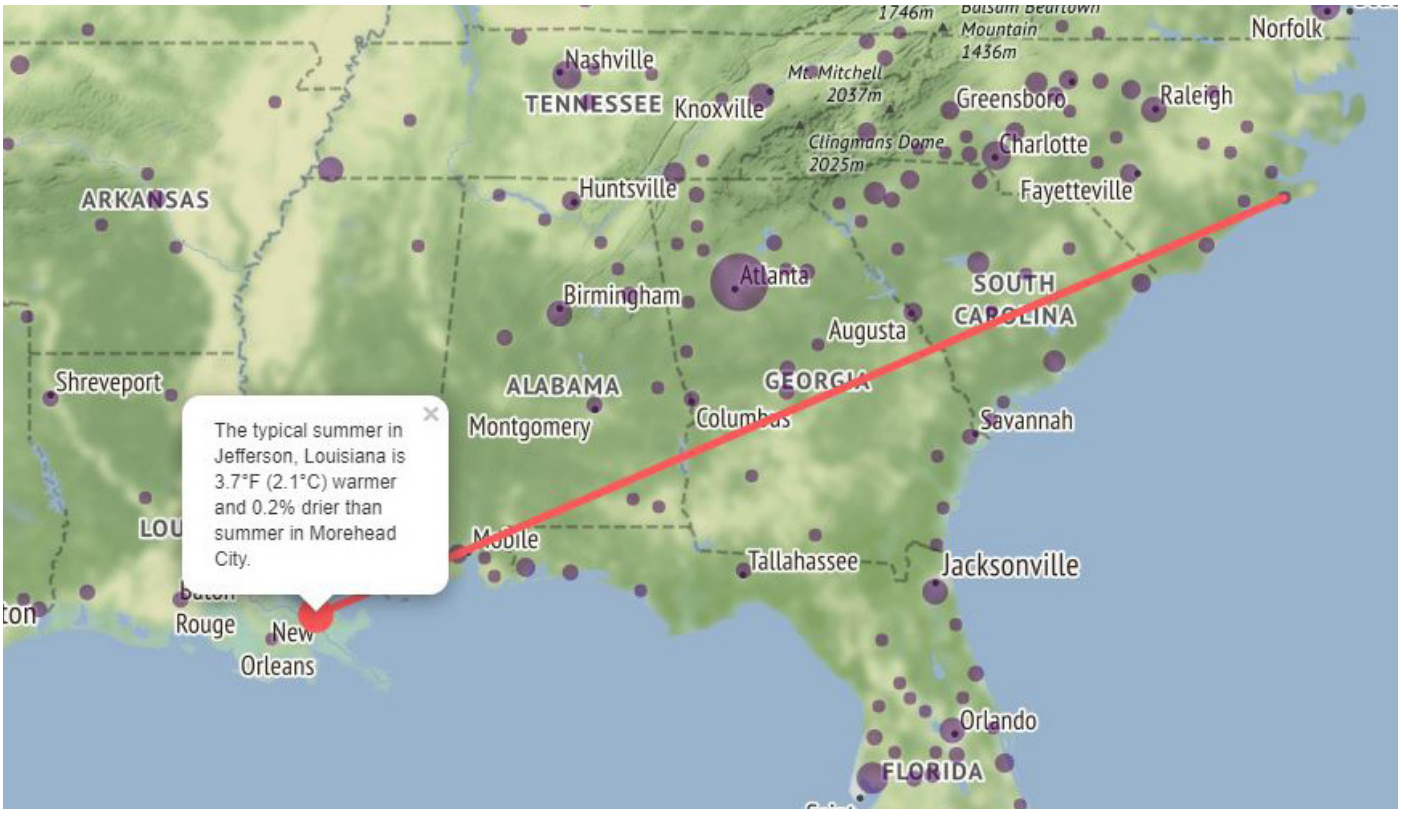
Sea Level Rise Projections

Seas are rising globally and the low-lying areas of North Carolina's coast are particularly vulnerable. Understanding and preparing for these threats using the best available data and projections can help the community prepare for, accommodate, and mitigate the negative impacts of sea level rise.

Unless mitigating actions are taken, The National Oceanic and Atmospheric Administration (NOAA) projects that sea level rise will cause chronic inundation of some properties, with major impacts possibly occurring as early as 2060 and certainly by the year 2100. Beaufort is home to more than 150 structures that have seen up to a 300-year lifespan. Many of the contemporary structures being constructed and renovated today have expected lifespans of 50 years and beyond. Major municipal investments - public water wells, wastewater treatment plants, the courthouse, bridges, etc. - should be expected to last in excess of 50 years as well. Thus, even though 2060 and 2100 are beyond the horizon of this plan, these discussions are still relevant to long-range decision-making, especially in a community that has existed for nearly 400 years and hopes to prosper for many more.

NOAA's 2017 report "Global and Regional Sea Level Rise Scenarios for the United States" was used to understand potential future sea level rise scenarios for Beaufort. This report projects sea level

Major takeaways from the 2020 NC Climate Science Report:		
Very likely that temperatures will continue to increase.		
Likely that precipitation will be heavier.		
Very likely that extreme precipitation events will increase in both frequency and intensity.		
Very likely that there will be an increase in heavy precipitation accompanying hurricanes.		
Likely an increase in severe thunderstorm events.		
Virtually certain that coastal storm surge flooding events will increase.		
Likely that droughts will be more intense.		
Note: When used in this report, these terms have the following meaning.	**Term**	**Probability of occurrence**
	Virtually certain	99%-100%
	Very likely	90%-100%
	Likely	66-100%



A recent study that included neighboring Morehead City implies that Beaufort's annual average climate in the year 2100 will generally be hotter and slightly drier.
Source: Fitzpatrick, Matthew, and Dunn, Robert. "Contemporary climatic analogs for 540 North American urban areas in the late 221st century". Nature Communications, February 2019.

rise relative to the baseline year of 2000. Baseline tide gauge data (the Low scenario) indicates approximately another 2 feet of rise above current (2020 sea level) by 2060 and a total of at least 6 feet more by 2100. This scenario does not account for global warming and climate change inputs, but only reflects past tide gauge trends.

Without mitigation, low lying areas in and around the Town will become inundated or subject to regular flooding, especially in the downtown waterfront commercial district.

NOAA tide gauge data

The rate of sea level rise is increasing.

Average annual sea level rise:

2.61 mm/yr years 1953-2010

3.29 mm/yr years 1953-2020

That's over

$8^1/_2$ inches

in the past 68 years.

These rates of sea level rise are the lowest baseline for the future. They do not account for additional, future, climate change induced rise.

Source: NOAA tide gauge #8656483

When considering planning, investment, and land use, it is important to consider many factors: how critical the asset is, how vulnerable it is, how quickly it can be repaired or recovered, how many people will be affected by disruptions in service from the asset, etc. More critical assets should consider more extreme sea level rise scenarios when planning so that they are resilient to a broader range of future climate conditions. However, these projections only show sea level rise. Flood risk from storms, high and king high tides, and storm surge will also be exacerbated by rising seas.

About SLR in Beaufort, NC

Sea level rise in Beaufort, NC is projected to be around 36% greater than the global average.

The ***intermediate*** scenario predicts an increase of 2.0 feet of SLR by 2060 and the ***high*** scenario predicts 3.9 feet by 2060.

Based on the **low** scenario, the *least* amount of SLR projected in 2060 is 1.0 feet.

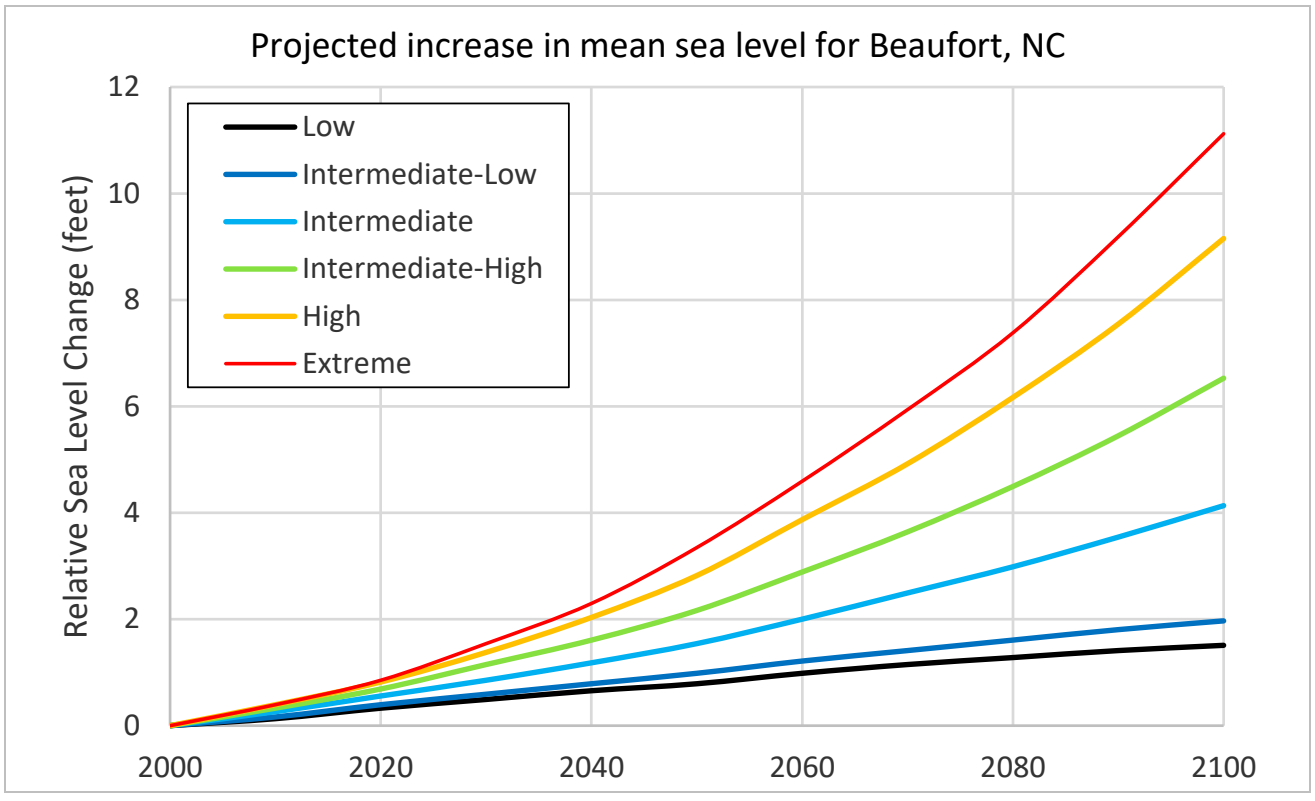


Figure 1: Graph shows relative sea level change scenarios for Beaufort, NC associated with the six different global sea level rise scenarios. The low and extreme scenarios represent the minimum and maximum of plausible future sea level rise. Data source: NOAA Technical Report NOS CO-OPS 083; Site: 2295.

The following notable areas are likely to be inundated either permanently or regularly as seas continue to rise (based on Intermediate scenario)**:**

At **2 feet** of sea level rise:

- » Fields at the airport will be inundated
- » Properties on the southern side of Turner and Town Creeks
- » Front Street at its western terminus and at Gerard Street
- » The coastal wetlands east of US 70 from Olga Road to the North River Bridge

At **3 feet** of sea level rise:

- » Continued inundation of areas listed above, and
- » Significant portions of the Rachel Carson Reserve
- » The neighborhood surrounding the intersection of Lennoxville Road and Lewiston Road
- » Properties on the north side of Turner and Town Creeks
- » Front Street from Orange Street to Seaview Street
- » Points and drainages into Gibbs Creek
- » Farm fields west of US 70 from Neptune Lane northward, likely including the highway as well

At **4 feet** of sea level rise:

- » Continued inundation of areas listed above, and
- » Areas north and east of the Town's wastewater treatment plant as well as the northern portion of Freedom Park
- » Areas along Town Creek, east of Live Oak Street
- » The western end of West Beaufort Road and the areas around the intersection of US 70 and Turner Street, including the County boat ramp
- » The Olga Road neighborhood and properties on Newby Creek
- » The southern ends of many streets in the historic district where they are close to Front Street
- » The neighborhood west of Sunset Lane
- » The western end of Pine Street, including portions of Turner Street
- » Coastal neighborhoods to the north of the airport
- » Significant parts of Piver's Island

(Source: NOAA Sea Level Rise Viewer (https://coast.noaa.gov/digitalcoast/tools/slr))

Coastal Flooding

NOAA has also created projections for how much flooding communities can expect in the future, based on the different sea level rise scenarios. Even putting aside major storms and hurricanes, areas that have flooded in the recent past can expect to see the frequency of flooding increase dramatically. Even in the mildest version of the future (the Low scenario), annual high tide flooding will increase more than 10-fold by 2050 and around 100-fold by 2100. Other scenarios paint a more dire picture.

It is not yet known how much flooding private property owners will tolerate before abandoning their properties. Some studies have used a threshold of 26 days per year ("Underwater", Union of Concerned Scientists, https://www.ucsusa.org/ underwater). That kind of retreat assumes those property owners are financially capable of abandoning their property. The full, future impact of increased flood frequency on public infrastructure and services provision is not yet known, but it will most certainly increase service disruptions and maintenance of affected infrastructure.

The New Normal

Coastal flooding will become more frequent and occur in more places as sea levels rise.

Minor flooding is a potential public threat and inconvenience. This graph depicts frequencies of *minor* flooding caused by high tides under different sea level change scenarios at the NOAA Beaufort, NC tide gauge. This is a good representation of potential future flooding in the area. Minor flooding begins when water level is at or above 1.8 feet

Probabilities of *moderate* and *major* flooding, which disrupt commerce, damage private and commercial property, and threaten public safety, are also increasing with sea level rise, putting more communities and assets at risk.

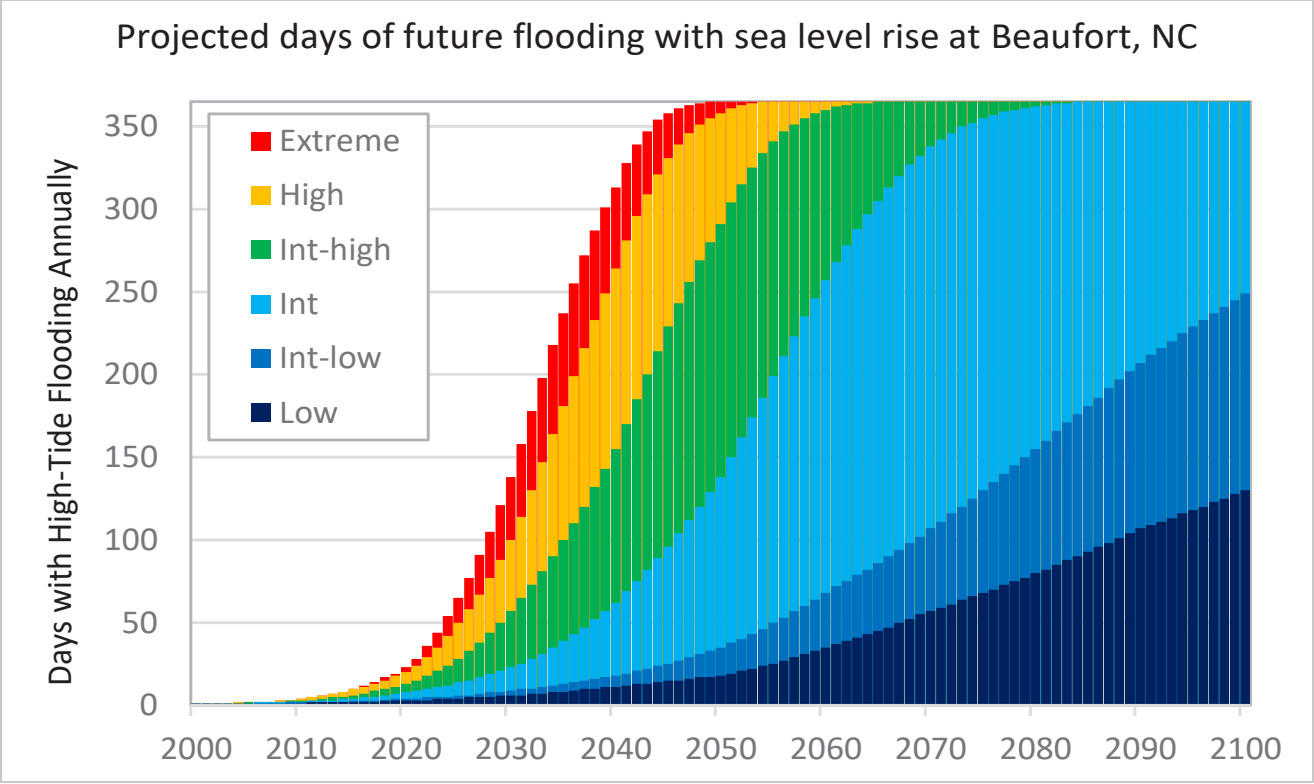
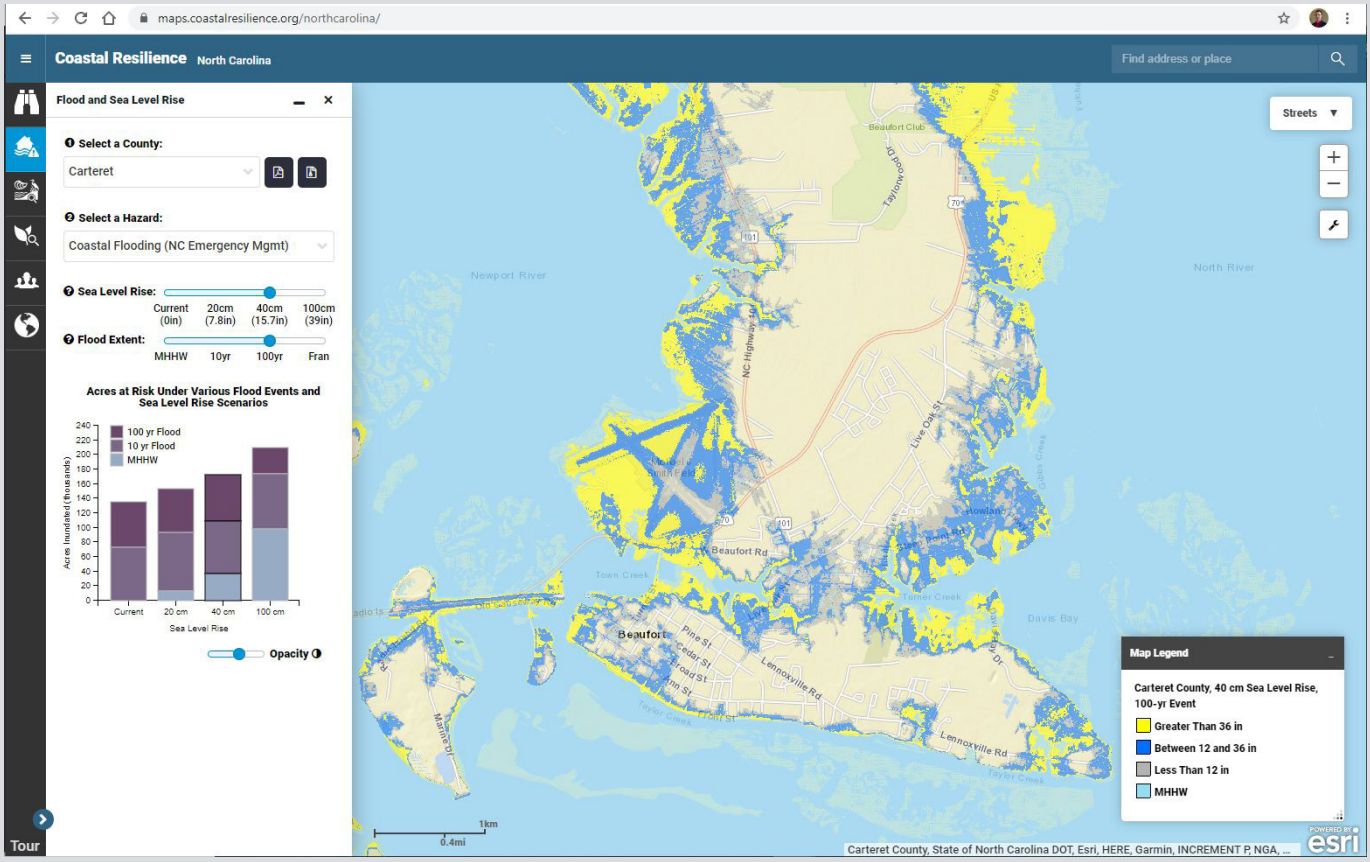


Figure 2: Graph displays the projected future days of minor flooding based on derived levels at Beaufort, NC under different sea-level rise scenarios. Data source: NOAA Technical Report NOS CO-OPS 086.

Additional Resources on Sea Level Rise

NOAA SLR Viewer – https://coast.noaa.gov/slr/
Climate Resilience Toolkit -> Coasts -> SLR -> https://toolkit.climate.gov/topics/coastal/sea-level-rise
Climate.gov -> SLR - https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level
USACE SLR Calculator – http://www.corpsclimate.us/ccaceslcurves.cfm
CO-OPS Inundation Dashboard – http://www.tidesandcurrents.noaa.gov/inundationdb/



Recent modeling work has attempted to understand what future floodplains might look like under different sea level rise scenarios. This particular study used publicly available data from FEMA, but the findings are not regulatory and do not affect insurance rates or flood damage regulations. In the screenshot above, areas shown in grey, dark blue, or yellow estimate the possible extent of the future 1% annual chance floodplain after 16" (~40cm) of sea level rise. The areas shown in light blue estimate the future sea level and shoreline.

Source: The Nature Conservancy, Coastal Resilience Mapping Tool, 2016, https://maps.coastalresilience.org/northcarolina/ and North Carolina Sea Level Rise Impact Study, NC Dept. of Public Safety, https://media.coastalresilience.org/NC/North%20Carolina%20Sea%20Level%20Rise%20Impact%20Study_FinalReport_20140627.pdf

Community Facilities

Water Supply & Wastewater Systems

Wastewater Treatment

The sewer infrastructure and wastewater is treated by the Town's Wastewater Treatment Plant. The sewer collection system is comprised of approximately 25 miles of gravity lines, 28 miles of force mains, 21 pump stations, and approximately 3,330 sewer service connections. The Wastewater Treatment Plant is a permitted 1.5 million gallons per day facility that treats the collected sewage of the town and discharges the treated effluent into the eastern end of Taylor's Creek, in accordance with state and federal regulations. At this time, there are no plans to upgrade any existing facilities.

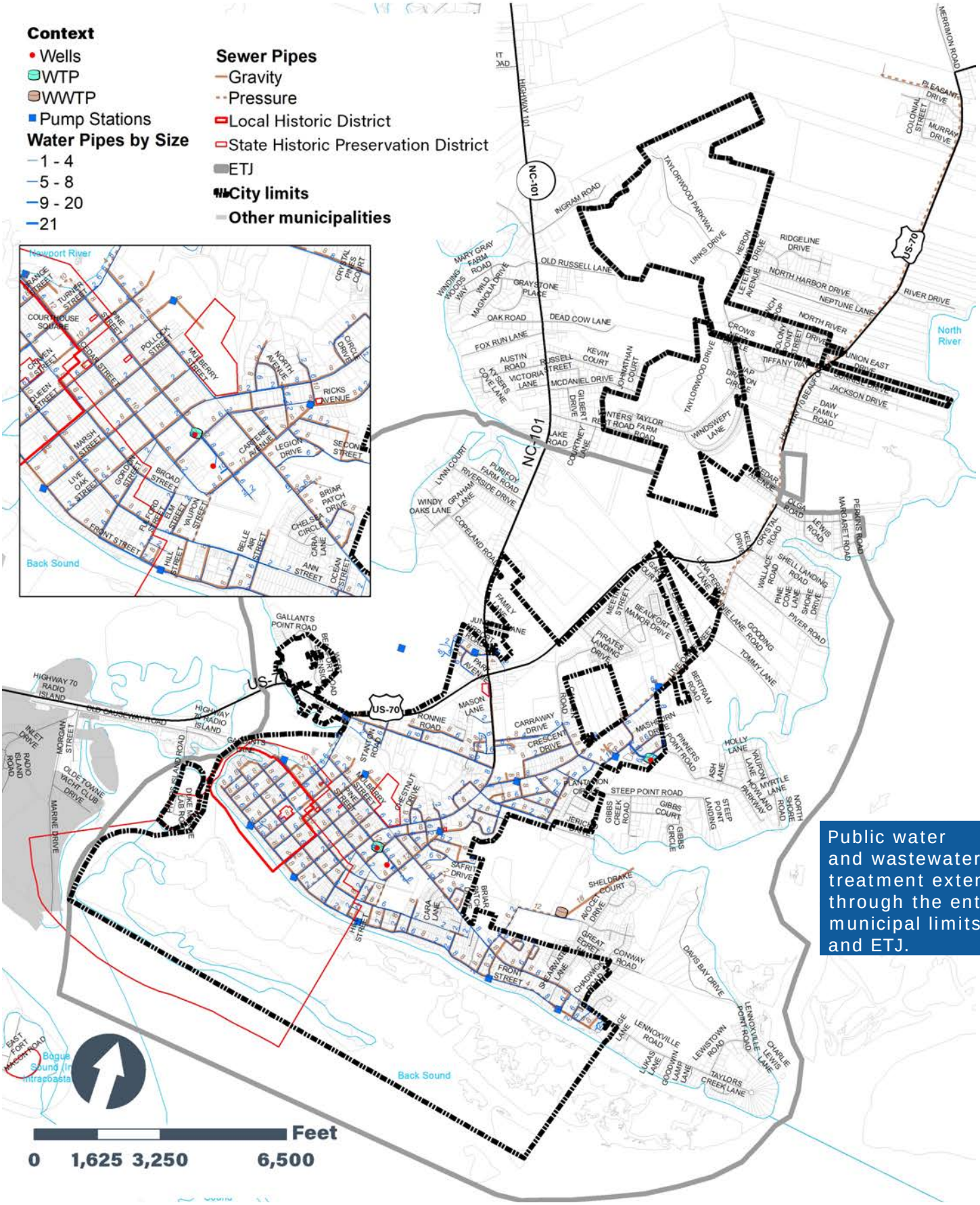
As seas rise, steps will need to be taken to ensure the proper function of septic systems on low-lying properties. Elevation modeling can help identify potential problem areas. Wastewater that is not fully treated can pollute local waters, which may lead to health and environmental impacts and/or property value declines. There are no documented chronic overflows, bypasses, or other problems, or areas experiencing chronic wastewater treatment malfunctions.

Public Water Supply, Wellhead Protection Areas, and Drinking Water

There are no public water supply watersheds in Beaufort's planning jurisdiction.

The public water supply source for the Town of Beaufort comes from four deep wells that draw water from the Castle Hayne - Aquia aquifer that range in ages from 6 to 42 years old. The Water Division for the Town of Beaufort Public Services Department is responsible for the treatment and distribution of potable water for all its utility customers; it operates two water treatment plants and has a designed permitted flow rate of 1.2 million gallons per day. Two wells are used by Pine Street Water Facility and two wells used by the Glenda Drive Water Facility *(Water Asset Management Plan Project, Rivers & Associations, Inc)*. Two wells (#2 and #3) are at or nearing expected service life and will likely need additional maintenance or replacement in the near future.

Well and water treatment. Source: Rivers & Associations, Inc



Public water and wastewater treatment extends through the entire municipal limits and ETJ.

Public infrastructure locations.

There are approximately 48 miles of distribution lines ranging from 1”-12” in diameter in the Town. According to the Town’s Water Asset Management Plan, 83% of distribution pipes are is less than 50 years of age and 17% is more than 50 years old. Distribution lines include a mix of cast iron, galvanized iron, asbestos cement, ductile iron, and polyvinyl chloride. Most of the cast iron and galvanized distribution lines are located in the historic district and the majority of asbestos cement distribution lines are north of Cedar St. and East of Live Oak St. Some of the town’s distribution system have older inoperable valves and pipes that are prone to leakage or are prone to fail. Based on the water asset and inventory analysis, the Town has $19 million in needed water line replacements. The Town has included the needed utility line replacements in their Capital Improvement Plan.

The water treatment facilities have an adequate supply for existing demands but the Pine Street WTP has a high service pump age (64 years) with space limitations. According to the Town’s Water Asset Management Plan, the local water supply has adequate supply for existing demands but #2 and #3 wells are nearing their life expectancy (ages 33/42 years). The construction of a new plant is anticipated within the next 5-10 years. The new water treatment plant will replace the Pine Street Water Treatment Plant and it will be decommissioned.

At this time, there are no plans to extend water service.

Stormwater Systems

The existing stormwater drainage facilities within the Town include a system of piping, catch basins, drainage ditches, and swales. Stormwater runoff is carried to the Newport River and North River delta estuaries, which are part of the White Oak River Basin. Runoff, especially in the very developed areas that feed Town and Taylor Creeks, can sometimes lead to water quality issues. The Town has been working to incrementally improve water quality through stormwater projects.

Electrical System

There are no electric generating plants located in Beaufort’s jurisdiction. The Town’s electricity is provided by a Duke electrical substation at Hendrick Street and another is planned for construction on Highway 101 in the near future.

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Transportation Systems

The Town of Beaufort maintains about 20 miles of streets within its corporate limits. Major thoroughfares and other streets outside of the town limits are maintained by the North Carolina Department of Transportation (NCDOT). The state is also responsible for maintaining all bridges in the area. Existing and proposed streets are delineated on the Future Roads and Improvements map.

Proposed Major Highway Improvements

Transportation improvement projects, as determined by NCDOT, are cataloged in the *2020-2029 State Transportation Improvement Program*. This ten year state and federal mandated plan identifies the construction funding for and scheduling of transportation projects throughout the state.

Proposed projects included in the *2020-2029 State Transportation Improvement Program* that are not in progress yet include:

- R-5962 Rural Project, roundabout Construction on US 70 (Live Oak Street), with a projected cost of $5.3 million dollars.
- R-5946 Rural Project, upgrade the intersection on Lennoxville Road, .5 mile length at a projected cost of $7.8 million dollars.
- U-6058 Urban Project, construction of one lane roundabout on NC 101 at a projected cost of $4.1 million dollars.
- R-5945 NC 101 to State Route 1429 (Olga Road), 2.1 miles in length of access management, at a projected cost of $56 million dollars.
- R-4746, 8.9 miles in length of roadway upgrades on State Route 1429 (Olga Road) to State Route 1350 (Whitehurst Road) at a projected cost of $19.4 million dollars.
- W-5802A, State Route 1493 (Live Oak Street) at Campen Road, revise traffic signal, install pedestrian crossing with signal heads, and sidewalk upgrades at a projected cost of $995,000.
- AV-5746, a full parallel taxiway at Michael J. Smith Field at a projected cost of $2.6 million dollars.

Major Streets with Capacity Deficiencies

The *Carteret County Comprehensive Transportation Plan* identified NC 101, US 70, Cedar Street, and Live Oak Street as having capacity deficiencies in 2014. The following streets have projected 2040 traffic volumes that will be near or exceed practical capacities:

- NC 101
- US 70
- Cedar Street
- Live Oak Street

Traffic Volumes

The heaviest traffic volumes are on the Us 70, Hwy 101, and Live Oak Street. These range from 10,000 - 15,500 average trips per day in 2020.

Future Roads and Improvements

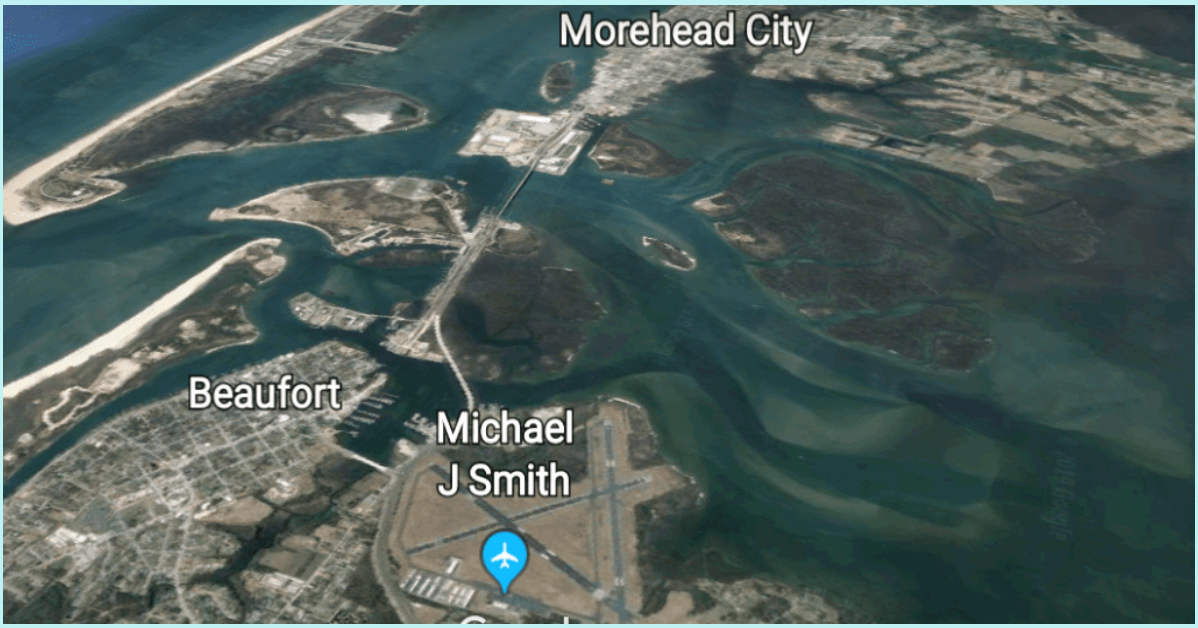
The recent improvements to US 70, including the new bridge, will be followed with intersection improvements along Live Oak Street (Old Hwy 70).

Air Transportation

Commercial air service to Beaufort is available through Coastal Carolina Regional in New Bern. The Michael J. Smith Field owned and operated by Carteret County-Beaufort Airport Authority in Beaufort offers hangar rentals and ground leases for privately constructed hangars. Taxiway 8-26 is currently under construction.

Discussions in the past have explored the potential for extending the runway to accommodate larger aircraft. Currently that project is not funded in the state's Transportation Improvement Plan. If the runway is extended it will likely also involve a realignment of Hwy 101. If these events occur, it may be necessary to revisit the future land use plan for the area.

Entrance to the airport.



Airport location.

Environmentally Fragile Areas

Wetlands

While '404' of the Federal Clean Water Act regulates all types of wetlands, including coastal wetlands, North Carolina Coastal Area Management Act provides additional protection to coastal wetlands. Coastal wetlands are located adjacent to salt water and brackish water bodies. They are characterized by marsh grasses and rarely contain trees. Coastal wetlands are defined as any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides, that reach the marshland areas through natural or artificial watercourses, provided this does not include hurricane or tropical storm tides. Coastal wetlands may include the presence of one or more of the following marsh plant species:

- Cord Grass *(Spartina alterniflora)*
- Black Needlerush *(Juncus roemerianus)*
- Glasswort *(Salicornia spp.)*
- Salt Grass *(Distichlis spicata)*
- Sea Lavender *(Limonium spp.)*
- Bulrush *(Scirpus spp.)*
- Saw Grass *(Cladium jamaicense)*
- Cat-tail *(Typha spp.)*
- Salt Meadow Grass *(Spartina patens)* or
- Salt Reed Grass *(Spartina cynosuroides)*

Since Beaufort is located on a peninsula, coastal wetlands nearly encompass the Town's boundaries. The shorelines along Taylor Creek, North River, and Newport River and their estuarine waters and salt marshes comprise the majority of the Areas of Environmental Concern (AECs) in Beaufort's jurisdiction. Uses that are not water dependent shall not be permitted in coastal wetlands, such as restaurants, apartments, hotels, motels, and parking lots. Uses that are water dependent include: utility crossings, fishing piers, docks, wildlife habitat management activities, and agricultural uses.

Non-coastal wetlands include all wetlands that are not classified as coastal wetlands. Non-coastal wetlands are not covered by CAMA regulations unless designated by the Coastal Resource Commission as a natural resource AEC. However, these wetlands are protected by the federal Clean Water Act. The US Army Corps of Engineers is responsible for regulating these 404' wetlands. An Army Corp of Engineers permit may be required prior to disturbing wetlands.

Like coastal wetlands, the precise location of non-coastal wetlands can only be determined through field investigation and analysis. However, the US Fish and Wildlife Service, through its National Wetlands Inventory, has identified the general location of wetlands. The National Wetlands Inventory Map can be found at the US Fish and Wildlife Service website. Non-coastal wetlands are primarily located in the northern portion within Beaufort's corporate limits with their majority lying beyond its corporate limits.

Wetlands are responsible for sheltering one-third of the country's threatened and endangered species, according to the Environmental Protection Agency. Without wetlands, a huge number of waterfowl and shellfish would not exist. These wetlands act as a sponge, soaking

The area has many wetlands, both inland and coastal.

up the water that comes in with the tides and periodically flooding rivers. They also serve as a pollution filter and are beneficial for clean and plentiful drinking water.

The Division of Coastal Management developed a Wetlands Conservation Plan for the North Carolina coastal area which includes a wetlands inventory and a functional assessment (NC-CREWS) that examines the ecological significance of the wetlands. Additionally, the Division of Water Resources (DWR) established Wetland Water Quality Standards that provide some protection of wetlands. Coastal wetlands and non-coastal wetlands are identified on the map to identify their locations for planning purposes as well as a tool for wetland management, protection, and development decisions. The Division of Coastal Management has identified Beaufort as a potential wetlands restoration and enhancement site.

Estuarine Shoreline and Public Trust Areas

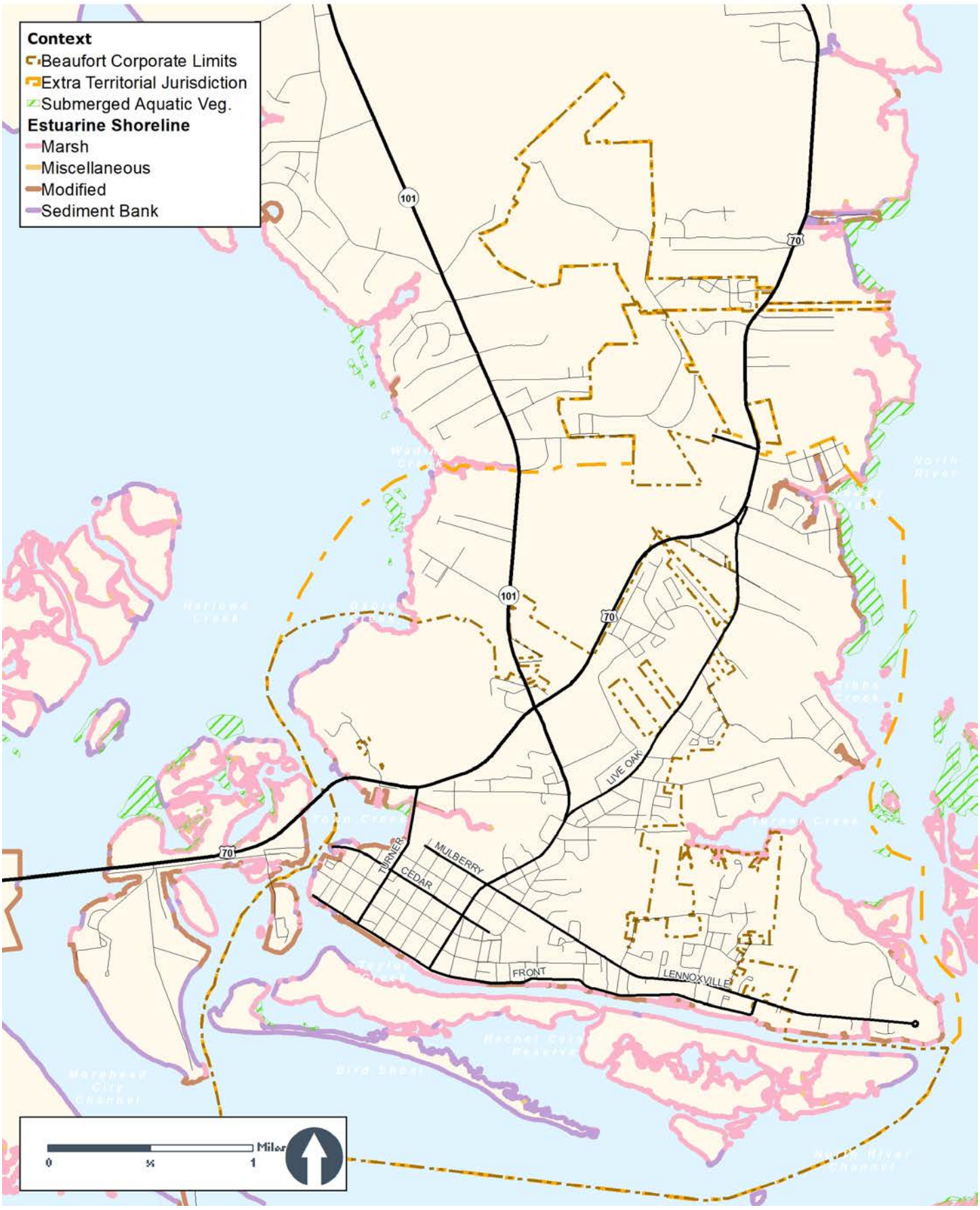
Estuarine shorelines include all lands within 75 feet of the normal high water level of estuarine waters. This includes all lands within 30 feet of the normal high water level of public trust waters located inland of the dividing line between coastal fishing waters and inland fishing waters. Public trust areas are the coastal waters and submerged lands that every North Carolinian has the right to use for activities such as boating, swimming, or fishing. Public trust shorelines are non-ocean shorelines immediately contiguous to public trust areas and extending from the normal high-water level or normal water level along the estuarine waters, estuaries, sounds, bays, fresh and brackish waters and public areas up to 30 feet inland (15A NCAC 07H 0209). The estuarine and public trust shorelines for Beaufort include: Newport River, North River, and Taylor Creek, and associated water bodies.

Areas of Environmental Concern literally encompass the entire Town. The shorelines of Newport River, North River, and Taylor Creek and their estuarine waters and salt marshes make up the majority of the AECs in Beaufort. The estuarine shoreline considered to be an AEC in the Beaufort area includes all shorelands within 75 feet landward of the mean high-water level, or normal water level of the estuarine waters. All of these areas are subject to stricter regulations controlling development to limit damage to estuarine resources.

Shoreline Modification

The most recent full dataset available, although dated, indicates that the Town of Beaufort has seen an increase in modified shorelines of a little over 5% in just two years. As sea levels continue to rise, additional shorelines will likely be converted in an attempt to prevent localized erosion and prevent loss of structures. Converting natural habitat to modified shoreline lowers quality habitat. Hardened shorelines decrease fishery habitats and biodiversity, structures like bulkheads prevent natural marsh migration and may create seaward erosion (NOAA). Shoreline calculations from two years are shown in the table on **page 113**.

Estuarine Shoreline and Submerged Aquatic Vegetation



Shoreline around the Town is more modified in more urban areas.

Modified Estuarine Shoreline		
2010	2012	% increase in modified shoreline
27,655 linear feet	29,213 linear feet	**+5.6%**

Within the Town, there are three broad classifications of Estuarine Shoreline along the estuarine shorelines of Taylor Creek, North River, and Newport River including:

- Marsh
- Modified (usually bulkheads or seawalls)
- Sediment Bank (sediment deposited by floodwaters)

Currently, there are no documented areas experiencing significant shoreline erosion.

Priority Habitat and Species of Concern

-contributed by Kacy Cook, Land Conservation Biologist, NC Wildlife Resources Commission.

NOTE: For a full description of these habitats please refer to the current edition of the NC Natural Heritage Program in the Classification of the Natural Communities of North Carolina. Habitats found only on the Rachel Carson Reserve are not included.

Maritime Forest

The natural dynamic state of this habitat has been all but eradicated across its historic, exclusively coastal range. As such even fragments are important to a variety of declining coastal wildlife species and should be conserved. All forests immediately adjacent to sounds and the coast are essential to the survival of migrant birds as stop-over areas during migration. The NC Wildlife Action Plan describes the habitat as follows. "Canopies are dominated by live oak, sand laurel oak, and loblolly pine. Understories are typified by shrubby woody growth, vines are important and common and the herb layer is sparse (Schafale and Weakley 1990). Sites that have been recently logged often are dominated by loblolly pine, and storm disturbance produces canopy gaps. These communities apparently burned historically at irregular intervals and understories have become denser, although natural fire was probably less frequent than in mainland forests (Schafale and Weakley 1990)." Maritime forest types differ in their degree of canopy height, open grassy area, soil hydrology (wetland and upland types), and salt tolerance. They occur naturally occur on the landward side of dunes or estuary marshes, the second plant community in succession, between the dune system or marsh and pine and wetland forests. This habitat includes all types of maritime forests as described by

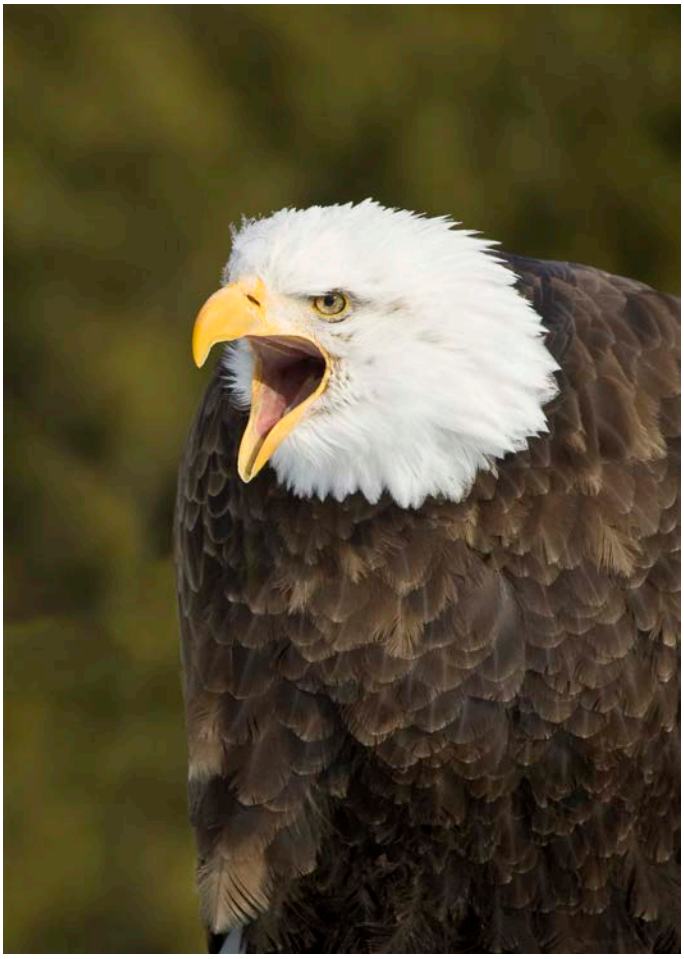
Marsh boardwalk in a maritime forest. Source: C. Damgen.

Environmentally Fragile Areas

The Reserve and other coastal habitats demonstrate high environmental value.

the NC Natural Heritage Program in the Classification of the Natural Communities of North Carolina. Canopies of maritime forests can be dominated by live oak, sand laurel oak, loblolly pine, beech, American holly or hickory. The understory is often dominated by dense shrubs and vines. Any forests or shrublands along the coast or islands meeting this description will be considered maritime forest. Painted buntings are currently documented in Beaufort and in NC are found almost exclusively in and near maritime shrub and forest habitats. They do not occur usually more than five miles from the coast in NC for this reason and their population abundance has declined by over 75 percent in the last fifty years due to habitat loss. These birds rely on these habitats and the plant species found in them to find sufficient food. They can use other nearby natural areas and even backyards that have native maritime shrub / forest plant species, however this leads to traveling much farther to find sufficient resources, which subjects them to more threats.

Painted bunting. Source: NPS.



Bald eagle. Source: NCWRC.

Conservation Measures

Identify any areas of this habitat during the rezoning and development application process. At least offer an incentive, such as a density bonus, for developers to conserve these habitats, even fragments. It is optimal to avoid all impacts to this habitat. If development impacts will occur, the NCWRC recommends setting aside at least five acres as natural open space to conserve some habitat for painted buntings and other priority species. Any opportunities to acquire for conservation and / or encourage restoration of this habitat are highly recommended. To offer food sources and nesting areas for

painted buntings,throughout Beaufort encourage planting of dense maritime shrub and tree species including live oak and wax myrtle as well as plantings of native coastal grasses and sedges. Discourage outdoor and feral cats as these are a significant source of wildlife mortality.

Estuarine Communities

Beaufort lies along the shores of the Albemarle-Pamlico Estuary and is in the White Oak River Basin. The estuarine habitats in and around Beaufort include salt marsh, brackish marsh, salt flat, sand flat, mud flats, algal mats, salt scrub, estuarine island communities, submerged aquatic vegetation and the sound. Estuarine communities provide important habitat for high priority wildlife Species of Greatest Conservation Need during some stage of their life cycle such as the following that are currently found in and around Beaufort: salt marsh sparrow, piping plover, Wilson's plover, American oystercatcher, black skimmer, gull-billed tern, bald eagle, sea turtles, and diamond-backed terrapins. Areas of marsh that remain above the highest tide water level are essential for nesting diamondback terrapins and rail (bird) species so that their eggs are not drowned. Estuarine islands can be either natural or created by dredged material. These sites are particularly important for nesting terns, skimmers, pelicans, wading birds, and American oystercatchers. Dredged material islands are not only usually devoid of mammalian predators, but usually have the added advantage of being high enough in elevation that ground nesting birds do not lose their nests during high tides.

The NC Wildlife Action Plan (2015) describes these priority habitats as follows. "Marsh habitats usually develop on the mainland side of the barrier islands after sand is deposited during storm events. They also develop on the mainland side of the sounds and in the lower reaches of our rivers as sea level rise, salt intrusion, or storms kill forested

Black skimmer.
Source: Andrea Westmoreland.

American Oystercatcher.
Source: NCWRC.

or shrub-scrub habitats. Salt marsh communities are often strongly dominated by saltmarsh cordgrass, while brackish marsh is dominated by black needlerush *(Schafale and Weakley 1990)*. Vegetation may include salt meadow cordgrass, glasswort, saw grass, marsh elder, and wax myrtle, as determined by the salinity level of the water. Sand flats and mud flats are often created and maintained near inlets as flood tide or ebb tide deltas. These are very dynamic systems and can appear and disappear with each storm event, although most persist for 10-20 years at a time barring major dredging activities. Salt flats and algal mats are either found as shoals within the sounds or on very low stretches of the barrier beaches. These sites are particularly important for foraging shorebirds. Salt marsh and brackish marsh habitats are important habitat year round for a variety of rails, bitterns, wading birds and marsh sparrows, several of which are species of conservation concern according to Partners in Flight *(Hunter et al. 2000, Pashley et al. 2000, Rich et al. 2004 and Johns 2004)*.

Submerged aquatic vegetation is the main food source for the West Indian Manatee found in the water around Beaufort. It also houses and offers critical forage for sea turtles, coastal birds, and

Black necked stilt. Source: NCWRC.

of course all life in the sound, especially for bay scallops, shrimp, hard clams, blue crabs, sea trout, gag grouper, and flounder.

Conservation Measures

These habitats have been impacted so much to date and are highly threatened by sea level rise that it is recommended to avoid all impacts such as unnatural sedimentation, hardened structures, and docks, and to allow migration of the dynamic habitats further inland or northward. Allowing estuarine community migration will vastly increase protection of property from sea level rise and storms. Without these habitats to act as barriers to wave action, property will be lost. It is essential for the survival of coastal wildlife to reduce disturbance from people, require dogs to be on leash, and provide detailed signage. Protection of water quality is also essential and can be accomplished by retrofitting and using Low Impact Development techniques to treat stormwater, and reducing use of outboard motors, especially in shallow areas. Outboard motors are a primary source of mortality for manatees and Submerged Aquatic Vegetation.

References:

- Möller, I., Kudella, M., Rupprecht, F., Spencer, T., Paul, M., van, W. B. K., Wolters, G., et al. (2014). Wave attenuation over coastal salt marshes under storm surge conditions. Nature Geoscience, 7 727-731. https://doi.org/10.1038/ngeo2251
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- North Carolina Wildlife Resources Commission. 2015. North Carolina Wildlife Action Plan. Raleigh, NC.
- Schafale MP, Weakley AS. 1990. Classification of the natural communities of North Carolina, third approximation. Raleigh (NC): NC Department of Environment and Natural Resources, Natural Heritage Program. http://portal.ncdenr.org/c/document_library/get_file?uuid=e4d28c3d-6f-4b83-8b8b-8c0c1afdea8d&groupId=61587.

Please Note: These comments are intended to assist developers and decision makers to proactively minimize adverse impacts to wildlife resources. Although following these measures may help development projects meet requirements of applicable environmental permits, these comments are not regulatory in nature, and do not represent all measures needed to meet requirements of environmental permits, where required for development. These comments may also not address all concerns of the NCWRC regarding this plan.

Parks and Open Space

Public Water Access and Overlook Locations

Currently there are six public water access sites located within Beaufort's jurisdiction. These include:

- Topsail Marine Park at S. Orange Street
- Curtis Perry Park at the eastern end of Front Street (overlook and water access)
- Derwoods Landing at W. Broad Street
- Fisherman's Park at S. Gordon Street
- Grayden Paul Park at the intersection of Pollock Street with Front Street just east of the downtown area
- West Beaufort at W. Beaufort Rd.

Parks

The Town of Beaufort operates nine park facilities used for recreational and tourism purposes. These include Curtis Perry Park, Fisherman's Park, Grayden Paul Park, John Newton Park, Lynn Eury Park, Randolph Johnson Memorial Park, and Topsail Marine Park. The Town also operates basketball and tennis courts at the intersections of Cedar, Carteret, and Hedrick Streets.

Additional recreational facility improvements are planned for Cedar Street Park, a passive park at the site of former Gallant's Channel drawbridge landing area begun in early 2022 once the property is secured from NCDOT. The Cedar Street Park is funded through a $2-million grant from a private foundation. Town Staff will apply for additional grants to supplement existing funding for construction of additional park elements for Cedar Street Park *(Town of Beaufort)*.

Greenways and Trails

The East Coast Greenway is a walking and biking route that stretches 3,000 miles from Maine to Florida. It runs along NC 101, 3rd Street, Carteret Avenue, Cedar Street, Fulford Street, Front Street, Turner Street, and exits Beaufort on Arendell Street.

The Town has pursued the implementation of its Bicycle and Pedestrian Plan (2018) by dedicating two cents of the property tax levy toward road resurfacing, and committing additional property tax revenues to service the debt on $6 million in loans for street improvements. In 2020, a 15-year loan was procured to fund $3.8 million in street and pedestrian improvements, contracts were awarded, and work began. This includes resurfacing of 3.2 centerline miles in length and 3.4 miles of new sidewalk construction.

One of the Town's waterfront parks.

Rachel Carson Reserve

The Rachel Carson Estuarine Research Reserve is part of the North Carolina National Estuarine Reserve system, which is a collection of coastal regions that have been preserved and protected to safeguard the wide variety of wildlife that these regions support. It is the most significant natural heritage area within Beaufort. The Rachel Carson Reserve includes a collection of islands, salt marshes, and surrounding water, and encompasses a total area of 2,315 acres. The complex of islands includes Carrot Island, Town Marsh, Middle Marsh, Bird Shoal, and Horse Island, and the entire site was completely acquired by the North Carolina National Estuarine Research Reserve system in 1989.

The reserve is situated close to Downtown Beaufort directly across Taylor's Creek, and is in between the mouths of the Newport and North Rivers, with the Back Sound serving as its southern watery border. As a result of this geography, the estuaries and islands that comprise the reserve are heavily affected by river, tide, and inlet dynamics, with some areas becoming water-logged and soggy with every incoming or outgoing tide.

The result of this unique system of water flowing to and surrounding the Rachel Carson Reserve is a mix of fresh and salt waters that in turn allows a wide variety of marine life to thrive. Juvenile fish and invertebrates can be found in the marshes and just offshore, while the local mammals can include everything from gray foxes and otters to the famed wild horses.

An array of habitats can be found within the reserve as well, which includes

Wild horses of Rachel Carson Reserve

tidal flats, salt marshes, ocean beach, sand dunes, shrub thickets, submerged aquatic vegetation, and maritime forest. As a result, countless birds, mammals, reptiles, and fish species carve out a home on the desolate islands and can be admired by virtually any visitor who can make the trek to the isolated series of islands *(Town of Beaufort)*.

Shackleford Banks

Shackleford Banks is located outside of Beaufort's jurisdiction but serves as a barrier island which helps protect the coastal community from extreme weather. The Shackleford Banks is an 8-mile long barrier island system located south of Beaufort and Harkers Island, having lost length with the widening of Beaufort Inlet. The Banks are part of three components of the fifty-six mile long Cape Lookout National Seashore.

The island is undeveloped and serves as a popular tourist attraction. A number of ferry services depart form Downtown Beaufort to Shackleford Banks.

Barrier islands like this are beneficial because they absorb wave energy before hitting the mainland. This generally means smaller storm surge and less flooding. Barrier islands are disappearing at an alarming rate, these barrier islands not only provide beneficial habitat for the ecosystem but help protect the mainland. They serve as ecosystems for fish, plants, animals, help improve water quality, and improve local economies, all while protecting communities *(NC DEQ & NOAA)*.

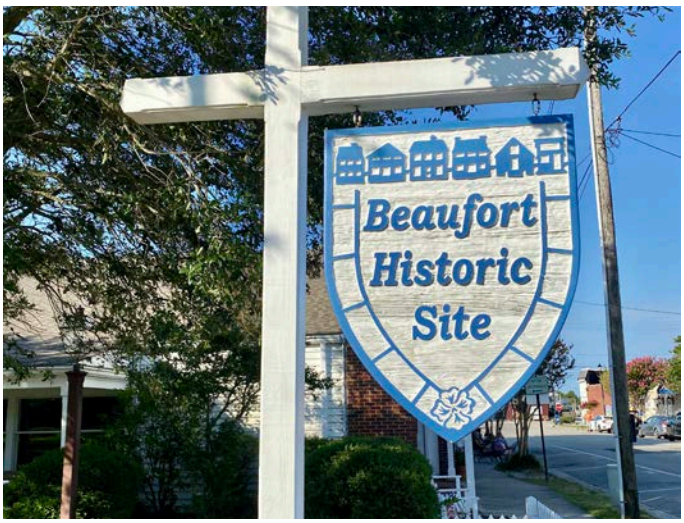
Rachel Carson Reserve

Historic, Cultural, & Scenic Areas

North Carolina's third oldest town, Beaufort is rich in maritime culture and history. Originally a fishing village and port of safety dating from the late 1600's, Beaufort is encompassed by Bahamian and West Indian style homes and public buildings *(Beaufort Historical Association)*.

Archaeological Resources

Significant coastal archaeological resources include, site number 31CR314 the underwater archaeological site of Queen Anne's Revenge, former slave ship La Concorde captured by Blackbeard and abandoned at sea in 1718 and rediscovered almost 300 years later by Intersal in 1996 by magnetometer surveys and diver assessments. Artifacts from the ship are at the North Carolina Maritime Museum located in downtown Beaufort. The Rachel Carson Reserve is listed with the boundary of the National Register of Historic Places due to its aesthetic character and potential for archaeological resources.



Historic Site marker

Historic District and Individual National Register Listings

The Beaufort Historic District consists of 18th and 19th century architectural styles, including Greek Revival, Gothic Revival, and Queen Anne influenced buildings. There are roughly 16 contributing buildings in the Beaufort Historic District that are listed on the National Register of Historic Places. In addition to the Beaufort Historic District, the following structures are listed on the National Register of Historic Places. Some noteworthy structures are:

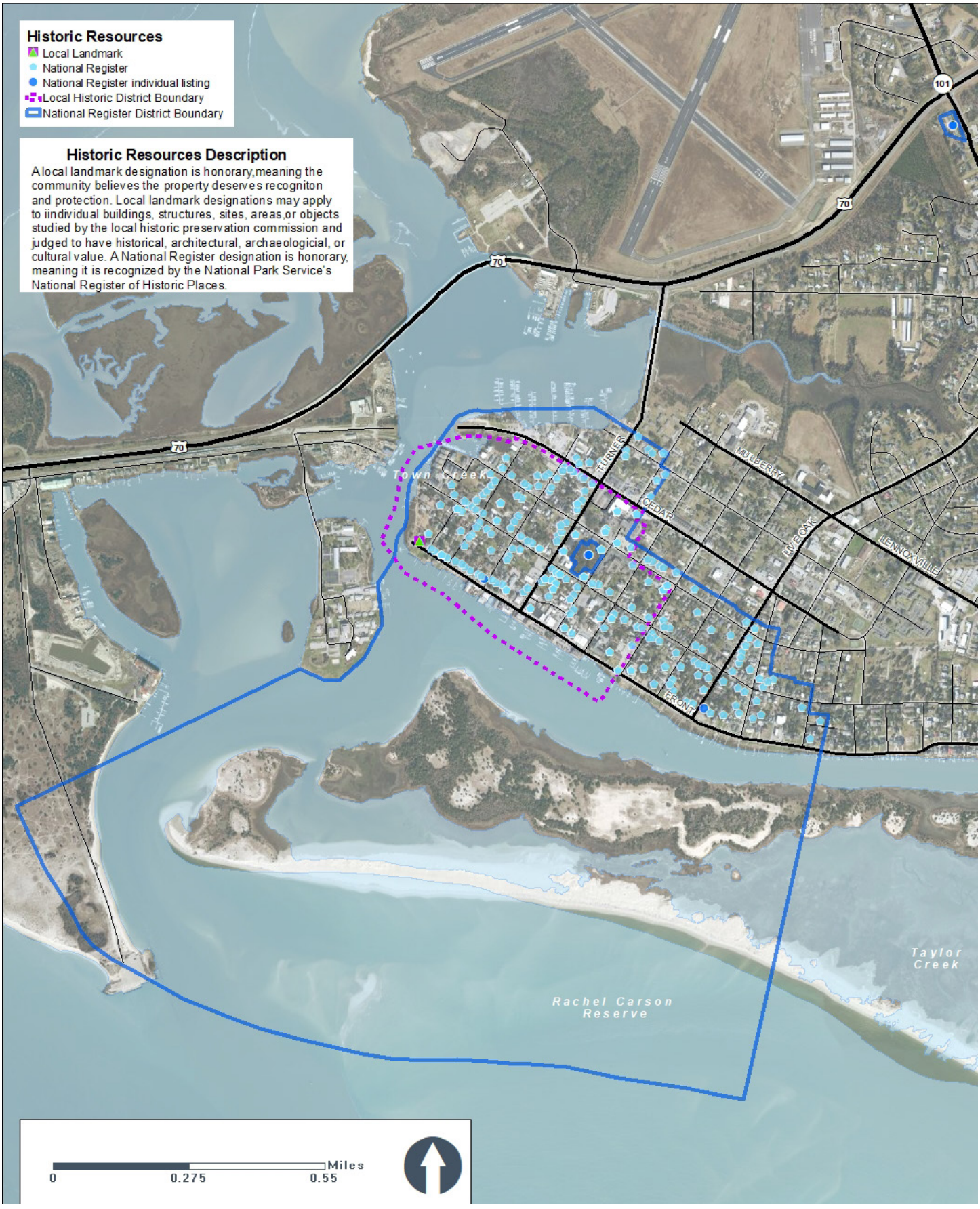
- Carteret County Home, NC 101
- Duncan House, 105 Front St
- Gibbs House, 903 Front Street
- Jacob Henry House, 229 Front Street
- Old Burying Ground, Ann Street

The Duncan House is individually listed on the National Register and has statewide significance.

Within the National Register District boundaries is the Local Historic District which is under the purview and protection of the Beaufort Historic Preservation Commission. The Beaufort Historic Preservation Commission is composed of seven Beaufort residents and has adopted standards to promote, enhance, and preserve the historic and architectural character of the local historic district. These boundaries can be viewed on the historic resources map.

(Sources: Report from John P. Wood, SHPO, Beaufort Historical Association, United States Department of the Interior National Park Service, National Register of Historic Places-Nomination Form for Beaufort Historic District, North Carolina Department of Cultural Resources, and NC Underwater Archaeology Branch).

Historic Resources and Historic District Boundaries



The National Register District and individually National Register properties are outlined in blue on the map.

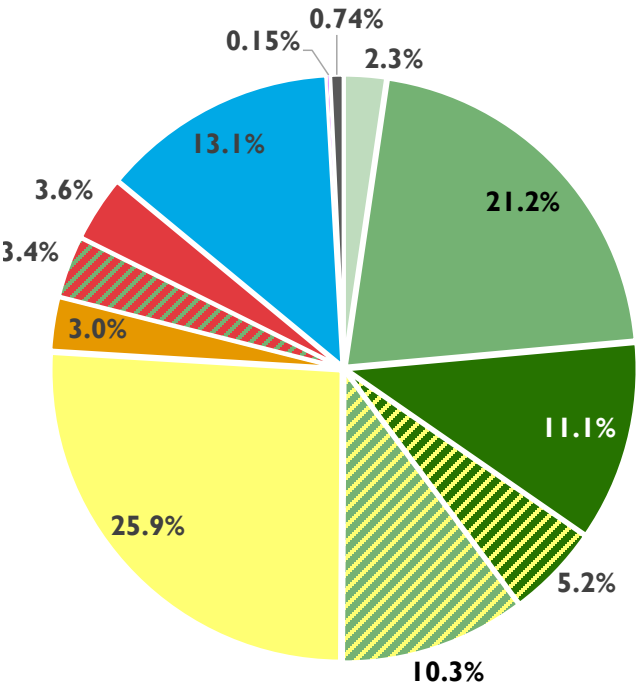
Existing Land Use & Development

Existing Land Use Designations

The Existing Land Use Map assigns a color designation to each property within Beaufort's ETJ. These designations were assigned based on a staff survey of existing land use descriptions, use codes, planned developments, and existing structures, which was then cross checked by the Town staff. These designations are described here.

Agricultural

Agricultural lands include properties that are currently in use for crop or timber farming. This is one of the smaller portions of the land use for the Town of Beaufort at over **2%** of the area.



Vacant

Vacant include properties that previously had a structure that has since been demolished, are cleared fields, or are predominately forested land that is neither government owned nor described has marshland. This makes up the largest land area of Beaufort at **36%** of the total acreage within the ETJ.

Parks, Open Space, and Conservation

This includes described cemeteries, marshlands, islands in and surrounding the Reserve, local parks and recreational sites open to the public, and government owned parcels with conservation descriptions. This is about **17%** of the total acreage.

Golf Course

This designation consists of the golf course within Beaufort's ETJ limits. This was separated out from open space and conservation lands due to the association with detached residential development. The golf course takes up a little over **5%** of the Town area.

- Agricultural
- Vacant
- Parks, Open Space, and Conservation
- Golf Course
- Pending Residential
- Detached Residential
- Attached Residential
- Probable Development
- Commercial, Office, Service, Mixed Use
- Institutional, Government
- Industrial
- Utilities

Pending Residential

These currently vacant or already subdivided parcels are future occupied residential areas. Designated future expansion areas of existing neighborhoods and subsequent phases of new communities are included in this designation. Pending residential areas make up about **10%** of the Town's existing land use.

Detached Residential

Detached residential includes all residential parcels wherein homes are detached, freestanding structures. This includes mobile homes, manufactured housing, and traditionally constructed single-family homes with no shared walls. Townhomes with no shared walls are included in this category. This makes no distinction between renter or owner-occupied homes.

This category also includes the neighborhood specific open and park spaces that would typically not be available for public use. This is the second most prevalent land use with **25%** of Beaufort's land area being used for detached residential housing.

Attached Residential

Attached residential is defined here as all structures designed for living occupancy that house two or more units that are separated one or more shared walls. This includes multifamily structures and parcels with use descriptions such as apartment buildings, townhomes with shared walls, condominiums, duplex, triplex, and quadplex structures. This makes no distinction between renter or owner-occupied homes.

This category also includes the neighborhood specific open and park spaces that would typically not be available for public use. This occupies **3%** of the ETJ acreage.

Probable Development

This designation represents properties that are currently in flux. These are parcels that have a high likelihood of redeveloping or developing from vacant into non-residential uses or mixed uses. This could be new commercial and/or employment centers or businesses. This represents about **3.4%** of the Town area.

Commercial, Office, Service, Mixed Use

Commercial land use designation was applied to any property where commerce such as service, retail, sales, or office work is the primary use. This includes hotels, stores, medical offices, marinas, boat slips, and small office buildings. This is less than **4%** of the total acreage.

Institutional, Government

Institutional and Government land uses were defined to include government offices, churches and other places of worship, public or private schools, civic institutions, and public facilities. This also includes the local airport, local research facilities, town owned parks, and town owned utility access sites.

Government owned property that is not used for residential housing, agriculture, or conservation of natural environment was not included within this designation. Around **13%** of the total acreage falls under this category.

Industrial

Industrial designation includes all properties where industrial manufacturing or processing occurs. This does not include the former Atlantic Veneer property.

Utilities

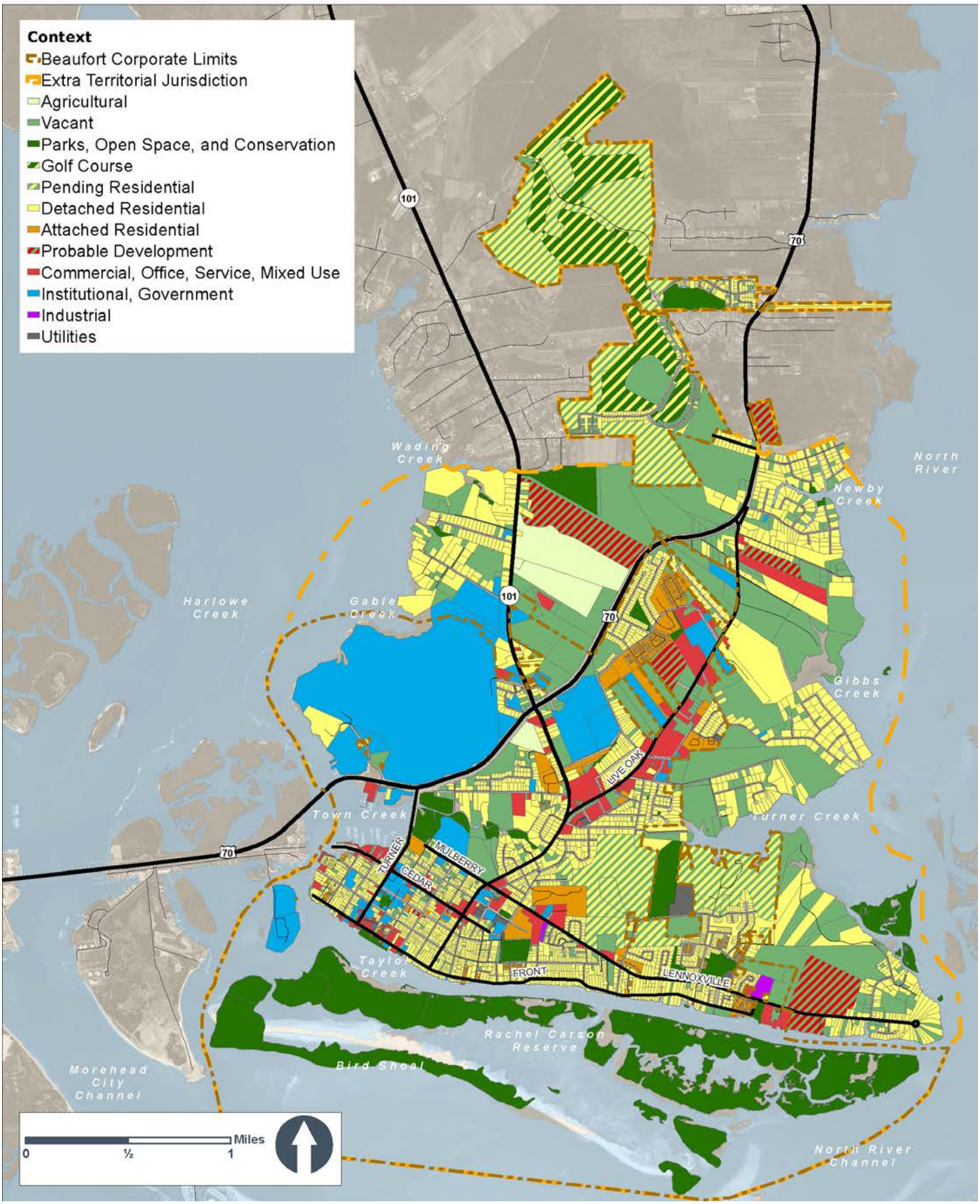
This designation applies to the major utility sites that serve the Town of Beaufort. This includes the Wastewater Treatment plant, properties owned by utility companies, properties with significant utility structures like substations and water towers. This makes up less than *one percent* of the total acreage.

Impact of Transportation Facilities on Land Use

The existing land use pattern in the Beaufort area has been heavily influenced by the location of major roadways. Commercial development has been traditionally clustered along US 70 Business which was Live Oak Road and Cedar Street. The completion of the US 70 Bypass directed traffic around the north side of town and may influence the location of future commercial and land use changes along the previous route of US 70. In addition maritime travel has influenced the land uses in downtown Beaufort throughout its history. This continues today in that the location of docks and marinas near deeper water on Taylor Creek and Town Creek are near concentrations and areas of demand for commercial development.

Land Use by Percent of Total Acreage	Acres	%
Agricultural	103.52	2.32%
Vacant	946.62	21.2%
Parks, Open Space, and Conservation	493.65	11.1%
Golf Course	230.26	5.2%
Pending Residential	458.50	10.3%
Detached Residential	1,153.66	25.9%
Attached Residential	132.03	3.0%
Probable Development	152.70	3.4%
Commercial, Office, Service, Mixed Use	162.31	3.6%
Institutional, Government	584.66	13.1%
Industrial	6.71	0.2%
Utilities	32.88	0.7%
Total	**4,457.50**	**100%**

Existing Land Use Map



Due to the nature of pending, anticipated, and approved developments, existing land use in the Town is in a state of flux.

5

Community Values, Vision, and Goals

Community Vision

Based on what the project team heard during public engagement, the Beaufort community has many values. Beaufort residents value the Town's character while focusing on improvement of existing infrastructure, preservation of the natural and built environment, managing growth, and housing affordability. Beaufort residents also feel that economic growth, more recreational opportunities, equity and inclusion, tourism, public health, and controlling short term rentals are important.

The eight goals in the following pages exemplify the values and standards the community would like to prioritize during the duration of this plan.

Community Goals

Purpose:

The Beaufort CAMA Land Use Plan is a comprehensive planning document that establishes a high-level vision, goals and objectives for the community. It serves as a long-range policy tool to guide Town decisions regarding environmental concerns, housing, land use, recreation, town services, transportation, and economic development.

The adoption of this plan will fulfill the requirement of the Coastal Area Management Act and implement the new requirements of North Carolina General Statue 160D-501, which requires any North Carolina community to have an adopted "comprehensive plan" in order to apply zoning regulations.

The plan is based on community feedback and captures a vision of the Town created by its residents, boards and staff. When Town staff and appointed or elected boards are making development and budget decisions, they will analyze how those decisions will or will not support the vision, goals and policies in this plan.

Over time, this planning document is meant to be implemented incrementally through actions of the Town, its partners, members of non-profit organizations and private businesses/landowners. The plan is also meant to be regularly analyzed to account for new development, future conditions, as well as changes in conditions or market trends.

How to Use This Section:

This section is organized by goals which were formed through the community engagement process of this plan and reflect the desired community outcomes. These goals reflect desired outcomes as a result of implementing this plan. Within each goal, objectives, policies, and actions are enumerated that will guide the Town toward achieving the goals for the lifespan of this plan.

This section can be read as follows:

GOAL #— A desired outcome to be achieved over the lifespan of this plan.

Objective #.# — More specific than goals, these are measurable outcomes of different elements that contribute toward a goal.

Policy #.#.# — A principle or guideline that will be used for making a variety of local decisions designed to accomplish the goals and objectives. These policies guide the Board of Commissioners, Planning Board, and town staff.

Action #.#.#.# — Specific actions and activities to implement and advance the plan's policies.

Regarding the Coastal Area Management Act

The Coastal Resources Commission (CRC) outlines five Land Use Plan Management Topics that must be addressed in a Coastal Area Management Act (CAMA) land use plan. They include: Public Access, Land Use Compatibility, Infrastructure Carrying Capacity, Natural Hazard Areas, and Water Quality.

A CAMA-compliant comprehensive land use plan must address these management topics to ensure that plans support the goals of the CRC. Each required management topic includes a Management Goal and a Planning Objective, which are specified in the North Carolina State Statutes governing land use planning in coastal communities, followed by recommendations for future action. Some recommendations may align with more than one management topic.

A CAMA land use plan also affords the opportunity for a community to address areas or issues of local concern, which may be asset-based, programmatic, regulatory, geographic, or otherwise. These issues were identified during the plan development process and are included herein. The issues do not necessarily align with the exact CAMA management topic structure, but are still locally important. These recommendations are not required to have associated timelines for completion or implementation, although in some cases timelines may be provided. Not all of the recommendations contain specific action items, but that should not be perceived as any less a call to action. In addition, not all of the recommendations outlined herein are immediately ripe for implementation, and (as with the Future Land Use Map) local discretion and Town leadership will determine priorities and timelines. Policies that are not able to be implemented in the short-term will guide future development decisions, so that future development will bring the reality of the Town closer to its vision.

GOALS

The eight goals of the plan area shown below and detailed with each of their own objectives, policies, and actions throughout the rest of Chapter 5.

Goal 1: Environmental Protection

Goal 2: Resiliency

Goal 3: Housing

Goal 4: Infrastructure

Goal 5: Economic Development

Goal 6: Transportation

Goal 7: Town Character

Goal 8: Diversity and Inclusion

GOAL 1: Environmental Protection

Protect, preserve, and restore our shorelines, sensitive habitats, and waterways.

Introduction

Beaufort's past, present, and future have all benefited from the area's rich natural resources. As the Town continues to grow, pollution, tourism, and recreation threaten the waterways, forests, and wetlands. Of these, the Rachel Carson Reserve is of great importance. The Town should work with Reserve stewards to continue to protect this pristine land. The public should be educated on how their individual actions affect the natural environment, and how they can protect it by making smart decisions around recreation and plastic use. Recommendations also endorse partnerships, because just as the residents of Beaufort are not the only beneficiaries of its resources, they are not the only stewards either, and partnerships can help multiply conservation efforts.

Objective 1.1: Protect and improve water quality in the creeks, wetlands, and waterways in and around Beaufort.

Success in this objective can be measured by a reduction in the shellfish closure areas and number of swimming advisories issued for the waterways.

Policy 1.1.1: Reduce and address non-point source pollution.

Action 1.1.1.1: Enhance standards for implementation of Low Impact Development (LID), green infrastructure, and water quality measures in sites. Explore and utilize LID strategies and on-site storage for stormwater management. For high intensity areas, like downtown, a regional stormwater approach should be considered. Tie requirements to impervious surface percentages in sites, in which larger percentages of impervious surface must provide increased amounts of stormwater management and green infrastructure.

Action 1.1.1.2: Implement Watershed Restoration Plan actions. (https://www.beaufortnc.org/publicworks/page/beaufort-watershed-restoration-plan)

Action 1.1.1.3: Work with local researchers to continually monitor water quality in creeks and North River.

Action 1.1.1.4: Outreach initiative focused on minimized use and release of residential pollutants such as fertilizers, pesticides, herbicides, soaps, paints, oils, etc.

Marsh boardwalk in a maritime forest. Source: C. Damgen.

Low-Impact Development and Green Infrastructure

Low-impact development and green infrastructure are environmentally-sensitive approaches to managing development stormwater runoff, and shoreline stabilization. Examples include: rain gardens, stormwater bioretention cells, living shorelines, green roofs, rain barrels, stormwater planters, permeable pavement, disconnected impervious surfaces, stormwater bumpouts, and grassed swales.

Action 1.1.1.5: Encourage reduction of impervious surface cover and increased use of permeable surfaces in new development and reconstruction or redevelopment. Consider expanding impervious surface restrictions and regulation to all zoning districts.

Action 1.1.1.6: Retrofit streets and other publicly-owned areas with new or improved stormwater control measures, in particular those that improve water quality.

Policy 1.1.2: Protect and improve the health of vulnerable natural environments such as maritime forests and coastal marshes.

Action 1.1.2.1: Actively document marsh and maritime forest areas and loss. Identify restorable areas of each type.

Action 1.1.2.2: Identify areas for wetland/habitat restoration, partnering with local agencies, like NC Coastal Federation.

Action 1.1.2.3: Identify areas of terrestrial habitat that are irreplaceable or otherwise significant and to preserve those areas, possibly through partnerships with other agencies.

Action 1.1.2.4: Give enhanced priority to mature forests, and particularly maritime forests, in subdivision and site plan review when meeting preserved open space area requirements.

Action 1.1.2.5: Consider ordinance updates to prioritize protection of existing stands of mature maritime forest as land is developed.

Horses at Rachel Carson Reserve

Pine Knoll Shores: Tree Preservation and Protection

The Town of Pine Knoll Shores has a tree preservation ordinance that prohibits subdivision of land that has been timbered or clear-cut for 3 years. There are also standards requiring landscape plans and tree plantings that help maintain a lush urban tree canopy. This includes standards for preservation of heritage or specimen trees.

Action 1.1.2.6: Clearly identify areas where shoreline armoring will and will not be permitted, and where structures will have to relocate as shorelines erode. See **Objective 2.4** on page 141 for details.

Action 1.1.2.7: Encourage landowners to utilize living shorelines where appropriate.

Action 1.1.2.8: Enhance development standards to reduce environmental impacts (e.g., tree preservation ordinance).

Objective 1.2: Preserve, maintain, and enhance Rachel Carson Reserve (RCR).

Policy 1.2.1: Partner with NC DEQ and/or the RCR Local Advisory Committee to continue efforts to protect and enhance the Reserve, especially its habitat quality and storm mitigation features.

Action 1.2.1.1: Town administrative and/or planning staff should maintain an active presence on the RCR Local Advisory Committee.

Action 1.2.1.2: Participate in habitat resilience planning and restoration implementation and enhancement projects.

Policy 1.2.2: Educate the public about the ecological and storm protection benefits of the Reserve.

Policy 1.2.3: Continue to work with the RCR on addressing abandoned and derelict vessels to protect sensitive habitats.

- These vessels often damage large areas of shoreline when they are removed without using best management practices. This is most notable along areas of Taylor's Creek.

Objective 1.3: Minimize the impacts of tourism and active recreation on the natural environment.

- These natural environments include protected lands as well as undeveloped coastline, marshes, wooded areas, waterways and more.

Tourism Impacts

Tourism is a large part of Beaufort's economy; it generates a large amount of wealth and provides growth in the job sector through heritage tourism, ecotourism, and more. Along with the positive impacts, there are also negative impacts to take into consideration.

Tourism also can lead to environmental damage, including soil erosion, increased pollution, natural habitat loss, and negative impacts on protected species.

The promotion of ecotourism and heritage tourism draws in tourists that respect protected lands while providing additional funding to the area.

Policy 1.3.1: Mitigate the negative impacts of water and recreation access points in sensitive environmental areas.

Action 1.3.1.1: Educate tourists on their impacts by partnering with

realtor's and technical agencies to provide training (e.g., Coastal Training Program).

Policy 1.3.2: Partner with local watersports businesses to direct recreation away from sensitive environments.

Action 1.3.2.1: Provide educational materials for businesses on areas for recreation away from sensitive environmental areas.

Policy 1.3.3: Investigate the carrying capacity of local natural resources with regard to ecotourism and visitation.

Objective 1.4: Track shoreline and habitat change to minimize loss and inform potential habitat protection or restoration interventions.

Policy 1.4.1: Create an educational program to inform the public about the public rights to the estuarine habitat and public benefits (property values (even in-land), fisheries value, quality-of-life, etc.) and take a firm stance on not perpetuating further shoreline habitat degradation.

Action 1.4.1.1: Partner with local agencies, such as the Rachel Carson Reserve, to increase the effectiveness of these efforts.

- Based on those findings, evaluate policy options to address shoreline and habitat degradation.

Policy 1.4.2: Map shoreline habitat using best available science and designate where certain types of erosion control measures are likely to optimize protective benefits.

Action 1.4.2.1: Clearly designate where the least impactful intervention is needed and/or allowable including:

- First option: Natural shorelines only (natural processes: erosion control prohibited, managed retreat of structures)
- Second option: Living shorelines (moderately impactful: marsh building, off-shore oyster beds, plantings, etc.), and
- Last option: Hardened shorelines (most impactful and habitat destructive: Bulkheads, seawalls, rip rap, hardened shorelines, sills, etc.) should be utilized in only the most urban settings.

Action 1.4.2.2: Identify shoreline areas that are not of high or irreplaceable community value and communicate to those property owners that starting 10 years from adoption of this plan, repair or replacement of erosion control structures that are not living shorelines will be discouraged in favor of replacement with living shorelines.

- This will help begin restoring shoreline habitat that has been damaged by man-made erosion control structures (such as seawalls or bulkheads) and allow natural habitat to re-establish itself and enhance quality of life. It will likely also mean that some structures will need to be relocated to avoid coastal erosion.

Policy 1.4.3: Hardened shorelines should be utilized in only the most urban and/or high energy settings.

Action 1.4.3.1: Develop an Estuarine Shoreline Management Plan identifying areas most appropriate for hardened shorelines.

Action 1.4.3.2: Update relevant ordinances to include standards on shoreline stabilization.

North Carolina Coastal Federation Coastal Cleanups

The NC Coastal Federation seeks to involve the community in collecting marine debris to protect local wildlife and salt marshes. These cleanups are made possible through the help of local volunteers who want to protect the local wildlife, salt marshes, marine life, and waterways.

North Carolina Coastal Federation Coastal Cleanups
Source: NC Coastal Federation

Charleston Area Plastic Ban

Coastal communities around Charleston, South Carolina have adopted their own ordinances to address the presence of plastics on their beaches. Communities have prohibited the presence of single-use plastics at their beaches, while other have banned them completely from distribution. Beaufort can phase its restrictions, starting with plastic bags and expanding as the population adapts to restrictions.

Objective 1.5: Manage litter and water-related debris.

Policy 1.5.1: Enforce anti-littering ordinances and promote education on the impacts of trash on the natural environment.

Action 1.5.1.1: Increase signage in and around outdoor recreation areas that describe the problems caused by litter.

Action 1.5.1.2: Encourage voluntary certification program for businesses to generate less waste (e.g., NC Green Travel, Ocean Friendly Establishments).

Action 1.5.1.3: Provide waste reduction toolkits for businesses and households.

Action 1.5.1.4: Prohibit the sale of single use plastics in the Town.

- This would specifically include single use drink containers, straws, plastic utensils, and grocery bags.
- Food containers in grocery stores would be exempted.

Action 1.5.1.5: Recruit volunteer groups to install and manage bins for recycling.

Action 1.5.1.6: Equip water fountains with water bottle refill stations which can encourage adoption of reusable water bottles.

Did you know?

Nearly **164,000** pounds of debris, primarily associated with storm-damaged shoreline infrastructure, was removed from the Rachel Carson Reserve and along Taylor's Creek in 2020-21.

Source: Paula Gilikin, project manager for USDA-NRCS grant to remove storm debris from Brunswick north through Carteret Counties

Policy 1.5.2: Implement recommendations and steps from the North Carolina Marine Debris Action Plan.

- Launch a stewardship and signage program to engage neighborhoods, property owners, businesses, visitors, and institutions around debris prevention and cleanup.

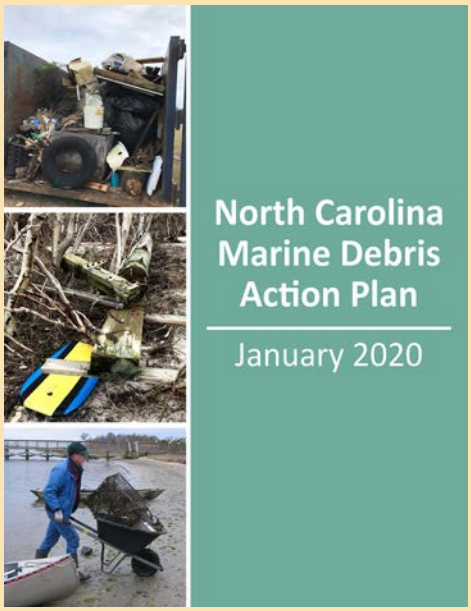
Policy 1.5.3: Coordinate enhanced standards with neighboring municipalities and the County to further reduce potential litter and debris.

Policy 1.5.4: Continue to work on addressing and removing abandoned and derelict vessels in a timely fashion.

Policy 1.5.5: Conduct town-sponsored cleanup events, possibly in partnership with other agencies, such as the RCR, NC Coastal Federation, and/or dedicate maintenance staff to maritime cleanup.

Policy 1.5.6: Implement enhanced construction standards for docks and sea walls so that they have less chance of becoming marine debris after major storms.

Policy 1.5.7: Coordinate enhanced standards with neighboring municipalities and the County to further reduce potential debris.



North Carolina Marine Debris Action Plan

The North Carolina Marine Debris Action Plan was completed in 2020 and the Town of Beaufort participated in the planning process. The full list of action items can be found in Appendix D of the Action Plan.

Objective 1.6: Explore the potential to conserve working lands (agriculture, silviculture, ranch lands, etc.) through partnership with other agencies, such as land trusts or land conservancies, especially lands north of town on the North River and west of US 70.

- These conservation areas might also be opportunities for additional outdoor recreation spaces or water access and could help with storm buffering and mitigation of climate change impacts.

GOAL 2: Resiliency

Increase resiliency to natural hazards and climate change impacts for natural and built areas.

Introduction

In addition to protecting the natural environment, Beaufort must be proactive to protect its assets and people from the increasingly intense impacts of climate change. FEMA's National Risk Index puts Beaufort at a "Relatively Moderate" to "Relatively High" risk for coastal flooding. Storms are intensifying, bringing heavier winds, rain, and surges. Sunny day flooding from wind-driven and King Tide events are becoming more frequent. Sea level rise and erosion also pose increasing threats. Employing ideas in the Future Land Use Map and character areas is a good start, but resilience will also be built by the many smaller decisions made during individual capital and real estate development projects. Employing incremental strategies as construction happens, and directing that construction away from the most vulnerable areas, is a good foundation for building resiliency. Resiliency policies are also embedded throughout other areas of these recommendations, including in Goals 4 and 8.

Objective 2.1: Reduce vulnerability by utilizing guidance from the Future Land Use Map (FLUM) to focus growth and public infrastructure investments away from flood- prone areas toward higher ground (see Non-Intensification Zone on page 196).

Policy 2.1.1: Keep zoning densities lower in vulnerable areas, using the Non-Intensification Zone, floodplains, and best available sea level rise projections as guidance.

Policy 2.1.2: Direct vulnerable land uses, including hospitals, age-restricted housing, group homes, and schools away from vulnerable areas and/or provide support to ensure they can sustain and recover more quickly from storms.

Defining Coastal Resilience

Coastal resilience in a community means that all members and systems within it can better withstand major events and long-term stressors in a way that helps meet larger community goals. Hazards include coastal and climate hazards such as, hurricanes, sea level rise, storm surge, tidal "sunny day" flooding, and erosion.

Policy 2.1.3: Relocate or place sensitive community infrastructure (critical public services and facilities, etc.) outside of vulnerable areas.

Policy 2.1.4: The Town's Board of Commissioners should consider downzoning undeveloped, unvested properties in the Non-Intensification Zone in order to communicate that these areas are not intended to accommodate high intensity development.

Objective 2.2: Adapt to rising seas.

Policy 2.2.1: Manage retreat and contraction of public infrastructure and services away from high vulnerability areas.

Policy 2.2.2: Use current, best available sea level rise projections and environmental vulnerability knowledge when making public infrastructure investment decisions.

Policy 2.2.3: Direct public and private investment and capital improvement projects away from vulnerable areas and ensure any public investment in these areas is capable of surviving anticipated future conditions. See also Mitigation in the Non-Intensification Zone (NIZ) on page 200.

Policy 2.2.4: Mitigate tidal and storm surge flooding through structural improvements that prepare infrastructure for long-term resistance to environmental threats.

Action 2.2.4.1: Identify and map priority areas, such as at key locations along Front Street or Town Creek.

Action 2.2.4.2: Identify vulnerable roads, water, sewer, and stormwater pipes, electric facilities, and other public infrastructure and elevate/armor against rising seas.

IIBHS Fortified Home Criteria

The Insurance Institute for Business & Home Safety created an above-code voluntary program called FORTIFIED Home, which contractors can be certified in. This program is designed to help individuals build, re-roof, or retrofit homes to protect against severe weather, and offers a commercial property program as well.

The FORTIFIED roof requirements include specific material and installation methods for stronger edges, sealed roof decks, better attachment, and impact-resistant shingles in hail-prone areas. Homeowners receive discounts based on the level of IIBHS methods that are implemented.

Florida Building Code

The State of Florida has the highest chance of hurricane landfall and is often on the receiving end of around 40% of all US hurricanes in a typical year. Communities in Florida have a vested interest in ensuring construction standards are adapted to modern hurricanes, particularly with the frequency and intensity of storms increasing due to climate change.

As such, the Florida Building Code has been regularly updated every three years since 2001, with the 7th edition being released in 2020. It is widely recognized as having some of the most stringent standards in storm resilient building construction (for both new builds and retrofits) in the country, while still based on the International Building Code (IBC) that is used in the US. Many states reference FBC standards or developed their own requirements using the FBC as a framework.

The Town of Beaufort could utilize this resource when making updates to local construction standards.

Objective 2.3: Protect against future storm damage.

Policy 2.3.1: Increase storm-safe construction standards, utilizing the most up-to-date code language by industry leaders, such as the Florida Building Code or the IBHS FORTIFIED Home criteria.

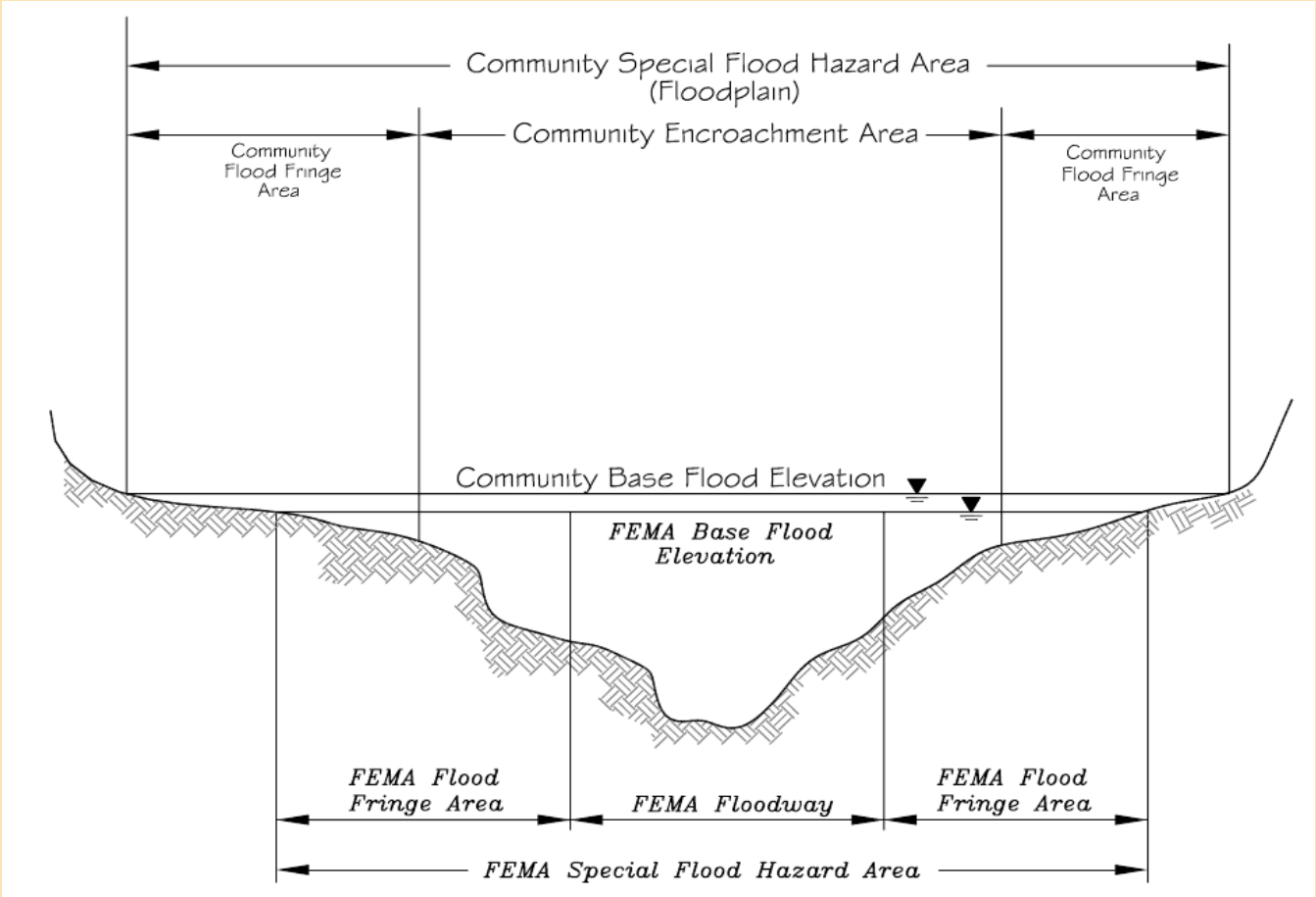
Action 2.3.1.1: Launch a town-led retrofitting campaign that encourages residents to brace their homes against storms.

Additional Elevation Requirements

Elevating beyond National Flood Insurance Program (NFIP) standards is an increasingly common regulation to prevent damage from high flood waters. According to FEMA, over 20% of flood claims are outside of flood zones. An additional elevation requirement beyond the Base Flood Elevation (the minimum finished floor elevation of a structure) accounts for unpredictable flood conditions and help protect structures. The State of North Carolina recommends a 2-foot freeboard requirement, while Beaufort currently requires 1 foot. Other coastal Carolina communities are currently debating higher freeboard standards. These additional requirements also result in lower flood insurance rates for the communities that adopt them, through FEMA's Community Rating System, of which the Town is an active participant. In addition, the National Park Service released guidelines on flood adaptation for rehabilitating historic properties in Spring 2021 that could serve as a guide in the historic districts.

Charlotte's Community Floodplain

Charlotte goes beyond FEMA SFHA floodplain requirements. They require new construction or any substantial improvements to place the lowest floor level at one or two feet above the 1% annual chance flood level (i.e. 1 to 2 foot freeboard required). It bases regulation on future land use conditions, which are divided into different areas bases on water's ability to soak into the ground.



Action 2.3.1.2: Explore funding opportunities to increase residential fortification and elevation of structures.

Action 2.3.1.3: Increase the flood-proofing and freeboard requirement in 100- and 500-year floodplain (aka 1% annual chance and 0.2% annual chance, respectively).

- Extend structure elevation requirements outside of the special flood hazard area (aka 1% annual flood chance area).
- Residential structures, 1- and 2-family structures:
  - One option would be to require single family and duplex structures within the 1% and 0.2% annual chance floodplains to be elevated at least 4 feet above the elevation of the 100-year floodplain.
  - Properties elsewhere in the town could also be required to be elevated to this level or at least 1 foot above adjacent grade at the time of construction or reconstruction.
- Nonresidential and multi-family structures
  - Nonresidential structures would be required to either elevate or floodproof the ground floor. New structures should be graded at least 1 foot above adjacent grade.
  - Existing nonresidential structures within the 0.2% annual chance floodplain should be required to floodproof their ground floors within 10 years of adoption of the comprehensive plan.
- Extend these types of enhanced building standards to docks and marine infrastructure, which are often damaged in storms and can end up littering the coastline. This will also help protect the RCR from marine debris.

Living shoreline in North Carolina
Source: NOAA

Policy 2.3.2: Establish a localized program to rapidly clean up debris from destroyed structures that are in highly vulnerable areas.

- 85% of debris generated by recent storms was found to be associated with shoreline infrastructure according to a study conducted by NCCF.

Objective 2.4: Adapt to shoreline erosion.

Policy 2.4.1: Increase armoring of vulnerable, immovable areas that have high or irreplaceable community value (i.e. – key roads or evacuation routes, historic downtown).

Policy 2.4.2: Establish a prohibition on hardening shorelines in all locations other than immovable areas that have high or irreplaceable community value. This may involve relocating or removing public infrastructure from these locations.

Policy 2.4.3: Refine standards for when shoreline armoring or coastal erosion control structures should be removed, restricted, or allowed to rebuild.

Policy 2.4.4: Develop and adopt a shoreline management plan.

Policy 2.4.5: Optimize the potential efficacy of natural shoreline stabilization methods through using the best available science such as the Living Shorelines Application and partnerships with local scientists and coastal protection organizations.

Objective 2.5: Expand emergency preparedness efforts.

Policy 2.5.1: Develop an annual education and outreach program for residents and property owners that includes sea level rise, storms, shoreline erosion, evacuation procedures, and preparedness materials.

Objective 2.6: Coordinate fast, equitable disaster recovery.

Policy 2.6.1: Examine and update policy standards surrounding resiliency.

Policy 2.6.2: Examine infrastructure and services redundancy measures and incorporate new technologies as necessary.

Policy 2.6.3: Incorporate methods of targeting vulnerable communities into Town emergency preparedness efforts.

Objective 2.7: Continue to refine stormwater modeling and understanding of Town-specific flooding and environmental conditions.

Implementing Policy 2.4.2

Example code language might look something like this:

- Shoreline-adjacent structures (homes, businesses, utilities, etc.) that are damaged beyond 50% of structure value should be required to remove any shoreline armoring and allowed to rebuild the primary structure in a way that is more sustainable and resilient to coastal storms, rising seas, and erosion.
- At the time a shoreline-adjacent structure is damaged beyond 50% of its value, the Town should decide if public facilities (utility taps, streets, etc.) will be deconstructed and removed as well.

Natural shorelines converted to rock vetments to combat erosion.

Policy 2.7.1: Continue to refine this plan and other stormwater or natural hazard planning through additional analysis and public engagement. Consideration should be given to the natural hazard mitigation value of ecosystems as well as the economic impacts of the natural environment and real estate development. The planning process could combine complex spatial analysis and engineering studies, contributions from technical experts, and field assessments. Such studies could examine both policy and project

strategies to reduce flooding impacts from new development as well as how to leverage ecosystems and natural processes for mitigation of flood risk. Beaufort has frequent nuisance flooding when otherwise routine summer storms occur during high tide, so frequent storm events as well as the 1% storm should be considered.

Initial investigation might include a high-resolution rain-on-grid model to simulate hydrology on a LiDAR-based surface and dimensional modeling to evaluate flood hydraulics. These tools allow the visualization of flooding depths, velocities, and flow paths. Associated analyses could quantify the number of residents potentially cut off from hospitals, pharmacies and grocery stores to help prioritize actions that expedite flood recovery. Such analyses, especially if they inform future development patterns, should consider a range of potential future rainfall, tidal stages, and sea level rise scenarios as well as planned future infrastructure improvements.

After the Buyout

As Beaufort plans in the time of climate change, the Town will likely consider buyouts as a tool. Buyouts of vulnerable properties in flood-prone areas, primarily through state and local government-run programs, are an increasingly utilized method of land use planning for vulnerable properties. Buyouts happen either after a property has been significantly damaged in an event or preemptively as part of strategic resilience planning. Funding sources are varied, but the question of what to do with the properties after the completed buyout is universal. Often, a stipulation of the buyout is that the property will remain open space in perpetuity, but that does not mean the property cannot be used.

Several questions must be answered in order to have successful property acquisitions, including future use and maintenance. Zoning restrictions on buyout properties can help clarify their status to the community. Once purchased, cities must at the very minimum maintain the properties, which means incurring those costs. Some towns have implemented creative strategies to address both issues. Some places partner with land conservancies or management trusts to maintain the properties, or have even made agreements with local citizens who mow in exchange for a reasonable use of the property. Others have started community gardens on the land. Or these properties may simply be left alone as natural habitats, though neighbors are not always pleased about this option. Whatever option is chosen, it is important to have a plan for these properties, be strategic about which ones are bought, and to use buying out property as part of a larger resilience strategy.

Source: Mach et al. Science Advances, October 2019. Rosenstiel School of Marine and Atmospheric Science, www.rsmas.miami.edu

Case Study: Bulkheads May Not Be As Cheap or Effective As Nature-Based Coastal Protections

Despite homeowners' perception that bulkheads (i.e. seawalls) are the most durable and effective method of preventing coastal erosion, research shows them to be costly financially and environmentally, and they do not perform like living shorelines do. Compared to residents with revetments and natural shorelines, property owners with bulkheads reported double the price to repair hurricane damage to their property and four times the cost for annual shoreline maintenance. Ninety-three percent of evident post- hurricane shoreline damage was attributable to bulkheads or bulkhead hybrids and a higher proportion of surveyed homeowners with bulkheads reported having property damage from hurricanes. Regardless, shoreline hardening increased by 3.5% from 2011 to 2016 along 39 km (over 24 miles) of the Outer Banks. These results suggest that despite continued use bulkheads are not meeting waterfront property-owner expectations and that nature-based coastal protection schemes may be able to more effectively align with homeowner needs.

Source: Carter S. Smith[a], Rachel K. Gittman[b], Isabelle P. Neylan[a], Steven B. Scyphers[b], Joseph P. Morton[c], F. Joel Fodrie[a], Jonathan H. Grabowski[b], Charles H. Peterson[a]. "Hurricane damage along natural and hardened estuarine shorelines: Using homeowner experiences to promote nature-based coastal protection". Marine Policy 81, (2017), 350-358. https://doi.org/10.1016/j.marpol.2017.04.013

[a] Institute of Marine Sciences, University of North Carolina at Chapel Hill, Morehead City, NC 28557, United States

[b] Marine Science Center, Northeastern University, Nahant, MA 01908, United States

[c] Duke Marine Laboratory, Duke University, Beaufort, NC 28516, United States

Bulkhead. Photo: N.C. Division of Coastal Management

	Benefits	Costs
Bulkheads	Quicker permitting process Better in higher wave energy locations Smaller footprint	Negative impacts to natural habitats, food webs Increased erosion of shoreline at the base and ends of the structure Expensive to maintain
Marsh Sills	Surface water storage, habitat protection, preservation of natural ecosystems Perform better in storm events Better in lower wave energy locations	Larger footprint Less public education about benefits

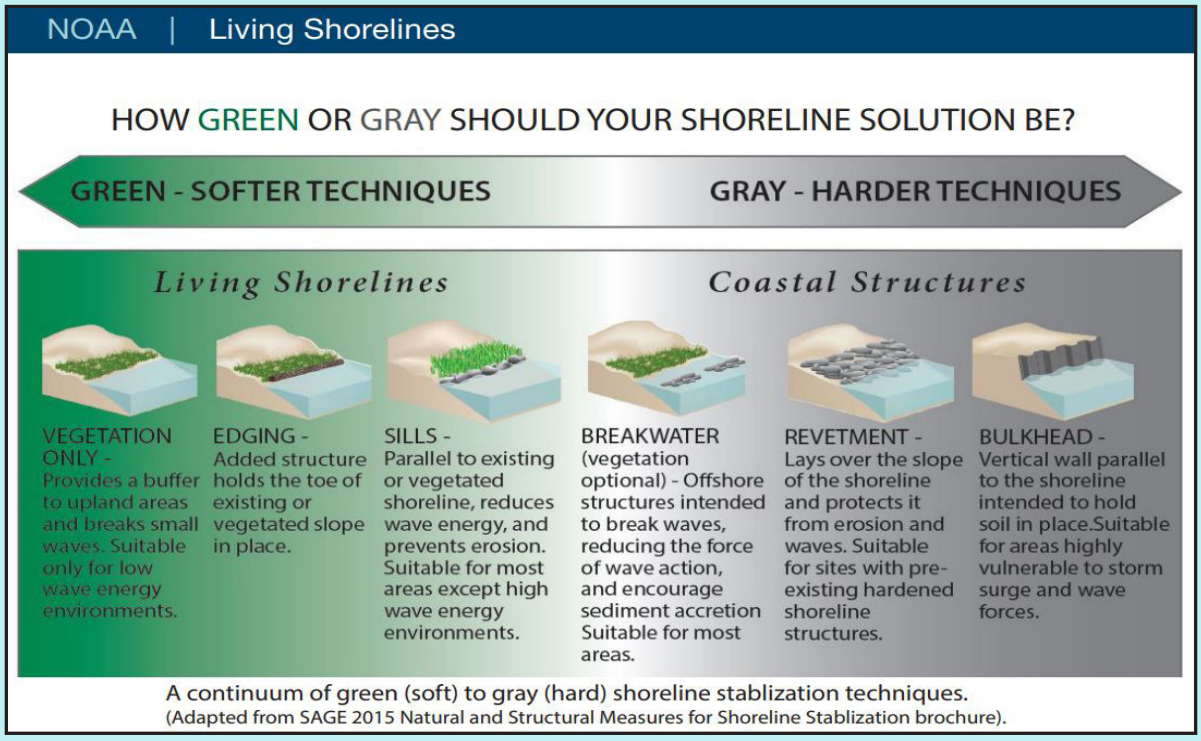
Living Shorelines Versus Hardened Shorelines

As the pressure rises to make shorelines resilient, the debate of living shorelines versus more typical methods such as bulkheads arises. As discussed elsewhere, Beaufort's natural shorelines are increasingly becoming hardened through the use of bulkheads or similar structures. Meanwhile, marsh sill and similar living shorelines are a less common but more beneficial shoreline stabilization techniques, as they are more cost-effective, provide habitats, and have been shown to outperform bulkheads during storm events. Hardened shorelines protect less efficiently, at the cost of habitat loss and potential to increase erosion on neighboring properties.

Bulkheads work by halting shoreline erosion at a fixed point through a vertical wall-like structure. Vegetated structures or living shorelines such as marsh sills mimic natural shorelines. They help disperse wave energy and collect sediment and water to prevent erosion, all while creating a habitat that has many of the functions as a natural shoreline.

Unfortunately, current regulations and permitting processes do not encourage living shorelines, and in some ways favor hardened structures. For example, permitting processes for bulkheads are as quick as one to two days, and can often be done on-site. Fortunately, North Carolina recently adopted a streamlined permitting process for living shorelines that makes permitting them as quick as it is for bulkheads. This is an important step in encouraging the use of living shorelines rather than bulkheads.

This graphic shows the spectrum of stabilization options. Projects on the left side of this continuum represent more "natural", "green", and "living" shoreline stabilization techniques, and projects on the right represent "gray" and "harder" shoreline stabilization techniques. Often the least intrusive intervention is most desirable. Note that these interventions are only necessary when there is a need to protect against natural shoreline movements threatened by development that encroaches on the water.



A continuum of green (soft) to gray (hard) shoreline stablization techniques.
(Adapted from SAGE 2015 Natural and Structural Measures for Shoreline Stablization brochure).

GOAL 3: Housing

Encourage a diverse and affordable housing stock that serves the needs of residents.

Introduction

Community engagement, coupled with demographic and housing data, indicated that home prices in Beaufort are rising at a rate that threatens its existing residents. While the Town does not have direct control over home prices, as they are a product of the market, the Town can adopt practices and land use policies that affect home prices by introducing more housing stock, increasing housing diversity, and being proactive as short-term vacation rentals become more popular. Recommendations also take aim at neighborhood character, which is addressed in further detail in Goal 7.

Objective 3.1: Encourage efforts to make housing more diverse and affordable.

Policy 3.1.1: Create a Town Affordable Housing assessment and/or plan.

Policy 3.1.2: Increase options for workforce housing.

Action 3.1.2.1: Allow a diversity of home types such as Accessory Dwelling Units (ADUs), small-scale townhomes (up to 4 dwellings in a structure), and house-scaled multi-family units (up to four dwellings in a structure) as context sensitive development or redevelopment.

Action 3.1.2.2: Encourage or require multiple housing types within a single development.

Action 3.1.2.3: Adopt standards for small-scale, context appropriate, vertical mixed use (aka "live/work") in appropriate locations. Cedar Street is a good example of the type of neighborhood diversity that is desired.

Multifamily housing, such as this project in a historic neighborhood in Raleigh, can easily blend in with single-family neighborhoods, adding valuable density without altering character.

Short Term Rental (STR) Regulation

Public feedback indicated a desire to maintain the character of Beaufort, both in terms of its built environment and its community. The transition of homes to dedicated STRs is in conflict with both this desire and the desire for lower housing costs.

Despite limits on municipalities' regulatory power set by the State of North Carolina, there are still several regulation options for STRs that local governments can consider. These options differ in implementation effort, cost to municipalities, and likely effectiveness. Options are described below. They have been organized into tiers, with Tier 1 being the easiest to implement, though likely less effective, to Tier 3 being the most involved to implement, but offering the most control. A full explanation of STR regulation is located in the Appendix.

Tier 1

- Creating a city-maintained STR registry that landlords opt in to.
- Tracking nuisance complaints and referencing them with known STRs.
- Providing better education and resources for landlords and STR tenants.

Tier 2

- Using a third-party service to track STRs and nuisance complaints.

Tier 3

- Using zoning ordinances to regulate STRs. This can include:
  - Defining STRs as a distinct use.
  - Implementing rental minimum lengths of stay.
  - Restricting zoning districts in which STRs can locate as a permitted use.
- Can also be used to dictate requirements related to parking, buffers, fire code, and density.

Policy 3.1.3: Consider a local public/ private partnership to build and operate affordable housing.

Policy 3.1.4: Explore potential regional partnerships for creating affordable housing.

Objective 3.2: Regulate short term rentals so that housing is preserved for local occupation. (See Short Term Rental (STR) Regulation callout box)

Policy 3.2.1: In single family neighborhoods not near tourist attractions:

- Define short-term rentals in the Town's development ordinances as whole-home rentals for less than a one month period.
- Restrict short term rentals in R-20 and possibly R-8 districts.
- Allow short term rental of up to two bedrooms where the operator resides on-site (i.e. – similar to bed-n-breakfast).

Objective 3.3: Respect existing neighborhood fabric and encourage infill that fits its context.

It is possible to encourage context sensitive yet more dense infill housing and development/ redevelopment of substandard, undeveloped, or underutilized sites.

Policy 3.3.1: Consider specific by-right policies to allow for higher density infill in existing neighborhoods, while respecting the existing context, such as building setbacks, driveway widths, and building height.

Action 3.3.1.1: Identify barriers to infill development within town development codes and ordinances, and make updates.

Preserving Neighborhood Character through Design

The State of North Carolina limits how municipalities can regulate residential architecture. Elements such as style, material, and windows cannot be dictated by local law. However, the larger elements that define neighborhood character, such as setback and building height, can be regulated for residential units. The image below shows a street where the front of the houses are all the same distance from the street, meaning the setback is consistent. Having consistent setbacks is a primary means of guiding neighborhood character, both for new developments and when constructing infill in older existing neighborhoods.

Historic overlays (see **Preservation Options on page 163** in Goal 7) are exempt from these regulations, which is an option the historic neighborhoods can explore if they choose.

Objective 3.4: Increase walkability in neighborhoods.

Policy 3.4.1: Adjust subdivision and/or zoning district standards to reflect the block lengths consistent with the future land use character areas. Block lengths 750 feet or shorter are preferred.

Policy 3.4.2: Set standards for requiring greenway connections in new development (see recommendations in GOAL 7: Town Character on page 160).

Affordable Housing Case Study: Dare County

Municipalities' best weapon for keeping home prices down is adopting land use and zoning codes that encourage housing stock and infill. To actually build homes for families with lower incomes requires significant capital and is most easily done with a partnership. Currently, Dare County is planning to work with partners to build affordable housing on County-owned sites, thanks for efforts from UNC Chapel Hill's Development Finance Initiative, which helped the County find partners. Any such efforts around Beaufort would likely require similar partnerships and process.

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GOAL 4: Infrastructure & Public Utilities

Ensure infrastructure and public facilities keep up with increasing demand and changing environmental conditions.

Introduction

Public services and infrastructure such as stormwater management, water treatment, streets, and parks are town services residents use most, serving the most everyday needs and which are barely noticeable when things are working correctly. As Beaufort's population grows, the demand for these public services will also grow. Additionally, the capacity of the infrastructure will also be consumed, thereby necessitating upgrades to keep pace with demand. Lastly, climate change will particularly impact and put stress on the stormwater management system. Fortunately, Beaufort has recently conducted water, wastewater, and stormwater assessments to help address these issues and this goal.

Objective 4.1: Foster a safe, connected street network where roads are in good condition and accommodate typical users.

Policy 4.1.1: Introduce traffic calming measures downtown.

Policy 4.1.2: Maintain an updated street condition survey to prioritize street maintenance and resurfacing.

Policy 4.1.3: Improve sidewalks connectivity, accessibility, and condition.

- See **GOAL 5: Economic Development** for more recommendations on this topic.

Policy 4.1.4: Continue coordination with NCDOT on priority street improvement projects and funding.

Objective 4.2: Increase stormwater management and resiliency methods.

Policy 4.2.1: Continue to implement recommendations from the 2019 Stormwater Capital Improvement Plan (CIP).

Policy 4.2.2: Assess stormwater facilities' resiliency to coastal and climate hazards and identify needed upgrades.

Action 4.2.2.1: Identify and codify priority for low-lying areas such as Front Street.

Action 4.2.2.2: Implement Watershed Restoration Plan.

Policy 4.2.3: Continue to manage and expand existing stormwater infrastructure, including the potential for regional stormwater management for built-out, troubled or vulnerable areas.

Policy 4.2.4: See Action 1.1.1.5 on page 133.

Policy 4.2.5: See Action 1.1.1.1 on page 132.

Facilities and Components and Associated Climate Change Projections

In addition to the regular lifecycle of town infrastructure, climate change will also impact the lifespan of certain capital improvements. The table below provides examples of how to select climate change projections for specific facilities and components, to aid with long-term replacement planning.

Source: Climate Resiliency Design Guidelines - Version 3.0, NYC Mayor's Office of Recovery and Resiliency, 2019.

Timeframe	Examples of building, infrastructure, landscape, and components grouped by typical useful life	
Present to 2039	*Temporary or rapidly replaced components and finishings*	• Interim and deployable flood protection measures • Asphalt pavements, pavers, and other ROW finishings • Green infrastructure • Street furniture • Temporary building structures • Storage facilities • Developing technology components (eg. telecommunications equipment, batteries, fuel cells, etc.)
2040 to 2069	*Facility improvements, and components on a regular replacements cycle*	• Electrical, HVAC, and mechanical components • Most buildings retrofits (substantial improvements) • Concrete paving • Infrastructural mechanical components (eg. compressors, lifts, pumps) • Outdoor recreational facilities • At-site energy equipment (e.g. fuel tanks, conduit, emergency generators) • Stormwater detention systems
2070 to 2099	*Long-lived buildings and infrastructure*	• Most buildings • Piers, wharfs, and bulkheads • Plazas • Retaining walls • Culverts • On-site energy generation plants
2100 and Beyond	*Assets that cannot be relocated*	• Major infrastructure (e.g. tunnels, bridges, wastewater treatment plants) • Monumental buildings • Road reconstruction • Below grade sewer infrastructure (e.g. sewers, catch basins, outfalls)

Objective 4.3: Continue to support the Public Utilities and Engineering Departments in providing adequate drinking water and sewer treatment capacity to support appropriate levels of growth.

Policy 4.3.1: Upgrade facilities according to leadership direction and established departmental policies and standards.

Policy 4.3.2: Plan to increase capacity as needed to accommodate desired levels of growth. Conduct a preliminary GIS-based analysis to estimate the amount of water and sewer capacity that could be added to the utility system based on existing zoning

Policy 4.3.3: and utilization of land. Thereafter, update this assessment to reflect new rezoning and development requests and approvals while also using it when deciding on land use change and development requests.

Policy 4.3.4: When upgrading facilities, relocate, elevate, or armor against projected future hazardous conditions or storm events.

Policy 4.3.5: Continue to monitor sewer system inflow and infiltration and mitigate and/or plan accordingly.

Objective 4.4: Evaluate parks and recreation needs and facilities and establish a level-of-service standards for parks.

Policy 4.4.1: Identify priority acquisition and/or facilities development based on current and future needs and pursue those projects.

Objective 4.5: Continue to provide adequate, responsive public emergency services, including police, fire, and EMS.

Objective 4.6: Re-envision parking areas (especially large surface lots) so that they reduce stormwater runoff and pollution and instead function to retain and filter stormwater.

Policy 4.6.1: Consider how much area of town (especially downtown and commercial areas) should be devoted to parking areas and the implications for community and environment. This may also involve re-evaluation of public and private parking standards and resources or encouraging the use of pervious pavement in parking lots.

Randolph Johnson Memorial Park is rocking!

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GOAL 5: Economic Development

Embrace and leverage our unique economic assets and opportunities.

Introduction

Beaufort's history and historic downtown are huge economic assets to the Town and should continue to be supported. However, a diverse economy will better help the Town in the long run. While the policies below support local businesses in the downtown area, they also address other elements of Beaufort's economy. Stakeholder and community feedback expressed the desire for more jobs outside the tourism sector, that pay living wages and are not susceptible to interruptions such as a down tourism season. By addressing the airport and workforce development, this plan recognizes that there is more to Beaufort's long-term economy than just Front Street.

Objective 5.1: Identify and promote Beaufort's historical, cultural, and artistic assets to develop a sustainable economy that supports a high quality of life for year-round residents.

Policy 5.1.1: Partner with Carteret County and the Chamber of Commerce to conduct a formal economic evaluation of assets, opportunities, obstacles, and competitive positioning, with particular focus on ecotourism, arts and crafts (especially environmentally inspired and sustainably sourced arts), maritime industry, remote work, airport, port-related, etc.

Objective 5.2: Continue to support existing small businesses and encourage new local businesses.

Policy 5.2.1: Promote events that help to increase commerce for local businesses.

Policy 5.2.2: Research and update ordinances that might inhibit local business growth or expansion.

The arts community is an economic contributor. Photo: Beaufort Hotel

Objective 5.3: Explore economic development opportunities that create non-tourism jobs.

Policy 5.3.1: Target businesses that employ workers year-round at living wages.

Objective 5.4: Continue to support the Michael J. Smith Airfield as an asset to Beaufort's economy.

Objective 5.5: Support workforce training programs and/or encourage education through incentive policies.

Policy 5.5.1: Coordinate with similar local and regional initiatives to expand program visibility and participation.

Objective 5.6: Explore opportunities for increasing high-speed internet and broadband service. This will likely involve a regional planning effort in coordination with neighboring jurisdictions.

Objective 5.7: Preserve spaces for commercial, retail, service, and nonresidential businesses while also being responsive to the strong demand for conversion of these properties to residential use.

Case Study

Beaufort is not alone among coastal towns experiencing significant residential development pressure that has transformed some commercial properties to residential uses. From a current resident's perspective, this can create negative outcomes. The Town of Manteo has countered this, in part, through use of a zoning district that requires commercial/nonresidential space on the ground floor, but allows residential above. Although sometimes unpopular among residentially-specialized developers who would rather not incorporate commercial components, this can be a strategy to maintain commercial space while also creating residential supply.

Local businesses on Front Street exemplify the type of economic development the community indicated they would like to see.

GOAL 6: Transportation

Support a multi-modal transportation system that is convenient, safe, and accessible, especially for non-automobile (walking, biking, etc.) transportation.

Introduction

Beaufort benefits from a walkable downtown, but getting to downtown, and between neighborhoods and other commercial areas, can be a challenge for cyclists and pedestrians. Traffic speeds, frequent driveways along roads, and a general lack of facilities for these users inhibits the non-motorized travel of even those who are most willing to do so. As improvements are made, facilities should be planned to be safe and accessible to every user by meeting ADA standards. Boat travel is also factored into these policies, and should be made accessible as well.

Objective 6.1: Increase multi-modal connections between destinations and neighborhoods.

Policy 6.1.1: Create new connections and opportunities for future connections.

Action 6.1.1.1: Create and improve connections to parking facilities, hotels, commercial areas, employment centers, parks, the waterfront, and water transport destinations.

Action 6.1.1.2: Connect Town greenways to nearby networks and implement state greenway network recommendations.

Action 6.1.1.3: Ensure safe pedestrian facilities along all of Front Street.

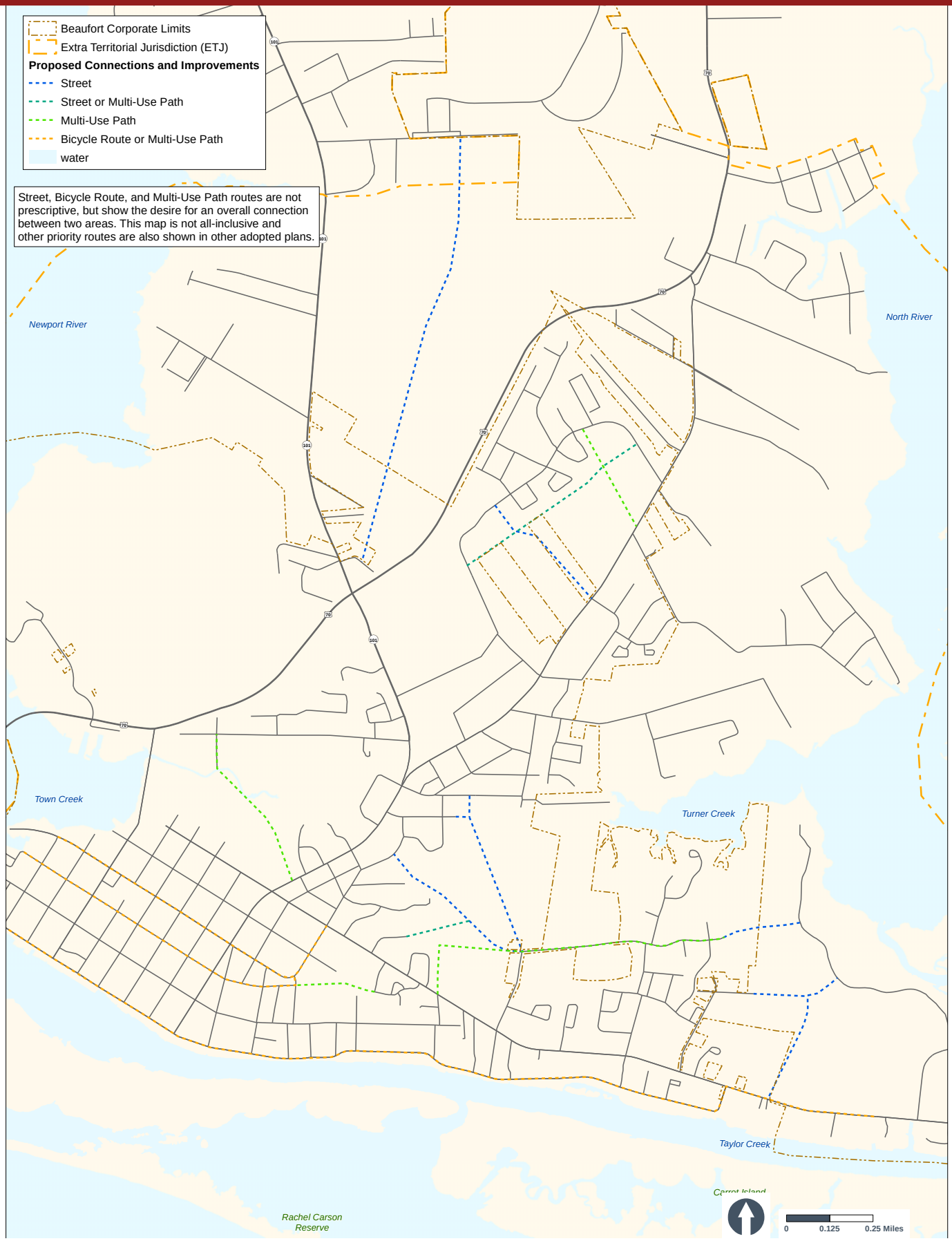
Objective 6.2: Enhance cycle and pedestrian facilities to meet current design standards.

Policy 6.2.1: Implement Bike/Pedestrian Plan improvements where possible.

Policy 6.2.2: Install pedestrian crosswalks and signals at major intersections.

Enhanced Crosswalk

Proposed Connections



Future transportation connections will be necessary.

Objective 6.3: Increase safe cycling facilities and designate primary routes throughout Town.

Policy 6.3.1: Follow latest NCDOT standards in bike facility design (WalkBikeNC Plan, see Design Toolbox).

Policy 6.3.2: Focus on facilities that improve safety and comfort for users of all ages and abilities.

Objective 6.4: Utilize Universal Design principles to expand accessibility.

Policy 6.4.1: Upgrade existing sidewalks, crosswalks, town parking lots, and town indoor facilities to meet ADA standards.

Policy 6.4.2: Require new facilities to meet or exceed ADA standards and apply Universal Design when able.

Policy 6.4.3: Use the ADA transition plan as guidance.

Objective 6.5: Implement active parking management solutions downtown.

Universal Design

Defined originally as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design." Universal Design, when applied to the built realm, describes a place without ramps, outdoor lifts, or costly additions and alterations. Universal Design should be a forethought in master planning and site design, and when done well, no accessible route is needed.

Policy 6.5.1: Optimally utilize existing parking by encouraging satellite or shared parking.

Policy 6.5.2: Encourage parking turnover using techniques such as time limits for spots in desirable areas.

Objective 6.6: Improve and maintain maritime facilities, safety, and services as a means of transportation.

Policy 6.6.1: Complete the Harbor Management Plan and upgrade Town-owned docks and infrastructure as needed.

This rendering from the 2018 Cedar Street Small Area Plan shows the potential of existing streets to accommodate automobiles, cyclists, and pedestrians.

Policy 6.6.2: Connect multi-modal transportation network to marinas and ferry dock.

Action 6.6.2.1: Work with local ferry services to plan for increasing use.

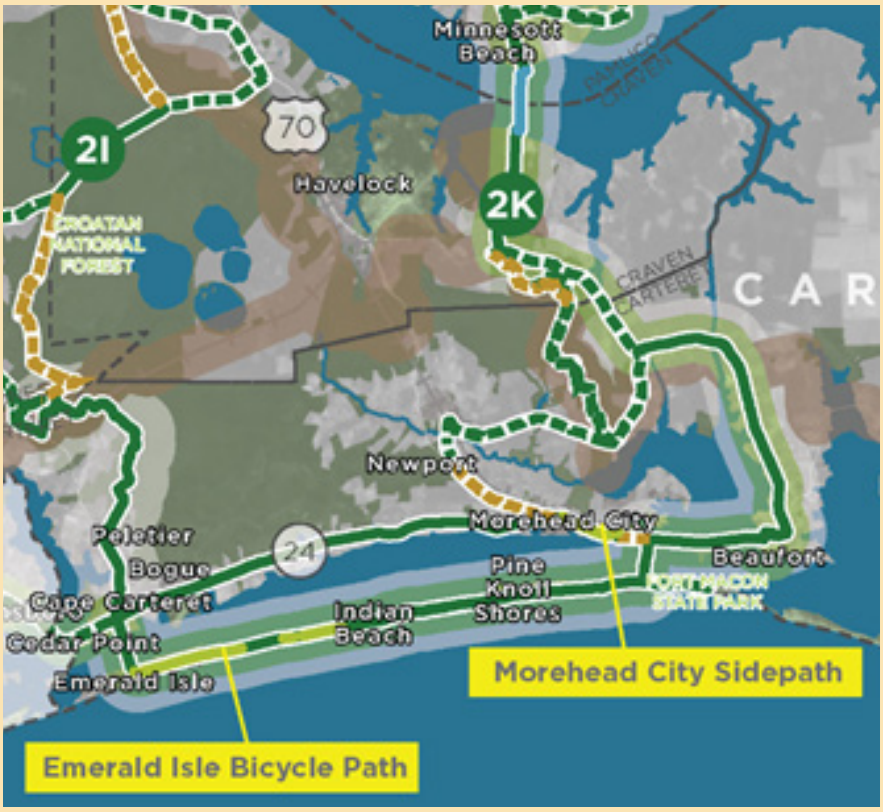
Policy 6.6.3: Increase launch locations for non-motorized vessels.

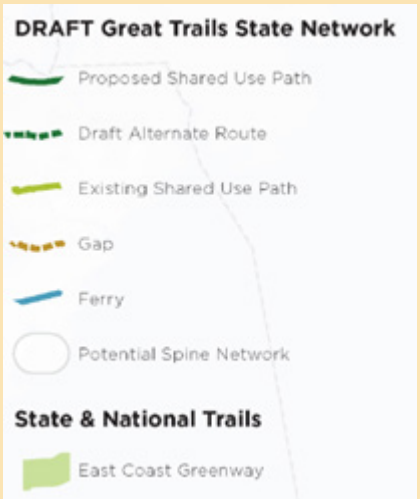
Policy 6.6.4: Expand convenient kayak storage areas.

Current public, CAMA waterfront access points.

Tying into the State Trails Network

The NCDOT is currently in the process of creating a state trails plan to connect all 100 counties and major destinations with a separated cycling- and hiking-dedicated trail facility. At the time of writing, the plan has not yet been adopted, but a draft of the network is shown below. Being a part of this state recreational network has the potential to enhance the quality of life and recreational tourism opportunities for residents and visitors. The East Coast Greenway was incorporated into the system, providing a route to connect pedestrian and bicycle traffic from Beaufort to other parts of the County.





GOAL 7: Town Character

Protect our unique character by enhancing and maintaining our natural resources, recreational opportunities, historic downtown, and cultural resources.

Introduction

Beaufort realizes that its unique character is a fundamental part of its DNA, and contributes to its dynamic community feel for year-round residents as well as being a draw for tourists. The Town's character is an intangible entity, but residents know that the existing neighborhoods, architectural character, downtown, and access to natural resources are important building blocks of this character. By studying, defining, and pledging to maintain aspects of the existing character, Beaufort will protect its character into the future.

Objective 7.1: Preserve the character of Beaufort's built environment.

Policy 7.1.1: Update town ordinances to include design standards that help ensure new development fits its context.

Policy 7.1.2: Identify and inventory character-defining building stock in existing character areas such as the Live Oak Street and Cedar Street corridors.

Action 7.1.2.1: Create a list of contributing building features that the town can incorporate into ordinances.

- Examples include setbacks, parking location, materials, transparency, roofline, and massing standards from building design inventory.
- Incorporate guidance from the Future Land Use Character Areas.

Action 7.1.2.2: Support policies that allow the Cedar Street area to evolve into an arts district.

Objective 7.2: Continue to support downtown as a cultural, economic, and community asset.

Policy 7.2.1: Continue to offer public events and activities downtown and expand offerings to make events more inclusive and accessible.

Policy 7.2.2: Enhance connections between natural and recreational assets and downtown Beaufort for non- motorized users.

Action 7.2.2.1: Identify areas where cycle and pedestrian access between these points is lacking or unsafe and implement upgrades.

Policy 7.2.3: Expand public art opportunities downtown.

Objective 7.3: Preserve Historic Beaufort.

Policy 7.3.1: Continue local-level protections of historic assets and districts.

Action 7.3.1.1: Consider national register and/or local historic preservation boundaries expansions to increase community character.

Action 7.3.1.2: Address historic properties in resiliency planning. Historic properties are among the community assets that should specifically be considered and integrated into resiliency planning.

Action 7.3.1.3: Educate the public about how to access public funding sources to upgrade eligible (usually nonresidential) historic properties.

Action 7.3.1.4: Consider the benefits from additional preservation planning expertise. This could be through hiring a dedicated preservation planner, or perhaps through partnering with other organizations (regional planning organizations, tourism bureau, private consulting firms, etc.) to leverage the expertise of a preservation planner as needed.

North Carolina State Historic Preservation Office

Grants are available to Certified Local Governments through the North Carolina State Historic Preservation Office.

Historic signage

Objective 7.4: Protect existing neighborhoods and Beaufort's small-town charm.

Policy 7.4.1: Implement recommendations from the 2018 Small Area Plan.

Policy 7.4.2: Within the national register boundary, update land development and subdivision ordinances to require archaeological and historic surveys prior to approval of work.

Policy 7.4.3: Protect the Town's residential character through the regulation of Short-Term Rentals.

If the Town pursues the more stringent policy options defined in **GOAL 3: Housing on page 146** regulations of short-term rentals can:

Action 7.4.3.1: Codify standards that address parking, noise, trash, etc.

Action 7.4.3.2: Require that STRs meet their parking requirements with off-street spaces.

Policy 7.4.4: Evaluate existing zoning of undeveloped properties and ensure that it matches with available sewer and public services capacity and the community tolerance for growth.

Objective 7.5: Increase parks and recreation access to increase the level of service for all residents.

Policy 7.5.1: Identify areas under-served by parks (more than 1/2 miles from a park) and incorporate solutions into future park planning.

Policy 7.5.2: During subdivision and land development review, explore opportunities to co-locate conservation areas and recreation areas.

Policy 7.5.3: Balance active and passive recreation opportunities, including areas for pet recreation (dog parks).

Policy 7.5.4: Continue implementation of the Bicycle/Pedestrian Plan, including the creation of multi-use paths (aka greenways) around town (see Proposed Connections on page 157).

Policy 7.5.5: Establish a goal to incrementally increase the percentage of existing and new residential structures within ½-mile of a greenway/bicycle route or park or trail access point.

Action 7.5.5.1: Identify current percentage of existing homes within ½ mile of access points.

Action 7.5.5.2: Determine where potential connections are most needed and where they can be created.

Policy 7.5.6: Maintain and expand recreational facilities and programming.

Action 7.5.6.1: Consider creating a dedicated parks position at the Town.

Action 7.5.6.2: Expand programming for senior and the under-18 demographic.

Objective 7.6: Increase public water and natural resources access while balancing the need for preservation.

Policy 7.6.1: Update the Town Waterfront Access Plan to improve, identify, and pursue existing and additional public access points and amenities.

Policy 7.6.2: Secure street terminations with signage, maintenance, parking areas, simple amenities (ex - benches), and clear demarcation of boundaries.

Policy 7.6.3: Where possible, reclaim street ends that have been encroached upon.

Policy 7.6.4: Pursue extension of existing dead-end streets to provide additional access points and create interconnection opportunities.

Objective 7.7: Minimize light pollution.

Policy 7.7.1: Update Town lighting ordinances to include International Dark Sky standards for all lighting.

The town should strive to increase and maintain public water access points

Policy 7.7.2: Update residential lighting standards to limit light level at property lines in all residential districts and to encourage the use of motion-activated lighting, where appropriate.

Objective 7.8: Continue to beautify Beaufort.

Policy 7.8.1: Implement recommendations from the Beaufort Entry Master Plan

Action 7.8.1.1: Incorporate necessary work identified in the Beaufort Entry Master Plan into the Town's CIP.

Importance of Historic Preservation

An important part of what gives a town or city character and a sense of community is its history. One way to acknowledge this history is by preserving historic buildings and structures that tell the story of how a city has progressed and grown overtime. These structures create a sense of place and connection to the past.

There are economic advantages to preserving old buildings; new businesses such as bookstores, ethnic restaurants, antique stores, neighborhood pubs, food halls, and small start-ups thrive in old buildings. Often buildings built prior to World War II are made of higher quality materials, replacing these structures with similar rare hardwoods is impractical and unaffordable. These buildings were built to last 100+ years where newer construction buildings typically last 30-40 years. When historic districts are stabilized property values increase. Old buildings also attract people and encourage heritage tourism, as can be seen in Historic Beaufort. The following preservation options would help Beaufort reach its goals.

Preservation Options

Neighborhood Conservation Overlay District - A local ordinance intended to preserve appearance by regulating lot size, building setbacks, height, and frontage.

Local Historic Preservation District - A local ordinance that more strictly regulates local historic character. This option requires oversight from town staff and/or a local historic commission. This protection is currently employed in Beaufort.

Shop-Front Overlay District - An overlay district intended to create an active commercial street.

Pedestrian Scale Overlay District - Establishes standards in a commercial or mixed-use district that support pedestrian scaled activity.

GOAL 8: Diversity & Inclusion

Celebrate, recognize, and amplify the voices of our diverse community.

Introduction

Beaufort will continue to expand its efforts to be racially, socially, and economically diverse. It recognizes the need for community participation from every group, and that natural disasters have a disproportionate impact on vulnerable communities. The Town will involve all community members in public engagement processes, and ensure that resources are distributed equitably.

Objective 8.1: Increase public participation from minority groups.

Policy 8.1.1: Set targets for representation on citizen boards and volunteering where minority representation is at least consistent with the Town's demographics.

Action 8.1.1.1: Track demographic information on participants involved in town public engagement events. Aim to have participation that matches town's demographics.

Action 8.1.1.2: Incorporate new public engagement strategies such as community group outreach, neighborhood meetings or pop-ups, and translation services to increase participation among minority groups.

Objective 8.2: Incorporate equitable hiring practices for Town staff positions.

Objective 8.3: Address flooding and slow storm recovery in vulnerable communities.

Policy 8.3.1: Consider a Community Recovery and Development Plan that includes specific recommendations for vulnerable communities. See the Community Recovery Management Toolkit provided by FEMA for more information and case studies.

Policy 8.3.2: Implement a program that provides recovery resources to low-income residents.

Action 8.3.2.1: Partner with the North Carolina Housing Coalition to address localized affordable housing issues.

Policy 8.3.3: Prioritize stormwater infrastructure improvements where it will directly impact vulnerable communities. Some types of infrastructure investments can be

According to the 2020 U.S. Census, approximately

20%

of Beaufort's population is non-white, Hispanic, or minority.

more cost-effective and contextually appropriate than others, like expansion of natural areas or permeable green infrastructure.

Objective 8.4: Celebrate local and regional Black and minority history and historical contributions to Beaufort and the region.

Policy 8.4.1: Provide educational signage at historical sites that illustrates the historical contributions, struggles, and victories of Black and minority residents.

Policy 8.4.2: Encourage National Register nominations to tell the story of underrepresented communities.

Objective 8.5: Support community organizations that represent economically, socially, and racially diverse groups.

Policy 8.5.1: Create and maintain an updated list of community organizations that represent these groups and include them on sunshine list email communications.

Action 8.5.1.1: Identify and address barriers that prevent these groups from receiving Town communications.

Action 8.5.1.2: Prioritize outreach to these groups during public engagement processes.

Policy 8.5.2: Provide Town support for these groups when they host public events.

Objective 8.6: Equitably distribute town funds, projects, and investments.

Policy 8.6.1: Track public investments to ensure they are equitably distributed in the community.

Policy 8.6.2: Establish an equitability standard for projects using town funding.

Case Study: City of Creedmoor

The City of Creedmoor established the Creedmoor Diversity, Equity, and Inclusion Commission to advance the principals of diversity, inclusion, and equity within the municipal and extraterritorial jurisdiction of Creedmoor. The responsibility of the commission is to make recommendations to the City Manager and the Creedmoor Board of Commissioners on how the City of Creedmoor can better inclusively serve its citizens. Initial commission actions have involved the development of policies to be used in hiring decisions in an attempt to encourage the employment of qualified *people regardless of race.*

Mission Statement:

To create an environment where all people can find representation and solidarity in community policies, programs, and initiatives. We envision a community where diversity, equity and inclusion are:

- Recognized as shared values and incorporated into event programming, resource allocation, and the development of all policies and practices.
- Tools for recruitment, retention, and support for diversity in all city endeavors.
- Pillars for collaboration with community leadership to address local interests and needs.

Beaufort's African American History

Beaufort, North Carolina is rich in African American history, but little research has been completed on the subject. In the 18th century, the Town's black population consisted entirely of slaves; they may have played a large role in the development of the Town. However, there is no written history and as a result most likely they will remain anonymous.

After the 19th century, five out of 122 free blacks had become property owners. Occupations for free blacks ranged from house-carpenter, shoemaker, fisherman, farmer, and musician. After the siege of Fort Macon, Beaufort had become a safe haven for freedmen or refuge slaves; a refugee camp was established at the north side of town. The area north of Cedar Street was developed as a camp or "tent city, earning that area the nickname of "Union Town".

Union Town was bounded by Broad Street and Cedar Street on the south, Turner at the west, Town Creek or Mulberry Street at the north, and Live Oak Street at the east. The neighborhood consisted of homes, churches, stores, fraternal lodges, and their own schools.

The late 19th century brought job opportunities for blacks in the mullet fishery and later in the menhaden factories. This enabled the black population to rebuild and improve their Reconstruction-era neighborhood. Economic opportunities continued to grow throughout the 20th century.

The late 20th century brought more change to Beaufort's African American community; Abe Thurman was appointed Town Commissioner in 1992 and Charles MacDonald as Chief of Police.

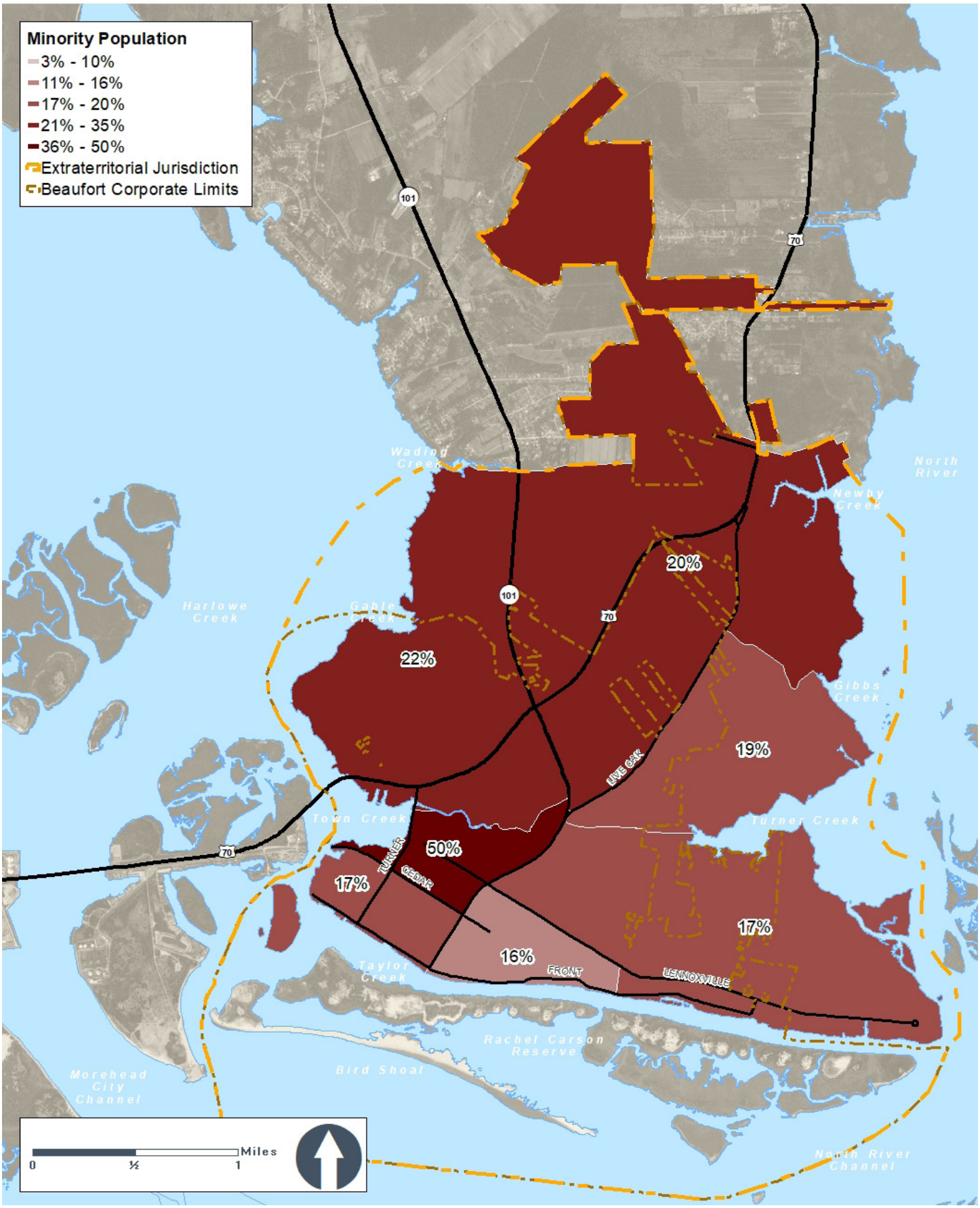
Today the African American population makes up 21% of the population in Beaufort, with majority of the African Americans living in the area north of Cedar Street. This community has been surveyed and may meet the criteria for being listed on the National Register of Historic Places.

Source: Beaufort NC's African-American History website by Peter B. Sandbeck and Mary Warshaw

Black fishermen 1907
Source: Beaufort's NC African-American History website

Abe Thurman, Beaufort's First Black Commissioner.
Source: R.A. Fountain

Minority Population



Minority population is not evenly distributed, as shown in this 2010 U.S. Census dataset.


FREE DAILY
BOAT PARKING
WELCOME!
• For non-motorized vessels only
• Please keep vessels within roped area
• 24-hour time limit
• All dinghies, please use designated dinghy dock
• All other motorized vessels, please use Beaufort Town Docks
Vessels remaining longer than 24-hours will be removed.
To retrieve, call Town Hall 252 728 2141 M-F, 8 am - 5 pm.
BEAUFORT
NORTH CAROLINA
SLAND EXPRESS FERRY SERVICE

6

Future Land Use and Character Areas

The Future Land Use Map (FLUM) and character areas represent the community's vision for the future and are one of the factors that guide decision makers and town staff in future rezoning, land use, or permit issuance decisions. A FLUM is also valuable for communicating public investment priorities (including possible future extensions of public facilities and services) and the community's vision to private sector investors. The FLUM is descriptive and not prescriptive. It identifies the predominant land use types and character intended for different parts of the study area, but as conditions evolve, other recommendations may be more relevant.

The FLUM will help guide the transition from present day to the desired future state. It is not advisable to immediately rezone properties to reflect the FLUM, but rather to evaluate each rezoning request individually based on a variety of factors, including the request's individual merits, surrounding context, presence (or absence) of adequate public facilities, potential financial impact (or burden) of the project, vested rights, environmental impact, timing, etc.

The character areas should also be used

to further refine the land use vernacular and preserve and enhance the local character. These character areas also provide direction for updates to the Town's land development regulations to help make the community vision a reality.

Living "on the Water"

An especially important consideration in Beaufort is the relationship of the use or structure to the water and environment. Some uses are water- dependent (marinas, commercial fishing operations, etc.) and must be located in these vulnerable areas. In this case, "vulnerable" refers not only to the impact on the natural environment, but also the natural hazards vulnerability that the use or structure might encounter due to storm surge and other water-related hazards. Other uses are not water- dependent, such as general commercial operations, or residential units, and should not be located or allowed in areas where they will have a negative impact on the natural environment. This negative impact can occur both in present day (use of fertilizers leading to nutrient pollution of local water bodies, increased stormwater runoff because of increased impervious surfaces, etc.) or in the future (loss of natural shoreline as sea level rises and erosion prompts owners to convert natural shoreline to altered shoreline which reduces natural habitat, decreases water quality, prevents coastal marshland migration, etc.).

Even elevating a structure "out of" any regulatory floodplain can still have a long-term negative impact on the natural environment, especially if natural shoreline is converted to an artificial shoreline to prevent erosion from undermining structures. In these instances, a better approach might be to prohibit the location of non-water dependent uses in areas that will likely experience these conditions. Many dwellings in Beaufort are already located in these areas and developers will confirm that the premium lots are right on the water. A community conversation is needed about the role of the public sector in encouraging development in these locations (through the extension of public services, primarily sewer service, into these higher risk or higher maintenance areas) as well as options for accommodating individual profit and development, but perhaps with a greater weight given to community values and long-term considerations.

Some uses, such as wastewater treatment plants or sewer lift stations, are caught between competing priorities. Placing these facilities in low-lying areas is advisable from the perspective of operations, since water flows to the lowest point. However, these low-lying areas are also more prone to flooding and will become increasingly vulnerable as seas continue to rise and storms become more severe. When a wastewater treatment plant or sewer lift station is affected by flooding, it can have significant and severe impacts on the environment and human health. The placement and/or expansion of these uses and structures should be carefully considered in order to ensure operational and financial viability over the lifespan of the infrastructure balanced against current and future environmental vulnerabilities.

Avoiding Preemptive Zoning

The temptation often exists to preemptively up-zone all property fronting a highway or major road to widely allow commercial uses. The argument is usually that this highly-visible and accessible property is suited to commercial use and that by speculatively up-zoning property, it will generate new development and investment, and possibly even diversify the economy or balance of land uses. The reality is that speculative up-zoning does not create quality places and developers and business owners will pursue rezoning to suit market needs when necessary.

Is preemptive up-zoning ever advisable? In extremely limited instances – for example, perhaps for a specific, economic development catalyst project or other government-sponsored catalyst site that involves major public investment.

What are the effects of preemptive up-zoning? Preemptive up-zoning often creates traffic congestion and degrades quality of life rather than generating lasting wealth. Strip commercial zoning creates sprawling, low-quality commercial development that is in excess of market demand and thus does not attract high-value tenants. It results in a congested, automobile-dependent area that never achieves the commercial density or mass necessary to build a place the community will value. The excess of commercially zoned land also depresses the overall price of that land, leading to reduced revenue from land sales per acre.

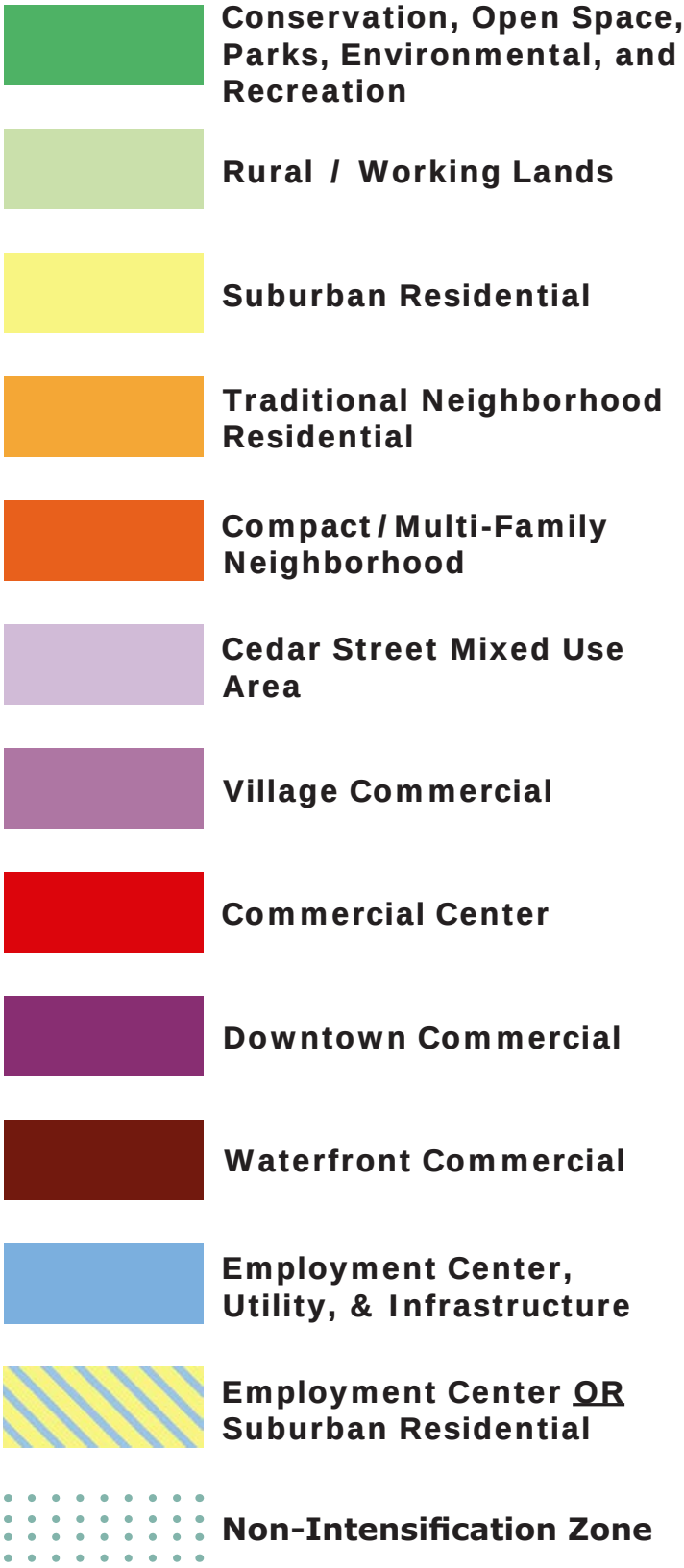
Is there a better solution? Towns should only up-zone properties abutting existing commercial development in areas where the appropriate conditions exist. The necessary conditions include but are not limited to:

- A supportive street network with maximum block length standards (to disperse traffic);
- Shared driveways that serve multiple businesses (to reduce traffic congestion);
- Cross access that connects adjacent businesses;
- Sufficient sewer service;
- Quality design standards;
- Pedestrian facilities;
- Fire suppression infrastructure;
- Public spaces; and
- Proximity to customers.

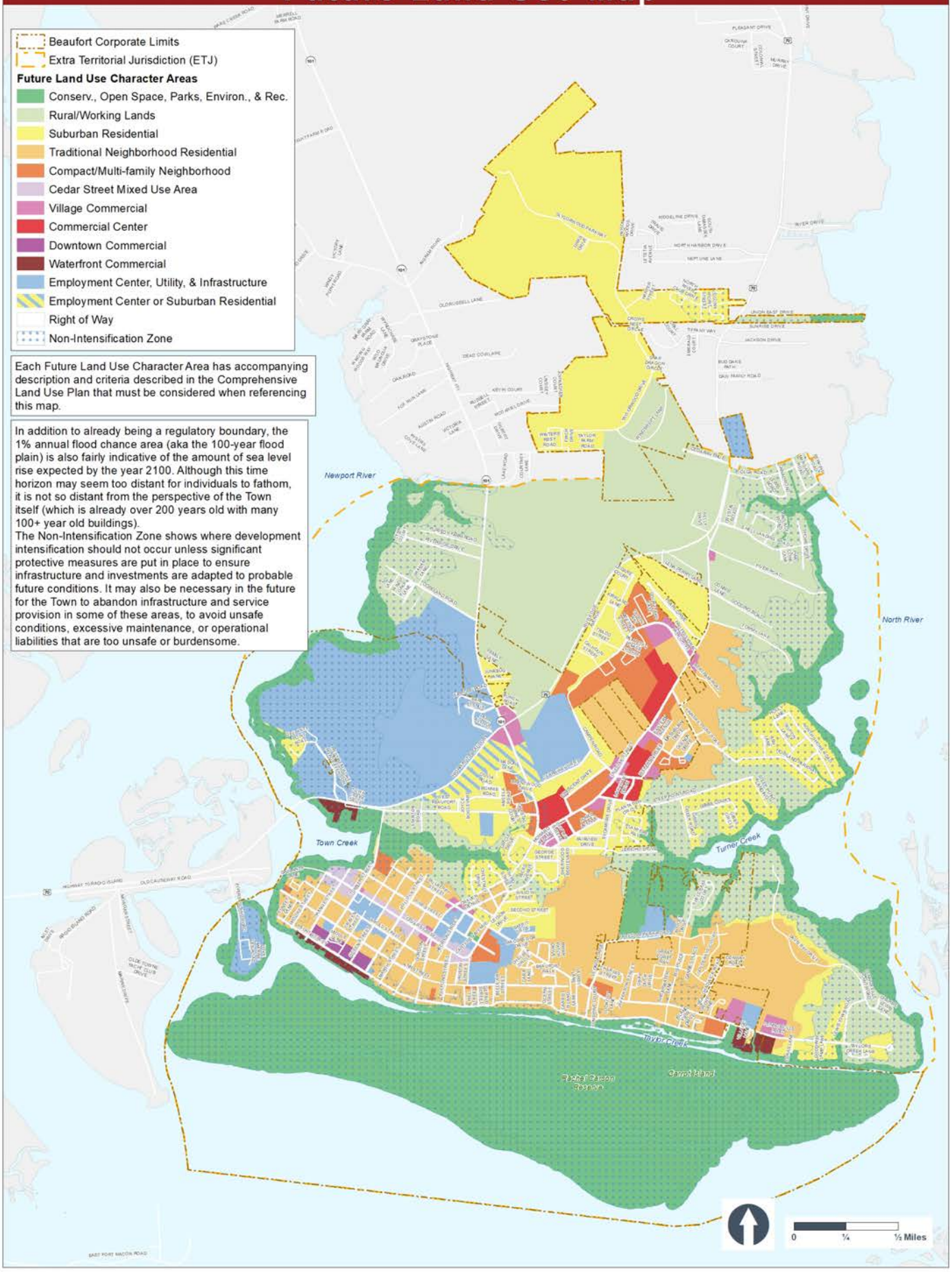
Future Land Use Map and Character Areas

The following pages provide an overview of Future Land Use Character Areas. While typical and potential uses are described, these lists are not exhaustive or prohibitive. For instance, some uses may be appropriate in many (or all) future land use character areas. These might include uses such as government maintenance buildings and small utility substations (electric, natural gas, sewer lift stations, water towers, etc.). However, some uses should be carefully considered so that they do not unintentionally create a demand for development in inappropriate areas. For instance, institutional uses such as churches, primary and secondary schools, or clinics might be appropriate in most residential areas, but if located in rural areas would invite inappropriate additional development. The size of operations is also a consideration. For example, a small church might be appropriate in a rural context, but a mega church may not. It is up to the governing boards at the time of the application to decide what will most accurately promote the goals established in this plan.

Please note that are areas with a blue and yellow hash pattern. This indicates areas where both the Employment Center character or Suburuban Residential character would be demeaned appropriate, so long as the type of development meets the needs of the City of Beaufort.



Future Land Use Map



Traditional Neighborhood Residential

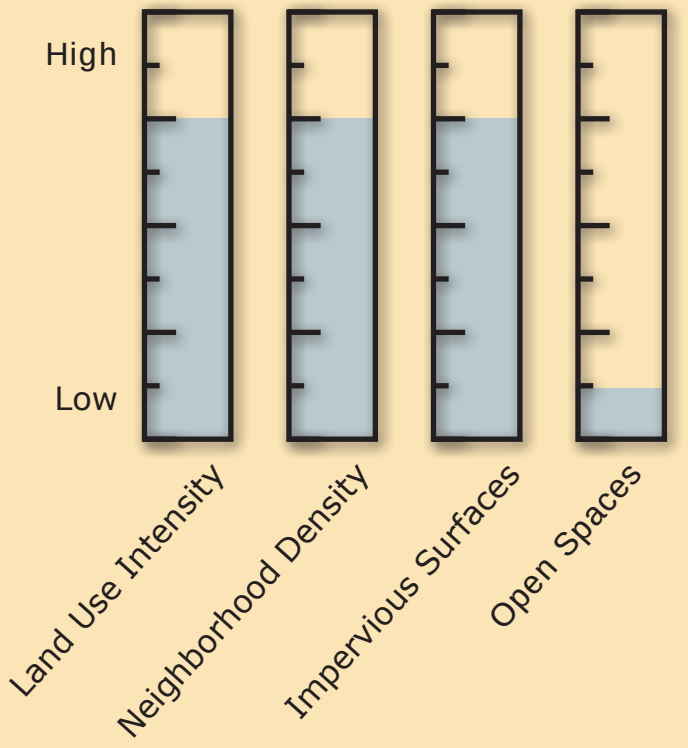
General Description:

These neighborhoods are walkable with structures situated close to each other. The residential areas exemplify the character found in the historic district and closer to downtown. Lots are typically smaller and closely packed with residential densities generally around 3 to 5 dwelling units per acre, although some areas may approach 7 dwelling units per acre. The historic development pattern prioritizes people and accommodates cars. Off-street parking is often to the side or around back, with homes pulled up close enough to the street to allow neighbors to engage with people on the sidewalk.

Streets and Circulation:

Streets are typically low volume and prioritize pedestrians, with sidewalks on both sides and street trees whenever possible. Connectivity is high because blocks are generally 500’ or less. On-street parking is either formal or informal, depending on context. Low speed limits allow bicycles to share the travel lanes.

Comparative Dashboard



EXAMPLE USES:

Typical Uses:

Primarily single family detached residential, with a mix of other highly compatible residential uses scattered throughout, including duplexes, accessory dwellings, garage apartments, and occasionally even larger homes that have been converted to discrete multi-family structures or even small bed-n-breakfast businesses.

Traditional Neighborhood Residential

Other Concerns:

In the historic district, these neighborhoods have significant restrictions that preserve their quaint appearance and character. Although there may not be full support to extend all of these requirements to other areas, it may be possible to extract some of the more defining characteristics (buildings close to the street, parking in the rear, street trees, narrow streets, etc.) and bring those design elements to other neighborhoods.

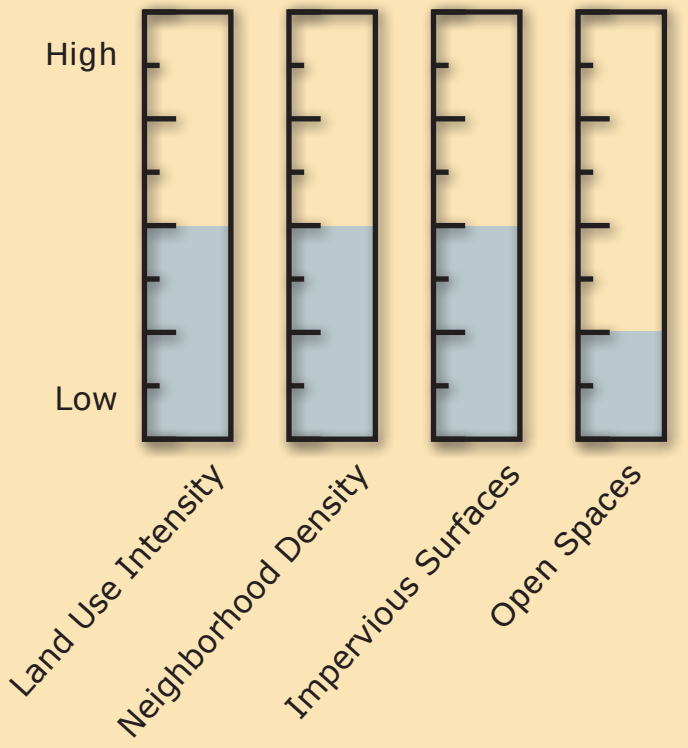
Examples of the traditional neighborhood development style.

Suburban Residential

General Description:

These neighborhoods typically have larger lots or shared open spaces and common areas with a lower overall residential density than in the Traditional Neighborhood. The neighborhoods are still walkable from house to house, but most households probably depend primarily on automobiles for daily trips. Off-street parking is typical of a suburban residential neighborhood and various configurations exist. Residential densities typically range from around 1-3 dwellings per acre, although some developments will exceed that either in localized areas (especially if there are shared open spaces, amenities, or common areas) or overall. In neighborhoods with larger lots, open space is generally on private lots rather than communal.

Comparative Dashboard



Streets and Circulation:

These neighborhoods have medium levels of connectivity with low volume, low speed routes. Effort should be made to increase connectivity except in instances where it would excessively harm environmentally sensitive areas. Block lengths should not exceed 650’ on a side unless absolutely unavoidable. Pedestrian facilities should be provided on at least one side of every street. Bicycles can share lanes on low volume streets, but on arterials dedicated (and preferably separated) facilities should be provided.

EXAMPLE USES:

Typical Uses

Primarily single family detached residential, with an occasional mix of other highly compatible residential uses scattered throughout, including duplexes, accessory dwellings, and garage apartments. Sometimes, but more rarely, there may also be duplex neighborhoods.

Uses if Context Appropriate

- Institutional uses (churches, schools, hospital, government, etc)
- Accessory dwellings
- House-scale multi-family residential, patio homes, or small townhome developments - very occasionally.

Suburban Residential

Other Concerns:

Extending public facilities (water, sewer, etc.) to these areas may place an increased strain on maintenance budgets since the lower densities and lower taxable value per linear foot of public facilities may not cover the costs of maintenance. This land use type consumes land a greater rate and with fewer homes than the other residential future land use character areas.

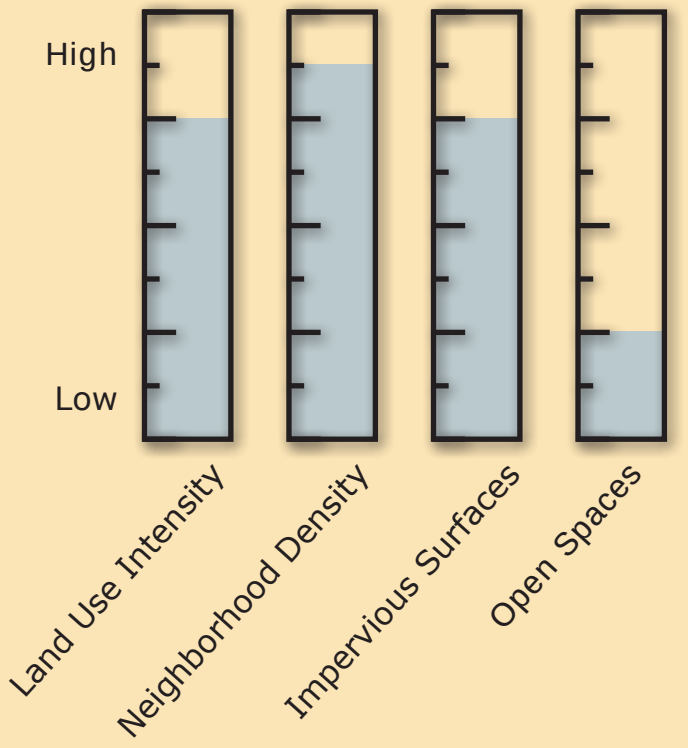
Examples of Suburban Residential.

Compact/Multi-Family Neighborhood

General Description:

These higher density areas are appropriate for multi-family residential dwellings such as apartments, condominiums, townhomes, duplexes or other attached residential. Densities should be higher than all other residential districts and as such will require less land to accommodate more households. Where waterfront adjacent, buildings are likely to be oriented to the water with their backs turned to the street. In all other locations, structures should be pulled up to and oriented to the street (e.g. – individual entrances for ground floor units, stoops or porches, living areas located on the street side of the unit, etc.) with parking in the rear or internal to the development and not visible from the street. Balconies, porches, and decks should also be provided to encourage interaction with neighbors. When these higher density neighborhoods are designed in this way, it enhances public safety by providing a sense of "eyes on the street" while also encouraging the sense of community that residents value so much. These neighborhoods should also have adequate pedestrian facilities and convenient access to public, semi-public, or private open spaces and recreational facilities. Location adjacent to commercial centers is a win-win because

Comparative Dashboard



EXAMPLE USES:

Typical Uses:

Primarily higher density (relatively speaking) attached residential uses (apartments, condominiums, townhomes, patio homes, etc.) with duplexes also appropriate as long as they can be provided at high enough densities to be context appropriate. Single family residential and other low density uses should be discouraged as it does not create the density of households to support adjacent commercial areas.

If Context Appropriate:

- Institutional uses (churches, primary or secondary schools, hospital, government buildings, etc.)
- Hotels
- House-scale multi-family residential and duplexes, if higher density
- Low-intensity neighborhoods serving commercial uses on the corners of higher activity intersections

Compact / Multi-Family Neighborhood

Examples of Compact/Multi-Family Neighborhoods.

it promotes walkability and creates easy access for businesses to the customers that support them. Public sewer is a requirement, but long extensions to distant properties should be avoided unless higher density uses are specifically desired, planned for, and immediately anticipated to fill in the stretch between activity nodes.

Streets and Circulation:

Streets are typically low volume and prioritize pedestrians through the provision of wider sidewalks on both sides. Street trees soften the streetscape and further enhance pedestrian comfort. Street trees may be in tree grates where sidewalks are paved up to the curb – occurs when adjacent to on-street parking. Because of the high density of pedestrians and proximity to commercial centers, connectivity should be high, utilizing a grid network which very rarely has blocks longer than 500'-600' on a side. On-street parking should be formalized (striping, landscaped tree islands every so often, etc.) and will typically serve visitors. Bicycles should have dedicated facilities but may share the vehicular travel lanes where speed limits and traffic volumes are low enough to accommodate them safely. Eventually, some of these areas may incorporate transit service. In the interim, it is important to consider centralized school bus stop locations.

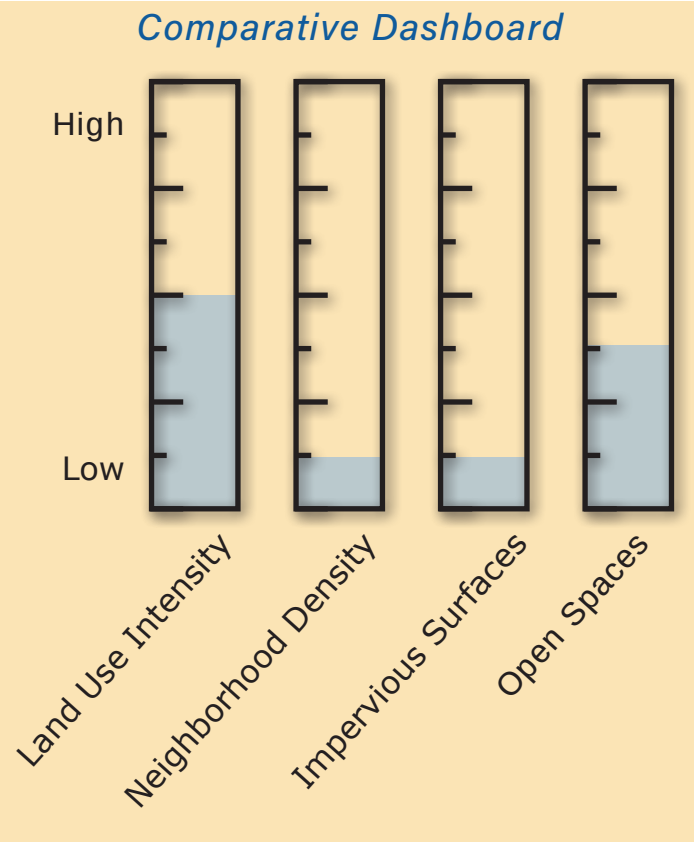
Other Concerns:

In Beaufort, these higher density areas are often limited by density caps as well as minimum parking requirements and restrictions on structure height. Parking decks are typically not viable in the current market. These density-limiting factors reduce the potential for these areas to provide their maximum value in terms of maximizing public infrastructure investments (water, sewer, sidewalks, etc.), and being a potentially more affordable option for residents (less density means higher cost per dwelling because land costs are fixed). Clustering these higher density land uses directly adjacent to commercial nodes and public parks can maximize walkability and livability.

Rural/Working Lands

General Description:

Traditional Rural/Working lands (agriculture, silviculture, ranching and livestock, old farm fields, and homestead farms) predominate this character area. It also includes areas that are vacant or used for hunting or other non-residential, non-urban uses. These areas are generally not served by sewer service, although some suburban areas may be already. Due to typically poor septic infiltration potential for local soils, they are undesirable for residential or other types of development. If homes are present, they are often on very large lots or have been carved out of a larger tract of farmland. On-site septic treatment is one limiting factor to residential density, although the Town may also choose to restrict it further in the interest of maintaining rural character and/or maximizing use of public services (water, police, fire, emergency services, etc.).



This character area may also overlap with the Non-Intensification Zone in more urban or suburban contexts within Town. This indicates that although these areas may already have or be entitled for development, development denser than what is currently vested should be avoided and any public infrastructure in these areas should be minimized as it will be susceptible to coastal and climate hazards.

This character area encompasses the majority of the land between Hwy 101 and the new Hwy 70. It may be possible to serve this area effectively with sewer and it is generally some of the higher ground within the Town's jurisdiction. If sewer

EXAMPLE USES

Typical Uses:

Primarily silviculture, ranching and livestock, old farm fields, and other agricultural uses and supportive structures. Occasionally homestead farms or isolated large-lot single family detached residential. Schools, hospitals, and other residential attractors should be discouraged and instead focused towards the Town, where services exist.

If Context Appropriate:

» Small footprint institutional uses (churches, government buildings, etc.)

connections can be extended into these farmlands and development occurs, it should only be with an appropriate network of collector streets that will tie together the two main highways.

Streets and Circulation:

Streets in these areas are typically not curb-and-gutter (aka "ditch section"). There is typically not enough pedestrian activity to justify sidewalks, although if densities approach those of the Suburban Residential future land use character area, then they should be required in a similar amount. Blocks should not exceed twice the maximum length of the Traditional Neighborhood Residential character area. This is especially relevant when connecting to existing streets which are or will be thoroughfares or collectors of any sort, including residential collectors. The appropriate block length will allow these neighborhoods to evolve, redevelop, and become denser as the Town grows. So, while this connectivity may seem excessive in the present, it will preserve the ability for a more appropriate future condition to occur which is otherwise lost if block lengths are too long or streets too curvilinear. As always, streets should be on a grid and new neighborhoods should stub out to adjacent properties unless it would have an extremely negative impact on the environment.

Other Concerns:

Extension of public facilities (especially sewer service) to these areas for a single, remote development is generally not cost effective for service providers and can also create the incentive for further sprawl to develop along the extended public facilities. It can create a hodgepodge of development that is not conducive to focused activity centers. Significant consideration should be given to potential impacts before a decision of this type is made. If lower density residential development is allowed in these areas, it is important to ensure that appropriate street connections are made so that as public facilities are extended and the appropriate connectivity exists to serve higher density redevelopment and infill development as these places evolve. Where these areas overlap with the Non-Intensification Zone or other areas prone to inundation as seas rise, public infrastructure should not be extended.

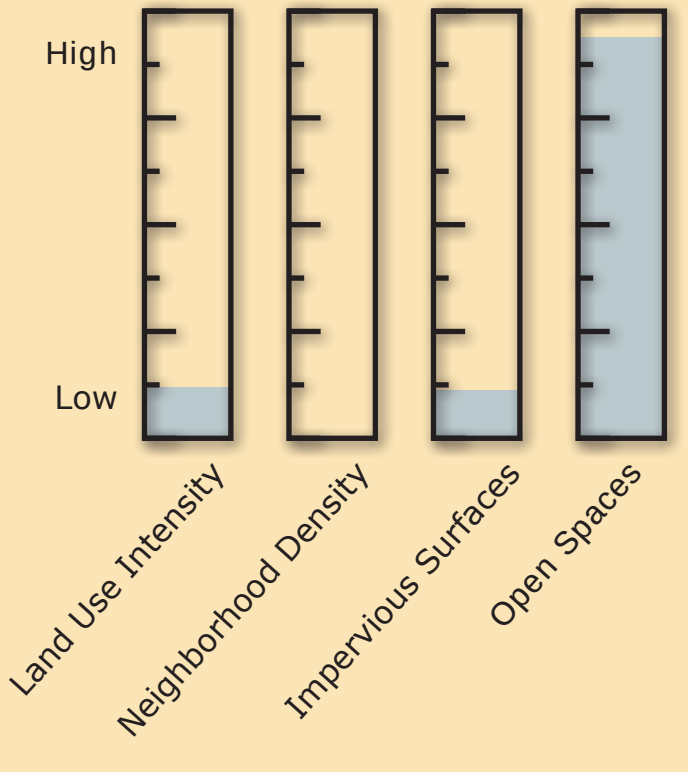
Examples of Rural/Working Lands.

Conservation / Open Space / Parks / Environmental / Recreation

General Description:

Floodplains, wetlands, and sensitive environmental areas (shoreline, coastal marshes, etc.) are important to the identity and natural character of the community. In fact, the natural environment is probably one of the top three reasons that people treasure Beaufort so much. These natural spaces also provide vital community support services, such as floodwater storage, air purification, wildlife habitat and nurseries, passive recreation, storm protection, and others. This character area contains several types of typically "undevelopable" areas, in the traditional sense, as well as other areas where traditional development should not occur or where development should be low-impact, community oriented, and/or recreation-oriented. Great care should be taken to ensure development in these areas does not degrade the natural environment and that public investment does not encourage development of these areas. At some

Comparative Dashboard



EXAMPLE USES:

Typical Uses:

Traditional parks, such as sports fields, playgrounds, public water access points, or recreation facilities, may be appropriate in some locations. Open space may include passive parks, wildlife viewing areas, natural area access, or low-impact walking or bicycling trails. Environmental areas are those sensitive, natural areas that should not be developed in the traditional sense, and if they must be, then development should have as little impact on these sensitive areas as is absolutely necessary. This includes regulatory floodplains, shorelines, and coastal marshes and wetlands, where the highest and best use may be the accommodation of floodwaters and/or natural habitat.

If Context Appropriate:

- Water dependent uses (marinas, boat launches, public water access, docks, boat houses, piers or jetties, fishing operations, ferries, etc.)
- Public restrooms or public pavilions
- Interpretive center

point in the future, conversations may also be needed about the potential costs and consequences of armoring or retraction of public services from areas that are environmentally vulnerable, especially if those areas are projected to be even more vulnerable as time passes.

Streets and Circulation:

Public streets should be very limited in these areas. Driveways, if unavoidable, should appropriately handle stormwater so that it does not degrade the environment. Pedestrian and cyclist movement is typically by trails or sidewalks.

Other Concerns:

The natural environment has been clearly identified by the community as one of their most valued assets. Any efforts to protect or enhance it, especially efforts that restore water quality or natural habitat, will no doubt be embraced. Ultimately, the economy of Beaufort rests on people wanting to live in a beautiful place. The natural environment, built environment, and people of the community make it beautiful.

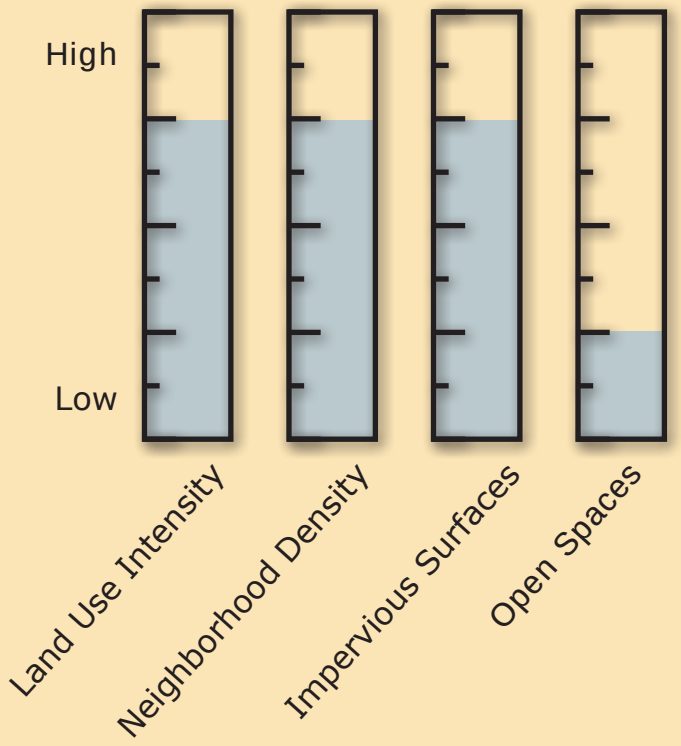
Rachel Carson Reserve

Cedar Street Mixed-Use Area

General Description:

These areas have a mix of non-residential and residential uses that serve the existing neighborhood and the greater area. These sites are occupied by single-family attached dwellings, duplexes, apartments, lofts, condominiums, and commercial uses such as retail, office, business services, and personal services. Density is medium-to-high, similar to traditional neighborhoods near the downtown area. The area is walkable and good for cycling, with a few neighborhood-oriented businesses. Structures should front the street to enhance public safety by having "eyes on the street" while parking should be located in the rear to promote walking and biking. Public water and sewer services are necessary.

Comparative Dashboard



Streets and Circulation:

Streets are typically low volume and prioritize pedestrians through the provision of sidewalks on both sides. Street trees soften the streetscape and further enhance pedestrian comfort. Connectivity is high because of the grid network which very

EXAMPLE USES:

Typical Uses:

Medium- to high-density residential dwelling units such as single-family homes, duplexes, apartments, townhomes, condominiums, and neighborhood serving commercial, retail, services (e.g. – brew pub, restaurant, small stores). Pedestrian oriented commercial uses such as cafés, boutique shops, hardware stores, flower shops, and personal care businesses. Vertical mixed use, including upper-story residences or offices, are appropriate.

If Context Appropriate:

- » Neighborhood-serving, small-scale commercial uses
- » Accessory dwellings
- » House-scale multi-family residential
- » Small hotels or bed-n-breakfasts

rarely has blocks longer than 500’ on a side. On-street parking serves both visitors and residents. Bicycles will have dedicated facilities but may share the vehicular travel lanes where speed limits and traffic volumes are low enough to accommodate them safely. It is important to prepare the area for potential future transit.

Other Concerns:

Vertically integrating residential uses with commercial uses can maximize walkability and livability. Nearby public parks and access to the water provide outdoor recreational opportunities. It is possible that in the future, Cedar Street becomes a second downtown hub similar to Front Street.

Examples of Cedar Street Mixed-Use Areas.

Village Commercial

General Description:

These areas have small-scale non-residential uses that serve the neighborhood and sometimes even a greater region. Often it may only be three or four corners of an intersection or one large, multi-tenant compound, but sometimes larger geographic stretches may also be appropriate. Sites, structures, and streets are human-scaled. Buildings may be setback from the street, particularly if it is a previously residential structure that has been converted for a commercial use. It may also be appropriate to have buildings pulled up to the street, with parking in the rear, especially at busy intersections or in particularly active nodes.

Streets and Circulation:

Streets should have good pedestrian facilities to support walking from businesses-to-business or from home-to-business. Pedestrians are prioritized, but automobiles are accommodated, and

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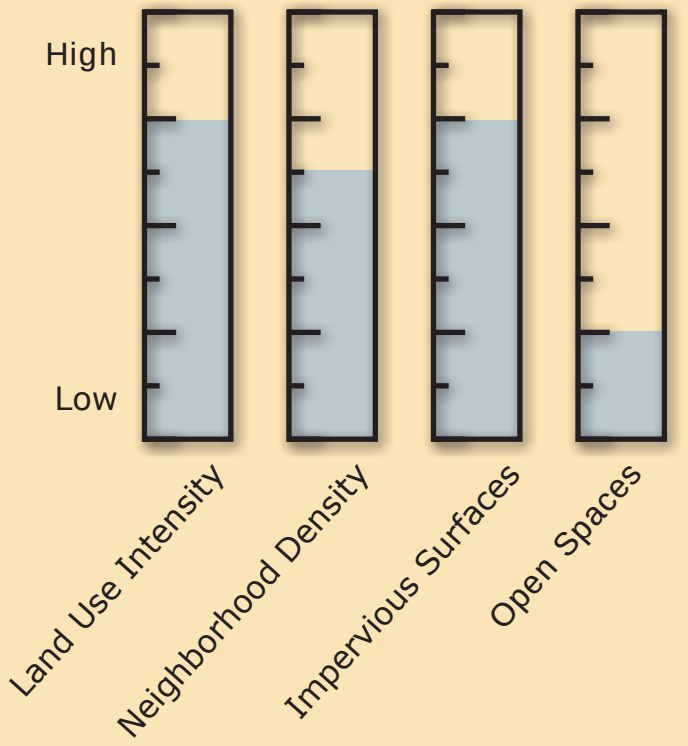

EXAMPLE USES:

Typical Uses:

Smaller footprint, lower intensity, neighborhood serving commercial, retail, services, or offices. Pedestrian-serving uses (boutique shops or fitness studios, personal care, arts) are more appropriate than automobile-oriented uses (vehicle or machinery repair, rental and service, commercial nurseries or lumber yards, fast food restaurants, drive-thru banks, etc.). Upper story dwellings (aka "live/work") are also appropriate.

If Context Appropriate:

» Institutional uses (churches, schools, hospital, government buildings, etc.).

» On parcels directly adjacent to this area, multi-family residential may be appropriate, potentially providing customers for local businesses.

» Higher density residential development, whether as detached or low-impact attached residential is usually appropriate within a ¼ mile walking distance of these areas.

Village Commercial

might even have a transit stop nearby. Accommodating a mix of transportation options is important to being accessible to customers. Blocks should rarely, if ever, exceed 500 feet on a side so that they are walkable and might even be able to one day evolve into a condition similar to Downtown Commercial.

Other Concerns:

Depending on context, some of these places may evolve into higher activity Downtown Commercial areas some day in the distant future, and future infrastructure projects should support that.

Examples of Village Commercial

Commercial Center

General Description:

These areas have large-scale non-residential uses that serve the entire community and larger region. These sites are often occupied or anchored by a large tenant ("big box") and the development may span the entire block. Often it is a multi-tenant development with outparcels and large swaths of shared parking, but it can have other, more pedestrian-friendly configurations, as well. Buildings are generally set back from the public street and often front on individual or shared parking lots. Some developments may have buildings pulled up to the street, with parking in the rear, especially at busy intersections or in particularly active nodes that are accessible by nearby residents via walking. However, these places are typically automobile-oriented, generate large volumes of traffic, and are not particularly walkable.

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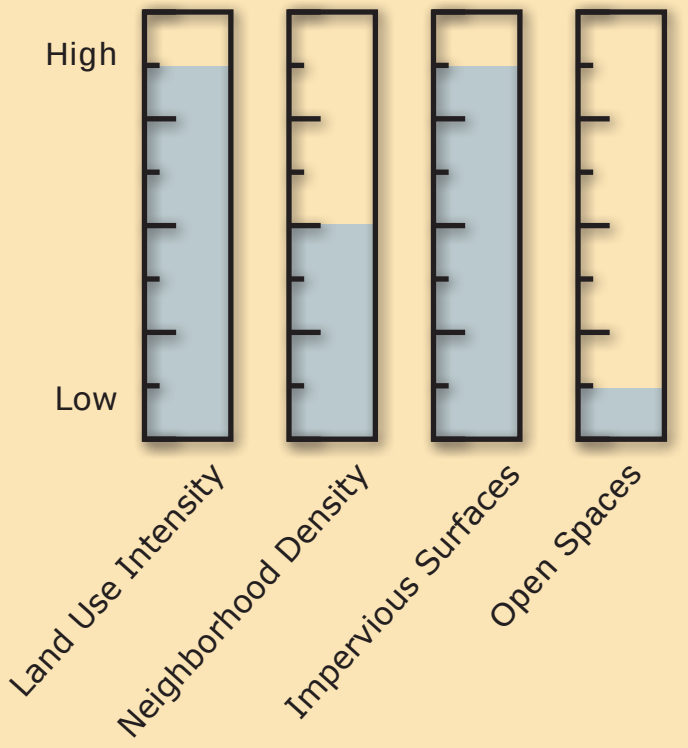

EXAMPLE USES:

Typical Uses:

Large footprint, higher intensity, regional commercial, retail, services, or offices, including less pedestrian friendly uses such as vehicle and machinery repair, sales, and rental, lumber yards, commercial nurseries, fast food restaurants, etc. Hotels are also appropriate. Automobile-dependent businesses predominate.

If Context Appropriate:

- Institutional uses (churches, primary or secondary schools, hospital, government buildings, etc.), provided they do not detract from the overall commercial nature of an area.
- On parcels directly adjacent to this character area, multi-family residential is often appropriate, particularly if it is walkable to nearby businesses. Higher density residential development, whether as detached or attached residential, is usually appropriate within a ¼ mile network walking distance of these areas.
- Upper story dwellings (aka "live/work") may be appropriate in extremely limited instances.

Commercial Center

Streets and Circulation:

Streets should be (or have easy access to) higher volume streets or highways. Business frontages should have pedestrian connections to each other and to the surrounding sidewalk network, even if walking is not as convenient because of the longer distances. Automobiles are usually prioritized, but pedestrians should not be forgotten. If developments use extensive private drives or have adjacent parking areas, cross-access (automobile and pedestrian) should be required to adjacent non-residential or multi-family residential uses, in order to reduce traffic congestion on the main roads. Due to the high attraction of these centers, there might even be a transit stop nearby one day. Blocks should not exceed 700' feet on a side. If they do, the site may need to be redesigned to accommodate the public street network. Landscaping and proper stormwater management are key to ensuring attractive parking areas that do not contribute to excessive runoff.

Other Concerns:

Maintaining connectivity through these developments and to surrounding and adjacent neighborhoods and parcels is important. Allowing these developments to connect only to the main thoroughfare will contribute to additional traffic congestion as neighboring developments will have to travel the major thoroughfare to enter through the front, instead of having access from the sides and/or rear of the parcel. The connectivity, longevity, and public utility of the public street network must be a top consideration during the development process. Commercial areas are developed and redeveloped, but the right-of-way network established at the subdivision or site plan stage of development defines the built environment into the forseeable future and beyond.

Examples of Commercial Centers

Downtown Commercial

General Description:

This area is characterized by walkable, active streets with high activity in the day and night. It is the social hub of the Town and is a major attraction, not only for its historic development character and beautiful streets, but also for the activity and pleasant, pedestrians-first environment. Comfortable outdoor public spaces, dining, and shopping abound. Shops are primarily small footprint, boutique, local operations. The tightly packed businesses maximize public infrastructure and services and likely generate more taxable value per linear foot of infrastructure than any other location in Town. The buildings are pulled close to the sidewalks and directly interact with the public right-of-way. Parking is at a premium and is located primarily in formalized on-street spaces or in shared or public lots in the rear yard or on separate parcels nearby.

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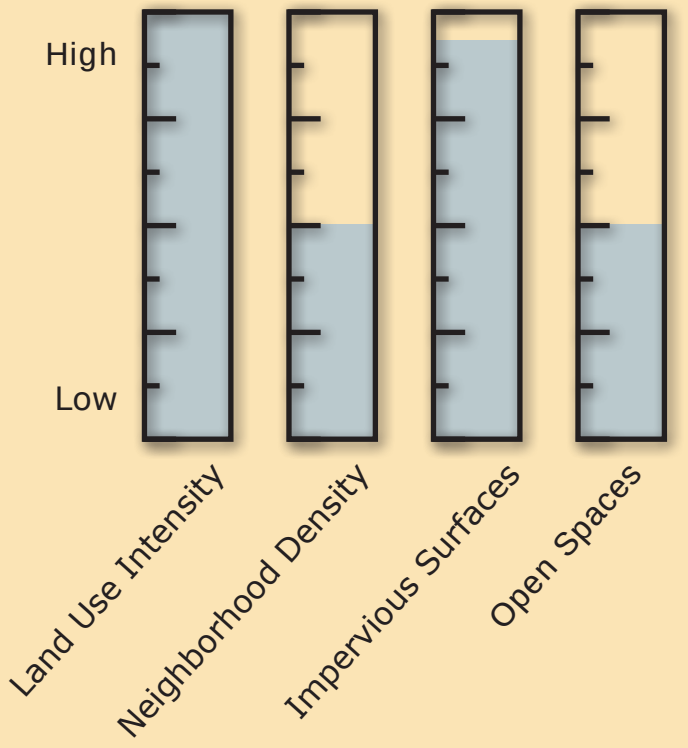

EXAMPLE USES:

Typical Uses:

Active storefront uses (retail, restaurants, shopping, etc.) are a must, but it's not uncommon to have other commercial, office, service, or even residential uses on upper floors. Accessory uses that cater to the public (instructional classes, etc.) are appropriate, too. Anything that encourages visitation, activity, relaxation, dining, and/or recreational shopping is encouraged. Drive-thru facilities (banks, drive-thru restaurant, etc.) or low-activity uses that do not cater to the general public (churches, schools, offices, etc.) or are by appointment only (dentists, architects, hair salon, etc.) and are rarely, if ever, appropriate on ground floors.

If Context Appropriate:

- On parcels directly adjacent to this character area, multi-family residential may be appropriate, particularly if it is likely to support adjacent businesses.
- Higher density residential development, such as detached or low-impact attached residential is usually appropriate within a ¼ mile walking distance of these areas.
- Any development in or near this district should consider historic character and development requirements.

Downtown Commercial

Streets and Circulation:

Streets have exceptional pedestrian facilities to support walking from business-to-business or from residence-to-business. Pedestrians and cyclists are prioritized, but automobiles are accommodated. Landscaping and street furniture (benches, trash cans, etc.) should be prevalent. Parking is primarily in formalized, on-street spaces. Blocks should rarely exceed 500 feet on a side but more often are closer to 400'or 450'. Alleys may be necessary for services and operations, and utilities (especially overhead utilities) should be placed here if possible, so that they do not interfere with the public experience.

Other Concerns:

Although this character area currently focuses on (and is named for) the downtown, it may be appropriate in the future to extend it to other, select, and geographically limited locations within Town that have similar characteristics and/or where this type of character is desired. If this occurs, it will be essential to ensure that these areas are both allowed and required to create a development character and experience that mimics the original downtown. Caution should be taken when designating these areas because the Town can only support so much of this high-intensity district. If there is too much supply of this type of character area it can lead to a decentralization of supply that creates disinvestment in the existing downtown. Any expansion of this character area should be directly adjacent to the existing downtown.

Examples of Downtown Commercial

Waterfront Commercial

General Description:

This character area is similar to Downtown Commercial, with other water-dependent, nonresidential areas which exhibit the distinct historical character of the downtown. The uses and structures in this character area are usually water-dependent but are always water-oriented and are typically accessible by boat. The shoreline has nearly been converted from a natural condition to a hardened, engineered condition (bulkheads, seawalls, riprap, docks, piers, etc.), but efforts should be made to increase habitat and ecological function if possible. The public should have visual and physical access to the entire waterfront.

Streets and Circulation:

Since the shoreline and waterways are public resources, public and pedestrian access along the entire waterfront should be prioritized. Streets could be extended through to the water and used as street end CAMA access points with signage.

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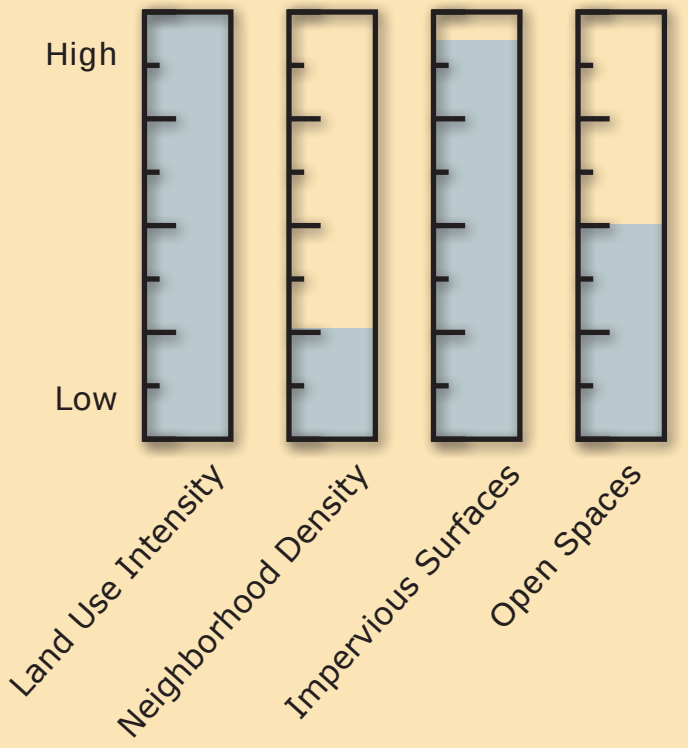


EXAMPLE USES:

Typical Uses:

Public boat docks and boat ramps, marinas, waterfront restaurants, commercial fishing operations, public parks and boardwalks, public water access, boat manufacturing and public boat houses, boat rentals, ferry docks and water-based ecotourism.

If Context Appropriate:

- Water-dependent institutional uses (fire, police, or U.S. Coast Guard operations, etc.)
- Hotels, in a very limited capacity and such that hotels are not built next to each other where possible
- Upper story residential

Waterfront Commercial

Other Concerns:

The conversion of shoreline from natural to artificial should be avoided due to the negative impacts associated with loss of habitat and the vital ecosystem services they provide. Some of these uses and structures are located in environmentally vulnerable areas that will become further challenged as seas rise. Careful consideration should be given to which places should be armored in place and which should retreat or retract. Public infrastructure investments in these areas will likely also carry greater maintenance costs and could potentially have cascading impacts that affect overall operations. For instance, saltwater intrusion can contaminate drinking water wells, deteriorate water supply pipes and concrete sewer pipes, and can also negatively impact operations at the wastewater treatment plant.

Examples of Waterfront Commercial.

Employment Center / Utility / Infrastructure

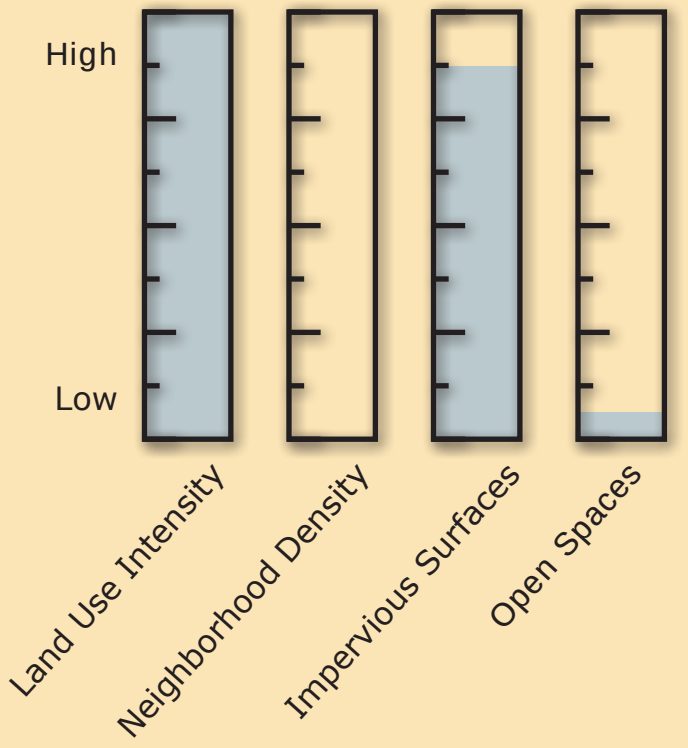
General Description:

These employment-supporting land uses provide jobs and centers for economic growth. In many other Towns, these types of uses are heavily screened or separated from different uses, but in Beaufort they are typically pre-existing and/or are already closely located to neighboring structures. These areas should not be allowed to develop for lower intensity uses to infiltrate, since this type of land usually already has the unique combination of factors needed to support these higher intensity uses, and the value to the community of these larger employment-generating uses is significant.

Streets and Circulation:

Because these uses have requirements that are often specific to the occupant, care should be taken at development to

Comparative Dashboard



EXAMPLE USES:

Typical Uses:

Offices, manufacturing, fabrication, and industrial uses, lumber yards or high intensity contractor's offices, breweries and distilleries, transportation, logistics, and warehousing. Industrial-supportive commercial uses, such as wholesale operations. Larger institutional uses, such as hospitals or technical colleges involving industrial uses, but excluding non-intensive uses such as churches and primary and secondary schools.

If Context Appropriate:

» Institutional operations (government maintenance buildings, etc.), provided they do not detract from the overall commercial nature of an area.

» Some outside industrial operations may be permissible, depending on location and the extent of external impacts. Otherwise, indoor operations are preferable.

» Lay-down yards and outdoor storage of heavy equipment or materials.

» Storage of hazardous materials should only occur outside of areas susceptible to flooding. Best practices would exclude more than just areas in the 100-year floodplain to ensure the risk of environmental pollution is tightly managed.

maintain efficient traffic flow and cross access, while also respecting occupant needs. Automobiles and freight are prioritized over pedestrians, although pedestrian linkages may still be necessary in some locations. Streets are designed to accommodate larger vehicles and delivery trucks. Typically, blocks should not need to exceed 500' to 600', but in some locations (such as the old Atlantic Veneer campus) these areas have grown through the years with much larger block sizes.

Other Concerns:

With the ever-present high demand for residential properties in coastal communities, it is difficult to argue against old industrial or manufacturing properties converting to residential neighborhoods. This is especially difficult if buildings are vacant and there is limited demand for manufacturing business space. However, it is important to realize that once these industrially-suited areas are lost they will likely never return. This may be tolerable and/or even appropriate, based on the specific situation, but it is a consideration to be discussed, especially given some community members' desire to diversify the employment base of the community away from a heavy reliance on tourism. If these properties are lost and demand for those uses still exists, it is likely new sites will be developed elsewhere, potentially not in Town limits.

Examples of Employment Center/Utility/Infrastructure

Non-Intensification Zone

General Description

Beaufort is closely intertwined with the sea, shoreline, and estuaries that surround it. As sea level rise continues, the Town becomes increasingly vulnerable to natural disasters, property damage, and population displacement. The community understands the need to balance these needs of the present against the uncertainties and risks of an uncertain climate future. The Non-Intensification Zone recognizes this vulnerability and seeks to minimize the threats to the health and safety of current and future residents and the Town itself.

The 1% annual flood chance area (the 100-year floodplain) is already a regulatory boundary. In addition, this boundary is a decent approximation for the amount of sea level rise possible by the year 2100. Although this timeframe may seem too distant for individual property owners to fathom, it is not so distant from the perspective of the Town itself (which is already over 200 years old with some structures even older than that). Infrastructure and structures built over 100 years ago are still operational and the Town must plan for a future that will be different from the present and past.

EXAMPLE USES:

Typical Uses:

Single family detached residential of low densities (i.e. – without public utilities) and other lower intensity uses (parks, open space, hunting stands, docks and fishing areas, day-use areas, flood absorption, etc.) should be the only uses allowed in the Non-Intensification Zone, with the exception of existing nonconformities. As uses in these areas are ceased or abandoned, public utilities should be disconnected and any re-use of that property should occur as described above. New development should only occur with the explicit acknowledgment that these properties will not be allowed to install bulkheads and that any structures placed in these areas will need to be designed such that they can be abandoned or relocated, in order to allow the natural shoreline to migrate as seas rise. In general, public infrastructure should not be expanded or extended further. In areas that are already intensely developed and are deemed essential to the identity of the Town, such as the Downtown Commercial and Waterfront Commercial areas, it may be appropriate to continue to maintain existing public infrastructure so long as measures are taken to protect such infrastructure against probable future conditions. This may involve elevation of roadways, pipes, and floodproofing of infrastructure.

The Town's development regulations clarify when and how the building and rebuilding of seawalls and other structures may occur. *Low density and low intensity are to be defined in the Town's UDO.

If Context Appropriate:

» Water-dependent uses, but only if public infrastructure is adequately protected and/or any additional maintenance burden or liability is covered by the private landowner or deemed to be in the public's best interest.

Non-Intensification Zone

The fundamental role of the Town is to protect public health, safety, and welfare by minimizing these negative externalities. As development in the Town continues to intensify, there must be accounting for the associated negative impacts, including, but not limited to, loss of the natural environment and vulnerability of the built environment, homes, and lives to storms and sea level rise.

The Non-intensification Zone describes an area where future development should be limited and public infrastructure should not continue to be intensified unless significant protective measures are put in place to ensure infrastructure and investments are adapted to probable future conditions. The purpose of the Non-Intensification Zones is to protect the residents' safety and quality of life, the community's fiscal well-being, and environmental quality through the recognition of the changing climate and the community's unique vulnerability to it.

Other Concerns:

As sea levels rise and coastal and climate hazards intensify, the floodplains will expand into areas of Town that are not now currently subject to the requirements of the FEMA Special Flood Hazard Area (aka 1% annual flood chance, or 1-in-100 year storm). The Non-Intensification Zone as currently proposed does not raise the bar too high, in terms of protection (or even retraction) of public infrastructure from high-risk, high-maintenance areas, but it is a step forward. The Special Flood Hazard Area is not the highest level of protection against flooding, it is the minimum required by the federal government. Other communities around the world take flood risk much more seriously than the United States. For instance, the Netherlands designs for the 1-in-4,000 year storm. However, as the frequency and severity of storms have increased, some communities in the United States are beginning to take flood risk more seriously. After recent flooding during a hurricane in Texas, the Galveston area is considering up to 22-foot high gates over the entrance to the bay, coupled with up to 17-foot tall levees to protect against future extreme storm surge events. Similarly, the Town could decide to be more proactive in their resilience to flooding and storms by choosing a higher

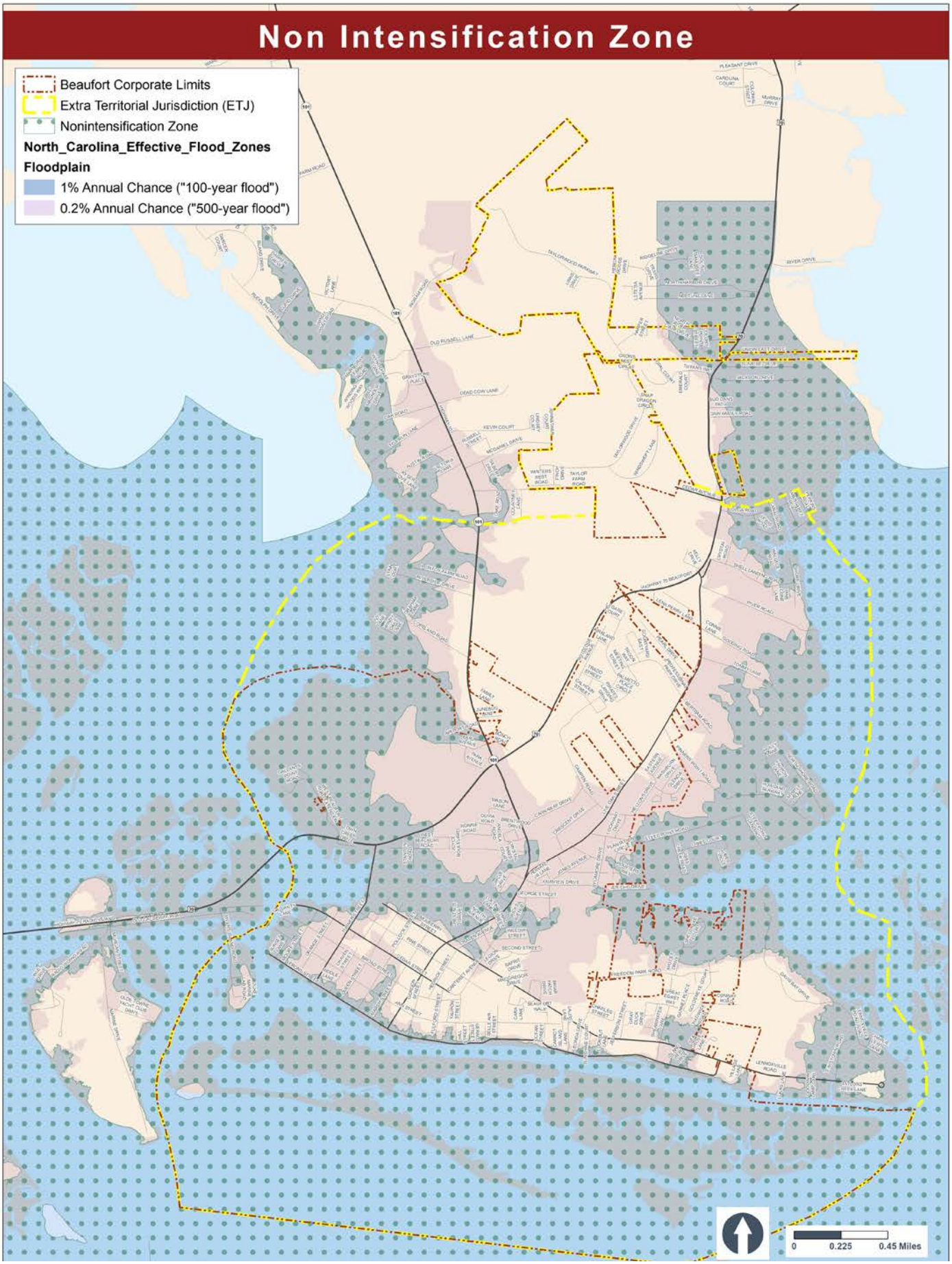
Example of a Non-Intensification Zone.

benchmark for the Non-Intensification Zone (e.g. the 0.2% annual flood chance area) and/or could implement higher flood protection standards, even expanding those requirements to areas beyond the Special Flood Hazard Area.

The financial cost of floodproofing all of the Town's infrastructure is likely beyond the capabilities of the Town without significant outside investment, and outside investment is unlikely to occur in areas that are of high flood risk. It may also be necessary or prudent in the future for the Town to abandon public infrastructure and service provision in some of areas, to avoid unsafe conditions or maintenance liabilities that are insurmountable. This type of decision will have significant impacts on private investments as well as public financial interests. However, as private and public entities (Moody's, FEMA, etc.) continue to better understand and communicate the financial risks associated with sea level rise and future climate conditions, communities that take measurable actions to minimize their liabilities will surely be viewed more favorably than if they had not.

Precedents for using comprehensive plans and zoning to redirect growth to lower vulnerability areas and/or establish enhanced flood protection requirements outside of the Special Flood Hazard Area can be found in places such as Norfolk, Charlotte, Boston, Miami, and Charleston. Even towns on the northern Outer Banks have explored requiring higher than bare minimum structure elevation in order to become more storm resilient. See also **Mitigation in the Non-Intensification Zone (NIZ) on page 200**.

Rachel Carson Reserve.



The Non-Intensification Zone is a response to natural hazards associated with climate change and coastal storms and protection of the unique coastal environment.

Mitigation in the Non-Intensification Zone (NIZ)

The purpose and intent of the NIZ is described above. When construction or reconstruction must occur in the NIZ, it is required to provide mitigation strategies that will preclude flooding, stormwater, and rising tide hazards.

In this context "construction" means permitting for new projects and that a triggering event, perhaps 50% of project value, will be required for permitting "reconstruction". Town staff may need to research and develop additional guidance or ordinance to address this.

At the minimum, the following mitigation methods should be considered, although all Federal, State, County, or Town methods would apply:

- **Sea walls and bulkheads** - To allow construction or reconstruction of the Town Docks, stores, or other approved projects.
- **Letter of Map Revision (LOMR)** - Removal of property from a Special Flood Hazard Area on the National Flood Insurance Program (NFIP) map, by fill or otherwise.
- **Sealed utilities** - Required for extension of public utilities into the NIZ.
- **Flood proofing** - This helps reduce structure damage during flood events and is advisable even in areas not within the NIZ, depending on the community's level of risk and exposure tolerance.
- **Privately installed utilities** - This is a good strategy for allowing low density private development within the NIZ but will also likely lead to increased community impact during and after storm events in terms of additional risk to first responders, debris or water pollution, and cleanup. Care must be taken to ensure adequate design and maintenance of these facilities as they will also pose a threat to environmental and public health if they are compromised.
- **Freeboard** - require structure elevation that anticipates future conditions.
- **Other elevations** - Raising all construction and surface infrastructure.
- **Bio-retention** (although often ineffective due to limited soil depths).
- **Clustering** - Particularly in the instance of a very large tract with the development clustered on that portion not within the NIZ, this could be a very effective strategy.
- **Conservation** - Via easement, fee simple, or otherwise.
- **Buffers** - Additional development setbacks from coastal high-risk areas.
- **On-Site stormwater collection** - Principally to prevent runoff, but also to assist with storm surge, high tide flooding, or sea level rise.
- **Urban Waterfront redevelopment CAMA exemptions** - The urban waterfront CAMA designation acknowledges the current development pattern in historic waterfront towns. This area and designation is important to the Town.

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7

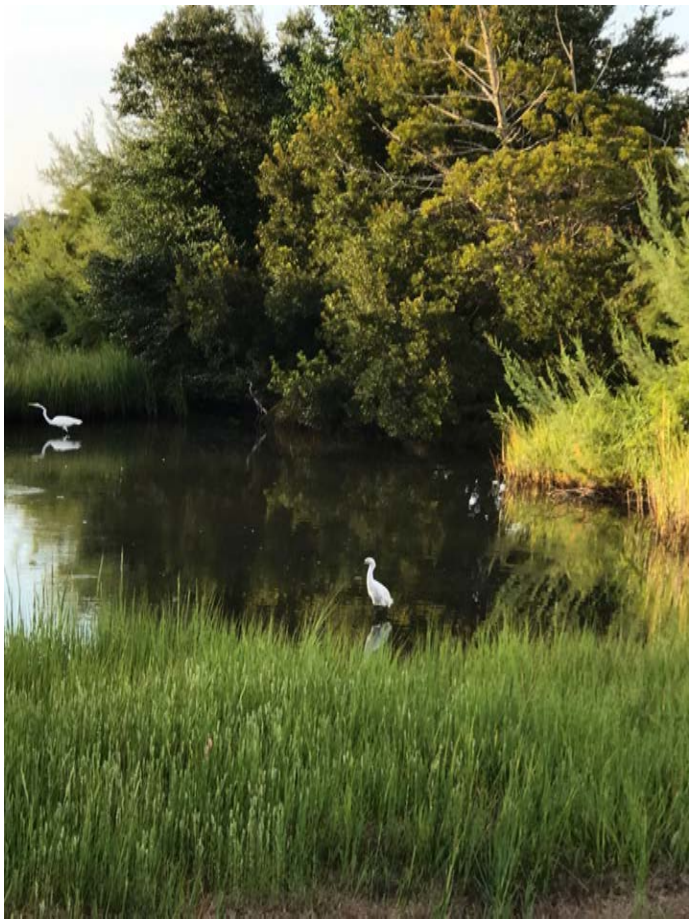
CAMA Topics and Policies

CAMA Land Use Management Topics and Policies

The Coastal Resources Commission (CRC) outlines five Land Use Plan Management Topics that must be addressed in a Coastal Area Management Act (CAMA) land use plan, including Public Access, Land Use Compatibility, Infrastructure Carrying Capacity, Natural Hazard Areas, and Water Quality. A CAMA- compliant land use plan must address these management topics to ensure that plans support the goals of the CRC. Each CAMA-required management topic includes a Management Goal and a Planning Objective, which are specified in the state statutes governing land use planning in coastal communities, followed by recommendations for future action. Some recommendations may align with more than one management topic.

Key CAMA-related Issues

The Coastal Area Management Act (CAMA) is particularly concerned with five land use topics. Additional description of issues related to those topic areas is provided below. For the full description of these topic areas and their CAMA-related objectives, please see the full description from state statutes (15A NCAC 07B. 0702).



Coastal wetlands (Photo: Andrea Correll)

Public Access

In Beaufort, the public has access to public trust waters in several different capacities (visual access, fishing access, physical access, and equipment access like boat launches). As in most coastal towns, there are limited opportunities for residents and visitors that are not coastal property owners to access public trust waters. Most direct, physical access to the coast and water, through docks, shoreline access, and private boat launches, are exclusive to private residences, rental properties, and select neighborhoods, although several light and heavy craft public access points do exist. For those unfamiliar with the Town, public access points can be difficult to locate. In addition, development, tourism, and population growth have all increased the need for more public access points. While these issues present challenges, the community recognizes the value of public trust water access, and many support increased options.

Grazing horse at the Rachel Carson Reserve

Possibly the best example of

a public private partnership in providing public access to public waters is the town docks where a combination of physical, vessel, and visual access is shared with adjacent commercial uses where the water view can be enjoyed while dining, walking, or shopping. The boardwalk and docks are a signature Beaufort experience.

Land Use Compatibility

Limitations

The Town's location between three watersheds; Town Creek, Taylor Creek, and Davis Bay; has limited the development potential of the area geographically. Legacy development within wetlands and regulatory (i.e. - 100-year, or 1% annual chance) floodplains has resulted in legacy land use conflicts. Development has also increased impervious surface area, with associated negative impacts from stormwater runoff and flooding. Incompatible coastal development has resulted in the loss of natural buffer areas, exacerbating flooding and runoff issues. This is a common issue among historic working waterfront communities that were developed prior to the enactment of coastal environmental protection legislation. Often properties that were developed near the water have also experienced erosion and subsequently hardened their shorelines to protect built infrastructure. This has resulted in incremental loss of natural (unmodified) shoreline and marsh habitat over the years.

Flood Risk

As of November 2020, Beaufort had 2,425 developed parcels and 767 undeveloped parcels of land. Of the developed parcels, 48.8% (1,183 parcels) were developed prior to February 14, 1975, when Carteret County adopted its initial Flood Insurance Rate Map (FIRM) (Pamlico Sound Regional Hazard Mitigation Plan, 2020). Because they were developed prior to these minimum standards, these older parcels may carry a higher level of risk during natural hazards and are potentially more susceptible to inundation than areas developed subsequently. There have, however, been subsequent FIRM updates over the years as flood zones have changed. This inborn flood hazard is typical of towns that developed prior to widespread flood prevention regulations.

Existing Land Uses

See analysis in **Existing Land Use & Development on page 124**.

Infrastructure Carrying Capacity

Water Treatment Plants

Beaufort's two water treatment plants have adequate capacity for existing demand (1.872 MGD permitted capacity each, max use 0.91 MGD in 2020, per local water supply plan); however, there are some challenges. Some equipment is nearing or exceeding its expected service life and there are space limitations at the Hedrick Street location. The Town's wells are functioning at adequate levels for current demand, but two of them are approaching their expected service lives. For more information, see the NC DEQ Local Water Supply Plan (https://www.ncwater.org/WUDC/). See **Projected Utility Needs on page 207**.

Wastewater Treatment Plant

The permitted capacity of the wastewater treatment plant is 1.5000 million gallons per day (MGD). Per a December 2020

staff report, the wastewater treatment plant has a current average daily flow of 0.7868 MGD. The obligated flow for future developments 0.2759 MGD. When accounting for both current and future utilization, there is approximately 29% unallocated capacity remaining. (See **Projected Water Needs (MGD)* on page 207** for details.)

Natural Hazard Areas

Rachel Carson Reserve

The islands of the Rachel Carson Reserve shield Beaufort from the waters of the Atlantic Ocean. The pristine estuarine waters formed between mouths of the Newport and North Rivers, across from Taylors Creek, also harbor aquatic flora and fauna in an array of coastal habitats including tidal flats, salt marshes, ocean beach, soft bottom, shell bottom, dredge spoil areas, sand dunes, shrub thicket, submerged aquatic vegetation, and maritime forests.

Inundation overwash during storms, exacerbated by rising sea level, has become a more recently significant issue at the Reserve. In recent years, major storm events have caused water to breach the dunes, redepositing silt and sediment. This has resulted in the gradual shift of the islands towards the mainland.

Water Quality

The three main watersheds in Beaufort; Davis Bay, Taylor Creek, and Town Creek; drain into Newport River and North River which contain High Quality Waters (HQW). Stormwater runoff is a major concern in Beaufort. It is the primary source of the pollutants and bacteria threatening the water quality of the delicate environment.

Davis Bay (Turner Creek and Gibbs Creek)

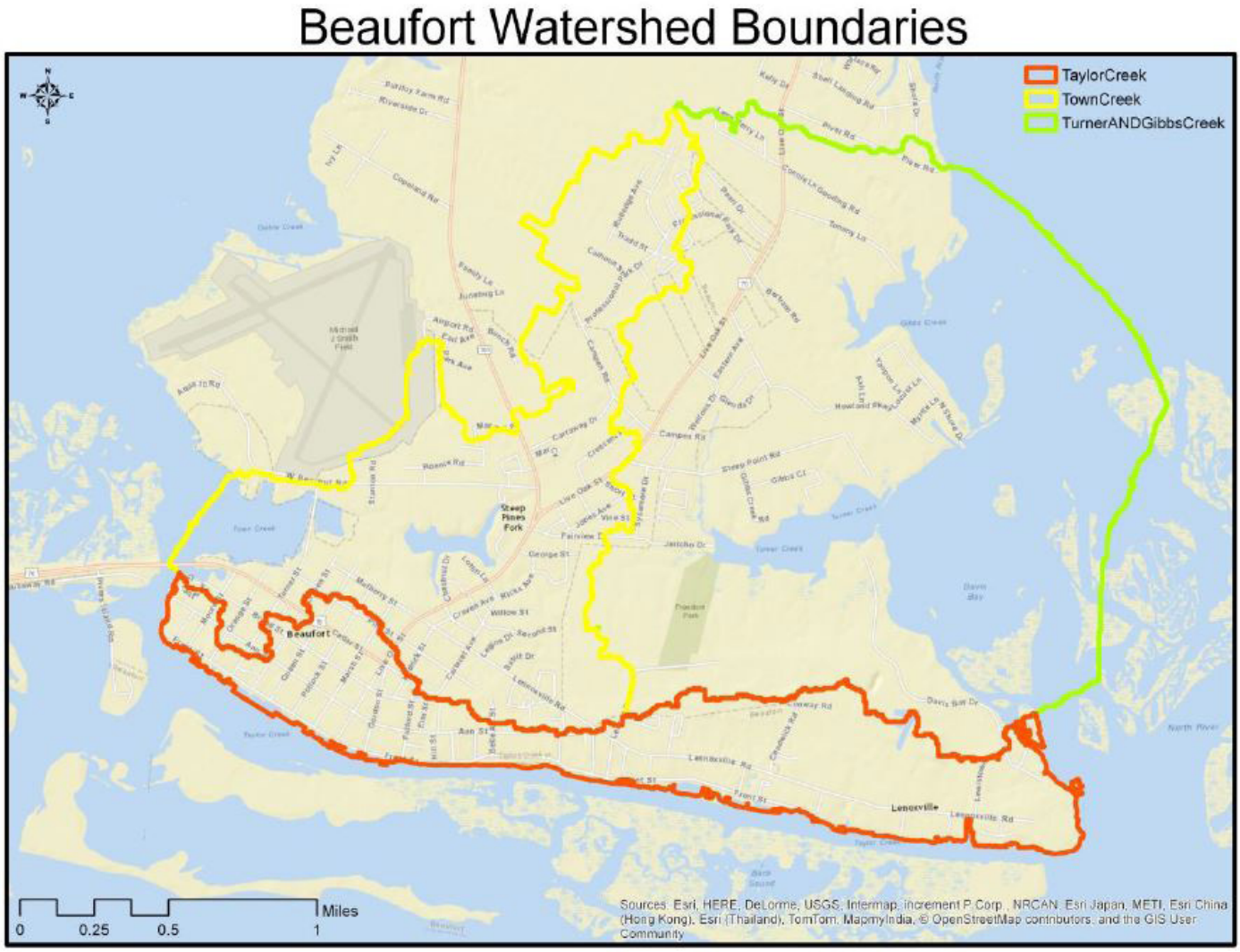
Davis Bay encompasses Turner Creek and Gibbs Creek. It is designated primarily as a Class SA waters, supporting direct contact recreation and commercial shellfishing. This is the last remaining shellfish harvesting area in the Town. Over the past two decades, significant logging activity has occurred in the greater watershed, changing the landscape and the runoff patterns.

Taylor Creek

Taylor Creek watershed is predominantly classified as Class SC waters. This classification recommends limited activities involving skin contact with the water, but does not restrict some other activities such as fishing and boating. Shellfishing is prohibited along the length of the entire main channel. The waterfront has a number of residences with bulkheads, hardening the shoreline and contributing to a loss of natural vegetative coverage. Taylor Creek is a major local waterway and is frequently crossed to access the Rachel Carson Reserve or other regionally-significant destinations, such as the Shackleford Banks.

Town Creek

Town Creek runs along Beaufort's western border. It is classified as Class SC waters. Prior to the 1970s, excess amounts of poorly treated sewage were discharged into the water. Despite a reduction in discharge, over the past several years, increased stormwater runoff has diminished water quality and transported impairments downstream. The side of town is also bordered by the Intracoastal Waterway.



Watershed Boundaries

Projected Utility Needs

	2020	2025	2030	2035	2038	2040	2045	2050
Peak Population Estimate	10,200	11,025	11,980	12,941	12,215	13,983	14,347	14,697
Projected Water Needs (MGD)*	0.5304	0.5733	0.6229	0.6729	0.6352	0.7271	0.7460	0.7643
Water Capacity (MGD)	1.8445	1.8445	1.8445	1.8445	1.8445	1.8445	1.8445	1.8445
Projected Wastewater Needs (MGD)⁺	0.6120	0.6615	0.7188	0.7764	0.7329	0.8390	0.8608	0.8818
Wastewater Capacity (MGD)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

** = Based on 52/gallons/person/day per ratios used in Local Water Supply Plan 2020*
⁺ = Based on estimated maximum of 60 gallons/person/day per 15A NCAC 02T .0114

Land Use Management Topics for CRC Review Purposes

This Comprehensive & CAMA Land Use Plan addresses issues of local and state (via the CAMA-related component) concern. These may be asset-based, programmatic, regulatory, geographic, or otherwise. All locally identified goals, policies, objectives, and actions (see **Chapter 1: Community Values, Vision, and Goals** on page 121) do not necessarily directly align with the CAMA land use management topic structure, but are locally important nonetheless.

CAMA-required recommendations are designated as either a Implementation item (which requires an associated timeline) or as a Policy. Local discretion and leadership will determine priorities and timelines. Policies that are not able to be implemented immediately will guide future development decisions on the Town level, so that all future development will bring the reality closer to the vision. While the Future Land Use Map and goals, policies, objectives, and actions herein are intended to provide guidance during land use decisions, the issuance of CAMA and development permits will be based on adopted standards in the Town's Code of Ordinances and the CRC's permitting rules that implement the Coastal Area Management Act.

In the following pages, policies and implementation steps (as required by CAMA) are identified by the following, with relevant CAMA Topics and implementation year(s) indicated:

(P) - policy

(I) - implementation step

Where no entry is provided, the topic is not considered relevant to the CAMA Land Use Management Topics. Only CAMA policies have the association to the relevant CAMA Land Use Management Topic show, as the implementation steps are covered by that policy. The table that follows lists the CAMA-related items (identified by CAMA and in the table as "policies" and "implementation" items) that are a subset of the Town's overall policies, objectives, and actions (from **Chapter 5**). The Town's policies, objectives, and actions in this table are numbered the same as in **Chapter 5**, and are crosswalked to the appropriate CAMA land use management topic to which they apply.

The following definitions come from the CAMA statutes (15 NCAC 07B .0702 (d)(2)) and are required to meet the standards of a CAMA-compliant land use plan. This plan must specify relevant policies and implementation items (from the overall plan policies, objectives, and actions) that relate to these land use management topics.

Goals for: Land Use Compatibility (LUC)

Management Goal: Ensure that development and use of resources or preservation of land balance protection of natural resources and fragile areas with economic development, and avoids risks to public health, safety, and welfare.

Planning Objectives: The plan shall include policies that characterize future land use development patterns and establish mitigation concepts to minimize conflicts.

Goals for: Public Access (PA)

Management Goal: Maximize access to the beaches and the public trust waters of the coastal region.

Planning Objectives: The plan shall include policies that address access needs and opportunities, with strategies to develop public access and provisions for all segments of the community, including persons with disabilities. Oceanfront communities shall establish access policies for beach areas targeted for nourishment.

Goals for: Infrastructure Carrying Capacity (ICC)

Management Goal: Ensure that public infrastructure systems are sized, located, and managed so the quality and productivity of areas of environmental concern (AECs) and other fragile areas are protected or restored.

Planning Objectives: The plan shall include policies that establish service criteria and ensure improvements minimize impacts to AECs and other fragile areas.

Goals for: Natural Hazard Areas (NHA)

Management Goal: Conserve and maintain the barrier dune system, beaches, flood plains, and other coastal features for their natural storm protection functions and their natural resources giving recognition to public health, safety, and welfare issues.

Planning Objectives: The plan shall include policies that establish mitigation and adaptation concepts and criteria for development and redevelopment, including public facilities, and that minimize threats to life, property, and natural resources resulting from erosion, high winds, storm surge, flooding, or other natural hazards.

Goals for: Water Quality (WQ)

Management Goal: Maintain, protect, and where possible enhance water quality in coastal wetlands, oceans, and estuaries.

Planning Objectives: The plan shall include policies that establish strategies and practices to prevent or control non-point source pollution and maintain or improve water quality.

Item	Applicable CAMA Land Use Management Topic					CAMA Policy or Implementation	Time Frame (Fiscal Year)
	LUC	PA	ICC	NHA	WQ		
Goal 1: Environmental Protection							
1.1.1: Reduce and address non-point source pollution.				X	X	P	Ongoing
1.1.1.1: Enhance standards for implementation of Low Impact Development (LID), green infrastructure, and water quality measures in sites. Explore and utilize LID strategies and on-site storage for stormwater management. For high intensity areas, like downtown, a regional stormwater approach should be considered. Tie requirements to impervious surface percentages in sites, in which larger percentages of impervious surface must provide increased amounts of stormwater management and green infrastructure.					X	I	Ongoing
1.1.1.2: Implement Watershed Restoration Plan actions.					X	I	Ongoing
1.1.1.3: Work with local researchers to continually monitor water quality in creeks and North River.					X	I	Ongoing
1.1.1.4: Outreach initiative focused on minimized use and release of residential pollutants.					X	I	2023-24
1.1.1.5: Encourage reduction of impervious surface cover and increased use of permeable surfaces in new development and reconstruction or redevelopment. Consider expanding impervious surface restrictions and regulation to all zoning districts.					X	I	Ongoing
1.1.1.6: Retrofit streets and other publicly-owned areas with new or improved stormwater control measures, in particular those that improve water quality.			X		X	I	2023-Ongoing
1.1.2: Protect and improve the health of vulnerable natural environments such as maritime forests and coastal marshes.	X			X	X	P	Ongoing
1.1.2.1: Actively document marsh and maritime forest areas and loss. Identify restorable areas of each type.				X		I	2027-28
1.1.2.2: Identify areas for wetland/habitat restoration, partnering with local agencies, like NC Coastal Federation.				X		I	Ongoing

Item	Applicable CAMA Land Use Management Topic					CAMA Policy or Implementation	Time Frame (Fiscal Year)
	LUC	PA	ICC	NHA	WQ		
1.1.2.3: Identify areas of terrestrial habitat that are irreplaceable or otherwise significant and to preserve those areas, possibly through partnerships with other agencies.				X		I	Ongoing
1.1.2.4: Give enhanced priority to mature forests, and maritime forests in particular, in subdivision and site plan review when meeting preserved open space area requirements.	X			X	X	I	Ongoing
1.1.2.5: Consider ordinance updates to prioritize protection of existing stands of mature maritime forest as land is developed.				X		I	2022-23
1.1.2.6: Clearly identify areas where shoreline armoring will and will not be permitted, and where structures will have to relocate as shorelines erode.				X		I	2030-31
1.1.2.7: Encourage landowners to utilize living shorelines where appropriate.				X	X	I	Ongoing
1.1.2.8: Enhance development standards to reduce environmental impacts (e.g., tree preservation ordinance).	X					I	2022-23
1.2.1: Partner with NC DEQ and/or the RCR Local Advisory Committee to continue efforts to protect and enhance the Reserve, especially its habitat quality and storm mitigation features.				X		P	Ongoing
1.2.1.1: Town administrative and/or planning staff should maintain an active presence on the RCR Local Advisory Committee.				X	X	I	Ongoing
1.2.1.2: Participate in habitat resilience planning and restoration implementation and enhancement projects.	X			X		I	Ongoing
1.2.2: Educate the public about the ecological and storm protection benefits of the Reserve.				X		P	Ongoing
1.2.3: Continue to work with the RCR on addressing abandoned and derelict vessels to protect sensitive habitats.				X		P	Ongoing
1.3.1: Mitigate the negative impacts of water and recreation access points in sensitive environmental areas.		X		X		P	Ongoing
1.3.1.1: Educate tourists on their impacts by partnering with realtor's and technical agencies to provide training (e.g., Coastal Training Program).					X	I	2025-26

Item	Applicable CAMA Land Use Management Topic					CAMA Policy or Implementation	Time Frame (Fiscal Year)
	LUC	PA	ICC	NHA	WQ		
1.3.2: Partner with local watersports businesses to direct recreation away from sensitive environments.				X		P	2025-26
1.3.2.1: Provide educational materials for businesses on areas for recreation away from sensitive environmental areas.					X	I	2027-28
1.3.3: Investigate the carrying capacity of local natural resources with regard to ecotourism and visitation.				X		P	2024-25
1.4.1: Create an educational program to inform the public about the public rights to the estuarine habitat and public benefits (property values (even in-land), fisheries value, quality-of-life, etc.) and take a firm stance on not perpetuating further shoreline habitat degradation.				X	X	P	2028-29
1.4.1.1: Partner with local agencies, such as the Rachel Carson Reserve, to increase the effectiveness of these efforts.					X	I	Ongoing
1.4.2: Map shoreline habitat and using best available local science, designate where certain types of erosion control measures are likely to optimize protective benefits.				X		P	2024-25
1.4.2.1: Clearly designate where the least impactful intervention is needed and/or allowable.	X				X	I	2029-30
1.4.3: Hardened shorelines should be utilized in only the most urban and/or high energy settings.				X		P	Ongoing
1.4.3.1: Develop an Estuarine Shoreline Management Plan identifying areas most appropriate for hardened shorelines.				X		I	2026-27
1.4.3.2: Update relevant ordinances to include standards on shoreline stabilization.	X			X		I	2024-25
1.5.2: Implement recommendations and steps from the North Carolina Marine Debris Action Plan.				X		P	Ongoing
1.5.4: Continue to work on addressing and removing abandoned and derelict vessels in a timely fashion.				X		P	Ongoing
1.5.6: Implement enhanced construction standards for docks and sea walls so that they have less chance of becoming marine debris after major storms.				X		P	2026-27

Item	Applicable CAMA Land Use Management Topic					CAMA Policy or Implementation	Time Frame (Fiscal Year)
	LUC	PA	ICC	NHA	WQ		
Goal 2: Resiliency							
2.1.1: Keep zoning densities lower in vulnerable areas, using the Non-Intensification Zone, floodplains, and best available sea level rise projections as guidance.	X				X	P	Ongoing
2.1.2: Direct vulnerable land uses, including hospitals, age-restricted housing, group homes, and schools away from vulnerable areas and/or provide support to ensure they can sustain and recover more quickly from storms.	X			X		P	Ongoing
2.1.3: Relocate and site sensitive community infrastructure (critical public services and facilities, etc.) outside of vulnerable areas.			X			P	Ongoing
2.1.4: Consider downzoning undeveloped, unvested properties in the Non-Intensification Zone in order to communicate that these areas are not intended to accommodate high intensity development.	X					P	Ongoing
2.2.1: Manage retreat and contraction of public infrastructure and services away from high vulnerability areas.	X			X		P	Ongoing
2.2.2: Use current, best available sea level rise projections and environmental vulnerability knowledge when making public infrastructure investment decisions.			X			P	Ongoing
2.2.3: Direct public and private investment and capital improvement projects away from vulnerable areas and ensure any public investment in these areas is capable of surviving anticipated future conditions. See also **Mitigation in the Non-Intensification Zone (NIZ) on page 200.**				X		P	Ongoing
2.2.4: Mitigate tidal and storm surge flooding through structural improvements that prepare infrastructure for long-term resistance to environmental threats.			X	X		P	2024-25
2.2.4.1: Identify and map priority areas, such as at key locations along Front Street or Town Creek.	X			X		I	2023-24

Item	Applicable CAMA Land Use Management Topic					CAMA Policy or Implementation	Time Frame (Fiscal Year)
	LUC	PA	ICC	NHA	WQ		
2.2.4.2: Identify vulnerable roads, water, sewer, and stormwater pipes, electric facilities, and other public infrastructure and elevate/armor against rising seas.			X		X	I	Ongoing
2.3.1: Increase storm-safe construction standards, utilizing the most up-to-date code language by industry leaders, such as the Florida Building Code or the IBHS FORTIFIED Home criteria.	X					P	2028-29
2.3.1.1: Launch a town-led retrofitting campaign that encourages residents to brace their homes against storms.	X					I	2024-25
2.3.1.3: Increase the flood-proofing and freeboard requirement in 100- and 500-year floodplain (aka 1% annual chance and 0.2% annual chance, respectively).	X					I	2022-23
2.4.2: Establish a prohibition on hardening shorelines in all locations other than immovable areas that have high or irreplaceable community value. This may involve relocating or removing public infrastructure from these locations.				X		P	Ongoing
2.4.3: Refine standards for when shoreline armoring or coastal erosion control structures should be removed, restricted, or allowed to rebuild.				X		P	2025-26
2.4.4: Develop and adopt a shoreline management plan.				X		P	2028-29
2.6.2: Examine infrastructure and services redundancy measures and incorporate new technologies as necessary.			X			P	Ongoing
Goal 4: Infrastructure & Public Utilities							
4.2.1: Continue to implement recommendations from the 2019 Stormwater CIP.			X			P	Ongoing
4.2.2: Assess stormwater facilities' resiliency to coastal and climate hazards and identify needed upgrades.			X		X	P	Ongoing
4.2.2.1: Identify and codify priority for low-lying areas such as Front Street.	X					I	Ongoing
4.2.2.2: Implement Watershed Restoration Plan.		X			X	I	Ongoing

Item	Applicable CAMA Land Use Management Topic					CAMA Policy or Implementation	Time Frame (Fiscal Year)
	LUC	PA	ICC	NHA	WQ		
4.2.3: Continue to manage and expand existing stormwater infrastructure, including the potential for regional stormwater management for built-out, troubled or vulnerable areas.	X		X		X	P	Ongoing
4.2.4: Evaluate and update impervious surface standards.			X		X	P	2022-23
4.3.1: Upgrade facilities according to leadership direction and established departmental policies and standards.			X			P	Ongoing
4.3.2: Plan to increase capacity as needed to accommodate desired levels of growth. Conduct a preliminary GIS-based analysis to estimate the amount of water and sewer capacity that could be added to the utility system based on existing zoning and utilization of land. Update this assessment with new rezoning and development requests and approvals and consider it when deciding on new land use and development requests.			X			P	Ongoing
4.3.3: When upgrading facilities, relocate, elevate, or armor against projected future hazardous conditions or storm events.			X		X	P	Ongoing
4.3.4: Continue to monitor sewer system inflow and infiltration and mitigate and/or plan accordingly.						P	Ongoing
4.6.1: Adopt stricter impervious surface standards.			X		X	P	2024-45
Goal 6: Transportation							
6.6.3: Increase launch locations for non-motorized vessels.		X				P	Ongoing
Goal 7: Town Character							
7.6.1: Update the Town Waterfront Access Plan to improve, identify, and pursue existing and additional public access points and amenities.		X		X		P	2028-29
7.6.3: Pursue extension of existing dead-end streets to provide additional access points and create interconnection opportunities.		X				P	Ongoing


BEAUFORT

Appendix

Appendix A: Population Projection Methods

Seasonal Population Estimate

Beaufort, like other coastal North Carolina communities, experiences large seasonal surges in population. Seasonal population in Beaufort is driven by hotels and other lodgings, the short-term rental market, and seasonal occupants and second homeowners who classify their primary residence elsewhere. Data was gathered from short-term rental databases and combined with information about known lodging in Beaufort. Day-travelers are not accounted for in these calculations and may be significant, especially for popular festivals and events. By combining the number of year-round residents with the average peak seasonal population estimate described in greater detail below yields a peak seasonal population estimate of 8,794 for the Town of Beaufort.

Population Type	Definition	2019 Estimate (Town Limits)
Peak Seasonal Population	Permanent plus visitor population. This is an approximation of the planning area's population on a "typical" peak day during the high season.	8,794
Permanent Population	Persons who usually reside in the planning area.	4,343
Peak Visitor Population	Persons who are temporarily residing in the planning area, such as tourists and vacationers, but who normally reside in another location. This estimate does not include day-trippers.	4,451

The 2019 American Community Survey housing data provides detailed insight into the housing stock in Beaufort. This includes the distribution of homes by bedroom count. These counts were used to calculate counts in parts A and B.

Total Overnight Visitors in the Peak Month (Town Limits)		
	Low Estimate	High Estimate
A. Short-Term Rentals & Seasonally Occupied Units	1870	2879
B. Guests of Year-Round Residents	532	1596
C. Other Lodging (ex. hotels, inns, marina slips)	1013	
Total	**3415**	**5488**
Average – Peak Seasonal Visitor Population	**4451**	

Short-Term Rentals & Seasonally Occupied Units

Data on the overall number of short-term rentals is difficult to ascertain. The most current data from the 2019 American Community Survey Estimates indicates there are 497 vacant housing units for seasonal or recreational use. For comparison, AirDNA data, a website that provides data insight into local AirBNB and VRBO use, pulled in January 2021 indicates 154 active rentals, though this only accounts for listings active on Airbnb and VRBO, not the whole short-term rental market or seasonally occupied second homes. AirDNA data also indicates that July is the peak month for short-term rentals, a 94% occupancy rate. "Whole house rentals" are classified as 90% of the rental market. This information is corroborated based on conversations relating to the short-term rental market in the area. The following assumptions are made:

- The 497 housing units in Beaufort are used for visitors.
- The short-term rentals reflect the general housing stock within Beaufort (based on the number of bedrooms and unit distribution).
- Peak occupancy rate for units used is 94%. (*AirDNA*)
- July is assumed to be the peak month which correlates with AirDNA data and Carteret County occupancy tax data.

A. Short-Term Rental & Seasonal Occupants (Town Limits)

To develop the seasonal population that corresponds to the short-term rental (STR) occupants, a low and high estimate of STR users was found based on bedrooms for each type of housing unit. These estimates for total capacity were found using ranges from 1-14 persons per housing unit. These were assigned based on the number of bedrooms per unit. This resulted in a total potential housing capacity (Row A), then the numbers were adjusted for the portion of housing units that are estimated to be secondary and rental units (17%) at 94% peak occupancy (Row B). This multiplier was derived by using the aforementioned 2019 American Community Survey Estimates figure of 497 for vacant housing units available for seasonal or recreational use in conjunction with the total number of housing units in Beaufort (i.e. 497 units ÷ 2926 units = 0.17. 0.17*0.94=.1598).

Short-Term Rental & Seasonal Occupants (Town Limits)						
Number of Bedrooms	Peak Occupancy Rate	Housing Unit Distribution *(i)*	Housing Units	Persons/Unit (Low & High Estimates)	Low Occupancy Estimate	High Occupancy Estimate
Studio	94%	2.5%	73	1 & 1.9	73	139
1 bedroom		9.3%	272	1.9 & 2.8	517	762
2 bedrooms		38.1%	1115	2.8 & 4.7	3122	5241
3 bedrooms		37.9%	1108	4.7 & 7.5	5208	8310
4 bedrooms		10.5%	306	7.5 & 9.4	2295	2876
5 or more bedrooms		1.8%	52	9.4 & 13.2	489	686
A. Total Potential Capacity			2926		11703	18014
B. Total assuming 17% recreation usage at 94% peak occupancy (0.1598)			**468**		**1870**	**2879**

i) American Community Survey 2019 data on unit distribution in Beaufort

B. Guests of Year-Round Residents (Town Limits)

Another factor that contributes to the seasonal population in the peak months are overnight guests of the permanent population. Assumptions to calculate this group:

- 25% of the households in Beaufort would host guests on a typical summer weekend. (Precedent for this statistic: 2009 Dare County Land Use Plan)
- Most homes would host between 1 and 3 guests. This is based on 76% of the housing stock having 2-3 bedrooms (see table in Section A) with an average permanent household size of only 1.8 residents (*2019 5-year ACS estimates)*. This infers that there should be one to two bedrooms available for guests.

A low estimate of 1 guest per permanently occupied housing unit and a high estimate of 3 guests per unit is used to estimate peak seasonal guests.

Estimated Guests of Year-Round Beaufort Residents in the Peak Month (Town Limits)		
Permanently occupied housing units	2126	
	Low Estimate	High Estimate
	1 per Unit	3 per Unit
25% of units hosting guests	**532**	
Guests of Year-Round Residents	**532**	**1596**

C. Traditional Lodging (Town Limits)

Traditional lodging options in Beaufort are consistent of several inns, hotels, transient marina slips, and a campground that allows RVs. Based on available data, there are approximately 247 hotel rooms in Beaufort, where each room hosts a variable number of people based on beds.

- To account for varying number of beds per hotel room, an average of three people per night per hotel room was assumed, to account for an even split between 2- and 4-person hotel rooms. Per the 2006 Beaufort land use plan, there are 179 transient marina slips as well in town, housing an average of 2 people each.
- Like AirBNB, lodging options also have a 94% occupancy rate in peak months.

Using these numbers, the total amount of people found in "Other Lodging" is estimated as follows:

Other Lodging Occupants			
	Rooms/Slips	Average Occupants	Total Capacity
Hotels	247	3	720
Marina Slips	179	2	358
Total Capacity			1078
94% Occupancy			**1013**

Source: crytalcoastnc.org, 2006 CAMA plan (for marina slips)

D. **Peak Population Projections (Town Limits)**

Any increase in seasonal population in the future will be largely tied to the residential development market and overall housing economy. There are some large housing developments currently permitted in Beaufort, which are accounted for in the adjusted base population used for this estimate. If historical trends continue, rental and secondary housing will represent an increasing share of the total housing stock.

Beaufort Peak Population Projection (Permanent and Visitors)							
2019	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
8,794	8,832	9,574	10,424	11,274	12,398	12,702	13,006

E. **Peak Population Projection Methods (Town Limits)**

The permanent population for 2019 is estimated at 4,343 within the municipal limits and 5,839 including those within the extraterritorial jurisdiction (*2019 ACS 5-year estimates, ESRI*). The annual growth rate for permanent residents was 0.9% from 2010 to 2020 within the municipal limits, which shows that while the permanent population is growing, it is not growing very quickly.

Permanent population projections were done by projecting these historical growth rates thirty years into the future. However, extrapolating population growth based on historical growth and government projections does not tell the whole story for Beaufort's population. The town has permitted two very large residential developments that together will bring almost 800 homes to town, which is roughly equal to the number of homes than were built in Beaufort between 2000 and 2019.

To account for the impact of these developments, an average was added to the population estimate in the new developments based on known quantities:

- 40 New homes per year (based on 2018-2020 average) (*Town of Beaufort)*
- 1.8 person average household size (*2019 ACS 5-year estimates)*
- 75% of homes are permanently occupied (*2019 ACS 5-year estimates)*

Adding this additional population to the average permanent projected population gave the new based permanent population shown in the table above.

Appendix B: Affordable Housing Primer

Intro

Affordable housing is a complex subject, both in terms of its causes and means of addressing it, especially in local governments. As the Southeast continues to attract more and more full-time residents, affordable housing is discussed in almost every community. Local governments in North Carolina are limited in their means of addressing housing affordability, primarily because of limits on how land use, private property rights, home design and prices may be regulated. These regulatory and market related barriers often mean that popular solutions from other states are not necessarily available in North Carolina.

A one-size-fits all method is not a practical approach to address affordable housing concerns and should be tailored to the housing market conditions of an area. Below are some potential means of addressing housing affordability, and how they may be applied in North Carolina. This is by no means an exhaustive list of remedies. This document explores options for local governments to increase the proportion of affordable housing and/or workforce housing in communities.

Terminology

"Affordable housing" has become a blanket term used when discussing how to best combat rising housing cost, however, it is beneficial to distinguish locally between different types. It has its roots in the public subsidized housing terminology. Typically, public subsidized housing has eligibility requirements for income. However, "affordable housing" has been co-opted by the larger discussion of housing cost and now is often used interchangeably with "attainable housing", which is a broader concept.

Below are some common terms used when referring to affordable housing:

"**Area Median Income (AMI)"** the midpoint of the income distribution for a specific geographic area, as defined by the U.S. Department of Housing and Urban Development (HUD) using data from the U.S. Census Bureau. This statistic is used by HUD for purposes of determining the eligibility of applicants for certain federal housing programs.

"**Affordable housing**" is housing that costs no more than 30% of a household's income, including utilities.[1]

- Affordable housing can be income-restricted, meaning it is specifically developed as affordable housing and is only available to households that meet specific income limits. (see section Income-Restricted Housing Tools)
- Affordable housing can also be market rate, meaning it is affordable based on market price and is not restricted based on household income. These housing units are susceptible to market fluctuations and may increase in price, rendering them unaffordable.

"**Workforce housing"** is housing affordable to households earning between 60% and 120% of the AMI.[2] Workforce housing is generally thought to be for middle-income workers which includes professions

[1] "HUD Archives: Glossary of Terms to Affordable Housing." HUD. Accessed April 21, 2021. https://archives.hud.gov/local/nv/goodstories/2006-04-06glos.cfm.

[2] "What Exactly is Workforce Housing and Why is it so Important", University of North Carolina, School of Government, 07/12/2018. https://ced.sog.unc.edu/what-exactly-is-workforce-housing-and-why-is-it-important/.

such as police officers, firefighters, teachers, health care workers, retail clerks, and the like.[3] Households that need workforce housing may not always qualify for subsidized housing.

"**Attainable housing**" consists of unsubsidized, market-rate housing developments that meet the needs of those with incomes between 80% and 120% of the AMI. [4]

Maintenance of Affordability

Income-restricted affordable housing can be preserved long-term in different ways depending on ownership structure:

- Ownership: Deed restrictions that limit any subsequent sales of the home to income-eligible borrowers at an affordable price. The resale restrictions are attached to the property's deed and may be enforced for decades. Limiting the sale price of a home can limit the ability of the seller to build wealth because home value appreciation is limited.
- Rentals: Rental housing restricted to households meeting certain income eligibility requirements. These units can be owned by local governments, non-governmental organizations, or by private owners. Owners may receive a subsidy payment from the state or a federal tax credit for keeping the rent at lower than market rate.
    - The Low-income Housing Tax Credit, or LIHTC, is a federal income tax credit for companies that invest in affordable rental housing that meets specific program guidelines. LIHTC properties account for the majority of affordable housing in the United States today.[5]

Policy Options for Encouraging Affordable Housing

Inclusionary Zoning

Inclusionary zoning policies are written into local ordinances and require developers to provide a certain number or percentage of affordable units in housing projects. Permits and development approvals are contingent upon the incorporation of affordable housing. It results in income-restricted affordable housing. There are three general categories of inclusionary zoning in North Carolina: voluntary, conditional, and mandatory. They are loosely classified based on the zoning mechanism employed and the compulsory nature of their inclusionary requirements.

The positive aspects of inclusionary zoning include the production of affordable housing at little cost to local government, the creation of income-integrated communities, and the lessening of sprawl. Negative

[3] Matthew J. Parlow, *Whither Workforce Housing?*, 40 FORDHAM URB. L.J. 1645 (2013). Available at: https://ir.lawnet.fordham.edu/ulj/vol40/iss5/9.

[4] Drucker, Adam, Lorry Lynn, and Kelly Mangold. "Attainable Housing: Challenges, Perceptions, and Solutions." Web log. *Real Estate Advisors* (blog). Accessed April 21, 2021. https://www.rclco.com/publication/attainable-housing-challenges-perceptions-and-solutions/.

[5] "An Intro to the Low-Income Housing Tax Credit." Congressional Research Service, January 26, 2021.

aspects of inclusionary zoning may include shifting the cost of providing affordable housing, segmenting the upwardly mobile poor, and inducing growth.[6]

Inclusionary zoning is a legal gray area in North Carolina, being neither expressly allowed nor forbidden by state statutes. Challengers argue that inclusionary zoning is a form of rent control, a practice illegal in North Carolina. The answer remains unclear as this argument has yet to be tested in North Carolina courts. Inclusionary zoning has been attempted by Towns like Chapel Hill and Davidson and met with varied reception. Some residents and scholars have been critical of the Towns' policies and questioned the programs' efficacy.

Rent Control

Rent control laws are local legislation that limits the maximum rent that can be charged for a unit. These limits create affordable housing that is not income-restricted. As described above, inclusionary zoning is sometimes conflated with rent control but can be a tool used on its own. However, North Carolina state statute G.S. 42-14.1 expressly prohibits rent control. Additionally, rent control has been known to have negative long-term effects on affordable housing supply.[7]

Conditional Zoning

Conditional zoning can serve as the mechanism for encouraging the development of affordable housing in places where inclusionary zoning is not being used. Developers can voluntarily provide affordable housing units, generally in exchange for a regulatory incentive (see below). Due to its voluntary nature, this type of program is usually considered the safest—politically and legally—for a local government to enact, but also cannot guarantee income-restricted affordable housing. The down side to this method is that it can be a difficult condition for a local government to enforce due to the private nature of the condition(s).

Regulatory Incentives

Regulatory incentives can be used to encourage the building of income-restricted affordable housing either explicitly or through conditional zoning processes. In places where incentives are explicitly written into local development ordinances, developers receive these benefits when they supply a certain amount of affordable housing units. These incentives help to offset the cost to the developers of providing the affordable units.

Density Bonuses

A very common way of incentivizing developers to build affordable units is by offering density bonuses, which allow developers to build more housing units than would otherwise be allowed in the zoning district. This often involves taller buildings to accommodate the extra housing units.

[6] HUD

[7] Block, Walter. "Rent Control." The Library of Economics and Liberty. Accessed April 21, 2021. https://www.econlib.org/library/Enc/RentControl.html.

Procedural Incentives

Municipalities can offer development review and construction incentives to projects that incorporate affordable housing. These include expedited development review and approval, fee reductions, and fee waivers.

Zoning Modification Incentives

Local governments can offer modified zoning requirements for projects that include affordable housing. These can include increased building height bonuses or reductions in parking, design standards, and square footage requirements.

Direct Intervention Measures

In addition to enacting ordinances to bring about affordable housing, municipalities can take other measures to directly increase affordable housing supply, particularly income-restricted affordable housing.

Community Land Trust

Local governments can consider land acquisition or establishing a community land trust to preserve sites for affordable housing. These programs typically require significant financial and staffing commitments.

Funding

The largest obstacle to direct intervention measures is often funding. Local governments can enact small tax increases, leverage bonds, or establish fees which are collected and put directly toward affordable housing efforts.

Impact Fees

Some cities around the country have imposed impact fees, which are upfront charges for infrastructure related to new development, and earmarked those funds for increasing the supply of affordable housing. The State of North Carolina does not explicitly authorize impact fees for affordable housing, so local governments wishing to do so may need to seek special legislation from the General Assembly if they wish to implement affordable housing impact fees.

Grants

For local governments meeting the requirements, the US Department of Housing and Urban Development provides annual grants for improving housing for low-income residents through the Community Development Block Grant (CDBG) Entitlement Program.

Public-Private-Partnerships

Another way a local government can directly increase the supply of below market rate housing is to enter into direct partnership with developers to subsidize the development of affordable housing units.

Additional Considerations

Many factors affect housing costs. Major influences include location, local economy, land and building costs, housing type, and market trends. To some extent, housing costs are very basically a result of supply and demand. Where there is more demand, prices will rise, and increasing supply can help lower

demand. Conversely, local policies or conditions that restrict housing supply or housing density contribute to higher housing costs.

Short Term Rentals

The explosion in popularity of the short-term rental market (ex – AirBNB, VRBO, HomeAway, etc.) has a direct effect on housing supply. As more housing units are converted to vacation rental properties, they are not available as primary residences. In communities that are popular tourist destinations, a higher proportion of homes are being used as short-term rentals, which can lower local housing supply for residents.

Land Costs

As demand for land in certain desirable locations increases, such as in cities or along the coast, the price of new housing rises as well.

Additional Resources

- Summary of Inclusionary Zoning as it relates to North Carolina Law - https://canons.sog.unc.edu/a-primer-on-inclusionary-zoning/
- Missing Middle Housing - https://missingmiddlehousing.com/

  A website addressing Missing Middle Housing, or house-scale residential building types with multiple units that can be used to increase housing unit density and housing type diversity.
- Center for Neighborhood Technology Housing & Transportation Index - https://htaindex.cnt.org/about/

  Index that rates affordability of places based on combined expense of housing and transportation.

Appendix C: Short Term Rental Primer

Often short-term rentals are zoned residenitial and developed to residential standards, but function as small hotels or other accommodation business. While short-term rentals (STRs) are not a new concept, new technologies such as AirBNB and VRBO have given rise to a new era of short-term rentals. They are increasingly popular and have the potential to be strong economic engines for tourism revenue. However, they also have the potential to diminish the character of established neighborhoods and come with zoning, nuisance, and fire safety concerns, among others.

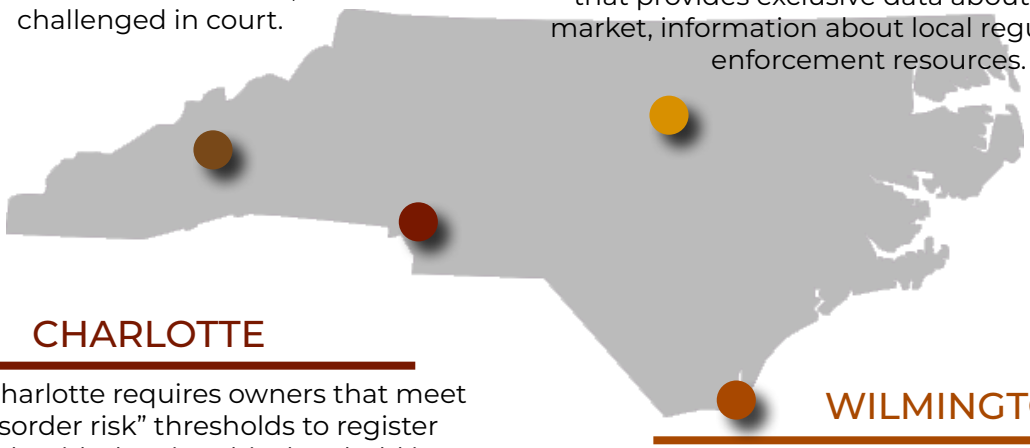
This new era of STR popularity brings questions about regulation. Homeowners in residential areas who have experienced their communities change and nuisances grow cry for more regulation, while landlords and those benefitting from STRs disagree, with local governments caught in the middle. The state of North Carolina limits more than other states do the ways that local governments can regulate STRs. The following case studies illustrate ways that this has manifested throughout the state in Raleigh, Asheville, Wilmington, and Charlotte.

ASHEVILLE

Asheville's STR approach is arguably the most successful in the state so far. The City has utilized zoning law and language to classify whole-home rentals for under 30 days as a separate zoning use, which is only allowed in one zoning district. The City also maintains a database of known STRs as they appear on rental websites via a third-party service. It should be noted that though the City's STR ordinance still stands at this time, it has been challenged in court.

RALEIGH

The city updated its STR laws in January 2020, allowing whole-home rentals but requiring that owners pay for an annual permit from the City. The update to the Vacation Rental Act in July 2020, which outlawed required permits, renders this illegal and unenforceable according to some. In September 2020, it was announced that Raleigh would be one of 15 pilot cities for an AirBNB program call City Portal, a platform for governments and tourism organizations that provides exclusive data about the rental market, information about local regulations and enforcement resources.



CHARLOTTE

The City of Charlotte requires owners that meet certain "disorder risk" thresholds to register their rentals with the city. This threshold is determined by looking at quarterly police reports. The City also encourages all rental property owners to register, but does not require it.

WILMINGTON

A 2019 local ordinance mandated that owner of whole-home rentals but register with the city and limited whole-home rentals to 2% of the housing stock, with a lottery to determine which homeowners were allowed to continue their rentals. The ordinance also stated that whole-home rentals were subject to a 400-foot separation requirement. Following a lawsuit by city homeowners, a Superior Court judge ruled these requirements were "void and unenforceable" per the state Vacation Rental Act. Wilmington is currently working on updating the ordinance.

NORTH CAROLINA STR REGULATIONS

North Carolina has unique strict laws regarding how local governments can regulate short-term rentals. As such, many solutions found in other states are not applicable to the state, increasing the challenge of regulations STRs. The state regulates STRS through the Vacation Rental Act, and updated it in 2020 with new limtations. The most salient points from the act are:

- Requiring rentals to register is unlawful
- Local governments cannot levy a tax or fee on residential rental property that is not levied against other commercial and residential properties

It is widely argued that the Vacation Rental Act leaves room for regulating STRs via local zoning, which is similar to Asheville's strategy.

North Carolina's mountains and beaches make it a hotspot for short-term vacation rentals.

REGULATION OPTIONS

Taking into account the current limitations set by the State of North Carolina, there are still several regulation options for local governments. These options differ in implementation effort, cost to the towns, and likely, effectivity. They have been organized into tiers, with Tier 1 being the easiest to implement, though likely less effective, to Tier 3 being the most involved to implement, but most effective.

TIER 1

- Creating a city-maintained STR registry that landlords opt in to.
- Tracking nuisance complaints and referencing them with known STRs.
- Providing better education and resources for landlords.

TIER 2

- Using a third-party service to track STRs and nuisance complaints.

TIER 3

- Using zoning ordinances to regulate STRs. This can include:
  - Reclassifying zoning uses for STRs.
  - Implementing rental minimum lengths of stay.
  - Restricting zoning districts in which STRs can locate.
  - Can also be used to dictate requirements related to qualities such as parking, fire code, and density.

Appendix D: Rachel Carson Reserve Resilience

This information was provided to the Steering Committee to help expand awareness of the adjacent ecological resources and planning efforts for the Reserve.

A briefing on the concurrent resiliency planning at the Rachel Carson Reserve.

A brief on

Rachel Carson Reserve Habitat Resilience

for the Town of Beaufort's comprehensive plan steering committee

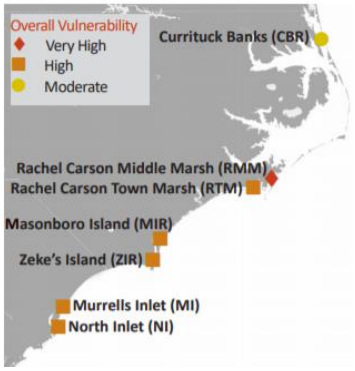
The Rachel Carson Reserve functions as a nature preserve, outdoor laboratory and classroom, and protective storm barrier for the Town of Beaufort. As environmental and human conditions change, it is important to understand where, why, and how habitats of the Rachel Carson Reserve have been or may be affected. These answers will help guide future actions that will support local environmental and social resilience.

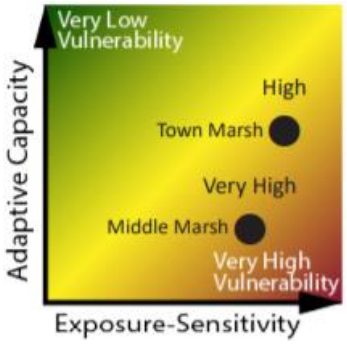
Assessing Vulnerability

An understanding of the Reserve's habitats and their vulnerability to coastal flooding and severe weather is an important first step in planning for future impacts. Vulnerability assessment project examples are found, below.

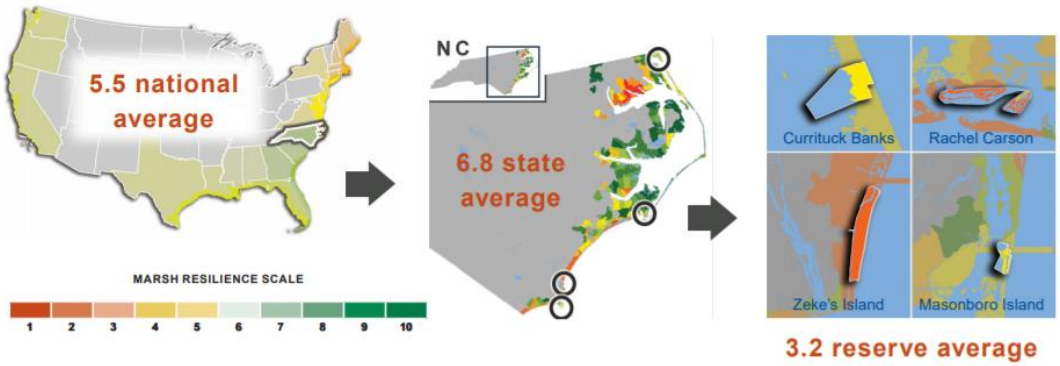
Marsh Vulnerability on a Site and Regional Scale

The Climate Change Vulnerability Assessment Tool for Coastal Habitats decision support tool revealed that marsh at the Rachel Carson Reserve shares a "high or very high" vulnerability with other Reserve site marshes in NC, except for the Reserve site at Currituck Banks which is "moderately vulnerable." The process also revealed that the main part of the site (Town Marsh, Carrot Island) is less vulnerable than Middle Marsh (separated from the rest of the site by the North River Channel). More details.





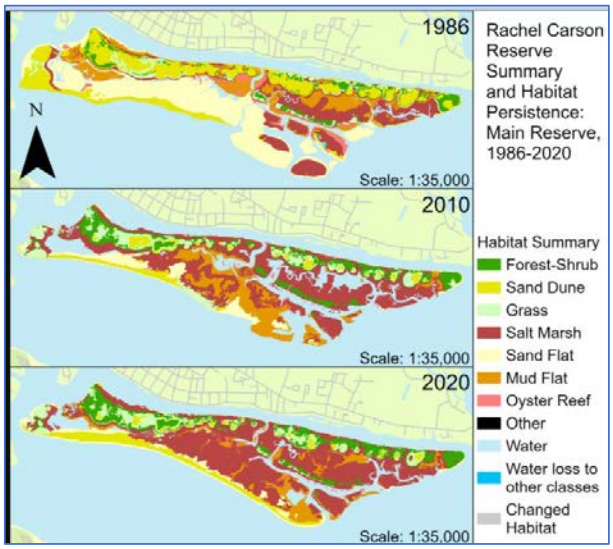
Marsh Vulnerability on a Landscape Scale



Marsh at the Rachel Carson Reserve is less resilient that marshes nationwide (average score 5.5), at the state-level (average score of 6.8) and is among the least resilient of the State's 4 federal Reserve sites (score less than 3.2). More details.

Analyzing Habitat & Shoreline Change

Understanding how habitats have changed and why is key to understanding how they will respond to future conditions such as sea level rise. At the Rachel Carson Reserve, dredging projects and inlet width strongly influence habitat change.



Click this image to download an enlarged version.

Top to bottom: 1942 (notice the rock bulkhead in red that was installed ~1915 to connect Town Marsh and Carrot Island), 1993, and 2019.

Planning for the Future

In 2020, the Division of Coastal Management received funds from the National Fish and Wildlife Foundation to support a community resilience program and to ***develop a habitat resilience plan for the Rachel Carson Reserve***.

Development of the habitat resilience plan is based on a knowledge base of vulnerability assessments, various analyses, published studies, and consultation with a team of experts, including staff from the Town of Beaufort. The plan will include strategies that help support the resilience of habitats at the Reserve, habitats that are important to protecting the Town's waterfront.

Access the Rachel Carson Reserve Habitat Resilience Plan Knowledge Base

Rachel Carson Reserve contact information: paula.gillikin@ncdenr.gov

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Appendix E: Endangered Species within Carteret County

Taxonomic Group	Scientific Name	Common Name	Status		Habitat Comment
			State	Federal	
Amphibian	*Ambystoma mabeei*	Mabee's Salamander	T	none	shallow ephemeral wetlands, such as Carolina bays, vernal pools, and sinkholes
Amphibian	*Anaxyrus quercicus*	Oak Toad	SR	none	pine flatwoods and savannas, pine sandhills where near water
Amphibian	*Hemidactylium scutatum*	Four-toed Salamander	SC	none	pools, bogs, and other wetlands in hardwood forests
Amphibian	*Pseudacris brimleyi*	Brimleys Chorus Frog	W5	none	swamps, marshes, and other wetlands
Amphibian	*Pseudacris nigrita*	Southern Chorus Frog	SC	none	ditches, Carolina bays, and other temporary shallow pools and ponds
Amphibian	*Rana capito*	Carolina Gopher Frog	E	none	breeds in temporary fish-free pools; forages in sandy woods, especially pine-oak sandhills
Animal Assemblage	*Waterbird Colony*	Waterbird Colony		none	null
Bird	*Ammodramus savannarum*	Grasshopper Sparrow	W1,W5	none	pastures and other grasslands [breeding season only]
Bird	*Ammospiza caudacuta*	Saltmarsh Sparrow	SR	none	tidal marshes [wintering sites]
Bird	*Anhinga anhinga*	Anhinga	W2	none	wooded lakes or ponds, or open swamps (for nesting) [breeding evidence only]
Bird	*Botaurus lentiginosus*	American Bittern	SR	none	fresh or brackish marshes [breeding evidence only]
Bird	*Calidris canutus rufa*	Red Knot - rufa subspecies	T	T	beaches and sand flats [wintering sites]
Bird	*Charadrius melodus melodus*	Piping Plover - Atlantic Coast subspecies	T	T	ocean beaches and island-end flats [breeding evidence only]
Bird	*Charadrius wilsonia*	Wilson's Plover	SC	none	beaches, island-end flats, estuarine islands [breeding evidence only]

Taxonomic Group	Scientific Name	Common Name	Status		Habitat Comment
			State	Federal	
Bird	*Circus hudsonius*	Northern Harrier	SR	none	extensive brackish marshes (for nesting) [breeding evidence only]
Bird	*Coccyzus erythropthalmus*	Black-billed Cuckoo	SR	none	deciduous forests, mainly at higher elevations [breeding evidence only]
Bird	*Dryobates borealis*	Red-cockaded Woodpecker	E	E	mature open pine forests, mainly in longleaf pine [breeding evidence only]
Bird	*Egretta caerulea*	Little Blue Heron	SC	none	forests or thickets on maritime islands, rarely in swamps or at pondsÂ [breeding evidence only]
Bird	*Egretta thula*	Snowy Egret	SC	none	forests or thickets on maritime islands, rarely in swamps or at ponds [breeding evidence only]
Bird	*Egretta tricolor*	Tricolored Heron	SC	none	forests or thickets on maritime islands [breeding evidence only]
Bird	*Eudocimus albus*	White Ibis	W2	none	forests or thickets on maritime islands, rarely at ponds [breeding evidence only]
Bird	*Gallinula galeata*	Common Gallinule	W2	none	freshwater ponds and impoundments with much emergent vegetation [breeding evidence only]
Bird	*Gelochelidon nilotica*	Gull-billed Tern	T	none	sand flats on maritime islands [breeding evidence only]
Bird	*Haematopus palliatus*	American Oystercatcher	SC	none	estuaries, oyster beds, mudflats [breeding evidence only]
Bird	*Haliaeetus leucocephalus*	Bald Eagle	T	BGPA	mature forests near large bodies of water (nesting); rivers, lakes, and sounds (foraging) [breeding evidence only]
Bird	*Helmitheros vermivorum pop. 1*	Worm-eating Warbler - Coastal Plain Population	W5	none	nonriverine wet hardwoods, pocosins [breeding evidence only]
Bird	*Himantopus mexicanus*	Black-necked Stilt	SR	none	fresh or brackish ponds and impoundments [breeding evidence only]
Bird	*Ixobrychus exilis*	Least Bittern	SC	none	fresh or brackish marshes [breeding evidence only]
Bird	*Laterallus jamaicensis*	Black Rail	T	T	brackish marshes, rarely fresh marshes [breeding evidence only]
Bird	*Nycticorax nycticorax*	Black-crowned Night-Heron	W1	none	maritime thickets or forests, almost always on small islands [nesting sites only]
Bird	*Passerina ciris*	Painted Bunting	SC	none	maritime shrub thickets and forest edges [breeding evidence only]
Bird	*Pelecanus occidentalis*	Brown Pelican	SR	none	maritime islands [breeding evidence only]

Taxonomic Group	Scientific Name	Common Name	Status		Habitat Comment
			State	Federal	
Bird	*Peucaea aestivalis*	Bachman's Sparrow	SC	none	open longleaf pine forests, old fields [breeding evidence only]
Bird	*Phalacrocorax auritus*	Double-crested Cormorant	SR	none	lakes with scattered trees, coastal sand bars (nesting) [breeding evidence only]
Bird	*Plegadis falcinellus*	Glossy Ibis	SC	none	forests or thickets on maritime islands [breeding evidence only]
Bird	*Podilymbus podiceps*	Pied-billed Grebe	W2	none	fresh to slightly brackish ponds and impoundments, usually with fringing vegetation [breeding evidence only]
Bird	*Rallus elegans*	King Rail	W1,W3	none	fresh to slightly brackish marshes [breeding evidence only]
Bird	*Rallus limicola*	Virginia Rail	W3	none	brackish to nearly fresh marshes near coast [breeding season only]
Bird	*Rynchops niger*	Black Skimmer	SC	none	sand flats on maritime islands [breeding evidence only]
Bird	*Setophaga virens waynei*	Wayne's Black-throated Green Warbler	E	none	nonriverine wetland forests, especially where white cedar or cypress are mixed with hard-woods [breeding evidence only]
Bird	*Spiza americana*	Dickcissel	SR	none	fallow fields and pastures with tall forbs [breeding evidence for consistent year-to-year sites only]
Bird	*Sterna forsteri*	Forster's Tern	W2	none	salt or brackish marshes, nesting on wrack material or matted grasses [breeding sites only]
Bird	*Sterna hirundo*	Common Tern	E	none	sand flats on maritime islands [breeding evidence only]
Bird	*Sternula antillarum*	Least Tern	SC	none	beaches, sand flats, open dunes, gravel rooftopsÂ [breeding evi-dence only]
Butterfly	*Amblyscirtes carolina*	Carolina Roadside-Skipper	W2	none	moist woods (mainly hardwoods) near cane; host plant -- cane (Arundinaria)
Butterfly	*Amblyscirtes reversa*	Reversed Roadside-Skipper	SR	none	flatwoods, savannas, pocosin borders, near cane; host plant -- cane (Arundinaria)
Butterfly	*Atrytone arogos arogos*	Eastern Arogos Skipper	SR	none	savannas, open pinewoods, and other relatively undis-turbed grasslands; host plants -- grasses, mainly pinebarrens sandreed (Calamovilfa brevipilis)
Butterfly	*Atrytonopsis quinteri*	Crystal Skipper	SR	none	dunes and sandy flats; host plant -- seaside little bluestem (Schi-zachyrium littorale) (endemic to North Carolina)

Taxonomic Group	Scientific Name	Common Name	Status		Habitat Comment
			State	Federal	
Butterfly	*Calephelis virginiensis*	Little Metalmark	SR	none	savannas and pine flatwoods; host plants -- vanilla-plant (Trilisa odoratissima), thistles (Cirsium)
Butterfly	*Cecropterus confusis (syn. Thorybes confusis)*	Confused Cloudywing	W3	none	dry woodland borders and openings, brushy fields; host plants -- legumes
Butterfly	*Heraclides cresphontes*	Eastern Giant Swallowtail	SR	none	primarily coastal in maritime forests or thickets; also in foothills and mountains near hoptree; host plants -- prickly-ash (Zanthoxylum), hoptree (Ptelea)
Butterfly	*Neonympha areolatus*	Georgia Satyr	SR	none	savannas, wet powerline clearings, other damp grassy places; host plants -- sedges
Butterfly	*Phyciodes phaon*	Phaon Crescent	W5	none	open, often dry areas, mainly on barrier islands; host plants -- fogfruit (Lippia)
Butterfly	*Pyrgus albescens*	White Checkered-Skipper	W3	none	dry, open habitats, often where sandy, in the southern parts of the state; host plants -- mallows (Sida)
Butterfly	*Satyrium favonius ontario*	Northern Oak Hairstreak	SR	none	oak-dominated woods, usually in dry sites; host plants -- oaks (Quercus)
Butterfly	*Satyrium kingi*	King's Hairstreak	W2	none	forests, often moist, usually near sweetleaf; host plant -- sweetleaf (Symplocos tinctoria)
Dragonfly or Damselfly	*Lestes vidua*	Carolina Spreadwing	W2	none	ponds and pools
Dragonfly or Damselfly	*Macrodiplax balteata*	Marl Pennant	W3	none	ponds and lakes near the coast, usually brackish or near marl
Freshwater Fish	*Acipenser oxyrinchus oxyrinchus*	Atlantic Sturgeon	E	E	coastal waters, estuaries, large rivers
Freshwater Fish	*Enneacanthus obesus*	Banded Sunfish	SR	none	most Atlantic drainages
Freshwater Fish	*Fundulus confluentus*	Marsh Killifish	W2	none	fresh to brackish waters along coast
Freshwater Fish	*Fundulus luciae*	Spotfin Killifish	W2	none	ponds and pools along coast
Grasshopper or Katydid	*Melanoplus decorus*	Decorated Spurthroat Grasshopper	SR	none	savannas, flatwoods, low pocosins (endemic to North Carolina)
Grasshopper or Katydid	*Mermiria bivittata*	Two-striped Mermiria	SR	none	dune grasslands and other grassy areas in or near coastal forests
Grasshopper or Katydid	*Mermiria picta*	Lively Mermiria	W3	none	longleaf pine savannas and flatwoods
Lichen	*Cladina evansii (syn. Cladonia evansii)*	Powder-puff Lichen	W7	none	sandhills (primarily near the coast) usually associated with Quercus geminata

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Lichen	*Phaeographis oricola*	Carolina Beach Drops	W7	none	tidal harwood forest, maritime forests
Lichen	*Teloschistes flavicans*	Sunrise Lichen	SR-P	none	on branches of trees and shrubs or on the ground in open areas, especially near the coast
Lichen	*Xyleborus nigricans*	Black Caps	W7	none	on gymnosperm logs in swamp forests
Liverwort	*Lejeunea bermudiana*	A Liverwort	SR-P	none	on marl outcrops or on decaying logs in blackwater swamps, or tree bases in swamps
Liverwort	*Plagiochila raddiana*	A Liverwort	SR-P	none	on bark or moist rock in swamps and mountain gorges
Mammal	*Lasiurus seminolus*	Seminole Bat	W2	none	forages over open areas, often over water (summer); mainly in southern half of the state
Mammal	*Myotis septentrionalis*	Northern Long-eared Bat	T	E	roosts in hollow trees and buildings (warmer months), in caves and mines (winter); mainly in the mountains
Mammal	*Perimyotis subflavus*	Tricolored Bat	E	PE	roosts in clumps of leaves (mainly in summer), caves, rock crevices, and other dark and sheltered places
Mammal	*Trichechus manatus*	West Indian Manatee	T	T	warm waters of estuaries and river mouths
Moss	*Campylopus carolinae*	Savanna Campylopus	SR-T	none	Obscure in xeric sandy soils or compact tufts of other mosses
Moss	*Sphagnum fitzgeraldii*	Fitzgerald's Peatmoss	W1	none	pocosins and savannas
Moss	*Tortula plinthobia*	A Chain-teeth Moss	SR-O	none	calcareous rocks, concrete or mortared walls
Moth	*Agrotis buchholzi*	Buchholz's Dart Moth	SR	none	flatwoods with pyxie-moss (Pyxidanthera) (endemic to North Carolina)
Moth	*Anicla lubricans*	Slippery Dart	W3	none	savannas and flatwoods
Moth	*Argyrostrotis quadrifilaris*	Four-lined Chocolate Moth	SR	none	pocosins and flatwoods
Moth	*Cabera quadrifasciaria*	Four-lined Cabera Moth	W3	none	unknown habitats
Moth	*Callosamia securifera*	Sweetbay Silkmoth	W3	none	pocosins and other wetlands with sweetbay
Moth	*Caripeta aretaria*	Southern Pine Looper	W3	none	pine forests
Moth	*Cerma cora*	Owl-eyed Bird-dropping Moth	SR	none	levee forests with hawthorn
Moth	*Dargida rubripennis*	Pink Streak	SR	none	beach grasslands and sandy fields
Moth	*Datana ranaeceps*	Post-burn Datana Moth	SR	none	recently burned flatwoods and sandhills

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Moth	*Doryodes bistrialis (syn. Doryodes sp. 1)*	Wiregrass Doryodes	W3	none	savannas, flatwoods, and sandhills
Moth	*Exyra fax*	Epauletted Pitcher-plant Moth	SR	none	wetlands with purple pitcher-plants
Moth	*Exyra ridingsii*	a Pitcher-plant Moth	SR	none	wetlands with yellow pitcher-plants
Moth	*Franclemontia interrogans*	Franclemont's Cane Moth	SR	none	canebrakes
Moth	*Gondysia similis*	Gordonia Darkwing	W3	none	pocosins and bay forests
Moth	*Hemipachnobia subporphyrea*	Venus Flytrap Cutworm Moth	SR	none	savannas with Venus flytraps (endemic to North Carolina)
Moth	*Idaea ostentaria*	Showy Wave	SR	none	sandhills
Moth	*Lithophane lemmeri*	Lemmer's Pinion	W3	none	cedar glades and Atlantic white cedar forests
Moth	*Litoprosopus futilis*	Palmetto Borer	W3	none	palmettos
Moth	*Nemoria outina*	an Emerald Moth	W3	none	no habitat information
Moth	*Neoplynes eudora*	a Wasp Moth	W3	none	unknown
Moth	*Orgyia detrita*	a tussock moth	W3	none	hardwood forests
Moth	*Photedes enervata*	a Borer Moth	W3	none	tidal marshes
Moth	*Schinia siren*	Alluring Schinia Moth	W3	none	open hardwood forests
Moth	*Schinia sordidus*	Sordid Flower Moth	W3	none	savannas
Moth	*Spilosoma dubia*	Dubious Tiger Moth	W3	none	acidic wetlands
Moth	*Xestia youngii*	Young's Dart Moth	W3	none	peatlands
Moth	*Zale declarans*	Dixie Zale	SR	none	maritime forests with live oak
Natural Community	Bay Forest			none	null
Natural Community	Brackish Marsh (Needlerush Subtype)			none	null
Natural Community	Brackish Marsh (Salt Meadow Cordgrass Subtype)			none	null
Natural Community	Brackish Marsh (Smooth Cordgrass Subtype)			none	null
Natural Community	Coastal Fringe Evergreen Forest (Typic Subtype)			none	null
Natural Community	Coastal Plain Depression Swamp (Mixed Subtype)			none	null
Natural Community	Coastal Plain Depression Swamp (Pocosin Subtype)			none	null

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Natural Community	Coastal Plain Semipermanent Impoundment (Cypress-Gum Subtype)			none	null
Natural Community	Coastal Plain Semipermanent Impoundment (Open Water Subtype)			none	null
Natural Community	Coastal Plain Semipermanent Impoundment (Typic Marsh Subtype)			none	null
Natural Community	Coastal Plain Small Stream Swamp			none	null
Natural Community	Cypress--Gum Swamp (Blackwater Subtype)			none	null
Natural Community	Dry-Mesic Oak--Hickory Forest (Coastal Plain Subtype)			none	null
Natural Community	Dune Grass (Bluestem Subtype)			none	null
Natural Community	Dune Grass (Southern Subtype)			none	null
Natural Community	Estuarine Beach Forest			none	null
Natural Community	Estuarine Fringe Pine Forest (Loblolly Pine Subtype)			none	null
Natural Community	Estuarine Fringe Pine Forest (Pond Pine Subtype)			none	null
Natural Community	High Pocosin (Evergreen Subtype)			none	null
Natural Community	Interdune Marsh			none	null
Natural Community	Interdune Pond			none	null
Natural Community	Low Pocosin (Titi Subtype)			none	null
Natural Community	Maritime Dry Grassland (Typic Subtype)			none	null
Natural Community	Maritime Evergreen Forest (Mid Atlantic Subtype)			none	null
Natural Community	Maritime Shrub (Stunted Tree Subtype)			none	null
Natural Community	Maritime Shrub (Wax-Myrtle Subtype)			none	null
Natural Community	Maritime Shrub Swamp (Dogwood Subtype)			none	null
Natural Community	Maritime Swamp Forest (Typic Subtype)			none	null
Natural Community	Maritime Wet Grassland (Southern Hairgrass Subtype)			none	null
Natural Community	Marsh Hammock			none	null
Natural Community	Mesic Mixed Hardwood Forest (Coastal Plain Subtype)			none	null

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Natural Community	Mesic Pine Savanna (Coastal Plain Subtype)			none	null
Natural Community	Nonriverine Wet Hardwood Forest (Oak Flat Subtype)			none	null
Natural Community	Pine/Scrub Oak Sandhill (Blackjack Subtype)			none	null
Natural Community	Pine/Scrub Oak Sandhill (Coastal Fringe Subtype)			none	null
Natural Community	Pine/Scrub Oak Sandhill (Mixed Oak Subtype)			none	null
Natural Community	Pocosin Opening (Sedge-Fern Subtype)			none	null
Natural Community	Pond Pine Woodland (Typic Subtype)			none	null
Natural Community	Salt Flat			none	null
Natural Community	Salt Marsh (Carolinian Subtype)			none	null
Natural Community	Salt Shrub (High Subtype)			none	null
Natural Community	Salt Shrub (Low Subtype)			none	null
Natural Community	Sand Flat			none	null
Natural Community	Small Depression Drawdown Meadow (Boggy Pool Subtype)			none	null
Natural Community	Small Depression Drawdown Meadow (Typic Subtype)			none	null
Natural Community	Small Depression Pocosin (Typic Subtype)			none	null
Natural Community	Small Depression Pond (Open Lily Pond Subtype)			none	null
Natural Community	Small Depression Pond (Typic Marsh Subtype)			none	null
Natural Community	Small Depression Shrub Border			none	null
Natural Community	Tidal Freshwater Marsh (Cattail Subtype)			none	null
Natural Community	Tidal Freshwater Marsh (Giant Cordgrass Subtype)			none	null
Natural Community	Tidal Freshwater Marsh (Mixed Freshwater Subtype)			none	null
Natural Community	Tidal Freshwater Marsh (Sawgrass Subtype)			none	null
Natural Community	Tidal Freshwater Marsh (Shrub Subtype)			none	null
Natural Community	Tidal Freshwater Marsh (Threesquare Subtype)			none	null

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Natural Community	Tidal Swamp (Cypress--Gum Subtype)			none	null
Natural Community	Upper Beach (Southern Subtype)			none	null
Natural Community	Vernal Pool (Typic Subtype)			none	null
Natural Community	Wet Loamy Pine Savanna			none	null
Natural Community	Wet Pine Flatwoods (Sand Myrtle Subtype)			none	null
Natural Community	Wet Pine Flatwoods (Typic Subtype)			none	null
Natural Community	Wet Sandy Pine Savanna (Typic Subtype)			none	null
Natural Community	Xeric Sandhill Scrub (Coastal Fringe Subtype)			none	null
Natural Community	Xeric Sandhill Scrub (Typic Subtype)			none	null
Reptile	*Alligator mississippiensis*	American Alligator	T	T(S/A)	fresh to slightly brackish lakes, ponds, rivers, and marshes
Reptile	*Caretta caretta*	Loggerhead Seaturtle	T	T	nests on beaches; forages in ocean and sounds [breeding evidence only]
Reptile	*Cemophora coccinea*	Scarlet Snake	W1,W5	none	sandhills, sandy woods, and other dry woods
Reptile	*Chelonia mydas*	Green Seaturtle	T	T	nests on beaches; forages in ocean and sounds [breeding evidence only]
Reptile	*Clemmys guttata*	Spotted Turtle	W1	none	shallow water of pools, marshes, wet pastures and other smaller wetlands
Reptile	*Crotalus adamanteus*	Eastern Diamondback Rattlesnake	E	none	pine flatwoods, savannas, pine-oak sandhills
Reptile	*Crotalus horridus*	Timber Rattlesnake	SC	none	wetland forests in the Coastal Plain; rocky, upland forests elsewhere
Reptile	*Deirochelys reticularia reticularia*	Eastern Chicken Turtle	SC	none	quiet waters of ponds, ditches, and sluggish streams
Reptile	*Dermochelys coriacea*	Leatherback Seaturtle	E	E	nests on beaches; forages in oceans, rarely in sounds [breeding evidence only]
Reptile	*Farancia erytrogramma*	Rainbow Snake	SR	none	swamps, lakes, rivers, and other sluggish water
Reptile	*Lampropeltis getula sticticeps*	Outer Banks Kingsnake	SC	none	maritime forests, thickets, and grasslands on the Outer Banks (endemic to North Carolina)
Reptile	*Lepidochelys kempii*	Kemp's Ridley Seaturtle	E	E	nests on beaches, forages in ocean and sounds [breeding evidence only]

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Reptile	*Liodytes rigida*	Glossy Crayfish Snake	SR	none	marshes, cypress ponds, other wetlands
Reptile	*Malaclemys terrapin*	Diamondback Terrapin	SC	none	salt or brackish marshes, estuaries
Reptile	*Nerodia sipedon williamengelsi*	Carolina Watersnake	SC	none	salt or brackish marshes (endemic to North Carolina)
Reptile	*Ophisaurus mimicus*	Mimic Glass Lizard	E	none	pine flatwoods, savannas, pine/oak sandhills
Reptile	*Rhadinaea flavilata*	Pine Woods Snake	W2	none	pine flatwoods and other damp woodlands
Reptile	*Sistrurus miliarius miliarius*	Carolina Pigmy Rattlesnake	SC	none	pine flatwoods, pine/oak sand-hills, other pine/oak forests
Reptile	*Virginia valeriae*	Smooth Earthsnake	W2	none	deciduous or mixed woods, usually in mesic soils
Sawfly, Wasp, Bee, or Ant	*Bombus pensylvanicus*	American Bumble Bee	W3	none	open habitats, fields
Vascular Plant	*Agalinis aphylla*	Scale-leaf Gerardia	W1	none	wet savannas and Sandhills streamhead pocosin ecotones
Vascular Plant	*Agalinis obtusifolia*	Blunt-leaf False-foxglove	W1	none	savannas, seepage bogs, and wet ecotones
Vascular Plant	*Agalinis virgata*	Branched Gerardia	T	none	savannas and depression pond shores
Vascular Plant	*Agrostis altissima*	Tall Bentgrass	SR-T	none	wet savannas
Vascular Plant	*Amaranthus pumilus*	Seabeach Amaranth	T	T	ocean beaches and island-end flats
Vascular Plant	*Amphicarpum amphicarpon*	Pinebarrens Goober Grass	W1	none	pine savannas, pocosins, shallow peat burns in pocosin/savanna ecotones
Vascular Plant	*Andropogon mohrii*	Bog Bluestem	SR-O	none	wet savannas
Vascular Plant	*Andropogon perangustatus*	Narrowleaf Bluestem	W1	none	clay-based Carolina bays, upland depressions
Vascular Plant	*Andropogon virginicus var. decipiens*	Deceptive Bluestem	W7	none	pinelands and disturbed areas
Vascular Plant	*Anthenantia rufa*	Purple Silkyscale	W1	none	savannas
Vascular Plant	*Asclepias pedicellata*	Savanna Milkweed	SC-V	none	dry savannas and moist flatwoods
Vascular Plant	*Baccharis angustifolia*	Saltwater False-willow	W1	none	brackish marshes, shrubby marsh edges
Vascular Plant	*Bartonia paniculata ssp. paniculata*	Twining Screwstem	W1	none	bogs, wet savannas, sandhill seeps, other open wet areas
Vascular Plant	*Bartonia verna*	White Screwstem	W1	none	savannas, limesink ponds
Vascular Plant	*Burmannia biflora*	Northern Bluethreads	W1	none	limesinks, cypress savannas, and sandhill seeps

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Vascular Plant	*Calamovilfa brevipilis*	Pinebarren Sandreed	W1	none	savannas, sandhill seeps
Vascular Plant	*Calopogon multiflorus*	Many-flower Grass-pink	E	none	savannas
Vascular Plant	*Carex calcifugens*	Calcium-fleeing Sedge	SC-V	none	mesic deciduous forests and maritime woodlands
Vascular Plant	*Carex chapmanii*	Chapman's Sedge	W1	none	moist bottomlands and slopes, perhaps associated with marl
Vascular Plant	*Carex hyalinolepis*	Shoreline Sedge	W1	none	marshes
Vascular Plant	*Carex mitchelliana*	Mitchell's Sedge	W1	none	swampy woodlands and forests
Vascular Plant	*Carex oligocarpa*	Rich-woods Sedge	T	none	rich woods, mostly over calcareous or mafic rocks
Vascular Plant	*Chenopodium berlandieri var. macrocalycium*	Large-calyx Goosefoot	W7	none	Coastal sands, beaches
Vascular Plant	*Cirsium lecontei*	Leconte's Thistle	SC-V	none	savannas
Vascular Plant	*Cleistesiopsis bifaria*	Small Spreading Pogonia	W1	none	savannas, dry meadows
Vascular Plant	*Cleistesiopsis divaricata*	Spreading Pogonia	W7	none	pine savannas
Vascular Plant	*Clematis catesbyana*	Coastal Virgin's-bower	SR-P	none	dunes, edges of maritime forests, or over dolomite
Vascular Plant	*Coreopsis palustris*	Beadle's Coreopsis	SR-P	none	swamp forests and swamp edges
Vascular Plant	*Crocanthemum carolinianum*	Carolina Sunrose	E	none	sandhills, pinelands, dry savannas
Vascular Plant	*Crocanthemum corymbosum*	Pinebarren Sunrose	T	none	maritime forests
Vascular Plant	*Crocanthemum georgianum*	Georgia Sunrose	E	none	maritime forests
Vascular Plant	*Cyperus tetragonus*	Four-angled Flatsedge	SC-V	none	maritime forests and barrier island grasslands
Vascular Plant	*Dichanthelium caerulescens*	Blue Witch Grass	T	none	Marshes, swamps, wet pinelands, maritime grasslands, damp sandy soil.
Vascular Plant	*Dichanthelium cryptanthum*	Hidden-flowered Witchgrass	SR-T	none	wet streamhead pocosin openings, including utility clearings
Vascular Plant	*Dichanthelium neuranthum*	Nerved Witch Grass	SR-D	none	Maritime wet grasslands, Piedmont barrens
Vascular Plant	*Dichanthelium oligosanthes var. scribnerianum*	Scribner's Witch Grass	W7	none	calcareous, coastal-fringe forests and dry, thin woods on basic soils
Vascular Plant	*Dichanthelium spretum*	Eaton's Witch Grass	E	none	wet sands and peats of bogs, savannas, meadows, and shores

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Vascular Plant	*Dichanthelium webberianum (syn. Panicum webberianum)*	Webber's Witch Grass	W1	none	moist pine savannas and flatwoods
Vascular Plant	*Dionaea muscipula*	Venus Flytrap	T	none	savannas, seepage bogs, pocosin edges
Vascular Plant	*Dryopteris ludoviciana*	Southern Woodfern	W1	none	acid swamps
Vascular Plant	*Eleocharis cellulosa*	Gulfcoast Spikerush	T	none	interdune ponds, brackish marshes & tidal freshwater marshes
Vascular Plant	*Eleocharis equisetoides*	Horsetail Spikerush	W1	none	limesink ponds, lakes, borrow pits, ditches
Vascular Plant	*Eleocharis parvula*	Little-spike Spikerush	T	none	brackish and fresh marshes
Vascular Plant	*Eleocharis robbinsii*	Robbins' Spikerush	SC-V	none	limesink ponds, clay-based Carolina bays, peat-burn lakes, millponds, beaver ponds, artificial lakes
Vascular Plant	*Eleocharis rostellata*	Beaked Spikerush	SR-O	none	brackish marshes
Vascular Plant	*Eleocharis vivipara*	Viviparous Spikerush	T	none	bogs and pools
Vascular Plant	*Elymus halophilus*	Terrell Grass	SR-P	none	brackish marshes, maritime forests and hammocks
Vascular Plant	*Euphorbia bombensis*	Southern Seaside Spurge	SR-T	none	seabeaches
Vascular Plant	*Gaylussacia bigeloviana*	Northern Dwarf Huckleberry	W7	none	pocosins
Vascular Plant	*Habenaria repens*	Water-spider Orchid	W1	none	in stagnant, blackwater pools and impoundments
Vascular Plant	*Hibiscus aculeatus*	Comfortroot	T	none	bay forests, sand ridges, and roadsides
Vascular Plant	*Hypericum fasciculatum*	Peelbark St. John's-wort	E	none	beaver ponds, low pinelands, pools
Vascular Plant	*Hypoxis juncea*	Fringed Yellow Stargrass	SR-P	none	savannas
Vascular Plant	*Ilex cassine*	Dahoon	W1	none	blackwater swamps and pocosins
Vascular Plant	*Ipomoea brasiliensis (syn. Ipomoea pes-caprae ssp. brasiliensis)*	Railroad Vine	W4	none	ocean beaches
Vascular Plant	*Ipomoea imperati*	Beach Morning-glory	SC-V	none	sea beaches and foredunes
Vascular Plant	*Iresine rhizomatosa*	Rootstock Bloodleaf	W1	none	low wet places, interdune swales, damp woods, edges of brackish marshes

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Vascular Plant	*Isotria verticillata*	Large Whorled Pogonia	W1	none	forests
Vascular Plant	*Leucospora multifida*	Cliff Conobea	W4	none	sandy margins of ponds and wetlands
Vascular Plant	*Litsea aestivalis*	Pondspice	SC-V	none	limesink ponds, other pools
Vascular Plant	*Ludwigia alata*	Winged Seedbox	SR-P	none	interdune ponds, marshes
Vascular Plant	*Ludwigia lanceolata*	Lanceleaf Seedbox	E	none	interdune ponds, open wet areas
Vascular Plant	*Ludwigia linifolia*	Flaxleaf Seedbox	T	none	limesink ponds
Vascular Plant	*Ludwigia maritima*	Seaside Seedbox	W7	none	savannas, dunes, and ditches
Vascular Plant	*Lysimachia asperulifolia*	Rough-leaf Loosestrife	E	E	pocosin/savanna ecotones, pocosins
Vascular Plant	*Lysimachia loomisii*	Loomis's Loosestrife	W1	none	savannas and pocosins
Vascular Plant	*Magnolia grandiflora*	Southern Magnolia	W1	none	mainland forests with maritime influence on the southeastern coast of North Carolina; introduced elsewhere
Vascular Plant	*Malaxis spicata*	Florida Adder's-mouth	SC-V	none	maritime swamp forests, calcareous but mucky outer coastal plain swamps
Vascular Plant	*Myriophyllum laxum*	Loose Water-milfoil	E	none	limesink ponds, waters of natural lakes
Vascular Plant	*Oplismenus setarius*	Shortleaf Basket Grass	SR-P	none	maritime forests, bottomlands
Vascular Plant	*Panicum tenerum*	Southeastern Panic Grass	W1	none	wet savannas, sandhill seeps, limesink ponds
Vascular Plant	*Parietaria praetermissa*	Large-seed Pellitory	SR-P	none	shell middens, disturbed sites, maritime forests
Vascular Plant	*Paspalum praecox*	Early Crown Grass	W1	none	limesink ponds and savannas
Vascular Plant	*Paspalum vaginatum*	Seashore Crown Grass	SR-P	none	brackish marshes, low wet places
Vascular Plant	*Peltandra sagittifolia*	Spoonflower	SR-P	none	pocosins, other wet, peaty sites
Vascular Plant	*Persea borbonia*	Upland Red Bay	W7	none	sandy upland soils in maritime forests
Vascular Plant	*Persicaria densiflora (syn. Persicaria glabra)*	Dense-flower Smartweed	W1	none	Swamp forests
Vascular Plant	*Phytolacca rigida (syn. Phytolacca americana var. rigida)*	Maritime Pokeweed	W1	none	dunes, edges of brackish or salt marshes

Taxonomic Group	Scientific Name	Common Name	Status		Habitat Comment
			State	Federal	
Vascular Plant	*Pinguicula pumila*	Small Butterwort	T	none	savannas
Vascular Plant	*Platanthera blephariglottis*	Small White-fringed Orchid	W7	none	bogs or depressions
Vascular Plant	*Polygala hookeri*	Hooker's Milkwort	SC-V	none	savannas
Vascular Plant	*Polygonum glaucum*	Seabeach Knotweed	E	none	ocean and sound beaches
Vascular Plant	*Ponthieva racemosa*	Shadow-witch	T	none	blackwater forests and swamps, especially over marl
Vascular Plant	*Potamogeton foliosus var. foliosus (syn. Potamogeton foliosus, Potamogeton foliosus ssp. foliosus)*	Leafy Pondweed	W1	none	lakes, streams, and ponds
Vascular Plant	*Rhexia cubensis*	West Indies Meadow-beauty	W1	none	limesink ponds
Vascular Plant	*Rhynchospora galeana*	Short-bristled Beaksedge	SR-P	none	savannas
Vascular Plant	*Rhynchospora harperi*	Harper's Beaksedge	SC-V	none	limesink ponds and cypress savannas
Vascular Plant	*Rhynchospora inundata*	Narrowfruit Beaksedge	W1	none	limesink ponds, clay-based Carolina bays
Vascular Plant	*Rhynchospora macra*	Southern White Beaksedge	T	none	sandhill seeps, blackwater impoundments, streamhead pocosins
Vascular Plant	*Rhynchospora microcarpa*	Southern Beaksedge	T	none	maritime wet grasslands, limesink ponds, swamp forests
Vascular Plant	*Rhynchospora nitens*	Shortbeak Beaksedge	W1	none	savannas, limesinks, other wet open places
Vascular Plant	*Rhynchospora odorata*	Fragrant Beaksedge	SC-V	none	maritime wet grasslands
Vascular Plant	*Rhynchospora oligantha*	Feather-bristle Beaksedge	W1	none	savannas, seepage bogs
Vascular Plant	*Rhynchospora pallida*	Pale Beaksedge	W1	none	savannas, sandhill seeps, and pocosins
Vascular Plant	*Rhynchospora pinetorum*	Small's Beaksedge	SR-T	none	wet savannas, maritime wet grasslands
Vascular Plant	*Rhynchospora pleiantha*	Coastal Beaksedge	T	none	limesink ponds
Vascular Plant	*Rhynchospora scirpoides*	Long-beak Beaksedge	W1	none	beaver ponds, limesink ponds, wet savannas
Vascular Plant	*Rhynchospora wrightiana*	Wright's Beaksedge	W1	none	savannas
Vascular Plant	*Sabatia dodecandra*	Large Marsh Pink	W1	none	tidal, brackish, and freshwater marshes
Vascular Plant	*Sageretia minutiflora*	Small-flowered Buckthorn	T	none	shell middens

Taxonomic Group	Scientific Name	Common Name	Status		Habitat Comment
			State	Federal	
Vascular Plant	*Sagittaria chapmanii*	Chapman's Arrowhead	E	none	limesink ponds
Vascular Plant	*Sagittaria engelmanniana*	Engelmann's Arrowhead	W1	none	mostly blackwater streams and bogs
Vascular Plant	*Schizachyrium littorale*	Seaside Little Bluestem	W1	none	coastal dunes and maritime dry grasslands
Vascular Plant	*Schoenoplectus americanus*	Olney Threesquare	W7	none	tidal marshes
Vascular Plant	*Schoenoplectus etuberculatus*	Canby's Bulrush	SR-P	none	blackwater creeks
Vascular Plant	*Scirpus lineatus*	Drooping Bulrush	T	none	low rich woods over marl
Vascular Plant	*Scirpus pendulus*	Rufous Bulrush	SR-O	none	wet places over mafic rocks
Vascular Plant	*Scleria baldwinii*	Baldwin's Nutrush	T	none	wet savannas
Vascular Plant	*Scleria georgiana*	Georgia Nutrush	W1	none	savannas
Vascular Plant	*Scleria verticillata*	Savanna Nutrush	SR-P	none	calcareous wet savannas, maritime wet grasslands influenced by shell deposits
Vascular Plant	*Sesuvium maritimum*	Slender Sea-purslane	E	none	seabeaches, marshes
Vascular Plant	*Sesuvium portulacastrum*	Shoreline Sea-purslane	E	none	seabeaches
Vascular Plant	*Solanum pseudogracile*	Graceful Nightshade	SR-T	none	dunes
Vascular Plant	*Solidago gracillima*	Graceful Goldenrod	W1	none	savannas, boggy sites, peaty places
Vascular Plant	*Solidago pulchra*	Carolina Goldenrod	W1	none	savannas
Vascular Plant	*Solidago verna*	Spring-flowering Goldenrod	T	none	mesic to moist pinelands, pocosin ecotones
Vascular Plant	*Spergularia marina*	Saltmarsh Sandspurrey	W7	none	salt marshes and tidal flats
Vascular Plant	*Spiranthes eatonii*	Eaton's Ladies'-tresses	SR-P	none	pine savannas and pine-oak sandhills
Vascular Plant	*Spiranthes laciniata*	Lace-lip Ladies'-tresses	SC-V	none	moist wet habitats
Vascular Plant	*Spiranthes longilabris*	Giant Spiral Orchid	E	none	savannas
Vascular Plant	*Stylisma pickeringii var. pickeringii*	Pickering's Dawnflower	SC-V	none	sandhills
Vascular Plant	*Syngonanthus flavidulus*	Yellow Hatpins	W1	none	ditches, pocosin ecotones, savannas

Taxonomic Group	Scientific Name	Common Name	Status		Habitat Comment
			State	Federal	
Vascular Plant	*Thalictrum macrostylum*	Small-leaved Meadowrue	SC-V	none	bogs and wet woods
Vascular Plant	*Trichostema nesophilum*	Dune Bluecurls	SC-V	none	dunes, openings in maritime forest and scrub
Vascular Plant	*Triphora trian-thophoros var. trianthophoros*	Three Birds Orchid	W1	none	humid forests and swamps
Vascular Plant	*Utricularia olivacea*	Dwarf Bladderwort	T	none	limesink ponds, beaver ponds
Vascular Plant	*Xyris brevifolia*	Shortleaf Yellow-eyed-grass	W1	none	savannas, other low wet areas
Vascular Plant	*Xyris flabelliformis*	Savanna Yellow-eyed-grass	W1	none	savannas, streamhead pocosins
Vascular Plant	*Xyris floridana*	Florida Yellow-eyed-grass	SC-V	none	savannas
Vascular Plant	*Xyris iridifolia*	Iris-leaf Yellow-eyed-grass	W7	none	limesink ponds, pineland pools, marshes
Vascular Plant	*Xyris scabrifolia*	Harper's Yellow-eyed-grass	SC-V	none	sandhill seeps and bogs
Vascular Plant	*Xyris smalliana*	Small's Yellow-eyed-grass	W1	none	pineland pools, limesink ponds, shores
Vascular Plant	*Xyris stricta*	Pineland Yellow-eyed-grass	E	none	savannas
Vascular Plant	*Yucca aloifolia*	Aloe Yucca	W1	none	dunes
Vascular Plant	*Yucca gloriosa*	Moundlily Yucca	SR-P	none	dunes
Vascular Plant	*Zizania aquatica var. aquatica*	Indian Wild Rice	W7	none	freshwater marshes

Appendix F: CAMA Land Use Plan Matrix

Matrix for Land Use Plan Elements – 15A NCAC 7B .0702	Policy and/or Page Reference(s)
Organization of the Plan	
• Matrix that shows the location of the required elements as set forth in this Rule	**pg. 250**
Community Concerns and Aspirations	
• Description of the dominant growth-related conditions that influence land use, development, water quality and other environmental concerns in the planning area	**pg. 13–33, 204**
Description of the land use and development topics most important to the future of the planning area, including:	
• Public Access	**pg. 204**
• Land Use Compatibility	**pg. 205**
• Infrastructure Carrying Capacity	**pg. 205**
• Natural Hazard Areas	**pg. 206**
• Water Quality	**pg. 206**
Community Vision	
• Description of the general physical appearance and form that represents the local government's plan for the future. It shall include objectives to be achieved by the plan and identify changes that may be needed to achieve the planning vision.	**Community Values, Vision, and Goals on page 129** **Future Land Use and Character Areas on page 169**
Existing and Emerging Conditions	
Population, Housing and Economy	
Discussion of the following data and trends:	
• Permanent population growth trends using data from the two most decennial Censuses	**pg. 36**
• Current permanent and seasonal population estimates	**pg. 36–39**
• Key population characteristics including age and income	**pg. 40–51**
• Thirty-year projections of permanent and seasonal population in five-year increments	**pg. 36–39**

Matrix for Land Use Plan Elements – 15A NCAC 7B .0702	Policy and/or Page Reference(s)
• Estimate of current housing stock, including permanent and seasonal units, tenure, and types of units (single-family, multifamily, and manufactured)	pg. 41–43, 51
• Description of employment by major sectors and community economic activity	pg. 40–41, 49–50
Natural Systems	
Description of natural features in the planning jurisdiction to include:	
• Areas of Environmental Concern (AECs) as set forth in Subchapter 15A NCAC 07H	pg. 69–72, 109–111, 116–117
• Soil characteristics, including limitations for septic tanks, erodibility, and other factors related to development	pg. 74–77
• Environmental Management Commission (EMC) water quality classifications and related use support designations	pg. 78–82
• Division of Marine Fisheries (DMF) shellfish growing areas and water quality conditions	pg. 79–85
• Flood and other natural hazard areas	pg. 86–101
• Storm surge areas	pg. 90–91
• Non-coastal wetlands, including forested wetlands, shrub-scrub wetlands and freshwater marshes	pg. 109–110
• Water supply watersheds or wellhead protection areas	pg. 102
• Primary nursery areas	pg. 82–85
• Environmentally fragile areas, such as wetlands, natural heritage areas, areas containing endangered species, prime wildlife habitats, or maritime forests	pg. 109–117, 234–249
• Additional natural features or conditions identified by the local government	pg. 73, 92–99, 111–112
Environmental Conditions	
Discussion of environmental conditions within the planning jurisdiction to include an assessment of the following conditions and features:	
• Status and changes of surface water quality; including:	
- Impaired streams from the most recent Division of Water Resources (DWR) Basin Planning Branch Reports	pg. 81–82
- Clean Water Act 303 (d) List	pg. 81–82
- Other comparable data	pg. 78–82
• Current situation and trends on permanent and temporary closures of shellfishing waters as determined by the Report of Sanitary Survey by the Shellfish Sanitation and Recreational Water Quality Section of the DMF	pg. 79, 82–85
• Areas experiencing chronic wastewater treatment malfunctions	pg. 205–207
• Areas with water quality or public health problems related to non-point source pollution	pg. 82–85
• Areas subject to recurrent flooding, storm surges and high winds	pg. 90–93
• Areas experiencing significant shoreline erosion as evidenced by the presence of threatened structures or public facilities	pg. 111–112
• Environmentally fragile areas (as defined in Part (c)(2)(A)(ix) of this Rule) or areas where resources functions are impacted as a result of development	pg. 109–118
• Natural resource areas that are being impacted or lost as a result of incompatible development. These may include, but are not limited to the following: coastal wetlands, protected open space, and agricultural land.	pg. 204

Matrix for Land Use Plan Elements – 15A NCAC 7B .0702	Policy and/or Page Reference(s)	
Existing Land Use and Development		
MAP of existing land use patterns	pg. 127	
• Description of the existing land use patterns	pg. 13–14, 124–126	
• Estimates of the land area allocated to each land use category	pg. 124–126	
• Characteristics of each land use category	pg. 124–126	
MAP of historic, cultural, and scenic areas designated by a state or federal agency or by the local government	pg. 123	
• Descriptions of the historic, cultural and scenic areas	pg. 122	
Community Facilities		
Evaluation of existing and planned capacity, location and adequacy of community facilities to include:		
MAP of existing and planned public and private water supply service areas	pg. 103	
• Description of existing public and private water supply systems to include:		
- Existing condition	pg. 205	
- Existing capacity	pg. 205	
- Documented overflows, bypasses or other problems that may degrade water quality or constitute a threat to public health as documented by the DWR	n/a	
- Future water supply needs based on population projections	pg. 207	
MAP of existing and planned public and private wastewater service areas	pg. 103	
• Description of existing public and private wastewater systems to include:		
- Existing condition	pg. 205–206	
- Existing capacity	pg. 205–206	
- Documented overflows, bypasses or other problems that may degrade water quality or constitute a threat to public health as documented by the DWR	pg. 102	
- Future wastewater system needs based on population projections	pg. 207	
MAP of existing and planned multimodal transportation systems and port and airport facilities	pg. 107	
• Description of any highway segments deemed by the NC Department of Transportation (NCDOT) as having unacceptable service as documented in the most recent NCDOT Transportation and/or Thoroughfare Plan	pg. 106	
• Description of highway facilities on the current thoroughfare plan or current transportation improvement plan	pg. 106	
• Description of the impact of existing transportation facilities on land use patterns	pg. 126	
• Description of the existing public stormwater management system	pg. 17–18	
• Identification of existing drainage problems and water quality issues related to point-source discharges of stormwater runoff	pg. 200, 81–82, 86	
Future Land Use	Future Land Use Map	pg. 173
Policies		
• Policies that exceed the use standards and permitting requirements found in Subchapter 7H, State Guidelines for Areas of Environmental Concern	None	None

Matrix for Land Use Plan Elements – 15A NCAC 7B .0702	Policy and/or Page Reference(s)	
Policies that address the Coastal Resources Commission's (CRC's) management topics:		
Public Access Management Goal: *Maximize public access to the beaches and the public trust waters of the coastal region.*		
The planning objectives for public access are local government plan policies that:		
• Address access needs and opportunities	1.2.1, 1.3.1, 6.6.3, 7.6.1,	**pg. 134, 159, 162**
• Identify strategies to develop public access	1.3.1, 6.6.3, 7.6.1, 7.6.3, 7.6.1	**pg. 134, 159, 162**
• Address provisions for all segments of the community, including persons with disabilities	6.4.1, 6.4.2, 6.4.3	**pg. 156**
• For oceanfront communities, establish access policies for beach areas targeted for nourishment	n/a	n/a
Land Use Compatibility Management Goal: *Ensure that development and use of resources or preservation of land balance protection of natural resources and fragile areas with economic development, and avoids risks to public health, safety, and welfare.*		
The planning objectives for land use compatibility are local government plan policies that:		
• Characterize future land use and development patterns	1.1.2, 2.1.1, 2.1.2, 2.1.4, 2.2.1, 2.3.1, 4.2.3	**pg. 133, 138–139, 150**
• Establish mitigation criteria and concepts to minimize conflicts	1.1.2, 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.3.1, 4.2.3	**pg. 133, 138–139,150**
Infrastructure Carrying Capacity Management Goal: *Ensure that public infrastructure systems are sized, located, and managed so the quality and productivity of AECs and other fragile areas are protected or restored.*		
The planning objectives for infrastructure carrying capacity are local government plan policies that:		
• Establish service criteria	2.2.2, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3	**pg. 139, 150, 152**
• Ensure improvements minimize impacts to AECs and other fragile areas	2.1.3, 2.1.4, 4.2.2, 4.3.1, 4.3.4, 4.6.1	**pg. 138, 150, 152**
Natural Hazard Areas Management Goal: *Conserve and maintain barrier dunes, beaches, floodplains, and other coastal features for their natural storm protection functions and their natural resources giving recognition to public health, safety, and welfare issues.*		
The planning objectives for natural hazard areas are local government plan policies that:		
• Establish mitigation and adaptation concepts and criteria for development and redevelopment, including public facilities	1.1.1, 1.1.2, 1.4.3, 2.2.1, 2.2.3, 2.4.2, 7.6.1	**pg. 132–133, 138–139, 141, 162**
• Minimize threats to life, property and natural resources resulting from erosion, high winds, storm surge, flooding, or other natural hazards	1.2.1, 2.1.3, 2.2.1, 2.2.3, 2.2.4, 2.4.3, 2.4.4, 7.6.1	**pg. 132, 138–139, 142, 162**

Matrix for Land Use Plan Elements – 15A NCAC 7B .0702	Policy and/or Page Reference(s)	
Water Quality Management Goal: *Maintain, protect and where possible enhance water quality in all coastal wetlands, rivers, streams, and estuaries.*		
The planning objectives for water quality are local government plan policies that:		
• Establish strategies and practices to prevent or control nonpoint source pollution	1.1.1, 1.1.2, 4.2.2, 4.2.4, 4.6.1	**pg. 132–133, 150, 152**
• Establish strategies and practices to maintain or improve water quality	1.1.1, 1.1.2, 2.1.1, 4.2.4, 4.6.1	**pg. 132–133, 138, 150, 152**
Future Land Use Map		
MAP of future land uses that depicts the policies for growth and development and the desired future patterns of land use and development with consideration given to natural system constraints and infrastructure	**pg. 173**	
• Descriptions of land uses and development associated with the future land use map designations	**pg. 172–200**	
Tools for Managing Development		
• Description of the role of plan policies, including the future land use map, in local decisions regarding land use and development	**pg. 169**	
• Description of the community's development management program, including local ordinances, codes, and other plans and policies	**pg. 53–67, 163, 203**	
Action Plan and Implementation Schedule		
• Description of actions that will be taken by the local government to implement policies that meet the CRC's management topic goals and objectives, specifying fiscal year(s) in which each action is anticipated to start and finish	**pg. 210–215**	
• Identification of specific steps the local government plans to take to implement the policies, including adoption and amendment of local ordinances, other plans, and special projects	**pg. 203–215**	

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