Town of Kitty Hawk

CAMA Land Use Plan

Imagine Kitty Hawk 2050

Adopted by Town Council: September 5, 2023

Certified by NC Coastal Resources Commission: Under Review

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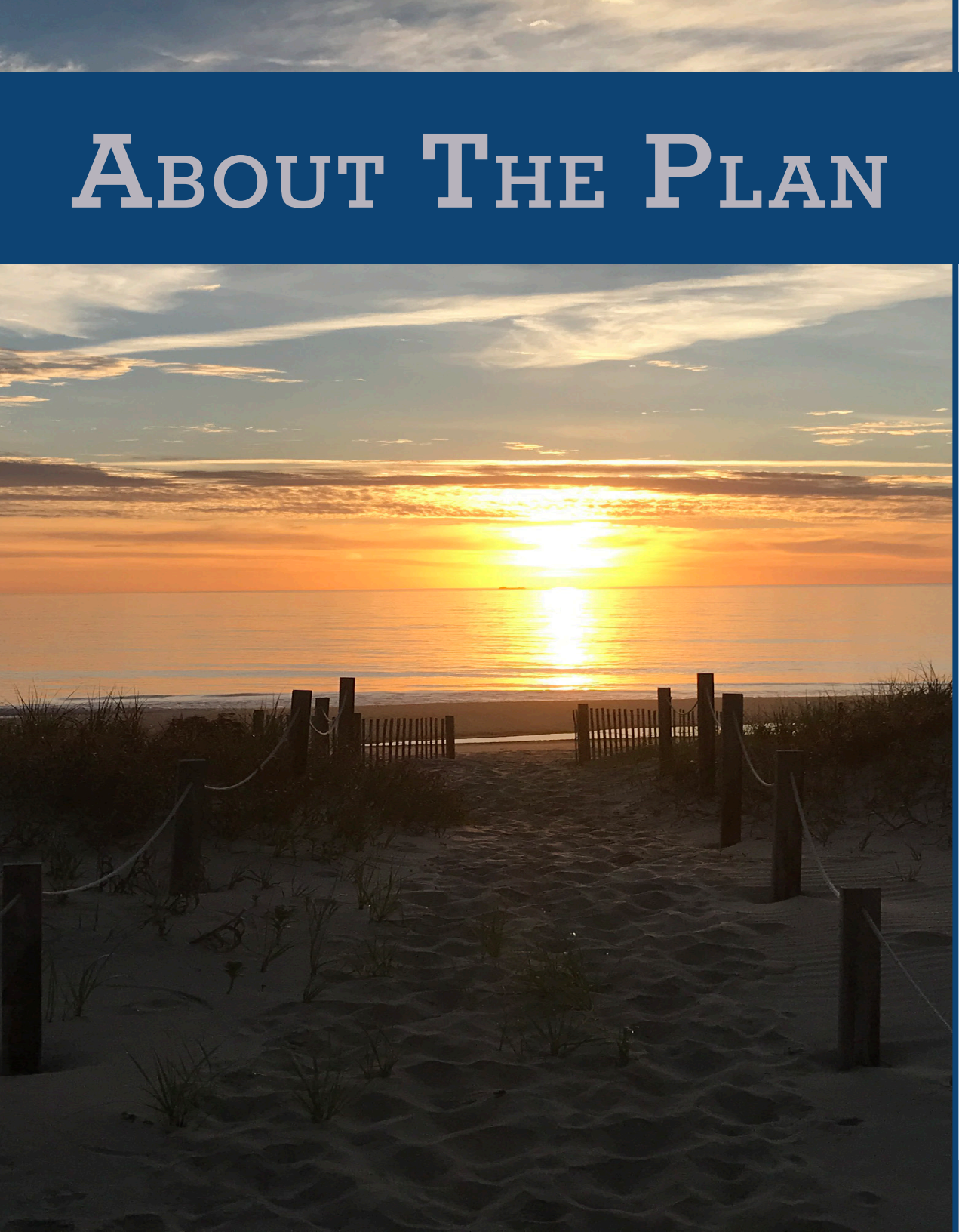


Chapter Contents

Imagine 2050
Kitty Hawk

Purpose

Imagine Kitty Hawk 2050 is the Coastal Area Management Act (CAMA) Land Use Plan, that will function as the Town of Kitty Hawk's CAMA and Comprehensive Plan. It incorporates and updates plans previously adopted by the Town of Kitty Hawk and creates a framework to guide responsible growth and natural resource conservation over a 25-year planning horizon.

What's a CAMA Comprehensive Land Use Plan?

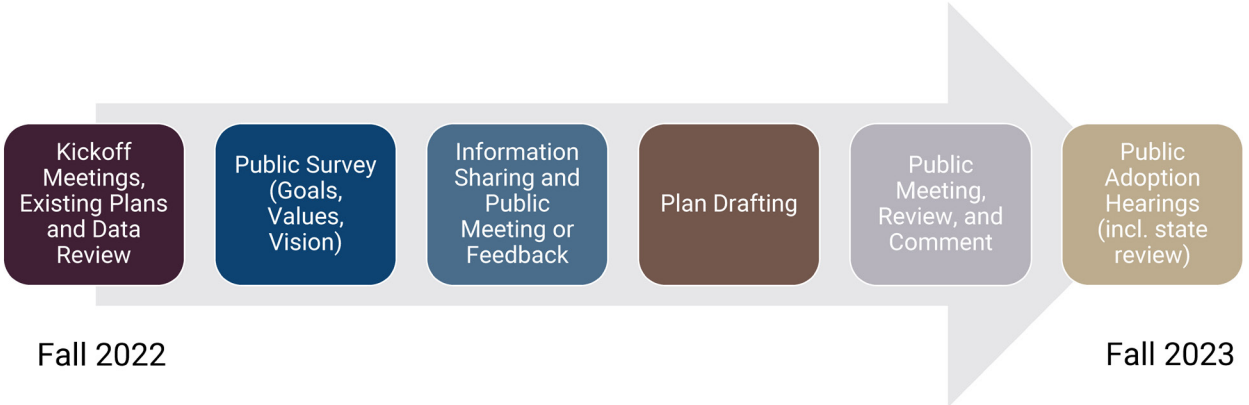
A Coastal Area Management Act (CAMA) Land Use Plan is a document that contains elements that are required by the Coastal Area Management Act and recommendations to achieve a shared community vision. A reasonably maintained comprehensive plan is required by Chapter 160D of the North Carolina General Statutes as a condition to continue enforcing zoning.

As a Comprehensive Land Use Plan, this plan is intended to be a tool used by the residents of Kitty Hawk, policy makers that represent them, and the Town's staff who support them. It provides guidance for businesses, builders, future citizens, and scholars or students who want to learn more about the Town of Kitty Hawk.

As a CAMA-certified plan, this plan is used by the North Carolina Department of Environmental Quality (DEQ's), Division of Coastal Management (DCM) to make CAMA permit decisions.

Planning Process

The Town of Kitty Hawk engaged in a one-year long update of its CAMA Land Use Plan to review and refine the vision for the community. This plan will provide guidance on land use, development design, economic development, recreation, and infrastructure decisions for years to come. It includes an assessment of the



community as well as an updated vision, goals, and recommendations. Feedback from stakeholders, members of the public, and elected and appointed leadership were foundational to the creation of this plan.

Overview

During the process, the Town maintained a project website at the Town's website and on the Town's official page. The page provided updates on upcoming meetings, the survey, and plan development milestones.

The engagement process included input from community members, stakeholders, and appointed steering committee members. A variety of committees, events, and activities provided opportunities for feedback, included those highlighted below.

Steering Committee

The Planning Board served as the Steering Committee. It convened four times during the process.

Stakeholder Interviews

A one-hour interview session with stakeholder groups was held prior to the project kick-off meeting in Phase I. This group addressed a variety of topics including local and regional government, transportation, infrastructure, tourism and economic development, housing availability and affordability issues, and public services. The stakeholder group included leaders from the hospitality, real estate, building inspection, and civil engineering industry.

Survey

The community survey ran from December 11, 2022 to January 22, 2023 and received 276 responses. Nearly 72% of respondents lived in the Town full-time and 14% lived in Kitty Hawk part-time. The survey featured multiple choice, ranking, and open-ended questions, allowing respondents to provide more detail about their vision, goals, and priorities for the future of Kitty Hawk.

Public Meetings

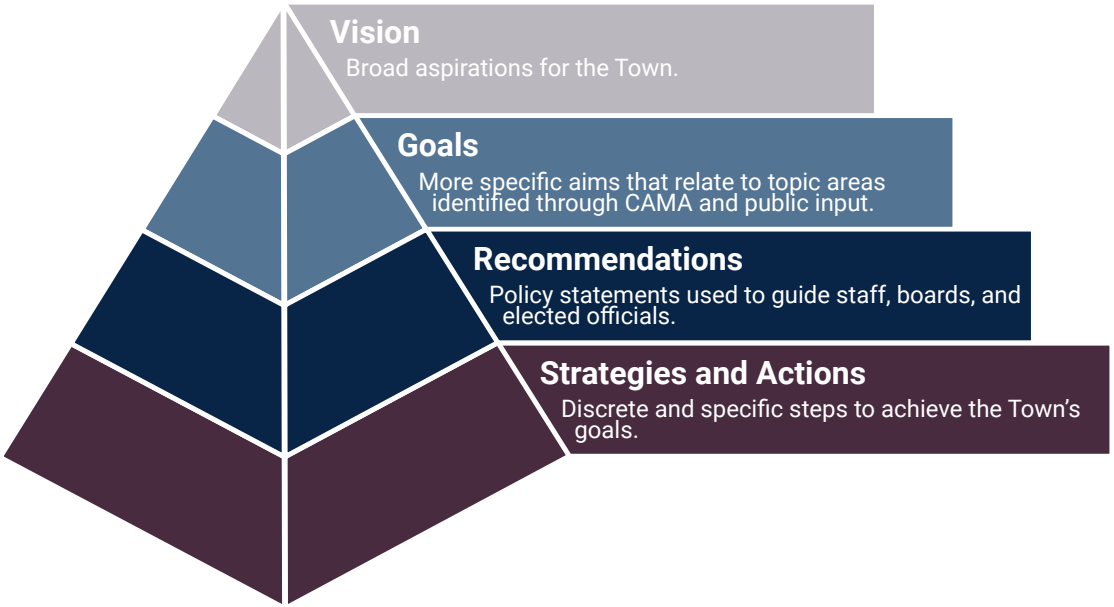
Three public meetings were held to gather input and feedback from community members during the process. The first project kick-off public meeting was held on November 16, 2022 in Town Council chambers at Town Hall. A short presentation was given at the kick-off introducing community members to the process. Informational boards and activities allowed for residents to express their concerns and tell the project team what they love about Kitty Hawk. The second public meeting featured information about the project, draft vision and goals and feedback was solicited through several activities such as, priorities preference boards, recommendation activity boards, and a map activity. The map activity allowed residents to show areas they loved in Kitty Hawk.

The third public workshop was held on May 31, 2023 in the Council Chambers at Town Hall. Presentation boards were set up throughout the room displaying the draft community vision, goals, recommendations, and a draft future land

use map was set up on a table. A thirty-minute presentation was given at the meeting to discuss the findings from the survey and vision, goals, recommendations and the draft future land use map.

Document Organization

This document follows a format that allows the reader to gain insight and background on the Town's standing, challenges, and aspirations and then explores options for accomplishing goals. The first chapter provides an overview and schedule of the planning process. Chapter 2 includes the Community Assessment that describes the Town's history, the study area and previously adopted plans. It provides an analysis of demographics, the economy, transportation system, parks and natural resources and land use trends. Chapter 3 discusses the public input process in more detail and introduces the vision and goals that are meant to guide the plan. Chapter 4 includes the Future Land Use Map, Character Areas and policy recommendations and implementation strategies.



Trends and Community Concerns

Through input from staff, elected officials and community members a set of emerging trends and concerns has emerged that should be the focus of Town efforts over the coming years. Some of these issues, such as the need to maintain the character of Kitty Hawk, were noted in previous plans, others, such as sea level rise, are relatively new issues whose potential impacts are just now becoming more clear.

Development Scale and Character

The Town of Kitty Hawk currently has strict limits on height to maintain ocean and sound views. Community engagement indicated the desire to maintain the strict height requirements and improve the Town's existing character. Plan recommendations and code revisions could give consideration to site and building design standards for nonresidential uses.

Housing Availability

Because of its coastal location, tourism is a major component of the Town's economy . With increasing numbers of vacation rentals, it becomes difficult to balance housing availability and affordability. Several community members expressed their concerns about housing availability and affordability. The Town should prioritize these issues through code revisions and targeted investments.

Water Quality and Access

Kitty Hawk has estuaries (Albemarle Sound and Kitty Hawk Bay) and the Atlantic Ocean on the east and west sides. The Albemarle Sound is considered an impaired water body and has been permanently closed for shellfishing. Survey participants indicated improving water quality and increasing public access to estuaries and the Atlantic Ocean should remain a Town priority.

Tourism and Visitation

Tourism in Dare County generates millions of State and Local tax revenues, as well as, billions of dollars in visitor spending. In fact, Dare County is ranked #4 among North Carolina's 100 counties in terms of visitor spending. The sudden influx of seasonal visitors increases demands on public services and infrastructure. It is eminent that the Town balance the negative impacts of tourism in order to thrive amid increasing visitation.

Infrastructure and Service Capacity

The sudden influx of visitors to Kitty Hawk puts increasing demands on septic systems, public infrastructure, and public services. Coordination with Dare County is needed to mitigate water capacity issues during tourist season.

Resiliency and Flooding

Location on the coast makes the Town of KItty Hawk more vulnerable to the effects of climate change, high winds, storm surge, and flooding. Adaptation strategies to address climate risks to residences, buildings, and infrastructure should be made in the town's most vulnerable areas to increase resilience.

Pedestrian and Bicycle Facilities

Increasing pedestrian and bicycling facilities was the number one priority in the community survey. These are vital components in a community's transportation infrastructure. They provide recreational opportunities that encourage healthy lifestyles while increasing the multi-modal network. The Town should prioritize pedestrian safety and improve or expand existing facilities.

Community Assessment

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Chapter Contents

Imagine 2050 Kitty Hawk

Brief History

Kitty Hawk is one of the oldest towns on the Outer Banks. Long before the Wright Brothers shared Abby and Bill Tates home on Moor Shore Road there was a small thriving community spread along the shores of Kitty Hawk Bay. Early settlers in the Outer Banks lived off of the land by farming, fishing, and guiding at local hunting clubs.

On December 17, 1903, Kitty Hawk became known worldwide after the Wright Brothers made the first controlled powered airplane flights four miles south of the town. In 1931, the first wooden toll bridge was completed across the Albemarle Sound. Over 30 years, the Wright Memorial Bridge was completed which spurred growth and development in the Outer Banks. In 1981, the Town of Kitty Hawk was incorporated.

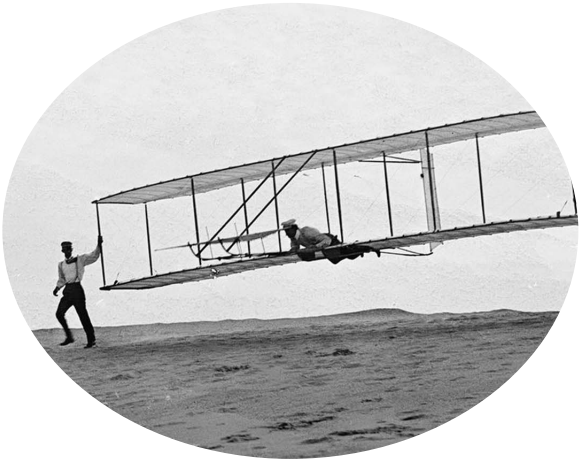
Study Area

The Town of Kitty Hawk is located on the Outer Banks along US 158 just south of Southern Shores and north of Kill Devil Hills. It covers 8.3 square miles and has the Atlantic Ocean as its eastern border, Kitty Hawk Bay to the southwest and the intersection of Currituck Sound and Albemarle Sound to the west. The Town includes 3.5 miles of oceanfront shoreline and approximately 4 miles of shoreline on the sound side.

The Town's year-round population is 3,689 people, but the population swells to over 12,000 residents in the summertime due to visitors.

The Town is served by US 158 and NC Highway 12. Most commercial businesses are located along US 158, although there are some smaller-scale businesses along NC 12 and along Kitty Hawk Road. Many local-serving businesses, parks and town services are located along Kitty Hawk Road in an area known as Kitty Hawk Village.

Kitty Hawk Woods Reserve is a 1,900 acre conservation area in the heart of Kitty Hawk. It includes maritime deciduous forest, low ridges, dunes, swamps and marshes. The Reserve and more active parks nearby provide hiking and other recreational opportunities to residents and visitors.



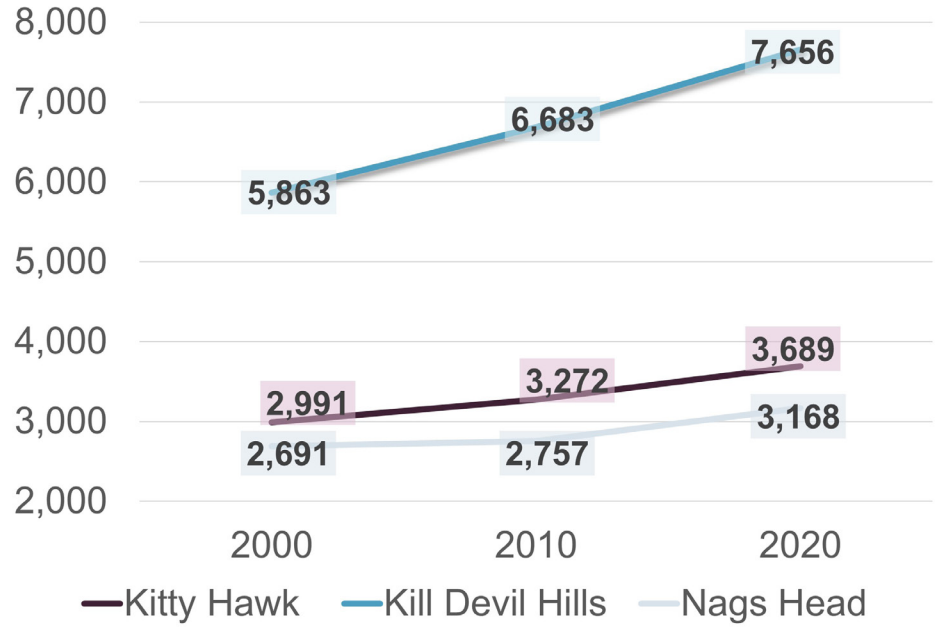
Source: OBX Stuff (top image) and Wright Brothers.org (bottom image)

Study Area


Town Limits
Law Enforcement
Fire Stations
EMS
Town Hall
Visitor's Center
Kitty Hawk Woods Reserve
0 0.25 0.5 Miles
N
Kitty Hawk Woods
ALBEMARLE SOUND
KITTY HAWK BAY
ATLANTIC OCEAN
Kitty Hawk
Southern Shores
158
12
Dogwood Trl
Duck Woods Dr
Juniper Trl
High Dune Loop
Spindrift
Skyline Rd
Martins Point
Creek Rd
Amadas Ave
Barlow Ln
Birch Ln
Wilson Pl
Cypress Knee Trl
Lunar Dr
Putter Ln
The Woods Rd
Covered Bridge Rd
Jean Guite Creek
Eckner St
Sound Landing Rd
Ridge Rd
Twiford St
Carrenda Ln
Bodie Island
Seascape Dr
Johnston Ln
Ride Ln
Lindbergh Ave
Worthington Ln
Ivy Ln
Pineway Dr
Tarkle Ridge Dr
Bob Perry Rd
Duck Pond Rd
Poor Ridge Rd
Herbert Perry Rd
Elijah Baum Rd
Moor Store Rd
Lillian St
Kitty Hawk Rd
Woodard Rd
Beacon Dr
First Flight Run
Hallett St
Harbour Bay Dr
Tateway Rd
Jejac Dr
Canieron St
Arch St
Helga St
Bay Dr
Lee Ave
Raymond Ave
Wilkinson St
Chowan St
Sothel St
Hayman Blvd
Walker St
Eden St
Palmetto St
Kitty Hawk Bay
Colington Creek

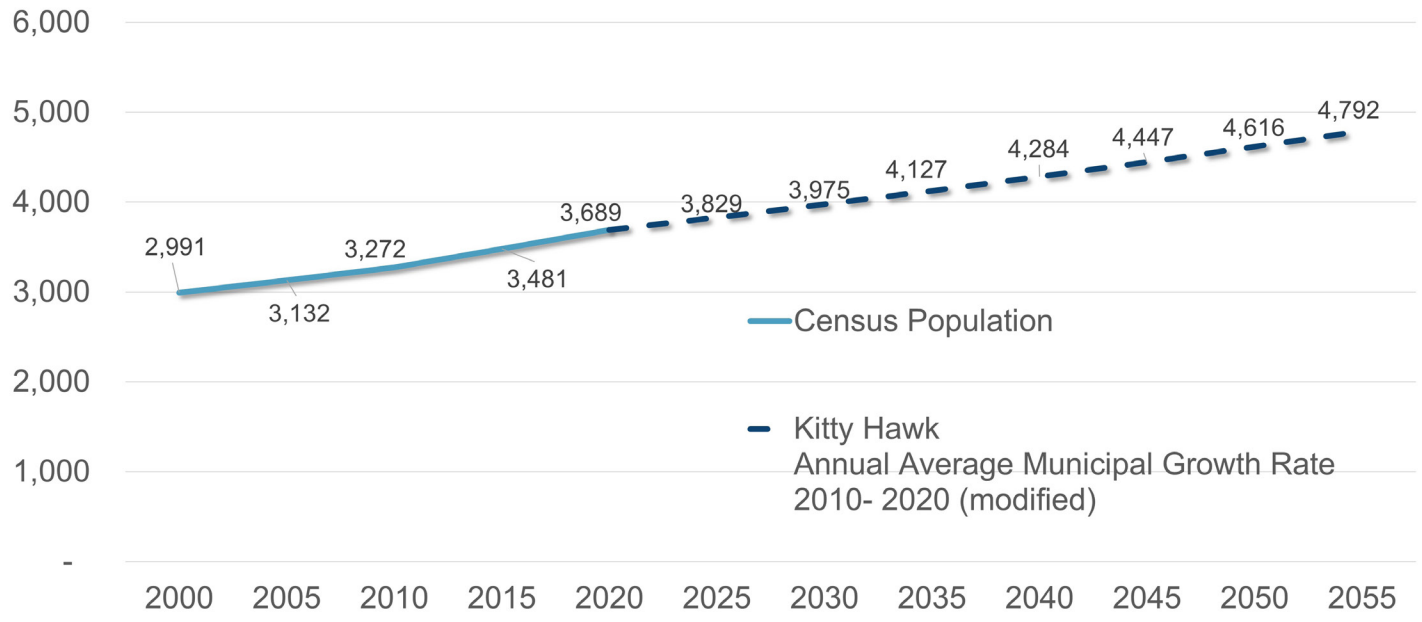
Permanent Population

The permanent population for the Town of Kitty Hawk is 3,689. From 2000 to 2020 the town experienced a 23% increase in population (698 people). The population of Dare County as a whole increased by a similar percentage during that time span (23%, 6,948 people). It is anticipated that Dare County will experience a steady growth of permanent residents between now and 2050. The Office of State Budget and Management estimates that the county will grow by 37% or 13,675 people between 2020 and 2050.



Source: 2000, 2010, 2020 Decennial Census, ESRI

Permanent Population Projection



Permanent population projections were completed modifying the annual average municipal growth rate for potential build out. Kitty Hawk currently has approximately 300 undeveloped residential parcels and 25 acres that could be potentially redeveloped. Based on the number of residential parcels and the potential for future redevelopment, it is estimated that the population could increase by just over 1,100 people by 2055. The Office of State Budget and Management anticipates Dare County to grow 39% by 2055. The above projection anticipates Kitty Hawk to grow 30% by 2055.

Seasonal Population

Seasonal population provides an estimate for how many visitors Kitty Hawk hosts during the busiest tourist season. Tourist season includes the summer months, typically from June-August. Seasonal population includes individuals staying in rental property, hotels, motels, cottages RV Parks, and campsites. It is estimated that the seasonal population of Kitty Hawk is approximately 8,500 people and anticipated to increase by 25% by 2055.

Seasonal population was estimated by calculating the amount of visitors to short-term rentals, seasonally occupied units, and other lodging in the Town. These estimates do not include day trippers or daytime employees.

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.

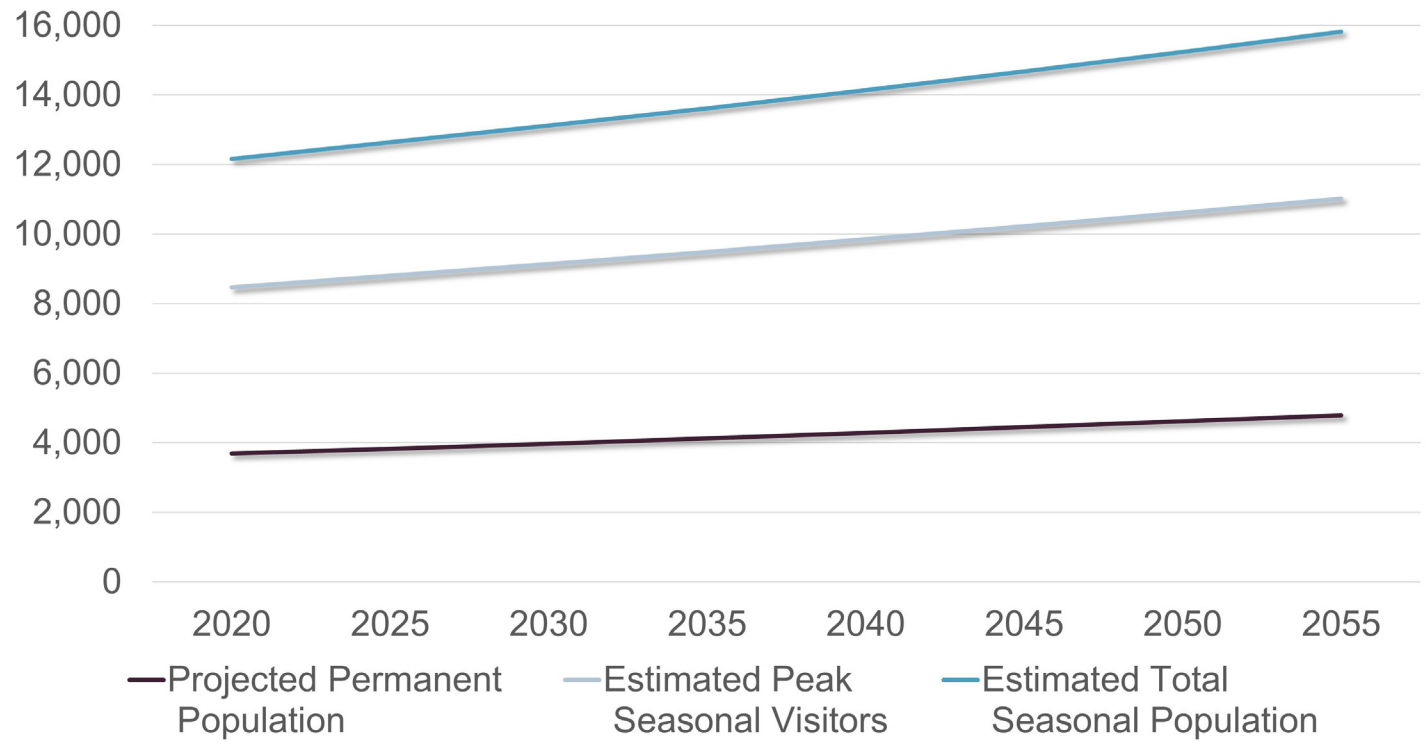
Total Seasonal Population

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.

Population Projections and Water Demand

	2020	2025	2030	2035	2040	2045	2050	2055
Projected Permanent Population	3,689	3,829	3,975	4,127	4,284	4,447	4,616	4,792
Estimated Seasonal Visitor Population	8,473	8,808	9,143	9,491	9,852	10,227	10,617	11,021
Estimated Water Needs (MGD, based on per capita needs derived from 2021 LWSP)		2.70	2.81	2.91	3.03	3.14	3.26	3.38

Seasonal Population Projection



Seasonal population projections were completed by calculating the number of short-term rentals, hotel/motel rooms, and available RV and camp sites and estimating the number of guests. It is estimated that Kitty Hawk hosts approximately 8,500 guests during peak season, the sudden influx of people increases the total population to nearly 12,200. This increase puts a strain on public and private systems, public services, and infrastructure during the tourist season.

Age and Race

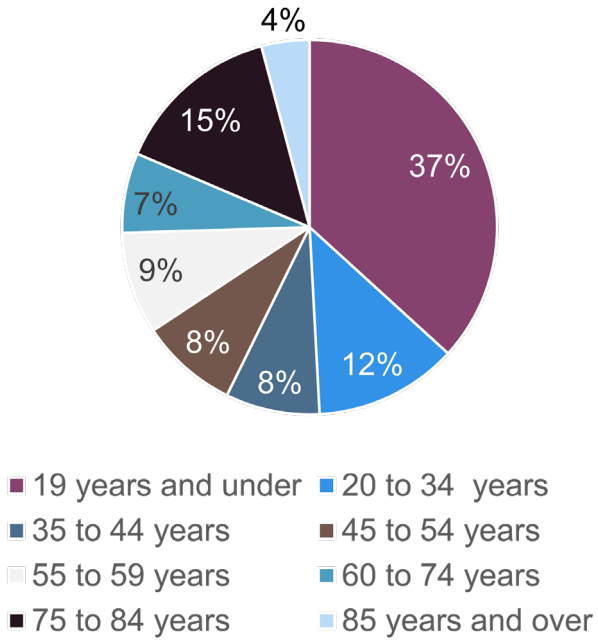
The median age in the municipal limits has increased from 41 in 2010 to 50.1 in 2020. This increase can be attributed to the growing age cohorts. The age cohorts that have experienced the most growth includes ages 55 to 59 years, 60 to 74 years, and 75 years and over, combined these age cohorts increased by 88%.

The racial composition is 92% white, 1% black or African American, 5% is two or more races, and 2% is some other race alone. Since 2010, the population identifying as black or African American and Asian alone has decreased, while the American Indian alone, Native Hawaiian or Pacific Islander, some other race alone, and two or more races have increased. 5% of the municipal limits' population is estimated to be Hispanic. The Hispanic population in Kitty Hawk grew from 96 in 2010 to 181 in 2020 which is a 5% increase in ten years.

50.1
Median Age

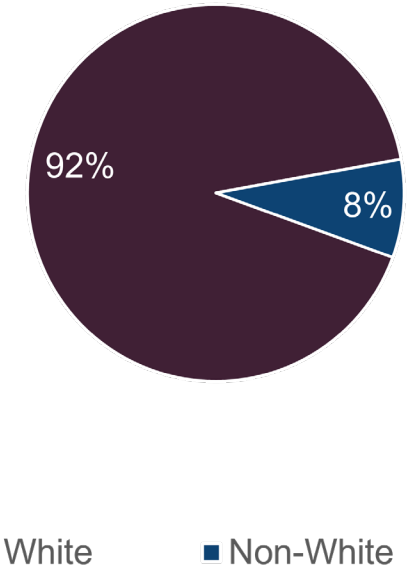
5%
Increase in Hispanic Population

Age Cohorts



Source: 2020 ACS 5-year estimates

Race



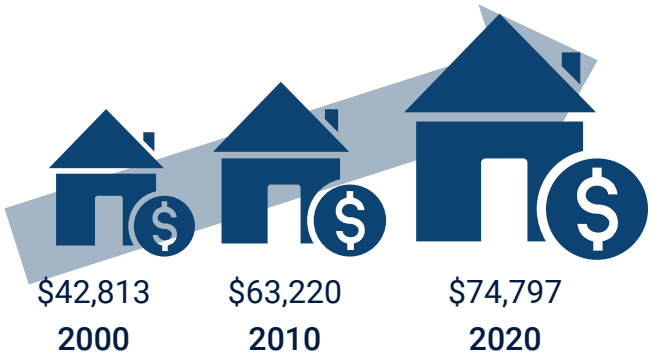
Source: 2020 Decennial Census

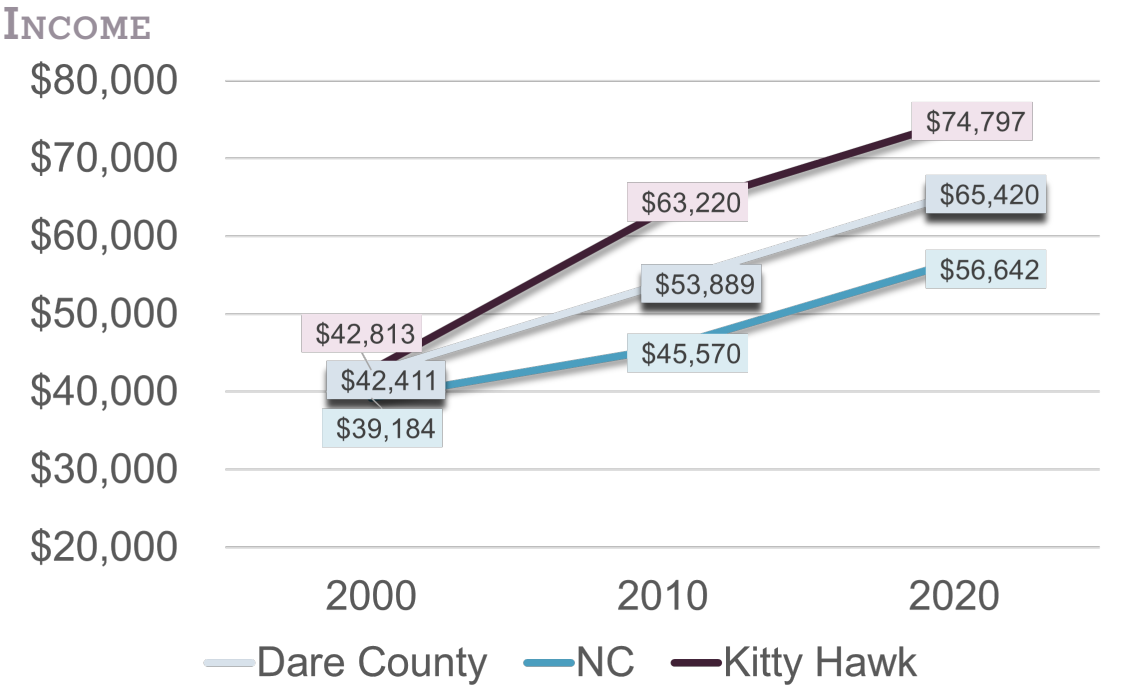
Income

Median household income in Kitty Hawk has increased by 75% since the year 2000 and is significantly higher than Dare County and North Carolina.

Median household income rose by 48% from the years 2000 to 2010. From 2010 to 2020 median household income increased by 18% from $63,220 in 2010 to $74,797 in 2020.

Overall, since 2000 the median household income for the Town of Kitty Hawk has increased at a larger rate than Dare County and the State of North Carolina. From 2000 to 2020 the Town's median household income increased by 75%, where Dare County increased by 54% in the same time frame, and the state of North Carolina's median household income increased by 45%.





Source: 2000, 2010, 2020 Decennial Census

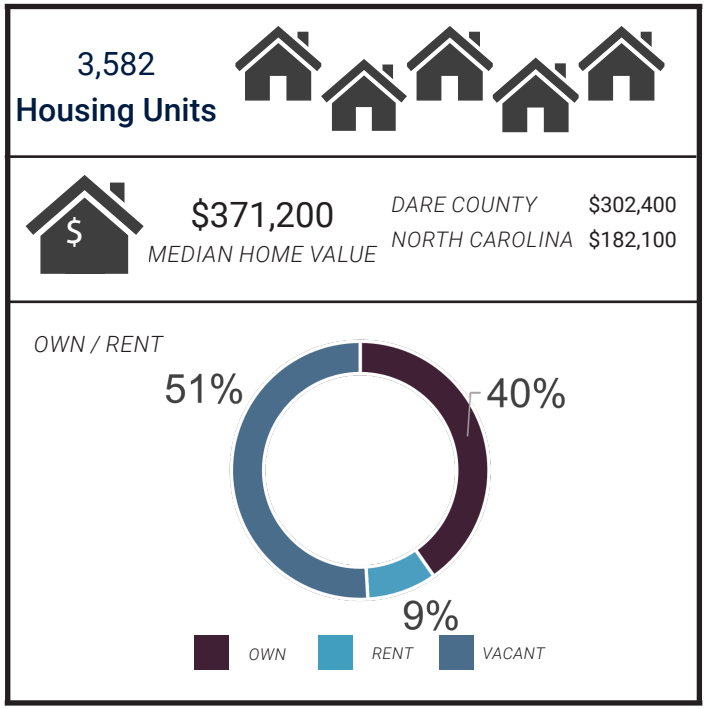
Housing Statistics

As of 2020, there are 3,582 total housing units in Kitty Hawk. Of these units 1,572 are considered occupied housing units. The majority of these housing units (70%) are single-family homes, 2.1% are townhomes, 6.4% are duplexes, 3.4% are triplexes or quads, 16% are apartments, and 2.1% are classified as mobile homes or other.

The median home value for homes in the municipal limits is $371,200 which is higher than Dare County and double the State of North Carolina's median home value.

According to the 2020 American Community Survey, 40% of homes are owner-occupied, 9% are renter-occupied, and 51% of homes are considered vacant. Vacant homes include homes that are rented, for sale, sold but not occupied and seasonal and short-term rental units. According to the data, there were 465 units available for long-term rental in 2020 and 1,515 units for seasonal, short-term rental or recreational purposes.

Housing Units



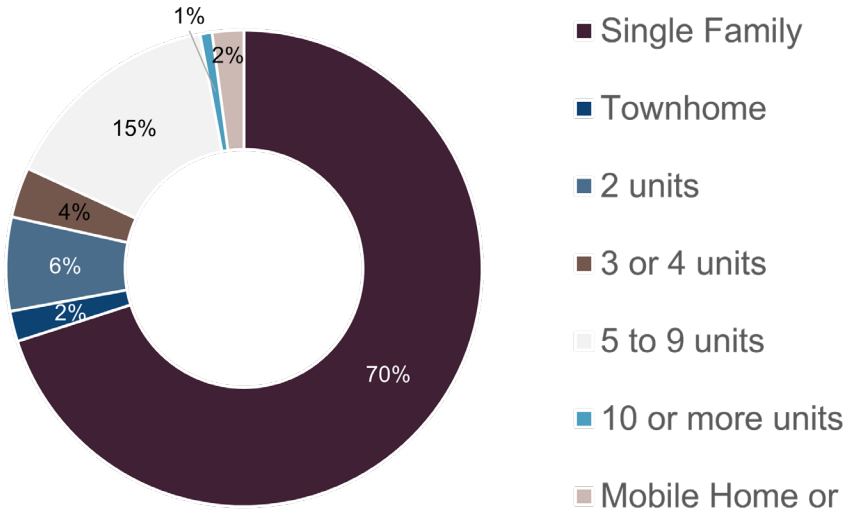
Source: 2020 American Community Survey

Housing Type

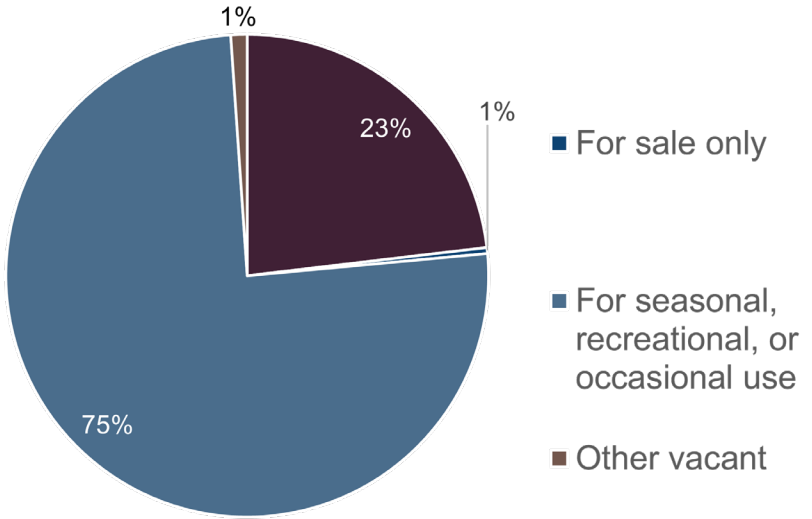
70%
Single-family detached

28%
Attached residential

Housing Types in Municipal Limits



Vacancy Status



Source: 2020 American Community Survey

Vacancy Status Defined

For Rent

This group consists of vacant units offered for rent and those offered both for rent and sale.

For Sale Only

This group is limited to units for sale only; it excludes units both for rent and sale.

For Seasonal, Recreational, or Occasional Use

If the vacant unit is not for-rent or for-sale-only but is held for weekends or occasional use throughout the year, the unit is included in this category.

Other Vacant

Included in this category are year-round units which were vacant for reasons other than those mentioned above: For example, held for settlement of an estate, held for personal reasons, or held for repairs.

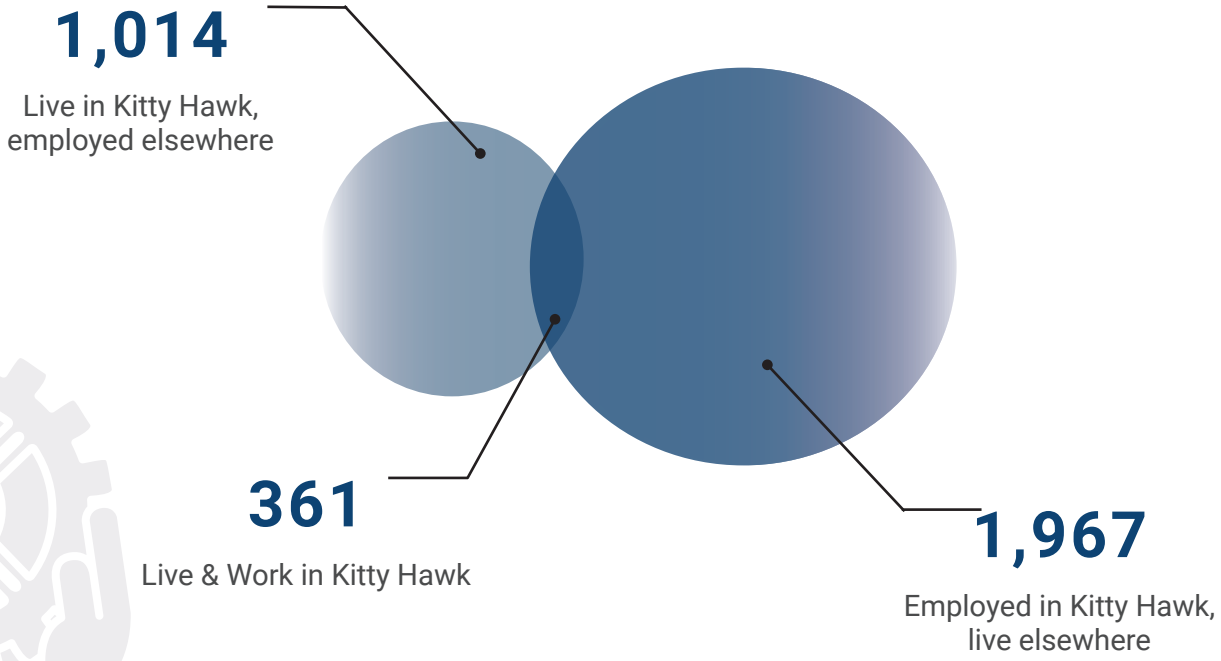
Employment

According to Census on the Map, there were 2,328 jobs in Kitty Hawk in 2019 which is 669 less than 2010.

Major industries in Kitty Hawk are retail, real estate, rental and leasing, accommodations and food service,and construction. The largest growing employment sectors from 2010 to 2019 were accommodation and food services, real estate and construction. The industries that employ the largest number of residents are arts, entertainment, recreation, accommodation and food service, retail trade, finance, insurance and real estate, and construction industries.

Kitty Hawk's job market brings in over 1,967 people to the area who live elsewhere. Only 361 people live and work in Kitty Hawk. 1,014 people live in Kitty Hawk and are employed outside of Kitty Hawk.

Commute Patterns



Source: Census on the Map

Top 5 Industry sectors by employment

23.37%

Accommodation and Food Service

23.71%

Retail Trade

13.57%

Real estate, rental, and leasing

13.27%

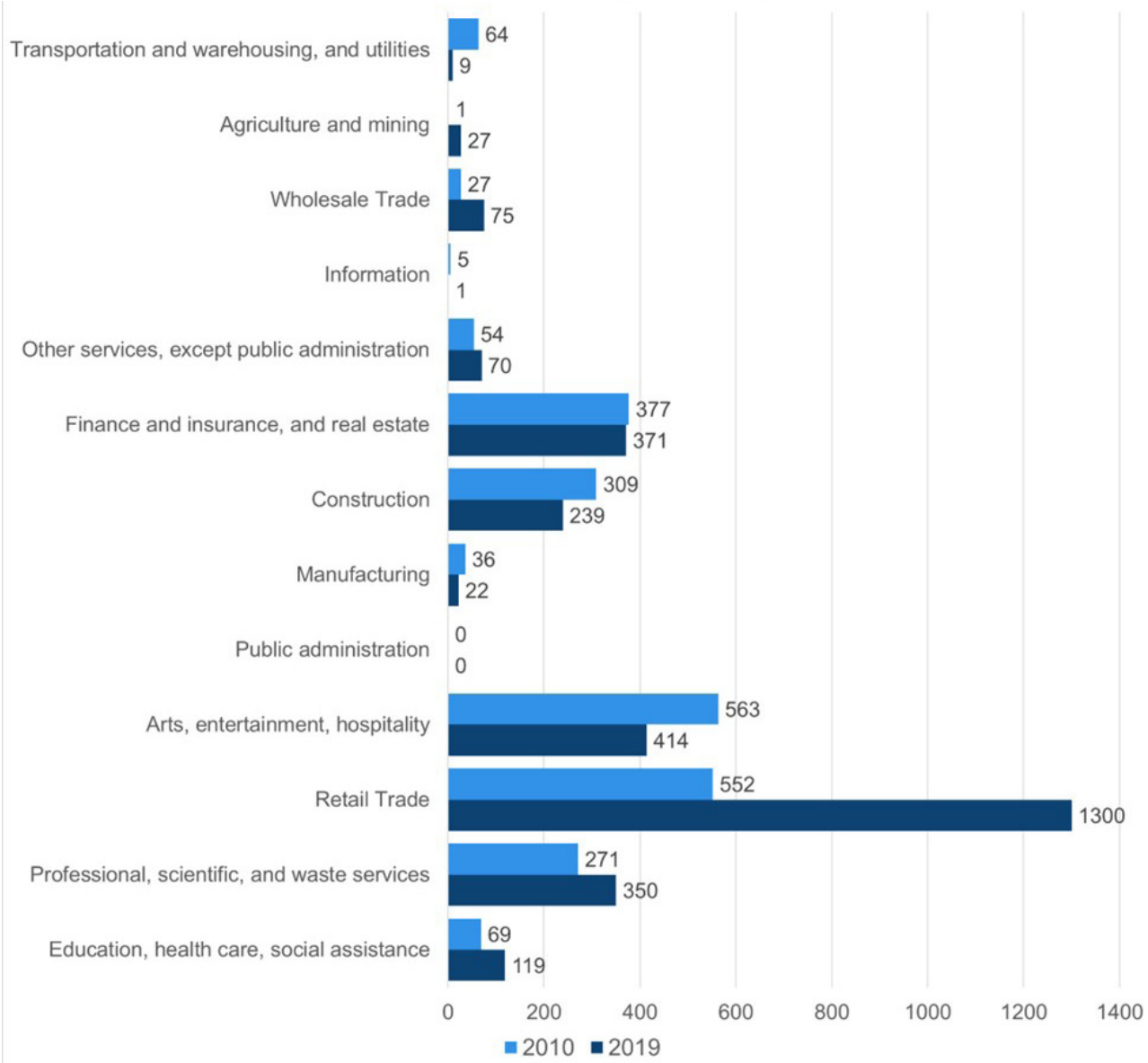
Construction

5.93%

Professional, scientific, and technical services

Source: Census on the Map

Employment by Industry (Residents' Jobs)



Source: Census on the Map

Tourism

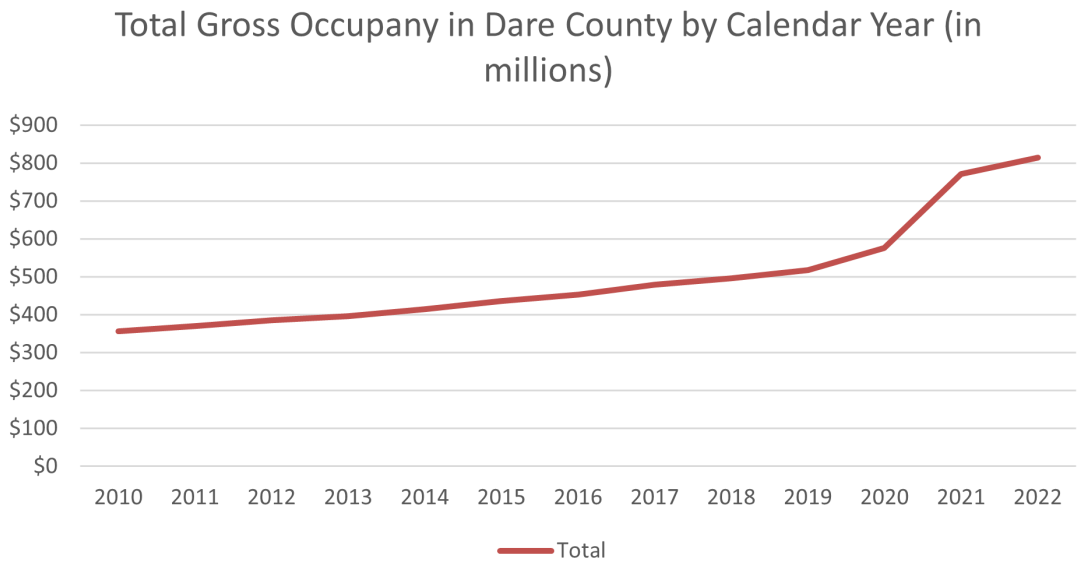
Tourism is a major economic driver in Kitty Hawk and Dare County. Visitors spent $1.8 billion in 2022 in Dare County. This spending leads to 13,880 + jobs in Dare County, employing 1-in-3 residents *(Source: OuterBanks.org)*.

Locally, visitation contributes significantly to the Town's economic base. Occupancy taxes and local sales tax is expected to result in nearly $3.2 million or 30% of the Town's revenue in Fiscal Year 2023/2024 *(Source: Town Budget FY23-24)*.

There are approximately 450 hotel rooms within Kitty Hawk and 498 active short-term rentals *(Source: AirDNA, accessed 5/17/2023)*. The majority of short-term rental homes are located to the east of US 158.

Property tax makes up about 45% of Town revenues. Commercial land uses comprise 10% of the land area, but account for over 15% of the property value *(Source: Dare County Tax Records)*. This commercial property tax base and the sales tax that is generated is supported by an influx in seasonal visitors that is documented earlier in the plan.

Gross Occupancy Trends



Source: Outer Banks Visitors Bureau

Input, Vision, and Goals

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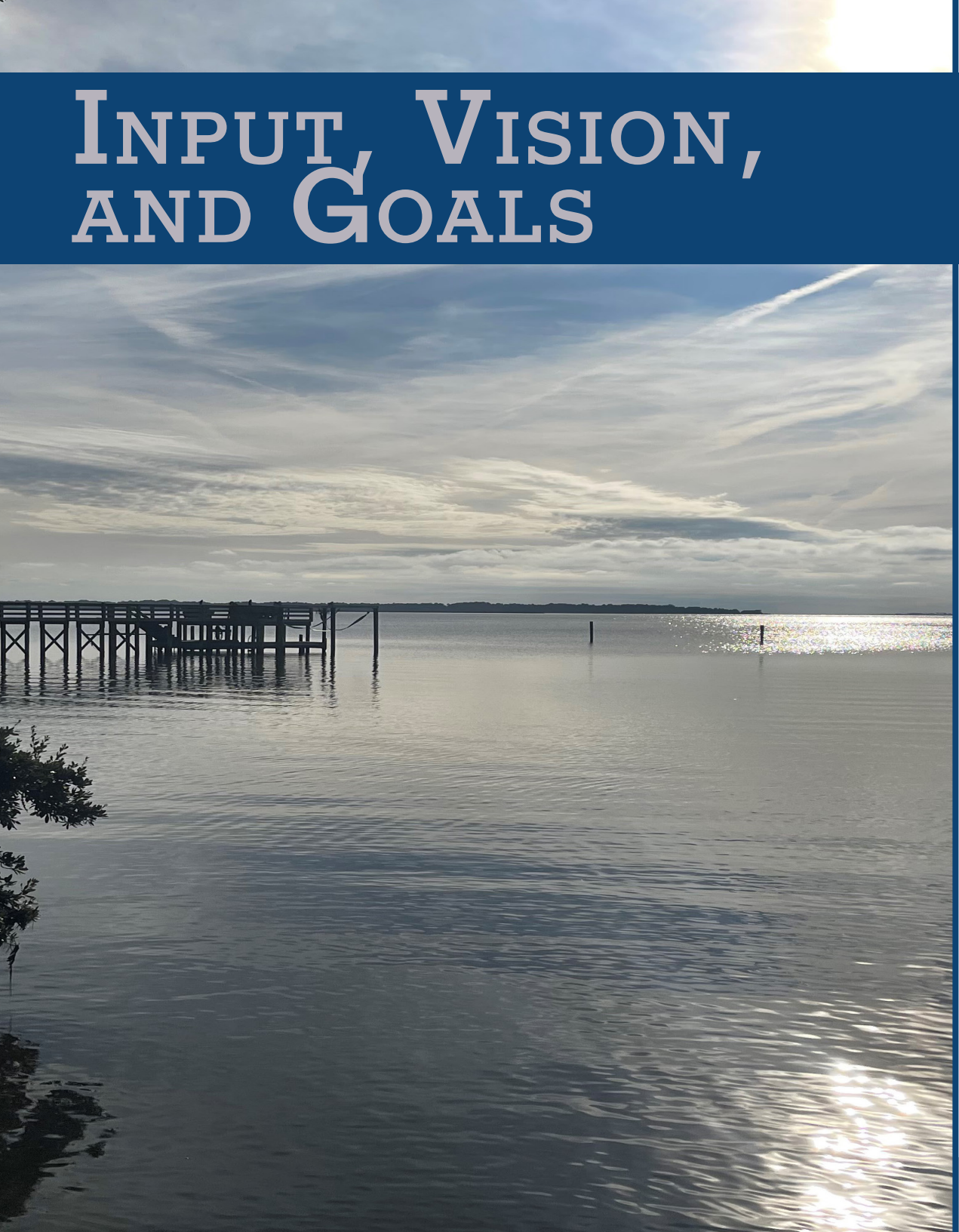
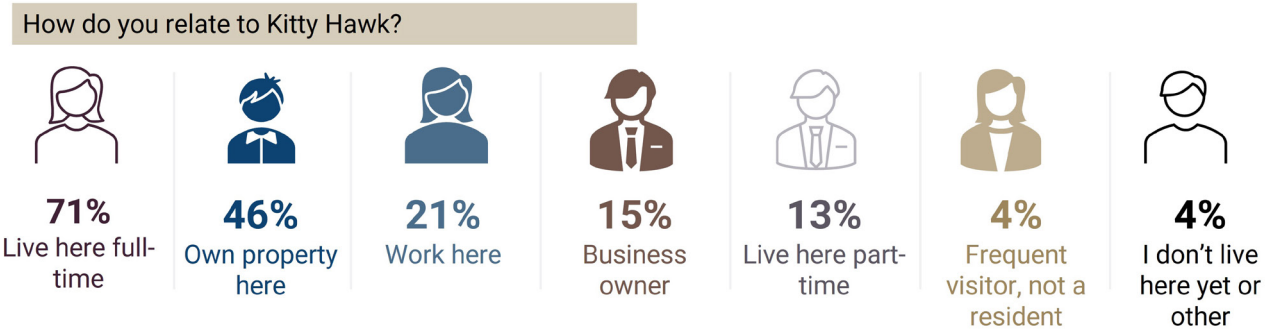


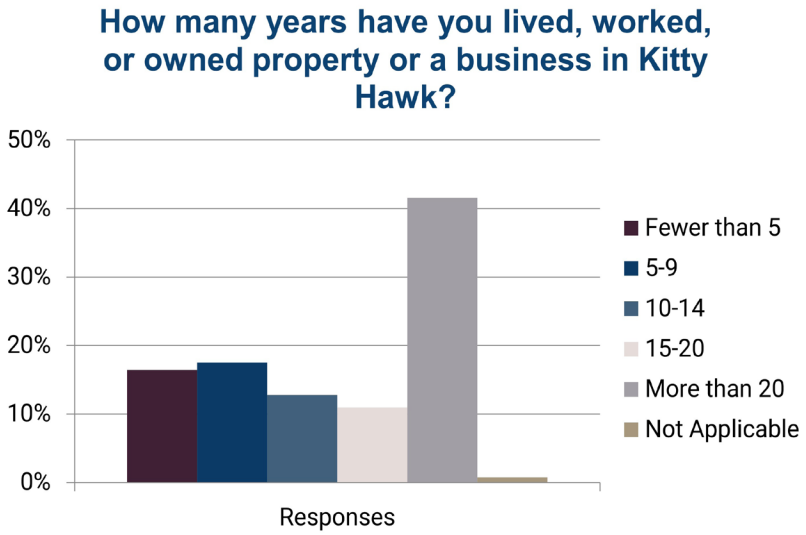
Chapter Contents

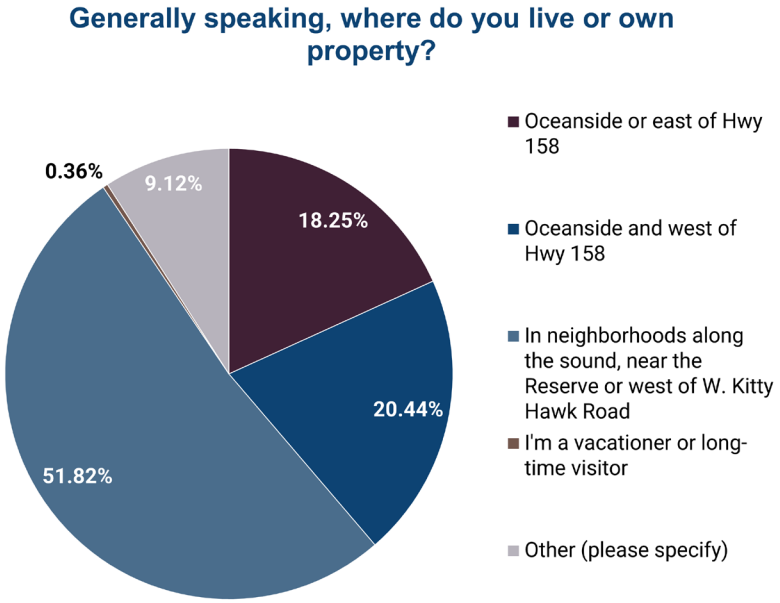
Imagine Kitty Hawk 2050

Survey Results

The community survey ran from December 12, 2022 to January 16, 2023. Town staff encouraged participation through outreach and advertising on multiple platforms. The survey consisted of 11 questions, 2 of which being open ended. 276 people participated in the survey to provide their input, a majority of which live in Kitty Hawk full time (126) and have for 15+ years.







What Do You Value About Kitty Hawk?

When given the opportunity to speak on what they valued about the Town of Kitty Hawk, respondents were clear. Overall, the relaxed beach town atmosphere, and the local community were the two elements most referenced. This word cloud shows how many times a word was valued based on its size.

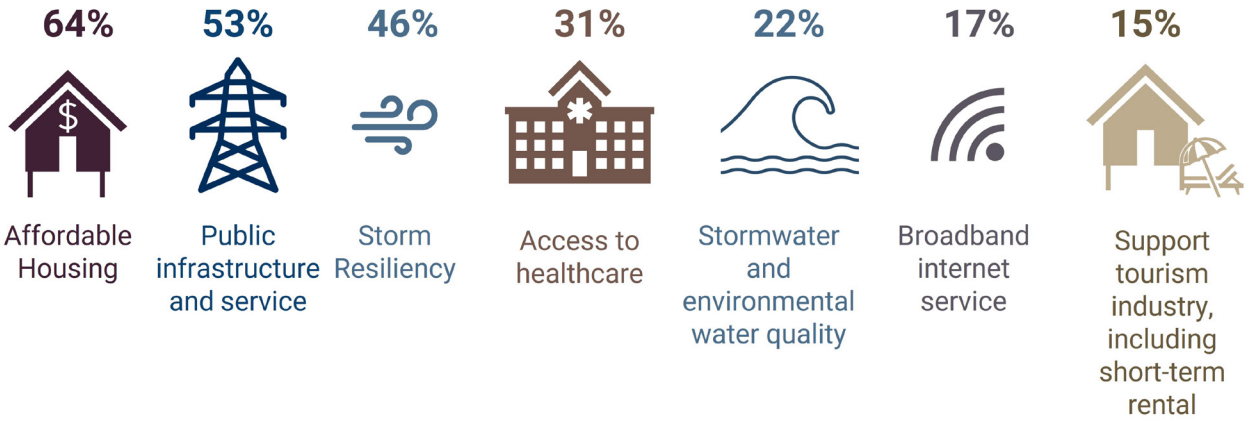
Primary Concerns for the Future

Over 60% of respondents agreed that the top primary concern they wanted to address was housing availability and affordability for year-round residents, workers, retirees, and families. The second and third of the top priorities listed were public infrastructure and services, followed by resilience to storms and other environmental hazards. Though these three concerns had the most votes, many others were also expressed.

Respondents were also asked about the issues they saw facing Kitty Hawk in the next 20 years with housing, environmental conditions, and community services being some of those identified. The citizens of Kitty Hawk care about not only the atmosphere that the town creates, but the land that it sits on and the ability for people to live there year round.

In the question comments, many respondents specifically identified that pedestrian and bicycle infrastructure were important to them for the future of Kitty Hawk.

Top Challenges the Town should address in this Plan



Housing Affordability & Availability

Pedestrian safety, sidewalks, and bicycling infrastructure

Public Infrastructure and Services

Resiliency

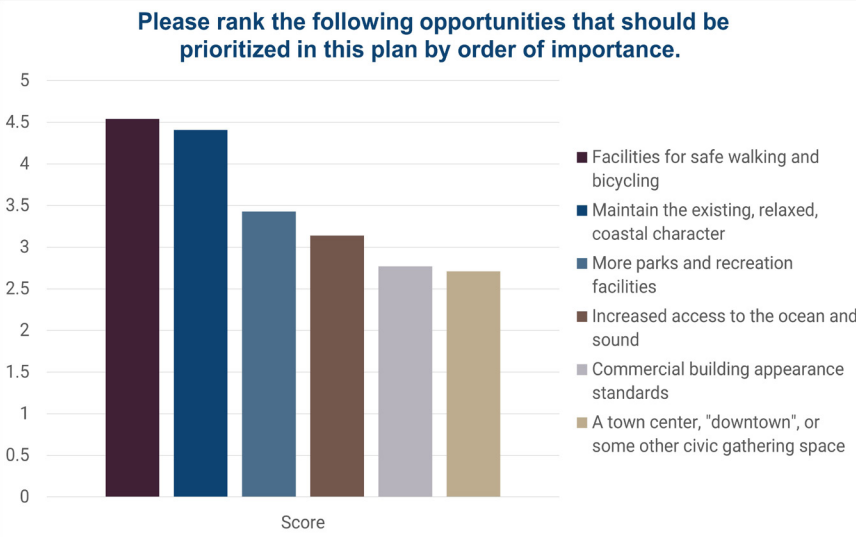
What Concerns Kitty Hawk...

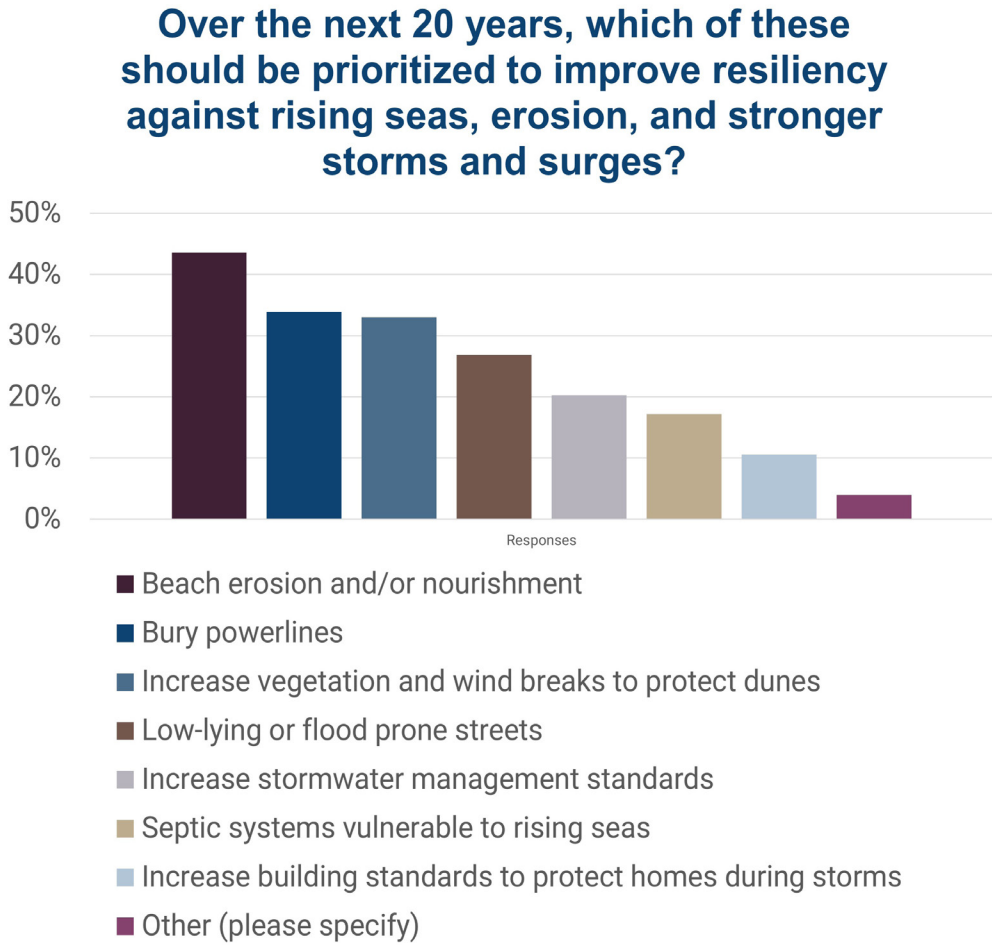
Top Plan Priorities

Survey respondents were asked what they thought this plan should prioritize in general, as well as in terms of improved resiliency against rising seas, erosion, and stronger storms in the future.

Generally, respondents' priorities in this planning process include safe pedestrian and bicycle facilities, maintaining the relaxed character of the Town, parks and recreation facilities, and increasing public water access.

In terms of resiliency, respondents prioritized the improvement of beach nourishment, burying powerlines, increased dune protection, and low-lying flood prone streets.





Stakeholder Interviews

The project team met for one hour with multiple stakeholders during the beginning of the planning process to discuss successes, issues, and opportunities in the Town of Kitty Hawk. Discussion topics included public service and public safety issues during the tourist season. Additional topics were housing affordability and availability issues for people who work in Kitty Hawk but live elsewhere. Other topic areas included pedestrian priorities and safety issues, storm resiliency, focus on healthcare, and the desire to create a town center. Stakeholders indicated the desire for underground utilities, maintaining community character, pedestrian and bicycling improvements, the need for medical facilities, and incentivizing long-term rentals in accessory dwelling units.

Public Meetings

The first project kick-off public meeting was held on November 16, 2022 in Town Council chambers at Town Hall. A short presentation was given at the kick-off introducing community members to the process. Informational boards and activities allowed for residents to express their concerns and tell the project team what they love about Kitty Hawk. Residents at the first meeting expressed their desire to maintain the family atmosphere and community character, increase educational opportunities about town operations, increase pedestrian and bicycling opportunities, address availability and affordability housing issues, and the need for a community center. In addition to balancing the needs of residents and tourists.

The second public meeting was held on February 7, 2023 in the Council Chambers at Town Hall. The second public meeting featured information about the project, draft vision and goals and feedback was solicited through several activities such as priorities preference boards, recommendation activity boards, and a map activity. The map activity allowed residents to show areas they loved in Kitty Hawk. A brief presentation was given at the beginning of the meeting to share survey results and the draft vision and goals with residents. Residents provided feedback indicating their top priorities were to remain a low-key coastal village, focus on resiliency and sustainability and remain family-oriented with a focus on local residents. Additionally, residents provided feedback on draft recommendations.

First Public Meeting

Second Public Meeting

Community Vision

"The Town of Kitty Hawk is a community-focused, family-oriented, low-key, Outer Banks village that prioritizes enhancing natural resources, preserving history and improving resiliency. We strive to balance the needs of Kitty Hawk's year-round residents and visitors while improving everyday coastal living."

Community Goals

The following draft goals are organized by CAMA Land Use Management Topic area first (Public Access, Land Use Compatibility, Infrastructure Carrying Capacity, Natural Hazards, and Water Quality) and then the other local issues of concern are listed. This order does not imply priority.

Public Access	Goal 1	*Maximize public access opportunities to the sound, bay, creeks, beaches, and the ocean.*
Land Use Compat-ibility	Goal 2	*Preserve, protect, and enhance the Atlantic Ocean, Currituck Sound, Kitty Hawk Bay, and Albemarle Sound shorelines so that future generations can use the beach and water for recreation and leisure activities.*
	Goal 3	*Reinforce Kitty's Hawk's unique, low-key, coastal identity and sense of community through high quality design and protection of natural and cultural resources.*
	Goal 4	*Continue to protect maritime forests, floodplains, marshes, and wetlands. These areas are important for biodiversity and habitat, ecotourism, storm protection functions, and floodwater absorption.*

Community Goals (Continued)

Infra-structure Carrying Capacity	Goal 5	*Plan for future land use, development and redevelopment, and the siting of infrastructure that is consistent with the capabilities and limitations of Kitty Hawk's natural systems and resilient to the changing environment.*
	Goal 6	*Ensure public infrastructure and facilities are improved to provide high quality service to existing development while also being responsive to changing environmental conditions.*
Natural Hazard Areas	Goal 7	*Continue beach nourishment and dune stabilization. These areas are important for ecotourism and storm protection.*
	Goal 8	*Evaluate the long-term viability of roadways and other infrastructure in high hazard and high vulnerability areas.*
Water Quality	Goal 9	*Improve water quality while managing stormwater and maintaining Kitty Hawk's natural resources.*
Local Concerns	Goal 10	*Build a safe, integrated, efficient, and economic transportation network (including bicycle lanes, sidewalks, multi-use paths, etc.) that afford mobility, accessibility, and safety for all residents and visitors.*
	Goal 11	*Encourage an adequate supply of affordable and workforce housing to serve the needs of year-round residents.*
	Goal 12	*Continue to enhance recreational facilities and programs and community-building experiences for year-round residents.*

Future Land Use

4

Chapter Contents

Imagine 2050
Kitty Hawk

Coastal Area Management Act (CAMA)Compliance

This land use plan functions as a comprehensive plan and also as a CAMA land use plan (see 15A NCAC 07B). The Coastal Resources Commission (CRC) outlines five land use plan management topics (Public Access, Land Use Compatibility, Infrastructure Carrying Capacity, Natural Hazard Areas, and Water Quality) that must be addressed in a CAMA land use plan. Each CAMA required land use management topic includes a Management Goal and a Planning Objective, which are specified in the state statutes governing land use planning in coastal communities, and are replicated on the next page for clarity.

Not only does this land use plan address the land use management topics, but it also affords the opportunity to address other issues of local concern, which may be asset-based, programmatic, regulatory, geographic, or otherwise. These issues were identified during the land use plan development process and are included in these plan recommendations. The issues do not necessarily directly align with the CAMA management topic structure, but are locally important nonetheless. These recommendations are not required to have associated timelines for completion or implementation, although in some cases these may be provided.

Not all of the recommendations herein 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 leadership will determine priorities and timelines. Policies that are not able to be implemented immediately will guide future development decisions, so that all future development will bring the reality closer to the vision.

While the Future Land Use Map and policies 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 ordinances and the CRC's permitting rules that implement the Coastal Area Management Act.

Relative to the five CAMA Land Use Management Topic Areas:

CAMA plans require that recommendations related to the CAMA land use management topics be divided into policies and implementation steps. Other non-CAMA policies or implementation items may also be referenced. Where no entry is provided, the topic is not considered relevant to the CAMA land use management topics.

The following pages of recommendations identify CAMA policies and implementation steps according to the following labeling structure:

CAMA Policies are identified by their acronym (E.g. - LUC, WQ, PA, ICC, or NHA. See full descriptions on the next page). These are used by the state reviewer in CAMA permit review and consistency determinations.

CAMA Implementation Steps are identified by fiscal year which they are anticipated to be accomplished (E.g. - FY 2024/25, FY2025/26, etc). These are used by local staff in writing 2-year status reports regarding implementation. Each must have a fiscal year for accomplishment identified. Some actions will be labeled as "ongoing" and will require constant vigilance.

Land Use Management Topics

(Pursuant to 15A North Carolina Administrative Code 07B .0702(D)(2).)

Goals for: Land Use Compatibility (LUC)

Management Goal: Ensure the development and use of resources, as well as the preservation of land balance protection of natural resources and fragile areas, are in conjunction 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: 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.

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.

Future Land Use

The Future Land Use Map serves as a policy tool to guide land use decisions for Town staff, Planning Board, and the Town Council. It is a visual representation of the community's preferred future land use pattern, assigning "character areas" across the Town's jurisdiction. The Future Land Use Map is required by North Carolina law (NCGS Chapter 160D) in order for any jurisdiction to use zoning as a means of regulating the physical and operational characteristics of land use. A change in zoning is considered a legislative action, and the Future Land Use Map is designed to guide decision-makers in determining whether or not a proposed or petitioned change in zoning is in keeping with the community's vision for the future.

The Future Land Use Map 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 permitting decisions. Character area descriptions are intentionally designed to be general and allow for some interpretation. This is because land use patterns may change over time and are not perfectly predictable.

These character areas also provide direction for updates to the Town's land development regulations to help new development fit into the community. Not all of the character area descriptions are immediately ripe for implementation, and it is left to the discretion of staff and leadership as to which elements to pursue at any given time.

A Future Land Use Map is also valuable for communicating public investment priorities and the community's vision for the future. The Future Land Use Map and character areas describe the desired types, intensity, and spatial arrangement of land uses. It is not an ordinance and does not bind decision makers. It is a guide for land use policy making. It identifies the predominant land use types and character intended for different parts of the study area. Sometimes, the current existing conditions of property may be counter to the vision on the Future Land Use Map. However as properties change, develop, and redevelop, and as the Town grows, it should generally be guided toward the future shown on the Future Land Use Map.

It is not advisable to immediately rezone properties to reflect the Future Land Use Map. Rather each rezoning request by property owners and developers should be evaluated individually based on a variety of factors, including its individual merits, surrounding context, presence (or absence) of adequate public facilities, potential financial impact (or burden) of the project, environmental impact, timing, etc.

How to Use the Future Land Use Map

Use the Future Land Use Map and character area descriptions as a guide when making land use and development permitting decisions. This is especially relevant to rezonings and decisions of where to extend public infrastructure and services. Development within the horizontal boundaries of the 2-foot sea level rise area and the future 1% annual flood chance area should receive special scrutiny to ensure public safety and security of public investments. However, existing zoning entitlements and rights also need to be respected or mutually altered.

Some uses can easily be included in many future land use character areas. These include government maintenance buildings, small utility related structures (electric, natural gas, sewer lift stations, water towers), preexisting single family residential, etc.). However, some uses should be carefully considered so that they do not unintentionally create a demand for development in inappropriate areas. Development should not be encouraged on existing low-lying lands that are likely to become permanently inundated due to rising seas.

Future Land Use Map and Character Area Descriptions

The following pages provide an overview of Future Land Use Character Areas. While typical uses are described, these lists are not exhaustive or prohibitive. For instance, some uses may be appropriate in all character areas. These might include uses such as government maintenance buildings or structures. However, some uses should be carefully considered so that they do not unintentionally create impacts or development in inappropriate areas. Size of operation should also be a consideration. For example, a small-scale neighborhood-serving business may be appropriate in the Village Center along Kitty Hawk Road next to residential areas but a large-scale retail center should be located along US 158. Ultimately, it is up to the governing boards at the time of application to decide what will most accurately promote the plan's goals.

This updated Future Land Use Map provides a streamlined approach that will serve as a guide for the future development of Kitty Hawk. It provides guidance for areas that will likely be inundated in the future while providing flexibility in some areas to encourage housing diversity. Two feet of sea level rise was factored into designations on the the Future Land Use Map since most structures are built to last more than 50 years and two-feet of sea level rise is likely to occur as early as 2065.

Invest and Improve

This designation is primarily in high traffic corridors, where levels of commercial or employment activity are greatest, or where conditions create the potential for higher intensity uses.

Maintain and Enjoy

This designation includes mostly built-out areas with residential uses and some small-scale commercial uses along US 158 and Hwy 12. This also includes the "Village Center" area of Town along Kitty Hawk Road.

Accommodate and Adapt

This area is highly vulnerable to flooding but may occasionally include new elevated structures.

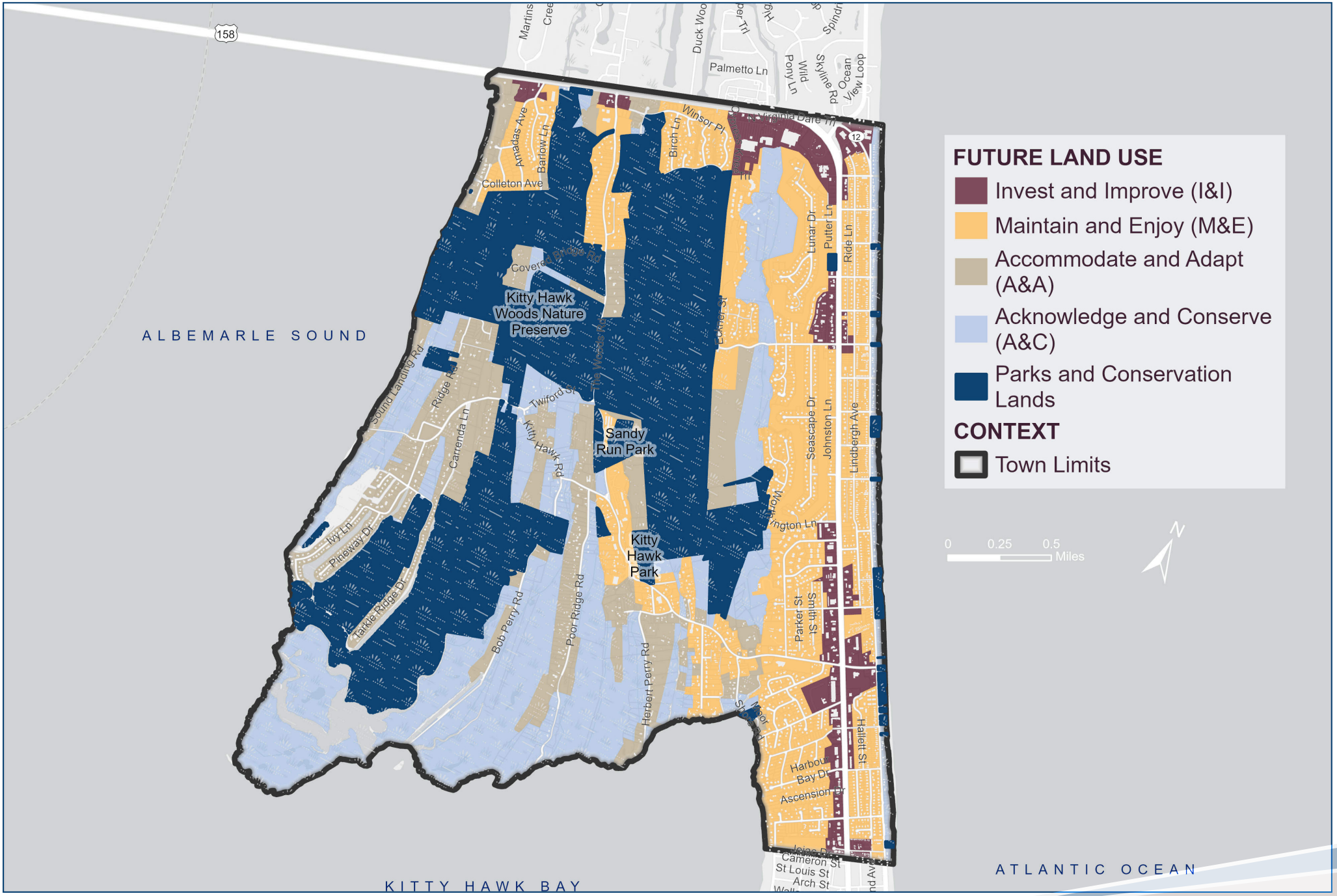
Acknowledge and Conserve

This designation includes low-lying areas that are not suitable for development or areas that are susceptible to natural hazards and inundation.

Parks and Conservation Land

This designation includes parks and conservation lands.

Future Land Use Map



Invest and Improve

This designation is for areas primarily in high traffic corridors, where commercial or employment activity already exists, or where conditions create the potential for higher intensity uses and development. Mostly this means existing commercial centers, but could also include offices or mixed-use development. A variety of residential uses may be appropriate in some areas. Areas where significant intensification is not desired are coded under a different designation. For instance, a legacy light industrial warehouse next to a residential home might not be a prime candidate for increasing the intensity of nonresidential activities, but a vacant parcel at a busy intersection on Hwy 158 would be a good candidate for commercial development.

Typical Uses

- Commercial and office uses
- Employment uses
- Attached residential and resort uses

Maintain and Enjoy

The majority of the Town is already built out and most parcels are unlikely to undergo significant change from their current use. This is in part due to the reliance on on-site septic systems for wastewater treatment. The current layout of uses adequately separates and buffers commercial, industrial, and residential uses and although some change may occur it will likely be on a limited basis. When vacant parcels are developed it should be expected to be similar to what surrounds the parcel. In this area there is potential for redevelopment and infill that could include village-scale commercial development, single-family homes and house-scale attached residential. Townhomes and/or workforce housing could be located on larger properties at strategic locations near commercial areas. Site and building design will be important to maintain community character. Resilient design of buildings will be needed in the Village Center area due to potential for flooding.

Typical Uses

- Single Family Residential
- House-scale attached residential (duplexes, triplexes and quads)
- Townhomes (up to 6 attached)
- Strategically located workforce housing
- Village-scale commercial
- Resort uses

Accommodate and Adapt

Living on a barrier island means understanding that flooding and natural hazards are a part of life. Hazards like flooding from stormwater, tides, or storm surge will continue to occur and are projected to get worse. The areas covered by this designation are important to the community, but will continue to be more impacted as time goes on. The existing uses in these areas should be aware of these projected changes and take incremental steps to adapt and increase their relative safety. This might include elevating buildings, enhanced stormwater management, or floodproofing as structures are upfitted or sites are improved. Accommodations will also likely be necessary to ensure proper functioning septic systems and avoid polluting nearby water bodies. Future uses should be primarily single family homes and reuse of existing buildings. Water-oriented commercial uses and isolated small-scale attached residential may be permitted with appropriate site and building design to fit character of area. Structures should be designed to be resilient against rising seas, flooding, storms and other hazards.

Typical Uses

- Single family homes
- Reuse of existing buildings
- Water-oriented commercial businesses
- Limited small-scale attached residential

Acknowledge and Conserve

This character area includes beach front properties and low-lying lands that have not been developed because they are generally not suitable for development. As seas continue to rise, these areas will be the most heavily impacted and may eventually become periodically or permanently inundated. People and structures in these areas should consider how to incrementally remove their assets to more safe locations. This will happen on a property-by-property basis and the Town may be able to leverage funding to help people voluntarily relocate.

Typical Uses

- Single Family Homes
- Recreation Facilities

Parks and Conservation

These areas include parks and conservation lands and those parts of Town that may not be suitable for future development due to environmental constraints or exposure to natural hazards--primarily flooding. Parks and conservation lands including Kitty Hawk Woods Nature Preserve, Sandy Run Park and Kitty Hawk Park are included in this character area. Recreation facilities, trails and associated uses (i.e. parking and bathroom) are acceptable uses in these areas.

Future Land Use Character Area Table

The table below outlines residential and nonresidential building types to encourage or discourage in the Future Land Use Character Areas

Future Land Use Character Area	Residential Uses			Nonresidential Uses		
	Attached Residential (Apartments, Condos, Townhomes)	Detached Medium Density Residential (Single-Family, Small-scale Townhomes, Duplex, Triplex, Quads)	Detached Low Density Residential (Single-Family)	Small-Scale Commercial	Large-Scale Commercial	Maritime Recreation and Industry
Invest & Improve	☑	☑	*	☑	☑	-
Maintain & Enjoy	*	☑	☑	☑	-	☑
Accommodate & Adapt	-	*	☑	*	-	☑
Acknowledge & Conserve	-	-	*	-	-	*

Legend:

☑ = Allowed/Encouraged

* = If Contextually Appropriate, Potential Limitations, Design Criteria

- = Discouraged

Recommendations 5

Chapter Contents

Imagine Kitty Hawk 2050

Public Access

Goal 1: Maximize public access opportunities to the sound, bay, creeks, beaches, and the ocean.

Policy 1.1: Maintain existing public access points.

- » Maintenance activities may include sand removal or grading, boardwalk replacement, etc.
  - ▶ The town currently has 14 beach access points off of Highway 12 and two access points on the Albemarle Sound side of the town. Sound side access points include the Bob Perry Road Boat Ramp and Windgrass Circle Park.

Policy 1.2: Expand or enhance facilities to support access areas.

- » Enhancements could include sidewalk connections or crosswalks, signage, bicycle parking or bathrooms.

Policy 1.3: Identify potential new access areas and parking locations.

- » Consider the addition of parking in the vicinity of existing access points. This could include Town-owned lots or street enhancements that include on-street parking.
- » Candidate locations should be in close proximity to existing access points, have a low traffic volume and a limited number of driveway conflicts.

Policy 1.4: Consider additional locations for enhanced handicap accessibility.

- » Consider the addition of another accessible boardwalk or ramp between Lillian Street and Byrd Street.
  - ▶ Current handicap beach access points include Byrd Street, Lillian Street and the Kitty Hawk Bath House.

Policy 1.5: Continue the beach wheelchair program that allows residents and visitors to borrow wheelchairs from the Kitty Hawk Fire Department with wide tires to access the beach.

Policy 1.6: Maintain and improve sound side access points.

- » Maintain Wind Grass Circle park which has an overlook deck and access to the Wright Brothers Multi Use Path.
- » Consider future opportunities to improve access on the sound side, mitigate property risk and enhance recreational access (i.e. for canoes, kayaks or wading).

The Town is expanding parking on side streets between 158 and Hwy 12 . The above image is from Belroit Street which was recently restriped to be one-way with diagonal parking.

Goal 2: Preserve, protect, and enhance the Atlantic Ocean, Currituck Sound, Kitty Hawk Bay, and Albemarle Sound shorelines so that future generations can use the beach and water for recreation and leisure activities.

Policy 2.1: Regulate and support the management of oceanside development to protect and preserve the natural and recreational resources along the oceanfront.

- Ensure new development adheres to CAMA requirements in the Ocean Hazard Area of Environmental Concern (See 15A NCAC 7H .0306 for building and setback requirements)
  - The intent is to defer to 15A NCAC 7h.0306 and allow applicants to apply for a variance.
- Update, enforce and amend ordinances and procedures to protect the Atlantic Ocean Shoreline and associated sand dunes.

Policy 2.2: Support cooperative efforts between land owners and Town, State, and Federal agencies to acquire unbuildable oceanfront lots as appropriate.

Policy 2.3: Ensure properly installed and maintained sewage disposal systems.

- Coordinate with the Dare County Health Department to permit and monitor systems.
- Ensure new septic tanks meet county and state requirements.
- Discourage new development that relies on septic tanks in areas that will be inundated with a 2' rise in sea level.
- Establish a program for addressing impaired septic leach fields.

Policy 2.4: Require stormwater management systems in new development that mimic pre-development runoff conditions.

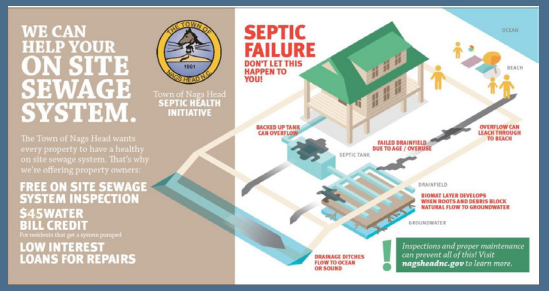
- Continue to enforce stormwater regulations including:

1. Require adequate stormwater BMPs.
2. Maintain lot coverage maximums for different zoning districts.

- Consider additional incentives for green stormwater infrastructure including pervious pavements, bioswales, rain gardens and green roofs.
  - Current regulations allow for additional lot coverage in commercial districts if permeable pavements

Case Study: Town of Nags Head Septic Monitoring Program

On-site septic systems must be maintained in order to function properly and often fail due to age, improper use, and/or over-use through high occupancy. The Town of Nags Head provides free non-emergency septic system inspections to homeowners with systems that are sized less than 3000 gallons per day. This includes locating your system, discussing maintenance and installation concerns, and inspecting the system. Town staff provides a follow-up report that outlines the location of the system and if there are any issues with it. If the system needs to be replaced, the town offers low-interest loans. The Town of Nags Head also has the ability to provide credits on water accounts because they provide water service to its residents.



are utilized. A similar approach could encourage permeable pavements in residential districts.

Goal 3: Reinforce Kitty's Hawk's unique, coastal identity and sense of community through high quality design and protection of natural and cultural resources.

Policy 3.1: Manage land use and development to minimize primary and secondary impacts on resources and existing residents through standards for developments.

Policy 3.2: Encourage commercial development at appropriate scales in areas zoned for commercial (BC and VC districts).

» Encourage larger scale commercial development to be located along US 158.

» Encourage commercial development along NC 12, Kitty Hawk Road and other areas to be low intensity uses and of a scale that fits into the surrounding areas.

Policy 3.3: Enforce and refine commercial design standards in order to maintain the Town's unique character among coastal villages.

» Enforce, and amend as necessary, the Town's zoning ordinance to meet the goals specified in this land use plan.

» Evaluate parking requirements and consider reductions for certain uses or locations.

- ▶ Parking policies can shape the character of communities by inducing demand for car travel, reducing walkability and creating visual impacts.
- ▶ Parking requirements should be compared to regional and national peer communities. Credits or reductions could be implemented for shared parking, additional tree-save areas or bicycle parking.

» Establish corridor overlay landscaping and site design requirements along Hwy 158. This may involve coordination with Southern Shores and Dare County (Martin's Point) along shared boundaries.

» Refine ordinance to better address building scale, landscaping and potentially include architectural details, materials and develop a color palette for VC and BC districts.

» Consider changes to the development

Encouraging pervious pavements (also known as permeable pavements) and other low impact development (LID) techniques can help increase infiltration and reduce stormwater runoff.

review process to ensure high-quality commercial site and building design.

Policy 3.4: Encourage residential that fits Kitty Hawk's character.

- Maintain zoning regulations that protect the character of Kitty Hawk's neighborhoods.
- Continue to maintain regulations that encourage mostly single family homes to maintain the overall residential character of Kitty Hawk.
- Maintain the existing 35 foot height limit for new buildings.
- Maintain variable setbacks dependent on dwelling size.
- Require reverse frontage lots adjoining US 158 to reduce driveways on highway.
- Consider simplifying residential districts.
  - There are currently 6 residential zoning districts (BR-1, BR-2, BR-3, VR-1, VR-2, VR-3) and many have the same dimensional and density allowances.
- Monitor trends and reduce impacts of Accessory Dwelling Units (ADUs) and Short-term Rentals (STRs) in Village Residential zoning districts.
  - Current regulations allow ADUs as long as lot coverage and other standards are followed.
- Consider modifications to design requirements that could include additional setbacks or buffering in VR districts, especially if the unit is accessed via a separate driveway.

Policy 3.5: Encourage affordable and workforce housing in and around Kitty Hawk.

- Partner with Dare County, surrounding communities and/or non-profits on projects that add affordable or workforce housing units within or near Kitty Hawk.
- Affordable and workforce units should be located within or near the Invest and Improve areas on the Future Land Use Map.
- Consider adjustments in dimensional requirements and density allowances to allow for additional housing types in some zoning districts.
- Consider increasing allowances for small-scale attached housing (i.e. duplexes, triplexes or quadplexes) in some areas with performance design standards. (minimum lot size, buffer requirements, etc.).
- Encourage multi-family housing in commercial zoning districts via the Planned Commercial Development option.
  - Townhomes or other attached housing can serve as a transition between commercial uses and existing residential uses.

Single-family home in Kitty Hawk.

Goal 4: Continue to protect maritime forests, floodplains, marshes, and wetlands. These areas are important for biodiversity and habitat, ecotourism, storm protection functions, and floodwater absorption.

Policy 4.1: Encourage the preservation of maritime forest, floodplains, marshes and wetlands through development regulations and land protection initiatives.

- Regulate development in the floodplain and participate in FEMA's Community Rating System (CRS).
  - Use FEMA's Community Rating System "A Local Official's Guide to Saving Lives, Preventing Property Damage, and Reducing the Cost of Flood Insurance" to seek out opportunities to improve the Town's current rating.
- Continue to require additional freeboard for buildings located in the floodplain.
  - Current regulations require buildings to be elevated 8 feet above the regulatory floodplain for structures located in the X and AE flood zones and one foot freeboard for structures located in the zones AH, AO, and VE.
- Encourage new development to be designed to limit impacts on wetlands, flood storage and maritime forests.
- Encourage conservation design for larger residential and commercial developments that limits the footprint of new development and conserves key natural features as open space.

Policy 4.2: Protect and enhance access to Kitty Hawk Woods Reserve.

- Continue coordination with the Kitty Hawk Woods Advisory Committee.
- Coordinate with public and private partners to improve access to hiking trails.

Policy 4.3: Enhance tree cover in the Town of Kitty Hawk.

- Encourage or require new development to plant native street trees and/or yard trees.

Kitty Hawk Woods Reserve

Kitty Hawk Woods Reserve borders on the west by Albemarle Sound with Kitty Hawk Bay to the south, which contains its Kitty Hawk Bay islands. The Town has a conservation easement with the state and owns approximately 461 acres. The site is also a Dedicated Nature Preserve.

The ridges and swales found here are evidence of relict sand dunes and indicate locations of ancient shorelines. A variety of plants and animals can be found here, including globally rare plants.

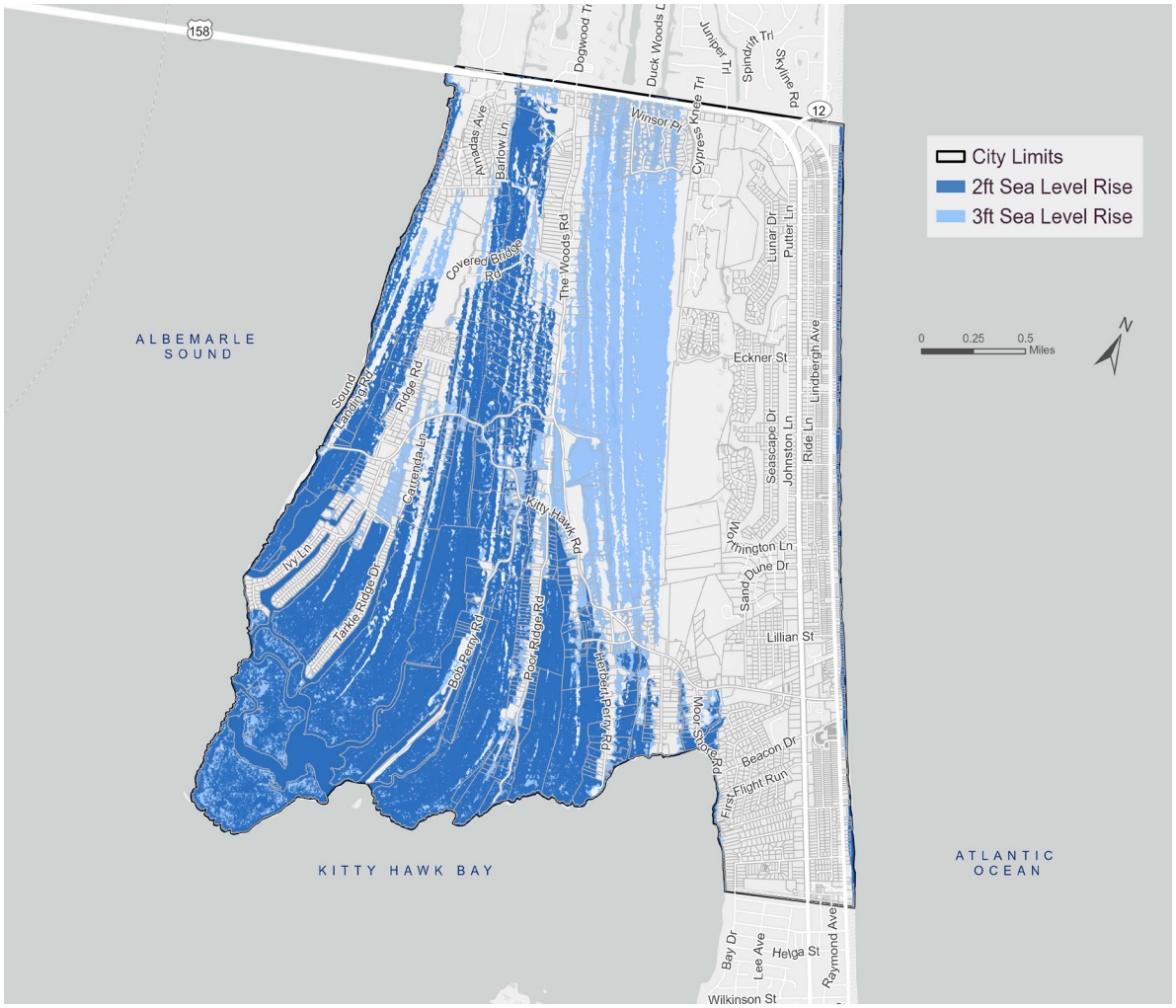
Source: americantraveljournal.blogspot.com

Goal 5: Plan for future land use, development and redevelopment, and the siting of infrastructure that is consistent with the capabilities and limitations of Kitty Hawk's natural systems and resilient to the changing environment.

Policy 5.1: Utilize the future land use map, storm surge maps, flood exposure maps, wetlands assessments, and projected sea level rise and flood vulnerability data when considering rezoning and development requests.

» Many areas of Kitty Hawk may experience periodic inundation as sea levels rise. This will increase the footprint of floodplains and susceptibility to storm flooding. New development should be located and designed to factor in future risks.

Sea Level Rise Projections Map



Source: coast.noaa.gov/slrdata

Goal 6: Ensure public infrastructure and facilities are improved to provide high quality service to existing development while also being responsive to changing environmental conditions.

Policy 6.1: Maintain and provide ocean rescue services, emergency services and fire and police protection.

- » Continue with plans to move the police station to the former site of the Sentara Medical Center.
- » Consider adding a satellite fire station on Highway 158 near the county EMS station in order to have the capability of positioning trucks and personnel in a staging area more resilient to flooding.

Policy 6.2: Maintain existing parks, trails and recreational facilities and address future needs.

- » Continue to implement the Town's Recreation Master Plan.

Policy 6.3: Maintain and improve roadways and other transportation facilities.

- » Coordinate with the North Carolina Department of Transportation (NCDOT) on the maintenance and improvement of state roads.
- » Plan and budget for continued maintenance of Town-owned roads and pedestrian facilities.

Policy 6.4: Continue stormwater upgrades and implement the Stormwater Management Study (2012)

- » Consider updating the Stormwater Management Study within the next few years.

Policy 6.5: Maintain and enhance the stormwater removal system in place that clears flooding on streets to allow for emergency vehicle access.

- » Consider adding pumps or drainage pipes at additional locations where pumping is needed to clear roads for emergency vehicle response.
- » Study alternative solutions to pumping stormwater to the beach/ocean. Alternatives may include infiltration tanks (which discharge into the ground during dry weather conditions) in key locations.

The Town plans to relocate the police station to the former site of the Sentara Medical Center on Highway 158.

Policy 6.6: Evaluate areas of flooding and options for low-lying neighborhoods and roadways.

Policy 6.7: Pursue and utilize state and federal grants to study areas of persistent flooding and potential solutions.

» The Resilient Coastal Communities Grant program by NCDEQ provides an opportunity to set community goals and develop a project portfolio to enhance resiliency.

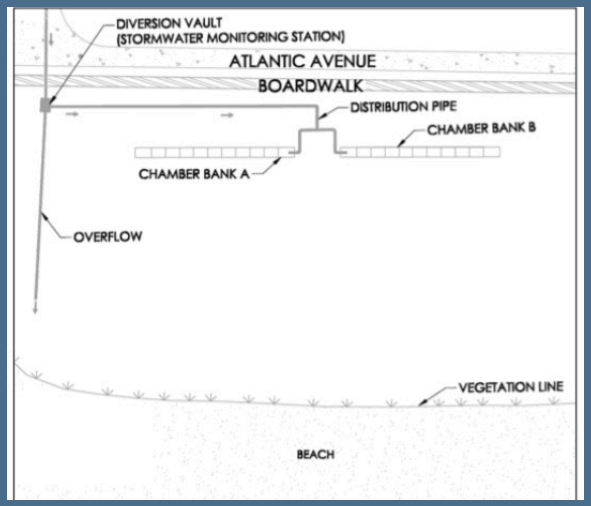
Policy 6.8: Coordinate with adjacent municipalities and Dare County to ensure a high level quality of service for water infrastructure is continued.

» In coordination with Dare County, explore alternative forms of financing for infrastructure to prevent a decline in level of services provided for residents.

» The Town could consider the encouragement of water conservation measures during summer months.

Dune Infiltration System Project Example

The Town of Kure Beach has installed a Dune Infiltration System (DIS) that reduces outflows from existing stormwater discharge pipes on the beach. Instead of flowing directly to the ocean, stormwater is stored in an infiltration system beneath the dunes. This project has shown reductions in measured bacteria loads at stormwater discharge sites. For more information see:
https://content.ces.ncsu.edu/dune-infiltration-systems-for-reducing-stormwater-discharge-to-coastal-recreational-beaches



Goal 7: Continue beach nourishment and dune stabilization activities.

Policy 7.1: Continue to restore natural coastal buffers to protect inland areas from storm damage, flooding, sea level rise, while maintaining habitat and ecosystem functions for coastal species.

- Continue to maintain and enhance access to areas that receive beach nourishment.
- Continue regular dune plantings.
  - A beach nourishment occurs every five years. These projects are important for ecotourism and storm protection.

Policy 7.2: Regulate and support the management of oceanside development to protect and preserve the natural and recreational resources along the oceanfront.

- Ensure new development adheres to CAMA requirements in the Ocean Hazard Area of Environmental Concern (See 15A NCAC7H .0306 for building and setback requirements)
  - The intent is to defer to 15A NCAC 7h.0306 and allow applicants to apply for a variance.
- Update, enforce and amend ordinances and procedures to protect the Atlantic Ocean Shoreline and associated sand dunes.

Goal 8: Evaluate the long-term viability of roadways and neighborhood infrastructure in high hazard and high vulnerability areas.

Policy 8.1: Study infrastructure exposure including roads and other key assets in vulnerable areas.

- Potentially vulnerable areas include back side marshes, N. Virginia Dare Trail (NC Hwy 12), Ivy Lane, and Moor Shore Road.
- Support studies that analyze vulnerability and analyze public costs of alternative solutions.
- Evaluate relocation opportunities of public facilities in high hazard areas, especially critical facilities (water or electric supply, evacuation, etc.).
- Consider living shoreline installations to protect key infrastructure.
- Plan for abandonment or armoring of critical facilities where other solutions are not feasible.
- Condemnation and/or public buy-outs are to be considered as a last resort only. Continued beach nourishment is preferable to retreat.

Beach renourishment was conducted for approximately 3.97 miles of shoreline from Southern Shores / Kitty Hawk town line to Kitty Hawk / Kill Devil Hills limits from August to October of 2022 at a cost of $9,600,000.

Goal 9: Improve water quality while managing stormwater and maintaining Kitty Hawk's natural resources.

Policy 9.1: Use Low Impact Development (LID), vegetative buffers to filter stormwater, impervious surface limits, and innovative stormwater management and treatment to reduce runoff and improve environmental water quality.

- » Utilize LID techniques on town building projects.
- » Consider additional lot coverage bonus in engineered plan shows retaining certain percentage or year storm on lot. There is an existing bonus in place for commercial projects, but not residential projects. Existing lot coverage limits are 60% for commercial and 30% for residential.

Policy 9.2: Establish a septic system monitoring program to identify malfunctioning or failing septic systems and work with property owners to achieve resolution.

- » Encourage the use of engineered septic systems when traditional onsite gravity-based tank and drainfield systems are not feasible due to site conditions or adequate area for a repair zone.

Policy 9.3: Allow for package treatment plants only when natural conditions prohibit the use of septic systems or as remedial efforts to correct existing failing septic systems.

- » Package treatment plants should be designed to serve a specific development.
- » Maintenance of private package treatment plants should be supervised by the appropriate state agency

Policy 9.4: Coordinate with state agencies and/or non-profits to improve water quality monitoring and regularly communicate outcomes to the public.

Local Concerns

Goal 10: Build a safe, integrated, efficient, and economic transportation network (including bicycle lanes, sidewalks, multi-use paths, etc.) that afford mobility, accessibility, and safety for all residents and visitors.

Policy 10.1: Increase safe cycling and pedestrian facilities to improve mobility opportunities throughout the Town.

- » Establish an annual budget and public works program to fill in sidewalk and bicycle route gaps, create pedestrian crosswalks, establish signage, construct pedestrian refuges, and other necessary facilities.
- » Support the design and construction of a multi-use path along Hwy 158.
- » Implement other facilities elsewhere in subsequent phases.
- » Coordinate with NCDOT, Southern Shores, Dare County (Martin's Point), and Kill Devil Hills on external connectivity.
- » Coordinate with and comment on major NCDOT infrastructure and development projects that will have a significant impact on residents and visitors, including things like offsite improvements to the state transportation network and evacuation routes.

Policy 10.2: Study, support and/or require roadway connections parallel to US 158.

- » These could be incorporated as part of infill / redevelopment projects and considered as conditions for approval.

Goal 11: Encourage an adequate supply of affordable and workforce housing stock to serve the needs of year-round residents.

Policy 11.1: Evaluate targeted actions to enhance the amount of housing available for year-round residents.

- » Partner with Dare County, surrounding communities and/or non-profits on projects that add affordable or workforce housing units within or near Kitty Hawk.

Policy 11.2: Encourage affordable and workforce housing in and around Kitty Hawk.

- » Refer to strategies under Policy 3.5.

Policy 11.3: Consider incentives or other actions for keeping housing used as long-term rentals.

Goal 12: Continue to enhance recreational facilities and programs and community-building experiences for year-round residents.

Policy 12.1: Continue to be a destination for family-oriented tourism.

- » Beach nourishment and additional programs that allow both residents and visitors to enjoy Kitty Hawk should be continued.
- » Identify areas for medical offices

Pedestrian Priorities

or health care facilities and actively recruit those businesses.

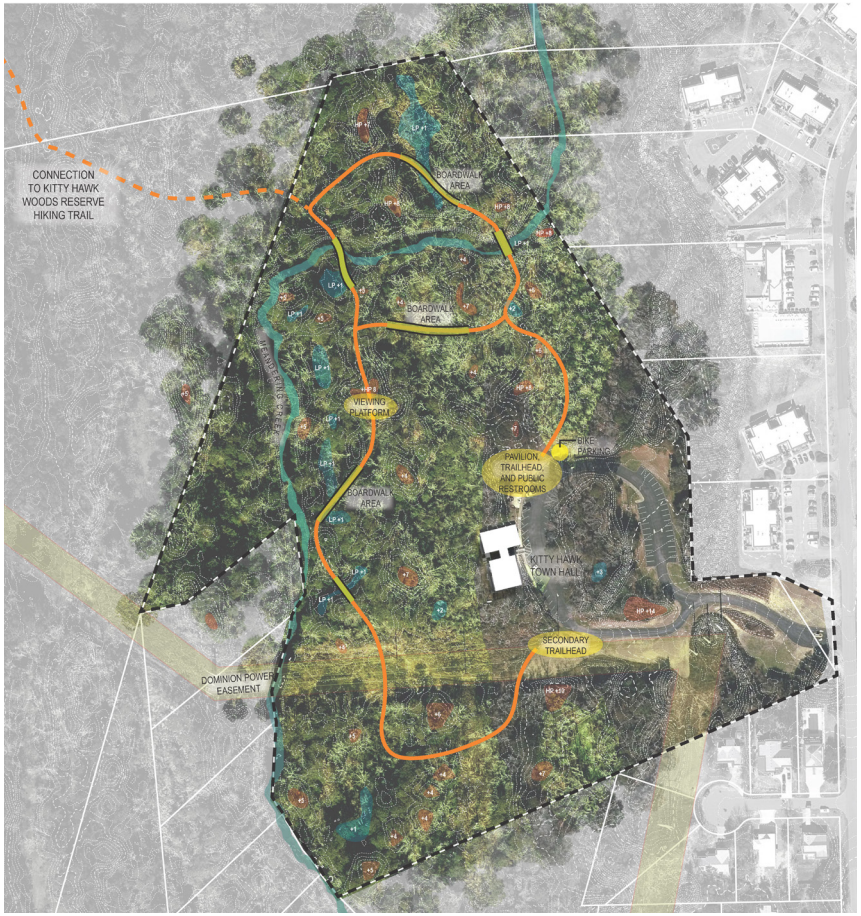
Policy 12.2: Continue to enhance recreational facilities and programs and community-building experiences for year-round residents.

- » Explore potential recreational enhancements near Town Hall. These could include trails or a gathering space for events.
- » Create more programs and facilities for youth and senior sports.

Policy 12.3: Celebrate the area's unique history by maintaining and celebrating local cultural resources.

- » Encourage National Register nomination on study-listed properties in Kitty Hawk.
- » Consider hosting an educational program for study-listed property owners on the benefits of being included on the National Register of Historic Places.

Town Hall Nature Trail Concept



The town hall is located on a property that includes wetlands and maritime forest. The addition of a nature trail, boardwalk, and other amenities could provide another recreation option for residents.

Implementation

In the following pages key implementation steps (actions) are identified with relevant CAMA Topics and implementation time-frames indicated. Implementing actions are prioritized by time frame: ongoing, short term; medium term; or long term. The recommended scheduling of implementing actions is as follows: short term (1-2 years, FY 2024/2025, FY 2025/2026), medium term (3-5 years, FY 2026/2027, FY 2027/2028, FY 2028/2029, FY 2029/2030, FY 2030/2031), and long term (6-10 years, FY 2031/2032, FY 2032/2033, FY 2033/2034, FY 2034/2035, FY 2035/2036). Actions labeled as "ongoing" require regular action by staff or boards to accomplish. Adherence to the established timelines listed herein will be used by the Coastal Resources Commission to track progress toward plan implementation on CAMA related topics, although it is understood that these timelines may be amended by the local government. The Town of Kitty Hawk will use zoning, work planning, and other local government powers to make progress on the policies and actions described in this plan.

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Policy 1.1: Maintain existing public access points.		X				P	Ongoing
Maintenance activities may include sand removal or grading, boardwalk replacement, etc.		X				I	Ongoing
Policy 1.2: Expand or enhance facilities to support access areas.		X				P	Ongoing
Enhancements could include sidewalk connections or crosswalks, signage, bicycle parking or bathrooms.		X				I	Long term
Policy 1.3: Identify potential new access areas and parking locations.		X				P	Ongoing

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Consider the addition of parking in the vicinity of existing access points. This could include Town-owned lots or street enhancements that include on-street parking.		X				I	Ongoing
Candidate locations should be in close proximity to existing access points, have a low traffic volume and a limited number of driveway conflicts.		X				I	Ongoing
Policy 1.4: Consider additional locations for enhanced handicap accessibility.		X				P	Long term
Consider the addition of another accessible boardwalk or ramp between Lillian Street and Byrd Street.		X				I	Ongoing
Policy 1.5: Continue the beach wheelchair program that allows residents and visitors to borrow wheelchairs from the Kitty Hawk Fire Department with wide tires to access the beach.		X				P	Short term
Policy 1.6: Maintain and improve sound side access points.		X				P	Ongoing
Maintain Wind Grass Circle park which has an overlook deck and access to the Wright Brothers Multi Use Path.		X				I	Ongoing
Consider future opportunities to improve access on the sound side, mitigate property risk and enhance recreational access (i.e. for canoes, kayaks or wading).		X				I	Long term
Policy 2.1: Regulate and support the management of oceanside development to protect and preserve the natural and recreational resources along the oceanfront.	X	X				P	Long term
Ensure new development adheres to CAMA requirements in the Ocean Hazard Area of Environmental Concern (See 15A NCAC7H .0306 for building and setback requirements)	X					I	Ongoing

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Update, enforce and amend ordinances and procedures to protect the Atlantic Ocean Shoreline and associated sand dunes.	X					I	Medium term
Policy 2.2: Support cooperative efforts between land owners and Town, State, and Federal agencies to acquire unbuildable oceanfront lots as appropriate.	X	X			X	P	Ongoing
Policy 2.3: Ensure properly installed and maintained sewage disposal systems.	X		X		X	P	Ongoing
Coordinate with the Dare County Health Department to permit and monitor systems.	X		X		X	I	Ongoing
Ensure new septic tanks meet county and state requirements.	X		X		X	I	Long term
Discourage new development that relies on septic tanks in areas that will be inundated with a 2' rise in sea level.	X		X		X	I	Ongoing
Establish a program for addressing impaired septic leach fields.	X		X		X	I	Medium term
Policy 2.4: Require stormwater management systems in new development that mimic predevelopment runoff conditions.	X		X		X	P	Medium term
Continue to enforce stormwater regulations including: (1) Require adequate stormwater BMPs; and (2) Maintain lot coverage maximums for different zoning districts.	X		X		X	I	Medium term
Consider additional incentives for green stormwater infrastructure including pervious pavements, bioswales, rain gardens and green roofs.	X		X		X	I	Ongoing
Policy 3.1: Manage land use and development to minimize primary and secondary impacts on resources and existing residents through standards for developments.	X			X	X	P	Ongoing

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Policy 3.2: Encourage commercial development at appropriate scales in areas zoned for commercial (BC and VC districts).	X					P	Ongoing
Encourage larger scale commercial development to be located along US 158.	X					I	Ongoing
Encourage commercial development along NC 12, Kitty Hawk Road and other areas to be low intensity uses and of a scale that fits into the surrounding areas.	X					I	Ongoing
Policy 3.3: Enforce and refine commercial design standards in order to maintain the Town's unique character among coastal villages.	X					P	Ongoing
Enforce, and amend as necessary, the Town's zoning ordinance to meet the goals specified in this land use plan.	X					I	Ongoing
Evaluate parking requirements and consider reductions for certain uses or locations.	X					I	Long term
Establish corridor overlay landscaping and site design requirements along Hwy 158. This may involve coordination with Southern Shores and Dare County (Martin's Point) along shared boundaries	X					I, L	Medium term
Refine ordinance to better address building scale, landscaping and potentially include architectural details, materials and develop a color palette for VC and BC districts.	X					I, L	Short term
Consider changes to the development review process to ensure high-quality commercial site and building design.	X					I, L	Short term
Policy 3.4: Encourage residential that fits Kitty Hawk's character.	X					P	Ongoing

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Continue to maintain regulations that encourage mostly single family homes to maintain the overall residential character of Kitty Hawk.	X					I, L	Medium term
Maintain the existing 35 foot height limit for new buildings	X					I, L	Ongoing
Maintain variable setbacks dependent on dwelling size.	X					I, L	Ongoing
Require reverse frontage lots adjoining US 158 to reduce driveways on highway.	X					I	Medium term
Consider simplifying residential districts.	X					I	Ongoing
Monitor trends and reduce impacts of Accessory Dwelling Units (ADUs) and Short-term Rentals (STRs) in Village Residential zoning districts.	X		X			I, L	Long term
Consider modifications to design requirements that could include additional setbacks or buffering in VR districts, especially if the unit is accessed via a separate driveway.	X		X			I	Medium term
Policy 3.5: Encourage affordable and workforce housing in and around Kitty Hawk.	X		X			P	Ongoing
Partner with Dare County, surrounding communities and/or non-profits on projects that add affordable or workforce housing units within or near Kitty Hawk	X					I	Long term
Affordable and workforce units should be located within or near the Invest and Improve areas on the Future Land Use Map.	X					I	Long term
Consider adjustments in dimensional requirements and density allowances to allow for additional housing types in some zoning districts.	X					I	Medium term

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Consider increasing allowances for small-scale attached housing (i.e. duplexes, triplexes or quadplexes) in some areas with performance design standards (minimum lot size, buffer requirements, etc.).	X					I	Medium term
Encourage multi-family housing in commercial zoning districts via the Planned Commercial Development option.	X					I	Medium term
Policy 4.1: Encourage the preservation of maritime forest, floodplains, marshes and wetlands through development regulations and land protection initiatives.	X			X	X	P	Ongoing
Regulate development in the floodplain and participate in FEMA's Community Rating System (CRS).	X			X		I	Ongoing
Continue to require additional freeboard for buildings located in the floodplain.	X			X		I	Ongoing
Encourage new development to be designed to limit impacts on wetlands, flood storage and maritime forests.	X			X		I	Long term
Encourage conservation design for larger residential and commercial developments that limits the footprint of new development and conserves key natural features as open space.	X			X		I	Long term
Policy 4.2: Protect and enhance access to Kitty Hawk Woods Reserve.	X					P	Ongoing
Continue coordination with the Kitty Hawk Woods Advisory Committee.	X					I	Long term
Coordinate with public and private partners to improve access to hiking trails.	X					I	Ongoing
Policy 4.3: Enhance tree cover in the Town of Kitty Hawk.	X			X		P	Ongoing

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Encourage or require new development to plant native street trees and/or yard trees.	X					I	Medium term
Policy 5.1: Utilize the future land use map, storm surge maps, flood exposure maps, wetlands assessments, and projected sea level rise and flood vulnerability data when considering rezoning and development requests.	X		X	X		P	Ongoing
Policy 6.1: Maintain and provide ocean rescue services, emergency services and fire and police protection.			X	X		P	Ongoing
Continue with plans to move the police station to the former site of the Sentara Medical Center.			X			I	Medium term
Consider adding a satellite fire station on Highway 158 near the county EMS station in order to have the capability of positioning trucks and personnel in a staging area more resilient to flooding.			X	X		I	Long term
Policy 6.2: Maintain existing parks, trails and recreational facilities and address future needs.			X	X		P	Ongoing
Continue to implement the Town's Recreation Master Plan.			X			I	Long term
Policy 6.3: Maintain and improve roadways and other transportation facilities.			X	X		P	Ongoing
Coordinate with the North Carolina Department of Transportation (NCDOT) on the maintenance and improvement of state roads.			X			I	Ongoing
Plan and budget for continued maintenance of Town-owned roads and pedestrian facilities.			X			I	Ongoing

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Policy 6.4: Continue stormwater upgrades and implement the Stormwater Management Study (2012)			X			P	Ongoing
Consider updating the Stormwater Management Study within the next few years.			X			I	Medium term
Policy 6.5: Maintain and enhance the stormwater removal system in place that clears flooding on streets to allow for emergency vehicle access.			X			P	Ongoing
Consider adding pumps or drainage pipes at additional locations where pumping is needed to clear roads for emergency vehicle response.			X			I	Long term
Study alternative solutions to pumping stormwater to the beach/ocean. Alternatives may include infiltration tanks (which discharge into the ground during dry weather conditions) in key locations.			X		X	I	Long term
Policy 6.6: Evaluate areas of flooding and options for low-lying neighborhoods and roadways.			X			P	Ongoing
Policy 6.7: Pursue and utilize state and federal grants to study areas of persistent flooding and potential solutions.			X	X		P	Ongoing
Policy 6.8: Coordinate with adjacent municipalities and Dare County to ensure a high level quality of service for water infrastructure is continued.			X			P	Ongoing
In coordination with Dare County, explore alternative forms of financing for infrastructure to prevent a decline in level of services provided for residents.			X			I	Ongoing
Policy 7.1: Continue to restore natural coastal buffers to protect inland areas from storm damage, flooding, sea level rise, while maintaining habitat and ecosystem functions for coastal species.				X		P	Ongoing

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Continue to prioritize beach nourishment and maintain beach access during beach nourishment.	X			X		I	Ongoing
Continue regular dune plantings.				X		I	Ongoing
Policy 7.2: Regulate and support the management of oceanside development to protect and preserve the natural and recreational resources along the oceanfront.				X		P	Ongoing
Ensure new development adheres to CAMA requirements in the Ocean Hazard Area of Environmental Concern (See 15A NCAC7H .0306 for building and setback requirements)				X		I	Ongoing
Update, enforce and amend ordinances and procedures to protect the Atlantic Ocean Shoreline and associated sand dunes.				X		I	Ongoing
Policy 8.1: Study infrastructure exposure including roads and other key assets in vulnerable areas.			X	X		P	Ongoing
Support studies that analyze vulnerability and analyze public costs of alternative solutions.			X	X		I	Ongoing
Evaluate relocation opportunities of public facilities in high hazard areas, especially critical facilities (water or electric supply, evacuation, etc.).			X	X		I	Ongoing
Consider living shoreline installations to protect key infrastructure.				X		I	Long term
Plan for abandonment or armoring of critical facilities where other solutions are not feasible.			X	X		I	Long term
Condemnation and/or public buy-outs are to be considered as a last resort only continued beach nourishment is preferable to retreat.			X	X		I	Ongoing

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Policy 9.1: Use Low Impact Development (LID), vegetative buffers to filter stormwater, impervious surface limits, and innovative stormwater management and treatment to reduce runoff and improve environmental water quality.					X	P	Ongoing
Utilize LID techniques on town building projects.					X	I	Ongoing
Consider additional lot coverage bonus in engineered plan shows retaining certain percentage or year storm on lot. There is an existing bonus in place for commercial projects, but not residential projects. Lot coverage limits are 60% for Commercial 30% for Residential.					X	I	Long term
Policy 9.2: Establish a septic system monitoring program to identify malfunctioning or failing septic systems and work with property owners to achieve resolution.					X	P	Ongoing
Encourage the use of engineered septic systems when traditional onsite gravity-based tank and drainfield systems are not feasible due to site conditions or adequate area for a repair zone.					X	I	Ongoing
Policy 9.3: Allow for package treatment plants only when natural conditions prohibit the use of septic systems or as remedial efforts to correct existing failing septic systems.					X	P	Ongoing
Package treatment plants should be designed to serve a specific development.					X	I	Ongoing
Maintenance of private package treatment plants should be supervised by the appropriate state agency.					X	I	Ongoing
Policy 9.4: Coordinate with state agencies and/or non-profits to improve water quality monitoring and regularly communicate outcomes to the public.					X	P	Ongoing

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Policy 10.1: Increase safe cycling and pedestrian facilities to improve mobility opportunities throughout the Town.						L	Ongoing
Establish an annual budget and public works program to fill in sidewalk and bicycle route gaps, create pedestrian crosswalks, establish signage, construct pedestrian refuges, and other necessary facilities.						L	Ongoing
Support the design and construction of a multi-use path along Hwy 158.						L	Short to Medium term
Implement other facilities elsewhere in subsequent phases.						L	Ongoing
Coordinate with NCDOT, Southern Shores, Dare County (Martin's Point), and Kill Devil Hills on external connectivity.						L	Ongoing
Coordinate with and comment on major NCDOT infrastructure and development projects that will have a significant impact on residents and visitors, including things like offsite improvements to the state transportation network and evacuation routes.						L	Ongoing
Policy 10.2: Study, support and/ or require roadway connections parallel to US 158.						L	Ongoing
These could be incorporated as part of infill / redevelopment projects and considered as conditions for approval						L	Long term
Policy 11.1: Evaluate targeted actions to enhance the amount of housing available for year-round residents.						L	Ongoing
Partner with Dare County, surrounding communities and/or non-profits on projects that add affordable or workforce housing units within or near Kitty Hawk.						L	Long term

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Plan Recommendation	CAMA Land Use Management Topic					Policy (P), Implementation (I), or Local Concern (L)	Time Frame / Fiscal Year
	LUC	PA	ICC	NHA	WQ		
Policy 11.2: Encourage affordable and workforce housing in and around Kitty Hawk.						L	Ongoing
Policy 11.3: Consider incentives or other actions for keeping housing used as long-term rentals.						L	Ongoing
Policy 12.1: Continue to be a destination for family-oriented tourism.						L	Ongoing
Identify areas for medical offices or health care facilities and actively recruit those businesses.						L	Long term
Policy 12.2: Continue to enhance recreational facilities and programs and community building experiences for year-round residents.						L	Ongoing
Explore potential recreational enhancements near Town Hall. These could include trails or a gathering space for events.						L	Long term
Create more programs and facilities for youth and senior sports.						L	Long term
Policy 12.3: Celebrate the area's unique history by maintaining and celebrating local cultural resources.						L	Ongoing
Encourage National Register nomination on study-listed properties in Kitty Hawk.						L	Ongoing
Consider hosting an educational program for study-listed property owners on the benefits of being included on the National Register of Historic Places.						L	Ongoing

Key for CAMA Land Use Management Topics: Land Use Compatibility (LUC), Public Access (PA), Infrastructure Carrying Capacity (ICC), Natural Hazard Areas (NHA), & Water Quality (WQ)

Background

6

Chapter Contents

Imagine 2050 Kitty Hawk

This plan updates the existing Comprehensive Plan and CAMA Core Land Use Plan into one combined document. This Plan will guide land uses, programming, policy, and funding decisions for the Town. As a CAMA Plan, related policies will guide permitting decisions for projects within the CAMA's purview. This Plan will function alongside other existing plans.

CAMA Core Land Use Plan (2004)

The Town of Kitty Hawk adopted the CAMA Core Land Use Plan in 2004. CAMA Core Land Use Plans are required for 20 counties in the coastal areas of North Carolina by the Coastal Area Management Act adopted by North Carolina in 1974. The CAMA Core Land Use Plan includes CAMA related policies and implementation steps.

Major Policy Recommendations

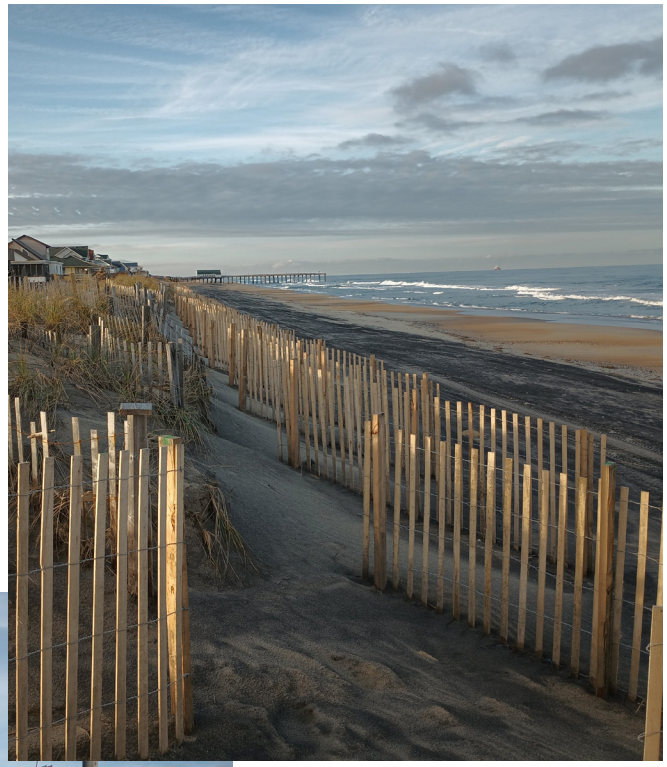
- Preserve, protect, enhance, and provide public access to the shorelines of the Atlantic Ocean, Currituck Sound, and Kitty Hawk Bay for current and future generations of residents and visitors.
- Regulate the use of off-road vehicles within the town, as well as driving any vehicle on the beaches.
- Support cooperative efforts between the Town, State and Federal agencies to acquire unbuildable oceanfront lots, while also continuing to nourish and stabilize the dunes.
- Preserving the vitality of existing businesses which support new commercial development within appropriate commercially zoned areas.
- Adopt, enforce, and amend ordinances and processes that regulate and improve the community appearance through all aspects of development and redevelopment.
- Ensure Federal programs are used or implemented in a manner consistent with the Town growth projections, character, and image.
- Ensure a safe and efficient transportation system that accounts for all aspects of the community
- Preserving and protecting the water quality, while also ensuring safe and environmentally friendly water use.

Dune Protection and Improvement Plan

The Town of Kitty Hawk has taken it upon themselves to provide their own recommendations for its residents so that they can do their part to preserve the dunes and beaches in terms of erosion. These simple steps range from accessing the beach through designated public beach crossovers, telling people about how important dunes are to the longevity of the beach, to property owners constructing sand fences and wooden walkways in accordance with CAMA regulations.

Major Recommendations

- Plant dune vegetation types based on the time of year to combat erosion.
- Erect sand fences in accordance with CAMA regulations.
- Utilize designated public beach crossovers.
- Utilize roll out wooden walkways or construct an elevated walkway according to CAMA regulations.
- Have conversations and educate others on the importance of sand dunes to the community.

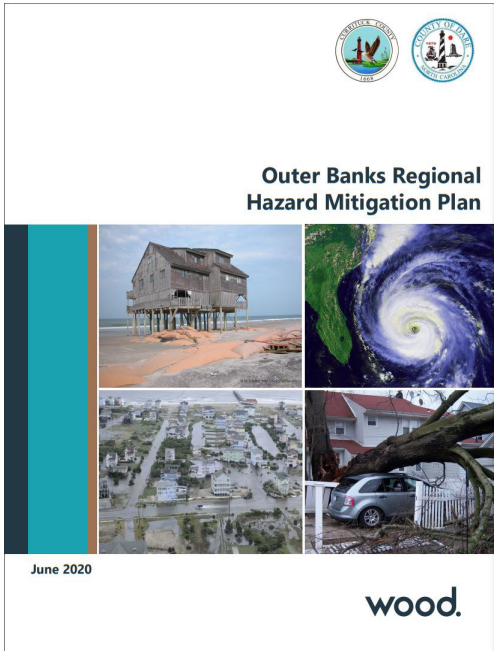


Outer Banks Regional Hazard Mitigation Plan (2020)

The Outer Banks Regional Hazard Mitigation Plan was developed in June 2020 by Wood in partnership with all municipalities of the barrier islands of North Carolina. The plan provides insight on the planning area profiles, risk assessment, vulnerability to "high" and "moderate" priority hazards, and the mitigation strategies and action plans for the region. For Kitty Hawk specifically, the following major recommendations are included in the plan.

Major Recommendations

- Establish a town specific plan for disaster mitigation and recovery.
- Revise the Towns Flood Damage Protection Ordinance and regulate elevation requirements in high risk zones.
- Maintain stormwater infrastructure to facilitate proper stormwater drainage.
- Establish a long term plan for funding and implementation of beach renourishment while also constructing and maintaining living shoreline projects, and promoting open space and conservation.
- Update and improve emergency services in terms of communication systems and protocols, annual review of critical facilities, and maintain a post-disaster debris management contact with a qualified provider.
- Increase awareness of flood insurance and provide information on flood damage protection techniques to property owners.



Kitty Hawk Recreation Master Plan (2019-20)

The Kitty Hawk Recreation Master Plan outlines plans for facilities and programs that will reinforce the Town's image as a family-oriented beach community. This plan highlights the existing facilities, recreational activity opportunities, and future recreation goals on short, mid, and long term timelines.

Major Recommendations

- Maintain existing facilities in good operating order while planning for continuous improvements to parks.
- Coordinate with NCDOT to increase pedestrian and bicycle connectivity through the construction of sidewalks, multi-use paths, bicycle lanes, and bicycle storage infrastructure at public beach accesses and throughout the Town.
- Identify and pursue partnerships with the State, County, College of the Albermarle, Dare County Schools, Baum Center to create recreation activity programs for all age groups.
- Investigate the opportunity for educational/recreational programs
- Determine interest level and feasibility to host small and large scale community special events such as, holiday related events and competitions, neighborhood block parties, fishing tournaments, concerts, and a potential partnership with other Towns for a firework display.
- Increase awareness of recreational opportunities while also increasing the public involvement in recreation planning.
- Update the recreation master plan in a timely manner so that it coincides with the Capital Improvement Plan and budget processes.

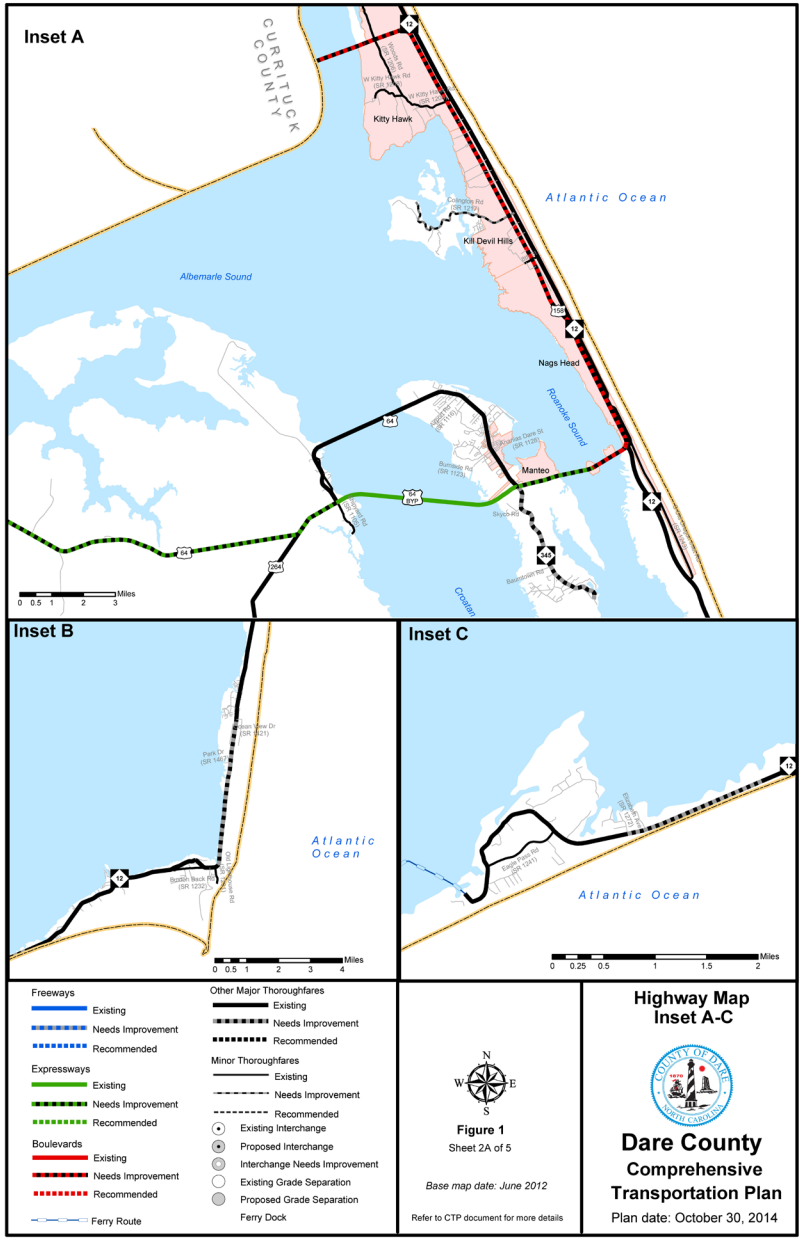
Dare County Comprehensive Transportation Plan (2015)

The "2015 Dare County Comprehensive Transportation Plan" was adopted in 2015 in cooperation with the Towns of Duck, Kill Devil Hills, Kitty Hawk, Manteo, Nags Head, and Southern Shores, as well as the Albemarle Rural Planning Organization. This plan contains analysis of roadway systems, bicycle and pedestrian facilities, ferry and waterway infrastructure, existing and future land use trends, travel patterns, and existing and anticipated roadway deficiencies. State transportation improvement projects are determined by North Carolina Department of Transportation (NCDOT) and are cataloged in the 2020-2029 State Transportation Improvement Program.

Major Recommendations

- US 64-NC 12: Access Management Improvements from the Roanoke Sound Bridge to the eastern end of Currituck Sound Bridge
- US 158 Currituck Sound Bridge Rehabilitation
- US 158-NC12 Intersection Improvements

Comprehensive Transportation Plan (CTP)



Areas of Environmental Concern (AECs)

Under the Coastal Area Management Act, permits are required for projects proposed in Areas of Environmental Concern (AECs). AECs have four categories: the estuarine system, the ocean system, public water supplies, and natural and cultural resources.

The Estuarine and Ocean Systems

Included within the estuarine and ocean system are the following AEC categories: estuarine waters, coastal wetlands, public trust areas, and estuarine and public trust shorelines. The objective of the NC Coastal Resources Commission is to conserve and manage these areas as an interrelated group of AECs, to safeguard and perpetuate their biological, social, economic, and aesthetic values and to ensure that development within these areas is compatible with their natural characteristics.

Estuarine Waters

Estuarine waters are defined in G.S. 113A-113(b)(2) to include all the waters of the Atlantic Ocean within the boundary of North Carolina and all the waters of the bays, sounds, rivers and tributaries thereto seaward of the dividing line between coastal fishing waters and inland fishing waters. The boundaries between inland and coastal fishing waters are set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Environment and Natural Resources and in the most current revision of the North Carolina Marine Fisheries Regulations for Coastal Waters, codified at 15A NCAC 3Q .0200.

Estuarine waters within or adjacent to the study area include the Albemarle Sound, Kitty Hawk Bay, and the Atlantic Ocean.

Coastal Wetlands

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. Regular or occasional flooding shall be established through field indicators, including the observation of tidal water on the site, changes in elevation, presence of periwinkle (littoraria spp.), presence of crab burrows, staining, or wrack lines. Coastal wetlands may contain one or more of the following marsh plant species:

1. Cord Grass (Spartina alterniflora);
2. Black Needlerush (Juncus roemerianus);
3. Glasswort (Salicornia spp.);
4. Salt Grass (Distichlis spicata);
5. Sea Lavender (Limonium spp.);
6. Bulrush (Scirpus spp.);
7. Saw Grass (Cladium jamaicense);
8. Cat-tail (Typha spp.);
9. Salt Meadow Grass (Spartina patens); or
10. Salt Reed Grass (Spartina cynosuroides).

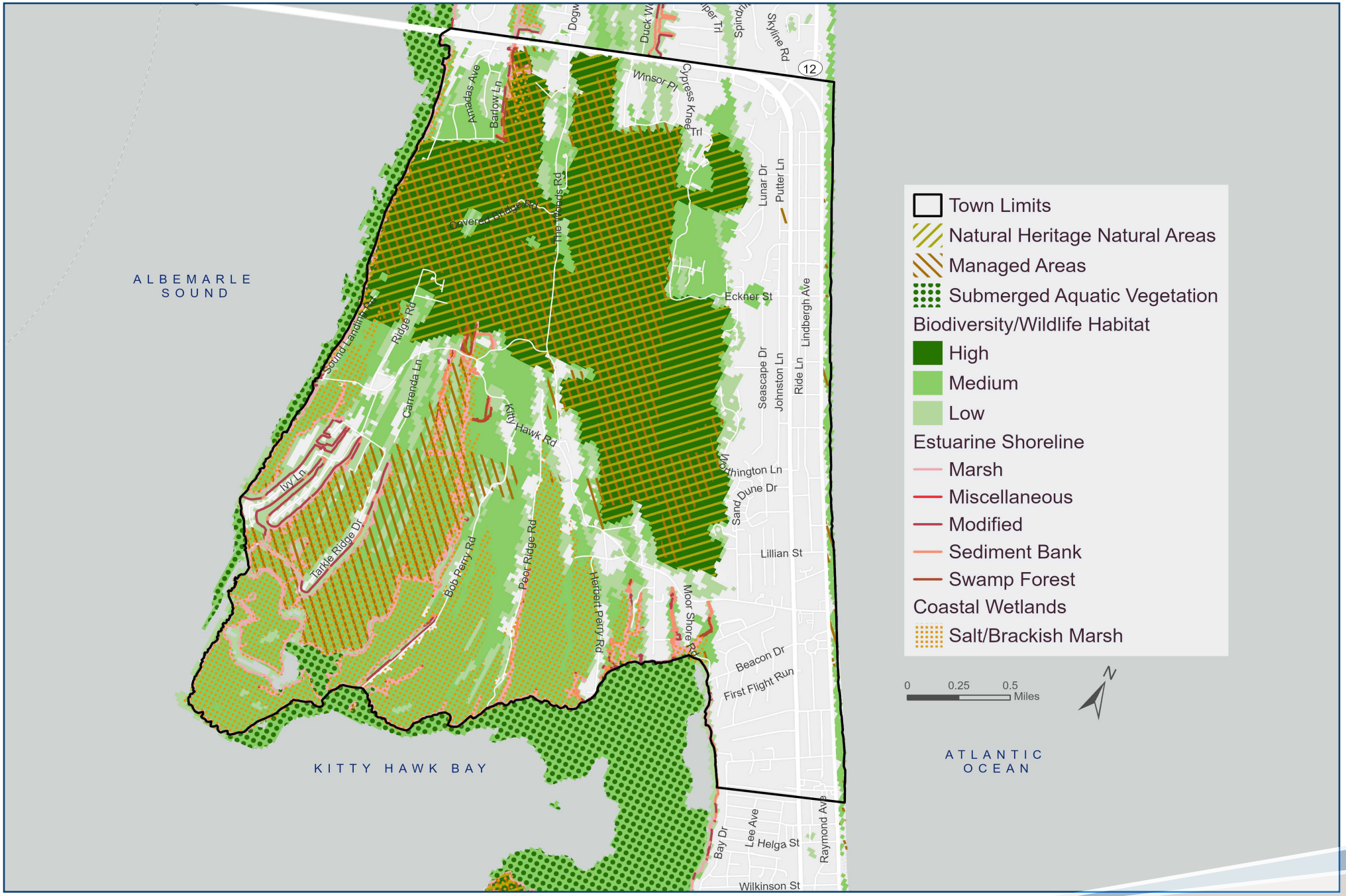
The coastal wetlands AEC includes any contiguous lands designated by the Secretary of DEQ pursuant to G.S. 113- 230(a).

Kitty Hawk has approximately 1,111 acres of salt/brackish marsh located along the Albemarle Sound and into Kitty Hawk Bay. These marshes span inward into the Town, however they remain untouched.

Coastal Shorelines

The Coastal Shorelines category includes estuarine shorelines and public trust shorelines. Estuarine shorelines AEC are those non-ocean shorelines extending from

Areas of Environmental Concern (AECs)



the normal high water level or normal water level along the estuarine waters, sounds, bays, brackish waters, and public trust areas as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Environment and Natural Resources for a distance of 75 feet landward. For those estuarine shorelines immediately contiguous to waters classified as Outstanding Resource Waters by the Environmental Management Commission, the estuarine shoreline AEC shall extend to 575 feet landward from the normal high-water level or normal water level, unless the Coastal Resources Commission establishes the boundary at a greater or lesser extent following required public hearing(s) within the affected county or counties. Public trust shorelines AEC are those non-ocean shorelines immediately contiguous to public trust areas, as defined in Rule 07H .0207(a), located inland of the dividing line between coastal fishing waters and inland fishing waters as set forth in that agreement and extending 30 feet landward of the normal high-water level or normal water level.

Development within coastal shorelines influences the quality of estuarine and ocean life and is subject to the damaging processes of shore front erosion and flooding. The coastal shorelines and wetlands contained within them serve as barriers against flood damage and control erosion between the estuary and the uplands. Coastal shorelines are the intersection of the upland and aquatic elements of the estuarine and ocean system, often integrating influences from both the land and the sea in wetland areas. Some of these wetlands are among the most productive natural environments of North Carolina and they support the functions of and habitat for many valuable commercial and sport fisheries of the coastal area. Some important features of the coastal shoreline include wetlands, floodplains, bluff shorelines, mud and sand flats, forested shorelines and other important habitat areas for fish and wildlife.

Environmentally Fragile Areas

Environmentally fragile areas are areas where natural resource functions may be negatively impacted as a result of development. These areas include wetlands, Significant Natural Heritage Areas (SNHA), and areas containing endangered species, prime wildlife habitats, and/or maritime forests. These natural resources are highly valued by residents (both year-round and seasonal). Kitty Hawk is home to extremely biological wildlife habitats. The coastal and non-coastal wetlands have medium to high biodiversity levels. The study area is also home to Kitty Hawk Woods, which is a protected area encompassing 1,500 acres of maritime forest, interior dunes, and wetlands that is designated as a Significant Natural Heritage Area by the North Carolina Natural Heritage Program. The estuarine shoreline, adjacent to Kitty Hawk Bay and the Albemarle Sound is made up of swamp forests, sediment banks, and marshes with submerged aquatic vegetation along the entire inner waterfront. These areas are discussed further in the Natural Resources section.

Ocean Hazard Areas

The next broad grouping is composed of those AECs that are considered natural hazard areas along the Atlantic Ocean shoreline where, because of their special vulnerability to erosion or other adverse effects of sand, wind, and water, uncontrolled or incompatible development could unreasonably endanger life or property. Ocean hazard areas include beaches, frontal dunes, inlet lands, and other areas in which geologic, vegetative and soil conditions indicate a substantial possibility of excessive erosion or flood damage.

Ocean hazard areas are constantly being impacted by tides, waves, and winds. It is typical that these ocean hazard areas are under the ownership of private individuals and public agencies

Ocean Erodible Area

This is the area where there exists a substantial possibility of excessive erosion and significant shoreline fluctuation. The oceanward boundary of this area is the mean low water line. The landward extent of this area is the distance landward from the first line of stable and natural vegetation as defined in 15A NCAC 07H .0305(a)(5) to the recession line established by multiplying the long-term annual erosion rate times 90; provided that, where there has been no long-term erosion or the rate is less than two feet per year, this distance shall be set at 120 feet landward from the first line of stable natural vegetation. For the purposes of this Rule, the erosion rates are the long-term average based on available historical data.

Oceanfront erosion, as it is measured by the North Carolina Department of Coastal Management, is calculated using the long-term (approximately 50 years) average annual shoreline change rates for the purpose of establishing oceanfront construction Setback Factors and Ocean Erodible Areas of Environmental Concern.

The oceanfront erosion rate can be impacted by large storms that wash out the existing beaches and dunes, beach nourishment programs counting towards shoreline accretion, and the natural erosion that beaches see over time.

Due to Kitty Hawk being located on a barrier island, the oceanfront shoreline is ever-changing due to tides, high winds, wave energy, storms, and sea level rise.

Public Trust Areas

Public trust areas are all waters of the Atlantic Ocean and the lands thereunder from the mean high water mark to the seaward limit of state jurisdiction; all natural bodies of water subject to measurable lunar tides and lands thereunder to the normal high water or normal water level; all navigable natural bodies of water and lands thereunder to the normal high water or normal water level as the case may be, except privately-owned lakes to which the public has no right of access; all water in artificially created bodies of water containing public fishing resources or other public resources which are accessible to the public by navigation from bodies of water in which the public has rights of navigation; and all waters in artificially created bodies of water in which the public has acquired rights by prescription, custom, usage, dedication, or any other means. In determining whether the public has acquired rights in artificially created bodies of water, the following factors shall be considered:

1. the use of the body of water by the public;
2. the length of time the public has used the area;
3. the value of public resources in the body of water;
4. whether the public resources in the body of water are mobile to the extent that they can move into natural bodies of water;
5. whether the creation of the artificial body of water required permission from the state; and
6. the value of the body of water to the public for navigation from one public area to another public area.

Public trust areas located within the study area include the Albemarle Sound, Kitty Hawk Bay, the Atlantic Ocean, and all navigable creeks and other bodies of water that are publicly accessible via the Albemarle Sound and Kitty Hawk Bay.

Soil Characteristics

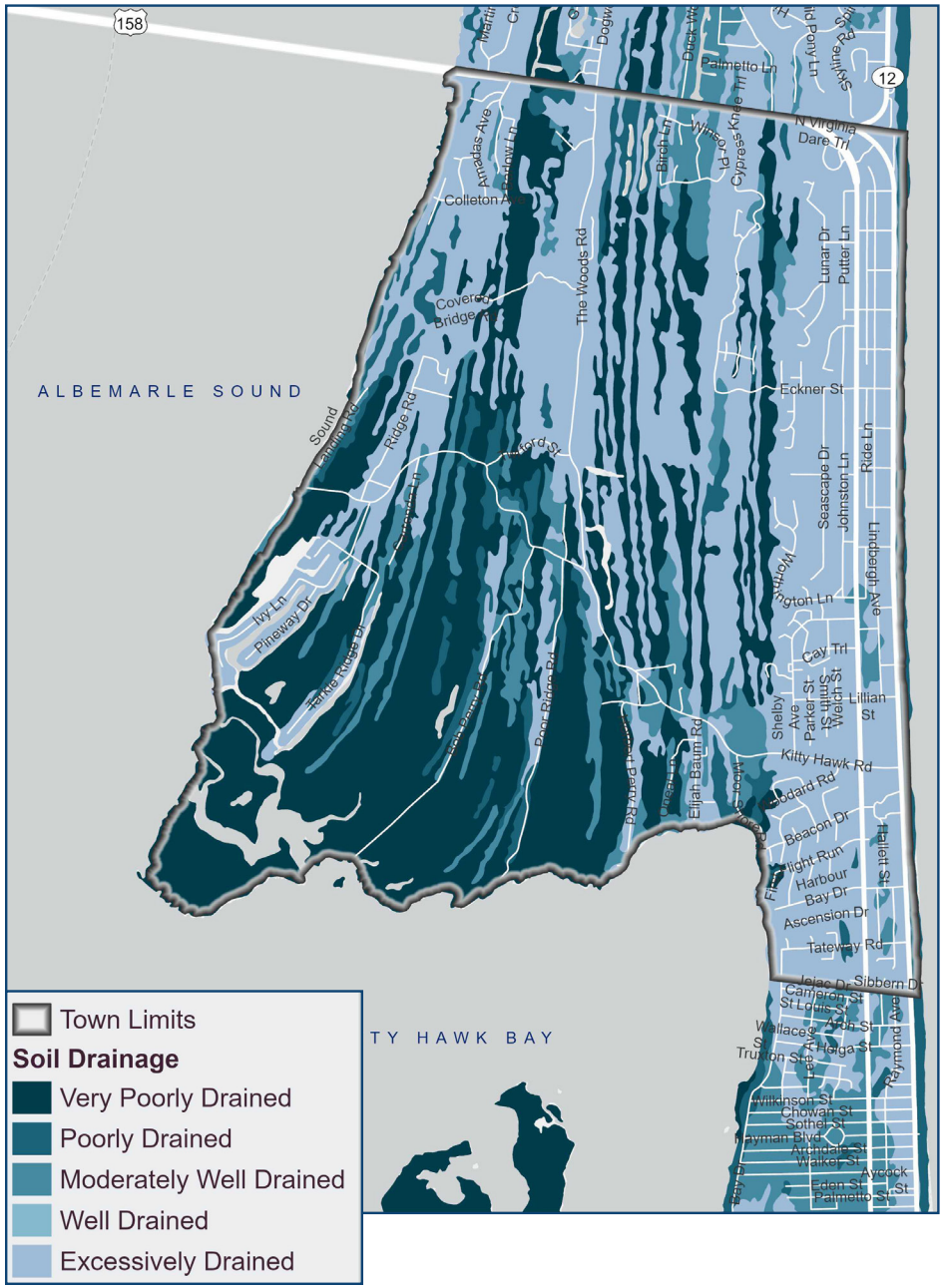
Soil characteristics can lead to limitations for septic tanks, erodibility, and other development related restrictions. These soil limitations can be related to wetness, restricted permeability, and or weakened soils.

The soils in Kitty Hawk range from excessively drained to very poorly drained. A majority of the developed properties along and East of HWY 158 are considered excessively drained, while the wetlands on the bay and sound side of the Town are very poorly drained to well drained depending on the specific location. Due to the soil characteristics and existing conditions, almost all of Kitty Hawk is very limited when it comes to suitability for significant development. The Dare County Health Department determines if soils will permit the use of septic tank systems on a case-by-case basis.

Soils in Kitty Hawk belong to three general soil map units: Newhan-Duckston-Corolla; Fripp-Ousley-Ousier; and Currituck-Conaby.

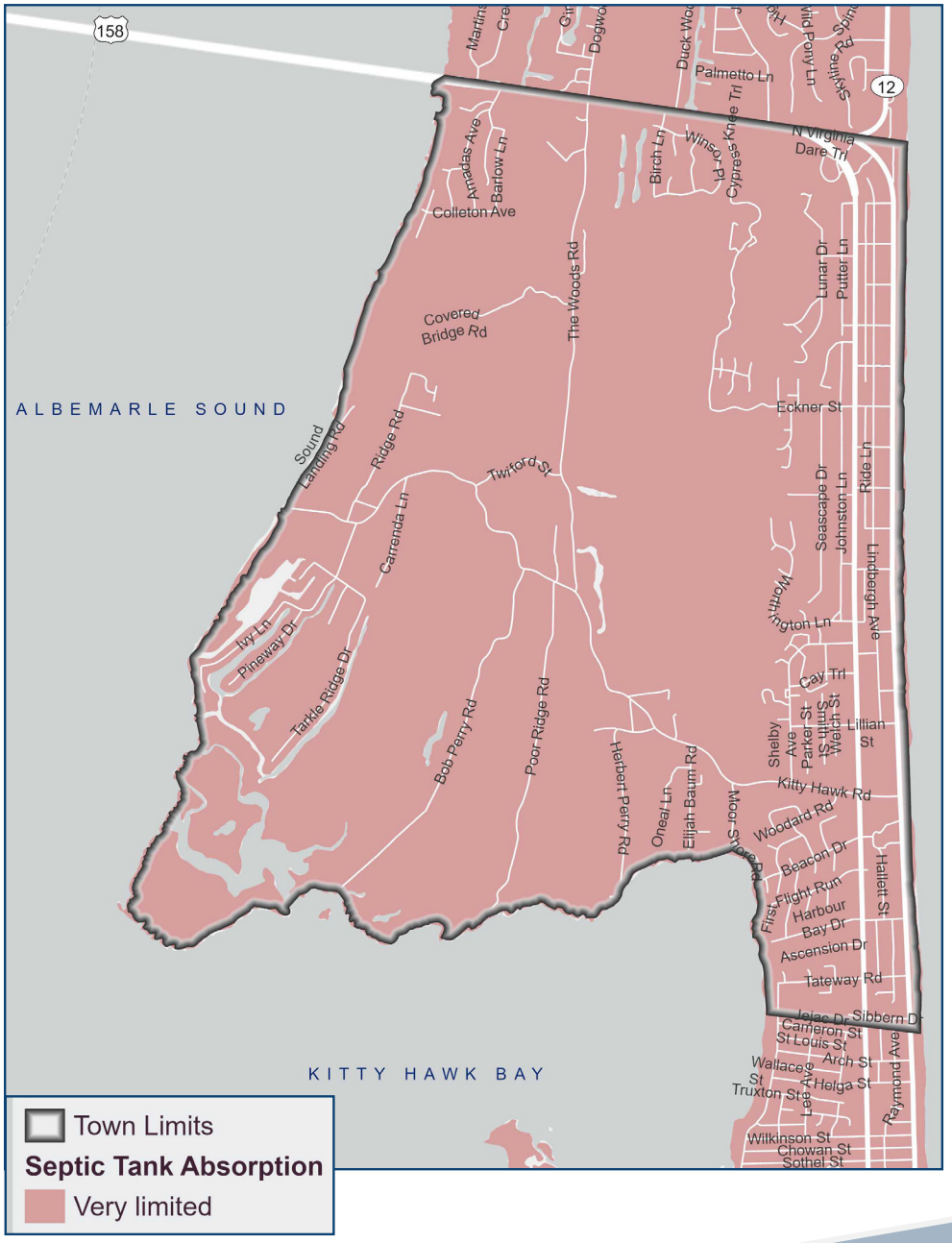
Soils in Kitty Hawk Beach are composed of Newhan-Duckston-Corolla. These are typically located in public trust areas but may also lie in barrier island troughs adjacent to the dunes. Soils in Kitty Hawk Village are mostly composed of Fripp-Ousley-Osier. They include dunes, troughs, and depressional areas. Dunes are typically covered with native shrubs while troughs will be covered with a mixture of coniferous and deciduous trees. The tidal marshes located mostly on the soundside are typically composed of Currituck-Conaby soils.

Soil Drainage



Source: Soil Survey Geographic Database

Septic Tank Absorption



Non-Coastal Wetlands

Non-coastal wetlands include wetlands not classified as coastal wetlands. Non-coastal wetlands are areas where water covers the soil for significant periods and include a variety of natural systems, such as marshes, swamps, bottomland hardwoods, pocosins, and wet flats. The prolonged presence of water causes the growth of specially adapted plants and the development of hydric soils. Hydric soils have a distinctive color, texture, and odor; and its presence means that the area was once a functioning wetland or is still a functioning wetland. The plants that can grow in such conditions, such as marsh grasses, are called hydrophytes. Together, hydric soils and hydrophytes give clues that a wetland area is present.

Non-coastal wetlands do not require a CAMA permit unless the Coastal Resource Commission designates them as a natural resource, but under the Clean Water Act Section 404 a permit is required from the Army Corps of Engineers to dredge or fill wetlands. The precise location of non-coastal wetlands can only be determined through field investigation and analysis.

Kitty Hawk is home to approximately 1,511.30 acres of non-coastal wetlands. A majority of the non-coastal wetlands in the study area are maritime forests (1,255.98 acres including cutover maritime forests) and are found throughout the center and western side of the study area. Other non-coastal wetlands include managed pinelands (159.34 acres), estuarine shrub/scrub (43.54 acres including cutover estuarine shrub/scrub), pine flats (25.22 acres), freshwater marsh (12.33 acres), and human impacted wetlands (14.87 acres). These wetlands span the length of the Town and have physically shaped the development of the study area.

Non-Coastal Wetlands

Water quality classifications

Surface water classifications are designations applied to surface water bodies, such as streams, rivers, and lakes, which define the best uses to be protected within these waters(i.e., swimming, fishing, drinking water supply) and carry with them an associated set of water quality standards to protect those uses. Surface water classifications are one tool that state and federal agencies use to manage and protect all streams, rivers, lakes, and other surface waters in North Carolina. Classifications and their associated protection rules may be designed to protect water quality, fish and wildlife, or other special characteristics. Each classification has associated standards that are used to determine if the designated uses are being protected

Many streams, rivers and lakes may have several classifications applied to the same area. This is because surface waters are classified to protect different uses or special characteristics of the waterbody. The Division of Water Resources(DWR) classifies all surface waters. The classifications are determined based on rules defined in the NC Administrative Code. The rules provide minimum protection rules of state and federal agencies. All surface waters are assigned a primary classification by DWR. Some primary classifications may include additional levels of protection for primary contact recreation, tidal salt waters, and drinking waters. Sometimes, DWR will assign supplemental classifications to the primary classifications to provide additional protection for waters with special uses or values. Freshwaters and tidal salt waters must at least meet the standards for Class C and Class SC waters. See the table on the following page for a description of Primary and Supplemental classifications. The table does not provide an exhaustive list but includes a description of existing classifications in or adjacent to Kitty Hawk. All classifications can be found at https://www.deq.nc.gov/about/divisions/water-resources/water-planning/classification-standards/classifications.

Water Quality Classifications

Primary Water Classification	Primary Use
Class C	Waters protected for uses such as aquatic life propagation, survival and maintenance of biological integrity (including fishing and fish), wildlife, secondary contact recreation, and agriculture. Secondary contact recreation means wading, boating, other uses not involving human body contact with water, and activities involving human body contact with water where such activities take place on an infrequent, unorganized, or incidental basis
Class B	Waters protected for all Class C uses in addition to primary contact recreation. Primary contact recreation means swimming, diving, water skiing, and similar uses involving human body contact with water where such activities take place in an organized manner or on a frequent basis.
Class SC	All tidal salt waters protected for aquatic life propagation, survival, and maintenance of biological integrity (including fishing, fish (not to include shellfish for market purposes), and Primary Nursey Areas); wildlife; and secondary contact recreation. Secondary contact recreation means wading, boating, other uses not involving human body contact with water, and activities involving human body contact with water where such activities take place on an infrequent, unorganized, or incidental basis.
Class SB	Tidal salt waters protected for all SC uses in addition to primary contact recreation. Primary contact recreational activities include swimming, skin diving, skiing, and similar uses involving human body contact with water where such activities take place in an organized manner or on a frequent basis.

Water Quality Status

Basinwide water quality planning is a nonregulatory watershed-based approach to protecting and restoring the quality of surface waters in North Carolina Basinwide water quality plans are prepared by the North Carolina Division of Water Quality for river basins in North Carolina; these plans are revised in five year increments. The Town of Kitty Hawk is in the Pasquotank River Basin, one of North Carolina's 17 major river basins. According to the 2021 Pasquotank River Basinwide Water Quality Plan, the Pasquotank River subbasin 03-01-56 includes the Alligator River, Croatan Sound, part of the Albemarle Sound, and the western portion of Roanoke Sound. The Division of Water Resources ambient water quality monitoring and benthic macro vertebrate community monitoring are not located near the Outer Banks; however, there are several Shellfish Sanitation and Recreational Water Quality monitoring locations.

Pollutants fall into two general categories: point sources and nonpoint sources. Point source pollution refers to pollution that enters surface waters through "any discernable, confined and discrete conveyance, such as a pipe, ditch, channel, tunnel, conduit, discrete fissure, or container" (US EPA, 2019). Typically these are associated with wastewater and stormwater discharges from municipal and industrial wastewater treatment facilities. They can also originate from small, domestic wastewater systems that serve schools, commercial properties, residential subdivisions, and individual homes. 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). All regulated point source and non point discharges in North Carolina must apply for and obtain a National Pollutant Discharge Elimination System (NPDES) permit from the state.

The Dare County Wellhead Protection Plan identifies both point and nonpoint source pollutants. The plan identifies potential uses that are located in the study area that may contribute to water quality issues such as, primary roads, gas stations, and electric substations. According to NC DWR, there is one non-discharge permit holder(WQ0000974) within the Town of Kitty Hawk, however land application does not occur in town limits. There are no NPDES wastewater discharge permits in the study area, the closest wastewater discharge permit is the Dare County North Reverse Osmosis Water Treatment Plant (NC0070157)located in Kill Devil Hills.

Waters of the Town of Kitty Hawk

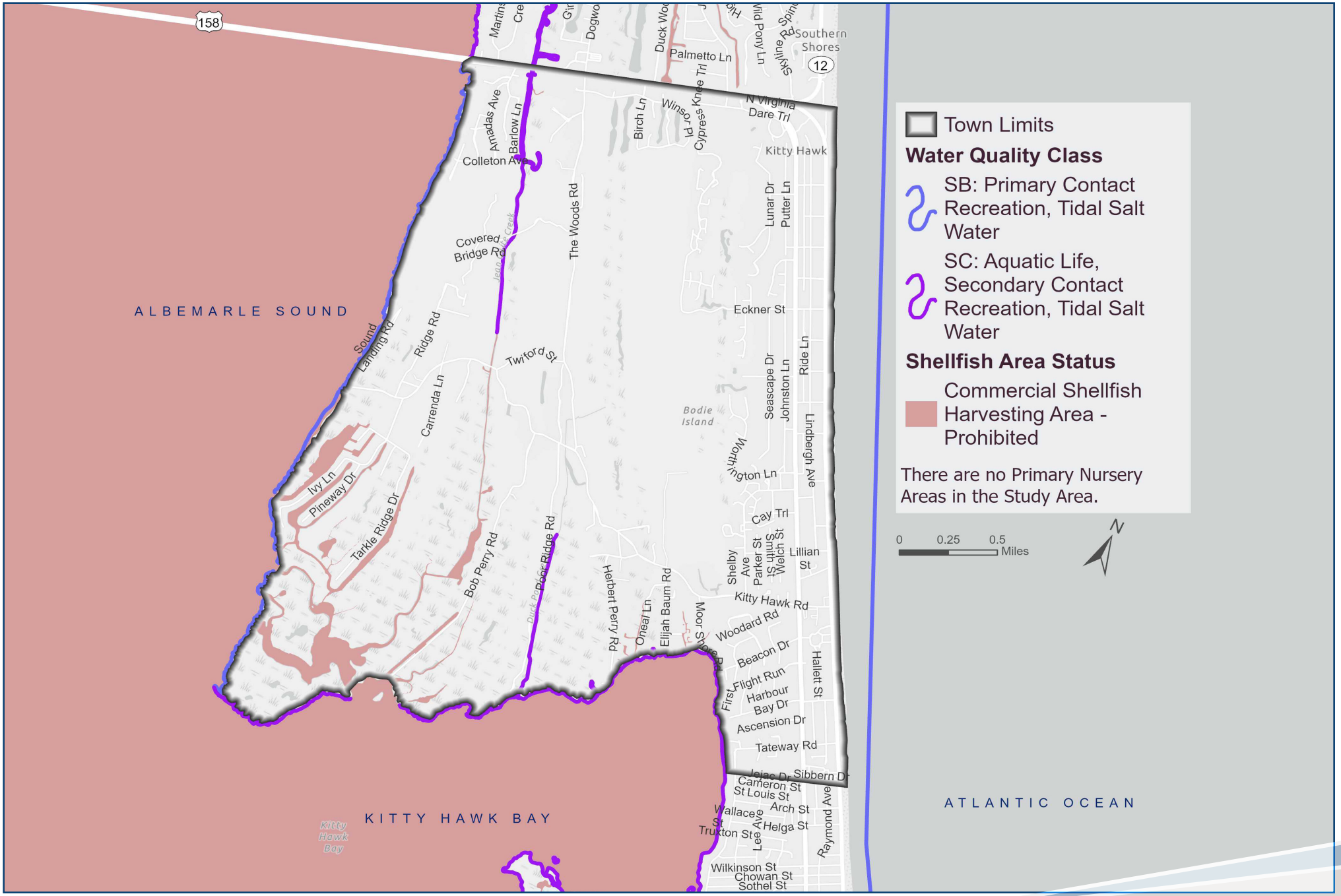
Symbol	Description	Location
SB	Tidal Salt Waters (Primary Recreation)	Ocean, Albemarle Sound
SC	Tidal Salt Waters (Secondary Recreation - minimal skin contact)	Jean Guite Creek, Kitty Hawk Bay, Duck Pond Creek,

Source: NC Division of Water Resources (DWR)

Local Waters and Water Quality Classifications

Water body classifications designated by the State aim to protect surface water bodies and fish and wildlife and are required by Federal Water Pollution Control Act (Clean Water Act). Surface waters in North Carolina are assigned a primary water classification by the North Carolina Division of Water Classifications ranging from SC (lower quality waters that support

Water Quality Classifications



secondary recreation and wildlife habitat), to SA (higher quality waters that support all SC and SB uses as well as commercial shellfishing and primary recreation).

The Atlantic Ocean, Albemarle Sound, Jean Guite Creek, Kitty Hawk Bay, and Duck Pond Creek are public trust waters located adjacent to Kitty Hawk. These waters are classified as SB or SC.

Impaired Waters

The assessment of water quality in North Carolina is required under Sections 303 (d) and 305 (b) of the Clean Water Act and is reported every two years. Impaired waters must be prioritized and a management strategy or total maximum daily load must be developed for all listed waters. Impaired waters are waters that only partially support designated uses. There are various degrees of impairment; for example, waters that are unsuitable for commercial shellfishing may still be safe for recreation.

The Albemarle Sound is impaired for Copper and pH and remains on the state's 303(d) list of impaired waters.

Areas experiencing chronic wastewater treatment system malfunctions

There are no central public wastewater treatment plant systems in Kitty Hawk.

Waters designated for Commercial Shellfishing

Shellfishing areas are open or closed areas where shellfishing is allowed or prohibited. Shellfish includes clams, oysters, and mussels. Shellfish are filter feeders, and pump water through their gills. This pumping action is how shellfish 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. While some waters are closed for shellfishing due to water quality testing, others are closed simply because of the presence of a conflicting use such as a marina.

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. Nonpoint and point sources of pollution are identified in a sanitary survey report.

The Albemarle and Currituck Sounds have been divided into 16 separate shellfish growing areas. The Albemarle Sound, Kitty Hawk Bay, and waters around Colington Island includes shellfish growing area I-2. The current sanitary survey report for growing areas I-1 and I-3 through I-16 does not include I-2 due to reductions in staff, monitoring for I-2 has been stopped. Shellfishing in the Albemarle Sound and Kitty Hawk Bay is permanently closed and prohibited. The presence of conflicting uses such as package wastewater treatment plants automatically make areas ineligible for shellfishing.

The previous sanitary survey report "*Report of Sanitary Survey Area I-2 Eastern Albemarle Sound Area June 2006 through May 2011"* identified potential non-point and point sources of pollution that contribute to the water quality on the soundside of Kitty Hawk. These sources include package wastewater treatment plants, marinas, stormwater, subdivisions, onsite wastewater, golf courses, wildlife and domestic animals, poisonous and deleterious substances and areas of concern. (NCDEQ, 2013)

Primary Nursery Areas and Submerged Aquatic Vegetation

Primary nursery areas are those areas in the estuarine and ocean system where initial post larval development of finfish and crustaceans takes place. They are usually located in the uppermost sections of a system where populations are uniformly early juvenile stages. They are designated and described by the N.C. Marine Fisheries Commission (MFC) and by the N.C. Wildlife Resources Commission (WRC).

There are no primary nursery areas within Kitty Hawk's planning jurisdiction. There is a special secondary nursery area south of Kitty Hawk in Colington Creek.

Submerged aquatic vegetation habitat is characterized by the presence of plants that are rooted into the ground and remain under the surface of the water during all tidal stages. Sometimes referred to as sea grass, underwater grass, eel grass, bay grass, and many others. It functions as habitat for many fish and aquatic animals such as, bay scallops, shrimp, hard clams, blue crabs, sea trout, gag grouper, and flounder. In addition to providing habitat, it improves general water quality by increasing the dissolved oxygen content of the water and reducing the concentration of nutrients and dissipating wave energy.

Threats to submerged aquatic vegetation habitat include; boat propellers, construction of piers and docks, dredging and fill activities, stormwater runoff, and construction of hardened shorelines. Submerged aquatic vegetation in Kitty Hawk is located along shorelines along the Albemarle Sound and Kitty Hawk Bay. Any changes in submerged aquatic vegetation coverage may be an indicator of water quality issues.

Natural Hazards

Like all coastal North Carolina communities, the town of Kitty Hawk faces natural hazards including flooding, hurricane-level winds and storm surges, and shoreline erosion. In addition, these communities will eventually face hazards associated with sea level rise.

CAMA's goal in characterizing natural hazards and establishing permitting processes for development in hazardous areas is to ensure human safety and protect property from storm dangers and erosion. Depending on the degree of hazard, towns may choose to protect structures by using specific building practices and limiting development.

Storm Surge Areas and High Winds

Potential for flooding in Kitty Hawk can be estimated based on hurricane strength as measured. The Saffir-Simpson Hurricane Scale categorizes hurricanes on a scale of 1 to 5, 5 being the most intense and most damaging (see table below). It is used by the National Weather Service to assess potential dangers and communicate with public safety officials. Hurricanes are defined as tropical disturbances with sustained winds of 74 miles per hour or higher. They often cause storm surges, which are high waves driven inland by high winds.

The National Hurricane Center and the North Carolina Center for Geographic Information and Analysis have created a GIS data set called Hurricane Storm Surge Inundation Areas (1993) that shows areas along the North Carolina Coast that are likely to be flooded by hurricanes. The data is based on Sea, Lake, and Overland Surges from Hurricanes (SLOSH) models. Wind speed and storm surge (defined as the abnormal rise in water level caused by wind and pressure from a hurricane or tropical storm) are the two factors that are most important in determining the amount of potential damage. The SLOSH models do not account for rainfall produced by hurricanes. There are many variables that could alter the outcome, such as whether a hurricane approaches from the south or from the east, and whether it was preceded by heavy rainfall. The SLOSH models create only a generalized picture of lands likely to be inundated by different categories of hurricanes.

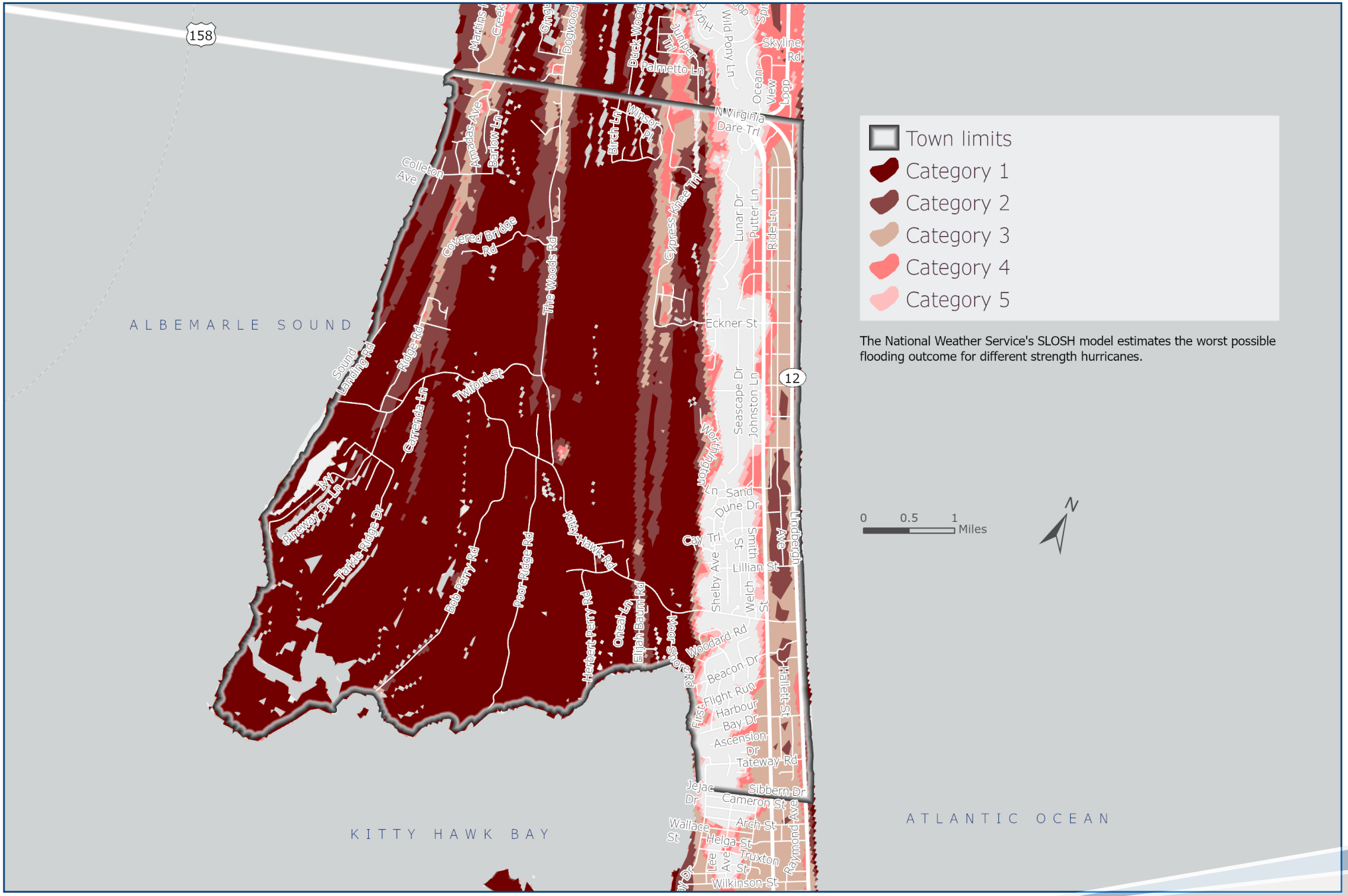
The SLOSH model for Kitty Hawk shows the majority of town would be inundated in a Category 1 storm. In the event of a Category 1 storm, areas of Highway 158 particularly heading west towards Wright Memorial Bridge become inundated making it difficult to use for evacuating post-storm. A Category 2 or 3 storm event would completely inundate the road towards the northern end of Kitty Hawk. Businesses and homes along Highway 158 running north/south in the town have the potential to be impacted with a stronger storm (Category 3 or 4).

Characteristics of Hurricanes

Hurricane Category	Wind Speed (mph)	Storm Surge (feet above normal)	North Carolina Example (that first made landfall in North Carolina)
1	74-95	4-5	Hurricane Ernesto (2006) Hurricane Charley (2004) Hurricane Matthew (2016) Hurricane Florence (2018)
2	96-110	6-8	Hurricane Arthur (2014)
3	111-130	9-12	Hurricane Irene (2011) Hurricane Fran (1996)
4	131-155	13-18	Hurricane Floyd (1999) Hurricane Hazel (1954)
5	>155	>18	Hurricane Dorian (2019)

Source: National Hurricane Center, National Office of North Carolina

Sea, Lake, and Overland Surges from Hurricanes (SLOSH)



The National Weather Service's SLOSH model estimates the worst possible flooding outcome for different strength hurricanes.

Efforts to Minimize Flood Dangers and Property Damage

In an effort to minimize flood dangers and property damage the Town of Kitty Hawk requires buildings to be elevated 8 feet above the regulatory floodplain for structures located in the X and AE flood zones and an additional one foot for structures located in zones AH, AO, and VE.

The Town has participated in FEMA's Community Rating System (CRS) since 1991, a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the National Flood Insurance Program (NFIP). The program provides incremental discounts on flood insurance premium rates, Kitty Hawk receiving a class 6 reduction of 20% for Special Flood Hazard Areas (SFHA) and 10% for non-SFHA. Participation in FEMA's CRS reduces flood insurance premiums. A Class 6 rating reduces these ratings by 20%.

Additionally, the town has a beach nourishment program, encourages sand fencing in accordance with CAMA regulations, planting dune vegetation, and use of public beach crossovers.


Buildings
Parcels
Town limits
Floodplain
1% annual flood chance
0.2% annual flood chance
Less than 0.2% annual chance
0 0.25 0.5 Miles
ALBEMARLE SOUND
KITTY HAWK BAY
ATLANTIC OCEAN
Kitty Hawk Bay
Bodie Island
Southern Shores
Kitty Hawk
158
12
Matthias Point Rd
Creek Rd
Gingivre Trl
Dogwood Trl
Duck Woods Dr
Juniper Trl
Dune Loop
Whippoorwill Cove Ln
Spindrift Trl
Dune Rd
Palmetto Ln
Amadas Ave
Barlow Ln
Colleton Ave
Birch Ln
Wilson Dr
Cypress Knee Trl
N Virginia Dare Trl
Lunar Dr
Putter Ln
Covered Bridge Rd
The Woods Rd
Jean Guite Creek
Eckner St
Seascape Dr
Johnston Ln
Ride Ln
Sound Landing Rd
Ridge Rd
Twiford St
Carrenda Ln
Ivy Ln
Pineway Dr
Tarkle Ridge Dr
Bob Perry Rd
Poor Ridge Rd
Herbert Perry Rd
Oneal Ln
Elijah Baum Rd
Moore St
Worthington Ln
Lindbergh Ave
Cay Trl
Shelby Ave
Parker St
Smith St
Welch St
Lillian St
Kitty Hawk Rd
Woodard Rd
Beacon Dr
First St
Flight Run
Harbour Bay Dr
Ascension Dr
Tateway Rd
Hallett St
Jejac Dr
Sibbern Dr
Cameron St
St Louis St
Arch St
Wallace St
Truxton St
Lee Ave
Helga St
Raymond Ave
Wilkinson St
Chowan St

Areas Experiencing Significant Shoreline Erosion

Ocean beaches and shorelines are lands consisting of unconsolidated soil materials (i.e., sand) that extend from the mean low water line landward to a point where either : (a) the growth of vegetation occurs; or (b) a distinct change in slope or elevation alters the configuration of the land form, whichever is farther landward. The extent of this area is the distance landward from the first line of stable and natural vegetation as defined in 15A NCAC 07H .0305(a)(5).

The Town of Kitty Hawk has an east-facing beach and its shoreline is approximately 3.6 miles long. This entire area constitutes an Ocean Hazard AEC as defined by CAMA. The Ocean Hazard AEC is subject to long-term erosion and significant shoreline changes in response to wind, waves, fluctuating sea levels, and human influences.

The ocean hazard setbacks are determined by the size of the development and the shoreline long term erosion rate as defined in 15A NCAC 07H .0304. In Kitty Hawk, since there are areas experiencing shoreline erosion at a rate greater than 2 feet per year, there are two setback factors. North of Balchen St., the setback factor is 2, south of Balchen St. to E. Kitty Hawk Rd. is 3, and from E. Kitty Hawk Rd. to the town limits boundary the setback factor is 2.

The Coastal Resources Commission updates long-term erosion rates every five to ten years, using aerial imagery to examine shoreline changes. This information is available from the Division of Coastal Management and can be viewed using their interactive map viewer.

The ocean shoreline adjacent to the Town of Kitty Hawk is dynamic and susceptible to erosion. This erosion has impacted rights-of-way along NC Highway 12 where dunes are beginning to enroach onto the highway in some areas.

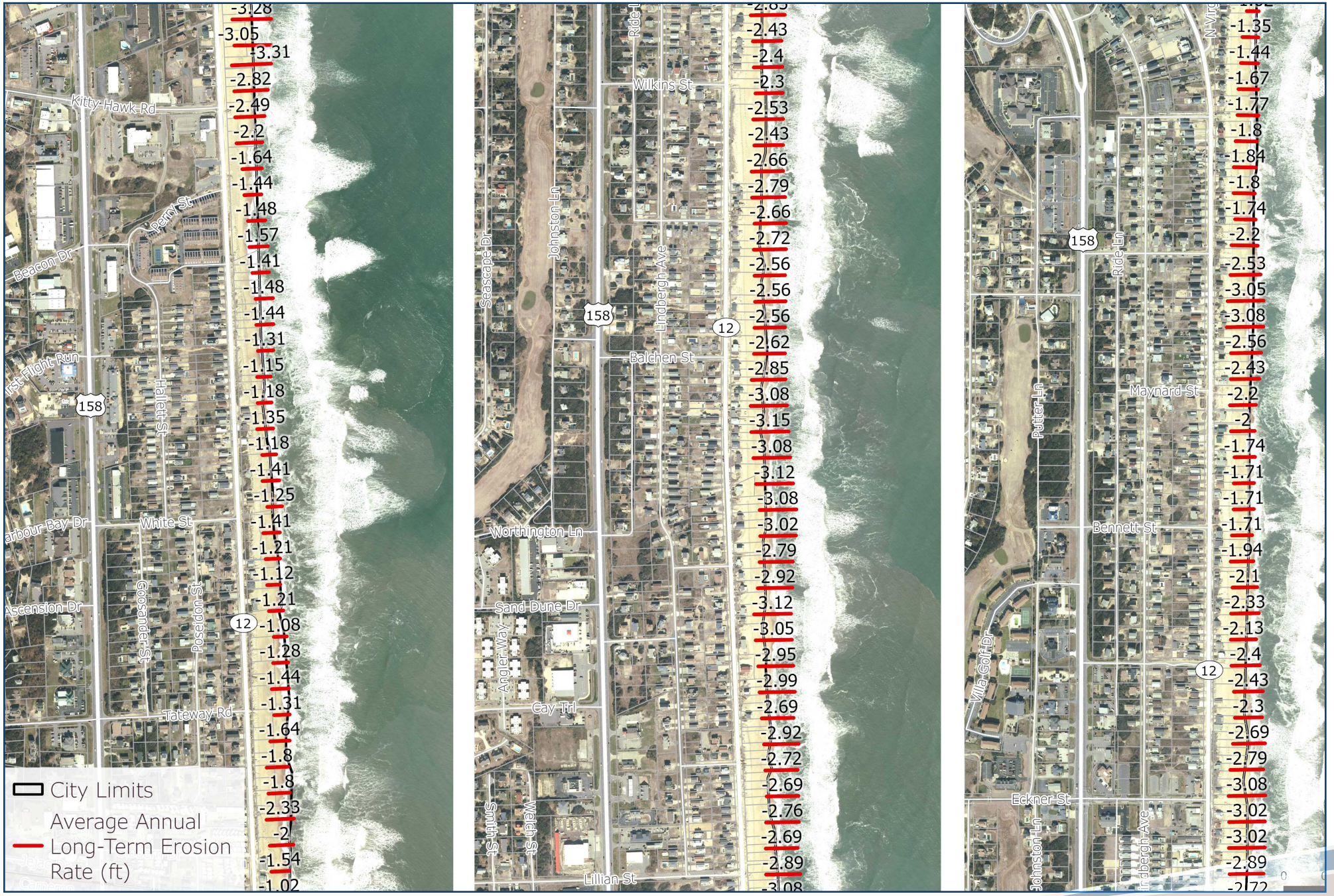
Kitty Hawk has experienced oceanfront erosion along their beaches with a long term average of 2.2 ft of shoreline erosion, with some areas experiencing up to 3.3 ft of erosion. The southern beaches of Kitty Hawk have a lower long term annual erosion rate, however the lowest erosion amount is approximately 8.5 inches annually. See the Ocean Erodible Areas map on the following page.

Beach nourishment is the only tool in North Carolina to mitigate erosion along the oceanfront. Beach nourishment programs provide additional storm protection for coastal structures and enhances the beach for recreational purposes. However, beach nourishment is costly and is not a

permanent solution to control erosion due the erosive forces of waves, storms, high winds, and rising sea levels. In addition, beach nourishment may have unintended consequences, such as changing wave patterns, altering habitat, or increasing rate of erosion. Beach nourishment must be repeated periodically. In Kitty Hawk, beach nourishment requires a 5-year maintenance cycle. Beach nourishment of the 3.6 miles of Kitty Hawk beaches was completed in 2022.

It should be noted that currently there are no threatened structures or public facilities at risk due to shoreline erosion. If beach nourishment activities were ceased (i.e., based on long-term erosion rates 3.3 ft per year) ocean overwash and/or erosion could threaten NC Highway 12 and structures within the dunes and west of the highway.

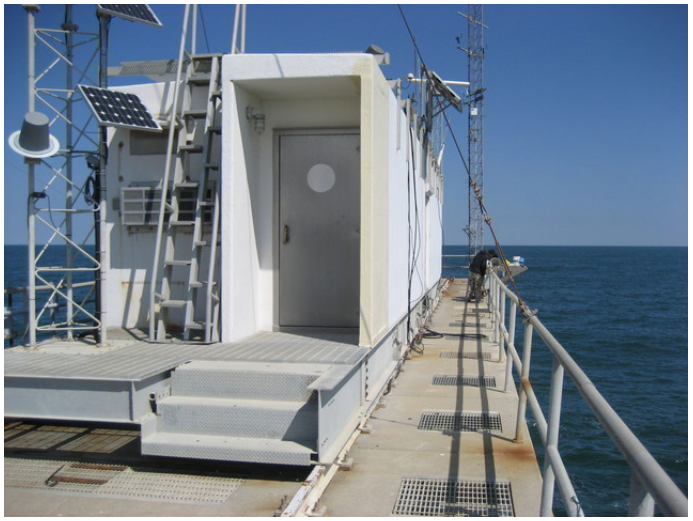
Ocean Erodible Areas

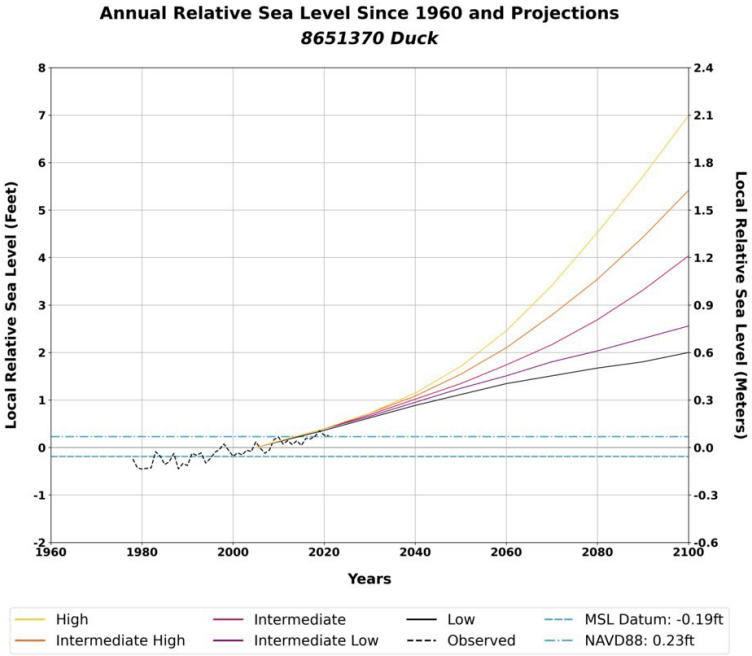


Sea Level Rise

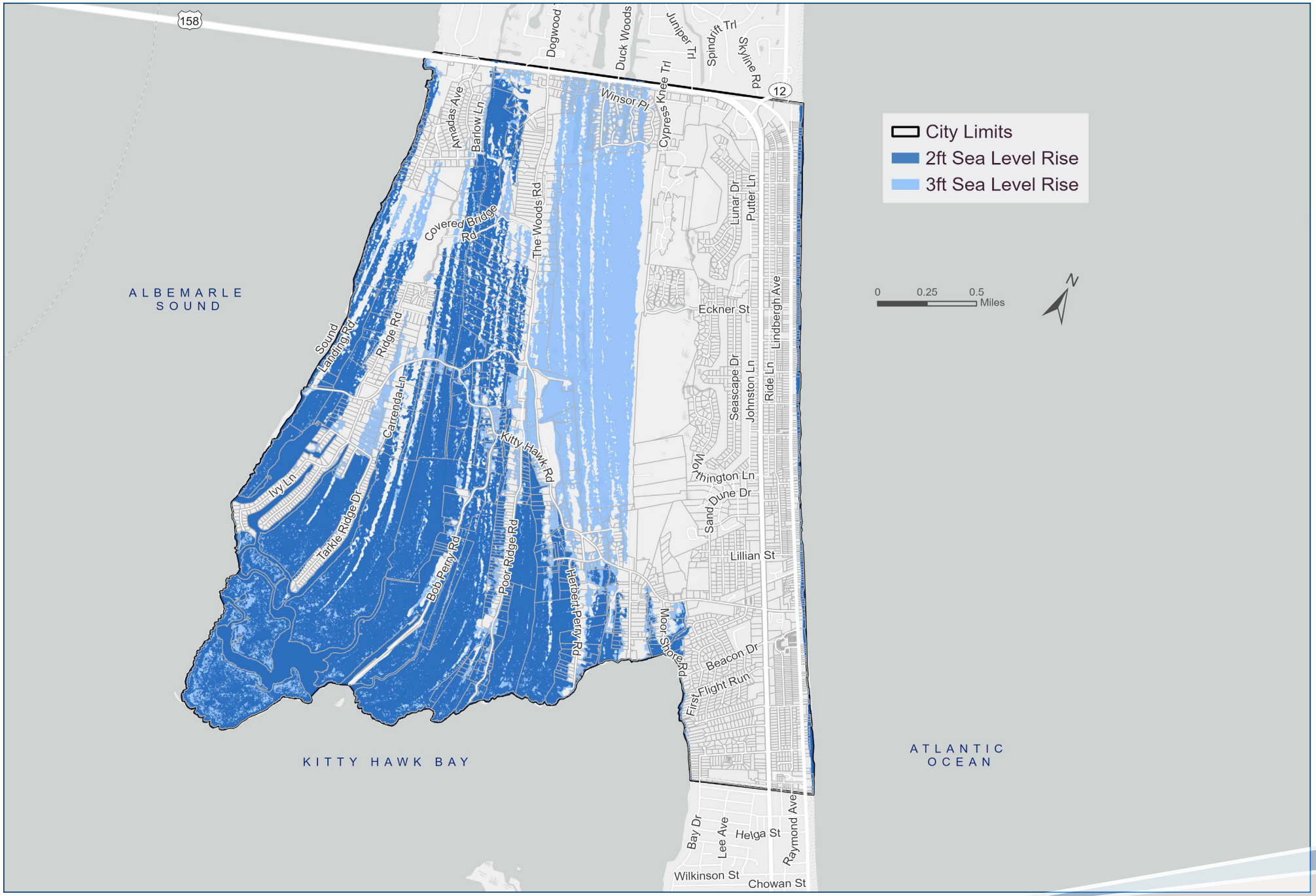
Sea level rise will affect current and future development in the Town of Kitty Hawk. As sea level rises, the land's capacity to absorb rainfall will be reduced, making residents more vulnerable to storms. Additionally, the storm surge from a hurricane or nor'easter will build upon a higher base water level, resulting in an increase of the area subject to flooding.

High tide flooding events will also increase as seas rise. NOAA's Intermediate scenario, using data projected for Duck – the closest site available – indicates an increase in sea levels by two feet as early as 2060 and the likelihood of many more days of high tide flooding by the year 2050.





Sea Level Rise

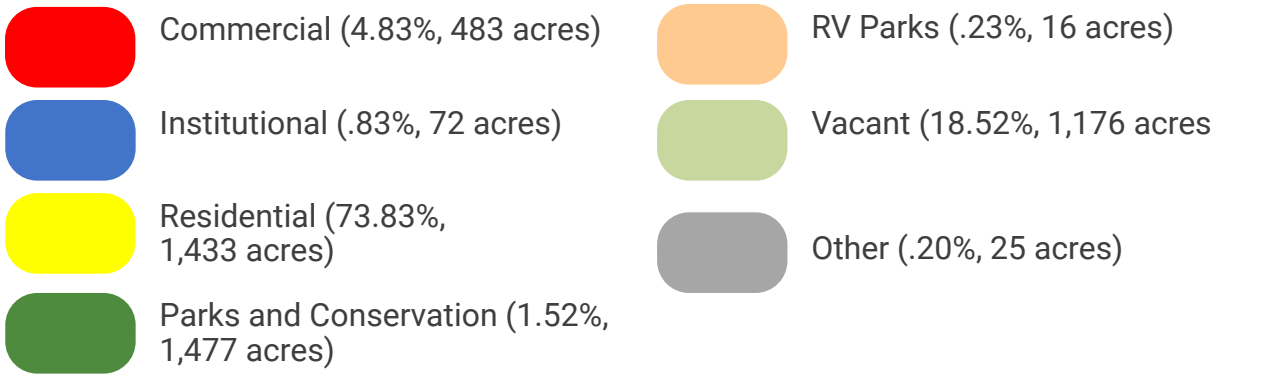


Existing Land Use

The existing pattern of development in Kitty Hawk is a mixture of beach oriented residential and resort uses along Highway 158 and 12 and a mix of residential and local serving businesses along Kitty Hawk Road. Kitty Hawk Village and Kitty Hawk Beach are two clearly identifiable parts of town. Both are characterized by low-to-medium density residential homes that are served by small businesses.

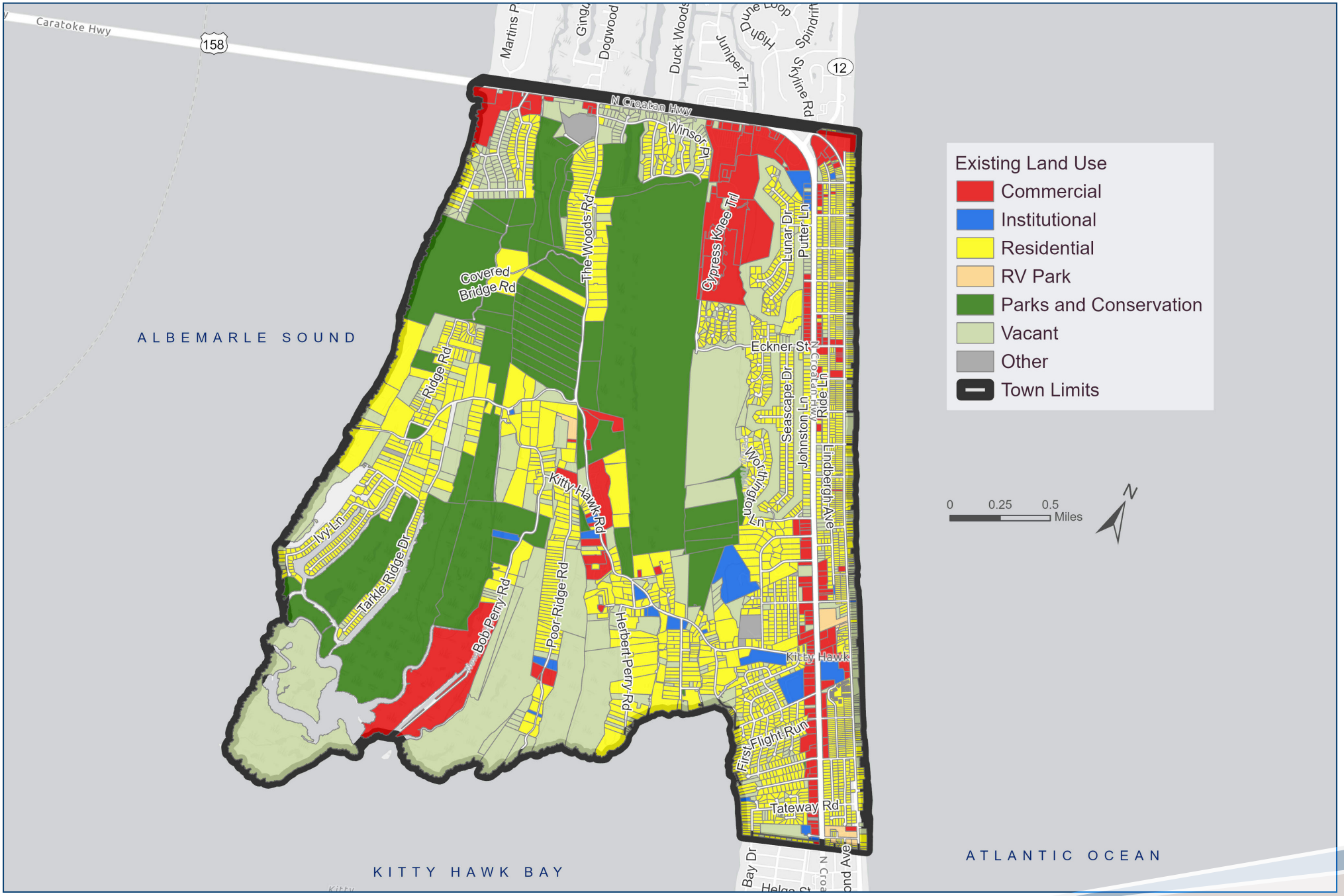
Most homes in Kitty Hawk Beach are seasonally occupied and include both single-family detached and some multi-family attached homes. Whereas, most of the homes in Kitty Hawk Village are occupied year round and include clusters of single-family homes, few attached homes, and other buildings along Kitty Hawk Road and side roads down to Kitty Hawk Bay.

Commercial uses are interspersed throughout the residential areas, with a higher concentration of medium- large scale businesses along Highway 158 and small-medium scale businesses throughout along Highway 12 and Kitty Hawk Village. Institutional uses, such as churches, community facilities, and cemeteries are mostly concentrated to the southern portions of Kitty Hawk and result from the historic settlement patterns in the area.
A large portion of Kitty Hawk is considered vacant, parks or conservation (2,653 acres).



Existing Land Use	Land Use Activities	Acres	%
Commercial	Small-large scale retail uses, convenience stores, personal services, professional services and offices, paving, building, and industrial supplies, mixed-use, motels and hotels, and bed and breakfast uses	483	4.87%
Institutional	Government uses, churches, and medical/hospital (including medical offices)	72	.83%
Residential	Single-family detached homes, attached multi-family (duplexes, apartments, condominiums, town houses)	1,433	73.83%
Parks and Conservation	Conservation lands, Public and neighborhood parks, residential common areas, kayak and boat launches	1,477	1.52%
RV Parks	Recreational vehicle parks	16	.23%
Vacant	Golf course, wetlands, land that is currently in an idle state	1,176	18.52%
Other	Public utilities, rights-of-way	25	.20%
Total		4,682	100%

Existing Land Use



Natural Resources

Natural resources in and around Kitty Hawk include public trust waters, coastal and non-coastal wetlands, natural heritage areas, areas containing endangered species, prime wildlife habitats, and maritime forests. Currently, no natural resource areas are being impacted or lost as a result of incompatible development.

Environmentally Fragile Areas

Environmentally fragile areas natural resource functions may be negatively impacted as a result of development. These areas include wetlands, Significant Natural Heritage Areas (SNHA), and areas containing endangered species, prime wildlife habitats, or maritime forests. These natural resources are highly valued by residents (both year-round and seasonal).

Natural Heritage Areas

Kitty Hawk Woods Reserve is a Significant Natural Heritage Area located near the center of Kitty Hawk. Kitty Hawk Woods consists of 1,890 acres that are privately, locally, and state-owned conservation areas. The site is also a Dedicated Nature Preserve.

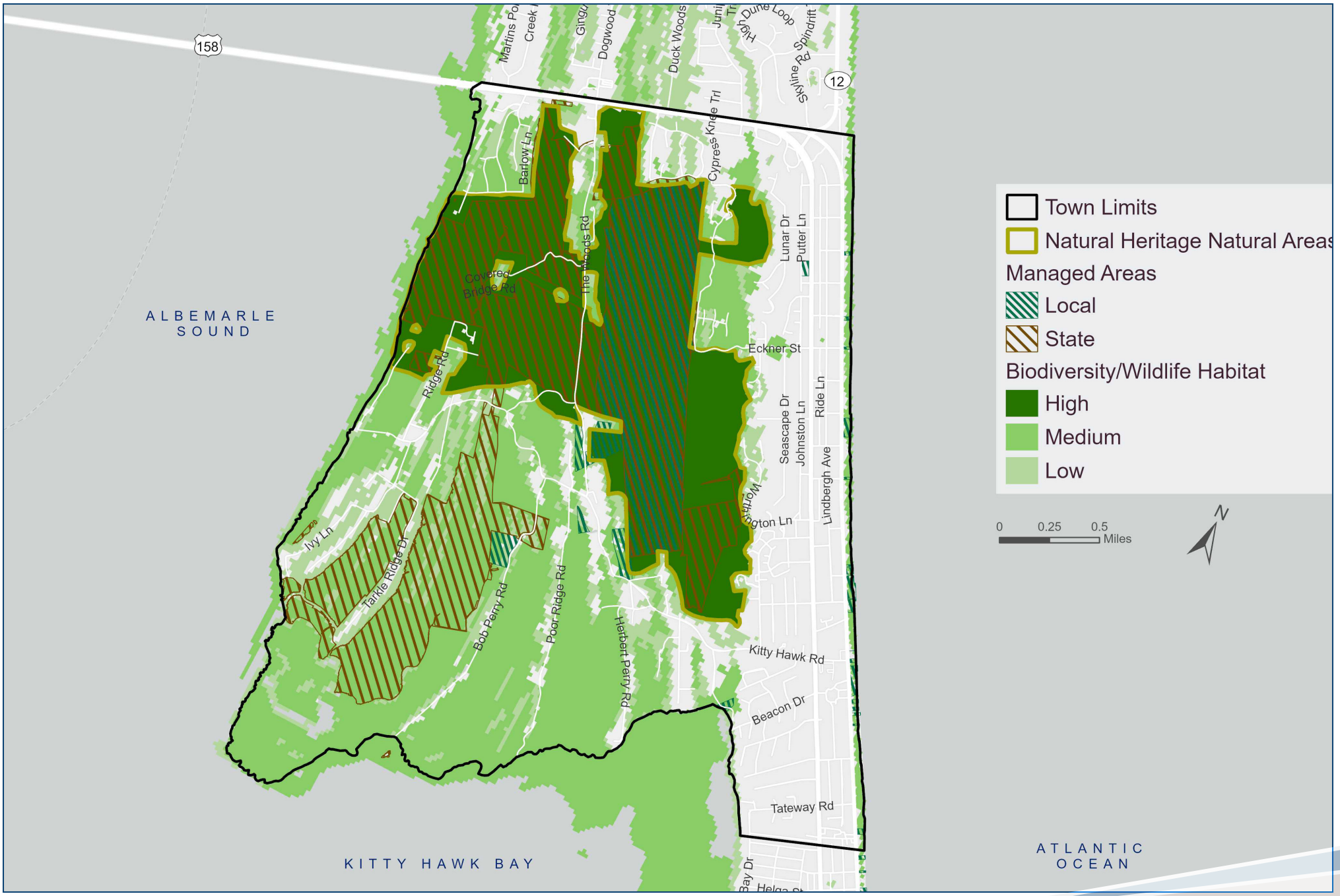
The North Carolina Natural Heritage Program (NCNHP) identifies and inventories these areas, evaluates and assigns conservation priority ratings to the Natural Areas based on the biodiversity within them, and works with many partners to implement voluntary protection for them. The Natural Area boundaries are drawn by NCNHP staff, based on field surveys, and are ecological in nature.

The Natural Heritage Program is the state's most comprehensive source of information on rare and endangered animals and plants, and exemplary natural communities, known collectively as "elements of natural diversity."

The area consists of maritime deciduous forest, maritime swamp forests, and freshwater wetlands. Kitty Hawk Woods hosts several globally rare plant communities and four species of orchids. The ridges and swales of Kitty Hawk Wood contain a variety of wetland and upland plants.

Due to its diversity of habitats, a wide vareity of plants and animals are found in Kitty Hawk Woods. In addition to raccoons, owls, and river otters, Kitty Hawk Woods is a great place to go for bird watching. A list of rare and/or endangered species that can

Environmentally Fragile Areas



be potentially found in the area is located in Appendix A of this plan. Fragmentation of forest adjacent to Kitty Hawk Woods may impact existing species that rely on existing habitat.

Wetlands

There is a total of 2,634 acres of wetlands within the Town of Kitty Hawk, of which 1, 111 is considered coastal wetlands. Non-coastal and coastal wetlands perform various functions, including acting as efficient and cost-effective filtration systems by trapping sediment and removing nutrients and harmful components before water enters creeks and the sound. Additionally, wetlands have the ability to store large amounts of water to slow runoff of freshwater into brackish estuaries.

Wetland vegetation is often very dense offering shoreline erosion protection by absorbing energy and reducing wave action during storms. Both non-coastal and coastal wetlands provide critical habitat. Wetlands can be impacted by development directly and indirectly. Direct impacts include additional runoff and sedimentation from new development. Indirect impacts include removal of vegetated uplands adjacent to wetlands, which can negatively impact species that utilize these uplands during life cycles

In order to protect these critical wetland areas, the Town of Kitty Hawk recently updated its land development code and does not allow for marsh and wetland

areas to be used towards meeting the minimum lot size requirements.

Sound estuarine shorelines include a total of 271,394 linear feet, of which 34, 034 has been modified. The remaining 237, 360 linear feet includes coastal wetlands, sediment bank, non-coastal wetlands, or is considered miscellaneous. There are 3 public access points to sound shorelines including access at Sandy Run Park, the boat ramp on Bob Perry Road, and Windgrass Circle.

Coastal Shorelines

Coastal shorelines include both estuarine and public trust shorelines. Estuarine shorelines AEC are those non-ocean shorelines extending from the normal high water level or normal water level along the estuarine waters, estuaries, sounds, bays, fresh and brackish waters, and public trust areas as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Environment and Natural Resources [described in Rule .0206(a) of this Section] for a distance of 75 feet landward. Public trust shorelines AEC are those non-ocean shorelines immediately contiguous to public trust areas, as defined in Rule 07H .0207(a) of this Section, located inland of the dividing line between coastal fishing waters and inland fishing waters as set forth in that agreement and extending 30 feet landward of the normal high water level or normal water level.

Kitty Hawk has an extensive inventory of ocean and sound estaurine shorelines both of which provide significant value to the town, public and private property owners, and visitors for their natural, recreational, and storm protective qualities. The ocean shoreline consists of approximately 3.6 publicly accessible miles and is an economic driver for the Town of Kitty Hawk. Ocean shorelines include beaches and dunes which provide storm protection for oceanfront development. Erosion concerns of the ocean shoreline has been a primary focus of the town's management efforts for years and the town established a beach nourishment plan to reduce vulnerability on public infrastructure, homes within the town that front the Atlantic Ocean, and reduce flooding from ocean overwash. Beach nourishment was completed in 2022, but renourishments are expected to occur on 5-year cycles.

In addition to beach nourishment, local groups assist with regular dune plantings and other protective measures to protect dunes. Local boy scout troops annually

collect Christmas trees after the holidays to assist in dune management. Regular dune plantings ensure there is a variety of dune vegetation and using trees to restore the dunes provides an extra level of protection for the town and private land owners.

The Town of Kitty Hawk offers 14 public access points to its coastal shorelines.

Historic and Cultural Areas

Kitty Hawk is one of the oldest towns on the Outer Banks. It began as a small self-sufficient community along the shores of Kitty Hawk Bay. Originally two communities existed, the community of Otila was located on the western end of Kitty Hawk Road and the Kitty Hawk community was centered near the road's eastern end.

The North Carolina Historic Preservation Office maintains a statewide survey of historic buildings, districts, and landscapes. The map on page 95 shows properties that have been surveyed and those that have been study listed. Many of the study listed properties and surveyed properties are located along Kitty Hawk Road, west of the beach area. This area was home to many of the early families that called Kitty Hawk home.

There are no properties currently listed on the National Register of Historic Places or any local landmarks. The Town of Kitty Hawk does not currently have a historic preservation ordinance.

The Former Kitty Hawk Lifesaving Station was located on the ocean side of N. Virginia Dare Trail near the intersection with W. Kitty Hawk Road. The structure is described as a shingled lifesaving station built in 1911 and was listed to the National Register of Historic Places in 1984. Since then, the structure has been relocated to another site down the road and has been at its new location since 1992. The structure at its new location has been surveyed by the North Carolina Historic Preservation Office but does not have its previously held National Register status.

There are three properties in Kitty Hawk that have been study listed. The Study List has been part of North Carolina's National Register program since 1969. The Study List is a preliminary step in the review of potential nominations to the National Register of Historic Places. The Study List identifies properties and districts that are likely to be eligible for the National Register. Inclusion in the Study List does not guarantee eligibility. Study listed properties include:

- Kitty Hawk School

Providence Primitive Baptist Church, located on West Kitty Hawk Rd.

Austin Cemetery, located on Rogers St.


Historic Status
Study List
Surveyed Only
City Limits
0 0.25 0.5 Miles
N
ALBEMARLE SOUND
KITTY HAWK BAY
ATLANTIC OCEAN
158
12
Kitty Hawk Fishing Pier
House
House
Decatur Beacham House
Kitty Hawk Village
Austin Cemetery
William Ivey Dowdy House
House
Harris-Beacham House
Providence Primitive Baptist Church
Kitty Hawk School
Bonanza Cottage Court
House
House
Fred Perry House
Harris Midgett House (Approximate site)
Bob Perry House
Wright Brothers 1928 Marker
House
Kitty Hawk Lifesaving Station (Original site)
Kitty Hawk Life Saving Station (Current site)
House
Barlow Ln
The Woods Rd
Covered Bridge Rd
Ridge Rd
Cypress Knee Trl
Lunar Dr
Putter Ln
Eckner St
Seascape Dr
Johnston Ln
Ride Ln
Lindbergh Ave
Ivy Ln
Tarkle Ridge Dr
Poor Ridge Rd
Herbert Perry Rd
Bob Perry Rd
Kitty Hawk Rd
Beacon Dr
Tateway Rd
Bay Dr
Helga St

- Providence Primitive Baptist Church
- Decatur Beacham House

Properties that are listed on the National Register of Historic Places are eligible for state and federal tax credits. Properties that have been identified as study listed could proceed with an application to the National Register to benefit from these tax credits.

Public and Private Water Supply and Wastewater Systems

The protection of public water supplies for drinking water, irrigation, and industry is one of CAMA's main goals. The CRC has designated two AEC categories, small surface water supply watershed and public water supply well fields, that protect designated coastal public water supplies from the negative impacts of development.

The small surface water supply watershed protects coastal drainage basins that contain a public water supply designated for public drinking water and classified as A-II by the NC Environmental Management Commission. This classification does not apply to Kitty Hawk.

Public water supply well fields are areas of rapidly draining sands extending to a shallow groundwater table that supplies public drinking water. Since the previous 2003-2004 CAMA plan, a wellhead protection plan for Dare County was approved in 2014 to prevent contamination of groundwaters used as public drinking water supplies. There are no well fields in Kitty Hawk.

The Dare County Water Department provides water service to the community. Kitty Hawk's potable water is provided by both Skyco Water Plant and the North Reverse Osmosis Plant.

Kitty Hawk's water supply draws from the confined Yorktown aquifer, which is isolated from the land surface by a clay sedimentary unit confining layer. The North Reverse Osmosis Plant located in Kill Devil Hills has a set of five wellhead protection areas for its 14 wells. The Skyco Plant located in Manteo has one large single wellhead protection area for its 10 wells. These plants are located in areas with greater business and residential land usage. The Skyco and North Reverse Osmosis wellfields are extensive in size, and have more potential contamination sources. The North Reverse Osmosis wellfields located in Kill Devil Hills and Nags Head and the Skyco wellfield located on Roanoke Island, north of Wanchese, are at the most risk due to their location in areas were there is high seasonal traffic. The sudden increase in population increases traffic flow, places greater demand on logistics, and causes rapid turnover of business inventories, which all increase the likelihood that a release will occur. There are no wells producing water for the Dare County system located in Kitty Hawk.

The permitted capacity for the North Reverse Osmosis and Skyco water plants is 11.3 million gallons per day (MGD). There are 24 total wells supplying water to the system. Distribution lines consist of asbestos cement (2%), ductile iron (4%), and polyvinyl chloride (94%) ranging in sizes from 2-30 inches in diameter. The Dare County Regional system consists of 247 miles of distribution lines. In 2021, 1,200 feet of new water mains were added to the system and 1,816 meters were replaced. The oldest meters in the system are 34 years old. The system is flushed semi-annually.

According to the "2021 Local Water Supply Plan", in 2021 Dare County was using 83% of its supply, with greater demands on the system during seasonal peaks in population. Off-season demands are easily met by existing systems. To meet future supply needs Dare County will begin a leak detection program and fund engineering studies for plant expansion. Anticipated upgrades to the North Reverse Osmosis includes nanofiltration to create an additional 1 MGD of water. Dare County

plans on expanding the Skyco plant by two trains in 2024/2045 to provide an additional 1 MGD per train.

Nearly all homes and businesses in Kitty Hawk rely on septic tank and drainage field systems to treat and dispose wastewater. Most of the soils in Kitty Hawk are not well-suited for septic systems and drain fields; this is mainly due to being located on a barrier island where the depth of the soil to the water table is shallow. Septic systems should be carefully monitored to limit the possibility of contamination to estuarine waters.

The Dare County Health Department is responsible for overseeing and permitting the use of septic systems in Kitty Hawk. The Health Department uses standards adopted by the State of North Carolina's Department of Environment and Natural Resources, Division of Environmental Health. Theses standards determine the design and location of septic tanks and drainage fields.

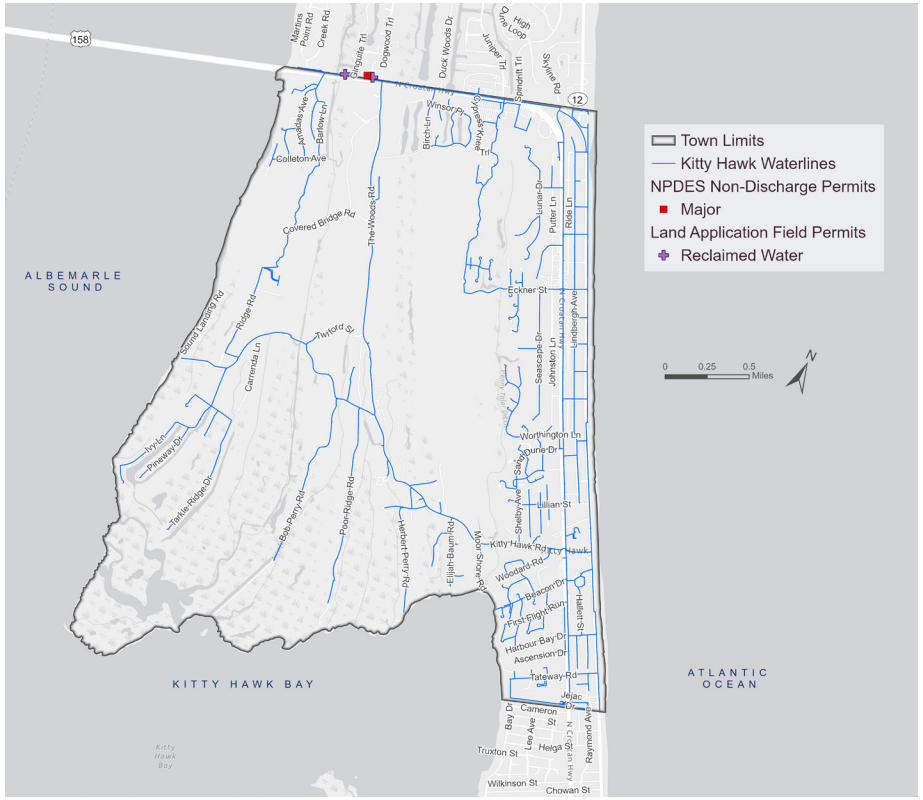
Currently, Kitty Hawk does not have public sewer and no such system is planned.

It's important to note that there were not any documented overflows, bypasses or private or public water supply and wastewater problems that may degrade water quality or constitute a threat to public health as documented by the Division of Water Resources during this process.

Water Supply Watersheds or Wellhead Protection Areas

The closest water supply watershed to the study area is located North of Elizabeth City and falls in both Camden and Pasquotank Counties. There are no wellhead protection areas within the study area.

Water Supply and Non-Discharge Permits



Police, Fire, Public Safety

Presently, most community facilities appear to be adequate to meet the existing demands. However, permanent and seasonal population is increasing so maintaining and planning for future upgrades to facilities is crucial.

Currently, the Kitty Hawk Police Department is a full service law enforcement agency employing sixteen sworn employees, and two non-sworn employees. The Kitty Hawk Police Department has served residents and visitors since 1983.

The Kitty Hawk Fire Department is a combination of career firefighters, part time firefighters , and volunteer firefighters. The Fire Department has served the residents and visitors of the community for 30 years.

Dare County provides emergency medical services to Kitty Hawk through a paid force of emergency medical technicians. Ambulances and an emergency medical service helicopter are available to serve Kitty Hawk and Dare County. There are two facilities close to Kitty Hawk, one in Southern Shores and the other in Kill Devil Hills.

Town of Kitty Hawk Police Department

Town of Kitty Hawk Fire Department

Stormwater Systems

The Town relies on structures, swales and ditches, ponds, and natural areas to handle stormwater run-off. Since the previous CAMA Land Use Plan, the Town conducted a stormwater management study to evaluate the need for drainage improvements, permanent and temporary pumping stations, and other best practices to safely remove stormwater. Following the study, a floodwater management system was designed to collect stormwater from ocean overwash into collection basins and pipe the stormwater to a pump connection assembly that allows the Public Works department to pump stormwater back into the ocean when a storm subsides. During heavy rainfall, the Town has seven pumps to remove water from its roadways.

Kitty Hawk's Soil Erosion and Sedimentation Control was adopted to regulate certain land-disturbing activity to control accelerated erosion and sedimentation to prevent water pollution. Additionally, the Town of Kitty Hawk regulates built upon area for some commercial developments by limiting the amount of impervious surfaces.

The Town maintains a system consists of 7 pumps that remove standing water on streets to assist in emergency vehicle response. Currently pumps are located at Byrd St., Fonck St, Bennett St., Hawks St., Starfish Ln., Hallet St., and Tateway Ave.

Transportation Systems

The Town of Kitty Hawk is committed to a policy of maintaining local streets. There are a total of 76.01 miles of roads in the Town, of these 54.56 miles are maintained by the Town and 21.45 are maintained by NCDOT.

The North Carolina Department of Transportation owns and maintains NC 12, HWY 158 along with the Currituck Sound Bridge, Kitty Hawk Road, The Woods Road, Eckner Street, White Street, Hallet Street, Poor Ridge Road, and a handful of other roads on the sound side of the Town.

The most direct access to Kitty Hawk is the Currituck Sound Bridge on HWY 158, but it can also be accessed by HWY 64 through Nags Head and Kill Devil Hills. HWY 158 and NC 12 serve the community as connectors, and secondary roads provide additional connectivity throughout the Town.

Residents on the sound side have utilized the canal access along their properties and have built numerous private boat docks.

As identified in the "2015 Dare County Comprehensive Transportation Plan", the data on volume and capacity deficiencies taken during 2012 shows that there were

no capacity deficiencies on roads within the Town of Kitty Hawk. However, the 2040 future volume and capacity deficiencies indicate that there will be increased traffic volume and thus capacity deficiencies along the Currituck Sound Bridge and along the entirety of N. Croatan Highway within Town limits.

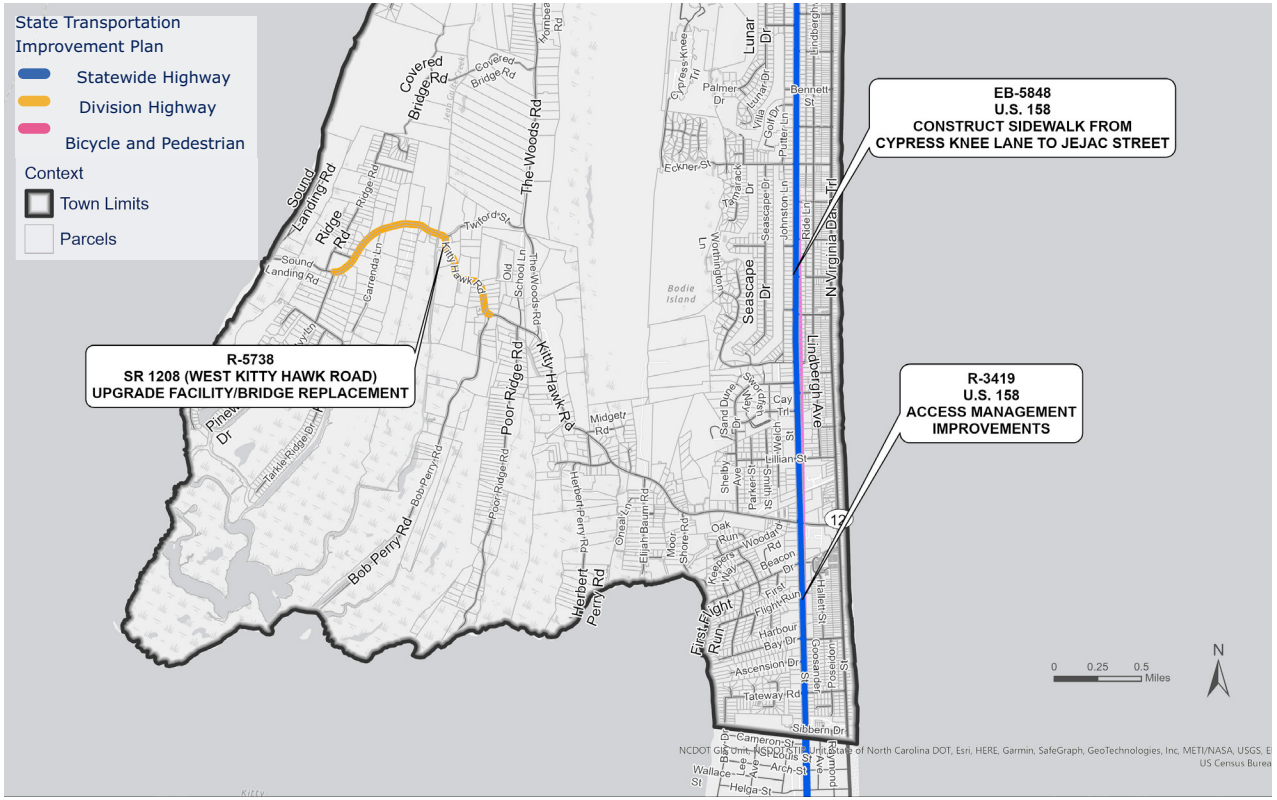
Due to the unpredictability of storm events, some transportation systems may become more problematic and may not be adequately met by the existing system. The main evacuation route for Kitty Hawk and the Outer Banks community is Highway 158. The construction of the Mid-Currituck Bridge would help ease congestion from seasonal traffic and provide an additional evacuation route for northern Outer Banks residents.

Projects in the State Transportation Improvement Plan will not increase or decrease development but will improve mobility options for the both the permanent and seasonal residents and visitors. These projects are described on page 79.

Annual Average Daily Traffic

Annual average daily traffic volume data (2021) from the North Carolina Department of Transportation shows that Highway 158 averages 20,000-34,999 vehicles per day from Albemarle Sound to E Kitty Hawk Rd and 35,000-54,999 vehicles per day from E Kitty Hawk Rd to the southern most boundary of Kitty Hawk. Highway 12 averages 2,000-4,999 vehicles per day in Kitty Hawk's planning jurisdiction. Portions of Kitty Hawk Road averages 5,000-9,999 vehicles per day.

State Transportation Improvement Plan



The State Transportation Improvement Plan (STIP) is a multi-year improvement document which denotes the scheduling and funding of construction projections across the state over a minimum 4-year time frame. North Carolina's STIP covers a 10-year period, with the first six years (2020-2025) as the delivery STIP and the latter four years (2026-2029) as the development STIP. The STIP is updated every two years and developed in concert with federal and state revenue forecasts.

The map to the left illustrates the planned improvements in the Town of Kitty Hawk. According to the STIP, B-5937 and R-5738 are under construction and EB-5848 is planned for 2025. R-4457 and R-3419 are planned to begin in the latter years of the current STIP.

Appendix

Chapter Contents

CAMA 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	Pages 117-122
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	Pages 9-10
Description of the land use and development topics most important to the future of the planning area, including:	
• Public Access	Page 9
• Land Use Compatibility	Page 9
• Infrastructure Carrying Capacity	Page 10
• Natural Hazard Areas	Page 10
• Water Quality	Page 9
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.	Pages 33-35
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	Page 14
• Current permanent and seasonal population estimates	Page 15, Page 17
• Key population characteristics including age and income	Pages 18-19
• Thirty-year projections of permanent and seasonal population in five-year increments	Page 16
• Estimate of current housing stock, including permanent and seasonal units, tenure, and types of units (single-family, multifamily, and manufactured)	Pages 20-21
• Description of employment by major sectors and community economic activity	Pages 22-25
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	Pages 81-83

Matrix for Land Use Plan Elements – 15A NCAC 7B .0702	Policy and/or Page Reference(s)
• Soil characteristics, including limitations for septic tanks, erodibility, and other factors related to development	Pages 84-85
• Environmental Management Commission (EMC) water quality classifications and related use support designations	Pages 88-92
• Division of Marine Fisheries (DMF) shellfish growing areas and water quality conditions	Pages 90-92
• Flood and other natural hazard areas	Pages 94-101
• Storm surge areas	Pages 94- 95
• Non-coastal wetlands, including forested wetlands, shrub-scrub wetlands and freshwater marshes	Pages 86-87
• Water supply watersheds or wellhead protection areas	Page 111
• Primary nursery areas	Page 93
• Environmentally fragile areas, such as wetlands, natural heritage areas, areas containing endangered species, prime wildlife habitats, or maritime forests	Pages 104-107
• Additional natural features or conditions identified by the local government	N/A
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	Page 92
- Clean Water Act 303 (d) List	Page 92
- Other comparable data	N/A
• 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	Pages 91- 92
• Areas experiencing chronic wastewater treatment malfunctions	Page 92
• Areas with water quality or public health problems related to non-point source pollution	Page 90
• Areas subject to recurrent flooding, storm surges and high winds	Pages 94-97
• Areas experiencing significant shoreline erosion as evidenced by the presence of threatened structures or public facilities	Pages 98-99
• 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	Page 104
• 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.	Page 104
Existing Land Use and Development	
MAP of existing land use patterns	Page 103

Matrix for Land Use Plan Elements – 15A NCAC 7B .0702	Policy and/or Page Reference(s)
• Description of the existing land use patterns	Page 102
• Estimates of the land area allocated to each land use category	Page 102
• Characteristics of each land use category	Page 102
MAP of historic, cultural, and scenic areas designated by a state or federal agency or by the local government	Page 109
• Descriptions of the historic, cultural and scenic areas	Page 108
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	Page 111
• Description of existing public and private water supply systems to include:	
- Existing condition	Page 110
- Existing capacity	Page 110
- Documented overflows, bypasses or other problems that may degrade water quality or constitute a threat to public health as documented by the DWR	Pages 110-111
- Future water supply needs based on population projections	Page 16
MAP of existing and planned public and private wastewater service areas	N/A
• Description of existing public and private wastewater systems to include:	
- Existing condition	Page 110
- Existing capacity	Page 110
- Documented overflows, bypasses or other problems that may degrade water quality or constitute a threat to public health as documented by the DWR	Pages 110-111
- Future wastewater system needs based on population projections	N/A
MAP of existing and planned multimodal transportation systems and port and airport facilities	Page 113
• 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	Pages 113-115
• Description of highway facilities on the current thoroughfare plan or current transportation improvement plan	Page 115
• Description of the impact of existing transportation facilities on land use patterns	Page 113-115
• Description of the existing public stormwater management system	Page 113
• Identification of existing drainage problems and water quality issues related to point-source discharges of stormwater runoff	Page 113
Future Land Use	Page 41

Matrix for Land Use Plan Elements – 15A NCAC 7B .0702	Policy and/or Page Reference(s)	
Policies		
• Policies that exceed the use standards and permitting requirements found in Subchapter 7H, State Guidelines for Areas of Environmental Concern	N/A	N/A
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	Policy 1.1, 1.2, 1.3, 1.6, 2.1, 2.2	Page 48-49
• Identify strategies to develop public access	Policy 1.1, 1.2, 1.3, 1.4, 1.6	Page 48
• Address provisions for all segments of the community, including persons with disabilities	Policy 1.4, 1.5	Page 48
• For oceanfront communities, establish access policies for beach areas targeted for nourishment	Policy 2.2, 7.1	Page 49, 55
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	Policy 2.1, 3.2, 3.3, 3.4, 3.5, 5.1	Page 49, 50, 51, 52, 53
• Establish mitigation criteria and concepts to minimize conflicts	Policy 2.2, 2.3, 2.4, 3.1, 4.1, 4.3, 5.1	Page 49, 50, 51, 52, 53
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	Policy 2.3, 6.1, 6.3, 6.4, 6.8	Page 49, 54.55

Matrix for Land Use Plan Elements – 15A NCAC 7B .0702	Policy and/or Page Reference(s)	
• Ensure improvements minimize impacts to AECs and other fragile areas	Policy 2.3, 2.4, 5.1, 6.2, 6.3, 6.4, ,6.5, 6.7	Page 49, 53, 54, 55
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	Policy, 6.1, 6.3, 6.4, 7.1, 7.2, 8.1	Page 54, 55, 56
• Minimize threats to life, property and natural resources resulting from erosion, high winds, storm surge, flooding, or other natural hazards	Policy 5.1, 6.2, 6.4, 7.1, 8.1	Page 53, 54, 55, 56
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	Policy 9.1, 9.2, 9.3,	Page 57
• Establish strategies and practices to maintain or improve water quality	Policy 9.4	Page 57
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	Page 41	
• Descriptions of land uses and development associated with the future land use map designations	Page 40, Pages 42-46	

Matrix for Land Use Plan Elements – 15A NCAC 7B .0702	Policy and/or Page Reference(s)
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	Page 39
• Description of the community's development management program, including local ordinances, codes, and other plans and policies	Pages 75-79
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	Pages 62-73
• 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	Pages 62-73

Definitions and Acronyms

Definitions

- *Affordable Housing:* According to Federal guidelines, housing that a household can obtain for 30% or less of its income.
- *Consider:* Think carefully about or evaluate at the board or staff level. This may require evaluating changes to ordinances, standards or policies.
- *Continue*: Follow past and present policy and procedure to maintain the desired goal.
- *Encourage*: Foster the desired goal through new or improved Town policies.
- *Enhance*: Improve on a current goal through Town policy.
- *Existing Land Use:* Existing land use is how land is currently used. This is usually determined from tax parcel records, viewing aerial photography and/or windshield surveys.
- *Floodplain:* An area of low-lying land adjacent to a watercourse that is subject to flooding or inundation.
- *Future Land Use:* Future Land Use as shown on a Future Land Use Map is illustrative of an intended development pattern that meets community goals. The Future Land Use Map is generally divided into different character areas that describe general uses, intensity and other shared attributes.
- *Greenway or Trail:* Paved or unpaved trail and associated greenspace that is utilized for recreation and/or transportation.
- *Hazard Mitigation:* Hazard mitigation is any sustained action taken to reduce or eliminate the risk of property or personal damage from natural or human-caused environmental disasters.
- *Identify*: Take inventory of and confirm a resource or desired item(s) through Town staff.
- *Institutional:* A land use type which may include schools, government offices, churches, hospitals and other institutions.
- *Infill:* Development of a vacant or partially developed parcels that are surrounded by, or in close proximity to, areas that are substantially or fully developed.
- *Implement*: Take actions to accomplish the Plan recommendations
- *Maintain*: Keep the existing conditions of the desired state of affairs through the use of Town policies, actions, and finances, if needed.
- *Mixed Use:* The use of a building, a set of buildings, or a specific area for more than one land use (i.e. commercial and residential).
- *Prevent*: Stop the identified event/practice through the use of appropriate policy, action, and finances.
- *Promote*: Advance the desired goal through Town policy, action, and or finances.
- *Protect*: Guard the current conditions or desired conditions through Town policy, action, and or finances.
- *Rezoning:* The action or process of changing land or property to a different zoning district with associated use allowances and restrictions. The rezoning process is a legislative process and requires action and input from the Planning Board and the Town Council.
- *Support*: Supply the necessary staff support, policy, and finances.
- *Stormwater:* Runoff generated by rainfall during a storm event.
- *Work*: Cooperate and act in a manner through Town staff, policy, and actions to reach the desired goal.

- *Workforce Housing:* Any form of housing that is affordable for households with an earned income that is insufficient to secure quality housing in reasonable proximity to the workplace.
- *Zoning Ordinance:* A set of regulations that specify approval procedures and requirements related to the subdivision and use of land. Typically used to help direct and manage growth.

Acronyms

The following list contains the key to all acronyms used throughout this plan.

- AADT: Annual Average Daily Traffic
- AEC: Areas of Environmental Concern
- BMP: Best Management Practice
- CAMA: Coastal Area Management Act
- CTPW: Comprehensive Transportation Plan
- CRC: Coastal Resources Commission
- EPA: Environmental Protection Agency
- FEMA: Federal Emergency Management Agency
- FLUM: Future Land Use Map
- HLC: Historic Landmarks Commission
- ICC: Infrastructure Carrying Capacity
- LID: Low-Impact Development
- LUC: Land Use Compatibility
- MFC: North Carolina Marine Fisheries Commission
- MGD: Million Gallons per Day
- NCDOT/DOT: North Carolina Department of Transportation
- NHA: Natural Hazard Areas
- NOAA: National Oceanic and Atmospheric Administration
- PA: Public Access
- SGNA: Significant Natural Heritage Areas
- SLOSH: Sea, Lake, and Overland Surges from Hurricanes
- WRC: North Carolina Wildlife Resources Commission
- WQ: Water Quality

Endangered Species List for Dare County

Taxonomic Group	Scientific Name	Common Name	NC Status	Federal Status	Habitat Comment
Freshwater Fish	Acipenser oxyrin-chus oxyrinchus	Atlantic Sturgeon	E	E	coastal waters, estuaries, large rivers
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	Pseudacris brimleyi	Brimley's Chorus Frog	W5	none	swamps, marshes, and other wetlands
Amphibian	Siren lacertina	Greater Siren	W3	none	lakes, ponds, and streams, especially where muddy or with weedy vegetation
Animal Assemblage	Waterbird Colony	Waterbird Colony		none	null
Beetle	Ellipsoptera lepida	Ghost Tiger Beetle	SR	none	sand dunes along northern coast
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	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]
Bird	Circus hudsonius	Northern Harrier	SR	none	extensive brackish marshes (for nesting) [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]

Taxonomic Group	Scientific Name	Common Name	NC Status	Federal Status	Habitat Comment
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 vermi-vorum 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	Hydroprogne caspia	Caspian Tern	T	none	sand flats on maritime islands [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	Nyctanassa violacea	Yellow-crowned Night-Heron	SR	none	inland swamps; woods or thickets on maritime islands [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	Pelecanus occidentalis	Brown Pelican	SR	none	maritime islands [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 vegeta-tion [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]

Taxonomic Group	Scientific Name	Common Name	NC Status	Federal Status	Habitat Comment
Bird	Setophaga virens waynei	Wayne's Black-throated Green Warbler	E	none	nonriverine wetland forests, especially where white cedar or cypress are mixed with hardwoods [breeding evidence 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 evidence only]
Butterfly	Amblyscirtes carolina	Carolina Roadside-Skipper	W2	none	moist woods (mainly hardwoods) near cane; host plant -- cane (Arundinaria)
Butterfly	Calephelis virginiensis	Little Metalmark	SR	none	savannas and pine flatwoods; host plants -- vanilla-plant (Trilisa odoratissima), thistles (Cirsium)
Butterfly	Euphyes dukesi	Dukes' Skipper	SR	none	ecotones of brackish or fresh marshes with swamps; host plants -- sedges (Carex)
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 helicta	Helicta Satyr	SR	none	sedgy wetlands, including sandhill seeps, pocosin ecotones, and drained beaver ponds in the Sandhills, low pocosins in the northeast Coastal Plain, and wet open swales in the Piedmont; host plants -- sedges
Butterfly	Phyciodes phaon	Phaon Crescent	W5	none	open, often dry areas, mainly on barrier islands; host plants -- fogfruit (Lippia)
Butterfly	Poanes aaroni	Aaron's Skipper	SR	none	brackish marshes along the northern coast and sounds; host plants -- grasses, perhaps saltgrass (Distichlis spicata)
Butterfly	Satyrium favonius ontario	Northern Oak Hairstreak	SR	none	oak-dominated woods, usually in dry sites; host plants -- oaks (Quercus)
Dragonfly or Damselfly	Macrodiplax balteata	Marl Pennant	W3	none	ponds and lakes near the coast, usually brackish or near marl
Freshwater Fish	Fundulus confluentus	Marsh Killifish	W2	none	fresh to brackish waters along coast
Grasshopper or Katydid	Mermiria bivittata	Two-striped Mermiria	SR	none	dune grasslands and other grassy areas in or near coastal forests
Lichen	Anzia ornata	Ornate Black-foam Lichen	SR-T	none	on bark of deciduous trees where humidity is fairly high

Taxonomic Group	Scientific Name	Common Name	NC Status	Federal Status	Habitat Comment
Lichen	Cladina evansii (syn. Cladonia evansii)	Powder-puff Lichen	W7	none	sandhills (primarily near the coast) usually associated with Quercus geminata
Lichen	Phaeographis oricola	Carolina Beach Drops	W7	none	tidal harwood forest, maritime forests
Lichen	Sticta deyana	Dey's Moon lichen	SR-T	none	bark of mature trees in swamp forests (Dare)
Lichen	Xyleborus nigricans	Black Caps	W7	none	on gymnosperm logs in swamp forests
Mammal	Canis rufus	Red Wolf	T	E, XN	swamps, pocosins, extensive forests
Mammal	Corynorhinus rafin-esquii macrotis	Eastern Big-eared Bat	SC	none	roosts in hollow trees, old buildings, and beneath bridges, usually near water
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	Neogale frenata (syn. Mustela frenata)	Long-tailed Weasel	W3	none	forests, brushy areas
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	Peromyscus leuco-pus buxtoni	Buxton Woods White-footed Deermouse	SC	none	maritime forests in Cape Hatteras vicinity (endemic to this area)
Mammal	Trichechus manatus	West Indian Manatee	T	T	warm waters of estuaries and river mouths
Moss	Sphagnum torreyanum	Giant Peatmoss	SR-P	none	beaver ponds and old mill ponds on blackwater creeks
Moss	Tortella flavovirens	Beach Moss	W7	none	dune swales
Moth	Acrapex relicta	Relict Cane Moth	W3	none	canebrakes
Moth	Arugisa latiorella	Watson's Arugisa Moth	W3	none	sedgy glades
Moth	Caripeta aretaria	Southern Pine Looper	W3	none	pine forests

Taxonomic Group	Scientific Name	Common Name	NC Status	Federal Status	Habitat Comment
Moth	Catocala pretiosa	Precious Underwing	W3	none	forests with shadbush or chokeberry
Moth	Gondysia similis	Gordonia Darkwing	W3	none	pocosins and bay forests
Moth	Idaea micropterata	a Wave	W3	none	no habitat information
Moth	Idaea productata	a Wave	W3	none	sandhills
Moth	Macrochilo santerivalis	an Owlet Moth	W3	none	brackish marshes
Moth	Metarranthis lateritiaria	a Geometrid Moth	W3	none	flatwoods and pocosins
Moth	Metarranthis sp. 1	Mid-Atlantic Metarranthis Moth	W3	none	pocosins
Moth	Nemoria bifilata	White-barred Emerald	W3	none	sandhills and sandy forests
Moth	Orgyia detrita	a tussock moth	W3	none	hardwood forests
Moth	Papaipema sp. 3	Southeastern Cane Borer Moth	W3	none	canebrakes
Moth	Parahypenodes quadralis	Masked Parahypenodes Moth	W3	none	possibly a wetland specialist
Moth	Scopula cacuminaria	Frosted Tan Wave Moth	W3	none	sandhills and other dry forests
Moth	Spilosoma dubia	Dubious Tiger Moth	W3	none	acidic wetlands
Moth	Ululonche modesta	Modest Quaker Moth	W3	none	pine-oak-heath communities
Moth	Xestia youngii	Young's Dart Moth	W3	none	peatlands
Moth	Zale declarans	Dixie Zale	SR	none	maritime forests with live oak
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]

Taxonomic Group	Scientific Name	Common Name	NC Status	Federal Status	Habitat Comment
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 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	Kinosternon baurii	Striped Mud Turtle	W3	none	various shallow wet places; ponds, pools, ditches
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]
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	Rhadinaea flavilata	Pine Woods Snake	W2	none	pine flatwoods and other damp woodlands
Reptile	Seminatrix pygaea paludis	Carolina Swamp Snake	SC	none	in lush vegetation of ponds, ditches, or sluggish streams
Sawfly, Wasp, Bee, or Ant	Bombus pensylvanicus	American Bumble Bee	W3	none	open habitats, fields
Vascular Plant	Amaranthus pumilus	Seabeach Amaranth	T	T	ocean beaches and island-end flats
Vascular Plant	Baccharis angustifolia	Saltwater False-willow	W1	none	brackish marshes, shrubby marsh edges

Taxonomic Group	Scientific Name	Common Name	NC Status	Federal Status	Habitat Comment
Vascular Plant	Bidens mitis	Coastal Plain Tickseed	W7	none	freshwater marshes, brackish marshes, and mountain bogs
Vascular Plant	Bidens trichosperma	Crowned Beggar-ticks	SR-P	none	brackish marshes
Vascular Plant	Carex calcifugens	Calcium-fleeing Sedge	SC-V	none	mesic deciduous forests and maritime woodlands
Vascular Plant	Carex disjuncta	Silvery Sedge	SR-P	none	beaver ponds, old millponds, impoundments; usually on Nyssa biflora
Vascular Plant	Carex verrucosa	Warty Sedge	SR-P	none	savannas and pinelands
Vascular Plant	Carex vesicaria	Inflated Sedge	E	none	bogs
Vascular Plant	Ceratophyllum echinatum	Prickly Hornwort	W7	none	pools, lakes, and estuaries
Vascular Plant	Clematis catesbyana	Coastal Virgin's-bower	SR-P	none	dunes, edges of maritime forests, or over dolomite
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 dichotomum var. roanokense	Roanoke Witch Grass	W1	none	savannas, open swampy woods, wet peaty meadows
Vascular Plant	Dichanthelium fusiforme	Spindle-fruited Witch Grass	SR-P	none	Dry to moist sand of open pine and pine-oak woods and clearings.
Vascular Plant	Dichanthelium neuranthum	Nerved Witch Grass	SR-D	none	Maritime wet grasslands, Piedmont barrens
Vascular Plant	Diplachne maritima	Salt-meadow Grass	E	none	fresh to brackish tidal marshes

Taxonomic Group	Scientific Name	Common Name	NC Status	Federal Status	Habitat Comment
Vascular Plant	Eleocharis cellulosa	Gulfcoast Spikerush	T	none	interdune ponds, brackish marshes & tidal freshwater marshes
Vascular Plant	Eleocharis fallax	Creeping Spikerush	SR-T	none	fresh to brackish tidal marshes
Vascular Plant	Eleocharis montevidensis	Sand Spikerush	SR-P	none	maritime wet grassland
Vascular Plant	Eleocharis parvula	Little-spike Spikerush	T	none	brackish and fresh marshes
Vascular Plant	Eleocharis rostellata	Beaked Spikerush	SR-O	none	brackish marshes
Vascular Plant	Eleocharis uniglumis	Saltmarsh Spikerush	SR-P	none	brackish and freshwater marshes
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	Hottonia inflata	Featherfoil	SC-V	none	pools in blackwater or brownwater swamps, interdune ponds
Vascular Plant	Hudsonia tomentosa	Sand Heather	T	none	openings in maritime forest, blowouts, and dunes
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
Vascular Plant	Iris prismatica	Slender Blue Iris	SR-T	none	bogs, marshes, and wet powerline clearings
Vascular Plant	Lechea maritima var. virginica	Maritime Pinweed	T	none	barren dunefields with Hudsonia tomentosa
Vascular Plant	Lilaeopsis carolinensis	Carolina Grasswort	SR-O	none	freshwater marshes, pools, tidal marshes
Vascular Plant	Limosella australis	Awl-leaf Mudwort	T	none	tidal marshes
Vascular Plant	Liparis loeselii	Fen Orchid	E	none	seeps, bay swamps

Taxonomic Group	Scientific Name	Common Name	NC Status	Federal Status	Habitat Comment
Vascular Plant	Ludwigia alata	Winged Seedbox	SR-P	none	interdune ponds, marshes
Vascular Plant	Ludwigia brevipes	Long Beach Seedbox	SR-T	none	natural lake shores, blackwater stream shores and impoundments, and freshwater interdune ponds
Vascular Plant	Ludwigia maritima	Seaside Seedbox	W7	none	savannas, dunes, and ditches
Vascular Plant	Luziola fluitans var. fluitans	Southern Water Grass	SR-P	none	pools, lakes, streams
Vascular Plant	Malaxis spicata	Florida Adder's-mouth	SC-V	none	maritime swamp forests, calcareous but mucky outer coastal plain swamps
Vascular Plant	Neottia bifolia	Southern Twayblade	W1	none	moist hardwood forest, swamps, wet woods with acidic soils
Vascular Plant	Oenothera riparia	Riverbank Evening-primrose	SR-L	none	Freshwater tidal marshes and freshwater tidal swamp forests.
Vascular Plant	Oenothera unguiculata	Southern Sundrops	SR-T	none	wet clay savannas (Carteret*, Dare, Jones, New Hanover, Onslow, Pender)
Vascular Plant	Oplismenus setarius	Shortleaf Basket Grass	SR-P	none	maritime forests, bottomlands
Vascular Plant	Paronychia baldwinii ssp. riparia	Perennial Dune Whitlow-wort	W7	none	Dry sandy sites, woodlands or dunes
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	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
Vascular Plant	Platanthera blephariglottis	Small White-fringed Orchid	W7	none	bogs or depressions

Taxonomic Group	Scientific Name	Common Name	NC Status	Federal Status	Habitat Comment
Vascular Plant	Platanthera conspicua (syn. Platanthera blephariglottis var. conspicua, Platanthera blephariglottis)	Large White Fringed Orchid	W7	none	Savannas, seepages, sandhill-pocosin ecotones
Vascular Plant	Polygonum glaucum	Seabeach Knotweed	E	none	ocean and sound beaches
Vascular Plant	Polygonum prolificum	Bushy Knotweed	W7	none	brackish marshes
Vascular Plant	Potamogeton illinoensis	Illinois Pondweed	E	none	alkaline waters of streams, rivers, lakes, and ponds
Vascular Plant	Psilotum nudum	Whiskfern	W4	none	acid swamp
Vascular Plant	Rhynchospora alba	Northern White Beaksedge	SR-P	none	fens, bogs, pocosin openings, limesink ponds
Vascular Plant	Rhynchospora microcarpa	Southern Beaksedge	T	none	maritime wet grasslands, limesink ponds, swamp forests
Vascular Plant	Rhynchospora odorata	Fragrant Beaksedge	SC-V	none	maritime wet grasslands
Vascular Plant	Rhynchospora scirpoides	Long-beak Beaksedge	W1	none	beaver ponds, limesink ponds, wet savannas
Vascular Plant	Sabal palmetto	Cabbage Palm	T	none	maritime forests on the southeastern coast
Vascular Plant	Sabatia dodecandra	Large Marsh Pink	W1	none	tidal, brackish, and freshwater marshes
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	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

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Vascular Plant	Sesuvium portulacastrum	Shoreline Sea-purslane	E	none	seabeaches
Vascular Plant	Solidago villosicarpa	Coastal Goldenrod	T	none	edges and openings in maritime upland forests
Vascular Plant	Spergularia marina	Saltmarsh Sandspurrey	W7	none	salt marshes and tidal flats
Vascular Plant	Symphyotrichum simmondsii	Simmonds' Aster	W1	none	wet ditches
Vascular Plant	Trichostema nesophilum	Dune Bluecurls	SC-V	none	dunes, openings in maritime forest and scrub
Vascular Plant	Tridens chapmanii	Chapman's Redtop	T	none	dry pine and oak woods, sandy roadsides
Vascular Plant	Triphora trian-thophoros var. trianthophoros	Three Birds Orchid	W1	none	humid forests and swamps
Vascular Plant	Utricularia macrorhiza	Greater Bladderwort	SR-O	none	pools and ponds
Vascular Plant	Vaccinium macrocarpon	Cranberry	T	none	bogs, seeps, pocosins
Vascular Plant	Yucca gloriosa	Moundlily Yucca	SR-P	none	dunes
Vascular Plant	Zizania aquatica var. aquatica	Indian Wild Rice	W7	none	freshwater marshes

Town of Kitty Hawk

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