

2009 DARE COUNTY LAND USE PLAN UPDATE



Adopted by the Dare County Board of Commissioners on December 6, 2010

Certified by the NC Coastal Resources Commission on February 24, 2011

2009 Dare County Land Use Plan

Dare County Board of Commissioners

Warren Judge, Chairman
Allen Burrus, Vice-Chairman
Richard Johnson
Virginia Tillett
Max Dutton
Jack Shea
Mike Johnson

Dare County Planning Board

Elmer R. Midgett, Chairman
Beth Midgett
Ricky Scarborough
John Finelli
Dan Oden
Henry Haywood
David Overton

Dare County Planning Department

Raymond P. Sturza, Planning Director
Donna Creef, Senior Planner

Maps produced with assistance of Greg Ball, Dare County GIS Coordinator

TABLE OF CONTENTS

Introduction

Overview of Land Use Plan	1
Land Use Plan Components	1
Use of Dare County Land Use Plan	2
Public Participation	3
Community Concerns and Aspirations	3
Community Vision and General Objectives	4
Overview of Policies	6
Future of Dare County	7

Section One

Existing and Emerging Conditions

Demographics, population permanent and seasonal	10
Housing, current stock, building permit information	15
Economy	19
Trends in Population, Housing, & Economy	20
Population projections	21

Natural Systems Analysis

Natural Features Review	23
Areas of Environmental Concern	23
Soil Conditions	26
Water Quality Classifications	28
Flood Hazards and Storm Surge Areas	30
Fragile Areas	31
Mapping of Natural Features	31
Environmental Composite Maps	62
Environmental Conditions	
Water Quality	34
Natural Hazards	38
Natural Resources	40

Analysis of Land use and Development

Existing Land Use Patterns	74
Land Use-Water Quality Conflicts	75
Individual Community Analysis	75
Land Use Compatibility Issues	84
Historic, cultural, and scenic areas	85
Development Trends and Projections of Future Land Use Needs	85
Existing Use Maps	91

Analysis of Community Facilities

Public and Private Water supply	103
Wastewater Systems	106

Transportation Infrastructure	108
Stormwater Systems	110
Other –schools, public services and public works	111
Community Facilities Maps	117-127

Land Suitability Analysis

Land Suitability Discussion	128
Land Suitability Maps	133-137

Review of 2003 Dare County Land Use Plan

Evaluation and Use of 2003 LUP	132
Review of 2003 and Status of Implementation Strategies	Appendix 4

Section Two Policies and Implementation Strategies

Vision Statement of LUP	138
Public Access	141
Land Use Compatibility	148
Infrastructure Carrying Capacity	165
Natural Hazard Areas	177
Water Quality	187
Local Areas of Concern	198

Future land use maps

Future land use classifications	206
Future Land Use Needs	218
Analysis of Policies and FLUMs	224
Comparison of FLUM, Environmental Composite Map and Land Suitability Map	225
Future Land Use Maps (Maps 17A-17H)	227-235

Section Three Tools for Managing Development

Role of land use plan in decision making	248
Existing Development Management Program	249
Implementation Action Plan	253

Appendices

Appendix 1-- Public Participation Plan	
Appendix 2 – VS/Goals Workshop Report	
Appendix 3 – Citizen Involvement Poll Report	
Appendix 4 – Review 2003 LUP and Policies	
Appendix 5 – Pasquotank River Basinwide Report and Portion of Tar-Pamlico Basinwide Report	

TABLES, CHARTS, MAPS AND MATRICES

	TITLE	PAGE
Table 1	Population by Decade 1950-2000	11
Table 2	Population by Year 2000-2005	11
Table 3	Average Annual Growth Rate by Decade	11
Table 4	2000 Census Population For Unincorporated Dare County by ZIP Code	11
Table 5	Various Demographic Facts About Dare County 2000 Census	12
Table 6	Seasonal Population Estimates	13
Table 7	Visitation at Key Tourist Sites	14
Table 8	2008 Housing Units – Total for Dare County	16
Table 9	2008 Housing Units -- Property Ownership Status	16
Table 10	2008 Housing Units Unincorporated vs. Incorporated	16
Table 11	Building Permits – Unincorporated 2002-2007	17
Table 12	2002-2007 Subdivision Lots & Group Housing Developments	18
Table 13	Per Capita Income and Median Family Income	19
Table 14	Employment Sectors	19
Table 15A	Permanent Population Projections for Entire County	21
Table 15B	Permanent Population Projections Unincorporated Dare	21
Table 16 A	Seasonal Population Projections for Entire County	22
Table 16B	Seasonal Population Projections Unincorporated Dare	22
Table 17	Soil Classifications for Wastewater Suitability	27
Table 18	Water Quality Classifications	29
Table 19	Natural Features Listing	32
Table 20	Class Assignments of Natural Features	34
Table 21	Hurricane Isabel Damage	39
Table 22	Acreage Calculations for Existing Uses	74
Table 23	Single Family Home Permits 2005-2008	87
Table 24	Future Residential Acreage Needs to 2030	87
Table 25	Future Land in Development 2010-2030	88
Table 26A	Vacant Acreage	88
Table 26B	Platted Subdivision Lots in Unincorporated Dare County	89
Table 26C	Comparison of Permit Projections to Population Projections	90
Table 27	Dare County Public Water Facilities	104
Table 28	Dare County Water System Statistics	106
Table 29	NCDOT Average Daily Traffic County 2007	108
Table 30	Public School Enrollment	112
Table 31	Ten-Year Student Population Projection	112
Table 32	Land Suitability Attributes and Ranking	129
Table 33	Acreage Calculations for Future Land Use Map Categories	220
Table 34	Future Land Use Map Percentage Calculations	220
Table 35	Distribution of Existing Use and FLUM Designation	221

Table 36	Comparison of FLUM Categories and Projected Land Needs	222
Table 37	Estimated Utility Demand at 2030	223

Chart 1	Percentage Breakdown of Residential Permits	17
Chart 2	Percentage Breakdown of Subdivision Lots/Housing Units	18
Map 1	14-Digit Hydrological Unit Map for Dare County	42
Map 2	CAMA Areas of Environmental Concern	43
Map 3	Soil Conditions for Unincorporated Dare County	44
Map 4	Coastal-Non-Coastal Wetlands	45
Maps 5A-I	Erosion Rate Maps for Unincorporated Dare County	46-54
Map 6	Water Quality Classifications	55
Map 7A-B	Fishery Nursery Areas	56-57
Map 8	Flood Zones	58
Map 9A-B	Storm Surge	59—60
Map 10	Historic Resources	61
Maps 11A-D	Environmental Composite Maps	62-66
Maps 12A-G	Shellfish Maps	67-73
Maps 13A-K	Existing Use Maps	91-101
Maps 14A-D	Water System Service Districts and Planned Expansion	117-120
Maps 15A-F	NCDOT Infrastructure Maps and STIP Projects	121-127
Map 16 A-D	Land Suitability Maps	133-137
Maps 17A-H	Future Land Use Maps	227-235
Matrix 1	Public Access Policy Analysis	147
Matrix 2	Land Use Compatibility Policy Analysis	163
Matrix 3	Infrastructure Carrying Capacity Policy Analysis	176
Matrix 4	Natural Hazards Policy Analysis	186
Matrix 5	Water Quality Policy Analysis	196
Matrix 6	Local Areas of Concern Policy Analysis	205
Matrix 7	FLUM Consistency with Zoning Regulations	236
Matrix 8	FLUM Category Standards Analysis	239
Matrix 9	FLUM Consistency with Zoning Districts	242

	PAGE
Organization of Plan	
Community Concerns and Aspirations	
1. Significant Conditions	3
2. Key Issues	3
3. Vision Statement	4
Analysis of Existing and Emerging Conditions	
1. Population, Housing, Economy	10-20
Population Projections	21-22
2. Natural Systems Analysis	23-31
Mapping and analysis of natural features	31-35
Environmental Composite Maps	62-66
Environmental Conditions	34-41
3. Analysis of Land Use and Development	
Existing Use Maps	92-102
Development Trends	85
Land Use Conflicts	75
Areas Expected to Grow	75-84
Projections of Land Needs	85-90
4. Analysis of Community Facilities	
Public and Private water supply and wastewater systems	103-107
Transportation	108-110
Stormwater Systems	110-111
Other Facilities	111- 116
5. Land Suitability Analysis	
Class 1,2, and 3 lands from environmental analysis	128
Water Quality	129
Proximity to existing development	130
Compatibility with existing land uses	130
Proximity to scenic, historic, or cultural sites	130
Availability of central water and central wastewater	130
Proximity to major highways	131
Land suitability map	133-137
6. Review of Current Land Use Plan	132
Status of Implementation Strategies	Appendix 4
Plan for the Future	
1. Community Vision Statements and Objectives	138-140
2. Management Topics	
Public Access	141-146
Land Use Compatibility	148-162
Infrastructure Carrying Capacity	165-175

INTRODUCTION

Overview of Dare County Land Use Plan

Introduction

Located along the eastern coast of North Carolina, Dare County stretches for 85 miles along the Atlantic Ocean. Known as the Outer Banks of North Carolina, Dare County is recognized as a top vacation destination because of our abundant natural and historic resources. The islands that comprise Dare County are surrounded by the Atlantic Ocean and numerous estuarine water bodies. Miles of unspoiled beaches and estuarine shorelines, world-class fishing and surfing, and exceptional water quality draw thousands of visitors to our area every year.

Dare County is also known as “The Land of Beginnings” in reference to our historic role in the founding of the New World. Another historic event occurred here in 1903 when Orville and Wilbur Wright flew the first man-powered plane from Kill Devil Hill. The County celebrated the 100-year anniversary of this historic first flight in 2003.

Land Use Plan Components

The State of North Carolina requires all local governments located within the twenty-county coastal region to prepare and periodically update land use plans for use in the review and issuance of CAMA major permit applications and federal consistency reviews. The type of land use plan that must be developed by a local government is based primarily on the growth rate and population of a county/municipality. Using these factors, Dare County is required to prepare a “core” plan. The land use plan must contain a vision statement and general objectives for the community, policies and implementation strategies to support the vision statement and objectives, demographic information and population projections, and associated maps of existing land use patterns and desired future land use patterns.

This introduction section outlines the vision statement and general objectives and goals that have been identified by the County. Section One contains demographic information and analysis of the existing conditions of the area including the required maps used in analysis of the current conditions. Section Two consists of the policies and implementation strategies. This section is the essence of the land use plan. The future use map is found in Section Two. Section Three addresses how the land use plan will be used by Dare County in managing growth and development. The final component of the 2009 Land Use Plan is several appendices of supporting documentation and reports that were used in the drafting of the Land Use Plan. The various maps developed as part of the land use plan update are included in the appropriate sections of the land use plan.

The 2009 update of the Dare County Land Use Plan is based on the CAMA guidelines adopted by the State of North Carolina in 2002. The previous Dare update, certified in 2003, was developed under the original CAMA land use plan guidelines adopted in 1974. Work on the 2003 update began before the adoption of the 2002 LUP guidelines by the North Carolina Coastal Resources Commission and the County was allowed to use the old guidelines for development of the 2003 update. There are some changes in the format of the 2009 update as a result of new guidelines as detailed below:

1. Expanded mapping components of the 2009 LUP to include the natural systems analysis map, environmental constraints map, the land suitability map, and the future land use map (formerly entitled the land classification map).
2. Six management topics set forth in the CAMA guidelines. These management topics are linked to the vision statement and general objectives of the LUP. The policies and implementation strategies are grouped according to these management topics and are designed to address the criteria established by the CAMA guidelines for each topic. These management topics are as follows: Public Access; Land Use Compatibility; Infrastructure Carrying Capacity; Natural Hazard Areas, Water Quality, and Local Areas of Concern.

Use of Dare County Land Use Plan

The Dare County Land Use Plan, although required by State CAMA regulations, is not an ordinance but is a policy document that is intended to be used by the Dare County Board of Commissioners, Dare County Planning Board and Dare County Planning Department to guide growth and development in unincorporated Dare County. The policy statements contained in this document are intended to be used for guidance and do not represent *regulations* as may be found in the Dare County Zoning Ordinance or Dare County Subdivision Ordinance. The maps that accompany the LUP are intended to be used for guidance purposes and not designed to establish any type of locally delineated areas for land use patterns such as would be established on a zoning map adopted by the Dare County Board of Commissioners. The Land Use Plan and the associated maps are tools to assist local decision makers and it is important to recognize this distinction between the LUP and County Codes.

The Land Use Plan is used by the staff of the Division of Coastal Management in the review of CAMA major permit applications for development activities in CAMA Areas of Environmental Concerns (AECs) and used in federal consistency reviews. Every CAMA major permit application is reviewed for consistency with the policies and maps of the local land use plan. A consistency determination must be rendered by the CAMA staff before a CAMA major permit can be issued. If activities proposed in a

CAMA major permit application are found to be inconsistent with a local LUP, then the CAMA major permit cannot be issued or a federal consistency determination made.

The Dare County Land Use Plan applies to the unincorporated portions of Dare County (Hatteras Island, Mainland, Colington, Martins Point, and Roanoke Island outside the boundaries for the Town of Manteo). The six municipalities in Dare County (Duck, Southern Shores, Kitty Hawk, Kill Devil Hills, Nags Head, and Manteo) have all chosen to prepare and adopt their own land use plans for their respective jurisdictions. These municipal plans should be consulted for policies and other information specific to these six towns.

Public Participation

Due to the importance of public participation in the land use plan process, the first step taken for the 2009 update was the adoption of a Public Participation Plan (PPP). This PPP was adopted by the Dare County Board of Commissioners in August 2007 and detailed the various activities that would be undertaken to encourage and incorporate public input in the update process. A copy of the PPP in its entirety is found as Appendix 1 at the end of this document. Some highlights of the PPP:

1. Endorsement of the Dare County Planning Board as the steering committee for the update process.
2. Mailing of a Citizen Involvement Poll to all resident and non-resident property owners in unincorporated Dare County. The Poll was also available for on-line completion on the Dare County Website.
3. Public workshops for input on the visions statement and issue identification and workshops on the draft policy statements and implementation strategies.

Community Concerns and Aspirations

The dominant growth-related conditions that influence land use in unincorporated Dare County are the compatibility of soils and the seasonal high water tables with on-site septic tank and drainfield systems.

With the exception of those locations where economic factors make the use of a privately-owned wastewater treatment plant feasible, all other development in unincorporated Dare County is facilitated by way of septic tanks.

It is anticipated that soil suitability will continue to be the dominant influence on land use for the next

decade. Dare County's elongated configuration and the positioning of federally-owned properties make it unlikely a publicly-owned central wastewater treatment plant and pipe collection system will occur in the foreseeable future.

The use of on-site septic tanks as the principal means of wastewater treatment serves as a natural barrier to high-density development due to the amount of green space that must be set aside for drainfields and reserve drainfields. Limitations on high-density development reduce the likelihood that surface waters will be impacted by increased run-off associated with the infrastructure necessary for high density development. Septic tank and drainfield systems, however, if not properly maintained, can contribute to diminished groundwater quality, and when impacted by flood waters, can malfunction.

The second dominant growth-related condition influencing land use in Dare County is the increase in regulatory standards adopted and enforced by the County. Until 1987, most of unincorporated Dare County was an unregulated real estate market. Over the last 20 years the County's Board of Commissioners has acted to put zoning regulations and standards for the development of land in place in all locations except the western-most portion of the mainland commonly known as East Lake. These regulatory standards also have a salutary impact on environmental concerns since impacts like lot coverage by impervious surfaces, development density, and unwanted/incompatible uses that had been unregulated for decades are now subject to local land use and zoning standards.

It is anticipated that political pressure for some level of local regulatory standards for the East Lake and remnant mainland portion of Dare County will lead to the entirety of unincorporated Dare County being subject to some level of local land use regulation. Should grant funds become available, or should local economic conditions allow, it is anticipated that localized publicly owned and maintained wastewater districts will be established to remediate the environmental consequences of septic tanks that may have been improperly located or are otherwise incompatible with their setting. One example of this approach is in the village of Stumpy Point, where such a district has been created and wastewater treatment plant is nearing completion for the sole purpose of eliminating the environmental consequences of septic tanks placed in that village decades ago that in some cases discharge directly into surface waters.

Community Vision and Plan Objectives

All land use plans must contain a "community vision" which establishes a general vision for the future which is supported by general objectives for the community. The vision statement and general objectives are used for the development of more specific policy statements which are the foundation of the land use plan. The County has identified a community vision statement and associated general

objectives for the six management topics identified by CAMA, as listed below. This community vision and general objectives were identified as one of the first steps in the 2009 update of the Dare County Land Use Plan. This community vision statement and management goal objectives were referenced by the Planning Board and staff during the drafting of the policies for the 2009 update.

2009 Community Vision Statement

Manage the growth and development in a manner that preserves the historical, cultural, and natural resources that make Dare County a desirable place to live, work, and visit. Unincorporated Dare County should retain the characteristics typical of the entire County before the incorporated municipalities experienced urban-style growth. It is the goal of Dare County to shape the growth of the unincorporated villages in such a manner that they retain their historical character.

Objectives for Six CAMA Management Topic

Public Access

1. Maintain and enhance access to the beaches, sounds and other public trust areas of Dare County.
2. Explore options to protect working waterfront areas from redevelopment that may result in loss of access to public trust areas and loss of opportunities for our local fishing industry.

Land Use Compatibility

1. Use existing patterns of village communities as “nodes” of activity and living space in a manner that relates to the vast publicly owned lands and historical landmarks.
2. The preferred pattern of development is a mix of residential homes that are compatible with existing development and addresses the need for workforce housing.
3. Use land use planning and zoning techniques to abate the tendency of rapid growth communities to lose their “sense of place” or be homogenized by growth.
4. Direct development to reflect the historical architecture of North Carolina’s coastal heritage.
5. In making and evaluating land use policy and decisions, recognize the vast amounts of publicly owned land in Dare County and the resulting difficulties to address the varying, and sometimes competing, needs of the permanent residents and the seasonal visitors on the remaining privately-owned lands.
6. Commercial land use should be neighborhood or village oriented and not regional or urban.

Infrastructure Carrying Capacity

1. Develop a strategy for an alternative means of transportation that connects the various population nodes for pedestrians and bicycles.
2. Balance the infrastructure needs of the permanent population with the demands of the seasonal population.
3. Lobby state and federal agencies to provide the necessary and adequate transportation

improvements and permits for Dare County and northeastern North Carolina.

Natural Hazard Areas

1. Direct and design development to fit the natural conditions and landscape rather than modify the natural conditions and landscape to accommodate development.
2. Mitigate the impacts of development in natural hazard areas by participation in the federal flood insurance program and administration of the NC Division of Coastal Management local permit program for development in CAMA identified Areas of Environment Concerns (AECs).

Water Quality

1. Direct and design development to ensure sustainability of our important natural resources, especially ocean and estuarine water quality. Water quality is vital to the viability of our commercial fisheries, tourism, and recreational fishing and boating.
2. Support the preservation and protection of water quality of the County's surface water bodies, including the continuation of local monitoring programs and local initiatives to address stormwater runoff.

Local Areas of Concern

1. Protect and promote the unique nature of Dare County relative to the other coastal counties of North Carolina and how our distinctive characteristics should be recognized and fostered in the development of regulations that affect Dare County.
2. Participate in state and federal regulatory programs and initiatives to ensure that policies and goals of Dare County are appropriately addressed.
3. Advocate the capability of Dare County to effectively manage our natural resources and direct our economic development at the local government level.

Overview of Policies

The 2009 LUP update includes 82 policies grouped into the six management topics established by the CAMA land use planning guidelines. For a quick reference of the policies and implementation strategies, a separate handout will be prepared once the update has been certified. The narrative discussions included in Section Two should be consulted for a more thorough understanding of the policy statements and the analysis that was undertaken in the drafting of each policy statement. A brief summary of these noteworthy policy changes are detailed below:

Wastewater -- The 2003 policy on wastewater systems stated a preference for individual septic tank/drainfield systems and lack of support for package treatment plants. The 2009 policy does not include the preference for septic tanks systems and represents a shift from the previous policy in that centralized wastewater systems are recognized as viable alternatives to on-site wastewater systems. A new policy has also been added to address the use of drip irrigation wastewater systems that are the regulatory jurisdiction of the NC Division of Water Quality. The new policy states that such systems should not be considered for use in Dare County, especially in VE flood zones.

Working Waterfronts – This is a new issue for the 2009 LUP and a policy supporting efforts to preserve and protect working waterfronts and waterfront access has been included.

Residential Development – The policies on residential development continue the preferred status of single family residential homes however the policy statements recognize that efforts to address workforce housing needs may conflict with this preference and that other alternatives such as multifamily housing may be the best approach for the provision of workforce housing. This is a change from the 2003 LUP in which the policy stated that the private sector should address the workforce housing issue. The 2009 LUP acknowledges the County’s efforts and role in the workforce housing issue.

Energy Facilities – The 2009 update includes three policies under the energy facilities topic. The policy previously used in the 2003 LUP has been re-stated as the County’s position on the location of energy facilities in our jurisdictional land and waters. A second new policy has been included to address the possibility of a revised national energy policy and end of the federal moratorium on off-shore drilling that is currently in place. A third new policy has been added to address the development of alternative energy sources such as solar and wind Power.

Commercial/Industrial Development – The 2009 policies promote the development of commercial and industrial land uses such as medical facilities and education and research facilities which are deemed to be “green” industries or industries that do not represent a threat to our natural resources.

Future of Dare County

Dare County officials have spent a great deal of time and effort in the preparation of this latest version of the Dare County Land Use Plan. Considerable debate and discussion have gone into the development of these policies and maps that will be used to guide land use decisions over the course of the next several years. The protection of our natural resources and our local economy are irrefutably linked. The information in this document recognizes this linkage and its role in how we manage our growth, how we address our infrastructure needs, and how we direct the future land use patterns of Dare County.

Protection of our natural resources and how we balance this protection while ensuring the viability of our local economy is important for both the short-term and the long-term future of Dare County residents and their children. The County must remain diligent in our efforts to protect and preserve the natural resources that make Dare County the desirable place to live, work, and visit that it is today. However, the County must also remain diligent in monitoring federal and state regulatory initiatives and management plans that may have detrimental effects to the local economy and historic uses of our property and resources.

With over 80% of the land area in Dare County in public ownership, all infrastructure improvements, service facilities, housing, and other private development to meet the needs of the year-round and seasonal population must be located on the remaining 20% of the County's land area. The challenge of this unbalanced public-private ownership of land is unique to Dare County and no other area in the coastal region of North Carolina is faced with these same challenges in addressing the needs of its citizens and visitors. It is the County's position that all privately-owned land in unincorporated Dare County is "suitable" for development with the appropriate level of development determined by site specific characteristics. Some sites may be subject to varying layers of federal, state or local regulations and the scope of available uses limited by these regulations. However the site still offers some potential for development albeit at a more passive land use than other sites that are not challenged with severe development limitations. While other local governments may be afforded the opportunity to set aside certain areas that they have deemed to be "unsuitable" due to regulatory initiatives or natural hazards, we are not afforded this opportunity in Dare County because of the land constraints resulting from the large amount of publicly-owned areas. This position should not be interpreted as a lack of sensitivity to natural hazards or disrespect for our natural resources. We are unique and this unique nature requires that we work with what is available. The maps and policies of this plan have been written to reflect this position.

It is anticipated that Dare County will continue to experience growth in both our permanent populations and in our seasonal visitors. Maintaining a desirable quality of life for our permanent population is important as well as providing a quality vacation experience for our visitors. The future development of residential and commercial land uses in unincorporated Dare County is addressed by specific policies and implementation strategies designed to achieve these goals as we continue to grow. Displacement of our traditional working waterfronts has emerged as an issue of importance at the County and State level. Support for funding and other incentives to preclude the displacement or redevelopment of working waterfronts is vital to the preservation of the County's coastal heritage, to ensuring continued access to public trust areas, and to the protection of our commercial fishing industry.

Transportation improvements will continue to be of crucial importance to Dare County due to our reliance on bridges and ferries for everyday transit and emergency situations. The replacement and maintenance of our transportation infrastructure, especially Bonner Bridge, will remain a high priority

for the Dare County Board of Commissioners and our citizens.

The long-term management plan of the National Park Service for the beaches of the Cape Hatteras National Seashore and how it impacts access, both vehicular and pedestrian, to the beaches of the Cape Hatteras National Seashore is of significance to the future of Hatteras Island and Dare County. Closures of the beaches for protection of animal and plant species will greatly affect the local economy. Dare County must remain diligent to ensure that the concerns of the local residents and visitors are satisfactorily addressed in any management plans developed by the National Park Service.

Other issues that will affect the future of Dare County include insurance reform for coastal counties and lack of affordable housing for year-round residents and seasonal workers. These topics represent local issues of concern as identified by the community and Dare County officials as important and worthy of policy development.

SECTION ONE

Existing and Emerging Conditions

Section One

Existing and Emerging Conditions

Population (Permanent)

Dare County has experienced tremendous growth over the past several decades as evidenced by the tables included in this section. Although the preparation of this land use plan update precedes the 2010 census, population information from the North Carolina State Demographics Center is available for the years 2001-2005. The population numbers discussed in this section are for the entire area of Dare County including the six municipalities. In 2005, the population for Dare County is listed as 34,576 with 16,977 located in the unincorporated portions and 17,697 located in the municipalities or a total of 51.04% in the municipal areas and 49% of the permanent population residing in the unincorporated portions of Dare County. This 51/49 split will be used later in the sections that discuss population projects and seasonal populations. The land use plans for the individual municipalities should be consulted for more detailed demographic information for their respective areas. These population figures reflect the continued growth of the County's permanent population. During the decade of 1970 to 1980, the average annual growth rate was 6.7%. This average growth rate has decreased over the last decade with an average annual growth rate of 2.8% for the decade of 1990 to 2000. This growth rate, although lower than previous decades, indicates that Dare County continues to experience significant increases in our permanent population. Based on the information from the NC Demographic Center, the permanent population of Dare County increased from 29,967 in 2000 to 34,576 in the year 2005. This represents an increase of 4,609 or an average annual growth rate of 2.9% for the timeframe of 2000-2005.

The 2000 Census provided population figures for some areas of Dare County according to ZIP codes used by the US Postal Service. All of the villages in Dare County do not have individual ZIP codes and are often grouped with a ZIP assigned to a municipality. For instance, the Martins Point neighborhood uses the ZIP code 27949 which also serves the Towns of Kitty Hawk, Southern Shores, and Duck. Therefore the ZIP code population count for Martins Point is not available. Despite this lack of information for all villages, the ZIP code population figures do provide some insight on the breakdown of the permanent population in unincorporated Dare County. This total is consistent with the 2005 population figure of 16,977 for the unincorporated portions of Dare County mentioned in the preceding paragraph.

Table 1 – Population by Decade 1950-2000 (Source: US Census)

Population		Absolute Increase 1950-2000	
Year	Count	Year	Increase
1950	5,405	-----	
1960	5,935	1950-1960	530
1970	6,995	1960-1970	1060
1980	13,377	1970-1980	6382
1990	22,746	1980-1990	9369
2000	29,967	1990-2000	7221

Table 2 – Population by Year 2000-2005 (Source: US Census)

Population		Absolute Increase 2000-2005	
Year	Count	Year	Increase
2000	29,967	----	-----
2001	31,134	2000-2001	1,167
2002	32,216	2001-2002	1,082
2003	33,310	2002-2003	1,094
2004	34,223	2003-2004	913
2005	34,576	2004-2005	353

Table 3 – Average Annual Growth Rate by Decade

Decade	Average Annual Growth Rate
1950-1960	1.0%
1960-1970	1.6%
1970-1980	6.7%
1980-1990	5.5%
1990-2000	2.8%

Table 4 – 2000 Census Population for Unincorporated Dare County By ZIP Code

ZIP Code	Population
Avon 27915	786
Buxton 27920	1613
-Frisco 27936	401
Hatteras 27943	634
Rodanthe 27968	178
Waves 27982	50

ZIP Code	Population
Salvo 27972	339
Colington/KDH Outside 27948	3304
Manteo Outside 27954	4116
Wanchese 27981	1556
Mainland 27953 *	1182
TOTAL	14,159

The US Census records did not provide any specific records for the Stumpy Point ZIP 27978 or East Lake 27931 ZIP.

The 2000 Census provides some information on the composition of the permanent population of Dare County in terms of household size and age groups. Although this information is not current for 2008, it does provide background on the characteristics of our population, as detailed in Table 5.

Table 5 – Various Demographic Facts about Dare County -- 2000 Census

Average Household Size	2.34 persons	Persons under 5 years of age	1,547
Total Households	12,690	Persons 5-17 years of age	4,864
Family Households	8,451	Persons 18-64 years of age	19,432
Non-family Households	4,239	Persons 65 years and older	4,124
Male Population	15,098	Race – White	29,666
Female Population	14,869	Race – Black	797
High School Grad. or More	88.6%	Race –Hispanic	666
		Races – Other	111

Population (Seasonal)

With the Outer Banks being a popular vacation destination, our population fluctuates at any given time depending on the time of the year and weather conditions. The peak seasonal population occurs during the summer months of June, July, and August when all available accommodations are occupied at, or near, their maximum capacity and day visitors number in the thousands. Guests and family visiting local residents also is factored into the peak seasonal population. However, the population of Dare County does not revert to the permanent population following the passing of the Labor Day holiday which is traditionally thought of as the closing of the summer tourist season. During the spring and fall months, we continue to attract many visitors at decreased numbers resulting in a population significantly higher than our established year-round population of 34,576. There are also discernible increases during winter holiday periods and during three-day federal holiday weekends such as Presidents Day in February. For seven to eight months out of the calendar year, Dare County experiences increases in our year-round population although at lesser amounts than experienced during the height of the tourist season. The dynamic nature of our population makes it difficult to quote a static population figure. Although a count for our year-round population can be established,

this population is seldom experienced since many of the non-resident property owners choose to use their second homes on a part-time basis and visitors still make week-end trips or day trips.

The following information details the numbers used by the Dare County Planning Department to estimate the peak seasonal population. This peak figure is based on housing information from the Dare County Appraisal office, information from the Outer Banks Visitors Bureau, and population information from the North Carolina State Data Center. This peak population figure is considered to be reliable for the purposes of the Land Use Plan Update and represents a peak population for Dare County as a whole and not just the unincorporated portions of the County.

Peak Population Formula: maximum occupancy of residential units owned by non-resident property owners + maximum occupancy of other rental accommodations + day visitors estimate + permanent population with 25% increase for summer guests/family = peak seasonal population

Table 6 lists the figures used in the peak population formula. Column A is a breakdown of housing units from the Dare County Tax records for residential properties owned by non-resident property owners (non-Dare County ZIP codes were used as the filter on December 2008 records). A 12-person occupancy was assumed for each seasonal single family home, a 4-person occupancy used for manufactured homes, and a 6-person occupancy used for multifamily units. Column B is a listing of hotel units and campgrounds provided by the Outer Banks Visitors Bureau. For campground sites, a 4-person occupancy rate was used and for motel rooms a 3-person occupancy rate was used. Day visitors are accounted for in Column C. Column D represents the permanent population figure with a family/guest increase of 25%. These column totals are combined for the peak seasonal and the peak seasonal plus permanent.

Table 6 – Seasonal Population Estimates

Column A	Column B
<i>Residential Units Owned by Non-resident Property Owners</i>	<i>Other Accommodations</i>
SF 14,497 x 12 person occupancy = 173,964	Campground sites 1900 x 4 person occupancy = 7600
376 Manf. Homes x 4 person occupancy = 1504	Motel/hotel rooms 3028 x 3 person occupancy = 9084
2157 Multifamily x 6 person occupancy = 12,942	TOTAL = 16,684
TOTAL = 188,410	

Column C	Column D	TOTALS	
<i>Day Visitors – based on traffic count figures from Chesapeake Expressway for July 4th</i>	<i>Permanent population + summer guests/family (25% increase)</i>	Column A	188, 410
Estimate of 5,000 vehicles x 4 person occupancy per car = 20,000	34,576 + 8644 = 43,220	Column B	16,684
TOTAL = 20,000	TOTAL = 43,220	Column C	20,000
		Peak Seasonal Population	225, 094
		Column D	43,200
		Peak Seasonal + Peak Perm. Population	268,294

The peak population increases are significant in contrast to the permanent population. Comparing the seasonal population of 225,094 to the permanent population of 34,576 equates to a 6.5 to 1 ratio of visitors to year-round residents. This ratio is used later in this document to calculate the estimated visitor population growth.

Visitor count information from the Outer Banks Visitor Bureau for visitation at several of the local attractions is detailed in Table 7. As evident from the tables, the winter months have relatively modest amounts of visitors at each of the sites. These visitor numbers increase during the spring months with the peak month for visitors either July or August. The numbers taper off during the fall months to the lowest monthly totals in December.

Table 7– Visitation Figures at Key Tourist Sites (Source: Outer Banks Visitor Bureau)

Month	NC Aquarium			Aycock Brown Welcome			Cape Hatteras Seashore		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Jan	3936	4310	4468	5389	12447	11727	70200	73284	63073
Feb	5174	5322	4728	12896	12366	10399	73656	64510	56892
March	18257	10609	10849	25054	19427	19309	109717	119195	167919
April	20873	27277	28938	25226	27165	26208	136296	190575	181584
May	31710	26062	27762	41286	35197	34560	215245	182144	244211
June	59887	52141	52335	50007	45030	45720	363285	335866	373472
July	59579	54360	53926	57588	55524	50782	388888	313194	464692
Aug	54182	59291	55279	48544	47849	47310	322934	329836	310481
Sept.	22048	29882	27703	28075	35609	37119	284518	233994	240804
Oct	16248	15185	15011	27210	26284	28272	147152	177725	159694
Nov	9590	8427	10217	18968	18153	16594	130680	105887	97061
Dec	5894	6023	6064	11721	12091	10794	131460	102121	48026
TOTAL	307378	298889	297280	351964	347142	338794	2374031	2228331	2407909

Month	Fort Raleigh			Wright Brothers Monument			Cape Hatteras Lighthouse		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Jan	4702	5236	5107	8591	6193	8868	Closed	Closed	Closed
Feb	6506	4304	5562	10008	8465	7403	Closed	Closed	Closed
March	9073	7660	11681	50105	26298	28396	5897	Closed	Closed
April	18443	19524	18530	46495	49505	53332	11805	8090	5368
May	39728	34671	35481	45906	48673	49509	18094	16432	16065
June	39587	70171	64825	57339	67871	70372	29762	27441	28692
July	69175	55836	68135	95834	101425	102657	28541	32030	31258
Aug	42278	49273	52678	70213	70783	76918	23784	27254	25585
Sept.	15823	19586	22758	28565	31446	37646	11295	14846	14753
Oct	12281	17671	18132	23885	26593	27396	3324	3958	4143
Nov	13436	10794	13437	14568	19159	22217	Closed	Closed	Closed
Dec	6280	6050	6735	9479	11755	12807	Closed	Closed	Closed
TOTAL	277312	300776	323061	460988	468166	497521	132502	130051	125864

The major impact of the seasonal population is on the delivery of services and infrastructure support. Utility systems must be designed to meet the needs of the seasonal peak populations we experience in the summer months. The local highway improvements are especially impacted by the seasonal population influx with heavy traffic flows and delays in emergency response times due to the increased traffic volumes. The increased traffic volume is often cited as the one of the negative quality of life issues associated with the tourist economy. However, this negative impact is offset by the revenues received from the tourist population.

Housing

The Tax Appraisal Department files were used to research the number of residential structures (single family, multifamily and manufactured homes) in Dare County. Filters for Dare County ZIP codes were then applied to the totals to establish resident or non-resident ownership. Using this methodology, it was established that 57% of the residential structures in Dare County are owned by non-residents. The majority of the properties owned by non-residents are used for seasonal rentals and these units remain largely vacant during the off-season months. In the single-family category, 11,404 of the total 25,901 single family homes are owned by resident property owners or 44% count. Non-resident property owners represent 56% of the ownership of single family homes. For residential condominiums and townhouses, non-resident property owners also account for the largest percentage of owners (79%) which is consistent with the seasonal use of these types of residential structures. In the category of manufactured homes, resident property owners represent the largest percentage (69%) of ownership.

Table 8 -- 2008 Housing Units -- Total for Dare County (Source: Dare County Tax Records)

Number of Units	TOTAL	% of TOTAL
Single Family Homes	25901	86.7%
Manufactured Homes	1211	4.1%
Multifamily Structures	2728	9.2%
TOTAL	29840	100%

Table 9 -- 2008 Housing Units – Property Ownership Status

Occupancy	TOTAL	Resident		Non-resident	
		#	%	#	%
Single family homes	25901	11404	44.0	14497	56.0
Manufactured homes	1211	835	69.0	376	31.0
Multifamily Structures	2728	571	21.0	2157	74.0
TOTAL	29840	12810	43.0	17030	57.0

Using the same ZIP code filters, a number for the homes located in the unincorporated areas versus the six municipal areas can be calculated. Table 10 depicts the breakdown of the residential structures in the unincorporated areas versus the incorporated towns of Duck, Southern Shores, Kitty Hawk, Kill Devil Hills, Nags Head and Manteo. Overall, the incorporated areas account for the largest percentage of residential development (63%) compared to the unincorporated communities. The largest percentage of manufactured homes is located in unincorporated Dare County (86.0%) and the largest percentage of multifamily structures (86.0%) is located in the incorporated areas. In terms of single family homes, the incorporated areas contain 16,359 homes compared to 9,542 homes in the unincorporated areas.

Table 10 – 2008 Housing Units -- Incorporated Areas vs. Unincorporated Areas (Source Dare County Tax Records)

Occupancy	TOTAL	Incorporated		Unincorporated	
		#	%	#	%
Single family homes	25901	16359	63.0	9542	37.0
Manufactured homes	1211	174	14.0	1037	86.0
Multifamily Structures	2728	2343	86.0	385	14.0
TOTAL	29840	18876	63.0	10964	37.0

Since the 2003 LUP update, the housing market in Dare County experienced tremendous growth. Building permit information for unincorporated Dare County from the year 2002 to 2007 is provided in charts on page 17. This information is for the three geographic offices for Dare County building inspections: the north satellite office for Martins Point and Colington; the south office for the seven villages on Hatteras Island; and the central office for Roanoke Island and the Mainland villages. These figures do not represent building permit activity for any of the municipalities. Table 11 depicts the

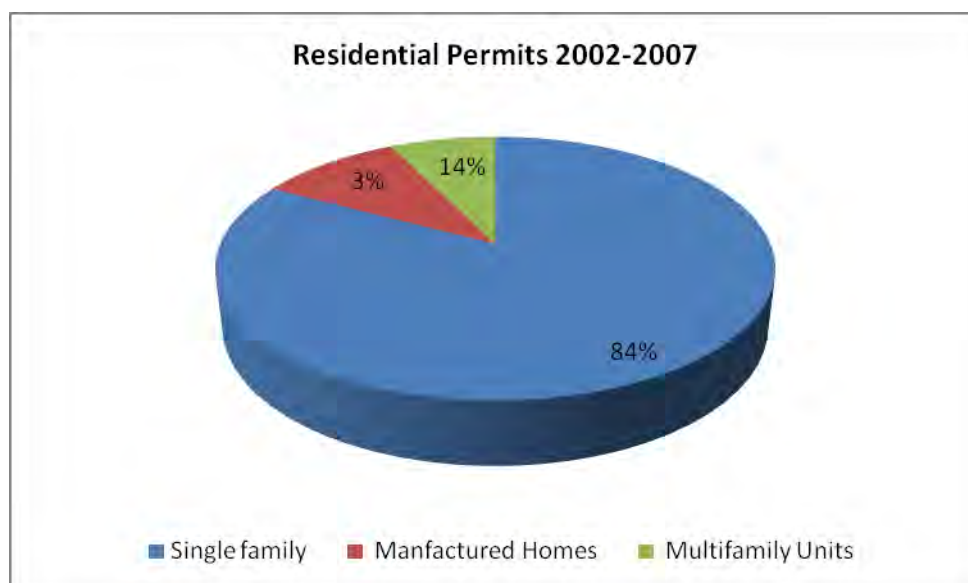
number of permits issued for each office categorized by type of residential permit (single family homes, manufactured homes, and multifamily units). The accompanying chart indicates the percentage of these categories compared to the total amount of residential permits. The vast majority of the residential permits issued are for single family homes. Permits issued for construction on Hatteras Island outpaced the permits issued in the other two offices for unincorporated Dare County, followed by the northern office for construction in Colington and Martin’s Point, and the central office on Roanoke Island. The number of permits issued in each office decreased over the five-year period as construction activity slowed throughout Dare County. This same trend has been experienced in the Dare municipalities also. The construction of multifamily units represents a negligible amount of the total residential permits as evidenced by Chart 1.

Table 11 – Building Permit 2002-2007 by Geographic Office Location (Source: Dare County Planning)

	South			Central			North		
	SF	MH	MF units	SF	MH	MF units	SF	MH	MF Units
2002	227	26	2	80	40	0	125	3	0
2003	169	20	2	68	25	2	98	17	0
2004	181	16	6	60	37	0	101	15	0
2005	152	9	2	49	20	0	80	0	0
2006	110	14	2	34	23	6	49	0	11
2007	67	4	12	37	12	0	31	0	0
2008	47	3	14	25	9	0	18	2	0
TOTAL	953	92	40	353	166	8	502	37	11

SF – single family homes; MH - -manufactured homes; MF units – multifamily dwelling units

Chart 1 – Percentage Breakdown of Residential Permits by Type of Permit

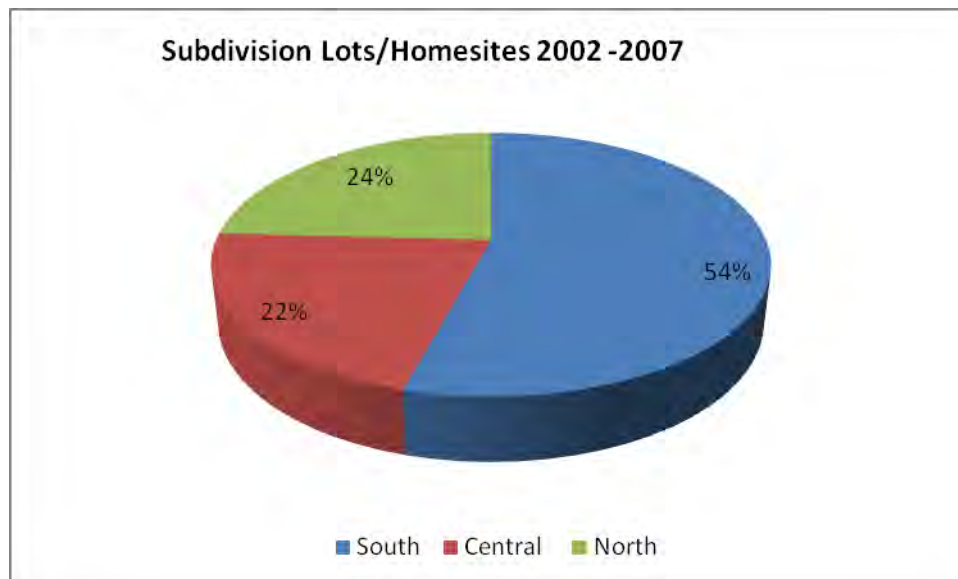


An analysis of the subdivision lots platted and recorded during the period of 2002 and 2007 was also completed. Table 12 indicates the number of subdivision lots recorded in the Dare County Register of Deeds according to the geographic location in unincorporated Dare County. This does not represent information on subdivisions in the municipal areas. The table also includes information on the number of housing units approved as group developments that have received site plan approval but not yet constructed. A group development consists of one parcel of land in which only the footprint of the structure is conveyed to an individual property owner and the remainder of the tract is owned in common ownership, similar to planned unit developments in other communities. Chart 2 presents the information in Table 12 as a chart to demonstrate the percentage of lots and homesites approved by geographic area. South represents Hatteras Island, central represents Roanoke Island and the Mainland, and North represents Colington and Martins Point.

Table 12 – Approved Subdivision Lots and Group Housing Developments (Source: Dare County Planning)

	South		Central		North	
	Lots	GD Units	Lots	GD Units	Lots	GD Units
2002	135	0	27	0	0	0
2003	124	0	0	0	33	0
2004	53	0	23	0	0	21
2005	65	12	82	0	0	0
2006	16	0	18	0	112	0
2007	0	19	19	0	11	12
2008	5	34	7	0	0	0

Chart 2 – Percentage Breakdown of Subdivision Lots/Homesites by Geographic Area



Economy

The local economy of Dare County continues to be driven by tourism and the services associated with this industry. The impact of tourism extends to the majority of the local retail businesses, many of which sell tourist-related goods. Local restaurants and food service companies also rely on seasonal visitors for the bulk of their business. The rental of residential homes as short-term accommodations in addition to the traditional hotels and cottage courts provide employment to a large number of property management officials and maintenance service companies. Other sectors of employment include construction and real estate sales, boat building, and commercial fishing.

The following table indicates the per capita income for Dare County from 2000 and 2005 compared to North Carolina as a whole and the median household income compared to North Carolina. Table 14 lists the different employment sectors for Dare County and the numbers of employees in each sector.

Table 13 – Per capita and Median Family Incomes For Dare County

	Per Capita Income	Median Household
2000 US Census	\$26, 853	\$42,411
2005 NC Dept of Commerce	\$33,463	\$46,125

Table 14 -- Employment Sectors 4th Quarter 2006 (Source: State Data Center)

	Employees	Percentage
Total All Industries	18,670	100.0
Total Government	2,915	15.6
Total Private Industry	15,755	84.4
Agriculture, Forestry, Hunting	4	0.0
Utilities	101	0.5
Construction	1,444	7.7
Manufacturing	778	4.2
Wholesale Trade	427	2.3
Retail Trade	3,350	17.9
Transportation & Warehousing	190	1.0
Information	239	1.3
Finance & Insurance	415	2.2
Real Estate Sales & Rentals	2,216	11.4
Professional & Technical Services	558	3.0
Administrative & Waste Services	601	3.2
Educational Services	1,023	5.5
Healthcare & Social Assistance	831	4.5
Arts, Entertainment & Recreation	507	2.7
Accommodations & Food Services	3,742	20.0
Other Services (non-public admin)	537	2.9
Public Administration	1,641	8.8
Unclassified	139	0.7

Trends in Population, Housing and Economy

First, population trends for the decades preceding the millennium have consistently placed Dare County (inclusive of its municipalities) as one of the fastest growing political jurisdictions in North Carolina. Retirees and in-migration are the dominant factors in this growth statistic and the bulk of the year-round population increase has been in the incorporated municipalities located along the oceanfront north of Oregon Inlet. The proximity of these towns to the ocean beaches and the availability of housing in a variety of sizes and prices is the driving factor in this population trend. Like other parts of North Carolina, Dare County has also seen a sudden and difficult to measure increase in its Hispanic population in the past decade. This increase is attributed to the availability of jobs in the low skill and seasonable labor market, particularly during the peak of the housing market expansion. With the onset of the recession of 2009, the migrant-worker population appears to have diminished as did the demand for low skill labor. Demographically Dare County does have a significant retirement population than some of the surrounding counties and is more affluent than adjacent counties in North Carolina. 13.3% of our population is age 65 or older versus 12.4 % for the entire State in the same age range with the median income of \$51,748 versus \$44,772 for the State. Although difficult to predict, it is anticipated that once economic conditions return to normal, another decade of moderate population growth in the range of 6-8% will ensue, led largely by the area's appeal to retirees who seek a pleasant environment and an escape from congested urban areas. Much of this growth will be absorbed by the existing housing supply as the elderly population reaches life expectancy limits. Should a robust development and construction market return, another burst in the migrant-worker population is likely as well. Moderate growth is the goal of the County as reflected in this Plan and its respective policies and maps.

Unlike previous decades of the 80's and the 90's, Dare County is currently experiencing a surplus in the availability of housing, occurring largely as a result of the recession of 2008-2009 forcing many middle income families to relocate. Many second homes that were trendy or upscale when built one to two decades ago have lost their appeal to more modern luxury offerings with a wider range of amenities. These homes will likely enter the market as moderately priced year-round homes during the coming decade. In addition, the County and several of the municipalities have adopted regulatory incentives for moderately priced housing in recent years. These incentives should abate the lack of affordable housing that has troubled the area in previous decades. Assuming an economic recovery leads the area out of a stagnant housing market, Dare County is well equipped to handle a decade of moderate growth in almost all infrastructure categories except transportation improvements.

The end of the recession of 2009 should prompt a return of the strong economic growth that made Dare County the envy of Northeastern North Carolina. Tourism, the principal economic foundation of the local economy remains solid despite the recession but has shown signs of diminishing visitation and spending compared to the robust decades of 1980-2000. Construction of housing has diminished, following a national trend due largely to the constraints on the lending industry. Secondary industries like boat building and services have also suffered during the economic recession. Long term, this trend

is expected to give way to a return to normal economic conditions sufficient to sustain the local economy. A new focus on medical and educational jobs should help create a sustainable year-round economy, as the Outer Banks Hospital plays a growing role in providing health care and the Coastal Studies Institute brings educational job opportunities. Tourism is considered to be the current and future economic base of the County and this Plan and its policies, focused on protection of environmental quality and a historical “sense of place”, enhances that economic base.

Population Projections

The State Data Center for North Carolina provides projections for permanent residents. These projections are detailed in Table 15. The growth in the permanent population is not projected to increase at the same rate as experienced in the 1970s and 1980s which is documented previously in Section One.

Table 15A - Permanent Population Projections For Dare County (Source: State Data Center)

	2010	2015	2020	2025	2030
Population	36,432	40,359	43,892	47,535	50,831
Increase		3,927	3,533	3,643	3,296
Rate % Per Year		2.1%	1.7.%	1.6%	1.3.%

Table 15B -- Permanent Population Projections for Unincorporated Dare County (based on assumption of 49% located in unincorporated Dare County)

	2010	2015	2020	2025	2030
Unincorp. (49%)	17,851	19,776	21,507	23,292	24,907
Increase	909	1925	1731	1785	1615
Rate % Per Year		2.1%	1.7.%	1.6%	1.3.%

Estimating the seasonal population is a difficult task. The State Data Center does not provide projections of this nature and it is left to local officials to establish these projections. Using the permanent population data and the seasonal population estimates calculated in Tables 16A and 16B, estimates have been made by the Planning Department for the seasonal to permanent populations for all of Dare County. These estimates are further broken down into estimates for just the unincorporated portions of Dare County. For the purpose of trying to establish projections of the seasonal population, the Planning Department staff assumed previous population trends will continue as outlined below:

- a. A review of the visitor information counts provided by the Outer Banks Visitors Bureau indicates modest increases in our visitor population over the past three years, see Table 7 on page 29. For the purpose of trying to establish projections of the seasonal population, it is assumed that this trend of slight increases in visitors will continue over the next several years.

- b. For the permanent population projections, it is assumed that 49% of the permanent residents will be located in the unincorporated areas of Dare County. Table 15B documents the projections for permanent population provided by the NC State Data Center for the entirety of Dare County. The second row of the table indicates the projected population for only the unincorporated areas of Dare County based on the assumption that 49% of the permanent residents are in unincorporated areas.
- c. Using the seasonal population estimates calculated in Table 6 for comparison to the permanent population from the State Data Center, the seasonal population represents a 6.5 to 1 ratio over the permanent population. This ratio has been applied to the permanent population projections provided by the State to estimate the seasonal population for 2010 to 2030 As illustrated in Table 16A
- d. For seasonal population projects for the unincorporated portions of Dare County, it is assumed that 30% of the total visitor population is accommodated in the unincorporated portions of Dare County. Table 16B lists the projections for the seasonal population for the unincorporated areas only.

Table 16A – Seasonal Population Projections for All Areas of Dare County

	2010	2015	2020	2025	2030
Permanent Population	36,432	40,359	43,892	47,535	50,831
6.5 to 1 Ratio	236,808	262,334	285,230	308,977	330,401
Increase Per 5-Year Period	13,732	25,526	22,896	23,747	21,424

Table 16B -- Seasonal Population Projections for Unincorporated Dare County

	2010	2015	2020	2025	2030
Seasonal Projection for Dare County	236,808	262,334	285,230	308,977	330,401
30% for Unincorporated Areas	71,042	78,700	85,569	92,693	99,120
Increase Per 5-Year Period	3,514	7,658	6,869	7,124	6,427

Natural Systems Analysis

Natural Features Review

The CAMA guidelines for land use planning provide that local governments shall analyze all natural features in their jurisdictions and to assess their capabilities and limitations for development. The 14-digit hydrological units (HUC) delineated by the Natural Resources Conservation Service is used as the basic unit of analysis of natural features. The United States is divided into and sub-divided into smaller hydrologic units which are classified into six levels. The first of these four levels are established by the US Geologic Survey: regions, sub-regions, accounting units, and cataloging units. The hydrologic units are arranged within each other, from the smallest (cataloging units) to the largest (regions). Each hydrologic unit is identified by a unique hydrologic unit consisting of two to eight digits based on the four levels of classification in the hydrologic unit system. The Natural Resources Conservation Service has further subdivided the cataloging units into smaller units – the 11-digit HUC watershed and the 14-digit (HUC) sub-watershed or local watershed. The smallest level, the 14-digit unit, allows for best level of analysis since it allows for the assessment of localized conditions and impacts. MAP 1 on page 42 indicates the 14-digit HUCS for Dare County.

Areas of Environmental Concern (AECs)

Dare County geographically divides itself into a Mainland area, a northern and southern stretch of islands and historic Roanoke Island. All geographic areas are surrounded by various water bodies that include the Atlantic Ocean to the east and to the west include the Pamlico Sound, the Albemarle Sound, the Roanoke Sound, the Croatan Sound, the Currituck Sound and the Alligator River. Development along the immediate ocean and estuarine shorelines is regulated by the North Carolina Division of Coastal Management through the Coastal Area Management Act (CAMA) adopted by the State of North Carolina in 1974. The CAMA statutes create four categories of Areas of Environmental Concern (AECs). These AECs are areas of natural importance deemed by the State of North Carolina as worthy of regulation. The four categories are as follows:

1. the estuarine and ocean system
2. the ocean hazard system
3. public water supplies
4. natural and cultural resources areas.

1. *The estuarine and ocean system* – There are four components of this system for which CAMA permits may be required – public trust areas, estuarine waters, coastal shorelines, and coastal wetlands.

Public trust areas are the coastal waters and submerged lands that the public has the right to use for recreational and fishing purposes. These areas often overlap with estuarine waters but also include many inland fishing waters. The following land and waters are considered public trust areas:

- all waters of the Atlantic Ocean and lands underneath from the normal high water mark on shore to the State's official boundary three miles offshore;
- all navigable natural water bodies and the lands underneath to the normal high water mark on shore.
- all waters in artificially created water bodies that have significant public fishing resources and are accessible to the public from other waters; and
- all water in artificially created water bodies where the public has acquired rights by prescription, custom, usage, dedication or other means.

Estuarine waters are the State's oceans, sounds, tidal rivers and their tributaries, which stretch across coastal North Carolina and link public trust areas, coastal wetlands, and coastal shorelines.

Coastal shorelines include all lands within 75 feet of the normal high water level of estuarine waters. Along Outstanding Resource Waters (ORW) this includes all lands within 575 feet of the normal high water mark.

Coastal wetlands are defined by CAMA regulations as any marsh in the twenty-county coastal region that regularly or occasionally floods by lunar or wind-drive tides and that includes one or more of ten specific plants species as listed below:

Spartina alterniflora: Salt marsh (smooth) cord grass

Juncus roemerianus: Black needlerush

Salicornia spp: Glasswort

Distichlis spicata: Salt (or Spike) Grass

Limonium spp: Sea Lavender

Scirpus spp: Bulrush

Cladium jamaicense: Saw Grass

Typha spp: Cattail

Spartina patens: Salt Meadow Grass

Spartina cynosuroides: Salt Reed or Giant Cord Grass

Freshwater swamps and inland, non-tidal wetlands are not under CAMA permit jurisdiction unless specifically designated as AECs. However, these types of wetlands are regulated under the federal Clean Water Act and may be subject to Army Corps of Engineers permit jurisdiction.

AECs can be mapped on a general basis for unincorporated Dare County based on the boundary guidelines established by CAMA. However for site specific purposes, the AEC boundary must be established by Division of Coastal Management personnel by individual site visits and field evaluations. The boundaries of any AEC are subject to change over time due to weather conditions and events.

2. *The Ocean Hazard System* – There are four components of this AEC: the ocean erodible AEC, the high hazard flood AEC, the inlet hazard AEC, and the unvegetated beach AEC.

The ocean erodible AEC is applicable to oceanfront lands that are subject to long-term erosion and significant shoreline change. The seaward boundary of the ocean erosion AEC is the mean low water

line and the landward boundary is measured from the first line of stable natural vegetation plus an erosion rate based on an annual rate of the particular section of shoreline. The width of the AEC varies depending on the oceanfront location and must be established by CAMA personnel on a site-by-site basis. Maps of the ocean erodible area are maintained by CAMA.

The high hazard flood AEC involves lands subject to flooding, high waves, and heavy water currents during a major storm. These areas are also known as the “V” flood zones on the federal flood insurance rate maps prepared by the Federal Insurance Administration. These “V” zones can be located on both ocean shoreline and estuarine shorelines. The flood hazard AEC often overlaps areas designated as ocean erodible and inlet hazard AECs. Flood maps for the unincorporated areas are available in the Dare County Planning Department offices.

The inlet hazard AEC applies to lands next to ocean inlets due to their vulnerability to erosion and flooding. Each inlet found along the North Carolina coast is analyzed by the Division of Coastal Management and a map prepared based on their analysis of the inlet migration, inlet features (both natural and manmade) and previous inlet locations. For each inlet, the inlet hazard AEC is estimated to be large enough to cover those lands where the particular inlet can be expected to migrate. Inlet hazard AECs range in width from 250 feet for inlets that are stable and to about 4,000 feet for those inlets that are more dynamic. There are no inlet hazard AECs in Dare County. The lands on either side of Oregon Inlet and Hatteras Inlet are federal property and therefore not designated as an AEC By the State.

Unvegetated beach AECs are beach areas within the ocean hazard area where no stable natural vegetation is present and may be designated as an unvegetated beach area on either a permanent basis or a temporary basis. An area appropriate for permanent designation as an unvegetated beach area is a dynamic area that is subject to rapid unpredictable land changes due to wind or wave action. A temporary unvegetated beach status may be applied to areas that are suddenly unvegetated as a result of hurricanes or other major storm events. An area of Hatteras village was designated as an unvegetated beach AEC following Hurricane Isabel until the natural vegetation was re-established along the oceanfront. This area is no longer designated as an unvegetated AEC.

3. *Public Water Supply AECs* -- This AEC includes two classifications of AECs—the small surface water supply watershed AEC and the public water supply wellfields. The small surface water supply watershed AEC protects coastal basins that contain a public water supply classified as A-II by the NC Environmental Management Commission. In Dare County, this AEC applies to the Fresh Pond located at the border of Nags Head and Kill Devil Hills.

Public water supply wellfields are areas of rapidly draining sands extending from the land surface to a shallow groundwater table that supplies public drinking water. The Dare County wellfield in Buxton Woods on Hatteras Island is designated as a public water supply AEC.

4. *Natural and cultural AECs* – These are specific sites that have been designated for protection because they represent environmental or cultural resources that are important to the entire State of

North Carolina. They may receive this designation due to their role in maintaining the coastal ecosystem, scientific or education research resources, historical significance, or aesthetic value. There are four types of natural and cultural AECs – coastal complex natural areas, coastal areas that sustain remnant species, unique coastal geologic formations, or significant coastal archaeological resources and significant coastal historical archaeological resources.

Coastal complex natural areas are lands that support native plants and animal species, providing habitats that are unchanged by human activity and are considered key components of natural biological systems. They provide a historical perspective for scientific and educational research in coastal habitats and changes in the coastal habitats and they are valuable scenic or cultural resources. Development may be permitted in these coastal complex natural areas if the development is found to provide benefits for the habitat or enhances the area’s biological, scientific, or educational values.

Coastal areas that sustain remnant species provide habitat for native plant or animal species that the NC Wildlife Resources Commission or the federal government has determined to be rare, threatened, or endangered. These areas also provide a valuable resource for scientific and education purposes.

Unique coastal geologic formations are areas that contain notable examples of geologic formations or processes found in coastal regions. Jockey’s Ridge in Nags Head has been designated by the State of North Carolina as a unique coastal geologic formation.

Significant coastal archaeological resources and significant coastal historical archaeological resources contain objects, features, or buildings that are important to the state’s or coastal region’s history; are associated with historical events or the lives of historically important people; or represent a distinctive characteristic of a type, period or method of construction. There are no sites in Dare County that have received this designation.

MAP 2 on page 43 depicts the ocean hazard system AECs, the estuarine shoreline AECs, and the Buxton Woods public wellfield AEC. This map is for illustrative purposes only and does not represent the actual location of AECs on individual lots. Specific lot evaluations by CAMA officials are needed to determine the exact location and extent of such AECs. Erosion rate maps are also prepared by CAMA are included in the document as MAPS 5A-5I.

Soil Conditions

Soil characteristics and their ability or inability to accommodate on-site wastewater systems play a crucial role in land development and construction in Dare County. Within the boundaries of Dare County, soil conditions vary based on the geographic region of the County and can also vary significantly within relatively small areas. On the Dare County Mainland, natural ground elevations range from 3 to 7 feet above mean sea level and soil conditions are predominantly poorly drained with thin organic loam to silt loam surface layers. Along the barrier island portions of Dare County, the soils are generally well to moderately well drained sand. On Roanoke Island, soils range from loamy sand surfaces with sandy clay loamy subsoils to silty clay loam surfaces. The Dare County Soil Survey provides more specific information on soil types found in Dare County and is the best resource on this

information. This document is available from the Dare County Soil and Water Conservation Service office in Kill Devil Hills, NC. The Soil and Water Conservation Service has divided the County into four general categories for wastewater suitability: suitable, marginal, unsuitable, and questionable. A table summarizing these soil types is included below:

Table 17 – Classification for Soil Types for Wastewater Suitability (Source: Dare County Soil Survey)

Soil Type	Depth to Water Table	Suitability Designation
Duneland	6.0'	Suitable
Fripp Fine Sand	6.0'	Suitable
Newhan Fine Sand	6.0'	Suitable
Newhan Complexes	Varies	Suitable
Pactolus-Wakula-Wagram-Associates	NA	Suitable
Corolla Fine Sand	1.5' to 3.0'	Marginal
Corolla Fine Sand	1.5' to 3.0'	Marginal
Beach Foredune Association	0 to 3.0' foredunes 6.0'	Unsuitable
Corolla Duckston Complex		Unsuitable
Hobonny Soils	0 to 2.0'	Unsuitable
Duckston Fine Sands	1.0' to 2.0'	Unsuitable
Duckston Fine Sands, Forested	1.0' to 2.0'	Unsuitable
Carteret Soils, High	1.0' to 3.0'	Unsuitable
Conaby Soils	0 to 1.0'	Unsuitable
Currituck Soils	0 to 3.0'	Unsuitable
Wasada-Bladen Association	NA	Unsuitable
Capers Association	NA	Unsuitable
Dredge Spoil	3.0'	Questionable
Madeland	0 to 2.0'	Questionable

MAP 3 included in this section on page 44 depicts soil conditions throughout Dare County based on information from the Dare County Tax Department. The Tax Department information is only classified into three categories: poor, satisfactory, and unsatisfactory. This map is for illustrative purposes only due to its scale and cannot be used for permitting purposes. The Dare County Health Department or a soil scientist must perform an on-site evaluation of an individual lot to determine the types and location of soils.

Throughout Dare County, natural soil conditions have been altered by drainage improvements and from the introduction of soils from other sources. The placement of fill on undeveloped lots to raise the natural ground elevation or to accommodate wastewater systems is common practice. Another factor is the presence of “freshwater” or non-coastal wetlands that are regulated by the US Army Corps of Engineers under the Clean Water Act. According to the Corps, non-coastal wetlands are “areas that are periodically or permanently inundated by surface or groundwater and support vegetation adapted for life in saturated soils.” Certain land development activities in freshwater wetlands or in proximity to freshwater wetlands may be permitted by the Corps of Engineers. Individual lot evaluations to determine the presence and extent of freshwater wetlands must be undertaken by property owners. The criteria used by the Corps of Engineers in the determination of non-coastal wetlands are subject to interpretation and subject to change based on Corps

administration. MAP 4 on page 45 provides a general outline of coastal and non-coastal wetlands that was produced as part of the LUP update process. This map should not be used by any individual or governmental agency for permitting purposes since both coastal and non-coastal wetlands must be identified by specific on-site evaluations.

Another component to be addressed is the erosion of soils in certain areas of Dare County. As discussed in the previous section on Areas of Environmental Concern, the Division of Coastal Management has designated erosion-prone areas along the oceanfront. These areas are periodically mapped and an erosion rate established by the Division of Coastal Management to account for the rate of erosion in a certain area. The erosion rate is the basis for oceanfront setbacks used by CAMA. The erosion rate maps for Dare County can be found beginning on page 46, MAPS 5A-5I.

Water Quality Classifications

The North Carolina Division of Water Quality assigns primary and supplemental classifications to all surface (both tidal saltwater and freshwater) waters in North Carolina. All water must at least meet the standards for Class C (fishable/swimmable) waters. The other primary classifications provide additional levels of protection for primary water recreation contact (Class B) and drinking water (Water Supply Classes I- V). Supplemental classifications are sometimes added to water bodies by the Division of Water Quality to provide additional protection to waters with special uses or values. To find the classification for a specific water body in North Carolina, you can contact the Division of Water Quality or consult their webpage, www.h2o.enr.state.nc.us. The following table lists the different classifications used by the Division of Water Quality. MAP 6 on page 55 depicts the waters surrounding Dare County and their associated water quality classification as determined by the State of North Carolina.

Table 18 – Water Quality Classifications Assigned by North Carolina

Class C	Waters protected for uses such as secondary recreation, fishing, wildlife, fish consumption, aquatic life including propagation, survival and maintenance of biological integrity, and agriculture. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner.
Class B	Waters protected for all Class C uses in addition to primary recreation. Primary recreational activities include swimming, skin 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.
Water Supply I (WS-I)	Waters protected for all Class C uses plus waters used as sources of water supply for drinking, culinary, or food processing purposes for those users desiring maximum protection for their water supplies. WS-I waters are those within natural and undeveloped watersheds in public ownership. All WS-I water are HQW (high quality waters) by supplemental classification.
Water Supply II (WS-II)	Waters used as sources of water supply for drinking, culinary, or food processing purposes where a WS-I classification is not feasible. These waters are also protected for Class C uses. WS-II waters are generally in predominantly undeveloped watersheds. All WS-II waters are HQW (high quality waters) by supplemental classification.
Water Supply III (WS-III)	Waters used as sources of water supply for drinking, culinary or food processing purposes where a more protective WS-I or WS-II classification is not feasible. These waters are also protected for Class C uses. WS-III waters are generally in low to moderately developed watersheds.
Water	Waters used as sources of water supply for drinking, culinary, or food processing purposes where a WS-

Supply IV (WS-IV)	I, WS-II, or WS-III classification is not feasible. These waters are also protected for Class C uses. WS-IV waters are generally in moderately or highly developed watersheds or Protected Areas.
Water Supply V (WS-V)	Waters protected as water supplies which are generally upstream and draining to Class WS IV waters or waters used by industry to supply their employees with drinking water or as waters formerly used as a water supply. These waters are also protected for Class C uses.
Class SC	All tidal waters protected for secondary recreation such as fishing, boating, and other activities involving minimal skin contact, fish and noncommercial shellfish consumption, aquatic life propagation and survival; and wildlife.
Class SB	Tidal salt waters protected for all SC uses in addition to primary recreation. Primary recreational activities include swimming, skin 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 SA	Tidal salt waters that are used for commercial shellfishing or marketing purposes and are also protected for all Class SC and Class SB uses. All SA waters are also HQW (high quality water) by supplemental classification.
High Quality Waters (HQW)	Supplemental classification intended to protect waters which are rated excellent based on biological and physical/chemical characteristics through Division of Water Quality monitoring or special studies, primary nursery areas designated by the NC Division of Marine Fisheries Commission, and other functional nursery areas designated by the Marine Fisheries Commission. The following waters are HQW by definition: WS-I, WS-II, SA, ORW (outstanding resource waters), primary nursery areas (PNAs) as designated by the Marine Fisheries Commission, and waters for which the Division of Water Quality has received a petition for reclassification to either WS-I, or WS-II classification.
Outstanding Resource Waters (ORW)	All outstanding resource waters are a subset of High Quality Waters. This supplemental classification is intended to protect unique and special waters having excellent water quality and being of exceptional state or national ecological or recreational significance. To qualify, waters must be rated Excellent by DWQ and have one of the following outstanding resource values: Outstanding fish habitat and fisheries; unusually high level of waterbased recreation or potential for such kind of recreation; some special designation such as NC Natural and Scenic River or National Wildlife Refuge; important component of state or national park or forest; or special ecological or scientific significance (rare or endangered species habitat, research or educational areas).
Swamp Waters	Supplemental classification intended to recognize those waters which have low velocities and other natural characteristics which are different from adjacent streams.

In addition to the classifications of surface water bodies applied by the Division of Water Quality, the NC Division of Marine Fisheries applies classifications to salt marshes and estuaries along the coastal region that serve as the nursery grounds for the vast majority of our state's fisheries. There are three categories of nursery areas used by the Division of Marine Fisheries – primary nursery areas, secondary nursery areas, and special secondary nursery areas. Primary nursery areas (PNAs) are located in the upper portions of creeks and bays. These areas are usually shallow areas with soft, muddy bottoms and are surrounded by marshes and wetlands. Low salinity and the abundance of food in these areas are ideal for young fish and shellfish. To protect these juvenile fisheries, many commercial fishing activities are prohibited in these waters, including the use of trawl nets, seine nets, dredges or any mechanical methods used for taking clams or oysters. In North Carolina, there are 80,144 acres of designated Primary Nursery Areas. Maps of the specific areas in Dare County that are designated as PNAs can be found on page 56 and page 57 of this document. Secondary nursery areas are located in the lower portions of creeks and bays. As young fish and shellfish (primarily blue crabs and shrimp) develop and grow, they move into the secondary nursery areas. Trawling is not permitted in designated Secondary Nursery Areas. In North Carolina, there are 35,502 acres of designated SNAs.

Map 7A depicts areas in Dare County designated as SNAs. Special secondary nursery areas are located adjacent to Secondary Nursery Areas but closer to the open waters of the sounds and the ocean. These waters are closed to trawling activities during those periods of the year when juvenile species are abundant. There are 31,362 designated acres of Special Secondary Nursery Areas in North Carolina. Maps of Special Secondary Nursery Areas in Dare County are depicted on MAP 7B on page 57.

Flood Hazards and Storm Surge Areas

Dare County is surrounded by many water bodies. As a result, many areas of Dare County are located in flood hazard areas or storm surge areas. Flood hazard areas are those areas likely to experience flooding in a 100-year flood. The Federal Emergency Management Agency (FEMA) produces flood maps (Flood Insurance Rate Maps or FIRMS) for all of Dare County depicting the various flood zones that apply in Dare County. The FIRMs depict flood zones using the following designations:

Zone AE	Base flood elevations determined
Zone VE	Base flood elevations determined, coastal flood with velocity (wave action)
Zone X	Areas determined to be located outside of 500-year floodplain

The site specific flood zone designation affects construction methods and elevations of buildings. Most areas of Dare County are located in floodplains and subject to base flood elevations of 8 feet. Some areas along the oceanfront and immediate estuarine shoreline are located in VE zones, which establish higher base flood elevations than AE designated zones. Some areas in Dare County are located in X zones and not subject to floodplain regulations. These areas are generally found in Buxton Woods on Hatteras Island, northern portions of Roanoke Island, and some small areas of Colington. A map of the general layout of the AE, VE, and X zones is included as MAP 8 located on page 58. The FIRM maps are available in the office of the Dare County Floodplain Manager.

In addition to flood hazard areas, storm surge associated with hurricanes and tropical storms is an issue in Dare County. Storm surge is the increased water levels associated with hurricanes and tropical storms that results in flooding along the shorelines. The exact areas impacted by storm surge depends on each particular storm and its intensity, forward speed, and angle of approach to the Dare County shoreline. FEMA produces storm surge models based on the Saffir-Simpson hurricane ranking chart (category 1-5). The storm surge areas for Dare County are also depicted on the FIRM maps used for base flood elevation and floodplain management. MAP 9A and Map 9B illustrate these storm surge areas (pages 59-60).

Fragile Areas

Dare County has a heritage rich in history with the origin of the first English settlement on Roanoke Island and the first powered flight by the Wright Brothers in Kill Devil Hills. These sites are under federal ownership in recognition of their historical significance to the nation. There are many other areas in Dare County, due to their historical significance or rich abundance of natural resources, are in

public ownership and protected from development. These areas include Jockey’s Ridge, the Cape Hatteras National Seashore, Pea Island Wildlife Refuge, the Alligator River Wildlife Refuge, and the Buxton Woods coastal preserve. Most of the areas in unincorporated Dare County that possess valuable wildlife and mineral resources are under federal or state ownership, thereby protecting these resources from development or degradation.

In addition to the State owned land in the Buxton Woods maritime forest on Hatteras Island, Dare County has applied special environmental zoning regulations to Buxton Woods. These zoning regulations establish one-acre minimum lot sizes, wetland buffers, and land clearing restrictions in an effort to limit development impacts on the vegetative canopy of the Buxton Woods maritime forest. The AEC map, Map 1 on page 42, depicts the Buxton Woods area.

The NC Natural Heritage Program (NHP) is a non-regulatory program that maintains a list of Significant Natural Heritage Areas. Identified areas are based on the NHP’s evaluation and inventory of rare natural animal and plant species, rare or high-quality natural communities, and geologic features. The rarity of these elements and the quality of their setting determines a site’s significance rating. The sites are representative of the natural diversity of the region and therefore identified as worthy for protection. Most of the Dare County sites included on this list are in public ownership. Some areas in Dare County which are privately-owned have been identified by the NHP but this identification does not translate into any level of protection from development or right to public access.

The Significant Natural Heritage Areas identified by the NHP in Dare County include the following publicly-owned and privately-owned sites:

Cape Hatteras Point	Jockey’s Ridge
Colington Woods	Kitty Hawk Woods
Bodie Island Lighthouse Pond	Nags Head Woods
Buxton Woods	Oregon Inlet/Roanoke Sound bird nesting islands
Fort Raleigh	Pea Island National Wildlife Refuge
Hatteras Island Middle Section	Roanoke Island Juncus marsh
Hatteras Inlet bird nesting islands	Southern Shores Cypress swamp
Hatteras sand flats	

A map (Map 10) of historic resources is found on page 61.

Mapping of Natural Features

As part of the update process, Dare County is required to review the natural features and conditions present in unincorporated Dare County. This review includes the classification of natural features into three categories that identify the capabilities and limitations of the natural features and conditions to support development activities. Maps produced as part of this analysis by the Dare County Information Technology Office are included in the plan and are available to the general public. The three general classifications of land as described in the CAMA land use plan guidelines are as follows:

Class 1 – land containing only minimal hazards and limitations that may be addressed by commonly accepted land planning and development practices;

Class 2– land containing development hazards and limitations that may be addressed by methods such as restrictions on types of land uses, special site planning, or the provision of public services;

Class 3 – land containing serious hazards for development or lands where the impact of development may cause serious damage to the functions of natural systems.

Class 1 represents those areas that have only minimal limitations or regulations to address before development can occur. Class 2 lands are those areas with an increased amount of limitations or standards that must be dealt with before development can occur. Class 3 lands are those lands that represent the highest level of regulatory interaction or overlay of government regulations. For this discussion, development is considered the issuance of a building permit and does not refer to any specific class of development or intensity of land use. The CAMA guidelines do not specify which natural features are to be included in each class. This assignment is left to the discretion of the local government based on their knowledge and analysis of the conditions in the area. Table 19 lists the natural features found in Dare County.

Table 19 – Natural Features Listing

Natural Feature/Condition
AECs
Coastal wetlands
Estuarine waters
Estuarine shoreline
Public trust areas
Unvegetated beach area
Ocean erodible area
High flood hazard area
Public Water Supply wellfield
Soils
Slight wastewater limitations
Moderate to severe wastewater limitations
Slight erosion hazards
Moderate erosion hazards
Natural Feature/Condition
Non-coastal wetlands

Flood Hazards
Located in X/AE zone
Located VE zone
Water Quality
HQW/ORW classification
Fragile Areas
Buxton Woods SED-1 maritime forest

During the land use plan update process, the Planning Board discussed these natural features and their impact on the development process. From this discussion, the Planning Board assigned an appropriate classification to each natural feature as depicted in Table 20. The class ranking assigned by Dare County reflects the analysis of the natural features and how these natural features are addressed in land use development in unincorporated Dare County. The classifications represent a realistic picture of conditions in unincorporated Dare County and the limitations associated with development that are addressed on a day-to-day basis. When compared to the local use plans of other coastal counties and the technical manual for land use plan development, Dare County officials made some modifications to the default model of natural features classifications to reflect the uniqueness of our area. These limitations are recognized and addressed through the use of acceptable land use planning and building techniques. One example is the 100-year floodplain and flood zones established by the federal government. The first flood maps for Dare County were adopted in 1978. Since that time, construction techniques, such as the elevation of buildings to the established minimum base flood, have been used to mitigate flood hazards. During the Planning Board discussion of these classifications, it was noted that some of the natural features listed in Table 19, such as soils subject to slight or moderate erosion, are difficult to map whereas the ocean erodible areas are easily identified on CAMA erosion rate maps. Therefore, the class rankings included in Table 20 do not include soils with slight to moderate erosion hazards but only list the ocean erodible AEC.

The natural features assigned a Class 1 ranking are those areas in Dare County that have only minimal limitations or regulations to address before development can occur. An example would be a lot that is located in an AE flood zone on the FIRM maps and all proposed structures must be elevated consistent with the federal floodplain rules. Class 2 lands are those areas which involve an increased amount of regulatory standards that must be addressed or permits that must be secured before development can occur. An example of a class 2 ranking would be a lot that was located in a CAMA estuarine shoreline AEC and a CAMA permit was necessary. Class 3 lands are those lands that represent the highest level of regulatory interaction or overlay of standards associated with development activities. An example of this would be coastal wetlands that are restricted by the CAMA use standards. These classifications are not designed to prohibit development activities but are representative of the levels of natural limitations and/or regulatory programs that are associated with development activities. All federal lands are depicted as “government” property and not assigned a class 1, 2, or 3 ranking.

Table 20 Class Assignments of Natural Features

Class 1 Features	Class 2 Features	Class 3 Features
Soils suitable for wastewater	Estuarine Shoreline AEC	Coastal Wetlands AEC
X/AE flood zones	Ocean Erodible AEC	Estuarine Wetlands AEC
Non-wetland soils	High Hazard AEC	Public Trust AEC (area/waters)
	Public Water Supply AEC	Unvegetated Beach AEC
	Non-coastal wetlands	
	Soils --Moderate to severe wastewater limitations	
	VE Flood Zones	
	HQW/ORW Water Quality Classification	
	Buxton Woods SED-1 Zoning Area	

Using the analysis of the natural features and their associated class ranking, an environmental composite map has been developed with the overlays of the various class rankings. (Please note, an overall map has been produced for the entirety of unincorporated Dare County. However, sectional maps have also been included since unincorporated Dare County covers so much land area and is difficult to map). The environmental composite map and associated sectional maps can be found on pages 62-66. The map depicts the three classes of natural features as described in the preceding narrative and identifies government-owned areas also. The GIS-based system used one acre units for the map.

The environmental composite map is required to be developed as part of the land use plan guidelines. However, the map should not be used by federal, state or local permitting agencies in reviewing development proposals or performing site evaluations. The map is intended as an illustrative overlay of natural features in unincorporated Dare County and how these natural features may impact the development process.

Environmental Conditions

Water Quality

Basinwide plans for the seventeen major river basins in North Carolina are prepared and updated by the State of North Carolina. These basinwide plans are a non-regulatory effort used by the State of North Carolina to restore and protect water quality in the State's water bodies. These basin plans are prepared by the NC Division of Water Quality and coordinated with many other State agencies, local governments and stakeholders in the state. The goals of the basin plans are to identify water quality problems and impaired waters and to protect high value resource waters.

The majority of Dare County is located in the Pasquotank River Basin. There is a small area of Dare County located in the Tar-Pamlico River Basin.

The first basinwide plan for the Pasquotank River basin was completed in 1997 and has been updated in 2002 and 2007. The Tar-Pamlico basin report was originally prepared in 1994 then updated again in 1999 and 2004. The latest updates provide a good reference for the status of the waters that surround Dare County. The Pasquotank River basin covers 3,635 square miles of low-lying lands and open waters. This river basin includes the Albemarle Sound, the Currituck Sound, the Croatan Sound, the Roanoke Sound, and the Pamlico Sound. The Pasquotank River basin is part of the Albemarle-Pamlico estuarine system, the second largest estuarine system in the United States. The Pasquotank River basin is further subdivided into smaller sub-basins. For Dare County, this includes sub-basin 03-01-51, sub-basin 03-01-55, and sub-basin 03-01-56. Sections from the 2007 Pasquotank River Basin Plan for each of these sub-basins and from the Tar-Pamlico Basin plan are included as Appendix 5. This information includes maps that depict the DWQ water classifications for the water bodies that surround Dare County and information on the areas within each sub-basin that have been classified as “Impaired” or “Supporting” relative to the use categories monitored for the basinwide plans --aquatic life, recreation, fish consumption, and shellfish harvesting. The basin wide reports also discuss trends in water quality for each sub-basin area.

Most of the waters included in sub-basin 03-010-51 are brackish estuarine waters including the Albemarle, Croatan, and Roanoke Sounds and the Alligator River to the Intracoastal Waterway. There is one major National Pollutant Discharge Elimination System (NPDES) discharge in this sub-basin. The major NPDES facility is the Manteo Wastewater Treatment Plan. There have been significant non-compliance issues identified with this facility in the past two years. Many of the waters in sub-basin 03-01051 are classified as shellfish harvesting (Class SA) and many also have the supplement classification of High Water Quality (HQW) or Outstanding Resource Waters (ORW). Along some of the creeks and tributaries of this sub-basin, the waters are listed as shellfish prohibited or impaired due to fecal coliform bacteria levels. These areas are located along the immediate shorelines. Stormwater runoff from impervious surfaces and agricultural sources are listed as factors of concern for this sub-basin.

Sub-basin 03-01-55 consists of the Pamlico Sound from Oregon Inlet to Hatteras Island and contains Black Lake and Stumpy Point Bay on the Mainland of Dare County. There are no major NPDES facilities listed in the sub-basin report. There are three minor NPDES permitted facilities in this subbasin, all of which are associated with the reverse osmosis water treatment plants, the Cape Hatteras RO plant, the Stumpy Point plant, and the RWS plant in Rodanthe. Many of the waters in sub-basin 03-01051 are classified as shellfish harvesting (Class SA) and many also have the supplement classification of High Water Quality (HQW) or Outstanding Resource Waters (ORW). Along some of the creeks and tributaries of this sub-basin, the waters are listed as shellfish prohibited or impaired due to fecal coliform bacteria levels. These areas are located along the immediate shorelines. The construction of a centralized wastewater system for Stumpy Point will allow for the replacement of many older, failing

septic systems. Once this system is operational in 2010, water quality should improve in this sub-basin in the Stumpy Point Bay area.

Sub-basin 03-01-56 includes the Outer Banks from the northern portion of Dare County south of Oregon Inlet including portions of Currituck Sound, Albemarle Sound, and Roanoke Sound. There are no major point-source NPDES facilities located in this sub-basin area. The only minor NPDES permit in the subbasin is for the Dare County reverse osmosis plant in Kill Devil Hills. Many of the waters in this sub-basin are classified Class SA for shellfish harvesting. Along some of the creeks and tributaries of this sub-basin, the waters are listed as shellfish prohibited or impaired due to fecal coliform bacteria levels. These areas are located along the immediate shorelines. Runoff from adjacent land use is identified as an issue of concern within this sub-basin area.

The Tar-Pamlico basin covers 5,571 square miles and includes the Pamlico River, a tidal estuary that flows into the Pamlico Sound. A small portion of this basin includes Dare County, sub-basin 03-03-08. A map included in Appendix 5 depicts the area of Dare County that falls in sub-basin 03-03-08. According to the sub-basin report, the Long Shoal River and its tributaries are currently listed as "Impaired because they are prohibited or permanently closed to shellfish harvesting by the NC Division of Environmental Health Shellfish Sanitation. The lands adjacent to the Long Shoal River are owned by the Federal government.

All of the sub-basin reports for Dare County indicate little overall change has occurred in water quality. Some areas have been closed for shellfish harvesting due to bacteria levels as a result of testing by the Shellfish Sanitation division. Other areas have been re-classified from shellfish prohibited. The sub-basin reports do not identify any major decline in the areas waters but do note concerns about increased stormwater runoff, non-compliance issues with the Manteo central wastewater treatment plant and older malfunctioning septic systems used throughout Dare County. As noted above, the construction of the Stumpy Point central wastewater treatment system represents a significant opportunity for improved water quality in Stumpy Point Bay over the next few years as this system comes on-line in 2010.

Water quality has always been a high priority for Dare County. In 1995, the County began a voluntary surface water monitoring program for our surrounding oceans and sounds. This program eventually expanded into a full-time paid program managed by the Dare County Health Department. About two years into the local program, the State Shellfish Sanitation section of the NC Division of Environmental Health began testing the same sites in Dare County for monitoring of recreational water quality. To avoid redundancy, the County efforts were combined with the State efforts. The County continues to rely on the monitoring efforts by Shellfish Sanitation. Although the County does not perform the local testing anymore, the County Health Department does assist with the dissemination of information and advisories that the County receives from the State's program.

The Shellfish Sanitation office classifies coastal waters for their suitability for shellfish harvesting and monitors coastal waters for recreational swimming purposes. This agency develops maps which depict waters that are available for shellfish harvesting and prohibited areas. MAPS 12A-12G located on

pages 67-73 depict the shellfish “prohibited” areas for the surrounding waters. These areas are updated as needed by the Shellfish Sanitation office. Written reports about the growing areas are updated on a three-year cycle by the Shellfish Sanitation Office and are available from their offices.

One area of water quality concern in unincorporated Dare County involves Stumpy Point village. Stumpy Point Bay is classified as a prohibited growing area by Shellfish Sanitation. Stumpy Point village is home to less than 150 residents. Many of the existing older septic tanks used in Stumpy Point are known to have straight pipe discharges to a canal that drains directly to Stumpy Point Bay. In response to this water quality issue, Dare County has secured permits for the construction of a central wastewater treatment plant to serve Stumpy Point village. Construction of this plant began in 2008 and once completed, the straight pipe septic systems can be disconnected and no longer used. Water quality in Stumpy Point Bay should improve once this facility comes on-line.

The Shellfish Sanitation office prepares reports on each individual growing area of the coastal region. These documents, known as “Sanitary Surveys”, report on current situations and trends in each growing area. For Dare County, there are six growing areas G-5, H-1, H-2, H-3, H-4 H-5, and I-2 that encompass the estuarine water bodies that surround Dare County. Copies of the entire reports are available by contacting the NC Shellfish Sanitation Section offices. The reports contain information on water quality monitoring test sites, wastewater treatment facilities and plants, and other community information that may be affecting water quality in each growing area. Recommendations on the reclassification of area waters for shellfishing purposes are made to the Division of Marine Fisheries based on the results of these sanitary surveys. A brief description of each area is included below:

The G-5 area includes waters of both Dare County and Hyde County. For Dare County, the area encompasses Long Shoal River and Pains Bay.

The H-1 growing area encompasses the Roanoke Sound, Shallowbag Bay, Broad Creek and Mill Creek. The most recent Sanitary Survey for the H-1 area was completed in August 2006.

The H-2 growing area encompasses the waters of the Croatan Sound as well as all nearby creeks and tributaries. The most recent Sanitary Survey for this area was completed in December 2005.

The H-3 growing area is located in the northern section of the Pamlico Sound and includes Stumpy Point Bay. The most recent Sanitary Survey for the H-1 area was completed in May 2006. It was noted that the classification of Stumpy Point Bay will be re-evaluated when the proposed Stumpy Point wastewater treatment plant is functioning and the use of straight pipe septic systems in the area have been removed.

The H-4 growing area is located along the western end of Hatteras Island and includes all waters south of Brooks Point to Durant Point to the western tip of Hatteras Island. The H-4 Sanitary Survey was completed in March 2007.

The H-5 growing area is located between Hatteras Island and Oregon Inlet. It includes all waters east of South Point at Oregon Inlet to Gull Island in the Pamlico Sound to Brooks Point on the north shore of Hatteras Island. This report was completed in September 2006.

The I-2 consists of the waters bordered to the east by the Towns of Nags Head, Kill Devil Hills and Kitty Hawk and to the west by the community of Mashoes and uninhabited Durant Island. The area is bordered to the north by the Currituck and Albemarle Sounds and to the south by the Croatan and Roanoke Sounds. The Sanitary Survey for this growing area was completed in June 2005.

Natural Hazards

The geographic location of Dare County along the eastern shoreline of North Carolina and its proximity to the Atlantic Ocean makes it vulnerable to flooding, storm surge, and high winds associated with hurricanes, tropical storms and other coastal storms. To address this vulnerability, Dare County relies on shoreline setbacks and construction techniques to mitigate the harmful effects of coastal storms. As discussed in the natural features section, most areas of unincorporated Dare County are located in a flood zone and subject to the federal flood rules for elevation of structures to mitigate flood hazards. In certain flood zones, known as VE zones or velocity zones, additional construction techniques must be employed to mitigate flood hazards. VE zones are generally found along the immediate oceanfront and some immediate estuarine shoreline areas. The VE base flood elevations are higher than the base flood elevation requirement in the AE zones. There are some areas in unincorporated Dare County that are not located in any flood zones. These properties are depicted as X zones on the FIRM maps used for floodplain administration. There are some X zones located on the north end of Roanoke Island, in some areas of Colington and in the Buxton Woods maritime forest on Hatteras Island. There are no minimum base flood elevation or other applicable construction techniques required for properties located in X zones.

In addition to flood hazards, property along the oceanfront is also subject to erosion and must comply with oceanfront setbacks established by the NC Division of Coastal Management (DCM). Coastal management officials adopt erosion map rates for all oceanfront areas of North Carolina, and these rate maps are used by DCM staff to establish the appropriate setbacks for oceanfront construction. These maps are updated on a regular basis by State officials. In Dare County, these erosion rates vary according to geographic location. The highest erosion rates are found along the oceanfront at northern end of Rodanthe village. Since the early 1990s, several oceanfront structures in the Rodanthe area have been impacted by severe erosion with some structures relocated to non-oceanfront sites or rendered un-inhabitable by loss of a wastewater system or undermining of foundation pilings

Another area subject to erosion is in Buxton near Cape Point. In 2005, the Coast Guard discontinued operations at the Buxton base due to impacts of erosion on their base infrastructure, especially the wastewater treatment plant. Groins extending into the Atlantic Ocean were constructed in 1970s. The groin field was constructed to mitigate the effects of erosion at the base facility. Maintenance of the groin field is needed and it was the management decision of the Coast Guard to discontinue

operations at Buxton. This decision was based on the difficulties of securing the maintenance permits for the groin field from the State Coastal Resources Commission and the cost of the maintenance work.

Erosion along the oceanfront areas of the other Hatteras Island villages is not as severe as the Rodanthe area.

Since the 2003 Land Use Plan update, one major hurricane has impacted Dare County, Hurricane Isabel in September 2003. This hurricane caused extensive damage on Hatteras Island, especially in Hatteras village, where storm surge resulted in the loss of many homes, condominiums, and businesses in the immediate oceanfront area. NC 12 was severed just north of the entrance to Hatteras village as a result of the storm surge from Isabel. Permits to fill this area were secured after several weeks and repairs made to re-open NC 12. Information on the damages from Hurricane Isabel obtained from the Dare County Tax Appraisal office is included in Table 21.

Table 21 – Hurricane Isabel Damage Estimates (based on assessment report thru 10-27, 2003)

District	Public Property Damage	Private Property Damage	TOTAL
Rodanthe	20,000	10,242,850	10,262,850
Waves	-	1,285,800	1,285,800
Salvo	-	503,400	503,400
Avon	-	1,087,200	1,087,200
Buxton	50,000	5,246,590	5,296,590
Frisco	18,000	3,300,640	3,318,640
Hatteras	623,000	74,377,000	75,000,000
Mainland	10,000	206,100	216,100
Manteo Outside	-	292,500	292,500
Wanchese	-	625,000	625,000
Manteo Town	85,000	2,715,000	2,800,000
Colington, KDH Out, Martin's Pt	-	460,000	460,000
Nags Head	971,450	24,234,300	25,205,750
Kill Devil Hills	3,175,000	11,405,900	14,580,900
Kitty Hawk	**		20,600,000
Southern Shores	101,000	919,500	1,020,500
Duck	635,000	4,365,000	5,000,000
Totals:	5,688,450	141,266,780	167,555,230

** no breakdown provided

Mitigation of repetitive flood losses is a priority of Dare County. Since 2000, Dare County has actively pursued federal mitigation grants to assist property owners with the reduction of repetitive flood losses. The County has obtained grant funding from the Hazard Mitigation Grant Program and from Scattered Site Housing grants which has enabled the rehabilitation and elevation of many older homes throughout Dare County. To date, forty-two houses have been elevated through these federal grant programs.

Natural Resources

The physical setting of Dare County includes many natural features that are environmentally fragile and impacts from development must be managed to protect these fragile areas. Many of the fragile areas are subject to protection under the Coastal Area Management Act as areas of environmental concerns (AECs) as detailed in the Natural Features discussion on page 23. Other fragile areas are located on federal or state owned lands and protected from development. These federal and state lands include historical and archaeological significant sites such as Fort Raleigh on Roanoke Island, home of the first English settlement. Local measures such as zoning regulations may also be applied to natural fragile areas. The Buxton Woods maritime forest on Hatteras Island is affected by a local zoning ordinance with land clearing restrictions designed to protect the vegetative canopy of this unique maritime woods setting. Much of the Buxton Woods forest is included in the Buxton Woods Coastal Preserve managed by the NC Division of Coastal Management. This 900 plus acre preserve is recognized is dedicated open space owned by the State.

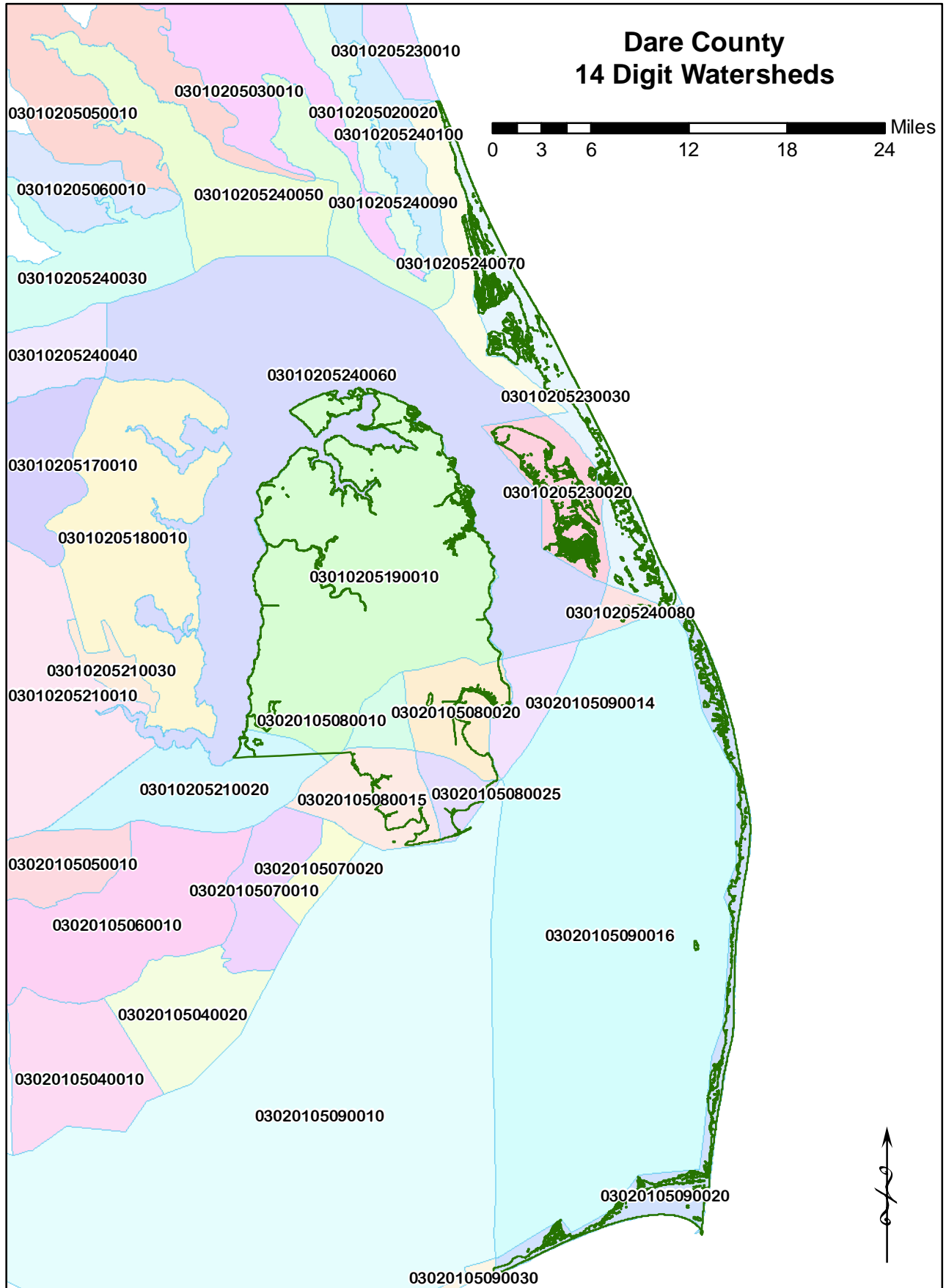
Areas with wildlife and mineral resources include: potential mineral sites, fish and gamelands, and productive agricultural lands. Many of these areas are owned and managed by the federal government. Mineral extraction on federal lands is regulated by the US. Department of Interior. Some privately-owned lands on the Mainland may have mineral resource potential, especially in terms of sand mining. Mining activities that involve more than one acre of land disturbance are regulated by the NC Division of Land Resources. Mining activities that involve less than one acre are not subject to any State or local regulation. However, Dare County does have zoning regulations that preclude the alteration of inland dunes unless authorized by Dare County.

Commercial forestry does not have a large role in the economy of Dare County. Occasionally, some sites are harvested for timber rights, but general there are no large-scale forestry activities in unincorporated Dare County.

There are many fishing and wildlife areas including the Pea Island National Wildlife Refuge and the Alligator River Wildlife Refuge. Hunting and fishing activities on these federal refuges are managed by the US Fish and Wildlife Service. There are no confined animal feeding operations within unincorporated Dare County.

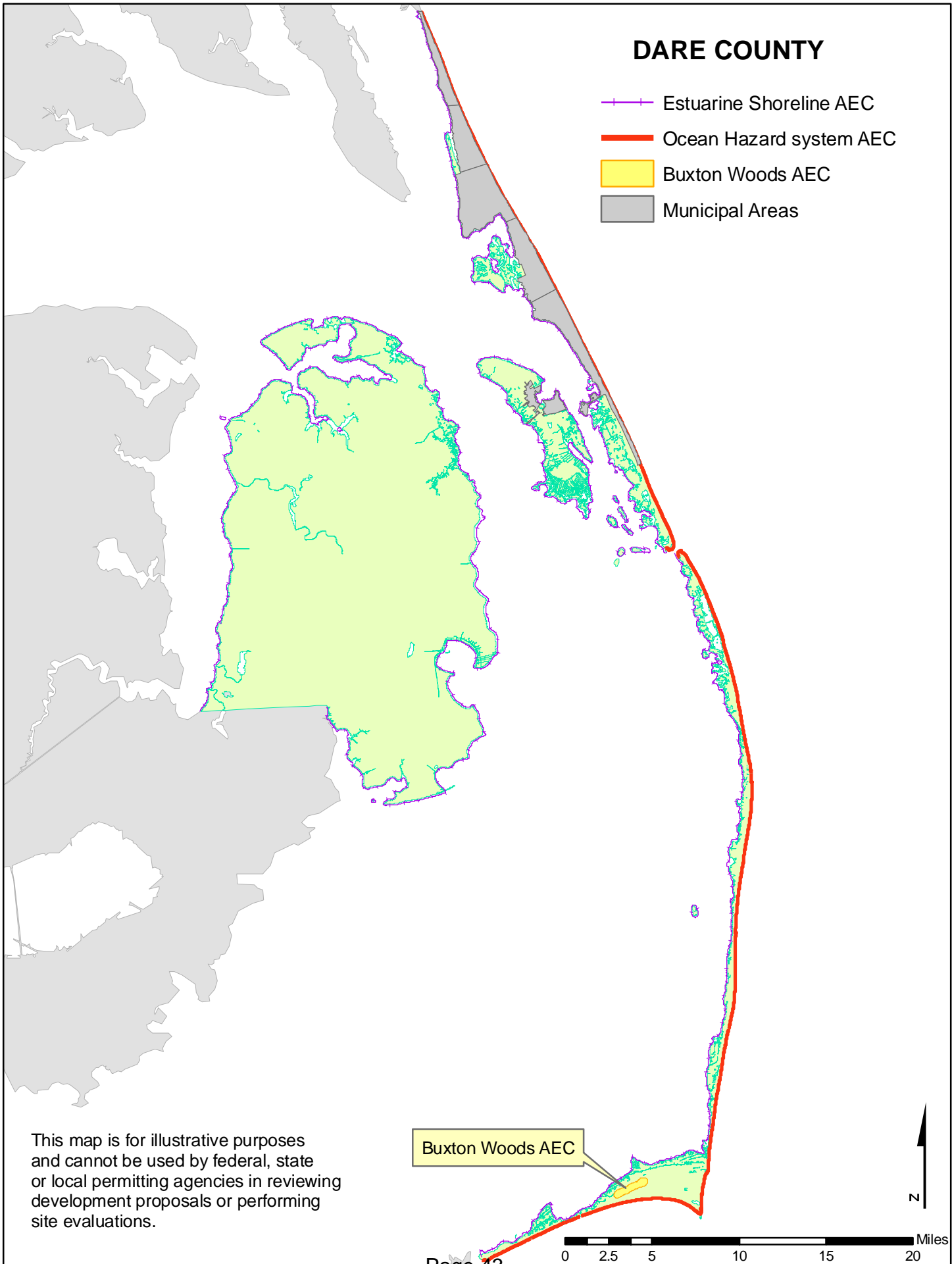
The Dare County Mainland also features productive agricultural lands, but much of the acreage is contained in the Alligator River Wildlife Refuge and therefore protected from development.

With the abundance of natural resources in Dare County as detailed in the preceding discussion it is understandable why many people to choose visit and reside here. Many of our permanent residents have relocated from other locations to enjoy the opportunities available here. The opportunities to enjoy the County's natural resources is enhanced by the vast amounts of publicly-owned lands which provide numerous sites to view wildlife and fish and recreate in the ocean and sounds. The proximity of the remaining privately-owned lands to these public land reserves and the water resources presents limitations and challenges in developing the private lands. The many layers of federal, state, and local regulatory controls discussed in the subsections on water quality and natural hazards are designed to manage development that may be detrimental to our natural resources. Balancing the protection and sustainability of our natural conditions with the viability of our local economy is important. Continued participation with the federal flood insurance program for the elevation of structures and maintaining proper setbacks from our water resources are examples of how the limitations of the natural conditions can be accomplished in a manner that addresses protection of our resources while supporting our local economy.



DARE COUNTY

- +— Estuarine Shoreline AEC
- Ocean Hazard system AEC
- Buxton Woods AEC
- Municipal Areas



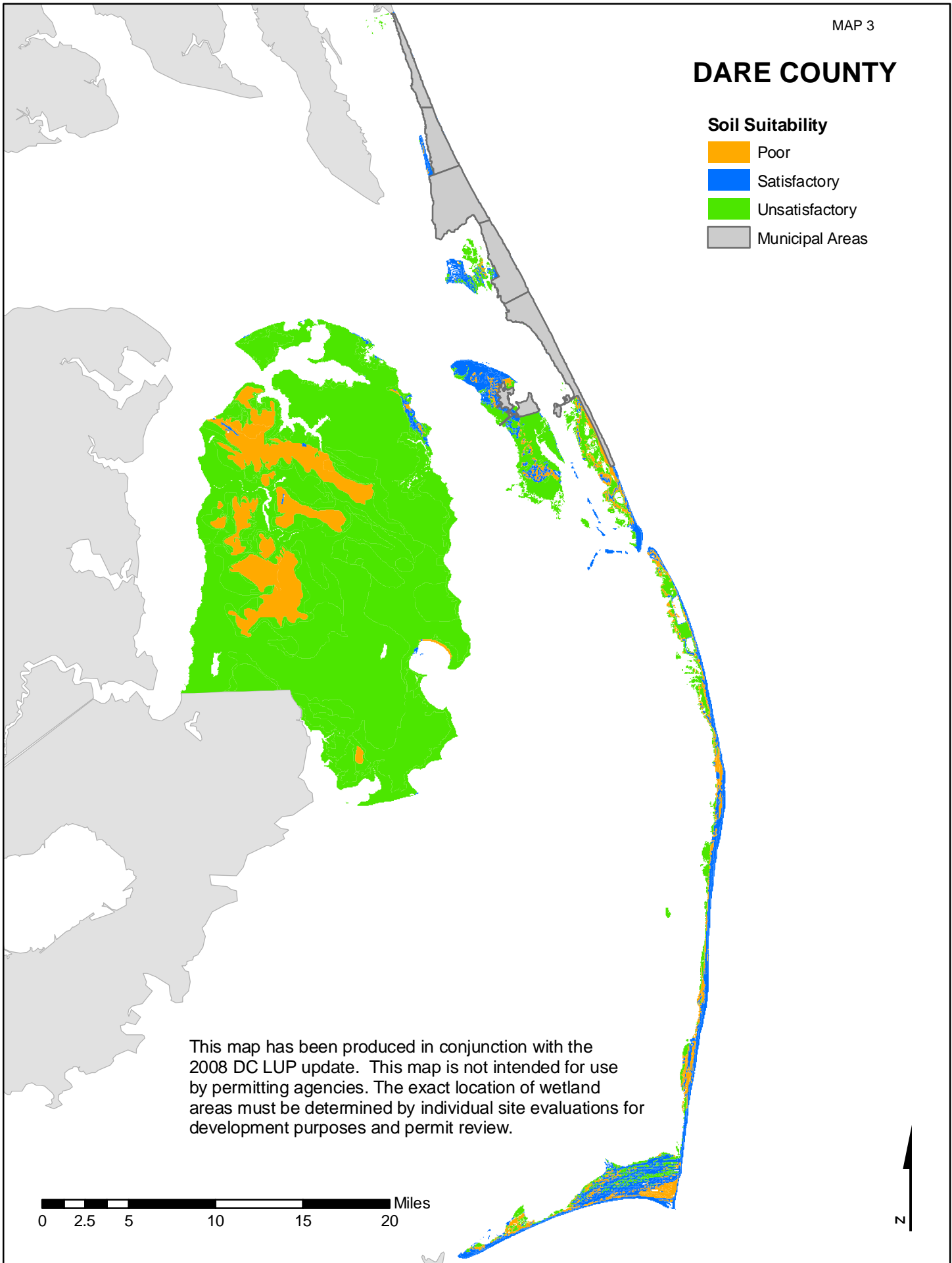
This map is for illustrative purposes and cannot be used by federal, state or local permitting agencies in reviewing development proposals or performing site evaluations.

Buxton Woods AEC

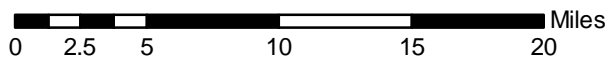
DARE COUNTY

Soil Suitability




-  Poor
-  Satisfactory
-  Unsatisfactory
-  Municipal Areas

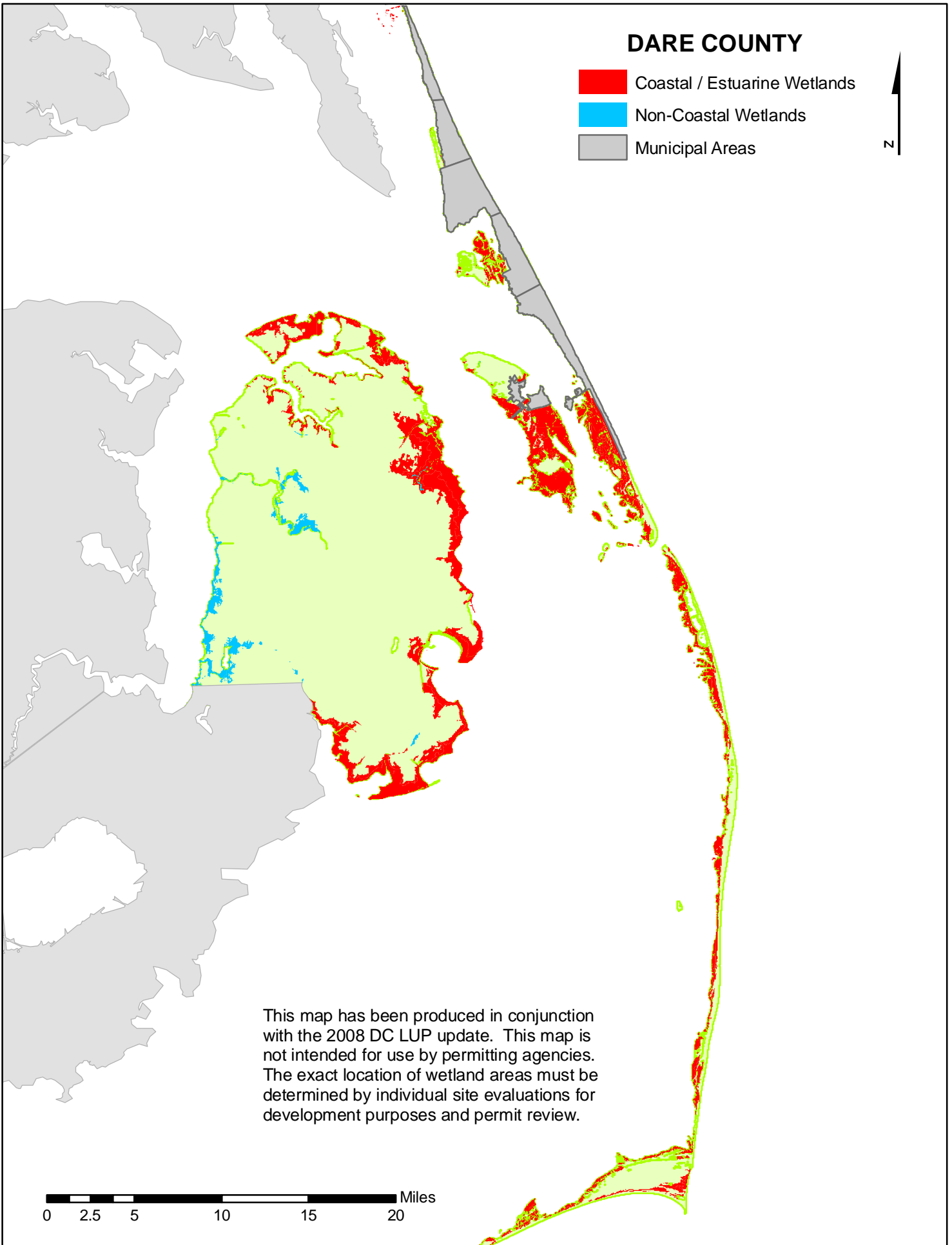


This map has been produced in conjunction with the 2008 DC LUP update. This map is not intended for use by permitting agencies. The exact location of wetland areas must be determined by individual site evaluations for development purposes and permit review.



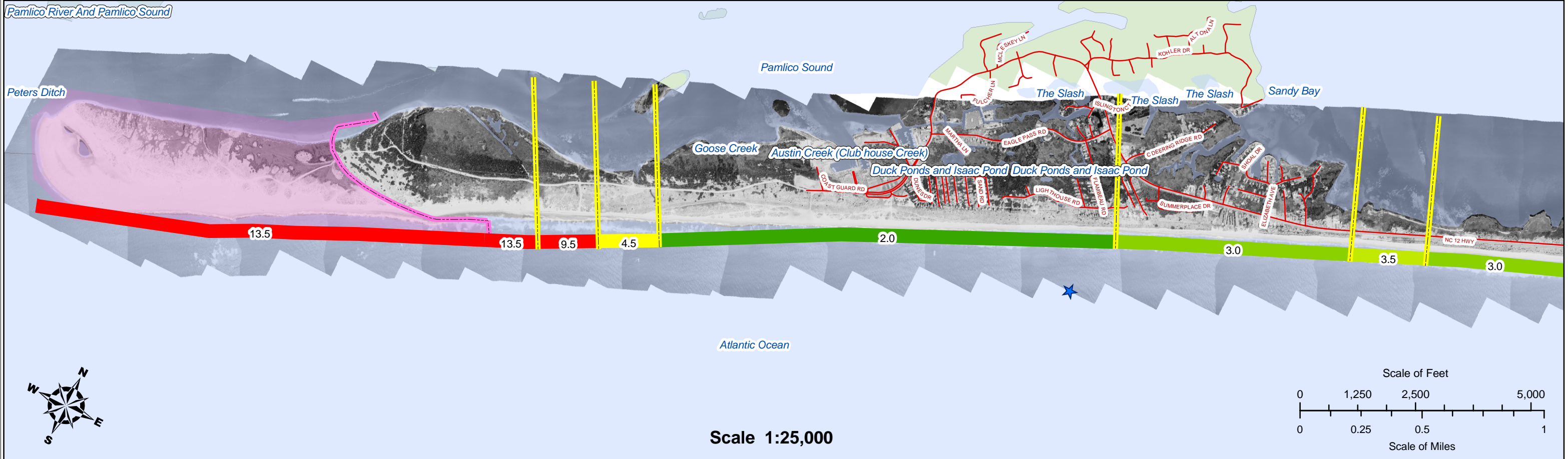
DARE COUNTY

-  Coastal / Estuarine Wetlands
-  Non-Coastal Wetlands
-  Municipal Areas



This map has been produced in conjunction with the 2008 DC LUP update. This map is not intended for use by permitting agencies. The exact location of wetland areas must be determined by individual site evaluations for development purposes and permit review.

0 2.5 5 10 15 20 Miles

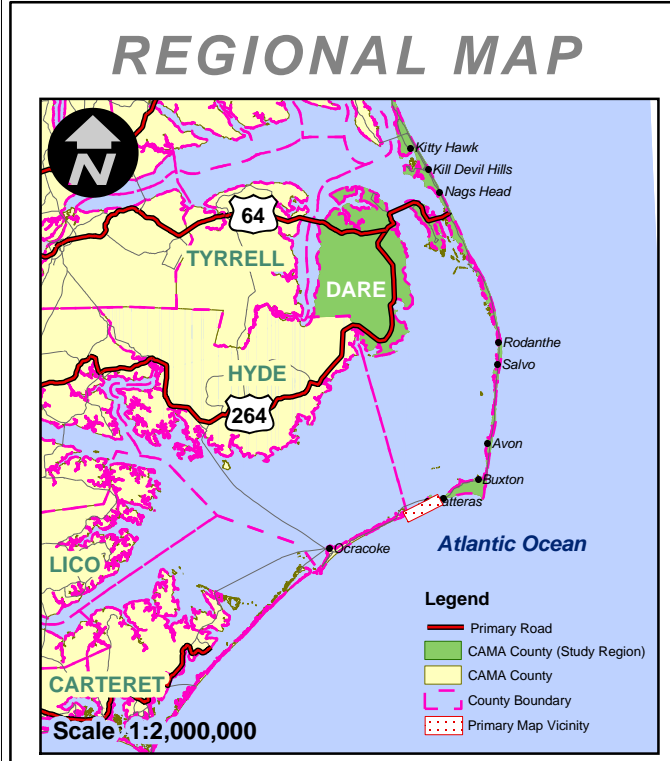


W. Hatteras Island

Long-Term Average Annual Shoreline Change Study & Setback Factors

Updated Through 1998

1998



This map is for general information only. The map illustrates average rates of shoreline change over approximately 50 years. The information presented here is not predictive nor does it reflect the short-term erosion that occurs during storms. This map may not be suitable for property-specific determination of erosion rate factors due to its small scale. For a site-specific determination contact your CAMA Local Permit Officer or the regional field office of the North Carolina Division of Coastal Management.

Funding for this project was provided by:
National Oceanic and Atmospheric Administration, Federal Emergency Management Agency, and North Carolina Division of Emergency Management

1998 Long-term average annual shoreline change rate developed by:
NC State University's Kenan Natural Hazards Mapping Program and North Carolina Division of Coastal Management

For more information contact:
NC Division of Coastal Management:
1638 Mail Service Center
Raleigh, NC 27699-1638
(919) 733 - 2293
Or visit:
www.nccoastalmanagement.net

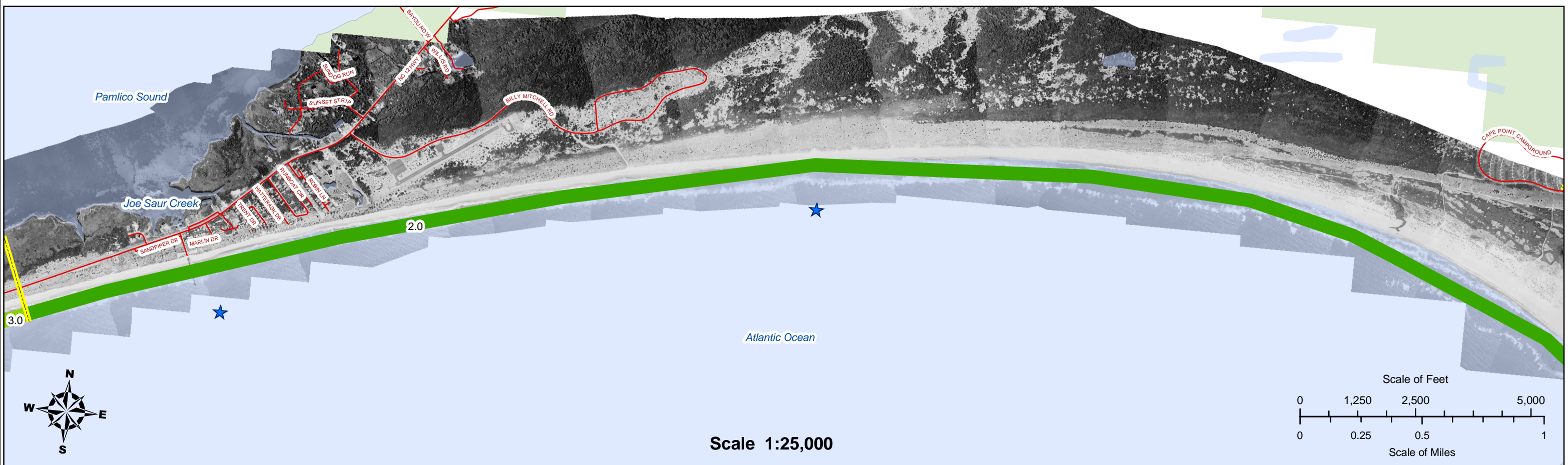
How to read Setback Factors

2.0 → "2.0" Indicates a 1998 Setback (Erosion) Factor of 2.0 Feet / Year

- 1998 Setback Factor**
- 2.0 Ft. / Yr.
 - 2.5 - 3.0 Ft. / Yr.
 - 3.5 - 4.0 Ft. / Yr.
 - 4.5 - 5.0 Ft. / Yr.
 - 5.5 - 6.0 Ft. / Yr.
 - 6.5 - 7.0 Ft. / Yr.
 - 7.5 - 8.0 Ft. / Yr.
 - > 8.0 Ft. / Yr.

- Legend**
- Inlet Hazard Area (Slight color transparency)
 - Inlet Hazard Area Boundary
 - Setback Factor Boundary
 - Roads

★ This general area has been influenced by beach nourishment either for beach protection or dredge disposal. This action artificially lowers the erosion rate in this area.

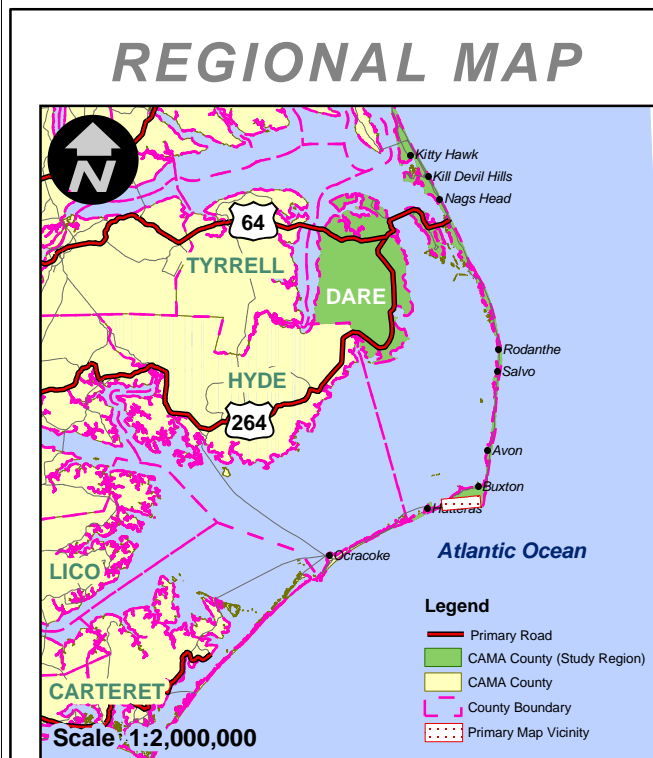


Cape Hatteras

Long-Term Average Annual Shoreline Change Study & Setback Factors

Updated Through 1998

1998



This map is for general information only. The map illustrates average rates of shoreline change over approximately 50 years. The information presented here is not predictive nor does it reflect the short-term erosion that occurs during storms. This map may not be suitable for property-specific determination of erosion rate factors due to its small scale. For a site-specific determination contact your CAMA Local Permit Officer or the regional field office of the North Carolina Division of Coastal Management.

Funding for this project was provided by:
National Oceanic and Atmospheric Administration, Federal Emergency Management Agency, and North Carolina Division of Emergency Management

1998 Long-term average annual shoreline change rate developed by:
NC State University's Kenan Natural Hazards Mapping Program and North Carolina Division of Coastal Management

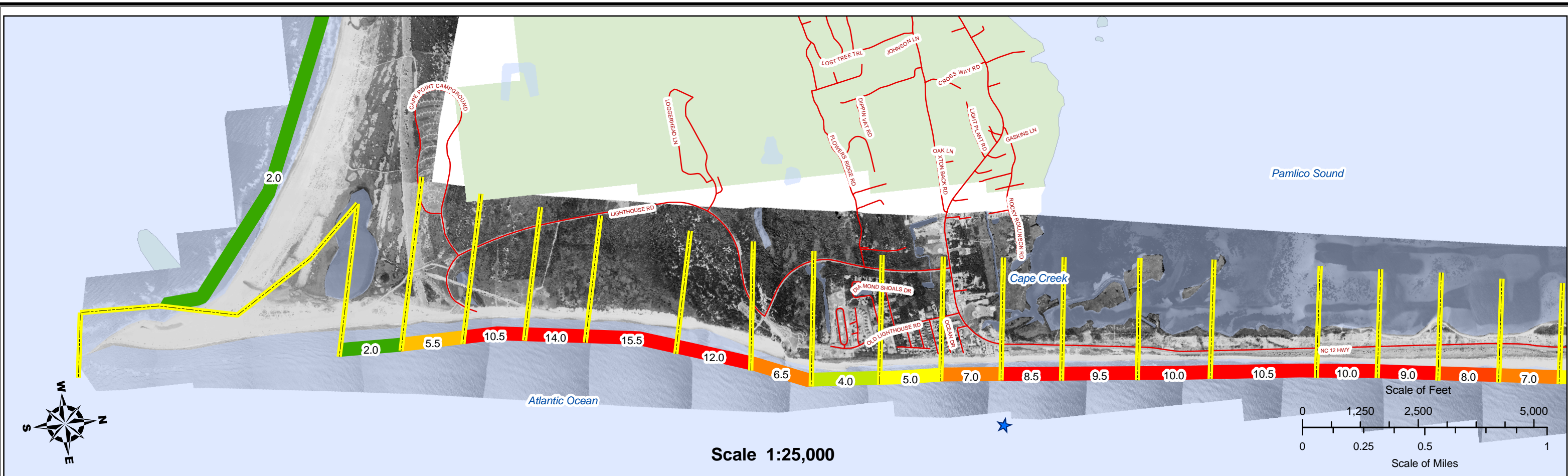
For more information contact:
NC Division of Coastal Management:
1638 Mail Service Center
Raleigh, NC 27699-1638
(919) 733 - 2293
Or visit:
www.nccoastalmanagement.net

How to read Setback Factors

2.0 → "2.0" Indicates a 1998 Setback (Erosion) Factor of 2.0 Feet / Year

- 1998 Setback Factor**
- 2.0 Ft. / Yr.
 - 2.5 - 3.0 Ft. / Yr.
 - 3.5 - 4.0 Ft. / Yr.
 - 4.5 - 5.0 Ft. / Yr.
 - 5.5 - 6.0 Ft. / Yr.
 - 6.5 - 7.0 Ft. / Yr.
 - 7.5 - 8.0 Ft. / Yr.
 - > 8.0 Ft. / Yr.

- Legend**
- Inlet Hazard Area (Slight color transparency)
 - Inlet Hazard Area Boundary
 - Setback Factor Boundary
 - Roads
- This general area has been influenced by beach nourishment either for beach protection or dredge disposal. This action artificially lowers the erosion rate in this area.*

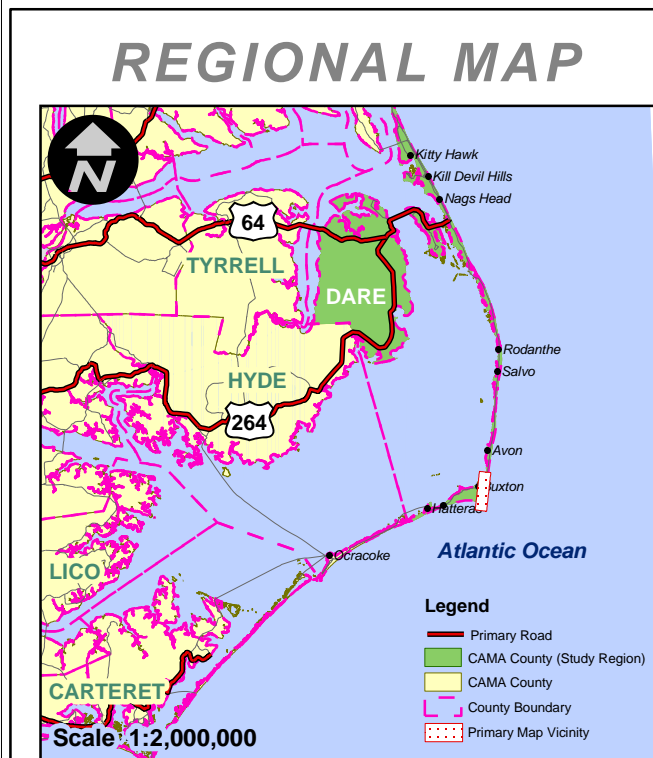


Cape Hatteras at Buxton

Long-Term Average Annual Shoreline Change Study & Setback Factors

Updated Through 1998

1998



This map is for general information only. The map illustrates average rates of shoreline change over approximately 50 years. The information presented here is not predictive nor does it reflect the short-term erosion that occurs during storms. This map may not be suitable for property-specific determination of erosion rate factors due to its small scale. For a site-specific determination contact your CAMA Local Permit Officer or the regional field office of the North Carolina Division of Coastal Management.

Funding for this project was provided by:

National Oceanic and Atmospheric Administration, Federal Emergency Management Agency, and North Carolina Division of Emergency Management

1998 Long-term average annual shoreline change rate developed by:

NC State University's Kenan Natural Hazards Mapping Program and North Carolina Division of Coastal Management

For more information contact:

NC Division of Coastal Management:

1638 Mail Service Center
Raleigh, NC 27699-1638
(919) 733 - 2293

Or visit:

www.nccoastalmanagement.net

How to read Setback Factors

2.0 → "2.0" Indicates a 1998 Setback (Erosion) Factor of 2.0 Feet / Year

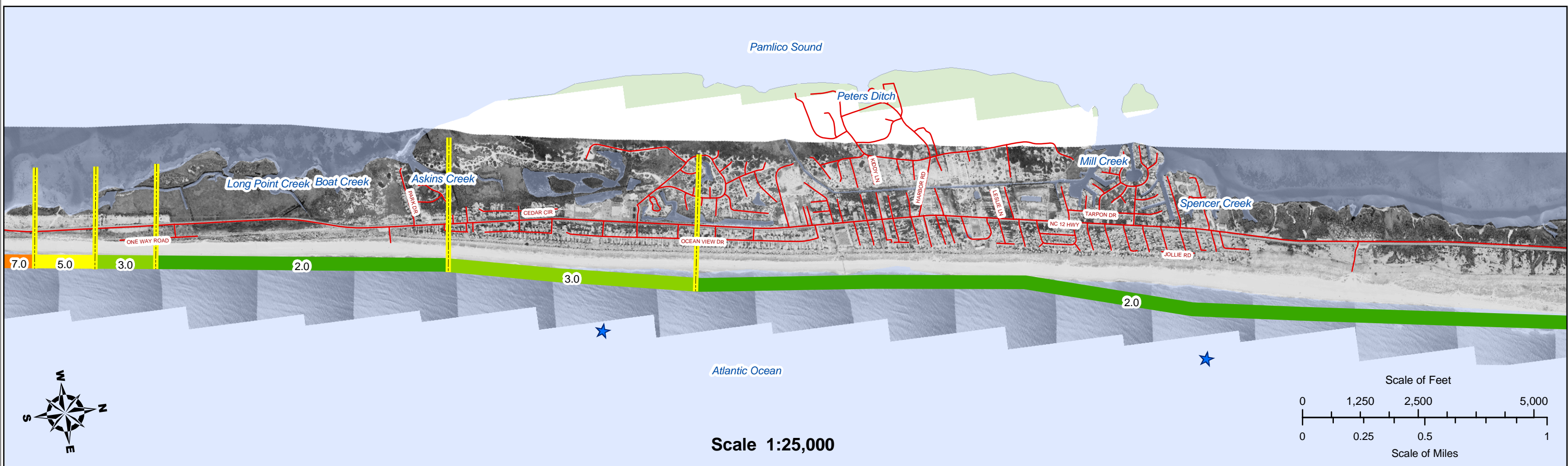
1998 Setback Factor

- 2.0 Ft. / Yr.
- 2.5 - 3.0 Ft. / Yr.
- 3.5 - 4.0 Ft. / Yr.
- 4.5 - 5.0 Ft. / Yr.
- 5.5 - 6.0 Ft. / Yr.
- 6.5 - 7.0 Ft. / Yr.
- 7.5 - 8.0 Ft. / Yr.
- > 8.0 Ft. / Yr.

Legend

- Inlet Hazard Area (Slight color transparency)
- Inlet Hazard Area Boundary
- Setback Factor Boundary
- Roads

★ This general area has been influenced by beach nourishment either for beach protection or dredge disposal. This action artificially lowers the erosion rate in this area.

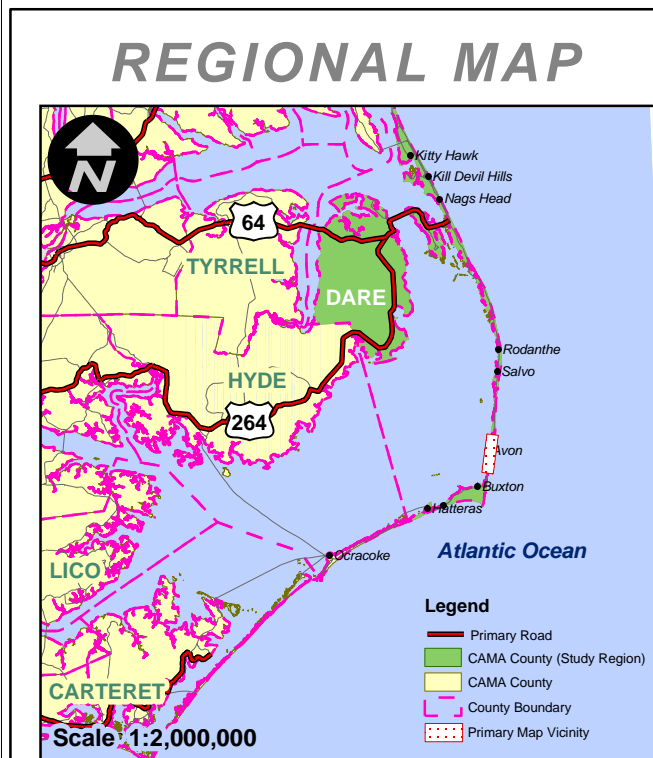


Hatteras Island at Avon

Long-Term Average Annual Shoreline Change Study & Setback Factors

Updated Through 1998

1998



This map is for general information only. The map illustrates average rates of shoreline change over approximately 50 years. The information presented here is not predictive nor does it reflect the short-term erosion that occurs during storms. This map may not be suitable for property-specific determination of erosion rate factors due to its small scale. For a site-specific determination contact your CAMA Local Permit Officer or the regional field office of the North Carolina Division of Coastal Management.

Funding for this project was provided by:
 National Oceanic and Atmospheric Administration, Federal Emergency Management Agency, and North Carolina Division of Emergency Management

1998 Long-term average annual shoreline change rate developed by:
 NC State University's Kenan Natural Hazards Mapping Program and North Carolina Division of Coastal Management

For more information contact:
 NC Division of Coastal Management:
 1638 Mail Service Center
 Raleigh, NC 27699-1638
 (919) 733 - 2293

Or visit:
www.nccoastalmanagement.net

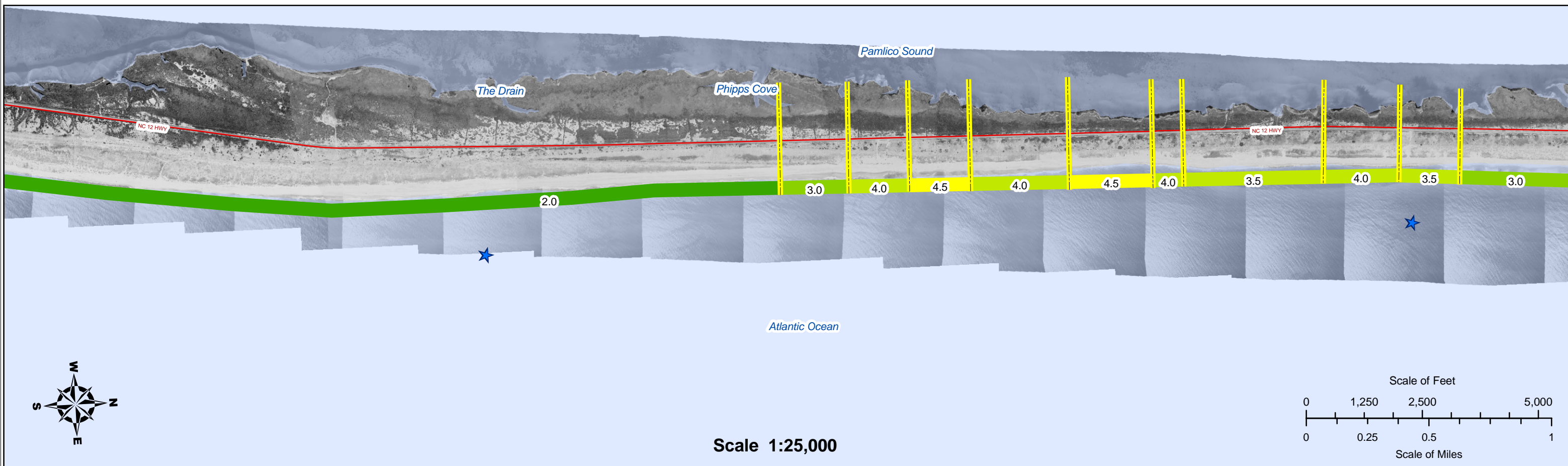
How to read Setback Factors

2.0 → "2.0" Indicates a 1998 Setback (Erosion) Factor of 2.0 Feet / Year

- 1998 Setback Factor**
- 2.0 Ft. / Yr.
 - 2.5 - 3.0 Ft. / Yr.
 - 3.5 - 4.0 Ft. / Yr.
 - 4.5 - 5.0 Ft. / Yr.
 - 5.5 - 6.0 Ft. / Yr.
 - 6.5 - 7.0 Ft. / Yr.
 - 7.5 - 8.0 Ft. / Yr.
 - > 8.0 Ft. / Yr.

- Legend**
- Inlet Hazard Area (Slight color transparency)
 - Inlet Hazard Area Boundary
 - Setback Factor Boundary
 - Roads

★ This general area has been influenced by beach nourishment either for beach protection or dredge disposal. This action artificially lowers the erosion rate in this area.

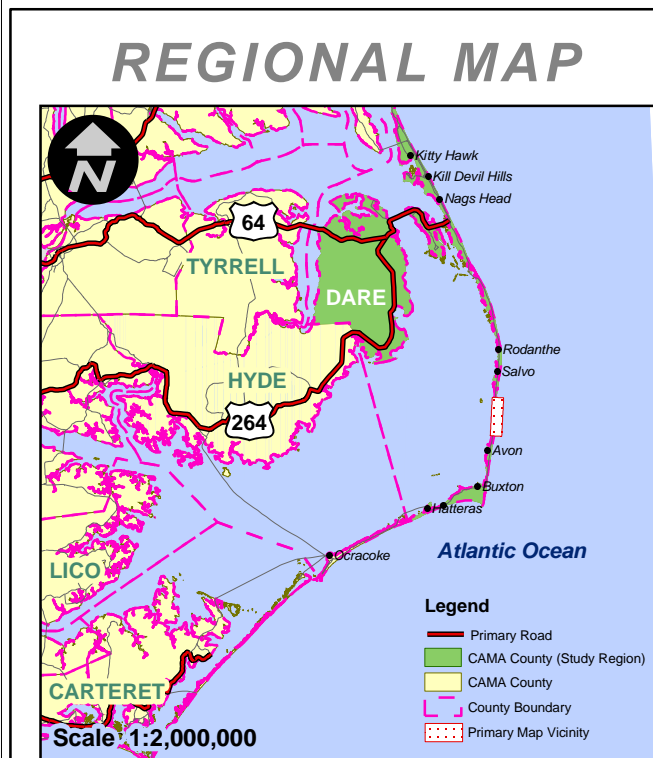


Hatteras Island at N. Avon

Long-Term Average Annual Shoreline Change Study & Setback Factors

Updated Through 1998

1998



This map is for general information only. The map illustrates average rates of shoreline change over approximately 50 years. The information presented here is not predictive nor does it reflect the short-term erosion that occurs during storms. This map may not be suitable for property-specific determination of erosion rate factors due to its small scale. For a site-specific determination contact your CAMA Local Permit Officer or the regional field office of the North Carolina Division of Coastal Management.

Funding for this project was provided by:
National Oceanic and Atmospheric Administration, Federal Emergency Management Agency, and North Carolina Division of Emergency Management

1998 Long-term average annual shoreline change rate developed by:
NC State University's Kenan Natural Hazards Mapping Program and North Carolina Division of Coastal Management

For more information contact:
NC Division of Coastal Management:
1638 Mail Service Center
Raleigh, NC 27699-1638
(919) 733 - 2293
Or visit:
www.nccoastalmanagement.net

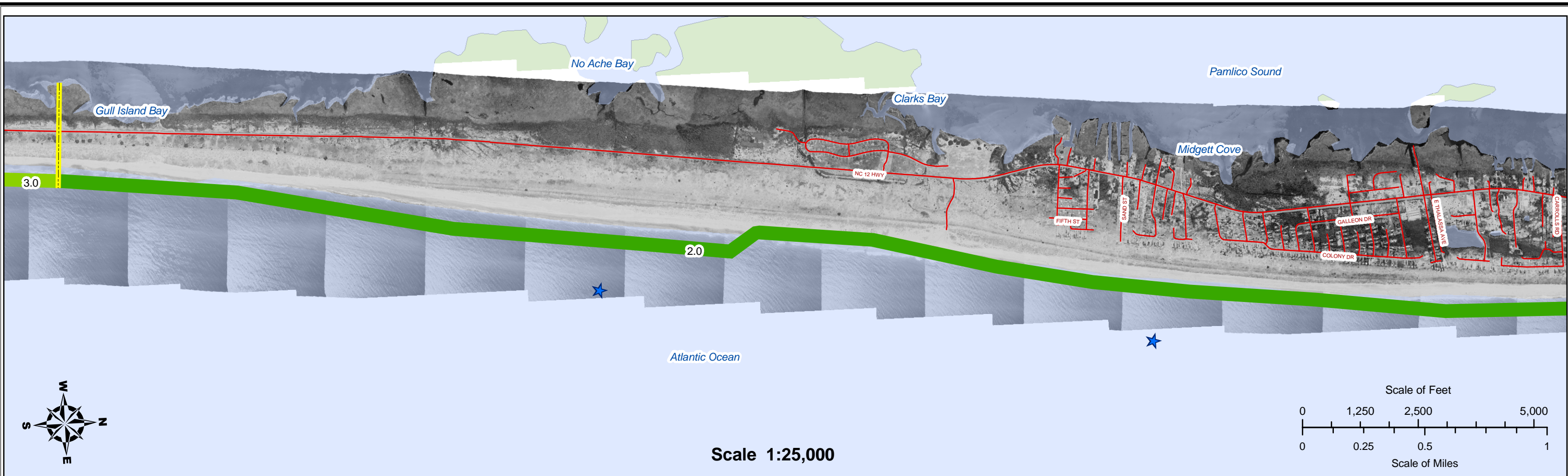
How to read Setback Factors

2.0 → "2.0" Indicates a 1998 Setback (Erosion) Factor of 2.0 Feet / Year

- 1998 Setback Factor**
- 2.0 Ft. / Yr.
 - 2.5 - 3.0 Ft. / Yr.
 - 3.5 - 4.0 Ft. / Yr.
 - 4.5 - 5.0 Ft. / Yr.
 - 5.5 - 6.0 Ft. / Yr.
 - 6.5 - 7.0 Ft. / Yr.
 - 7.5 - 8.0 Ft. / Yr.
 - > 8.0 Ft. / Yr.

- Legend**
- Inlet Hazard Area (Slight color transparency)
 - Inlet Hazard Area Boundary
 - Setback Factor Boundary
 - Roads

★ This general area has been influenced by beach nourishment either for beach protection or dredge disposal. This action artificially lowers the erosion rate in this area.

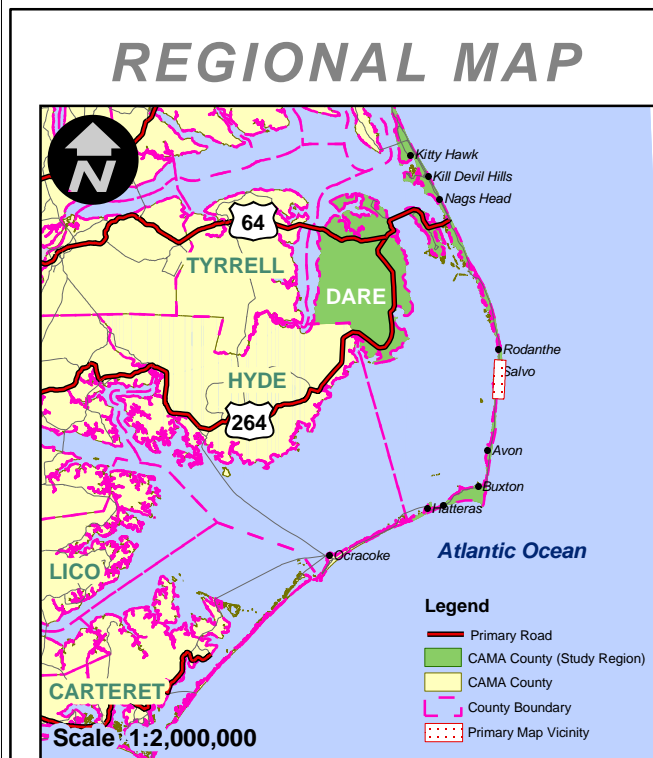


Hatteras Island at Salvo

Long-Term Average Annual Shoreline Change Study & Setback Factors

Updated Through 1998

1998



This map is for general information only. The map illustrates average rates of shoreline change over approximately 50 years. The information presented here is not predictive nor does it reflect the short-term erosion that occurs during storms. This map may not be suitable for property-specific determination of erosion rate factors due to its small scale. For a site-specific determination contact your CAMA Local Permit Officer or the regional field office of the North Carolina Division of Coastal Management.

Funding for this project was provided by:
National Oceanic and Atmospheric Administration, Federal Emergency Management Agency, and North Carolina Division of Emergency Management

1998 Long-term average annual shoreline change rate developed by:
NC State University's Kenan Natural Hazards Mapping Program and North Carolina Division of Coastal Management

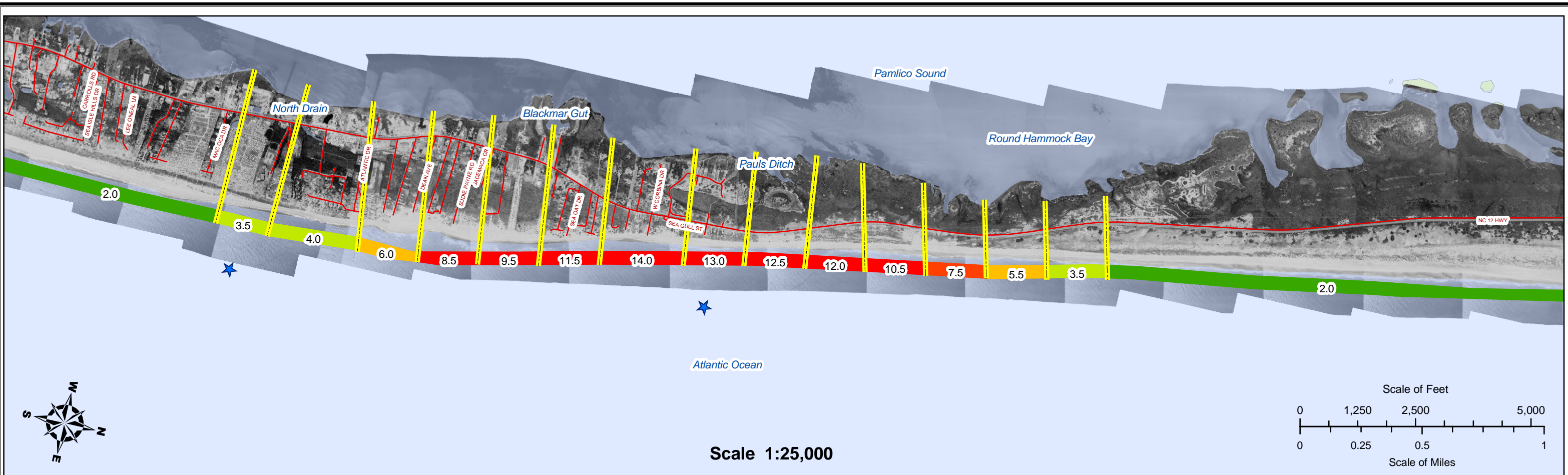
For more information contact:
NC Division of Coastal Management:
1638 Mail Service Center
Raleigh, NC 27699-1638
(919) 733 - 2293
Or visit:
www.nccoastalmanagement.net

How to read Setback Factors

2.0 → "2.0" Indicates a 1998 Setback (Erosion) Factor of 2.0 Feet / Year

- 1998 Setback Factor**
- 2.0 Ft. / Yr.
 - 2.5 - 3.0 Ft. / Yr.
 - 3.5 - 4.0 Ft. / Yr.
 - 4.5 - 5.0 Ft. / Yr.
 - 5.5 - 6.0 Ft. / Yr.
 - 6.5 - 7.0 Ft. / Yr.
 - 7.5 - 8.0 Ft. / Yr.
 - > 8.0 Ft. / Yr.

- Legend**
- Inlet Hazard Area (Slight color transparency)
 - Inlet Hazard Area Boundary
 - Setback Factor Boundary
 - Roads
- This general area has been influenced by beach nourishment either for beach protection or dredge disposal. This action artificially lowers the erosion rate in this area.*

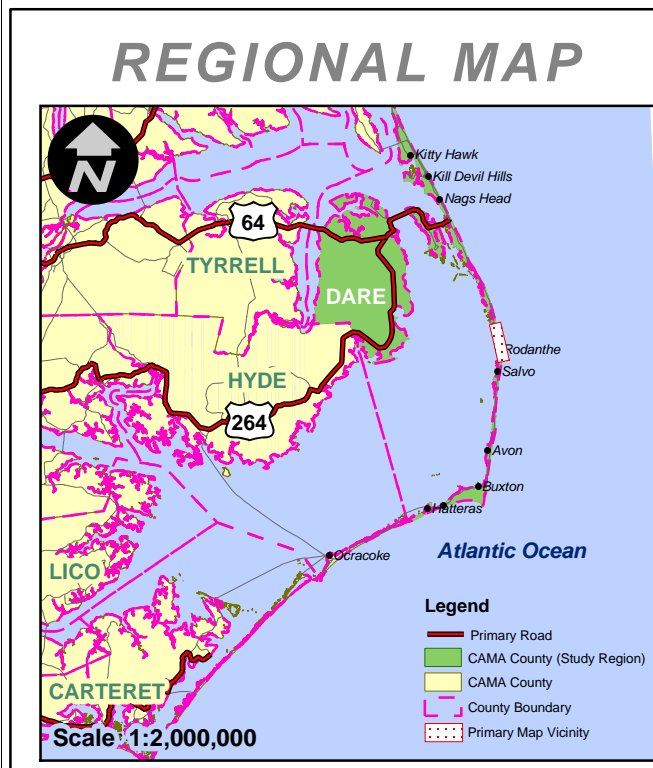


Hatteras Island at Rodanthe

Long-Term Average Annual Shoreline Change Study & Setback Factors

Updated Through 1998

1998



This map is for general information only. The map illustrates average rates of shoreline change over approximately 50 years. The information presented here is not predictive nor does it reflect the short-term erosion that occurs during storms. This map may not be suitable for property-specific determination of erosion rate factors due to its small scale. For a site-specific determination contact your CAMA Local Permit Officer or the regional field office of the North Carolina Division of Coastal Management.

Funding for this project was provided by:
National Oceanic and Atmospheric Administration, Federal Emergency Management Agency, and North Carolina Division of Emergency Management

1998 Long-term average annual shoreline change rate developed by:
NC State University's Kenan Natural Hazards Mapping Program and North Carolina Division of Coastal Management

For more information contact:
NC Division of Coastal Management:
1638 Mail Service Center
Raleigh, NC 27699-1638
(919) 733 - 2293
Or visit:
www.nccoastalmanagement.net

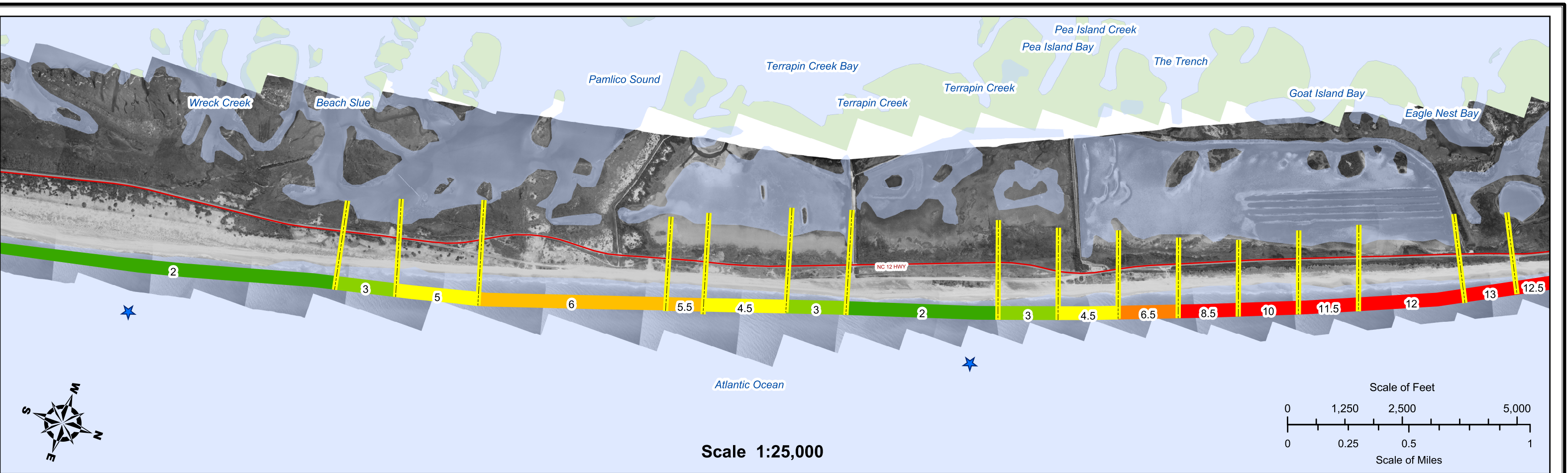
How to read Setback Factors

2.0 → "2.0" Indicates a 1998 Setback (Erosion) Factor of 2.0 Feet / Year

- 1998 Setback Factor**
- 2.0 Ft. / Yr.
 - 2.5 - 3.0 Ft. / Yr.
 - 3.5 - 4.0 Ft. / Yr.
 - 4.5 - 5.0 Ft. / Yr.
 - 5.5 - 6.0 Ft. / Yr.
 - 6.5 - 7.0 Ft. / Yr.
 - 7.5 - 8.0 Ft. / Yr.
 - > 8.0 Ft. / Yr.

- Legend**
- Inlet Hazard Area (Slight color transparency)
 - Inlet Hazard Area Boundary
 - Setback Factor Boundary
 - Roads
- This general area has been influenced by beach nourishment either for beach protection or dredge disposal. This action artificially lowers the erosion rate in this area.*

1998



S. Pea Island

Long-Term Average Annual Shoreline Change Study & Setback Factors

Updated Through 1998



North Carolina Division of Coastal Management

This map is for general information only. The map illustrates average rates of shoreline change over approximately 50 years. The information presented here is not predictive nor does it reflect the short-term erosion that occurs during storms. This map may not be suitable for property-specific determination of erosion rate factors due to its small scale. For a site-specific determination contact your CAMA Local Permit Officer or the regional field office of the North Carolina Division of Coastal Management.

Funding for this project was provided by:
 National Oceanic and Atmospheric Administration, Federal Emergency Management Agency, and North Carolina Division of Emergency Management

1998 Long-term average annual shoreline change rate developed by:
 NC State University's Kenan Natural Hazards Mapping Program and North Carolina Division of Coastal Management

For more information contact:
 NC Division of Coastal Management:
 1638 Mail Service Center
 Raleigh, NC 27699-1638
 (919) 733 - 2293
 Or visit:
www.nccoastalmanagement.net

How to read Setback Factors

2.0 → "2.0" Indicates a 1998 Setback (Erosion) Factor of 2.0 Feet / Year

Legend

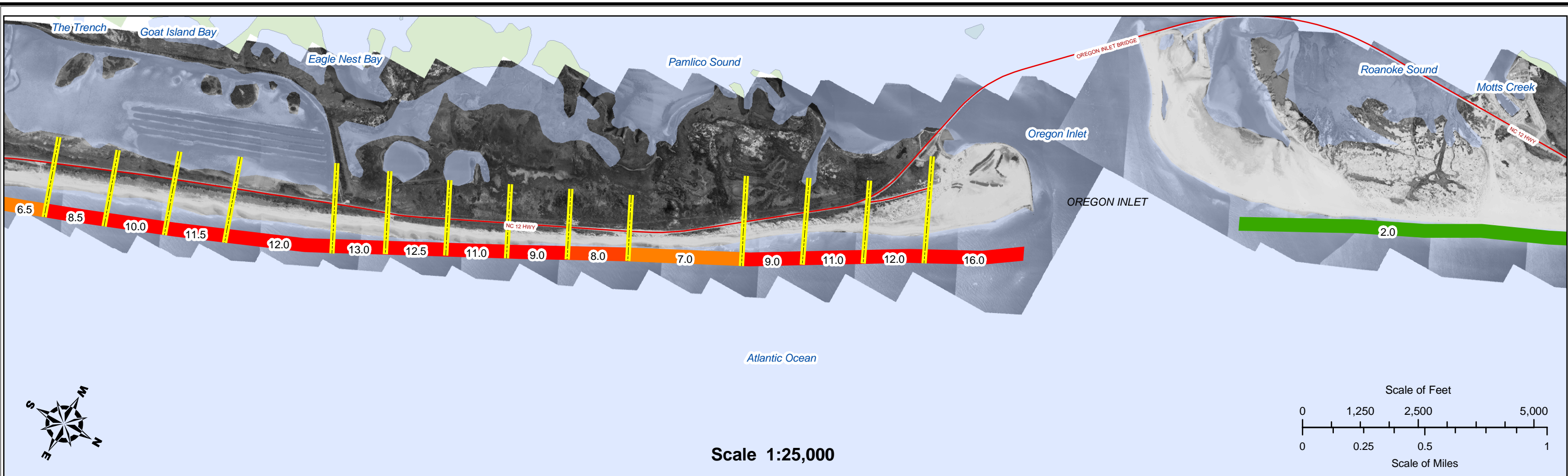
- Inlet Hazard Area (Slight color transparency)
- Setback Factor Boundary
- Roads

This general area has been influenced by beach nourishment either for beach protection or dredge disposal. This action artificially lowers the erosion rate in this area.

1998 Setback Factor

- 2.0 Ft. / Yr.
- 2.5 - 3.0 Ft. / Yr.
- 3.5 - 4.0 Ft. / Yr.
- 4.5 - 5.0 Ft. / Yr.
- 5.5 - 6.0 Ft. / Yr.
- 6.5 - 7.0 Ft. / Yr.
- 7.5 - 8.0 Ft. / Yr.
- > 8.0 Ft. / Yr.

Page 50 of 60

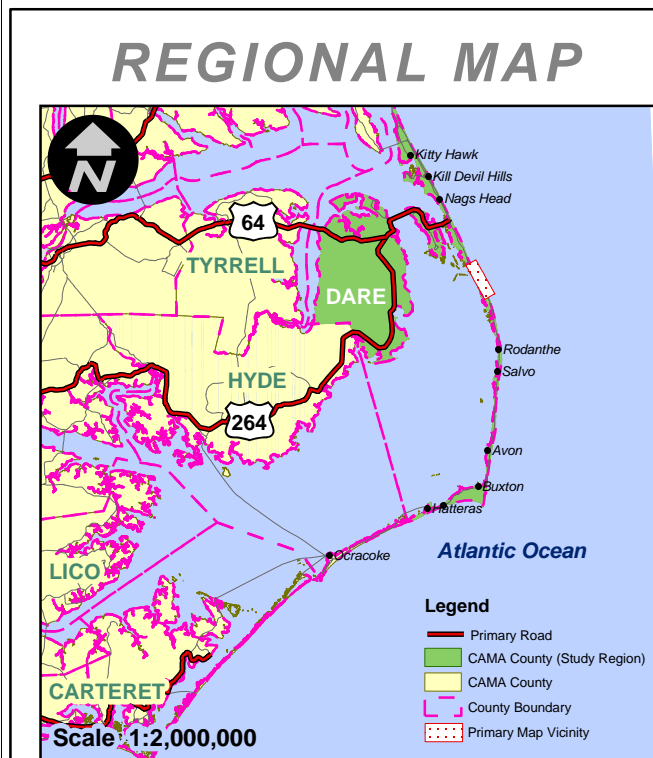


N. Pea Island

Long-Term Average Annual Shoreline Change Study & Setback Factors

Updated Through 1998

1998



This map is for general information only. The map illustrates average rates of shoreline change over approximately 50 years. The information presented here is not predictive nor does it reflect the short-term erosion that occurs during storms. This map may not be suitable for property-specific determination of erosion rate factors due to its small scale. For a site-specific determination contact your CAMA Local Permit Officer or the regional field office of the North Carolina Division of Coastal Management.

Funding for this project was provided by:
National Oceanic and Atmospheric Administration, Federal Emergency Management Agency, and North Carolina Division of Emergency Management

1998 Long-term average annual shoreline change rate developed by:
NC State University's Kenan Natural Hazards Mapping Program and North Carolina Division of Coastal Management

For more information contact:
NC Division of Coastal Management:
1638 Mail Service Center
Raleigh, NC 27699-1638
(919) 733 - 2293
Or visit:
www.nccoastalmanagement.net

How to read Setback Factors

2.0 → "2.0" Indicates a 1998 Setback (Erosion) Factor of 2.0 Feet / Year

1998 Setback Factor

- 2.0 Ft. / Yr.
- 2.5 - 3.0 Ft. / Yr.
- 3.5 - 4.0 Ft. / Yr.
- 4.5 - 5.0 Ft. / Yr.
- 5.5 - 6.0 Ft. / Yr.
- 6.5 - 7.0 Ft. / Yr.
- 7.5 - 8.0 Ft. / Yr.
- > 8.0 Ft. / Yr.

Legend

- Inlet Hazard Area (Slight color transparency)
- Inlet Hazard Area Boundary
- Setback Factor Boundary
- Roads

★ This general area has been influenced by beach nourishment either for beach protection or dredge disposal. This action artificially lowers the erosion rate in this area.

DARE COUNTY MAP 6

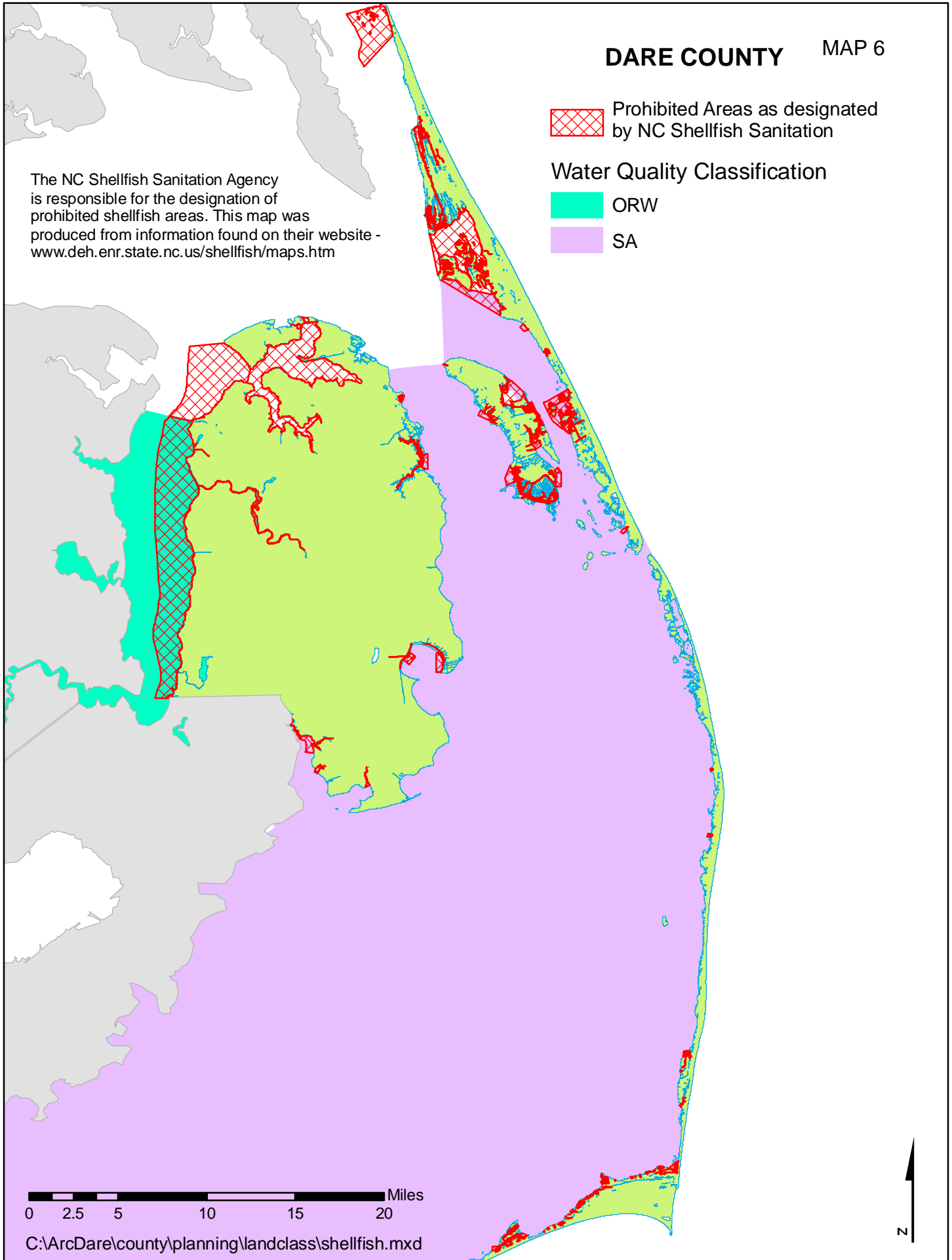
 Prohibited Areas as designated by NC Shellfish Sanitation

Water Quality Classification

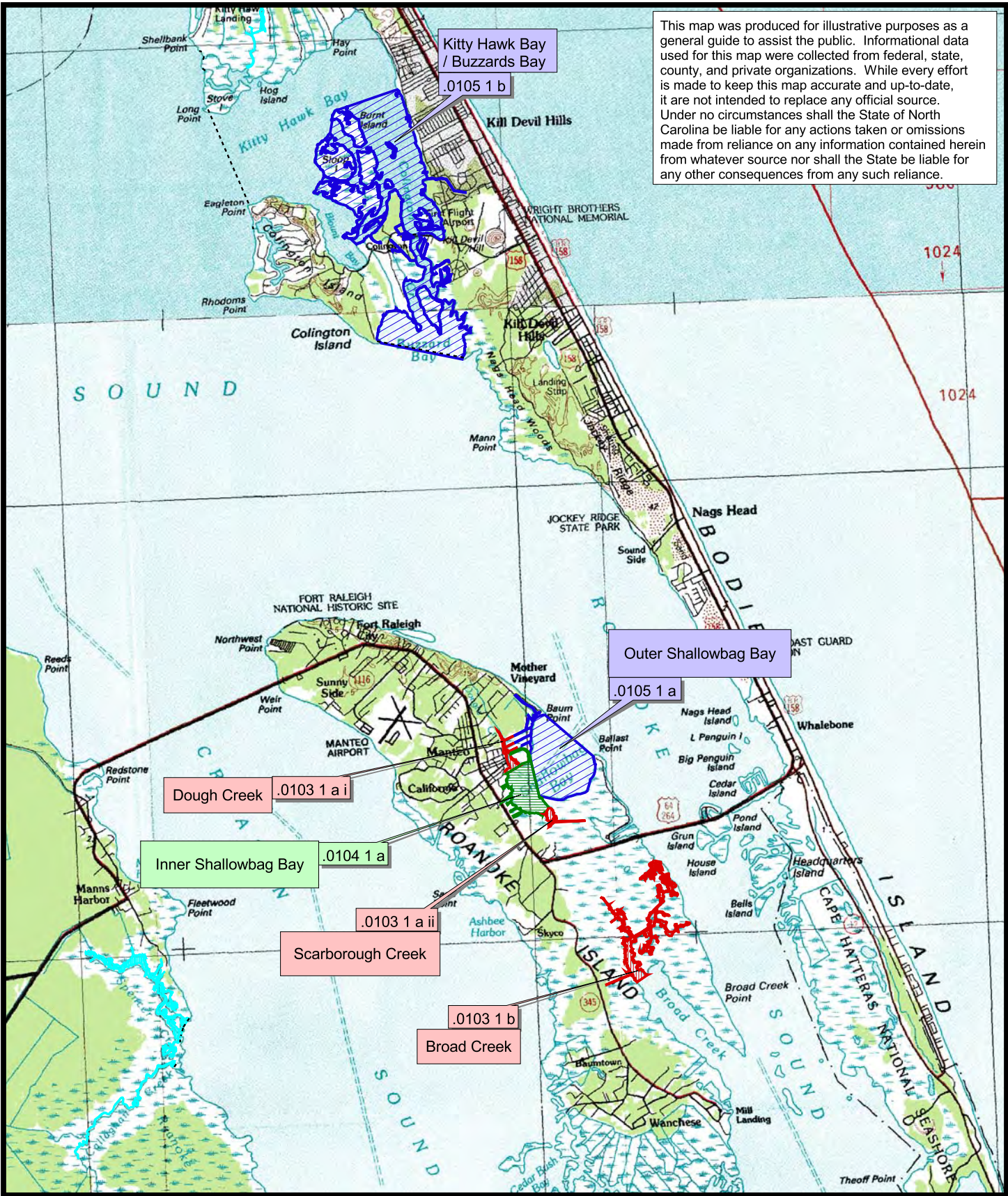
 ORW

 SA

The NC Shellfish Sanitation Agency is responsible for the designation of prohibited shellfish areas. This map was produced from information found on their website - www.deh.enr.state.nc.us/shellfish/maps.htm



This map was produced for illustrative purposes as a general guide to assist the public. Informational data used for this map were collected from federal, state, county, and private organizations. While every effort is made to keep this map accurate and up-to-date, it are not intended to replace any official source. Under no circumstances shall the State of North Carolina be liable for any actions taken or omissions made from reliance on any information contained herein from whatever source nor shall the State be liable for any other consequences from any such reliance.



Background imagery are U.S. Geological Survey 1:100,000-scale planimetric maps.



- ▬ Fishery Nursery Areas
 - ▬ Primary
 - ▬ Permanent Secondary
 - ▬ Special Secondary
- Military Danger Zones and Restricted Areas
- Inland waters (WRC jurisdiction)

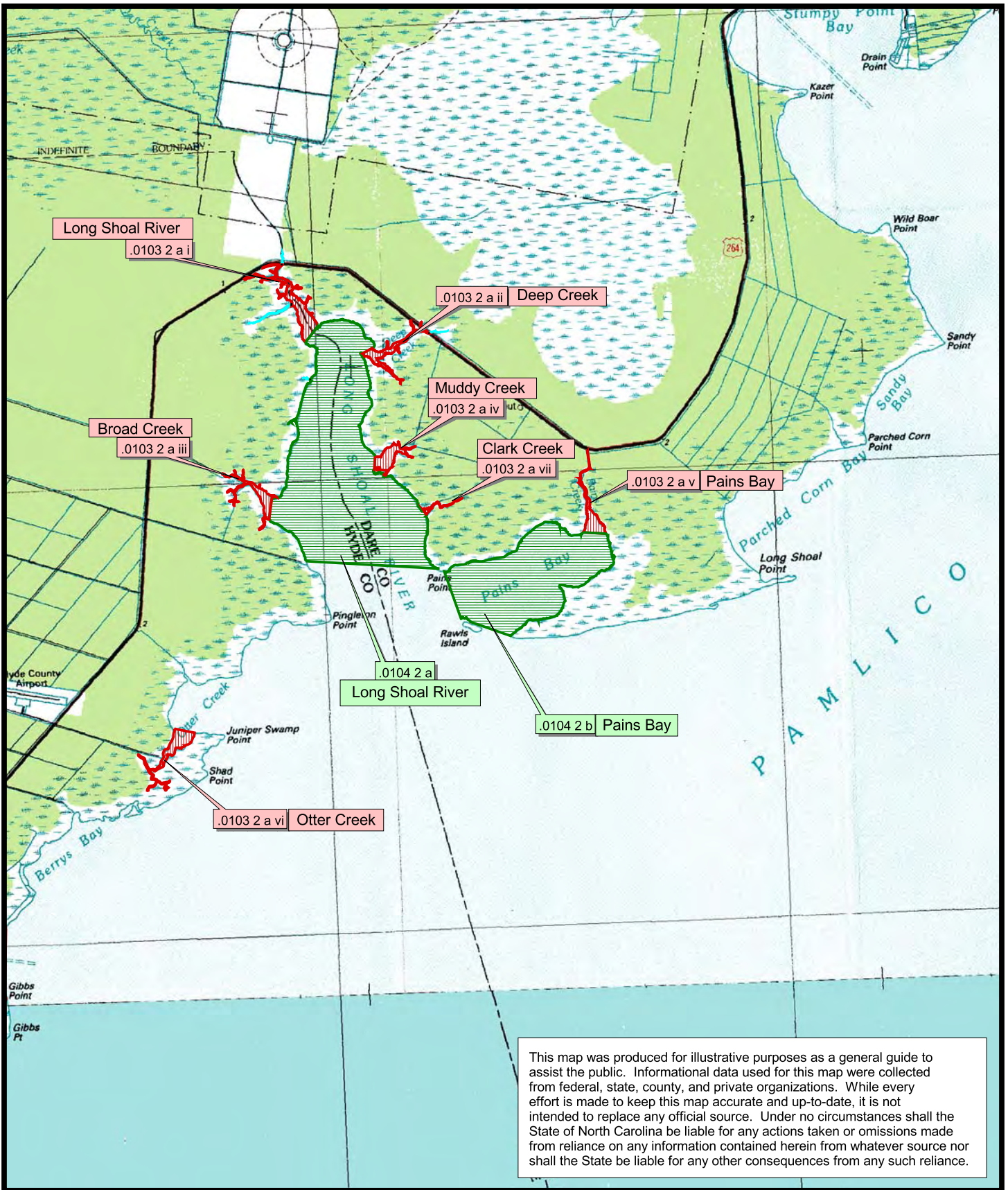
Fishery Nursery Areas

Map Datum: NAD83
 Map Projection: NC State Plane
 Map Date: July 2006

1000 0 1000 2000 Yards

0.7 0 0.7 1.4 Miles





This map was produced for illustrative purposes as a general guide to assist the public. Informational data used for this map were collected from federal, state, county, and private organizations. While every effort is made to keep this map accurate and up-to-date, it is not intended to replace any official source. Under no circumstances shall the State of North Carolina be liable for any actions taken or omissions made from reliance on any information contained herein from whatever source nor shall the State be liable for any other consequences from any such reliance.

Background imagery are U.S. Geological Survey 1:100,000-scale planimetric maps.



- Fishery Nursery Areas**
- Primary
 - Permanent Secondary
 - Special Secondary
 - Military Danger Zones and Restricted Areas
 - Inland waters (WRC jurisdiction)

Fishery Nursery Areas

Map Datum: NAD83
 Map Projection: NC State Plane
 Map Date: July 2006

1000 0 1000 2000 Yards

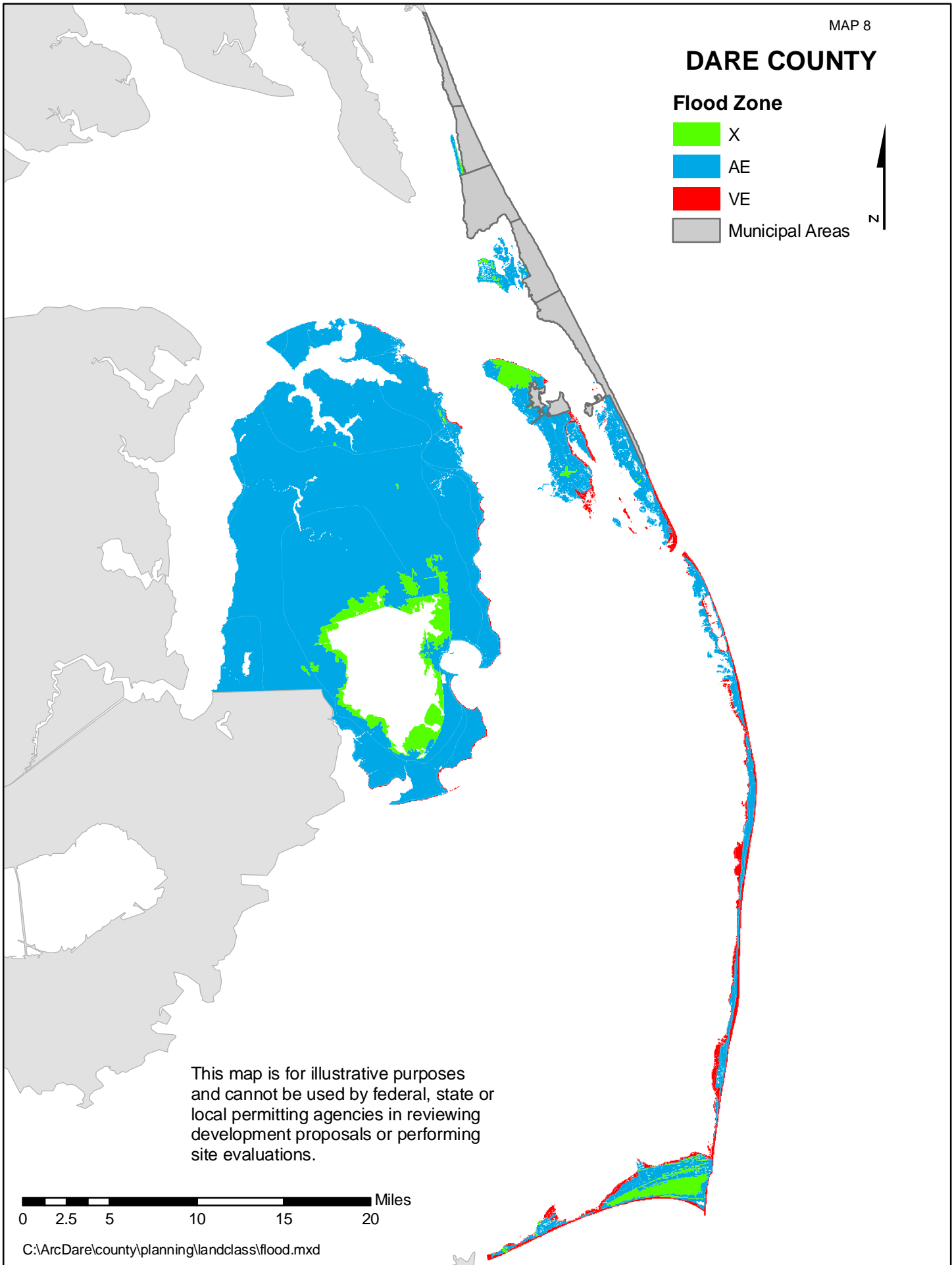
0.7 0 0.7 1.4 Miles



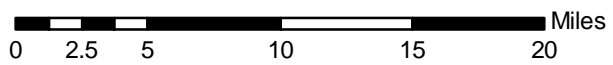
DARE COUNTY

Flood Zone

- X
- AE
- VE
- Municipal Areas



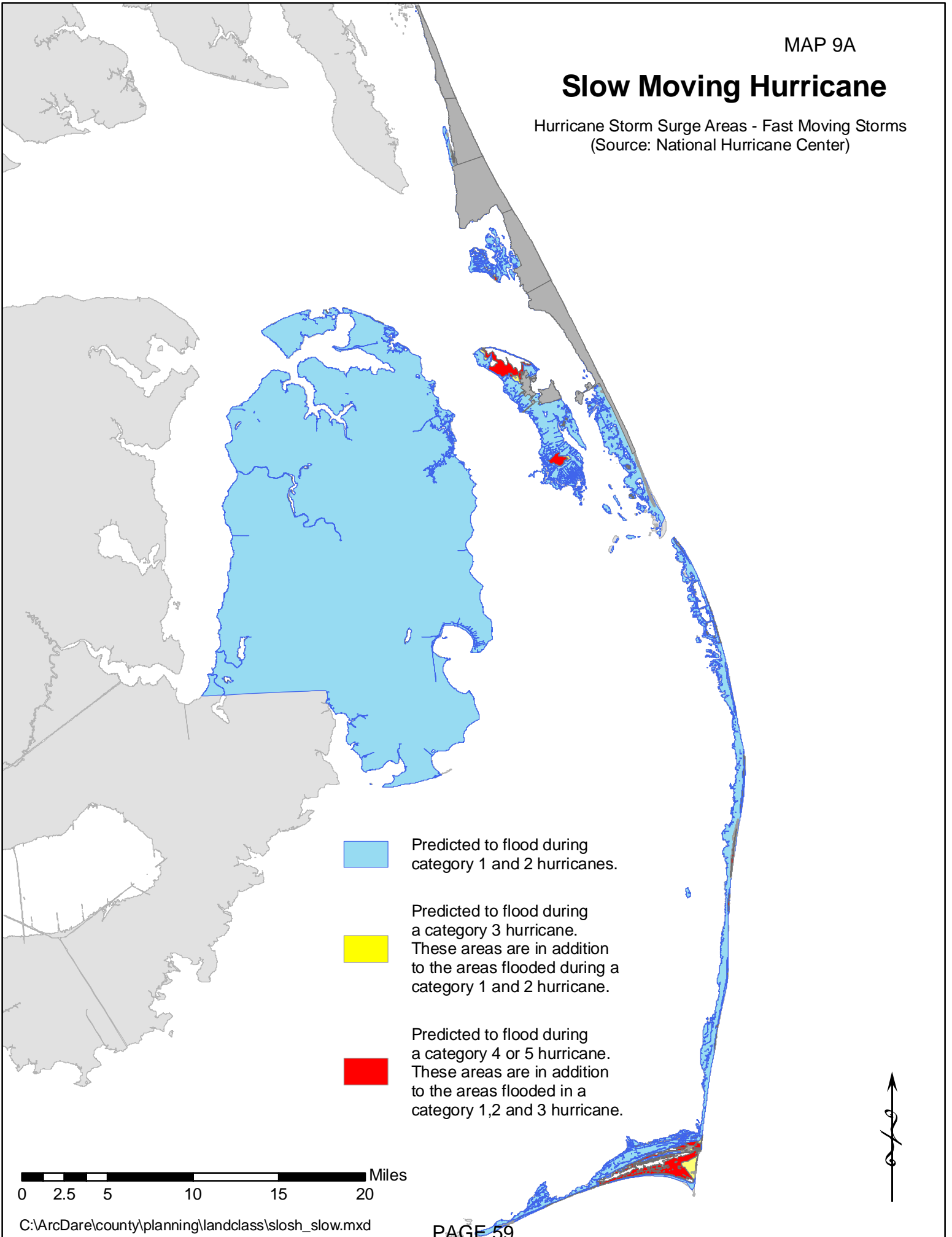
This map is for illustrative purposes and cannot be used by federal, state or local permitting agencies in reviewing development proposals or performing site evaluations.



C:\ArcDare\county\planning\landclass\flood.mxd

Slow Moving Hurricane

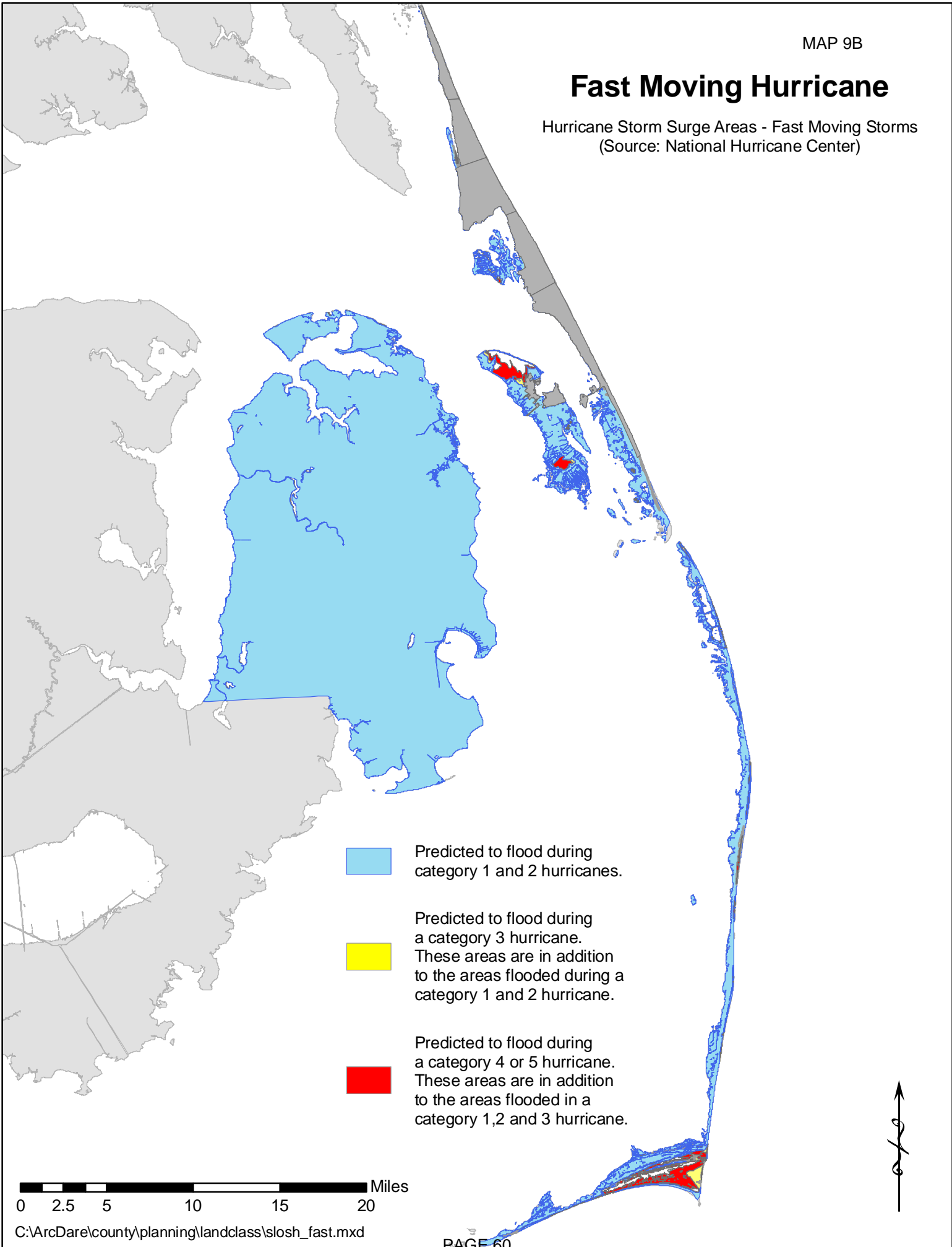
Hurricane Storm Surge Areas - Fast Moving Storms
(Source: National Hurricane Center)



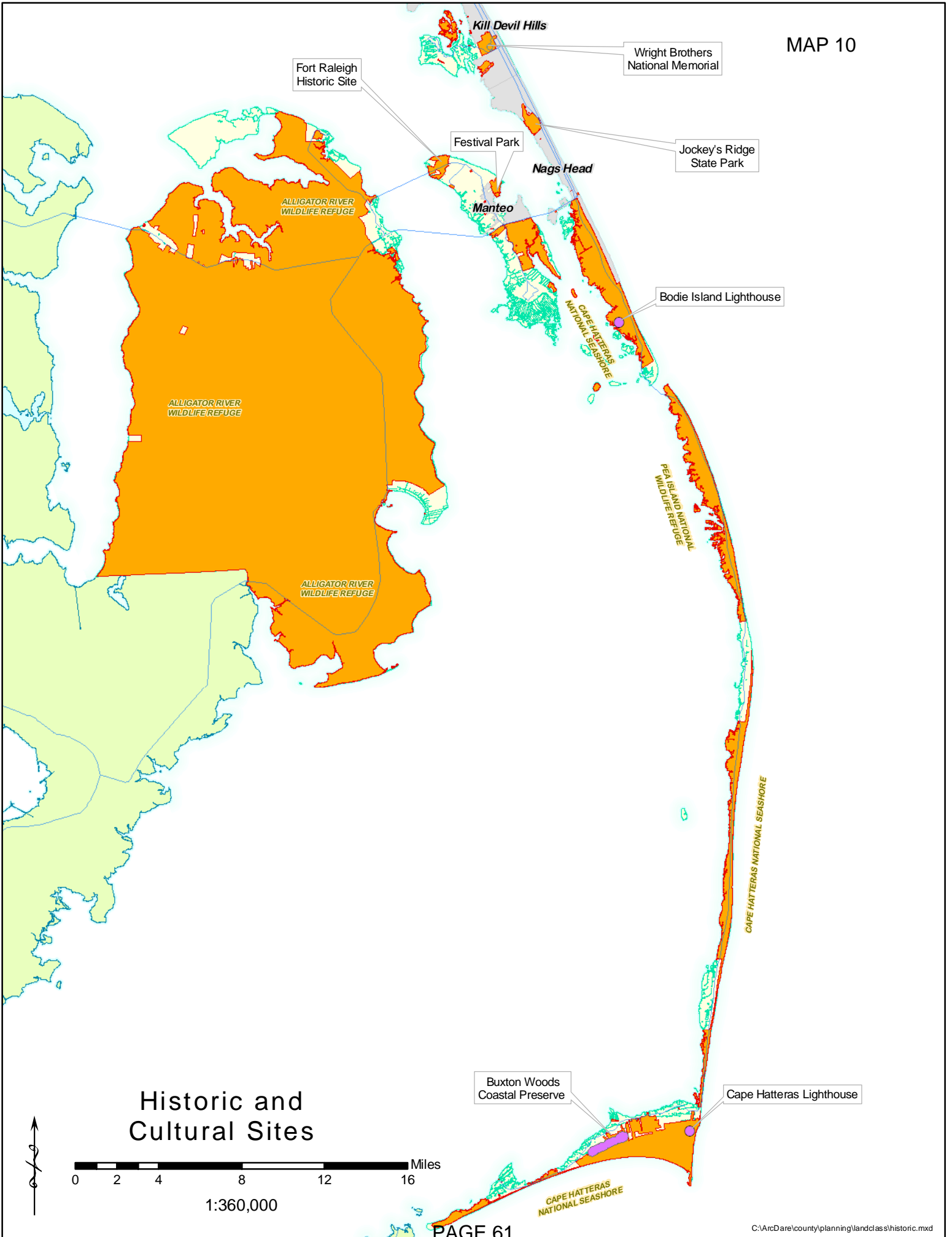
0 2.5 5 10 15 20 Miles

Fast Moving Hurricane

Hurricane Storm Surge Areas - Fast Moving Storms
(Source: National Hurricane Center)



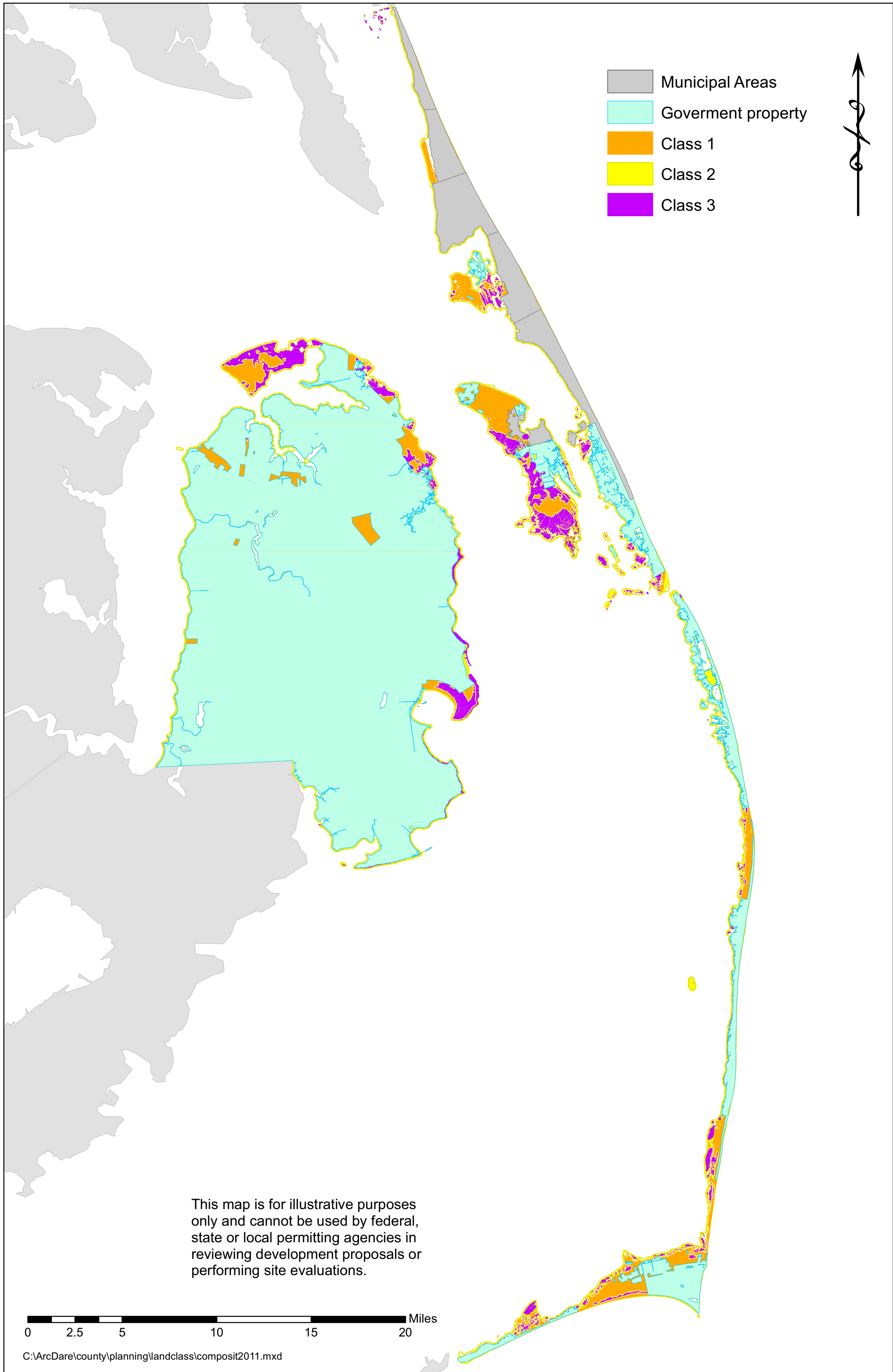
0 2.5 5 10 15 20 Miles



Historic and Cultural Sites

0 2 4 8 12 16 Miles

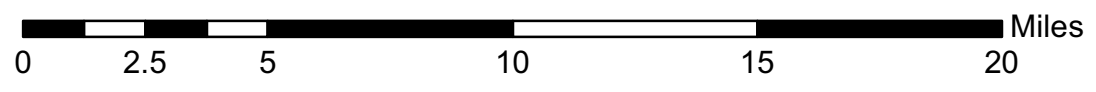
1:360,000



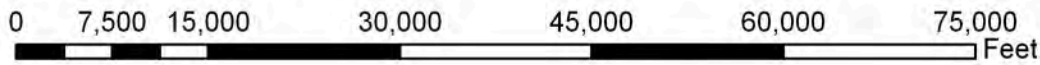
- Municipal Areas
- Government property
- Class 1
- Class 2
- Class 3







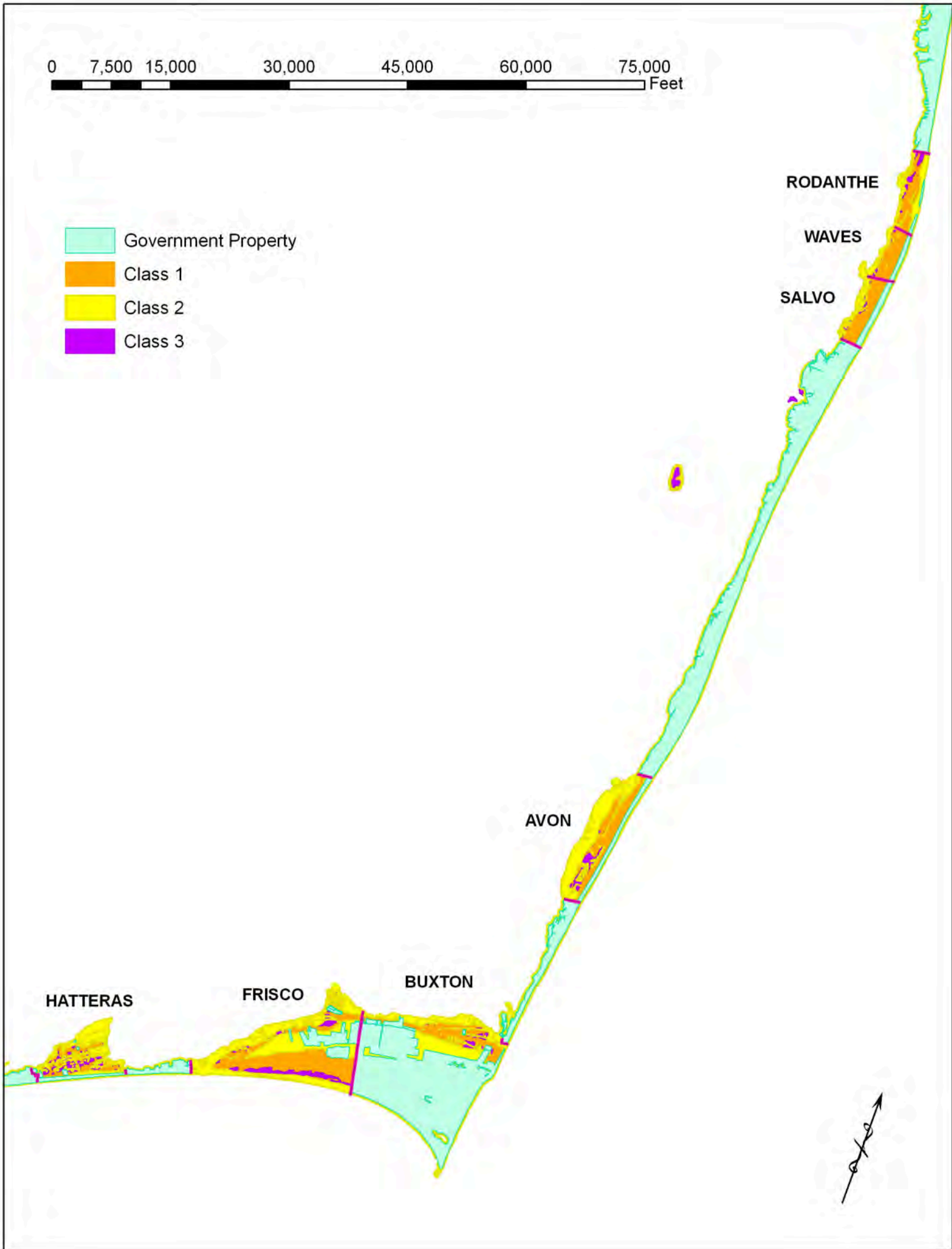
This map is for illustrative purposes only and cannot be used by federal, state or local permitting agencies in reviewing development proposals or performing site evaluations.

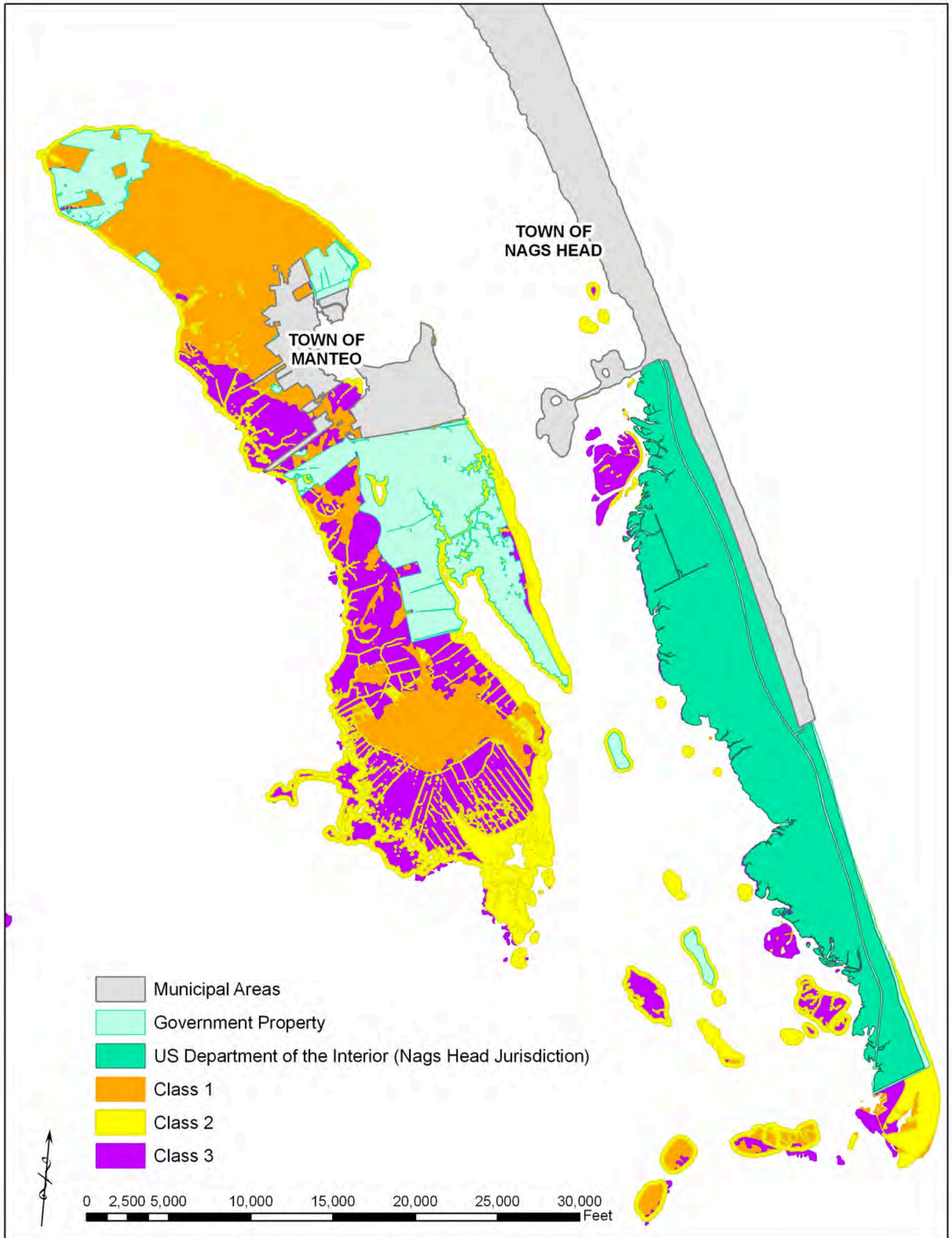


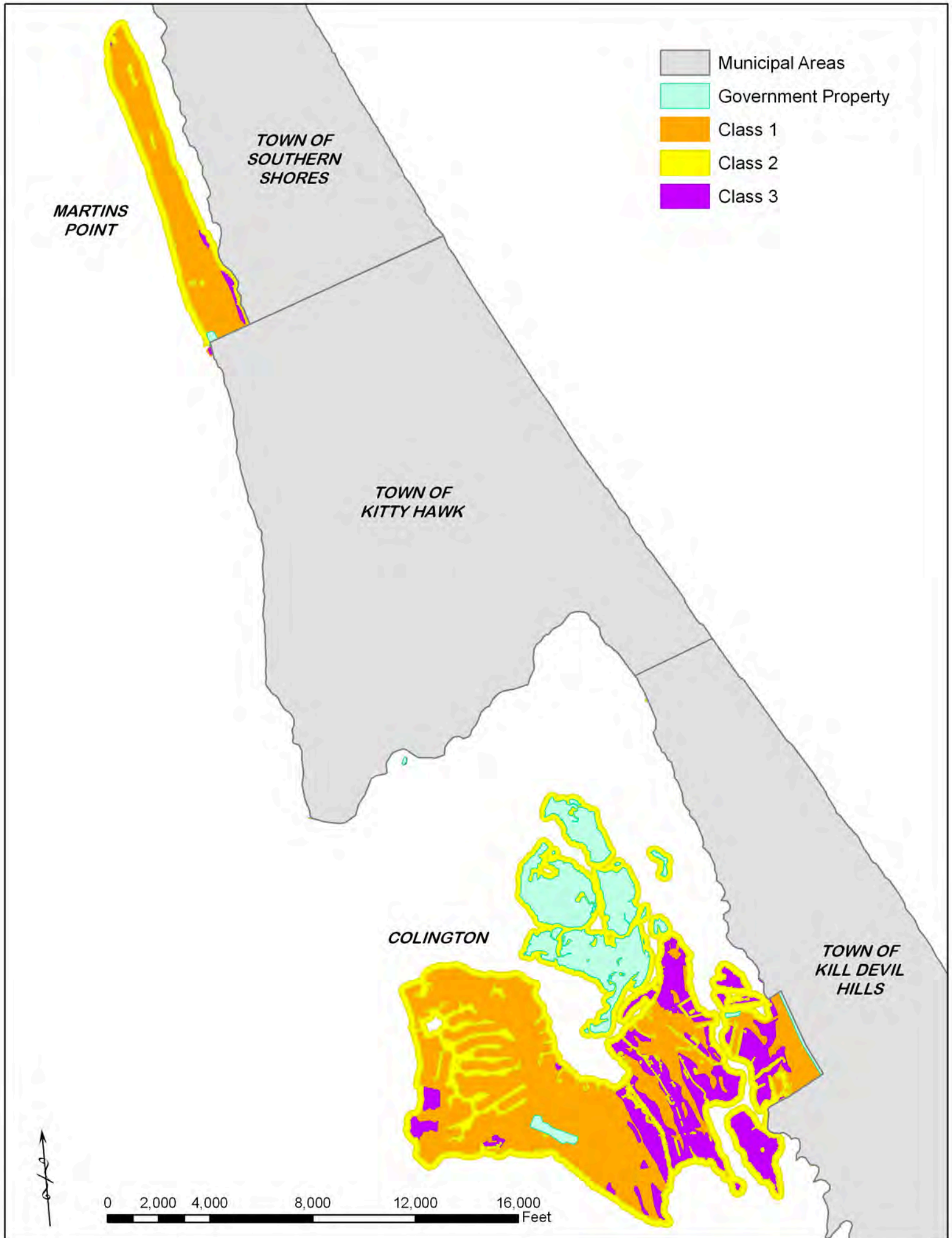
C:\ArcDare\county\planning\landclass\composit2011.mxd

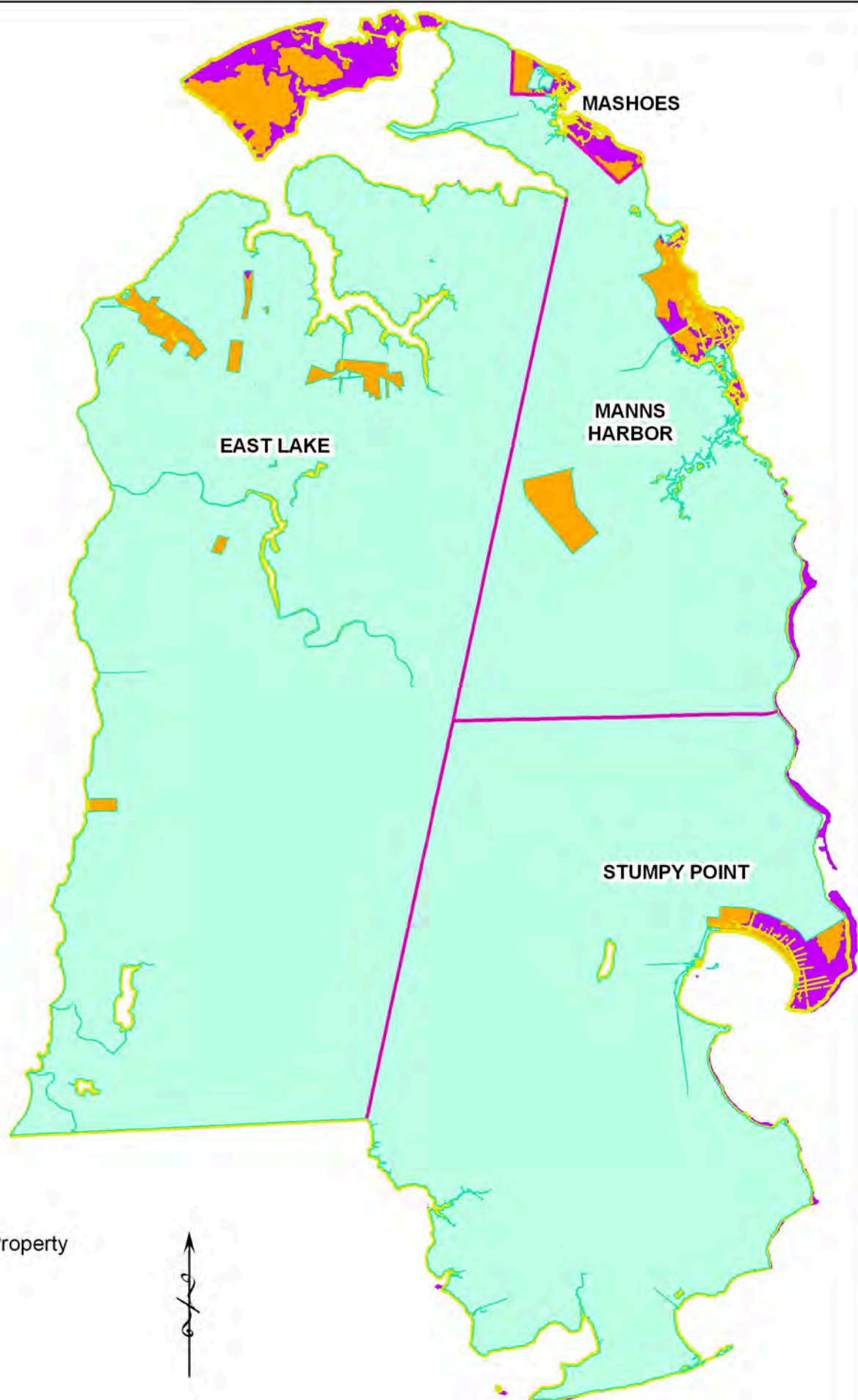


-  Government Property
-  Class 1
-  Class 2
-  Class 3









- Government Property
- Class 1
- Class 2
- Class 3



0 7,500 15,000 30,000 45,000 60,000 75,000 Feet

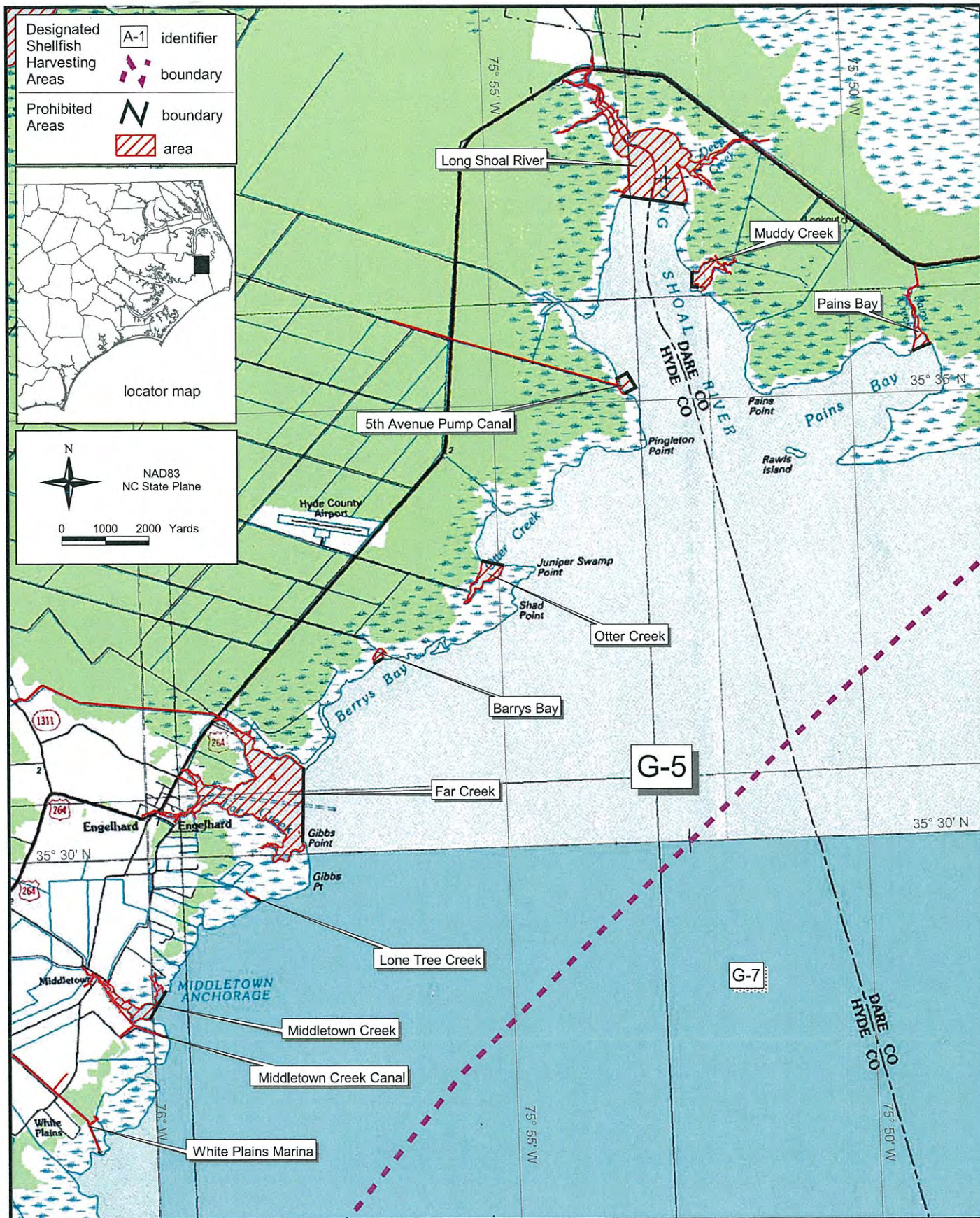
PROHIBITED TERRITORY

ENGELHARD AREA

Area G-5

(Prohibited areas are hatched)

COUNTIES: DARE, HYDE



(SEE BACK OF MAP FOR AREA DESCRIPTIONS.)

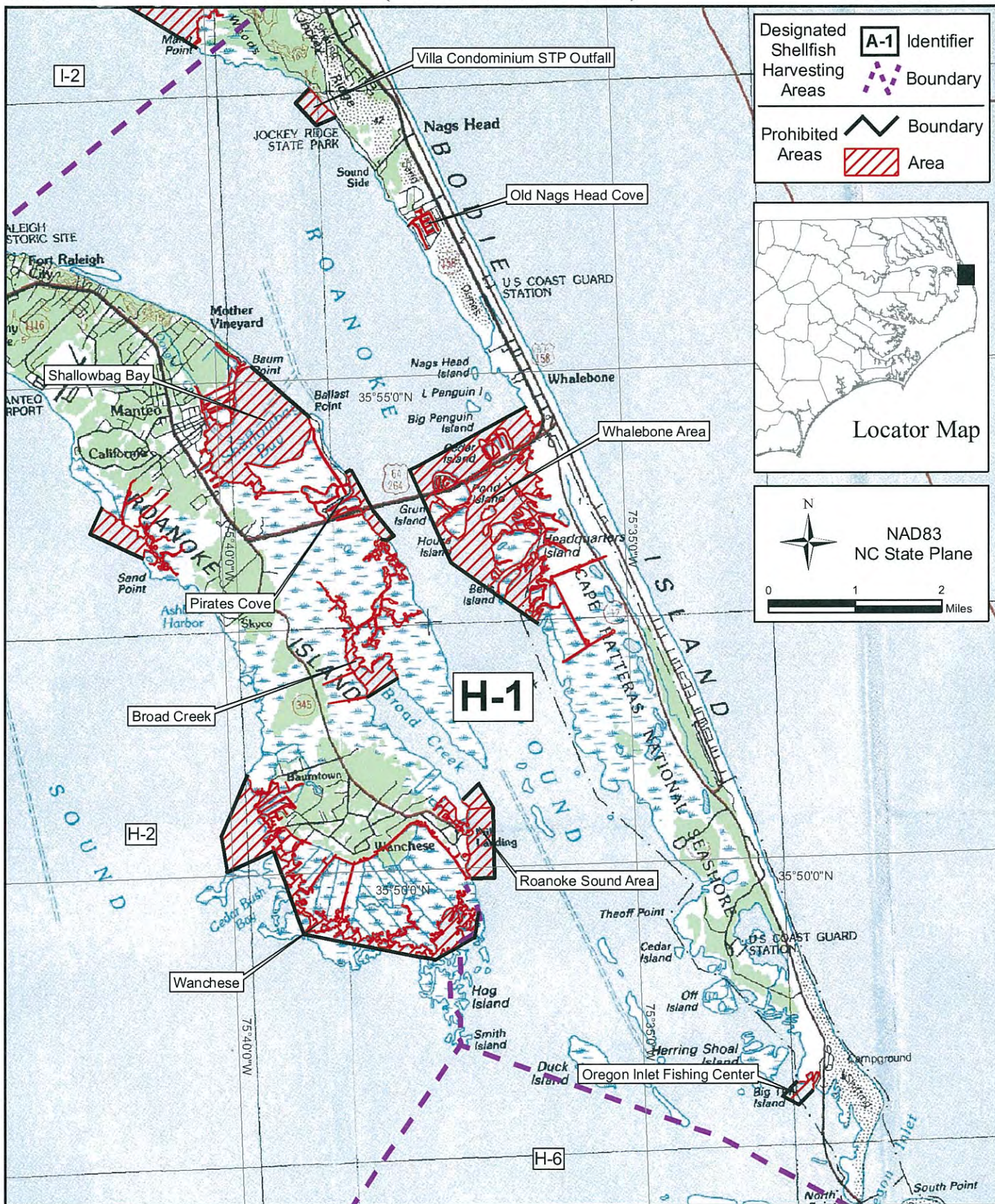
PROHIBITED TERRITORY

ROANOKE SOUND AREA

Area H-1

(Prohibited areas are hatched)

COUNTY: DARE



(SEE BACK OF MAP FOR AREA DESCRIPTIONS.)

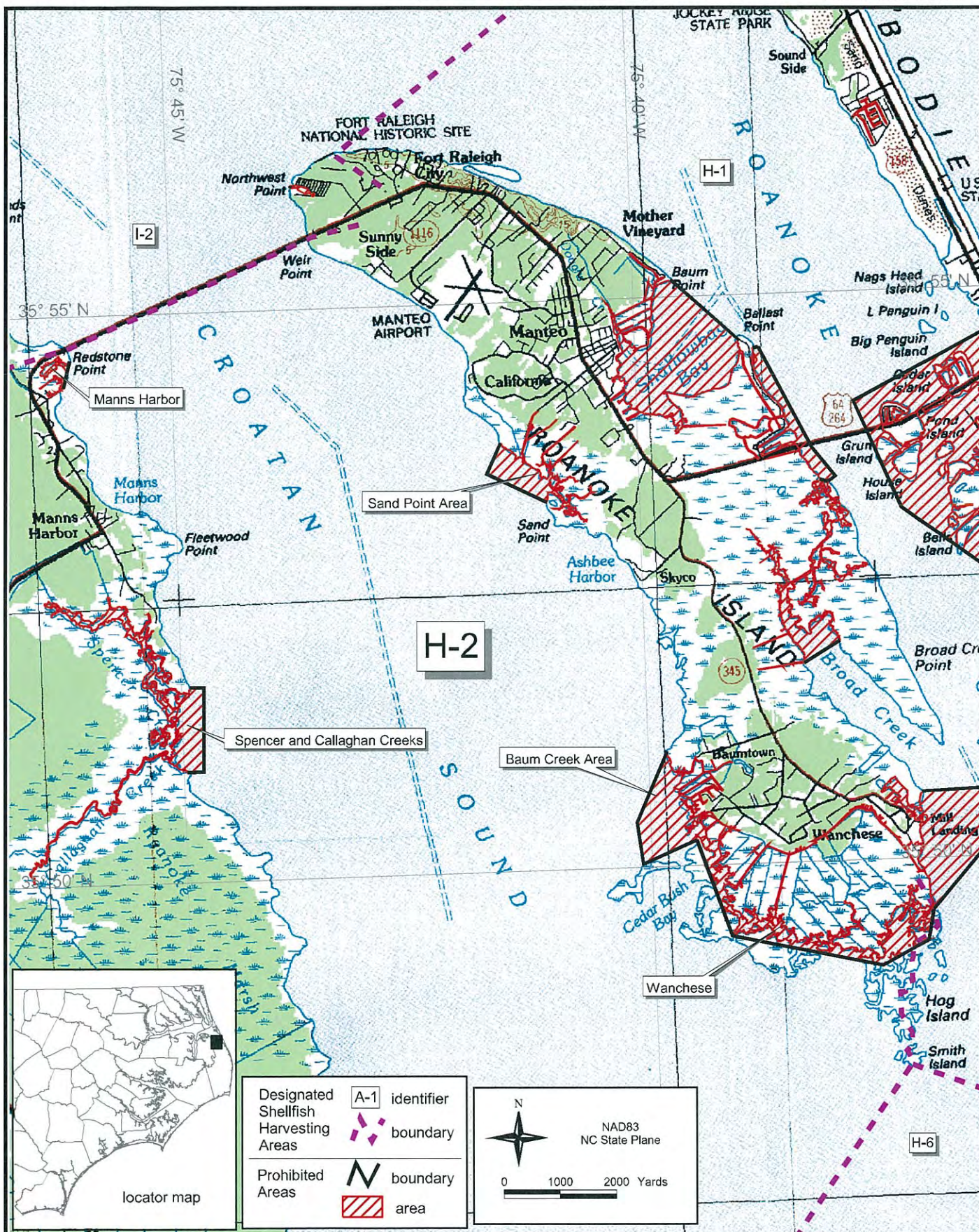
CROATAN SOUND AREA

Area H

PROHIBITED TERRITORY

(Prohibited areas are hatched)

COUNTY: DARE



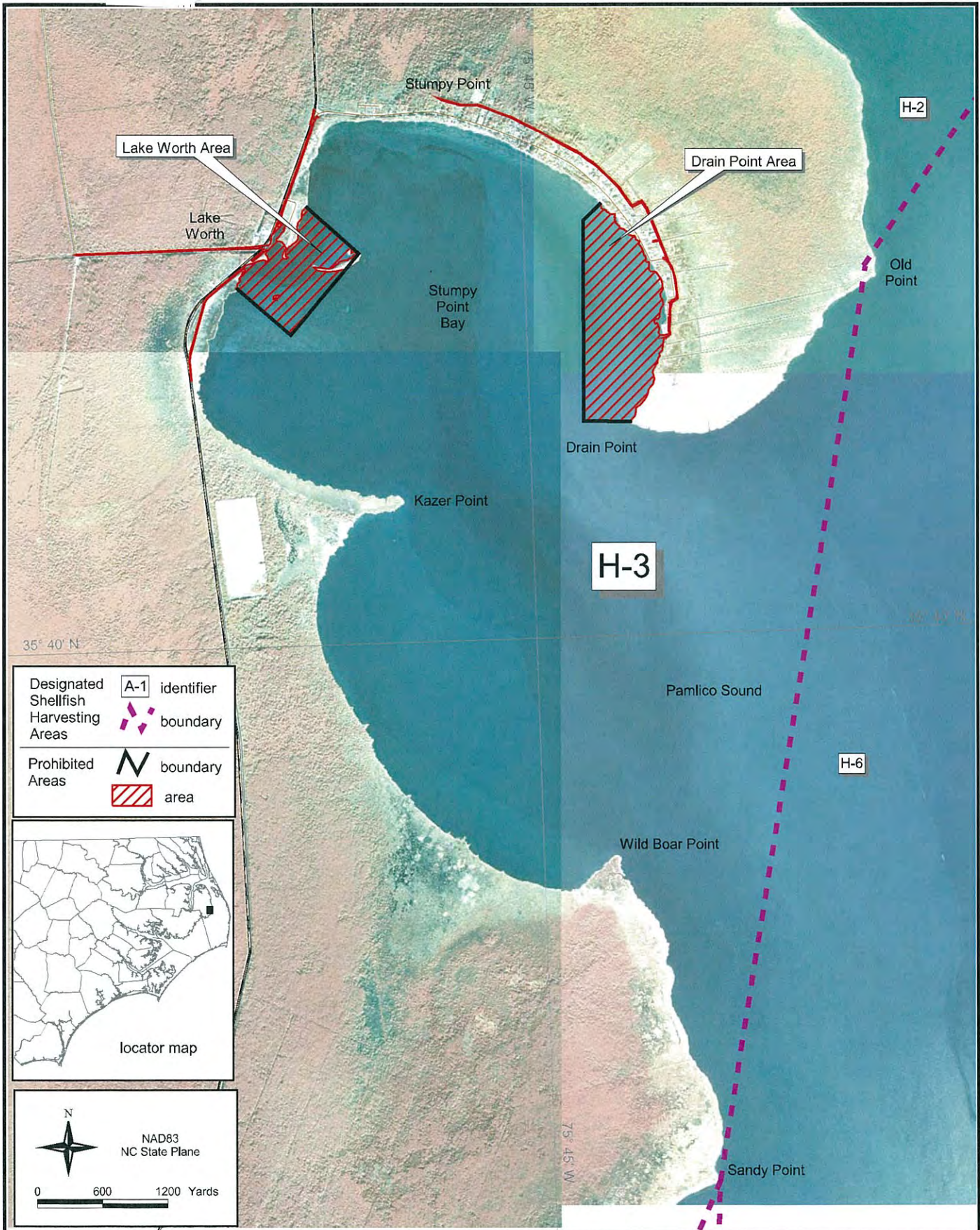
(SEE BACK OF MAP FOR AREA DESCRIPTIONS.)

STUMPY POINT AREA
Area H-3

PROHIBITED TERRITORY

(Prohibited areas are hatched)

COUNTY: DARE



(SEE BACK OF MAP FOR AREA DESCRIPTIONS.)

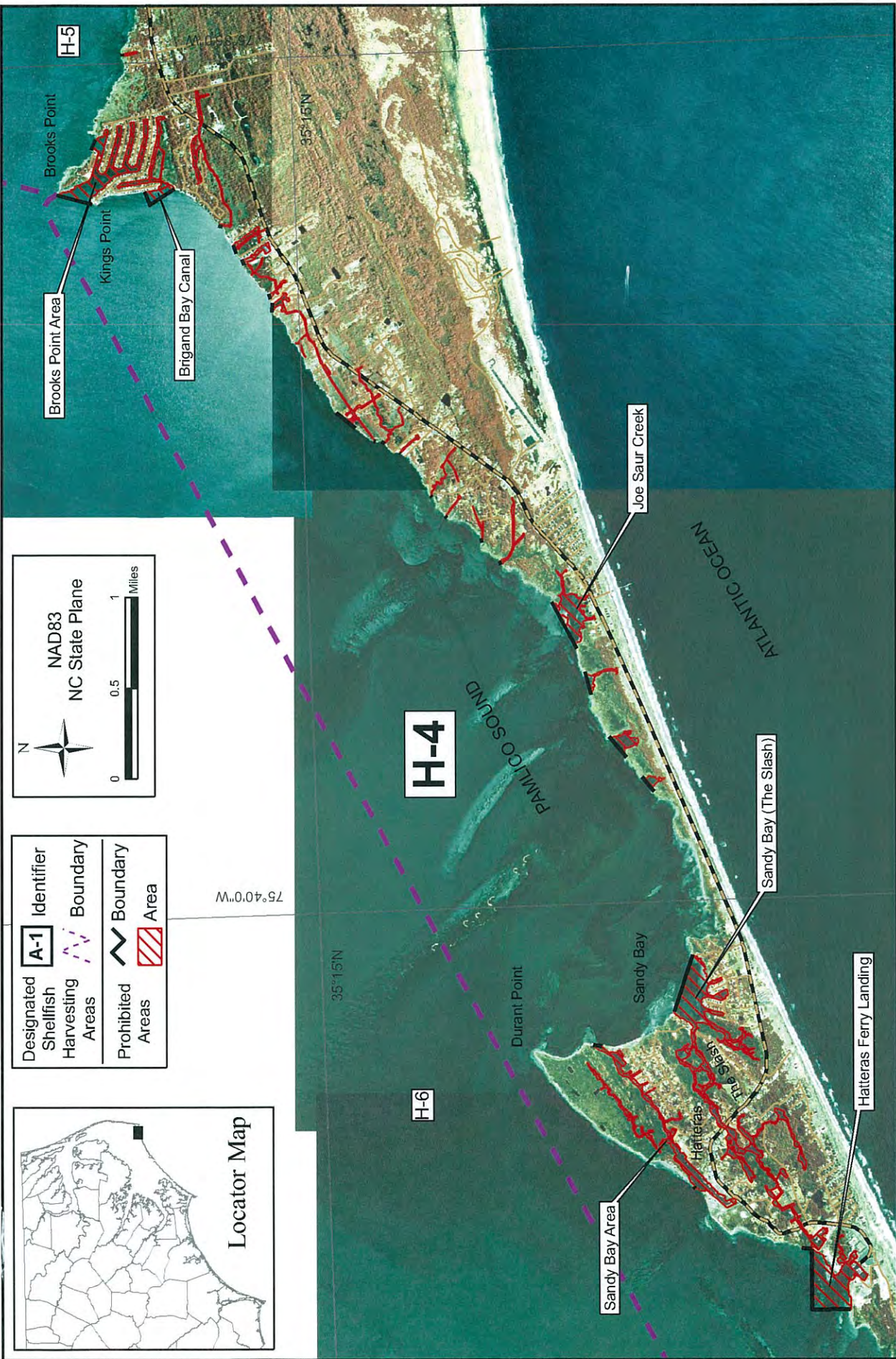
PROHIBITED TERRITORY

(Prohibited areas are hatched)

HATTERAS- OUTER BANKS AREA

Area H-4

COUNTY: DARE



(SEE BACK OF MAP FOR AREA DESCRIPTIONS.)

PROHIBITED TERRITORY

OUTER BANKS AREA

Area H-5

(Prohibited areas are hatched)

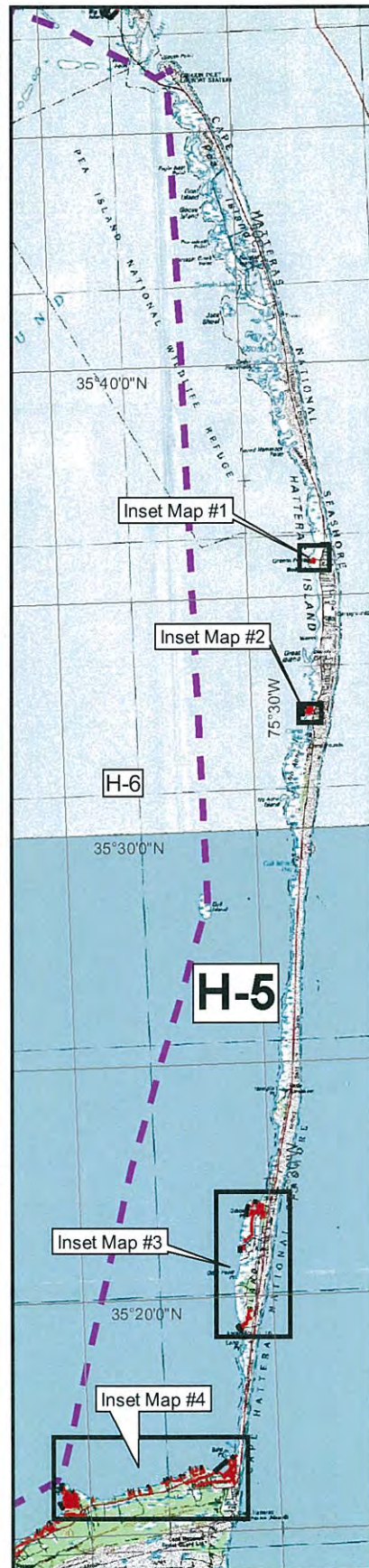
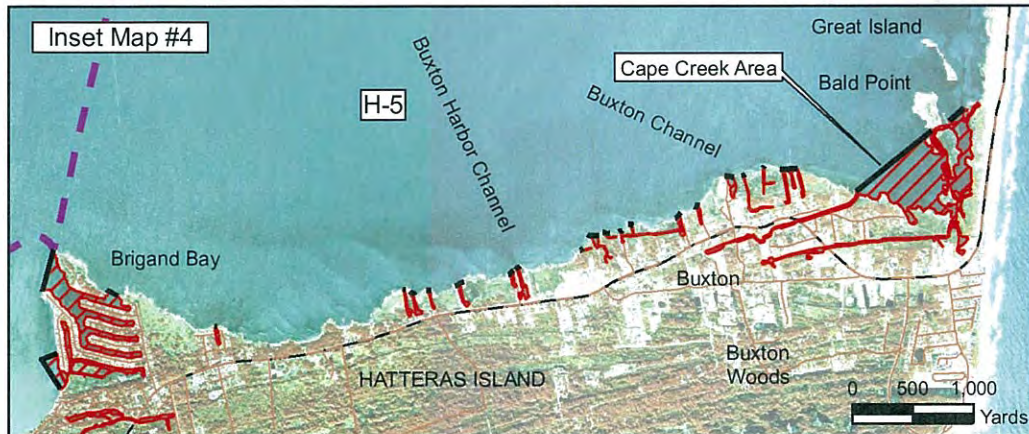
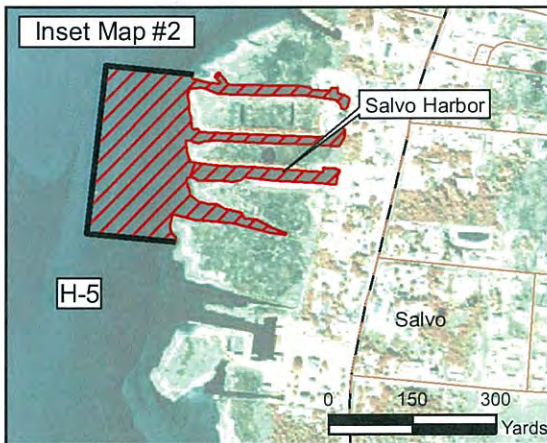
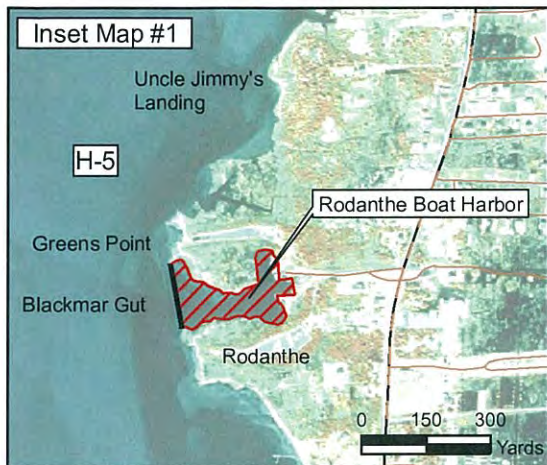
COUNTY: DARE



Designated Shellfish Harvesting Areas	A-1 Identifier	Boundary
Prohibited Areas	Boundary	Area

NAD83
NC State Plane

0 2.5 5 Miles

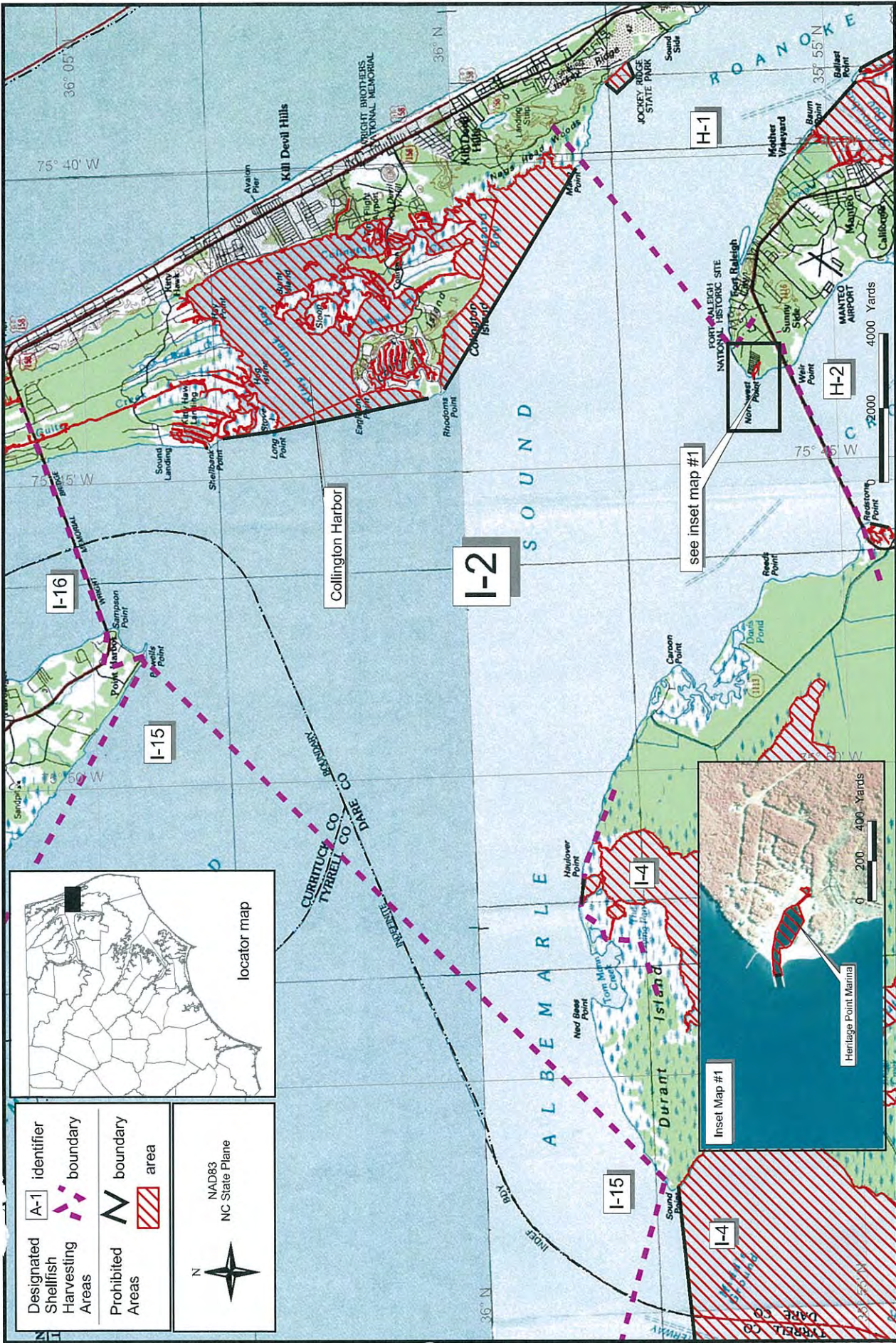


(SEE BACK OF MAP FOR AREA DESCRIPTIONS.)

ALBEMARLE SOUND - COLINGTON AREA
PROHIBITED TERRITORY

COUNTIES: CURRITUCK, CAMDEN,
 DARE, TYRRELL

(Prohibited areas are hatched)



(SEE BACK OF MAP FOR AREA DESCRIPTIONS.)

Existing land use patterns

The island geography of Dare County greatly influences the land use patterns of unincorporated Dare County and has resulted in the establishment of numerous distinct villages. The narrowness of some areas of the County limits the location of additional transportation routes other than the main transportation corridors. Commercial development is generally found along the main transportation routes. Residential areas are located in other areas and accessed by smaller roads and streets.

The predominant land use in each village in unincorporated Dare County is residential, most often single family homes which is reflective of the County’s policy of preferred residential development. The CAMA land use guidelines require the development of existing use maps to depict the existing land use patterns. Maps have been prepared for each of the areas of unincorporated Dare County and the amount of land dedicated to various land use categories have been calculated for each map. These maps are included at the end of this section on pages 91-101. General land use categories used to develop these maps are as follows:

Residential – single-family homes, duplexes, multifamily structures, mobile homes and mobile home parks.

Commercial – retail, food stores, hotels and motels, professional and medical offices, sales, service establishments, and other business uses.

Industrial – boat building facilities, contractors’ offices, warehouses, manufacturing, concrete plants, wholesale and distribution facilities.

Institutional – churches and religious facilities, schools, cemeteries, public and private utilities, fire stations, community buildings, recreational areas, improved federal, state, or county property.

Public – undeveloped Federal, State or County property.

Undeveloped – privately-owned vacant land.

The following table summarizes the categories of land uses found in each village area.

Table 22—Acreage Calculations for Existing Uses

Acres	Avon	Buxton	Frisco	Hatteras	Rodanthe	Waves	Salvo	TOTAL
Residential	524	566	510	341	173	129	218	2461
Commercial	80	147	96	81	53	111	31	599
Industrial	0	1.0	2.0	0	0	0	0	3
Institutional	17	168	216	34	34	4	1	474
Public	141	3753	1494	65	3	50	112	5618
Undeveloped	569	428	633	370	179	100	178	2457
	1331	5063	2951	891	442	394	540	11612

Acres	Martin's Point	KDH Out/Colington	Manteo Out	Wanchese	Manns Harbor	Mashoes	East Lake	Stumpy Point	TOTAL
Residential	231	859	1366	865	558	41	341	92	4353
Commercial	0	63	78	244	70	0	0	3	458
Industrial	0	2	2	70	14	0	0	2	89
Institutional	0	29	703	38	767	1	4	40	1582
Public	0	29	1680	1210	33171	87	88209	56172	180558
Undeveloped	63	1012	1225	3727	1092	943	4771	1392	14224
	294	1994	5054	6154	35672	1072	93325	57701	201264
	Resd	Commercial	Industrial	Institut.	Public	Undvlpd			
TOTAL	2461	599	3	474	5618	2457		11612	
TOTAL	4353	458	89	1582	180558	14224		201264	
	6814	1057	91	2056	186176	16681		212876	

An analysis of vacant land in unincorporated Dare County is found under the discussion of "Future Land Use Needs" located at the end of this section.

Land Use-Water Quality Conflicts

One identified conflict with water quality is the use of older, non-functioning wastewater systems in Stumpy Point, many of which discharge into Stumpy Point Bay. A centralized wastewater treatment plant is currently under construction in Stumpy Point and is scheduled for completion in 2010. Once on-line, this wastewater system will replace the older systems and water quality in the Stumpy Point Bay should improve significantly.

Other potential water quality conflicts involve the runoff from impervious surfaces such as roadways, parking lots, and other surfaces adjacent to water bodies. The State water monitoring program tests numerous sites in Dare County throughout the year. Test results after heavy rain events often result in temporary closure of public water access areas due to high levels of fecal coliform bacteria levels. The use of buffer programs to prevent the location of impervious surfaces in close proximity of water bodies is one regulatory approach that can be effective in addressing runoff concerns. Also, increased public awareness of the need to remove animal waste along neighborhood streets and walkways will assist with water quality impacts from runoff. Animal waste from domestic and non-domestic animals is an identified contributing factor in increased fecal coliform levels following heavy rain events.

Individual Village Descriptions

MARTIN'S POINT – Martin's Point Subdivision is located adjacent to the Town of Southern Shores with commercial development along the frontage of US 158. The majority of the subdivision is platted as residential lots. A manned guard gate limits access to the residential section. For years, the development of Martin's Point was under the extraterritorial zoning jurisdiction of Southern Shores. However, the residential portions of the subdivision reverted back to the County's jurisdiction in

October 2000. The commercial areas remain under the ETJ of Southern Shores. Development in Martin's Point will be limited in the next 5 years to the existing vacant lots in the subdivision. Of the platted residential lots, about 70% of these lots have already been developed with single family homes. Some portions of the vacant lots may be located in flood hazards areas or in CAMA AECs along the Currituck Sound. Recognized construction techniques, such as elevation of the structures and setbacks from the shoreline, can be utilized to address any limitations associated with the natural features of the area.

KDH OUTSIDE/COLINGTON – The KDH Outside tax district includes the area locally known as Baum Bay and is located adjacent to the Kill Devil Hills municipal boundary and continues to the first bridge along Colington Road. The development patterns for Baum Bay and Colington can be distinguished by the variation of land uses found throughout the islands. This variation in land use is the result of decades of unregulated land use. However, in 1997, a zoning map was adopted for all of Colington and the Baum Bay area. The largest subdivision in the area, Colington Harbour was zoned in 1985. Both areas continue to be a largely year-round community with a mix of single-family residences, mobile homes and a handful of commercial uses. The presence of rich estuarine shorelines prompted the Colington area to be a fishing village with an emphasis on crabbing prior to the discovery of the Outer Banks as a tourist resort. Commercial fishing and crabbing continues to be an important source of income for many Colington residents and a source of recreational pleasure for visitors. Commercial fishing and traditional land uses played an important role in the development of a Colington zoning map to facilitate these uses while at the same time the map limits the commercial growth potential of Colington. The development of the First Flight Schools complex nearby serves as an additional attraction to many families moving to the area.

Access to the area is along SR 1217 (Colington Road), a winding two-lane road with limited right-of-way width. This heavily traveled secondary road represents a major challenge to transportation planners in NCDOT 1st District. Further compounding this challenge has been the ever-increasing residential development in the KDH Outside/Colington area, as well as the 2004 construction of First Flight High School. Recognizing the need to address these concerns, NCDOT has included the "operation and safety improvement" of a 4.3 mile segment of SR 1217 in the 2009-2013 Transportation Improvement Plan (ID# R-5014).

Development in the KDH Outside/Colington area is expected to occur during the next five years following the established patterns of pockets of commercial development in those areas zoned for commercial uses with residential development occurring in the numerous subdivisions in the area and the handful of mobile homes parks. Re-development of some of the older mobile homes parks into platted subdivisions may occur within the next five years. The KDH Outside/Colington area is impacted by the limitations associated with the development along water bodies and low-lying areas of poorly drained soils. Most of the area is located in AE flood zones with a few elevated areas of X zones. Construction mitigation techniques of elevation of structures and shoreline setbacks can be utilized to address any limitations associated with the natural features of the area.

RODANTHE – Traveling south from Oregon Inlet on NC 12, Rodanthe is the first Hatteras Island village after the Pea Island Wildlife Refuge. All of Hatteras Island, including Rodanthe, is critically dependent upon the Bonner Bridge, as a means of connection to the remainder of the county. For this reason, these island villages have a special interest in awaiting the replacement of the Bonner Bridge.

Similar to the other areas of unincorporated Dare County, Rodanthe lacks any defined pattern of development other than that which is found along NC 12, the only major transportation route in the village. Elsewhere, residential lots and structures of various sizes and ages can be found throughout the village.

In 1997, the County constructed a reverse osmosis plant for the Rodanthe Waves Salvo area. The development potential for the village has been enhanced by this central water supply but continues to be limited by poorly drained soils. The availability of a central water supply has contributed to the quality of life in Rodanthe by eliminating the need for private wells for potable water. In the past, private wells had been inundated by ocean over wash, saltwater intrusion, and encroachment by multiple drainfield/septic tank systems.

The Rodanthe village areas continues to be one of the last frontiers in unincorporated Dare County in terms of the residents' continued resistance to land use controls. However, as land use almost everywhere else in Dare County comes under zoning ordinances, the introduction of unpopular or incompatible uses and/or structures has prompted some civic leaders to rethink the need for zoning. The 1989 adoption of the S-1 zoning district did provide some degree of land-use control, including density limitations, setbacks, and lot coverage requirements. The efficacy of these regulations and the need for further regulation will be reevaluated as appropriate.

There are two principal transportation issues in Rodanthe. The first is largely a result of the absence of subdivision regulations decades ago that has left the village with a multitude of private roads in poor condition. Secondly, the principal route, NC 12, is at times unreliable due to ocean overwash and a regulatory/environmental dilemma that has stymied transportation planners at NCDOT. A multi-agency task force has been working for several years in an effort to develop both short-term and long-term alternatives for the management and maintenance of NC 12.

Development along the NC 12 corridor is expected over the next five years following the existing patterns of visitor-oriented businesses. Residential development for seasonal visitors is anticipated along the oceanfront and near shore areas. Year-round residential development can be expected in the older platted subdivisions. Re-development of some of the older, smaller seasonal rentals will occur as owners upgrade their property to compete with the amenities of the newer and larger vacation rentals. Some multifamily development may be experienced but of a limited amount. Development along the immediate shoreline is impacted by shoreline erosion and the designation of VE flood zones. Construction methods consistent with the VE zone will be needed to address these designations as well as increased setbacks in the erosion-prone areas. There are some areas of Rodanthe along the Black Mar Gut which feature poorly drained soils that may be unsuitable for wastewater systems. Black Mar Gut is located between the Atlantic Ocean and NC12. However,

engineered wastewater systems may be available for these areas which would not qualify for a traditional gravity-fed septic system.

WAVES – The village of Waves is predominantly detached residential structures with some commercial development. Like Rodanthe, free market forces have established themselves along NC 12. In addition, a number of large travel trailer parks, campgrounds, and other tourist-oriented businesses are located in Waves. The village has also benefited from the construction of the reverse osmosis plant but development is still limited by soil characteristics that are poorly drained. Demand on existing infrastructure is predicted to increase with the continued development of subsequent phases of the Wind Over Waves subdivision, initially approved in 2002.

Development along the NC 12 corridor is expected over the next five years following the existing patterns of visitor-oriented businesses. Residential development for seasonal visitors is anticipated along the oceanfront and near shore areas. Year-round residential development can be expected in the older platted subdivisions. Re-development of some of the older, smaller seasonal rentals will occur as owners upgrade their property to compete with the amenities of the newer and larger vacation rentals. Some multifamily development may be experienced but of a limited amount. The oceanfront shoreline of Waves is not as severely impacted by erosion as Rodanthe. Although there may be some VE zones along the immediate shoreline, most of Waves is located in AE flood zones. There are coastal wetlands along the estuarine shoreline which are protected by existing CAMA and Corps of Engineers regulatory programs. The use of buffers and setbacks can be used to address the limitations associated with these natural features. Existing soil conditions can generally be modified to qualify for on-site wastewater systems.

SALVO – Salvo is bordered by the village of Waves on the north end and the Cape Hatteras National Seashore on the south end. The development of Salvo is similar to Rodanthe and Waves with both residential and commercial structures located along NC 12. The commercial development is focused mainly on providing services to the seasonal population. The construction of the reverse osmosis plant has removed the reliance on private wells for the Salvo residents, but development is still limited by the poorly drained soils found throughout Hatteras Island. Salvo will continue to develop in the established patterns with a mix of permanent homes and businesses along NC 12 and seasonal residents along the immediate ocean and estuarine shorelines.

Development along the NC 12 corridor is expected over the next five years following the existing patterns of visitor-oriented businesses. Residential development for seasonal visitors is anticipated along the oceanfront and along the estuarine shoreline in subdivisions platted since the 2003 update, such as the Wind Over Waves Subdivision. Year-round residential development can be expected in the older platted subdivisions. Re-development of some of the older, smaller seasonal rentals will occur as owners upgrade their property to compete with the amenities of the newer and larger vacation rentals. Some multifamily development may be experienced but of a limited amount. Erosion along the oceanfront shoreline of Salvo is not as severe as Rodanthe. Although there may be some VE zones along the immediate shoreline, most of Salvo is located in AE flood zones. There are coastal

wetlands along the estuarine shoreline which are protected by existing CAMA and Corps of Engineers regulatory programs. The use of buffers and setbacks can be used to address the limitations associated with these natural features. Existing soil conditions can generally be modified to qualify for on-site wastewater systems.

AVON – Avon village can be separated into two distinct areas within its boundaries. The first is the residential development and businesses established to serve the seasonal visitors. The other is the year-round population located within the old village of Kinnakeet. Along the NC 12 corridor, the majority of land is already developed with mostly residential structures offered for resort rentals or platted as residential lots. The commercial establishments along NC 12 cater mainly to the seasonal population's needs but also provide services to the year-round populations as evidenced by the island's only franchise grocery store and medical center. Inside the village are residences of the year-round population of Avon, with a mixture of single-family homes and mobile homes. The influence of commercial fishing is evident within the old village, particularly along the harborfront. Avon is a blend of the old and the new with the soundside village composed of extended families and the new areas developing as a resort accommodations and service community.

Development is expected to continue in the Kinnakeet Shores Soundside Subdivision since there are many vacant lots remaining in this multi-phase development. Commercial development will occur along the NC 12 corridor with an emphasis on visitor-related goods and services. Residential development in the village will follow existing patterns of single family homes and mobile homes. There are limited areas for multi-family development based on the Avon zoning map. Erosion along the oceanfront shoreline of Avon is not as severe as Rodanthe. Although there may be some VE zones along the immediate shoreline, most of Avon is located in AE flood zones. There are coastal wetlands along the estuarine shoreline which are protected by existing CAMA and Corps of Engineers regulatory programs. The use of buffers and setbacks can be used to address the limitations associated with these natural features. Existing soil conditions can generally be modified to qualify for on-site wastewater systems. Development in the Kinnakeet Shores soundside portions are not impacted by soil conditions since they are served by a privately-owned wastewater treatment plant.

BUXTON – Buxton is the commercial and institutional mid-point of Hatteras Island. The recently expanded Cape Hatteras School and newly constructed elementary school are both located in the village. Buxton is comprised of mostly year-round residents and serves as a commercial hub for the entire island. The County constructed a multi-use recreational facility known as the Fessenden Center in Buxton in the mid 1990s that is widely used for recreational sports and other community gatherings. The now-defunct U.S. Coast Guard base has been targeted for public beach access and recreational uses. The Buxton Woods maritime forest influences a good portion of the residential development occurring in Buxton. Development in the Buxton Woods forest must comply with the County's special zoning regulations established to preserve the maritime forest setting. Buxton will continue to serve as the commercial and institutional center of Hatteras Island with a mix of single-family homes and modest residential development serving the year-round residents of the area.

Development in Buxton will follow the NC 12 corridor for commercial development according to the zoning map for this area. Although there are a few hotels and rental cottages located in the northern end of the village, Buxton is not characterized by a majority of seasonal resort rentals as is the case in some of the other Hatteras Island villages. The overlay of the SED-1 zoning ordinance for Buxton Woods presents an additional layer of regulations that must be addressed in the Buxton Woods area. There are some X zones in the Buxton Woods area but most of Buxton is located in AE flood zones. Soils conditions are similar to other areas of Hatteras Island and are generally addressed by the placement of fill on low-lying properties to meet wastewater regulations. Wetlands areas are protected by the appropriate State and Federal agencies. The SED-1 zoning regulations also include a wetland buffer setback from structural improvements.

FRISCO – Similar to Buxton, development in Frisco is influenced by the maritime forest known as Buxton Woods. Several older subdivisions on the soundside of Frisco are beginning to develop with seasonal and year-round homes. Minimal zoning regulations of the S-1 district that permits all uses is established outside the areas zoned SED-1 for the maritime forest. In 1998, efforts to adopt more restrictive zoning regulations were unsuccessful due to the lack of a community consensus on desired land use patterns along the vacant road frontage of NC 12. As a result, commercial development has continued to dominant the NC 12 road corridor. This pattern of development is expected to continue in Frisco due to the restrictive nature SED-1 zoning of Buxton Woods and the lack of use-specific guidelines of the S-1 zoning.

Commercial development along the NC 12 highway is expected to continue in Frisco over the next five years. Lack of use-specific zoning in Frisco may result in the development of land uses in Frisco that could not locate in the villages of Avon, Buxton or Hatteras which all have use-specific zoning maps. Residential development will occur in the older subdivisions, such as Brigands Bay, and along those oceanfront divisions platted in the late 1980s-early 1990s although most of these oceanfront areas are developed already.

Development in Frisco will be impacted by the SED-1 zoning in those portions of Buxton Woods location in Frisco. There are some X zones in the Buxton Woods area but most of Frisco is located in AE flood zones. Soils conditions are similar to other areas of Hatteras Island and generally can be addressed by the placement of fill on low-lying properties to meet wastewater regulations. Wetlands areas are protected by the appropriate State and Federal agencies. The SED-1 zoning regulations also include a wetland buffer setback from structural improvements

HATTERAS – Hatteras village is the southern-most village of Hatteras Island and serves as an entry point for Dare County with the location of the Hatteras-Ocracoke ferry landing at the village/County boundary. The influence of commercial and sport fishing is evident in Hatteras village and many year-round residents make their homes in Hatteras. Large seasonal resort homes line the oceanfront of Hatteras village. Commercial development is centered along NC 12 that runs through the village. A commercial hub has also developed around the ferry landing as part of the Hatteras Landing planned

unit development approved by Dare County in the early 1990s. Hatteras has done well in retaining its coastal village character while accommodating growth directed to the seasonal population.

Development in Hatteras will occur in those platted subdivisions that were approved in the 1990s with an emphasis on seasonal resort homes in these newer divisions. Some areas of the oceanfront that remain vacant after Hurricane Isabel may be developed in multifamily or hotels although no specific plans are valid at this point. Commercial development will follow NC 12 in those areas zoned for commercial uses on the Hatteras zoning map. Most of the commercial development can be expected to focus on visitor-oriented goods and services especially in the area surrounding the Hatteras ferry landing. Although there may be some VE zones along the immediate shoreline, most of Hatteras is located in AE flood zones. There are coastal wetlands along the estuarine shoreline which are protected by existing CAMA and Corps of Engineers regulatory programs. The use of buffers and setbacks can be used to address the limitations associated with these natural features. Existing soil conditions can generally be modified to qualify for on-site wastewater systems.

ROANOKE ISLAND (outside Manteo) – This area of Dare County is predominantly made up of a year-round population. A mixture of single-family residential structures and mobile homes are located in the area. This section of Dare County is the oldest and most traditional setting for year-round residency. The location of central sewer lines along a portion of US 64 that stretches from the southern Manteo town boundary to the Pirates Cove development has influenced the commercial development of Roanoke Island. Commercial developments have been constructed along this section of US 64 that fall under the planning jurisdiction of Dare County but are connected to the central sewer service of the Town of Manteo. This availability of central sewer from Manteo, and the 2003 construction of the Virginia Dare Memorial Bridge from the Mainland to the US 64/NC 345 intersection will continue to influence this area of Roanoke Island. Effects of these infrastructure improvements are already being felt, with the Outer Banks Visitors Bureau facility and the Dare County Governmental complex developed along the new corridor. Educational facilities have also been the subject of improved development. The construction of a new middle school has allowed the College of the Albemarle to expand operations to the old middle school facility inside the Manteo town limits. One of the unique features of the area is the overlay corridor district that runs from the Umstead Bridge to the Baum Bridge that establishes architectural and vegetation protection provisions along the frontage of US 64. Roanoke Island is also home to the Dare County regional airport and several cultural facilities, including the North Carolina Aquarium and Fort-Raleigh-Elizabethan Gardens complex.

Commercial development on Roanoke Island will most likely center around the US 64/NC 345 intersection near the Dare County governmental complex. This area is within the Town of Manteo's central wastewater service boundary and connection to this wastewater facility can be used to address limitations of soils that may be found in this area of Roanoke Island. Residential development for mostly year-round residents will continue at a steady pace over the next five years with little multifamily development anticipated. There are many areas on Roanoke Island that are in X zones and

not subject to base flood elevation standards. Setbacks along the estuarine shorelines can be used to address the regulatory limitations associated with wetland areas.

SKYCO – the Skyco area is located south of the Washington Baum Bridge on Roanoke Island along NC 345 and north of a large wetlands area that separates Skyco from the village of Wanchese. The Skyco area is predominately single family residences along NC 345 and Skyco Road and Toler Road. There are scattered commercial uses in the Skyco area that front on NC 345 including storage warehouses and an automobile repair shop. The Skyco area was zoned in 2007 with a SNC, Skyco neighborhood commercial designation. The “SNC” zoning designation offers both land use controls as well as protection for the continued activity of existing land uses.

Limited development in the Skyco area is expected over the next five years. A large tract of land in the Skyco area has been purchased by the State of North Carolina for development as the UNC- Coastal Studies campus. This project is the most significant factor that will affect the Skyco area over the next planning period.

WANCHESE – Located at the southern end of Roanoke Island, Wanchese is best described as a coastal fishing community with land development supporting this industry. A large portion of the community has been developed as the Wanchese Seafood Industrial Park by the State. In recent years, this facility has begun to develop some established businesses, but has yet to reach its full potential due to the uncertainty of the dynamic and unreliable conditions of Oregon Inlet, which is the only ocean inlet for northern Dare County. Wanchese is also home to several boat manufacturing firms. Other commercial development is devoted to the immediate community needs. The population is almost entirely year-round residents of extended families. Residential development is a mixture of single-family homes and mobile homes. Wanchese is a year-round community with strong ties to the commercial fishing and boating industries.

Recognizing the need for use-specific zoning to regulate development patterns, the village undertook an effort to establish these regulations, which were adopted by the Board of Commissioners in 2006. The regulations establish eleven zoning districts that promote the traditional land use activities existing in Wanchese, while limiting land development activities which might be perceived as being inharmonious with the coastal village’s character.

For the Wanchese community, development will be limited to what is needed to support the residential and commercial needs of the community. Some larger-scale commercial development may occur in the Wanchese Seafood Industrial Park. Multi-family development is not permitted in the Wanchese zoning districts. Wanchese is characterized by low-lying areas due to its proximity to the surrounding waters. All development activity must contend with the limitations associated with the low elevations and poorly-drained soils. Traditional construction practices such as building elevations and setbacks from water bodies can be used to address the limitations of the natural conditions in the

Wanchese community. Soils can generally be supplemented with fill material to meet environmental health requirements for wastewater systems.

MANNS HARBOR– Manns Harbor is located on the Mainland of Dare County. Rural in nature, Manns Harbor is comprised mostly of year-round residents with limited commercial development. However, the landing of the Virginia Dare Memorial Bridge, constructed in 2003, is located at the US 64 intersection in Manns Harbor, and it is anticipated that this will greatly influence the community over the next several years. Recognizing this influence, and with the support of the community, zoning regulations were adopted for Manns Harbor in 2007. Of the two zoning districts adopted, one district was specifically designated to reflect existing development patterns of primarily residential uses, with a mix of service and maritime-related commerce. A second district, encompassing properties along the Hwy. 64 corridor to the new bridge landing, was designed to accommodate a greater variety of uses needed to facilitate the newly created traffic pattern. Manns Harbor is the largest of the Mainland villages.

It is anticipated that development in Manns Harbor will be limited to what is needed to support the residential and commercial needs of the community. Multi-family development is not permitted in the Manns Harbor zoning districts. Any commercial development will occur along the US 64-264 corridor as consistent with the zoning regulations in place for that village. Most of Manns Harbor is located in AE flood zones and any development will be elevated according to FEMA standards. Setbacks from any water body will be used for compliance with CAMA estuarine regulations. Soils can generally be supplemented with fill material to meet environmental health requirements for wastewater systems.

MASHOES – The small village of Mashoes is located off US 64 from Manns Harbor. It is a small community with a handful of year-round residents and no commercial land uses. The area relies on private wells and individual on-site septic systems for wastewater treatment. Along with Manns Harbor in 2007, Mashoes was zoned to accommodate and preserve its primarily residential nature. Only minor residential development is expected in Mashoes over the next five years.

EAST LAKE – The majority of the Mainland area is under the jurisdiction of the Federal government as either the Alligator River Wildlife Refuge or the US Navy/Air Force bombing range. There is little development in East Lake except for the residential uses for the area's handful of permanent residents. Most homes are located along US 64. Dare County's heritage as a rural area and sportsman paradise remains evident in East Lake. As of 2007, East Lake remains the only village in unincorporated Dare County with no zoning regulations in place.

Within the next five years, the NC Department of Transportation is scheduled to replace the old Alligator River Bridge and begin the expansion of US 64 to four lanes. Although these infrastructure improvements will impact the physical layout of East Lake, development will be limited by the poorly-drained soils in the area. Residential development for year-round residents will be minor in scope as will commercial development.

STUMPY POINT – Located off US 264, Stumpy Point is somewhat isolated from the other areas of Dare County with a majority of the property owned by permanent residents. The influence of commercial fishing is evident in Stumpy Point due to its proximity to the Pamlico Sound. Poor soils and low elevations have limited development in Stumpy Point despite being a waterfront community. A central water system for Stumpy Point was constructed by the County to provide more suitable potable water for the residents, who previously used private wells with an undesirable water quality. A wastewater treatment facility under construction in Stumpy Point, and along with existing zoning regulations, is planned to restrict further development by limiting its service to a predetermined number of lots.

There is no significant residential and commercial development anticipated in Stumpy Point over the next five years. Although the Stumpy Point wastewater treatment plant will be operational in 2010, this facility is intended to replace existing malfunctioning septic systems and not to encourage economic development. The remoteness of the area from the other portions of Dare County contributes to the lack of development activities for seasonal visitors. Any residential development that may occur will be housing for year-round residents.

Land Use Compatibility Issues

The large amount of publicly-owned land (80%) in Dare County creates competition for development of the remaining 20% of privately owned lands. All development and infrastructure to address the needs of the year-round population and the seasonal visitors must be located on the privately-owned lands. The shopping and housing needs of the permanent population varies from the types of businesses frequented by seasonal visitors to our area. A prime example of this variation is the numerous tourist-oriented retail stores located throughout Dare County. The goods marketed by these stores are generally designed for vacationers as souvenirs and do not appeal to year-round residents. This is also the case with residential development as some housing is constructed exclusively for use as seasonal rentals and not designed or marketed for year-round homes due to their size and layout. The seasonal home segment of the residential market creates some issues in older neighborhoods where a resort rental may be constructed next to a structure used for year-round occupancy. In these instances, there are often complaints about noise, parking, and solid waste disposal associated with resort rentals.

The lack of use specific zoning in the Hatteras Island villages of Rodanthe, Waves, Salvo, and Frisco, which are zoned S-1, often results in some compatibility issues. S-1 zoning permits all uses and it is possible for a commercial use, such as a restaurant, to be constructed adjacent to a residential lot. In more traditional zoning districts, residential uses are separated from commercial or other land uses to avoid use conflicts. This use potential also exists for East Lake, which remains the only unzoned area in unincorporated Dare County. These potential conflicts are mitigated by gross floor area standards in the S-1 areas and East Lake by prohibiting certain commercial structures from exceeding a maximum gross floor area of 20,000 square feet. Similar gross floor area limitations apply in all commercial zoning districts in unincorporated Dare County.

The abundance of natural resources in Dare County and the need to protect these resources requires attention to avoid the location of incompatible land uses. Water quality protection is a priority of Dare County and the State of North Carolina CAMA program. The establishment of the 30-foot CAMA buffer along estuarine shorelines is one measure that is used to avoid undesirable impacts on our natural resources.

Some land uses such as the Dare County Regional Airport on Roanoke Island, the Billy Mitchell Airstrip on Hatteras Island, and the US Navy bombing range on the Mainland represent manmade hazards to surrounding development. Height restraints and setbacks are examples of regulatory measures that are used to address land use compatibility with these sites.

Historic, Cultural, and Scenic Areas

Dare County is renown for our historic, cultural, and scenic areas with numerous national parks and historic sites, maritime forests, and various nature preserves that are protected by federal and state ownership. In unincorporated Dare County, these areas include Fort Raleigh on Roanoke Island, the Alligator River Wildlife Refuge on Mainland Dare County and on Hatteras Island, the Pea Island Wildlife Refuge, the Cape Hatteras National Seashore, and the Buxton Woods Coastal Preserve. In addition to the historic and cultural significance of these areas, the scenic vistas offered by the miles of unspoiled beaches and estuarine shorelines are unparalleled in North Carolina and the East Coast. The location and extent of these areas are depicted on MAP 10 on page 61.

Development Trends and Future Land Use Projections

The tables and charts found on pages 17 and 18 illustrate the number of building permits issued and subdivision lots recorded in unincorporated Dare County over the past several years. As evident from a review of this information, the number of building permits issued annually has decreased since 2002. The housing and construction industry nationwide has suffered a downturn over the past several months and this trend has been the case locally. The number of permits issued in the Hatteras Island office continues to exceed the permits issued for the Roanoke Island/Mainland office and the North Beaches office which oversees Colington and Martin's Point. Although the pace of construction is expected to increase again, it is not expected to reach the peak number of permits issued in the year 2002 simply because much of the privately- owned land has already been developed. Development will continue with an emphasis on residential structures with limited commercial development. Redevelopment of parcels currently in use as mobile home parks, recreational sites, or other underutilized sites present a re-development potential, but this potential is difficult to predict. Development on Hatteras Island will most likely continue to outpace the development of the other areas of unincorporated Dare County.

The continued use of engineered wastewater systems that utilize more advanced treatment methods will also influence future land use needs. Although the use of engineered wastewater systems will become more prevalent over the next 5 and 10 year planning periods and provide better treatment of

wastewater effluent than septic tank/drainfield systems, it is not expected that minimum lot sizes or other density standards will be reduced to allow for a greater intensity level of development. Regulations on stormwater management, wetland alteration and fill, vegetative buffers and other similar regulations will continue to limit the scope of development even though advances in wastewater treatment technologies may result in less area dedicated to wastewater treatment.

The CAMA guidelines require local governments to provide estimates of future residential land use needs, both short-term (5 and 10 years) and long-term (20 years) for permanent and seasonal populations. These projections are challenging to forecast. An analysis of building permit activity for unincorporated Dare County was selected as the best methodology to forecast these needs. It was the consensus of the Planning staff and the Planning Board that using building permit data was more reliable than using the estimates for seasonal population detailed earlier in this section. Building permits are all-inclusive and do not distinguish between whether the structure is intended for year-round occupancy, as a second home or a seasonal rental. Using permit activity for single family homes for the years 2005-2008, an average number of permits for single family homes issued each year was established for each building inspection office in unincorporated Dare County. The Hatteras Island office (south) issues building permits for all of Hatteras Island. The Roanoke Island office (central) issues building permits for Roanoke Island, including Wanchese and all of the Mainland villages. The Kill Devil Hills satellite office (north) issues permits for the Baum Bay/Colington area and Martins Point. The years 2005-2008 were chosen by the Planning Department to reflect the most recent market conditions. Building permit activity in 2002-2004 was much higher than the activity in the period of 2005-2008. However these years were not included in the base permit activity used for the future land uses needs for several reasons. One reason is that the 2002-2004 development occurred during a national housing boom that began to decline in 2005. It is not anticipated that this rate of housing development will occur again since the amount of land in unincorporated Dare County is limited by the large amount of publicly-owned lands. A second reason is the lending practices of financial institutions and mortgage companies underwent drastic revisions in 2007 and 2008 that will affect the construction of second and resort homes. Many of the large financial institutions and mortgage companies in the United States experienced extreme financial difficulties in late 2008 resulting in federal government buyouts and aid packages to prevent the collapse of the financial institutions. As a result, more regulations on how banks and mortgage companies conduct business and approve mortgages can be expected over the next several years. This change will impact housing development nationwide and in Dare County. Because of these reasons, the Planning Department felt the building permit activity for 2005-2008 represented a more realistic base for analysis for the short-term planning period of 5, 10 years and the long-term planning period of 20 years. It should be noted that these are only estimated projections. Based on the decline in the number of overall building permit activity since 2005, the average estimate developed for each geographic region may be higher than will be realized. Table 23 presents the building permit activity for single family homes for each geographic region.

Table 23 Single Family Home Permits 2005-2008 (Source: Dare County Planning)

	HATTERAS	RI/MAINLAND	COL/MP	TOTAL
2005	151	49	77	277
2006	107	39	49	195
2007	63	27	27	117
2008	47	25	18	90
TOTAL	368	140	171	679
Average	92	35	43	170

The average number of permits was then multiplied by an acreage amount congruent to the average minimum lot size for each area to determine the annual acreage amount needed to support the yearly increase of development. This figure was then used to calculate the total acreage needed for residential development for each 5-year planning period, both short-term and long-term. Table 24 reflects these projections for future residential development.

Table 24 -- Future Residential Acreage Needs to 2030

	Average number of residential building permits	Average lot size per home	Total acreage needed annually	Acreage 2010-2015	Acreage Needed 2015-2020	Acreage Needed 2020-2025	Acreage Needed 2025-2030	TOTAL
South	92 permits	.35 acre	32 Acres	161acres	161 acres	161acres	161 acres	644 acres
Central	35 permits	.50 acre	18 Acres	90 acres	90 acres	90 acres	90 acres	360 acres
North	43 permits	.35 acre	15 acres	75 acres	75 acres	75 acres	75 acres 75 acres	300 acres
	170permits			326 acres	326 acres	326 acres	326 acres	1304 acres

Using the estimates for future needs for residential development, the amount of land in development in the different land classes of commercial/industrial and institutional can be projected for 2010-2030. The figures included in Table 25 are based on the acreage amounts from the existing use acreages presented in Table 22, it is also assumed that the percentages of development dedicated to each land class included in Table 22 will continue over the short-term and long-term planning periods.

Table 25 – Future Land in Development 2010-2030

		Existing Acreage 2010 from Table 22	Projected Acres in Development 2015	Projected Acres in Development in 2020	Projected Acres in Development in 2025	Projected Acres in Development in 2030
Residential (% of existing)	68%	6814	7138	7464	7790	8116
Comm/Industrial	12%	1202	1266	1317	1375	1432
Institutional	20%	2004	2099	2195	2291	2387
TOTAL	100%	10018	10497	10976	11456	11935

Table 26A is a listing of the undeveloped acres in private ownership as calculated on the existing use maps prepared by Dare County GIS. Table 26B is a breakdown of the vacant land that is already platted as subdivision lots and individual parcels that are less than one acre in size. It is recognized that some of the land area may not be usable due to the presence of wetland areas and soil composition. These figures are provided to demonstrate ability to support the future land use needs estimated in Table 24. According to the existing use maps, approximately 14,000 acres of undeveloped land is available in unincorporated Dare County. This acreage amount exceeds the total acreage of 11,935 calculated as needed for development to 2030 in Table 25. Some of the future development will occur on the vacant platted subdivision parcels as detailed in Table 26B. As previously stated in this section, predicting the future land use needs, for both residential and non-residential uses, is required by the CAMA guidelines. These future land use predictions are not intended to be used for infrastructure planning or capital improvements planning by Dare County but represent general estimations to demonstrate the ability to support the County's future land use needs.

Table 26A – Vacant Acreage

Tax District	Vacant Acres
Rodanthe	179
Waves	177
Salvo	457
Avon	569
Buxton	428
Frisco	633
Hatteras	370
KDH Outside/ Colington	1012
Martins Point	63
East Lake	4771

Tax District	Vacant Acres
Manns Harbor	1092
Mashoes	943
Stumpy Point	1392
Manteo Outside	1225
Wanchese	3726
TOTAL	17037

Table 26B – Platted Subdivision Lots in Unincorporated Dare County

	Column A	Column B
Tax District	Platted Lots	Individual Parcels < 1 acre
Rodanthe	212	35
Waves	94	17
Salvo	246	8
Avon	445	69
Buxton	167	106
Frisco	392	55
Hatteras	151	114
KDH Outside	22	2
Colington	671	24
Martins Point	71	0
East Lake	15	17
Manns Harbor	43	34
Mashoes	11	2
Stumpy Point	0	39
Manteo Outside	656	112
Wanchese	106	91
TOTAL	3302	725

Further analysis of all of the projections in these tables and the population projections found on pages 21 and 22 can be performed to provide additional estimates of future land use needs and housing needs in unincorporated Dare County. According to the figures on Table 26B there are currently 3302 platted subdivision lots and 725 parcels that are less than one acre in size that are available for development. Table 24 estimates that total building permits for unincorporated Dare County to be 170 per year or a total of 850 structures for each 5-year period. Table 26C analyzes the building permits from Table 24 and the population projections. The seasonal population projections for unincorporated Dare County represent 80% of the total increases of the population. Using this percentage rate for the total number of permits issued each 5-year increment, approximately 680 permits would be issued to accommodate the growth in the seasonal population and 170 permits would be issued to accommodate the growth of the permanent population in unincorporated Dare County. According to the vacant lot information provided in Table 26B, there is sufficient capacity to

address the estimated number of permits for both the seasonal population and the permanent population of unincorporated Dare County.

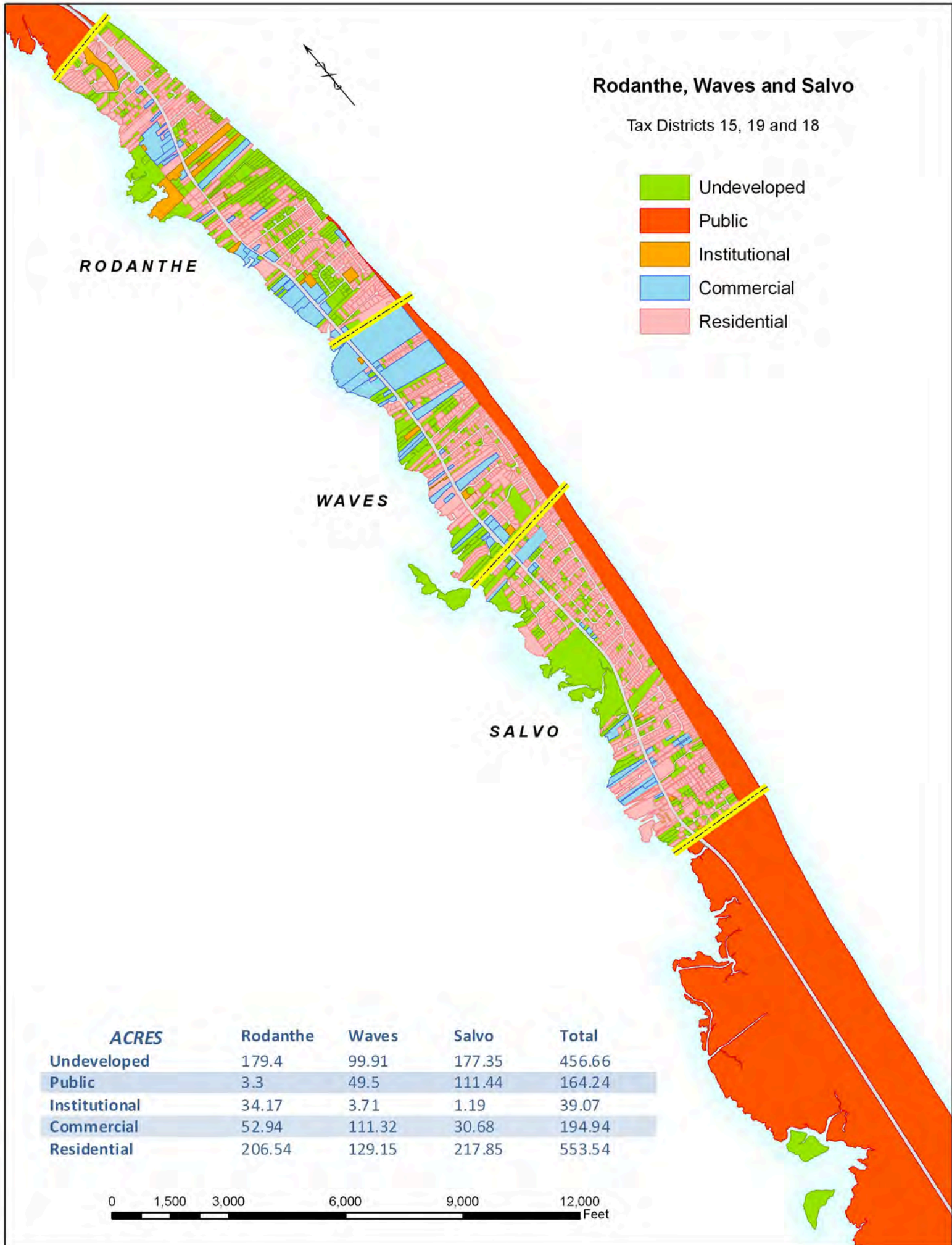
Table 26C – Comparison of Permit Projections to Population Projections

	Number of residential building permits 2010-2015 170 x 5	Number of residential building permits 2015-2020 170 x 5	Number of residential building permits 2020-2025 170 x 5	Number of residential building permits 2025-2030 170 x 5	Total
	850 permits	850 permits	850 permits	850 permits	3400 permits
Permanent population increase 2010-2015*	1925 (20% of total)	1731	1785	1615	7056
Seasonal population increase 2010-2015*	7658 (80% of total)	6869	7124	6427	28078
Total population increase	9583	8600	8909	8042	35134

Rodanthe, Waves and Salvo

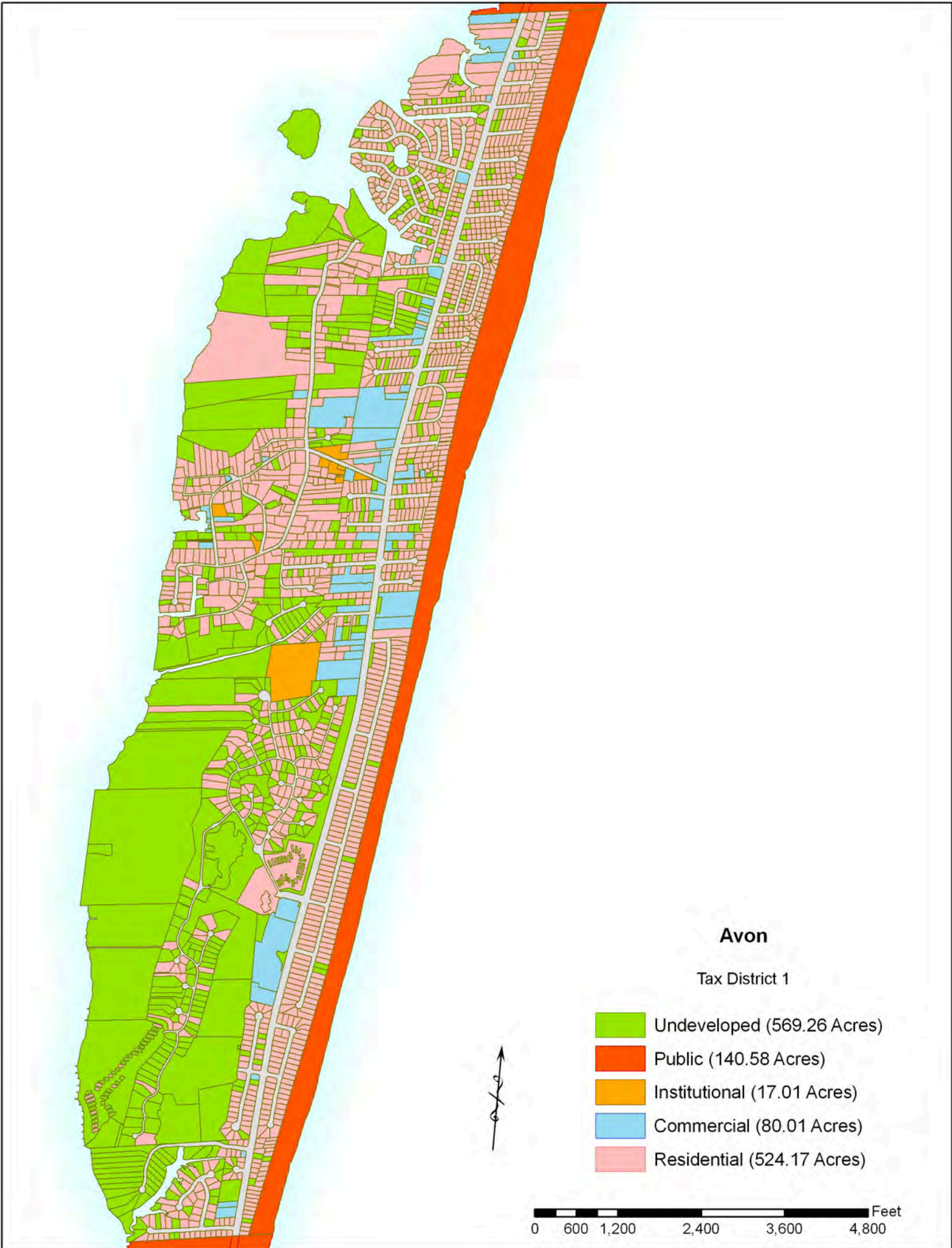
Tax Districts 15, 19 and 18

- Undeveloped
- Public
- Institutional
- Commercial
- Residential



<i>ACRES</i>	Rodanthe	Waves	Salvo	Total
Undeveloped	179.4	99.91	177.35	456.66
Public	3.3	49.5	111.44	164.24
Institutional	34.17	3.71	1.19	39.07
Commercial	52.94	111.32	30.68	194.94
Residential	206.54	129.15	217.85	553.54

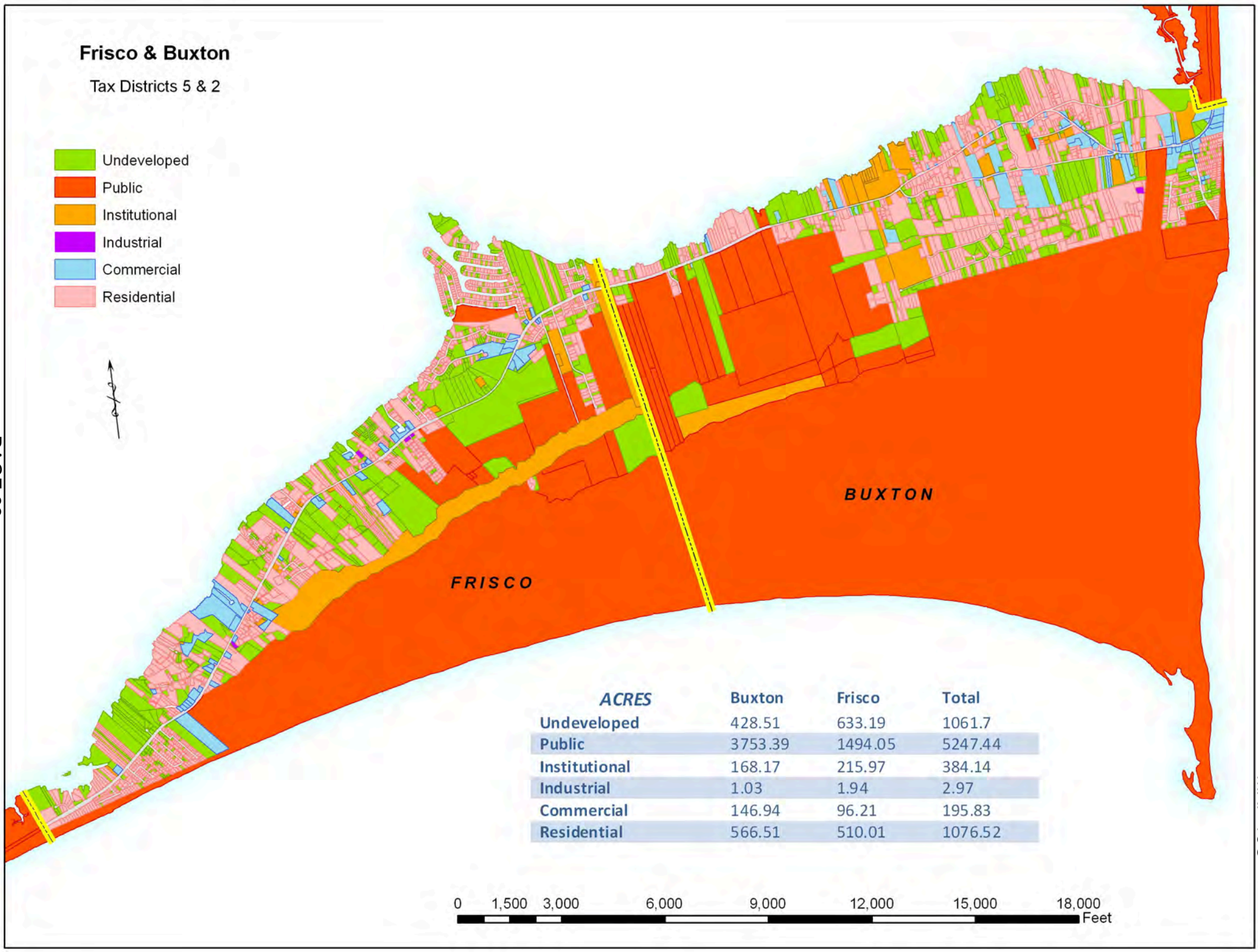




Frisco & Buxton

Tax Districts 5 & 2

- Undeveloped
- Public
- Institutional
- Industrial
- Commercial
- Residential

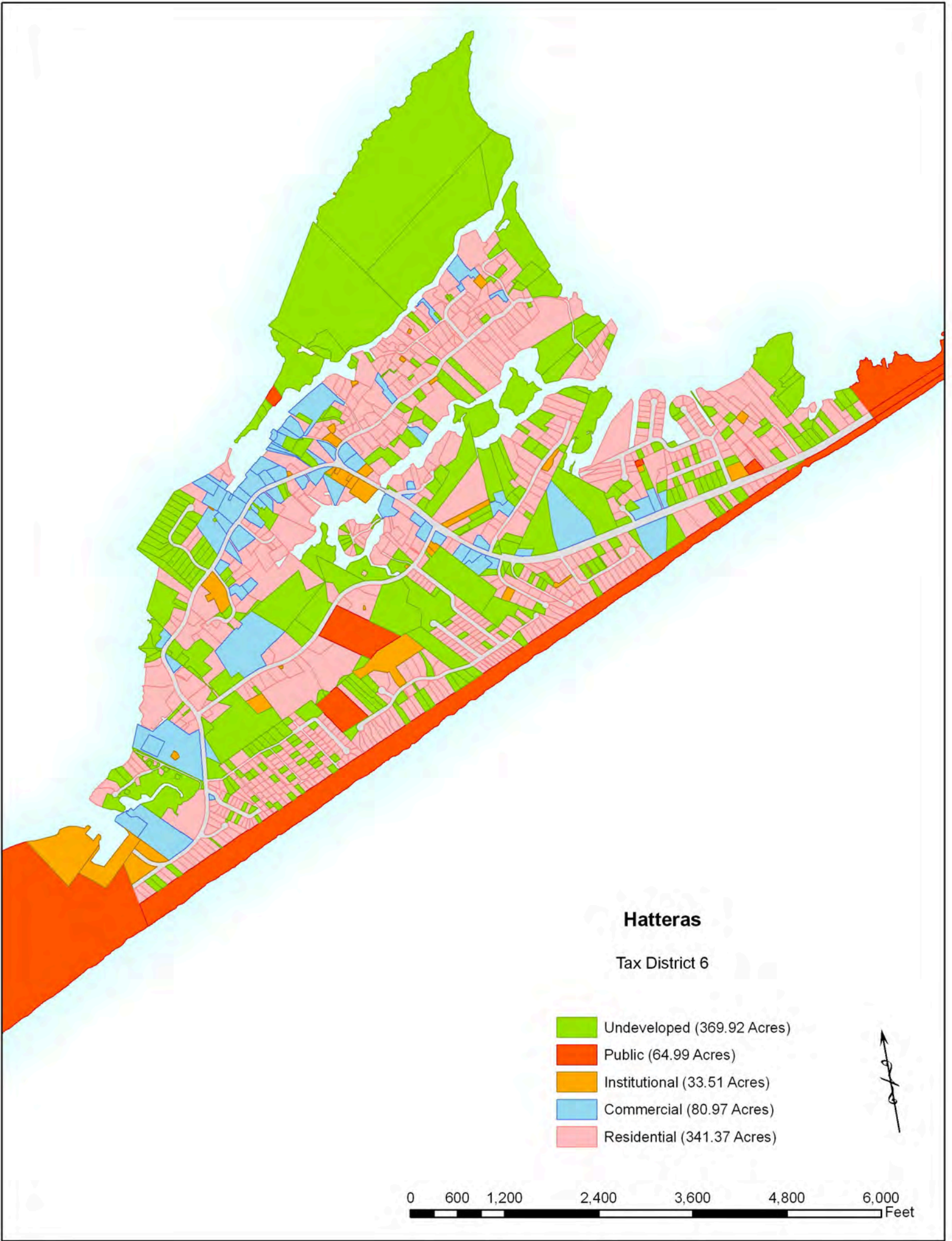


FRISCO

BUXTON

<i>ACRES</i>	Buxton	Frisco	Total
Undeveloped	428.51	633.19	1061.7
Public	3753.39	1494.05	5247.44
Institutional	168.17	215.97	384.14
Industrial	1.03	1.94	2.97
Commercial	146.94	96.21	195.83
Residential	566.51	510.01	1076.52

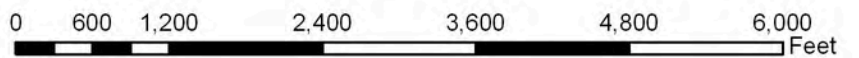




Hatteras

Tax District 6

- Undeveloped (369.92 Acres)
- Public (64.99 Acres)
- Institutional (33.51 Acres)
- Commercial (80.97 Acres)
- Residential (341.37 Acres)



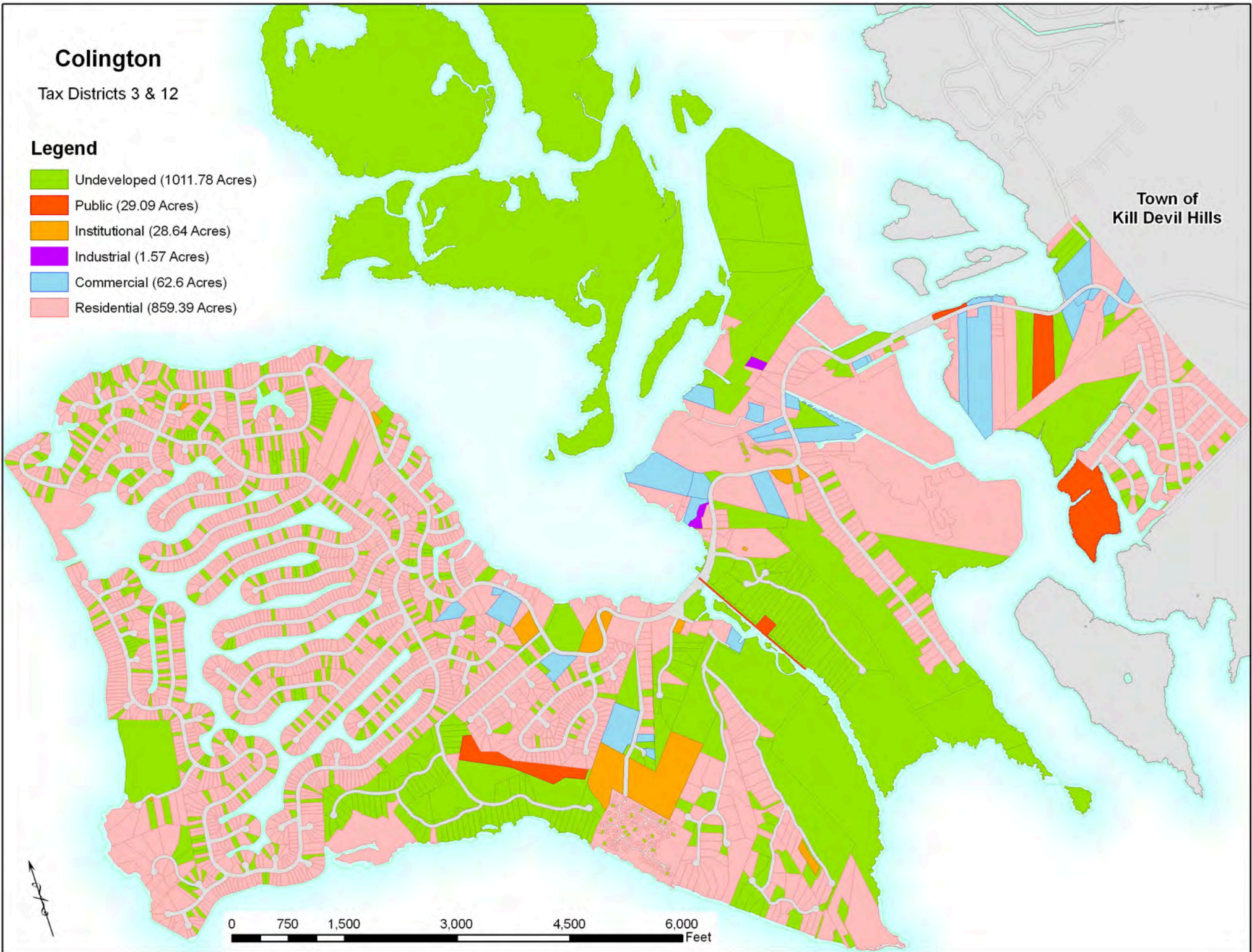
Colington

Tax Districts 3 & 12

Legend

- Undeveloped (1011.78 Acres)
- Public (29.09 Acres)
- Institutional (28.64 Acres)
- Industrial (1.57 Acres)
- Commercial (62.6 Acres)
- Residential (859.39 Acres)

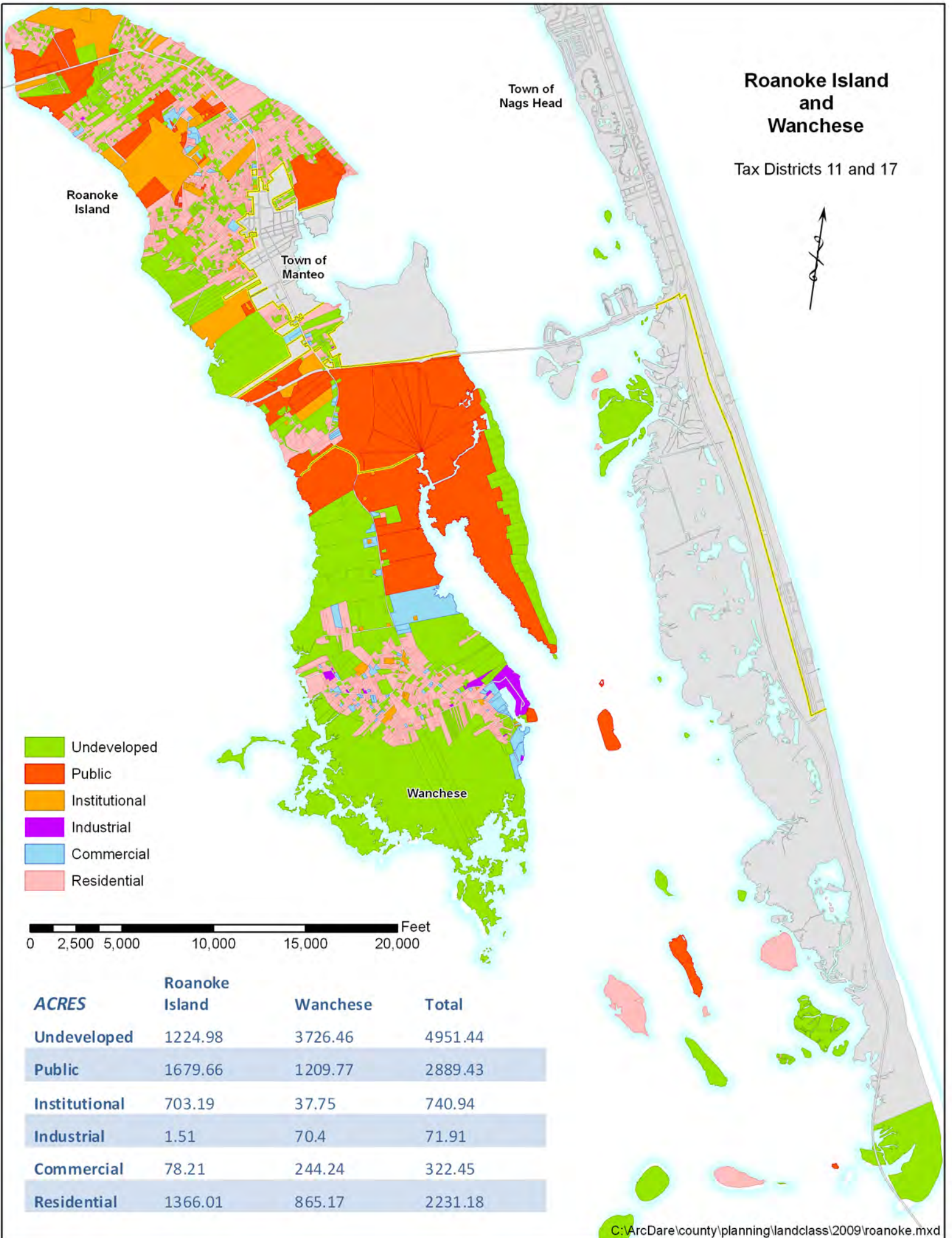
Town of Kill Devil Hills





Roanoke Island and Wanchese

Tax Districts 11 and 17

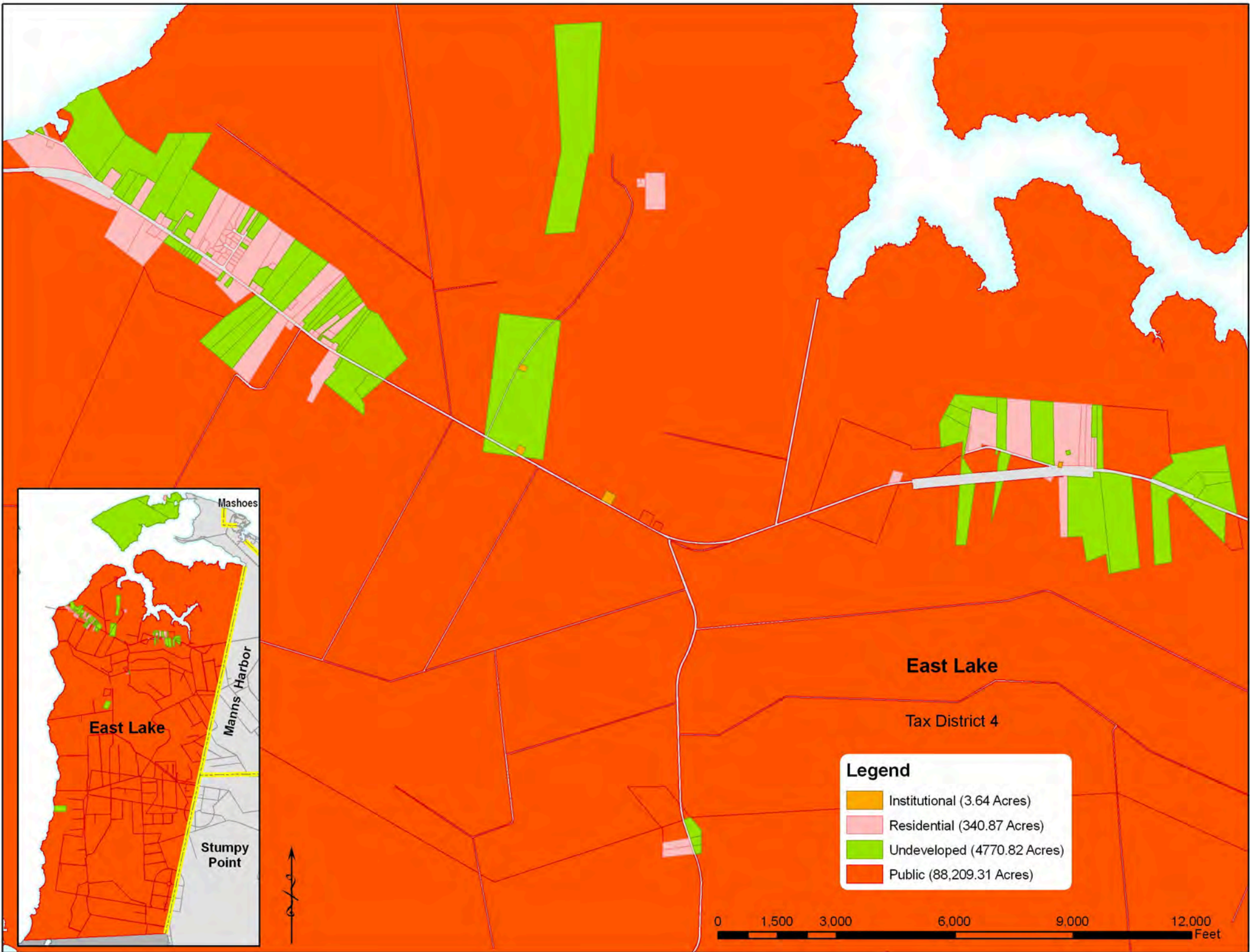


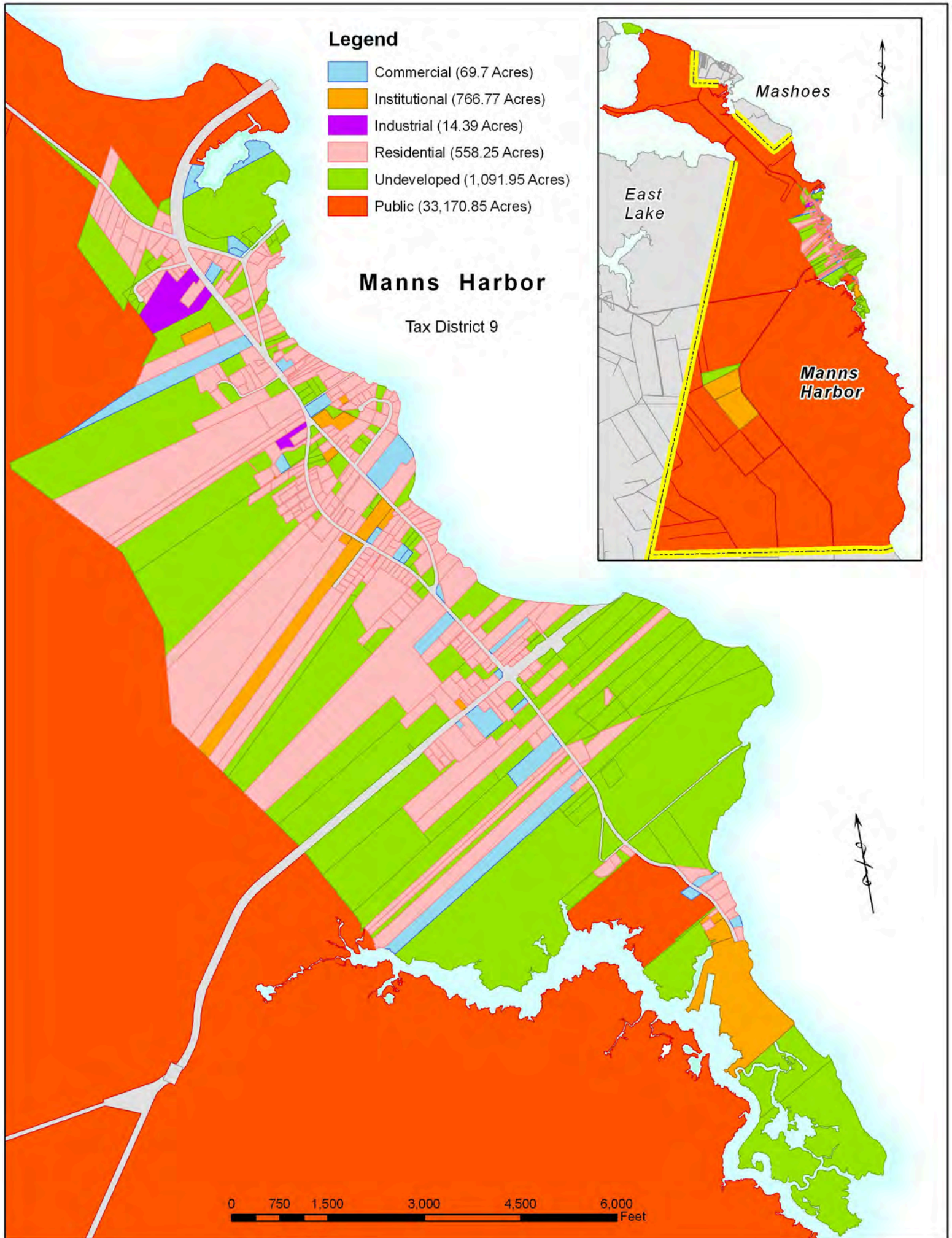
- Undeveloped
- Public
- Institutional
- Industrial
- Commercial
- Residential

0 2,500 5,000 10,000 15,000 20,000 Feet

	Roanoke Island	Wanchese	Total
ACRES			
Undeveloped	1224.98	3726.46	4951.44
Public	1679.66	1209.77	2889.43
Institutional	703.19	37.75	740.94
Industrial	1.51	70.4	71.91
Commercial	78.21	244.24	322.45
Residential	1366.01	865.17	2231.18

C:\ArcDare\county\planning\landclass\2009\roanoke.mxd









Mashoes

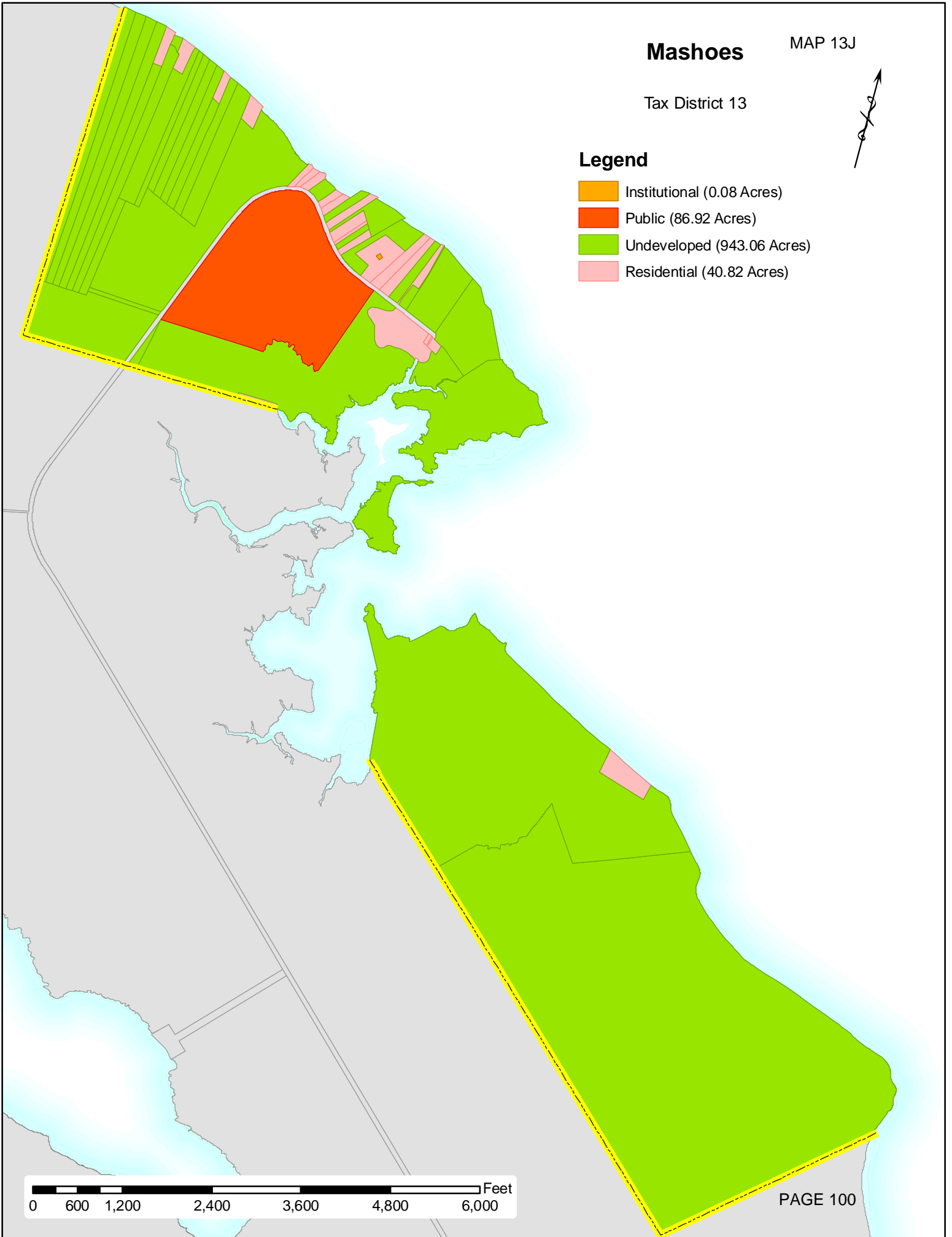
MAP 13J

Tax District 13

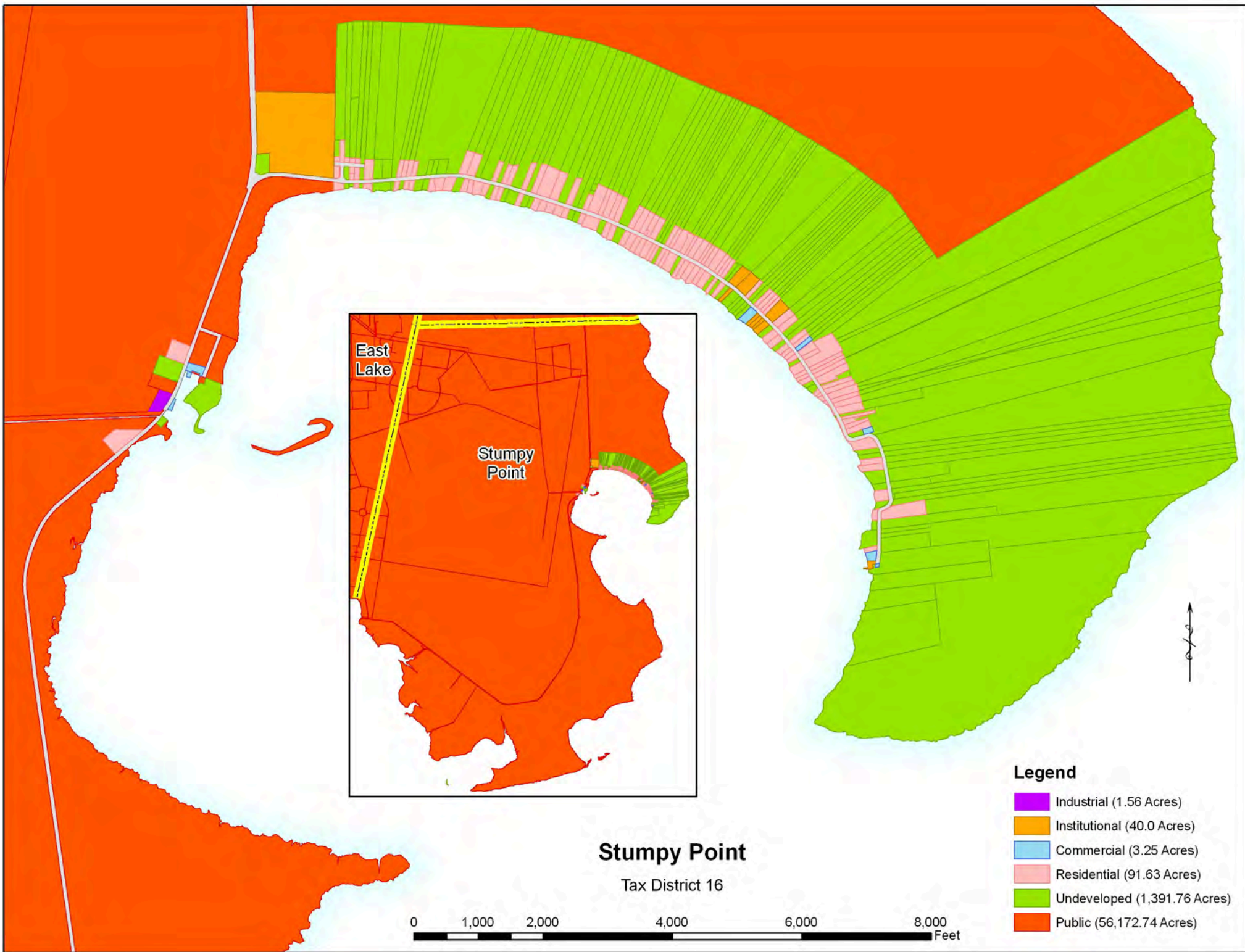


Legend

-  Institutional (0.08 Acres)
-  Public (86.92 Acres)
-  Undeveloped (943.06 Acres)
-  Residential (40.82 Acres)



0 600 1,200 2,400 3,600 4,800 6,000 Feet



Stumpy Point
Tax District 16

Legend

Industrial (1.56 Acres)
Institutional (40.0 Acres)
Commercial (3.25 Acres)
Residential (91.63 Acres)
Undeveloped (1,391.76 Acres)
Public (56,172.74 Acres)

Analysis of Community Facilities

The substantial growth and development experienced in recent decades by both unincorporated Dare County and the municipalities has placed considerable pressure on existing infrastructure facilities. Further compounding this issue has been the increasing popularity of Dare County as a seasonal resort destination. In an effort to accommodate this growing demand, the County has pursued numerous opportunities to maintain, expand, and improve infrastructure capacity. In some cases, this has required significant collaboration with other local, state, and federal agencies. A discussion of these community facilities follows:

Public and Private Water Supply

The Dare County Regional Water Supply System (DRWSS) is the sole producer of water for Dare County including the municipalities. A public water supply is available to all areas of the County except for some portions of Roanoke Island and the Mainland villages of Manns Harbor, Mashoes, and East Lake. Areas not served by central water use individual private wells for potable water. There are no privately-operated water systems in unincorporated Dare County. A water system project is currently underway to extend public water service to all improved properties on Roanoke Island that are currently not served. The expected completion date is May 2012.

The Dare County Water system provides wholesale water to the Towns of Nags Head, Manteo, and Kill Devil Hills. These three towns have separate water distribution systems, which they maintain and distribute water to their customers. The remaining areas outside the Towns' limits receive their water from Dare County's four separate distribution systems: the northern beach system, Roanoke Island, Rodanthe-Waves- Salvo system and the Hatteras system.

The DRWSS was formed in the 1970s to develop an adequate water supply for the northern beaches of Dare County. The first municipality to receive water from the DRWSS was the Town of Manteo in 1980 followed by the Towns of Kill Devil Hills and Nags Head. Water service was extended to the Towns of Southern Shores and Kitty Hawk, and then the Village of Duck, in late 1980. The initial installation of water meters was approximately 1000 meters. In June 2009, there were a total of 17,024 customers on the County's system.

North of Oregon Inlet, all groundwater delivered by the DRWSS is produced at either the Skyco plant on Roanoke Island or the northern reverse osmosis desalination plant (NRO) in Kill Devil Hills. The Skyco plant is located on the southern portion of Roanoke Island and is supplied by a series of wells drilled down to 170 to 200 feet below the surface into the Yorktown aquifer. THE NRO plant is located in Kill Devil Hills. There are fourteen wells used to provide water to this plant for a production capacity of over 5 million gallons per day. Combined with the Skyco plant, the total production capacity is 11.50 million gallons per day with a distribution capacity of 15.5 million gallons per day, with 200 miles of distribution line available.

On Hatteras Island, the villages of Rodanthe, Waves, and Salvo are served by a reverse osmosis plant which came on-line in 1996 with 26 miles of distribution line available. Previously, property owners in

these villages relied on privately-owned wells for potable water. Construction of this reverse osmosis plant has enabled the property owners to connect to a reliable source of water and provide water for fire-fighting protection. The production capacity of this plant is 1.2 million gallons per day. The four southern villages of Hatteras Island are served by a central water system operated by Dare County. This central system was privately-owned and operated for many years as the Cape Hatteras Water Association. In 1997, Dare County assumed responsibility for this system and since that time, has constructed a new water treatment plant in 2000. The total capacity of this system is 2.0 million gallons per day and supplies 81 miles of distribution line.

In the village of Stumpy Point, a reverse osmosis plant was constructed by Dare County in 2002 to provide the residents of Stumpy Point with a clean, safe drinking water supply to replace individual private wells that were deemed to be unsafe based on water testing performed by the County in the late 1990s. A grant from the NC Clean Water Trust Fund was used to construct a water treatment plant for Stumpy Point. This is a small plant for the village with a production capacity of .085 million gallons per day via three miles of distribution line.

According to the 2010-2014 Capital Improvements Plan for Dare County, all of the water facilities, including the elevated water storage tanks, are listed good, very good or excellent condition. Table 27 lists the information included in the CIP for the water facilities:

Table 27 – Dare County Water Facilities (Source: Dare County Water Department)

Facility	Location	Year Built or Acquired	Condition
CHW 3 Million Gallon Reservoir	Frisco	1968	Very Good
Cape Hatteras Water Treatment Plant	Frisco	1999	Very Good
Pump Station	Frisco	1999	Very Good
NRO 3 Million Gallong Reservoir	Kill Devil Hills	1989	Very Good
North Reverse Osmosis Plant	Kill Devil Hills	1990	Very Good
RWS 1 Millions Gallon Reservoir	Rodanthe	1986	Very Good
RWS Elevated Tank	Rodanthe	1988	Very Good
RWS Reverse Osmosis Plant	Rodanthe	1996	Very Good
2 Million Gallon Water Tank	Skyco	1978	Very Good
Skyco Elevated Water Tank	Skyco	1978	Very Good
Skyco Water Plant	Skyco	1979	Very Good
Stumpy Point Desalination Treatment	Stumpy Point	2003	Excellent
200,000 Gallon Reservoir	Frisco	1968	Good

Facility	Location	Year Built or Acquired	Condition
Waste Water Tank	Frisco	1968	Good
500,000 gallon Elevated Water Tank	Colington	1972	Excellent
1 Million Gallon Elevated Water Tank	Duck	1972	Excellent
650,000 Gallon Water Reservoir	Kitty Hawk	1978	Very Good
Pump Station	Kitty Hawk	1978	Good
Water Maintenance Facility	Rodanthe	1984	Very Good
400,000 Gallon Elevated Water Tank	Buxton	1986	Very Good
500,000 Gallon Elevated Water Tank	S. Shores	1988	Good
Water Maintenance Building	Colington	1990	Very Good
Water Maintenance Shed	Colington	1990	Good
400,000 Gallon Elevated Water Tank	Avon	1993	Excellent
300,000 Gallon Elevated Water Tank	Hatteras	2006	Excellent

Additional capacity for water system production equipment has been included in the Dare County Capital Improvements Plan, which is updated annually. These improvements are designed to address the needs of the permanent population and seasonal population through the next 20-25 year planning period. The NRO plant has a future capacity of 3 million gallons per day with the addition of four new wells. There are plans to install an additional well at the RWS facility and install larger pumps, which will increase the plant capacity by an additional 0.5 million gallons per day. The Cape Hatteras Water Plant can be expanded by an additional 1.0 million gallons per day with the installation of a nanofiltration unit that will treat water from the shallow fresh water wellfield currently not fully utilized.

Dare County will also be piloting a fixed automated meter reading system in late 2009, which will provide the capability to read meters within the distribution system on a daily basis. This system will allow the water system to quickly identify leaks and will provide accountability data that will allow the water system to monitor how users affect the supply during peak demand periods. This data could be used to restructure rates to reduce peaks demands and delay the need for water production expansion projects by making better use of the current resources.

There are no water quality issues associated with the five water treatment plants.

Maps of the service districts of the Dare County water system and the proposed expansion of the Roanoke Island system are provided on pages 117-120.

The future provision of central water will be affected by economic conditions and the geographic challenges of constructing infrastructure improvements in the various area of unincorporated Dare County. With the completion of the Roanoke Island water system, the only remaining areas of unincorporated Dare County that will not be served by central water will be the Mainland villages of

Manns Harbor, Mashoes and East Lake. The provision of central water systems to these areas will be based on the need to provide a clean, safe potable water supply and not by anticipated population or growth of these areas. These Mainland villages are generally recognized as more year-round communities with very little development of seasonal homes. As noted in the preceding paragraphs, future expansions of the existing water facilities currently operated by Dare County are outlined in the Dare County Capital Improvements Plan which is updated on an annual basis and approved by the Dare County Board of Commissioners.

Table 28 – Dare County Water System Statistics (Source: Dare County Water Department) *

Fiscal Year	# of Customers	New Connections	Average Daily Demand (MGD)	Peak Daily Demand (MGD)	Maximum Capacity (MGD)
2006	16,575	668	5.583	11.700	15.500
2007	16,780	205	6.145	12.945	15.500
2008	16,851	71	6.414	13.348	15.500

- Includes information for all four water distribution systems

Wastewater Systems

All wastewater treatment facilities, whether publicly or privately owned, are subject to review and approval by either the state Department of Environmental Health or its local subsidiary. Publicly owned wastewater treatment in unincorporated Dare County is currently available only from the Town of Manteo, which operates a central wastewater treatment plant. The current estimated capacity of this plant is 600,000 gpd. The Town does offer excess wastewater capacity to projects within the unincorporated areas of Roanoke Island that are adjacent to its service boundaries. It is recognized that projects using the central wastewater treatment from Manteo may eventually be annexed by the Town.

In 2006, planning began for the construction of a 50,000 gpd wastewater collection facility in the village of Stumpy Point. The plant is intended to alleviate environmental degradation caused by the substandard condition of existing private septic systems and is not being constructed to encourage future growth or economic development in Stumpy Point. The facility will consist of a low-pressure STEP sewer serving 128 units with a series of pump stations and approximately 19,700 linear feet of 2.5-6 inch sewer main. Regulatory permits and funding have been secured and construction commenced in 2008. Completion is expected in 2010. There are no plans at this time to seek expansion of this facility.

There are several privately owned and operated central wastewater treatment plants in Dare County. Two of the most notable are located within the County's unincorporated boundaries. The Baycliff Subdivision in Colington features a small package treatment plant for this residential subdivision. The

Kinnakeet Shores Soundside Subdivision is also serviced by a central package treatment plant. The soundside residential phases of this division and the commercial complex known as the Hatteras Island Plaza are connected to this treatment plant. A number of other package treatment plants exist both within and outside of the Dare County unincorporated boundaries.

On-site septic tank and drainfield systems continue to serve as the predominant method of wastewater treatment in Dare County. In situations where the intensity of land use or soil limitations preclude the use of a traditional septic system, alternative engineered methods of wastewater treatment have been used. These include low-pressure systems and peat systems. These systems have become more popular in recent years, but their maintenance record remains unknown since the use of the systems is relatively new in North Carolina. Emerging wastewater treatment technologies have increased the prevalence of both engineered treatment systems and proposals for additional package treatment facilities, which require approval by the State Department of Environmental Health if the systems involve more than 3,000 gallons per day of wastewater.

Due to the overwhelming preponderance of individual on-site septic systems, and a lack of reliable service data for the few existing engineered or private wastewater systems, these facilities could not be accurately projected on a map.

The lack of County-owned central wastewater treatment facilities throughout unincorporated Dare County has resulted in the use of small package plants or engineered systems for individual larger commercial or multifamily developments. It is anticipated that future development will continue to rely on individual on-site wastewater systems except in situations where the zoning ordinance may mandate the use of centralized or community-based wastewater systems. The limitations of soils will continue to influence the size of individual wastewater systems and thus will limit the intensity and density of future development on a site specific basis. As is frequently the case in other coastal communities where publicly-owned, centralized wastewater systems exist, the extension of central sewer is used as a method of directing growth patterns or limiting growth depending on the capacity of the system that can be allocated on the needs of the permanent population and seasonal visitors. This is not the case in unincorporated Dare County. The wastewater needs of all development, for both permanent and seasonal populations, will continue to be addressed through the use of traditional on-site septic systems, engineered wastewater systems and when mandated by ordinance, on-site community wastewater systems. Future population needs have been discussed and analyzed in the preceding sections. The anticipated population growth and development will continue to utilize on-site wastewater systems and in some instances small package treatment plants where mandated by the zoning ordinance. Publicly-owned centralized wastewater for unincorporated Dare County is not likely due to the land constraints associated with dispersal of the effluent, permit difficulties, and the high costs of providing the collection infrastructure throughout the island geography of Dare County.

Transportation Systems

The island geography of Dare County greatly influences the transportation infrastructure. Bridges are a key component of this infrastructure and serve as entryways to Dare County, except on the southern end of Hatteras Island, which is accessed by ferry service from Ocracoke Island. Most travel within the County occurs on three arterial routes, US 64/264, NC 12, and US 158. US 158 runs north-south from Southern Shores to the Whalebone area of Nags Head. NC 12 runs north-south from the Dare/Currituck line north of Duck to the southern end of the County in Hatteras Island. US 64 follows an east-west path from Tyrrell County, while US 264 follows a primarily north-south route from Hyde County. The two highways merge at a point west of Manns Harbor, and then serve as the primary thoroughfare through the village of Manns Harbor, and the northern portions of Roanoke Island. Movements on and off the outer islands are confined to US 64/264, through the Mainland, via both the Virginia Dare Memorial and William B. Umstead Memorial bridges, and on US 158 along the Currituck Sound Bridge. Ferry service from Hatteras village also serves as an alternative egress from Hatteras Island.

Traffic flows within the County vary according to the roadway section, season, and day of the week. Typical of a resort area, the roadway system in Dare County experiences sizable variations in traffic demands. The following table illustrates average daily traffic counts provided by NCDOT for several key locations in Dare County.

Table 29 – NCDOT Average Daily Traffic Counts for 2007 (Source: NC Department of Transportation)

Approximate Location of Counter	Vehicle Counts for 2007
US 158 Kitty Hawk near Wal-Mart/Home Depot	23,000
NC 12 Southern Shores	15,000
US 158 Kitty Hawk –Kitty Hawk Road intersection	32,000
US 158 KDH Colington Road intersection	36,000
NC 12 KDH Colington Road intersection	7,000
NC 12 Nags Head – Oregon Inlet	4,900
US 64 Manteo Causeway west of Pirates Cove	16,000
US 64 Roanoke Island – COA entrance	17,000
US 64/264 Intersection Mainland	4,400
NC 345 Roanoke Island south of US 64 intersection	7,000
NC 12 Rodanthe midway of village (2006)	5,700
NC 12 Avon south of village intersection	7,200
NC 12 Buxton near Buxton Back road intersection	9,300
NC 12 Hatteras entrance from Frisco	5,100

The island geography of Dare County makes bridges an essential component of expedited traffic movement. This factor is critical in determining the time needed to evacuate the County during a hurricane event. The time will vary based on the time of the year and the seasonal population. Based on 2003 estimates, it may take as long as 27 hours to evacuate the county during peak-season periods, and between 13 and 18 hours during lesser populated times of the year.

The most significant transportation improvement constructed in the County since 2000 has been the completion of the Virginia Dare Memorial Bridge. Dedicated in August 2002, the four-lane span of more than five miles stretches across the Croatan Sound from Manns Harbor to the intersection of Hwy. 345 on Roanoke Island. It is the longest bridge in the state. Subsequently, a new visitor's center and county governmental complex have been constructed on Roanoke Island within close proximity to the bridge landing.

The replacement of the Bonner Bridge spanning Oregon Inlet remains the most urgent transportation concern for Dare County. This project has been added to the NCDOT Transportation Improvement program (NCDOT B-2500). Other projects included in the State's Transportation Improvement program over the next ten-years include:

- Construction of a flyover at the intersection of US 64/NC 345 on Roanoke Island for traffic heading to the northern beaches and Hatteras Island. (U-3815)
- Operational/safety enhancements along Colington Road (NCDOT R-5014)
- Continued widening of US 64 to four lanes through East Lake and Manns Harbor (NCDOT R-2544) including the ultimate replacement of the Alligator River Bridge to Tyrrell County.

Another transportation concern in Dare County continues to be the protection of NC 12 on the northern beaches and Hatteras Island. Ocean overwash and erosion have endangered portions of NC 12 in Kitty Hawk and along Hatteras Island. The NC Department of Transportation has made the stabilization of the threatened portions of NC 12 a priority project and has dedicated significant resources to alleviate overwash and sand depletion.

Strategies to improve safety along US 158 and seasonal traffic increases continue to be a priority of the persons attending the public participation workshops held at the beginning of the update process.

Bicycle paths /walkways along many of the major transportation routes in the County, such as those developed under the auspices of the Roanoke Voyages Corridor Commission, are exceedingly popular alternative transportation routes among residents and visitors to the area. Similar efforts to develop pedestrian paths in other areas have been proposed in recent years.

Dare County has a limited capacity of other modes of transportation. Air transportation is limited to the Dare County Regional Airport on Roanoke Island, the First Flight Airport in Kill Devil Hills, and the Billy Mitchell Airstrip on Hatteras Island. At present, there are no scheduled passenger services by a regional carrier. Past attempts to establish a commuter service to the Norfolk Airport have failed due to lack of passengers. A proposal to extend the runways at the Dare County Regional Airport has been reviewed by the Airport Authority. However, there was local opposition to this proposal and environmental constraints as well. In addition to serving the civil aviation needs of Dare County, these three airports have served as important staging centers for aviation-related activities during hurricanes and other storm events.

Dare County is not served by any bus or railroad operations. There are a number of taxi services available for hire.

As traffic congestion continues to increase, particularly during peak-season, there will be a greater need to look into dependable public transportation and alternative means of movement such as water taxis and perhaps more ferries. It appears that a regional approach will be necessary if Dare County is to ever achieve the goal of scheduled commuter airline service. The County will continue to work with its delegation in the General Assembly and the N.C. Department of Transportation to secure additional transportation improvements to insure safe movement of people and automobiles.

MAPS 15A-15G on page 121-127 illustrate the transportation system for Dare County, including identified TIP projects.

The planned highway improvements, especially the replacement of the Oregon Inlet Bridge and the four-lane of Highway 64 thorough East Lake, are vital to the safety of our residents and visitors and the continued prosperity of Dare County's tourist economy. Our bridges are an essential link to the other areas of North Carolina and their viability to handle the year-round and seasonal traffic counts of the area cannot be over-emphasized.

The replacement of the Oregon Inlet Bridge is the most infrastructure improvement scheduled for Dare County in the upcoming five-year planning period. The safety and livelihood of the residents of Hatteras Island are directly linked to the Oregon Inlet Bridge. The replacement bridge will ensure that uninterrupted daily trips to points north can occur, and most importantly, that hurricane evacuations exercises run smoothly. The replacement bridge will also ensure infrastructure access for future generations of residents and visitors.

The four-lane widening of Highway 64 in East Lake combined with the replacement of the Alligator River Bridge will dramatically decrease the travel time to inland areas of North Carolina and elsewhere. The resultant decreased travel time associated with these infrastructure improvements will expand the target market areas more to the west and south of the Outer Banks. For the residents of Dare County, the decreased travel time from these infrastructure improvements are a quality of life improvement. Some development in the immediate East Lake area may be experienced as a result of the completion of these infrastructure improvements and it is anticipated that these improvements will result in seasonal visitor increases from different markets than those targeted at the current time.

According to NC Department of Transportation officials, there are no routes in Dare County that have been classified as unacceptable service levels.

Stormwater Systems

The relatively flat topographical profile of Dare County contributes to the effects of stormwater runoff being a significant management concern. While no county-maintained stormwater utility is in place, the County does have several zoning and subdivision regulations which mitigate the effects of stormwater runoff while remaining sensitive to other environmental concerns. Minimum lot size requirements, building setbacks, maximum lot coverage requirements, structural fill restrictions,

vegetation removal regulations, as well as land use policies, significantly assuage the impact of stormwater on both the built and natural environment. Where these local restrictions require a higher degree of regulatory review, the County relies on state and federal permitting authority to augment local management strategies. Tools such as the Division of Land Resources Sedimentation and Erosion Control Permit and the Division of Water Quality Stormwater Management Permit are integral to Dare County's ability to mitigate effects of stormwater runoff.

In 2001, Dare County initiated a study of stormwater issues culminating in a draft Stormwater Management Plan, which is on file with the Dare County Planning Department. While this plan was never officially adopted by the Board of Commissioners, the corresponding data and analysis was able to identify certain areas exhibiting historic, existing, or potential stormwater drainage concerns. The following areas were specifically identified:

- Mainland Dare County – intermittent ponding along primary and secondary roadways in Manns Harbor, East Lake and Stumpy Point;
- Roanoke Island – ponding due to soil composition in and around the Raleigh Woods subdivision outside of Manteo; failures associated with a primary drainage channel in the Mother Vineyard neighborhood outside of Manteo; intermittent yet widespread ponding in the village of Wanchese;
- Northern Beaches – improperly maintained and poorly drained swales in the Baum Bay Harbor neighborhood outside of Kill Devil Hills; intermittent ponding along Colington Road in Colington;
- Hatteras Island – intermittent yet widespread ponding along primary and secondary roadways associated with all the villages on Hatteras Island, including along Hwy. 12, Old Lighthouse Road and Rocky Rollinson Lane in Buxton and Kohler Drive and Altoona Drive in Hatteras; intermittent drainage failures with Peter's Ditch and Jesse's Ditch;

These and other drainage concerns are typical of stormwater management issues normally associated with coastal and island topographical conditions.

There are no identifiable point sources of stormwater discharge within Dare County. Other sources of point-source discharge of pollutants are monitored by the Environmental Protection Agency (EPA) under the authority of the National Pollutant Discharge Elimination System (NPDES). A definitive measure of pollutant impact, even that of non-point sources, on surrounding water bodies is difficult to determine. Portions of Dare County's surrounding SA waters have been closed to shellfishing due to elevated levels of pollutants, which may be indicative of the effects of stormwater runoff.

Dare County does not contain, and is not located within, an "urbanized area" as delineated by the U.S. Census Bureau. The County also does not operate a small municipal separate storm sewer system (MS4), or other similar utility. Therefore the County is not subject to coverage by the NPDES Phase II Final Rule and its subsequent stormwater discharge management controls.

Other Facilities

Schools

The public education system in Dare County is directed by an elected seven-member Board of Education. A superintendent in charge of the administrative duties of the school system is appointed by the Board of Education. Curriculum development and funding for the school system is a combination of State and local resources administered by the Dare County Board of Education.

The school system consists of ten facilities located throughout Dare County. Specifics for the schools are detailed in Table 30.

Table 30 – Public School Enrollment (Sept 2007) (Source: Dare County Board of Education)

School	Capacity	Enrollment
First Flight Elementary	410	359
Kitty Hawk Elementary	590	473
Manteo Elementary	590	614
Nags Head Elementary	590	540
Cape Hatteras Elementary	315	246
Cape Hatteras Secondary	485	364
First Flight Middle	700	616
Manteo Middle	450	342
First Flight High	810	872
Manteo High	625	449
Alternative High	40	32
Total	5605	4907

Table 31 – Ten Year Student Population Projection (year 2017) (Source: Dare County Board of Education)

	Student Population Projection										
	<u>2007*</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
Kindergarten - 5th	2132	2153	2206	2264	2289	2326	2345	2364	2383	2404	2427
Hatteras Island	230	237	247	256	254	255	253	250	247	245	242
Northern Beaches	1324	1322	1353	1384	1406	1431	1455	1480	1505	1531	1557
R. Island / Mainland	578	594	606	624	629	640	637	634	631	628	628
6th-8th	1111	1147	1120	1102	1114	1142	1194	1212	1242	1252	1262
Hatteras Island	152	142	132	104	109	118	128	128	130	129	128
Northern Beaches	658	703	683	702	701	721	742	753	767	780	793
R. Island / Mainland	301	302	305	296	304	303	324	331	345	343	341
9th-12th	1552	1461	1452	1439	1423	1426	1401	1421	1430	1479	1530
Hatteras Island	212	216	198	205	190	171	163	149	151	163	172
Northern Beaches	936	860	869	839	847	866	854	883	888	910	933
R. Island / Mainland	404	385	385	395	386	389	384	389	391	406	425

K-12th	4795	4761	4778	4805	4826	4894	4940	4997	5055	5135	5219
Hatteras Island	594	595	577	565	553	544	544	527	528	537	542
Northern Beaches	2981	2885	2905	2925	2945	3018	3051	3116	3160	3221	3283
R. Island / Mainland	1283	1281	1296	1315	1319	1332	1345	1354	1367	1377	1394

* 2007 figures may vary from Table 27 enrollment, which were taken at beginning of school year and Table 28 figures which were taken in second semester of 2007/2008 school year.

The 2003 update of the Dare County Land Use Plan identified detailed descriptions of planned public school facility improvements to be completed by 2006. As of 2008, the following improvements have been completed to fulfill projections of the 2001 Ten-Year Schools Facilities Plan:

- First Flight High School, Kill Devil Hills – new high school constructed in 2003;
- Nags Head Elementary School, Nags Head – new elementary school campus constructed in 2004 to include offices for the Dare County public school system;
- First Flight Middle School, Kill Devil Hills – classroom expansion constructed in 2005;
- Kitty Hawk Elementary School, Kitty hawk – bathroom renovations and structural improvements constructed in 2006;
- Cape Hatteras Secondary School, Buxton – structural up-fitting, classroom/accessory expansion, and renovation constructed in 2007;
- Manteo Elementary School, Manteo – classroom and office expansion constructed in 2006;
- Manteo Middle School, Manteo – new facility built in 2006 to replace previous school. Former facility now used by the College of the Albemarle for instructional space.
- Manteo High School, Manteo – classroom expansion and renovation constructed in 2007.

A number of interim and routine maintenance items were also identified in the schools facilities plan, with the intention of completing those items on an as needed basis. Some Dare County schools, including First Flight Elementary and Nags Head Elementary, are equipped with natural gas service. The prospect of extending natural gas service to additional schools has been discussed by the Board of Education, yet no definitive decision has been made regarding this improvement. Aside from these items, and those major improvements outlined above, no further facilities improvements are planned

Along with Dare County Public Schools, there are a number of privately-operated pre-kindergarten and kindergarten schools. Heron Pond Montessori School is located in the Town of Kitty Hawk, and offers instruction from kindergarten to 4th grade. Wanchese Christian Academy (WCA), affiliated with Wanchese Assembly of God Church and the Assembly of God denomination, is the only comprehensive private school in Dare County which offers instruction in grades kindergarten through 12.

Public Works (Solid Waste Removal)

Solid waste collection from both residential and commercial properties in Dare County is handled by local governments. Dare County is contracted by both Kitty Hawk and Southern Shores for solid waste pick-up in these two towns and is also responsible for pick up in the unincorporated areas. The Towns of Kill Devil Hills, Nags Head and Manteo provide their own solid waste pick-up. Duck contracts with a private firm for solid waste management.

Dare County owns and operates transfer stations in Buxton and Stumpy Point. The Stumpy Point location was developed in 2007 to replace the Manteo transfer station at Bowsertown Road, which had neared capacity. The Bowsertown site is now being studied for adaptive reuse opportunities by the County.

In 1994, the County entered a regional solid waste authority and all solid waste from Dare County is transported to Bertie County, NC. This regional landfill has a contractual obligation to provide for several more years of solid waste capacity according to the Dare County Public Works Department, with an anticipated renewal potential for an additional 50-year period of routine solid waste. It is anticipated that this will be adequate to address the routine solid waste needs of Dare County during the next decade. Measures to address debris from future storm events or hurricanes may impact this capacity.

Parks and Recreation

A full-time Dare County Parks and Recreation Department is staffed and responsible for overseeing the recreational needs of the County residents. Some recreation facilities are joint public-private ventures such as the youth center in Kill Devil Hills near the First Flight Schools. Other facilities constructed by Dare County include Walker Field in Wanchese and a recreational field in Stumpy Point.

In total, the Parks and Recreation Department operates 76 facilities, including: 25 athletic fields, 6 basketball courts, 6 neighborhood centers, 4 community centers with gymnasiums, 7 picnic areas, 11 playgrounds, 4 soccer fields, 8 tennis courts, 2 volleyball courts, 2 skate parks, and a quarter-mile leisure trail. Dare County currently owns a number of special purpose facilities that are spread throughout the County and offer a variety of special recreational opportunities such as boat ramps, swimming areas, and community centers.

Within Dare County, there are additional recreation amenities that are utilized by the County but owned by others. These include facilities ranging from ball fields to leisure trails. The shared use of school facilities also greatly increases the recreational resources available to County residents. The Recreation Department works closely with the Board of Education in utilizing these school facilities for after-hours use.

Programmed activities offered by the Parks and Recreation Department include adult aerobics, youth basketball, arts and crafts, soccer, gymnastics and cultural trips. The most popular are youth basketball, baseball/softball, and youth soccer. Softball and basketball are the most popular adult

activities. In 2007, there were approximately 8,000 participants in 132 County–sponsored recreation programs.

A comprehensive parks and recreation master plan was developed by Dare County in May 2001 that provides more detailed information on the projected recreational and cultural needs of the residents of Dare County. Copies of this plan are available from the Dare County Parks and Recreation Department. This plan includes information on the adequacy of the County’s parks and recreation system over the next 10-year planning period.

Public Health and Safety

Ensuring health and safety of the general public is of the utmost consideration for Dare County. The County maintains a fully staffed Emergency Management department, which is responsible for emergency preparedness and coordination, while also serving as a communicative liaison between local, state, and federal emergency management agencies during a disaster event. The department has drafted an “Emergency Operations Plan” detailing specific procedures the County will engage in to manage the preparation, response, recovery, and mitigation of emergency events.

Law enforcement in Dare County is administered at various levels of government ranging from Federal enforcement agencies to municipal police departments.

The National Park Service has personnel who patrol the south beaches of Dare County that are included in the Cape Hatteras National Seashore. The State Highway Patrol has officers stationed in Dare County with Countywide jurisdiction but focus mainly on unincorporated Dare County.

The Dare County Sheriffs Department has offices located on Roanoke Island, Hatteras Island and in Colington. The Sheriff’s Department is also responsible for staffing and managing the Dare County Detention Center located on Roanoke Island. The jail has a total capacity of 122 inmates with room for 110 male inmates and 12 female inmates. The Communications Department with E911 capability is also under the supervision of the Sheriff.

The municipalities in Dare County operate their own police departments. These departments provide mutual aid to other law enforcements agencies when necessary.

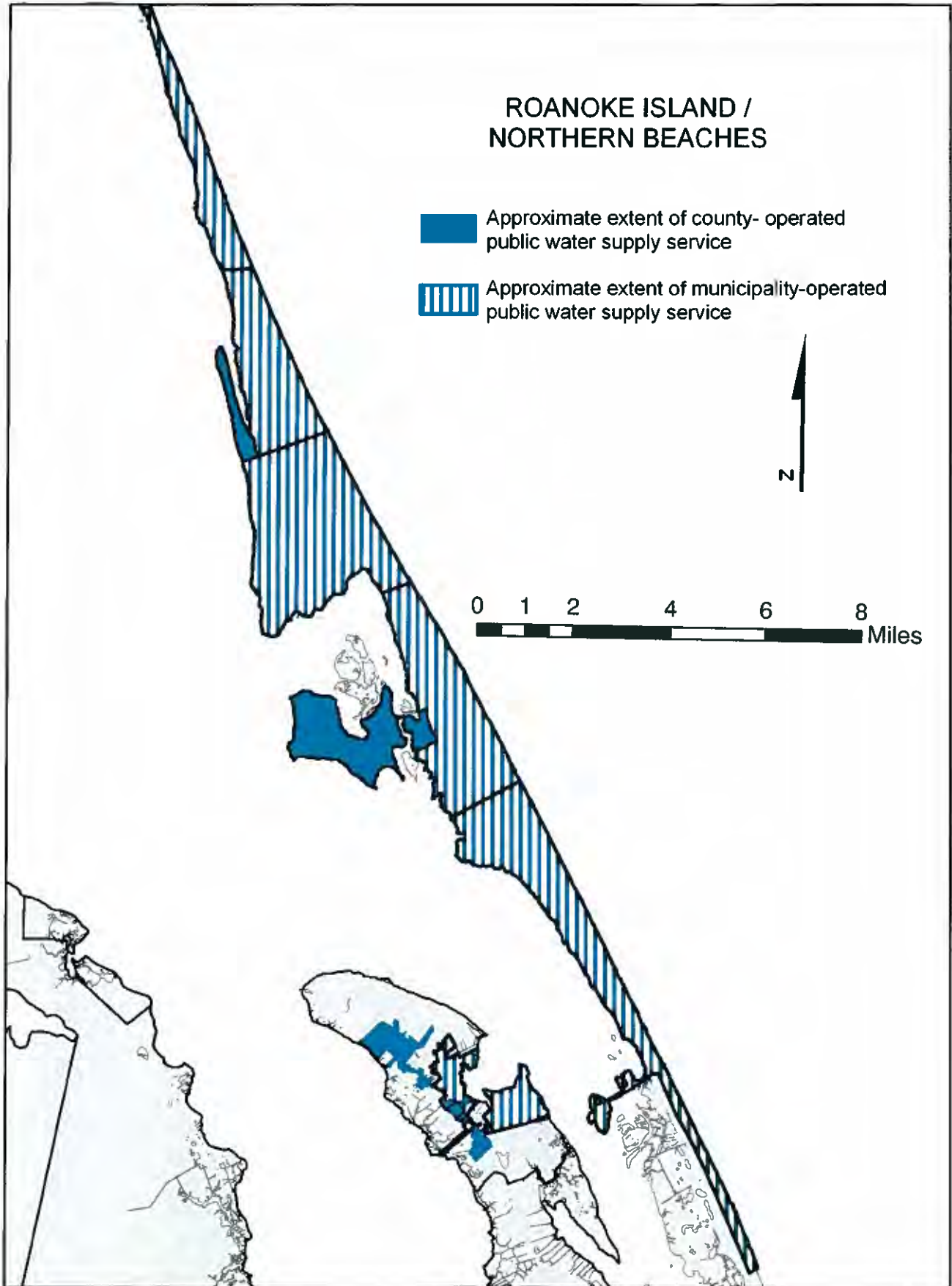
Fire protection is provided throughout the 860 plus square miles of Dare County within 17 individual fire districts that support 18 fire stations. The Towns of Southern Shores, Kitty Hawk, Kill Devil Hills, Nags Head, Duck and Manteo make up the six municipal fire districts.

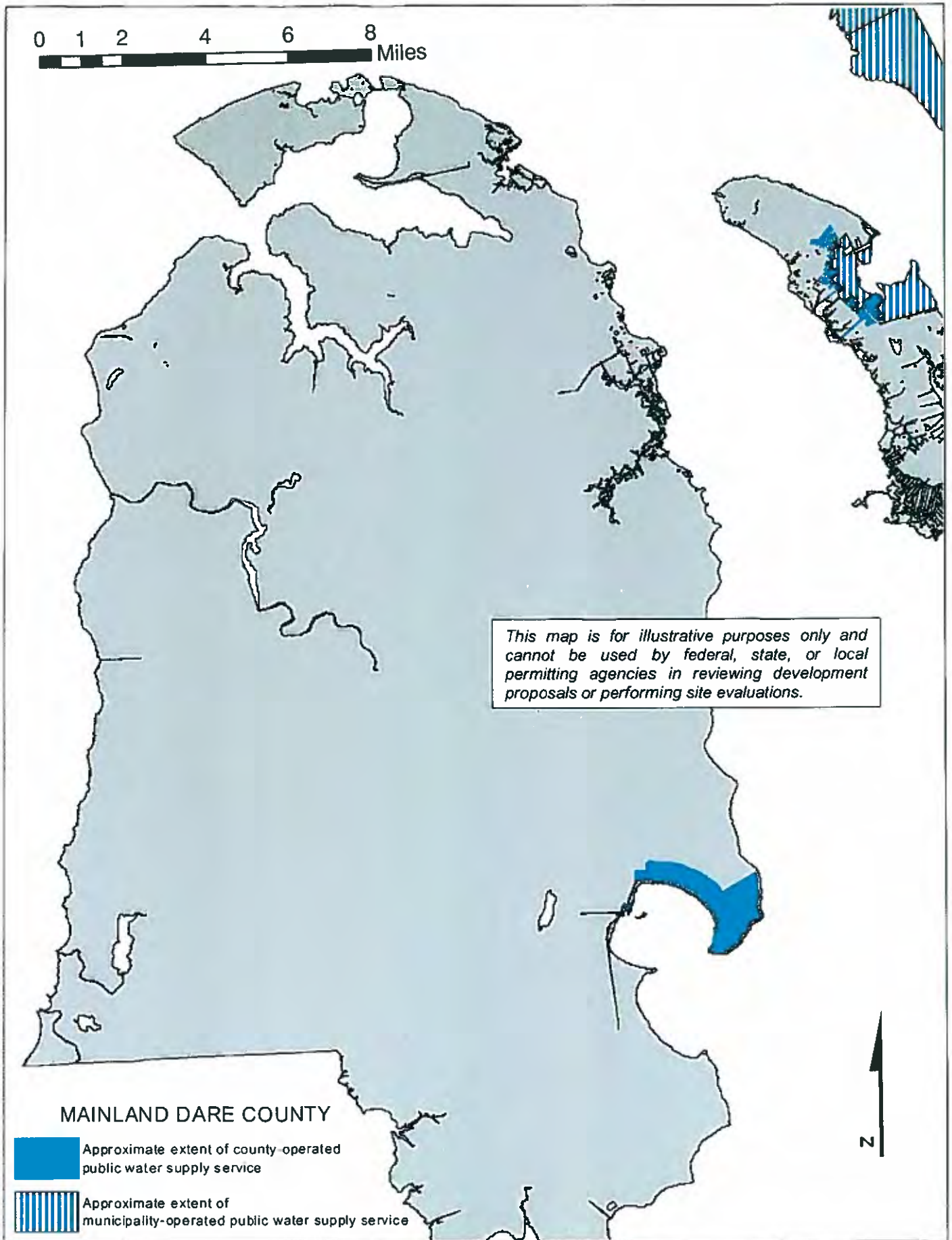
The unincorporated fire districts of Dare County are Martin’s Point, Colington, Manns Harbor, Stumpy Point, Hatteras, Frisco, Buxton, Avon, Salvo, Rodanthe-Waves, and Roanoke Island. These departments are funded through a fire district tax that is collected by the Dare County and distributed under a fire protection contract.

Wild land fire suppression is provided in a joint effort by US Fish and Wildlife, US Park Service, and the NC Department of Forestry, by contractual agreement, also protects lands of the US Navy and Air Force bombing ranges.

The Dare County Fire Marshal acts as the liaison between the Dare County Board of Commissioners and its fire districts. The Fire Marshal is also responsible for the enforcement of the NC State Fire Code, does fire investigations, and cause and origin determinations. This office maintains a county-wide fire data reporting system and is active in the area of fire prevention, designing programs in education that are geared toward all of our County citizens.

In addition to fire and police protection, the County provides Emergency Medical Service to work in tandem with those departments, and respond to emergencies in all areas of the County. The service is housed in eight response stations, each equipped with Type III "Box" ambulances capable of transporting two patients and EMS crew members. Dare County also operates an EMS configured MMB BK117 helicopter, capable of transporting two patients and air crew members (MedFlight). Ambulance transport is most often made to emergency facilities located at Outer Banks Hospital in Nags Head or Albemarle Regional Medical Center in Kitty Hawk. When required, critical care transport via MedFlight often transports patients to Chesapeake General Hospital in Chesapeake, Virginia, or Pitt County Memorial Hospital in Greenville, North Carolina, depending on the needs of the patient.



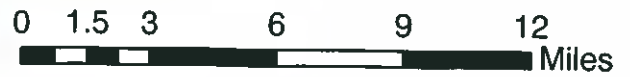


HATTERAS ISLAND

 Approximate extent of public water supply service



This map is for illustrative purposes only and cannot be used by federal, state, or local permitting agencies in reviewing development proposals or performing site evaluations.



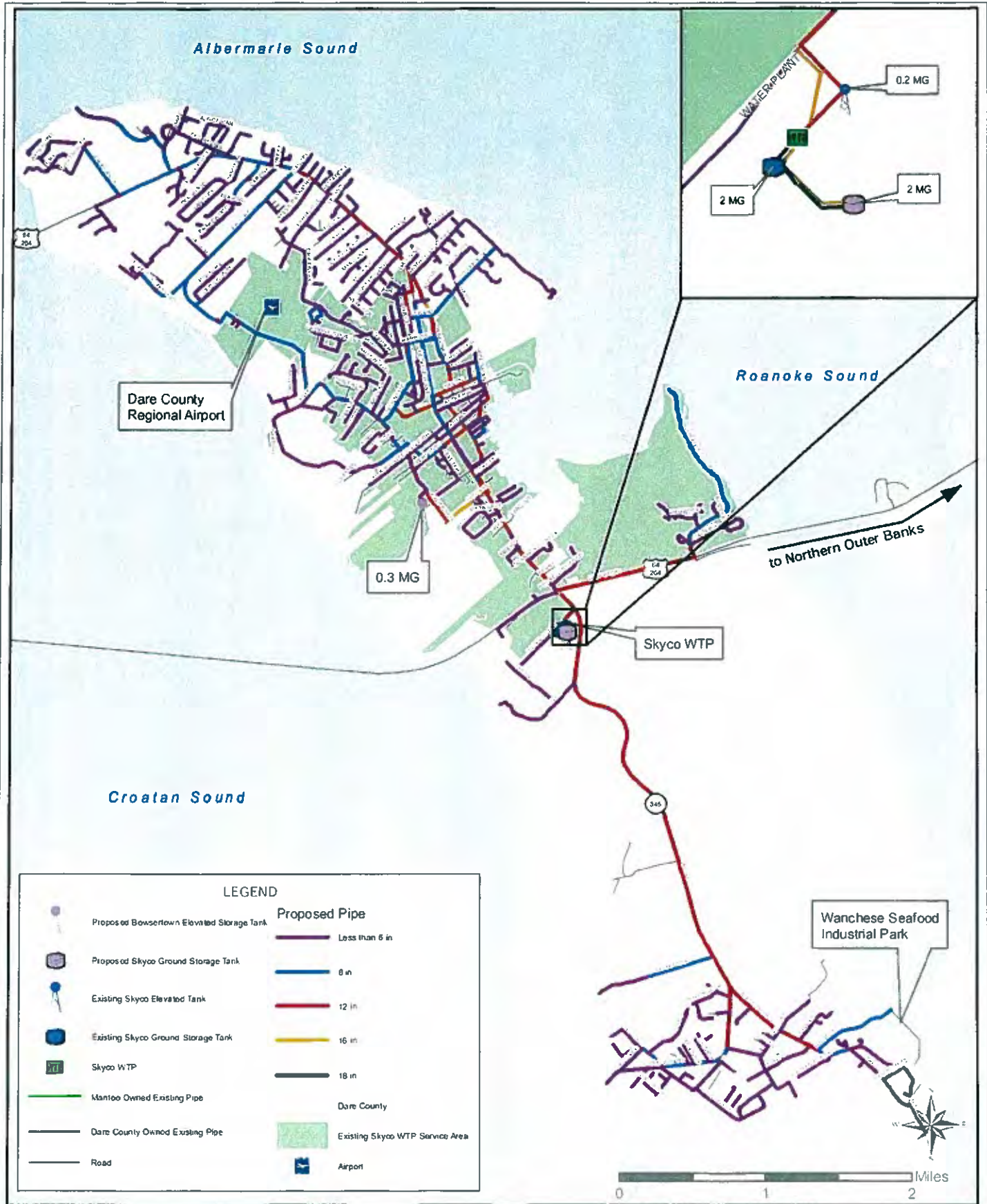


Figure 1-2
Recommended Water System
Infrastructure Improvements

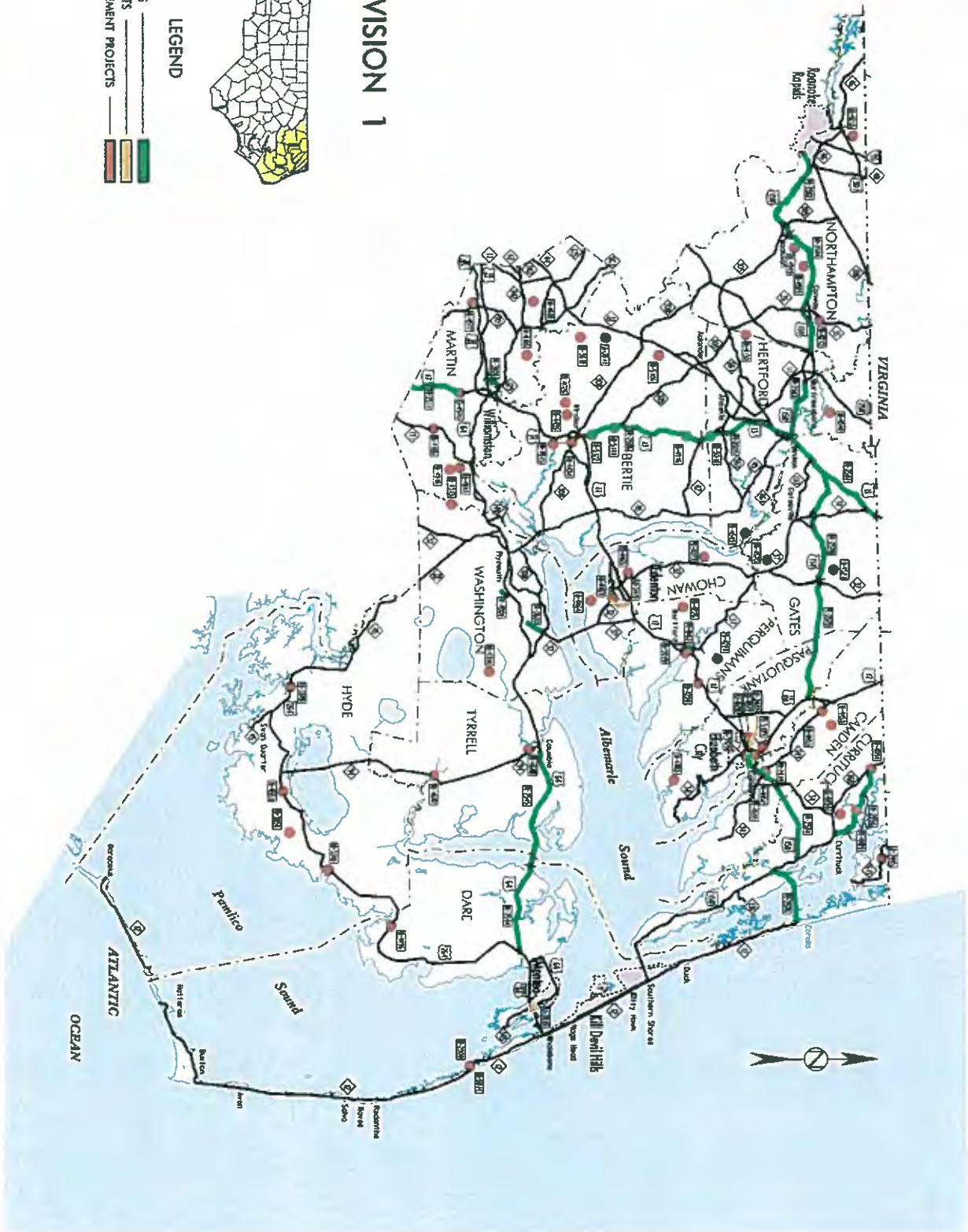


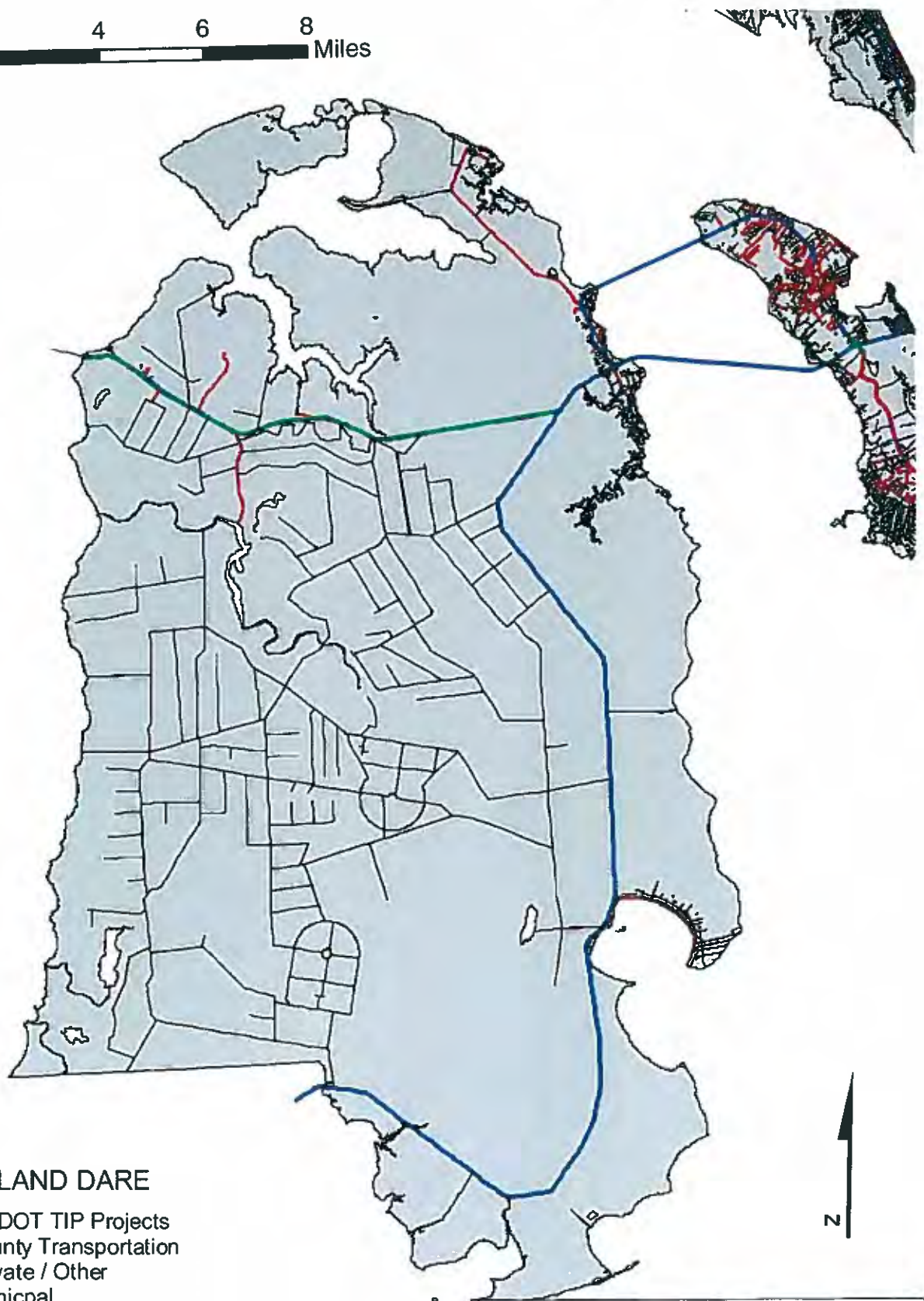
DIVISION 1










LEGEND

- RURAL PROJECTS
- URBAN PROJECTS
- BRIDGE REPLACEMENT PROJECTS

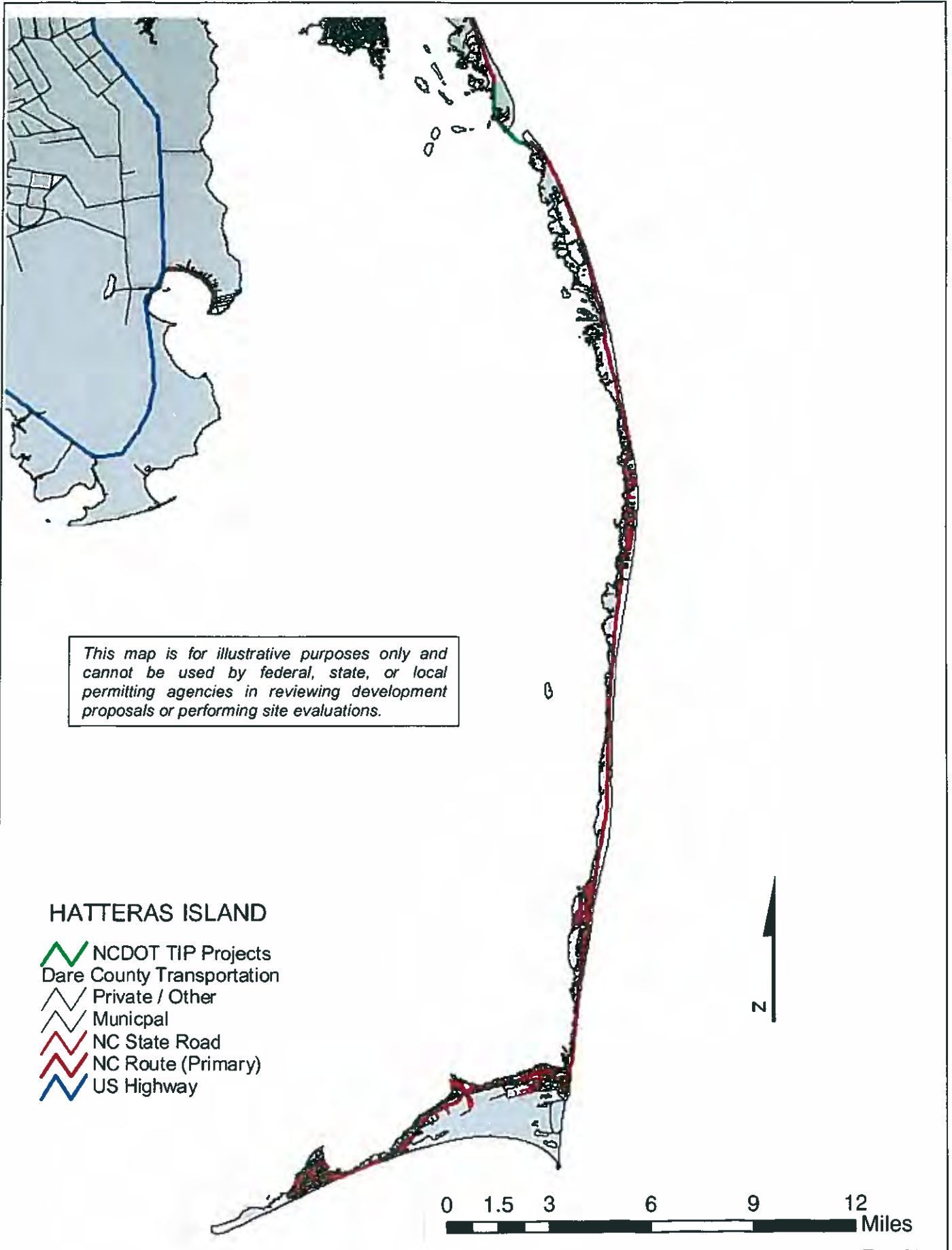


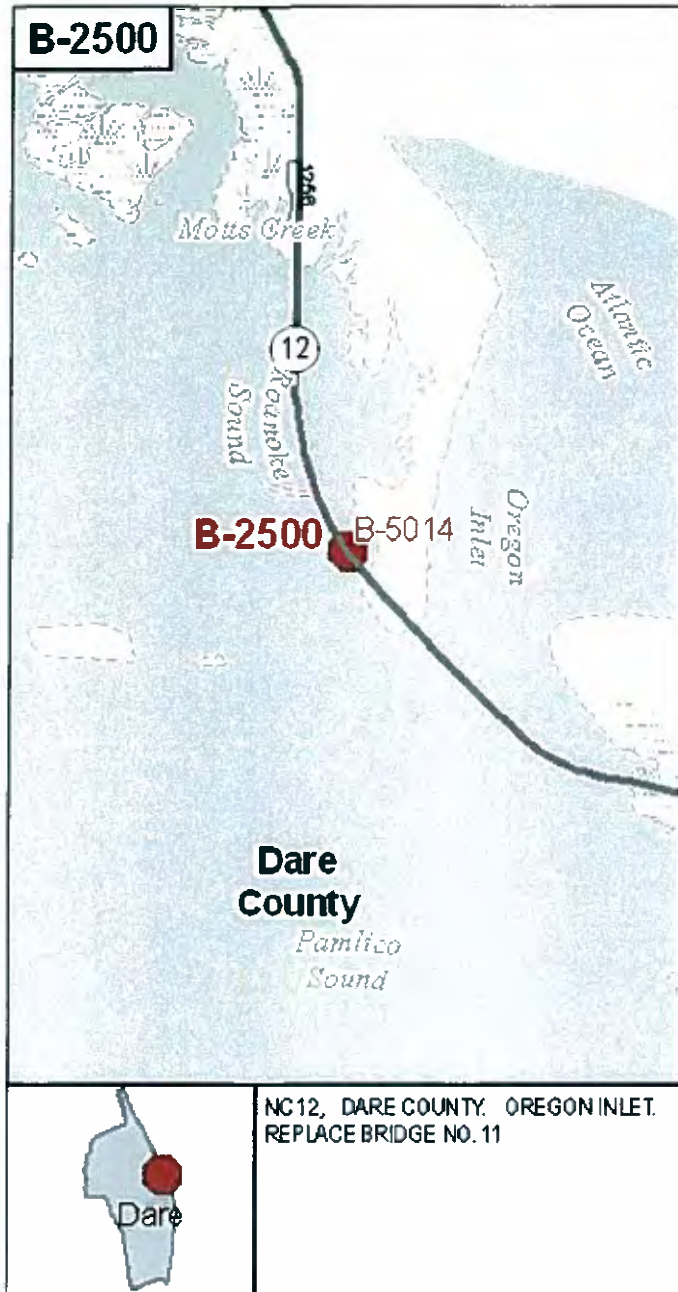


MAINLAND DARE

-  NCDOT TIP Projects
-  Dare County Transportation
-  Private / Other
-  Municipal
-  NC State Road
-  NC Route (Primary)
-  US Highway








This map is for illustrative purposes only and cannot be used by federal, state, or local permitting agencies in reviewing development proposals or performing site evaluations.



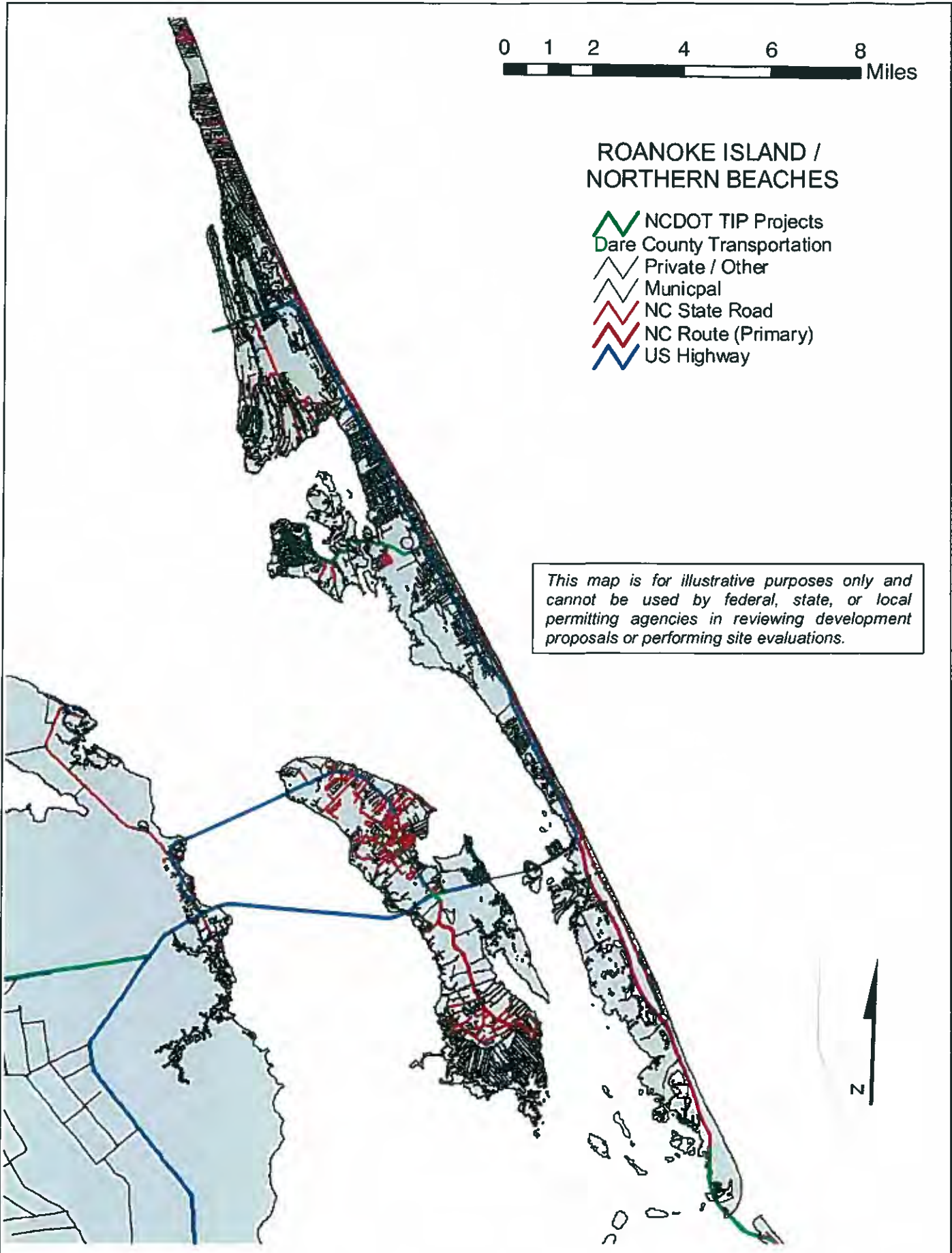


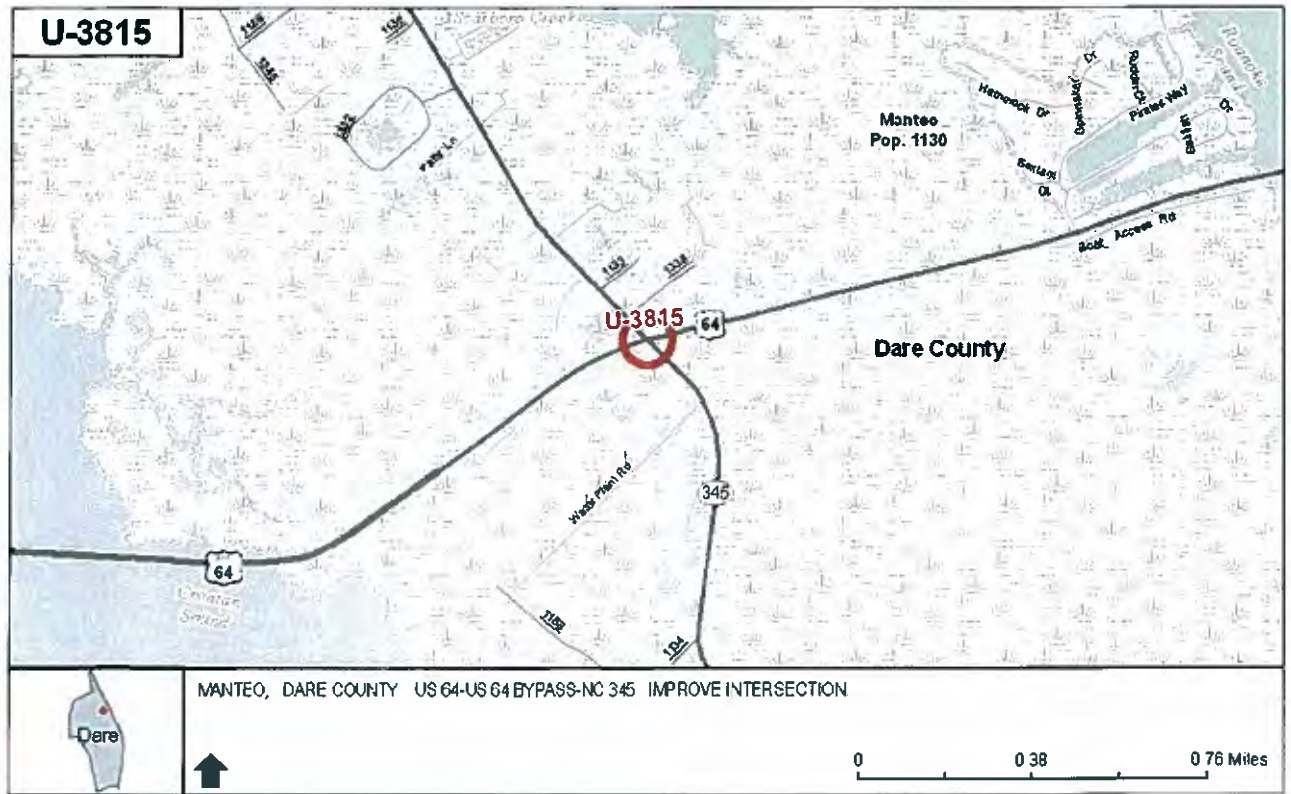


ROANOKE ISLAND / NORTHERN BEACHES

-  NCDOT TIP Projects
-  Dare County Transportation
-  Private / Other
-  Municipal
-  NC State Road
-  NC Route (Primary)
-  US Highway

This map is for illustrative purposes only and cannot be used by federal, state, or local permitting agencies in reviewing development proposals or performing site evaluations.





LAND SUITABILITY ANALYSIS

The CAMA guidelines require that a land suitability analysis be conducted as part of the land use plan update to determine the areas of land in the community that are “suitable” for development. The goal of this analysis is to provide local decision-makers with information on the best areas for development and to assist with the development of local policies and the design of the future use map. The end-result of this analysis is a land suitability map depicting vacant or under-utilized land that is suitable for development. The CAMA guidelines state that the following factors shall be considered to assess land suitability:

- a. Water quality
- b. Land classes 1, 2 and 3 as discussed and identified in the environmental composite narrative and map.
- c. Proximity to existing developed areas and compatibility with existing land uses.
- d. Potential impact of development on areas and sites designated by local historical commissions or the NC Department of Cultural Resources as historic, culturally significant, or scenic.
- e. Land use and development regulations, CAMA use standards, and other applicable state regulations, and applicable federal regulations;
- f. Availability of community facilities including water, sewer, stormwater, and transportation.

In addition to the factors identified by the CAMA land use plan guidelines, another factor that must be considered in analyzing land suitability in Dare County is the large amount of publicly-owned land. Over 80% of land in Dare County is held in public ownership and unavailable for development. Most of the public lands serve as open space or recreation areas which is a positive benefit and a contributing factor to the popularity of the Outer Banks as a tourist destination. However, all land needs of our permanent population and our seasonal visitors must be addressed on the remaining privately-owned land thus resulting in keen competition for vacant property. In the case of public ownership, it is not so much an issue of land *suitability* as much as it is a case of land **availability**. In discussing the land suitability factors for Dare County, the Planning Board and staff identified the large amount of lands held in public ownership as the most important factor influencing the development patterns of unincorporated Dare County. As a result, the remaining privately-owned lands have been deemed to be “suitable” for development.

However, for the purposes of compliance with the land use planning guidelines, additional analysis of the remaining privately-owned lands was undertaken by Dare County officials and a ranking system developed to reflect the importance of each factor in the suitability decision-

making process. For the purposes of this analysis, a scale of low importance, medium importance, or high importance was used to assess the attributes of the local conditions. Table 32 lists the attributes discussed during this land suitability analysis and the rating applied by local planners. A discussion of the rating applied to each attribute follows Table 32.

Table 32 Land Suitability Attributes and Ranking

Attributes of Private Lands	Rating
Class 1 or 2 lands as identified on environmental composite map	High importance
Class 3 lands (protected from development by regulatory controls)	High importance
Water quality classifications	Medium importance
Proximity to existing development	Low importance
Compatibility with existing development	Low importance
Proximity to scenic , historical, or cultural sites	Medium importance
Availability of central water and/or central wastewater	Low importance
Access to major highways	Low importance

Class 1 and Class 2 lands – Table 20 found on page 34 lists the natural features and their associated “class” assignments. These class assignments are required to be developed by the CAMA land use plan guidelines. Class 1 lands are those areas that have only minimal limitations or regulations to address before development can occur. Class 2 lands are those areas which involve an increased amount of regulatory standards that must be addressed before development permits can be secured. A rating of “high importance” has been assigned to class 1 and class 2 lands. Although there may be some limitations associated with Class 1 and Class 2 lands, these limitations are addressed routinely through land use planning and construction techniques to mitigate limitations.

Class 3 lands -- Table 20 also lists those natural features that have the highest level of regulatory interaction or overlay of standards associated with development activities. The natural features assigned the Class 3 ranking are generally protected from development activities and include coastal and estuarine wetland AECs, public trust AECS and unvegetated beach AECs. Due to the Class 3 ranking and the associated protection level assigned to these natural features, a rating of “high importance” has been assigned for land suitability purposes.

Water Quality -- Map 6 on page 55 depicts the water quality classifications applied by the NC Division of Water Quality and the “prohibited areas” for shellfish harvesting purposes designated by the NC Shellfish Sanitation Agency. The shellfish prohibited areas are generally

in close proximity to developed areas and the SA water classifications apply to the open waters of the sounds. There are several regulatory programs that address the protection of water quality, such as the State stormwater management program, CAMA's 30-buffer requirement, and coastal wetland regulations. These regulatory programs may affect the extent or scope of development that may occur on a property and because of this reason should be noted as influences on a property's potential use or suitability. In analyzing the issue of water quality relative to land suitability, the local planners noted its importance but felt that the use of CAMA buffers and other additional State setbacks adequately addressed water quality and therefore a rating of "medium importance" was assigned to this attribute.

Proximity to existing development -- As previously noted in the discussion of existing land use patterns in Section 1, Dare County's existing land use patterns are an assortment of uses resulting from our island geography and the dispersal of our village communities. The island geography of the area and the large amount of federal lands that separate the villages result in clusters of development where the privately-owned villages are located. Market conditions do not reflect the proximity to existing patterns but reflect where the privately-owned lands can be found. Because of this, proximity to existing development is not deemed to be a factor that weighs heavily in a property's suitability and was assigned a rating of "low importance".

Compatibility with existing land uses The existing land use patterns in unincorporated Dare County reflect the island geography, the vast amounts of public property, and the many years of unregulated (unzoned) development that occurred in Dare County before zoning regulations were adopted. These factors make for an eclectic mix of land uses that define the individual villages. Over the past several years, zoning maps for each village, except for East Lake, have been adopted by the Dare County Board of Commissioners. These maps establish guidelines for future development and will attempt to address the compatibility of adjoining land uses. However, in terms of affecting land suitability, the compatibility factor was rated "low importance" by local planning officials.

Proximity to scenic, historical, or cultural areas -- Dare County is blessed with an abundance of scenic vistas and historical resources that are located all along the Outer Banks. View corridors, especially along the immediate shorelines, enhance a property's desirability and thus its suitability. Many of the historical and cultural sites are located on federal property. In discussing this issue, it was acknowledged that the suitability of land is impacted by its proximity to scenic, historical and cultural areas, therefore a "medium importance" rating was assigned.

Availability of central water and central sewer – From a land suitability perspective, the provision of infrastructure improvements for water and sewer is generally regarded as a high suitability factor for most communities. For Dare County, these factors must be adjusted

accordingly since infrastructure improvements are not extended as economic development incentives. The majority of Dare County is within the service boundary of a central water system. The provision of central water is to ensure a safe drinking water supply and not incentive –driven. There are no publicly-owned central wastewater systems in unincorporated Dare County and the few privately-owned systems are designed for specific development projects without excess capacity for off-site connections. As such, a rating of “low importance” has been given to this category.

Proximity to major highways -- The transportation system is limited by the narrowness of the island geography in most areas of Dare County. For new subdivisions, all new street improvements are constructed by the developer. For these reasons, proximity to a major highway is a negligible factor in a land suitability analysis of Dare County and a rating of “low importance” granted.

Land Suitability Map

Following an analysis of the various factors that affect land suitability, a land suitability map can be generated that depicts the areas identified by local officials as areas that are deemed “suitable” for development. (Please note, an overall map has been produced for the entirety of unincorporated Dare County. However, sectional maps have also been included since unincorporated Dare County covers so much land area and is difficult to map) As discussed in the preceding section of this narrative, the vast amounts of publicly-owned lands was determined to be the most influencing factor in the County’s land suitability map. On the land suitability map developed for unincorporated Dare County, all public lands have been placed in a category of “*not available for development*”.

For the remaining privately-owned lands, the importance ratings of Table 32 were compared and it was determined by Dare County officials that although some attributes of land may have a greater level of influence or importance in development decisions, all privately-owned lands in Dare County must be considered for development since we are overwhelmed by the vast acreages of public ownership. In addition to the category created for public lands, two other categories have been developed for the land suitability map to address the attributes of the privately owned lands.

All lands that have been assigned the Class 3 designation on the environmental composite map have been assigned the category of “unsuitable due to regulatory protection” on the land suitability map. The areas on the land suitability map are consistent with the boundaries of the Class 3 features depicted on the environmental composite maps. (Maps 11A-E on pages 62 - 66)

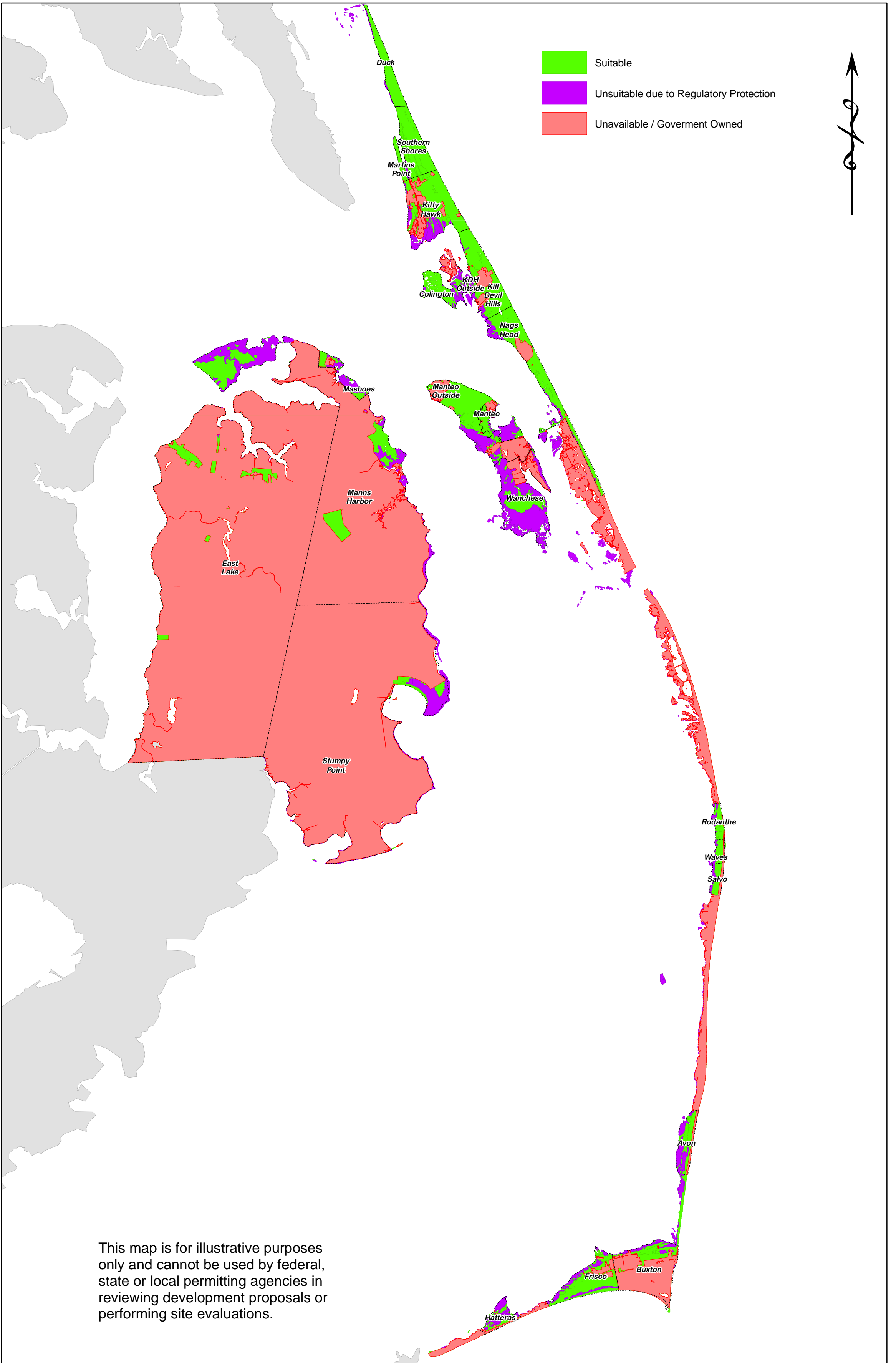
The third category illustrated on the land suitability map is the “suitable” category which has been applied to all other privately-owned lands that are not Class 3 lands. This reflects the strong belief of Dare County officials that all privately-owned lands that are not protected from development by CAMA AEC designations are “suitable” for development since so much of the land in Dare County is held in public ownership. On the environmental composite map, these areas are identified as Class 1 and Class 2 lands. An overlay of the environmental composite map was used by the Dare County GIS Department to assist with the creation of the land suitability map to ensure that all area designated as “suitable” on the land suitability map are compatible with the environmental composite map.

The land suitability map is designed to illustrate a general picture of land suitability and land availability in unincorporated Dare County. As stated at the opening of this discussion, all privately-owned lands are deemed to be suitable for development purposes. The land suitability map is not intended to be used for permitting decisions or in the review of development proposals. The land suitability map and sectional inserts can be found on pages 133-137.

REVIEW OF 2003 DARE COUNTY LAND USE PLAN




The update process of the Dare County Land Use Plan provides an opportunity to review the 2003 plan for effectiveness and to determine our success in implementing the policies and strategies contained in the 2003 version. Appendix 4 details the 2003 policies and their associated implementation status. Since the adoption of the 2003 Land Use Plan many of the implementation strategies have been fully implemented. Most noteworthy is the adoption of zoning maps for Stumpy Point, Wanchese, the Skyco community of Roanoke Island, Mashoes and Manns Harbor. East Lake is the only remaining area of unincorporated Dare County that is unzoned. These zoning maps reflect the 2003 policies favoring single family residential development, low-density multifamily development and small commercial businesses.

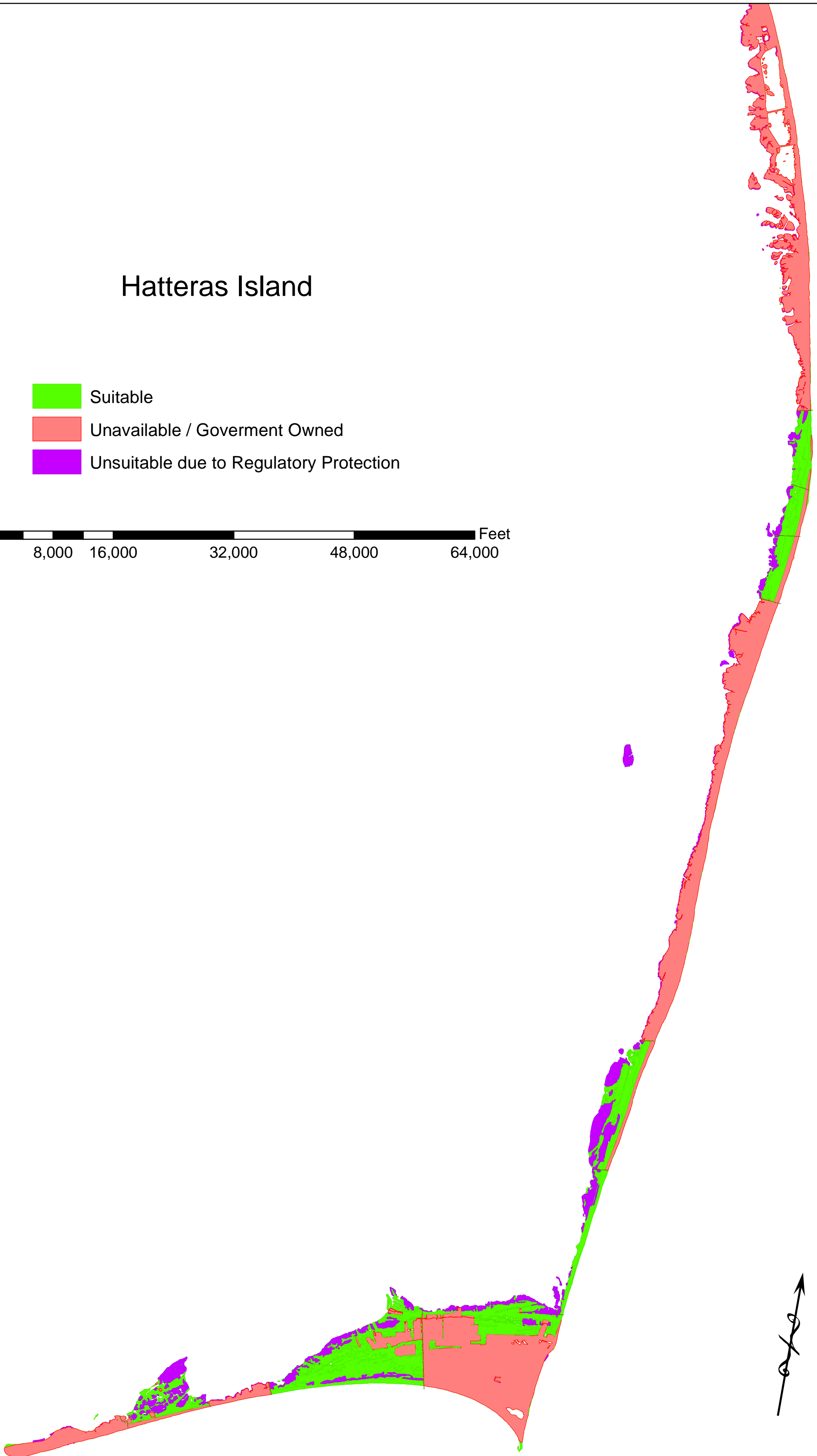
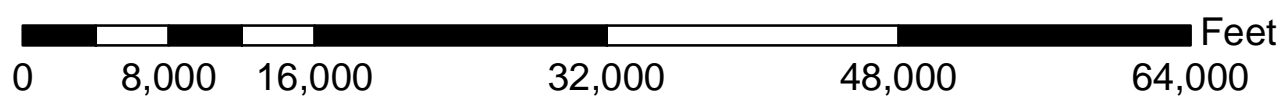
The 2003 LUP was consulted during the review of all of the amendments to the Dare County Zoning Ordinance and Subdivision Ordinance that have occurred since the adoption of the 2003 Land Use Plan. All amendments have been found by the Planning Board and the Board of Commissioners to be consistent with the policies of the 2003 LUP. The policies of the 2003 LUP have been effective in protection of the County’s natural resources and many of the 2003 policies have been included in the 2009 due to their effectiveness and for their continued relevance.



This map is for illustrative purposes only and cannot be used by federal, state or local permitting agencies in reviewing development proposals or performing site evaluations.

Hatteras Island

-  Suitable
-  Unavailable / Government Owned
-  Unsuitable due to Regulatory Protection

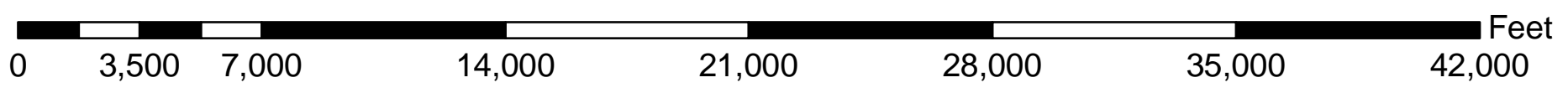






TOWN OF NAGS HEAD

TOWN OF MANTEO

Roanoke Island and Bodie Island

- Suitable
- Unavailable / Government Owned
- Unsuitable due to Regulatory Protection
- Municipal
- US Department of the Interior (Nags Head Jurisdiction)

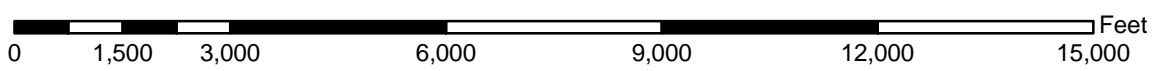


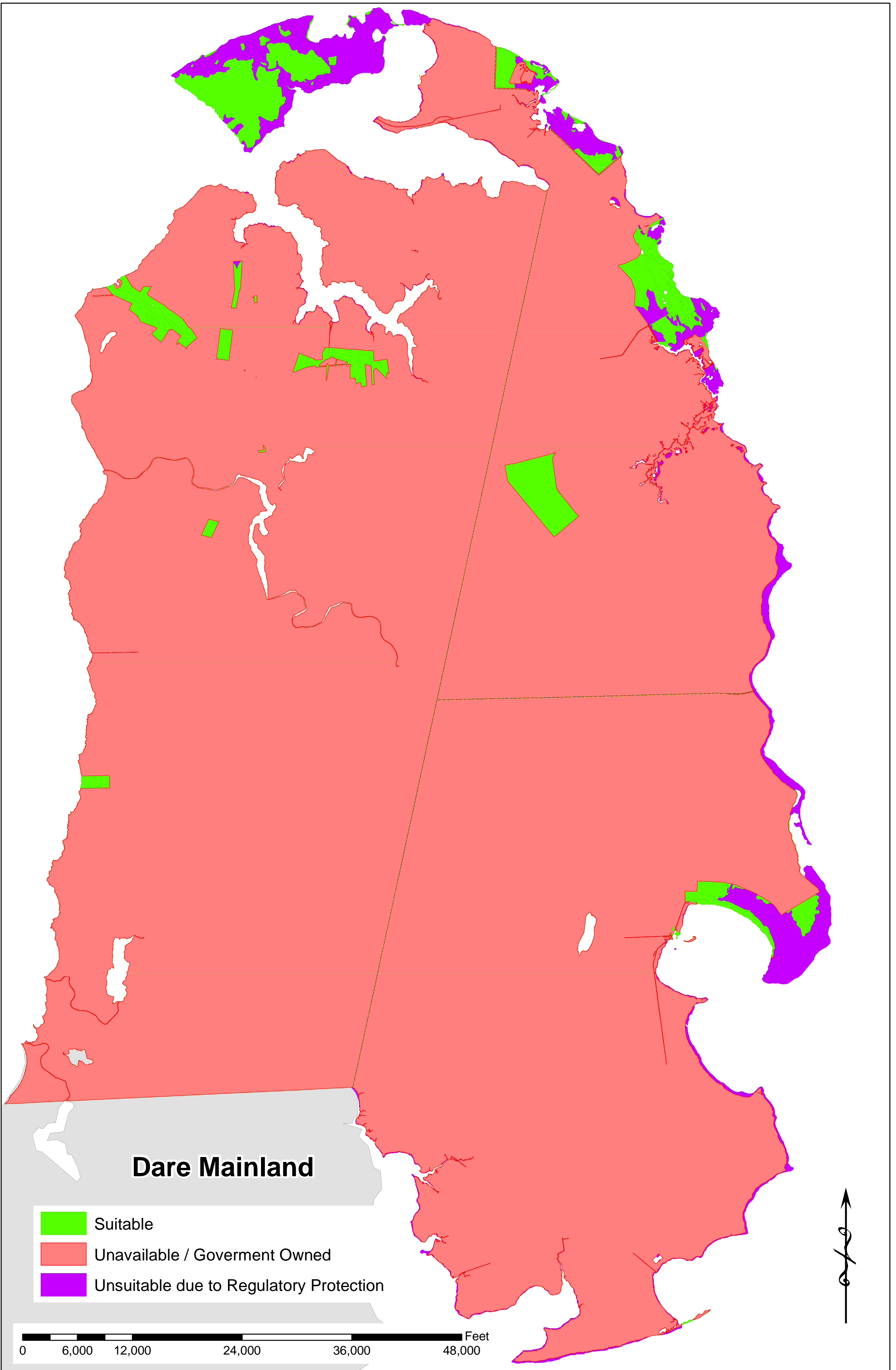
-  Suitable
-  Unavailable / Government Owned
-  Unsuitable due to Regulatory Protection
-  Municipal

**SOUTHERN
SHORES**

KITTY HAWK

**KILL
DEVIL
HILLS**





SECTION TWO

Policies and
Implementation Strategies

Section Two

The CAMA guidelines require local governments to identify policies and implementation strategies for these policies to demonstrate the local government's position on certain issues or to demonstrate the local government's goals and intentions. These policies are the main element of the land use plan and provide direction for local elected officials, advisory boards, citizens, and state and federal agencies on land use planning matters and other issues of local concern. The Land Use Plan is a fundamental tool used by Dare County for guidance and is also used by CAMA officials in the review of CAMA major permits and used in federal consistency reviews. These policies inform CAMA officials of the County's intentions and positions on development issues that are involved with CAMA major permits. A determination of inconsistency by CAMA officials can result in the denial of CAMA major permit applications of federal reviews. These policies are also referenced by Dare County in reviewing rezoning proposals, development and re-development applications, and when drafting new ordinances or ordinance amendments.

It is the intent of Dare County to strive for consistency between the LUP policies and the County ordinances, but it is recognized that sometimes conflicts with the policies cannot be avoided since these policies are written for long-term planning purposes and updated generally on a five-year basis. Economic conditions, political philosophies, changing technologies, and public opinion may result in an amendment to the Zoning Ordinance or other land use ordinance that is not consistent with a land use policy that was adopted two or three years earlier. When such inconsistencies occur, it must be acknowledged that the land use plan is a policy document, not an enforcement ordinance. The resolution of the inconsistency would be accomplished through an amendment to the land use plan as may be appropriate to reflect the amended land use ordinance.

The CAMA guidelines establish six management topics to be addressed by local governments. The policies for the 2009 Dare County Land Use Plan have been grouped according to these management topics. Several of the policies included in the 2009 LUP include a statement that Dare County reserves the right to examine issues on a "case-by-case" basis. This language has been included to emphasize an issue due to the County's reservation about the "one size fits all" tendency of State and Federal regulatory agencies. Dare County is unique in our geographic location and the vast amounts of land dedicated to public ownership and conservation. For this reason, Dare County often finds that a regulatory program which may be wise or practical for other communities is contrary to the best interest of Dare County and our citizenry.

There are many State and Federal regulatory programs for resource protection that apply in Dare County. These regulatory programs are referenced in our policies and often Dare County relies on the Federal or State regulatory efforts in lieu of a local regulatory program. This lack of a local regulatory program should not be interpreted as lack of concern for our natural resources but may be due to a

desire to avoid duplication or the acknowledgement that adequate protection is offered by the State and/ Federal program. For development in CAMA designated Areas of Environmental Concern, Dare County accepts state and federal law regarding land uses in AECs as regulated at the writing of this document (2009).

The CAMA guidelines also require the LUP to identify both positive and negative impacts of the policies on the management topics. In order to fulfill this requirement, a statement has been included at the end of each management topic subsection and a matrix outlining the consistency of the policies with the management topic.

At the beginning of the LUP update process, Dare County identified a community vision statement and a set of objectives. The community vision provides the overall statement of Dare County and our intended direction. While this community vision is a simple statement of our goal for the future of Dare County, it serves as the fundamental foundation of the general objectives, the policy statements and associated implementation strategies. This core statement is reflected in the policy statements and helps outline our direction for future planning purposes.

Community Vision

Manage the growth and development in a manner that preserves the historical, cultural, and natural resources that make Dare County a desirable place to live, work and visit. Unincorporated Dare County should retain the characteristics typical of the entire County before the incorporated municipalities experienced urban- style growth. It is the goal of Dare County to shape the growth of the unincorporated villages in such a manner that they retain their historical character.

The policy statements have been grouped according to management topic. The objectives identified for each management topic are re-stated at the beginning of each topic section along with the CAMA requirements for each topic. A narrative discussion is included which presents an analysis of each pertinent issue by the Planning Board and staff and the conclusions reached by the Planning Board and staff in the development of the policy statement. There are implementation strategies included with some of the policies which details activities or efforts that will be considered by Dare County. In some instances, a specific implementation strategy has not been included for each policy due to the nature of the policy and that no action is necessary to implement the policy. Some implementation strategies may also be appropriate for more than one policy statement. The CAMA guidelines require local governments to prepare an action plan for the implementation strategies. As part of this action plan, a target date for implementation has been included with the implementation strategy. For some, the target date is noted as the entire five-year planning period to indicate on-going efforts such as the participation in the CAMA local permit program.

Listed below is a glossary of key words that are used throughout Section 2 in the policy statements.

The glossary is intended to convey the specific meaning of these key words.

1. adequate: sufficient to achieve the intended purpose or prevent harm
2. advocate: to promote or encourage
3. allow, authorize, permit: official action to let something happen
4. consider: to analyze; to take under advisement
5. control: to regulate or direct
6. discourage: to not favor, to dissuade
7. encourage: to favor or foster (also see support)
8. may: provides the option, but not required; permissive
9. oppose: to not support or be against a proposed action
10. practicable: capable of being effected, feasible, likely to occur
11. preferred: the favored course among alternatives but does not preclude other options
12. prohibit: not allowed, to totally prevent
13. promote: to proactively encourage to take positive steps
14. reasonable: practical, just enough to do the job; not extreme
15. recognize: to show awareness of an issue or condition
16. require: to mandate something
17. shall: mandatory, not optional; a more formal term for “will”
18. should: preferred or recommended but not mandatory in all cases
19. significant: important; determined by quantity or relative impact
20. support: to foster; may imply financial support

MANAGEMENT TOPIC #1 – PUBLIC ACCESS

CAMA Goal: Maximize public access to the beaches and the public trust waters of the coastal region

CAMA Objective: Develop comprehensive policies that provide beach and public trust water access opportunities for the public along the shoreline within the planning jurisdiction. Policies shall address access needs and opportunities, include strategies to develop public access, and identify feasible funding options.

CAMA Policy Requirements: Shall establish local criteria for frequency and type of access facilities; provisions for access to disabled persons; and access criteria for areas targeted for nourishment.

Public Access Objectives

1. Maintain and enhance access to the beaches, sounds and other public trust areas of Dare County.
2. Explore options to protect working waterfront areas from redevelopment that may result in loss of access to public trust areas and loss of access opportunities for our local fishing industry.

Shoreline Access

Access (vehicular and pedestrian) to the shorelines and public trust areas of Dare County is a fundamental element of the Outer Banks history, way of life, and our economy. Many folks visit the Outer Banks to enjoy access to the miles of shorelines and beaches for recreational activities and to observe our natural flora and fauna. Fishermen, both commercial and recreational, rely on vehicular access to the beaches. And for year-round residents, access to the beaches and public trust areas is part of our daily lives and a contributing factor for many people choosing to reside here. Parking and restrooms facilities can be found throughout the municipal areas and on Hatteras Island for access to the ocean and estuarine shorelines. Many of these access points have been developed with funding assistance from the State of North Carolina through the shoreline access grant program. These access points are widely used by our seasonal visitors and our year-round population. The access points also provide fishing opportunities for many people who do not own boats for direct water access. As noted in the public access discussion, many waterfront properties that provided boating access have been re-developed as private communities thus eliminating a public boat/water access. ORV access to the ocean and estuarine shorelines compensates for the lack of widespread boat ramps by providing a means of water access for those without boats.

Historically, vehicular access along the beaches was often the only means of travel. The protection of this historical aspect of Outer Banks life has been the focus of lawsuits against the National Park Service to prohibit vehicular and pedestrian access to the beaches of the Cape Hatteras National

Seashore. Opponents of beach driving have sought injunctions against the NPS due to lack of an official plan to manage access to the federal seashore. These opponents argue that vehicles on the beach result in damage to plant life and wildlife. Proponents of beach driving maintain that vehicular access can be managed without damage to plants and wildlife. In 2008, a settlement of a lawsuit filed by the Southern Environmental Law Center and the Defenders of Wildlife resulted in a temporary agreement to address vehicular and pedestrian access to the Hatteras Island beaches managed by the NPS. The Dare County Board of Commissioners was a participant in this lawsuit. The agreement established terms for closure of beaches to pedestrian and vehicular access in response to bird and turtle nesting activities. This agreement also established a deadline for adoption of permanent plan by 2010. In 2007, prior to the filing of the lawsuit, the National Park Service initiated a negotiated rule making process to address the issue of access to the federal seashore. Dare County was involved as a stakeholder in this rule-making process. The County will continue to participate in this issue due to the vital importance of vehicular and pedestrian access to our economy and quality of life.

During the public input workshops on Hatteras Island, several residents noted the need for increased public boat ramps and boat access points on Hatteras Island. There are several access ramps for vehicular access to the shoreline and pedestrian access to the shoreline, however there are a limited number of public boat ramps on Hatteras Island.

Policy PA #1

Dare County supports the preservation and protection of the public's right to access and use of the public trust areas and waters.

Policy PA #2

Dare County reserves the right to review, comment, advocate, or oppose any proposed Federal or State regulations or programs that affect the public trust waters or public trust areas.

Policy PA #3

Dare County supports North Carolina's shoreline access policies and grant programs and recognizes the importance of shoreline access to our local residents and our tourist economy. Thus, the County will continue to seek opportunities to expand access, including opportunities for the disabled, and to secure funding for beach nourishment in order to maintain wide sandy beaches.

Implementation Strategy:

1. Identify and pursue appropriate grant opportunities for access sites to public trust waters and public trust areas. Any new public access sites shall address the needs of handicap persons and address those needs to the maximum extent practicable in working with the natural conditions of the site. (2010-2015)

Policy PA #4

The County recognizes the importance of four-wheel drive vehicles and pedestrian access to the beaches of Dare County that are under the management authority of the federal government. Efforts to completely prohibit beach driving on these federally-managed areas are opposed. National Park Service management plans for the beaches should acknowledge the historical and established practice of vehicular and pedestrian access to the beaches of Dare County. In addition, impacts on Dare County's local economy are important elements that should be a factor in any decision-making process of the National Park Service. Management plans should emphasize the need to allow these practices to continue in an equitable manner that balances species management activities without eliminating or severely limiting vehicular and pedestrian access to the Dare County beaches.

Implementation Strategies:

1. Continue to actively participate with the National Park Service in developing a plan for vehicular and pedestrian access to all beaches of Dare County. (2010-2015)
2. Defend and assist with legal interventions that would allow continued access for federal beaches. (2010-2015)

Policy PA #5

Plans for the replacement of Bonner Bridge and for the long-term protection of NC 12 on Hatteras Island shall address the need to provide vehicular and pedestrian access for local residents and visitors to all areas of Pea Island and Hatteras Island currently (2008) open to the public. Plans to restrict or limit current levels of access shall be reviewed on a case by case basis with support or opposition offered depending on the proposal and its potential negative impacts on local residents and our tourist economy.

Implementation Strategy:

1. Continue to monitor efforts of NC Department of Transportation to permit and construct replacement for the Bonner Bridge. (2010-2015)

Note: additional discussion and policies on Bonner Bridge are included in the Infrastructure Carrying Capacity topic found later in the section.

Working Waterfronts

The loss of public access to waterways and working waterfront sites used for commercial fishing was the focus of a State-funded group in 2007. Over the past decade, development of waterfront properties has resulted in decreased access opportunities for the general public, residents and fishermen. Recognizing this trend, the State study group, known as the Working Waterfront Commission, devised a grant program and management plan to identify waterfront access sites for protection and possible public acquisition. The Dare County Board of Commissioners and staff are

actively involved in this program and supportive of its goals. Grant opportunities for Dare County sites will be pursued as necessary to avoid the additional loss of working waterfront sites or other waterfront properties that have traditionally been used for public access points to our surrounding waters.

Policy PA#6

Dare County supports efforts by the State of North Carolina to protect working waterfronts and harbors to ensure their continued viability as working waterfronts and access to public trust waters. Dare County will work with the State and private property owners to identify waterfront sites for acquisition as part of the WAMI (Waterfront Access and Marine Industry Fund) in order to maintain their integral relationship with the commercial fishing industry and for recreational boating access.

Implementation Strategy:

1. Develop a comprehensive inventory of working waterfronts and other waterfront access areas in unincorporated Dare County. (2010)

Shoreline Management

With hundreds of miles of coastline along the Atlantic Ocean, protection and management of the shorelines is important but is also a challenge. The public infrastructure and private property located behind the public trust portions of the shoreline are essential components of the local economy. Beach erosion from hurricanes, nor'easters and other weather events can be severe and threaten or damage oceanfront properties and nearby infrastructure.

The best method to address shoreline erosion has been the topic of public debate for many years in Dare County and in the other coastal counties in North Carolina. Current North Carolina regulations prohibit the construction of hardened structures along the ocean shoreline. The Coastal Resources Commission has acknowledged beach nourishment as the preferred method of shoreline protection. Since the 1990's Dare County has participated in efforts by the Corps of Engineers to develop and implement a beach nourishment plan for the northern beaches in Kill Devil Hills and Nags Head that are threatened by erosion. The Northern Dare Beaches Storm Damage Reduction and Erosion Control Protection Plan was completed by the Corps of Engineers in 2003. As a result of a change in federal policy on the federal funding for the construction of new beach nourishment projects, appropriation of this plan has not be authorized by the United States Congress. Efforts to generate local funding mechanisms to address the lack of federal funding assistance have not been successful to date.

The Dare County Shoreline Management Commission was established in 2005 to study alternatives for shoreline management in response to the change in federal policy for funding of the Dare Beaches Hurricane Protection Plan. The Shoreline Management Commission is charged with the study of

shoreline protection issues for all shorelines in Dare County, not just the ocean beaches and not just the areas identified for nourishment in the Corps plan. A certain portion of the occupancy tax collected in Dare County is specifically earmarked for use on shoreline protection measures. In 2008, some of the money was used to initiate a sand fencing program along oceanfront areas. This program has proven successful in many locations and these efforts will continue for the next two years. Faced with the lack for federal funding for new beach nourishment projects, the State of North Carolina may be forced to re-consider its approach to shoreline protection. Although a reversal of the prohibition on hardened structures seems unlikely, the State of North Carolina must recognize the need to join efforts with local governments and private property owners to identify alternative methods to address beach erosion. Federal appropriations for beach nourishment projects can no longer be relied upon by local governments. The challenge of shoreline protection will not disappear therefore efforts to identify solutions need to be considered at the State level and the County level.

Policy PA #7:

Beach nourishment is the preferred shoreline management alternative along the ocean beaches of Dare County. Access points to beaches identified for nourishment activities shall be provided according to federal standards (every ½ mile) to allow convenient access to all persons. In addition to beach nourishment, the use of terminal groins, offshore reefs, and other similar techniques are compatible with the shoreline management goals of Dare County.

Implementation Strategies:

1. Support efforts by the Shoreline Management Commission to address issues associated with shoreline erosion, public access, and other related issues that involve the ocean beaches and estuarine shorelines in Dare County. (2010-2015).
2. Support efforts to amend the North Carolina General Statutes to allow the use of terminal groins, offshore reefs, and other similar structures. (2010-2015)

Wildlife Resources

Dare County is noted for its fisheries resources, but also has a significant base of wildlife resources. On the Mainland, sportsmen enjoy a variety of species including deer, wildfowl, bear, and foxes. On Pea Island, numerous species of wildfowl are found and the area is popular with birding enthusiasts. Many of these areas are on federal preservation lands such as the Pea Island Wildlife Refuge and the Alligator River Wildlife Refuge. Access to these federal lands has traditionally been granted by the federal government. Continued access to these areas for both pedestrians and vehicles was stressed by the Planning Board members.

Policy PA #8

Dare County supports the maintenance of wildlife preservation areas and refuges. Access by the public, including vehicular access to beaches, for wildlife harvesting and observation should not be prohibited.

Implementation Strategy

1. Work with federal agencies to allow continued access to federal property in Dare County for hunting (including hunting with dogs), fishing, and other similar activities. (2010-2015)

Policy Impacts on CAMA Management Goals and Objectives

The Dare County public access policies are consistent with the goals and objectives established by CAMA for this management topic. All of the policies seek to expand public access to coastal waters and other public trust areas and identify funding opportunities to enhance public access.

The matrix on the following page demonstrates the consistency of each of the public access policies with the management objectives identified for this topic. As noted in the matrix, all of the public access policies directly support the management objectives. Each policy has been reviewed with a status ranking of beneficial, neutral, or detrimental as noted for each policy. For this management topic, a ranking of “beneficial” has been listed for all policies due to the direct link to each of the two objectives.

CONSISTENCY OF PUBLIC ACCESS POLICIES WITH OBJECTIVES

MANAGEMENT TOPIC – PUBLIC ACCESS	Policy Benchmarks – Indicate whether the policy is beneficial (B), neutral (N), or detrimental (D)		
	<ol style="list-style-type: none"> 1. Maintain and enhance access to the beaches, sounds, and other public trust areas of Dare County. 2. Explore options to protect working waterfront areas from redevelopment that may result in the loss of access to public trust areas and loss of access opportunities for our local fishing industry. 		
	BENEFICIAL	NEUTRAL	DETRIMENTAL
PA #1 preservation and protection of access to public trust areas and waters	#1,		
PA#2 reserves right to oppose or support any federal or state programs that affect access	#1,		
PA #3 recognizes importance of shoreline access and seeks to expand opportunities	#1		
PA #4 importance of ORV access and opposition to prohibit beach driving	#1		
PA#5 Bonner Bridge replacement with access to all areas	#1		
PA #6 protection of working waterfronts	#1, #2		
PA # 7 beach nourishment support	#1		
PA # 8 Access to wildlife areas	# 1		

MANAGEMENT TOPIC #2 – LAND USE COMPATIBILITY

CAMA Goal: Ensure that development and use of resources or preservation of land minimizes direct and secondary environmental impacts; avoids risks to public health, safety, and welfare and is consistent with the capability of the land based on considerations of interactions of natural and manmade features.

CAMA Objective: 1) Adopt and apply local development policies that balance protection of natural resources and fragile areas with economic development. 2) policies shall provide direction to assist local decision making and consistency for zoning, divisions of land, and public and private projects.

Policy Requirements: 1) establish building intensity and density criteria, such as floor area ratio and units per acre, consistent with the land suitability analysis for each land use designation on the Future Land Use Map. 2) establish local mitigation criteria and concepts. These may include, but are not limited to the following: cluster subdivision design, enacting local buffers, impervious surface limits, and innovative stormwater management alternatives.

Land Use Compatibility Objectives

1. Use existing patterns of village communities as “nodes” of activity and living space in a manner that relates to the vast publicly owned lands and historical landmarks.
2. The preferred pattern of development is a mix of residential homes that are compatible with existing development and addresses the need for workforce housing.
3. Use land use planning and zoning techniques to abate the tendency of rapid growth communities to lose their “sense of place” or be homogenized by growth.
4. Direct development to reflect the historical architecture of North Carolina’s coastal heritage.
5. In making and evaluating land use policy and decisions, recognize the vast amounts of publicly owned land in Dare County and the resulting difficulties to address the varying, and sometimes competing, needs of the permanent residents and the seasonal visitors on the remaining privately-owned lands.
6. Commercial land use should be neighborhood or village oriented and not regional or urban.

Coastal Heritage

The preservation of Dare County’s coastal heritage serves as the community vision statement for the 2009 update. This is reflected in the objectives and policies contained in the land use compatibility section. Although the County acknowledges that preservation of the coastal heritage through the use of land use planning techniques such as building design standards and other zoning regulations may be a difficult task, it is a worthy goal. Our coastal heritage is important to the residents of Dare County and makes Dare County a top tourist destination. Maintaining our coastal

village heritage, traditional industries, and development patterns is essential to the continued livelihood of our residents and our continued ranking as a top tourist destination. This includes an emphasis on locally-owned and operated businesses versus franchises that rely on corporate building designs to make their businesses universally recognizable. The continued successful of our locally-owned businesses adds to our unique character and as appealing traits to many of visitors and residents. The development patterns found in our various coastal villages do not follow traditional patterns of land development due to the isolated nature of some of the areas and the island geography of Dare County. However, this should not be seen as a disadvantage but as part of our heritage and our unique nature. The incompatibility of adjoining land uses that can be found throughout unincorporated Dare County must be viewed with some level of tolerance because of the uneven balance of public-private ownership and the historical patterns of development that follow the confines of the various village communities and separation of land masses by water bodies.

Policy LUC #1

Dare County recognizes the importance of our coastal village heritage and will continue to work toward the preservation of that heritage with appropriate land use guidelines and regulations.

Policy LUC #2

Public sector and private sector development activities should recognize Dare County's coastal heritage and incorporate traits reflective of our heritage in building design and other site features and improvements.

Implementation Strategy:

1. Identify amendments to the Dare County Zoning Ordinance and other land use ordinances that may be necessary to implement management objectives for residential and commercial development. This may include the elimination of drive-thru window service for restaurants (but not all businesses employing drive-thru window service such as banks and pharmacies) in all commercial and S-1 zonings districts and building design standards for commercial structures. (2011-2012)

Residential Development

The construction of detached single family residential structures as the preferred pattern of development in Dare County dates back to the 1987 Dare County Land Use Plan. The 2009 update continues this preference as expressed at public input workshops, in the Citizen Involvement Poll results, and at Planning Board workshops. The 2009 update also recognizes that the need for workforce housing and year-round housing opportunities might conflict with this objective but are necessary to address the housing needs of Dare County. Multifamily structures may be a more cost-effective alternative for workforce housing and the 2009 LUP acknowledges this option. Comments from the Planning Board workshops indicate support for residential development that is consistent

with existing neighborhoods patterns and that is reflective of the coastal heritage architecture style prevalent along the Outer Banks. The scale and size of residential development should follow existing neighborhood patterns. Since the 2003 update, the trend in seasonal accommodations has been the construction of large, multi-bedroom structures.

There has been some criticism of these large structures and adjustments made to local zoning regulations to link the numbers of bedrooms to the lot size and to address on-site parking. The construction of these large residential structures is reflective of the seasonal market demands and the stated land use policy of detached residential structures versus townhomes or multifamily structures. Most of these large homes have been constructed along the oceanfront and in areas that are generally dedicated to seasonal or second home accommodations. However, some of the large residential homes have been constructed in more year-round residential settings and this often results in complaints from the residents of noise, overflowing trash cans, and excessive vehicles parked in the right-of-way. Such compatibility issues are difficult, if not impossible to address with local zoning regulations, since the use remains residential but the occupancy of the structure creates conflicts. Some subdivisions have adopted covenant restrictions on seasonal rentals which seem to be successful in curbing incompatible occupancy issues.

Since 1982, the minimum lot size standards for Dare County have remained unchanged for new residential lots – 15,000 square feet for lots served by central water and 20,000 square feet for new lots served by private wells. During the development of the Wanchese zoning maps, the majority of the residents expressed the sentiment that the minimum lot size of 20,000 square feet should be applicable in all Wanchese zoning districts even if central water becomes available in the future. The zoning regulations adopted for Wanchese reflect this sentiment. The issue of changing the minimum lot size has not been identified as an issue of concern during the 2009 update. The scale of development associated with the current minimum lot sizes is congruent with the objective of residential development that is compatible with existing neighborhood patterns.

The issue of moderately-priced housing for permanent residents has received a great deal of attention since the 2003 LUP update. In 2003, the Dare County Board of Commissioners appointed an ad hoc committee to study housing issues and identify incentives for the private sector to encourage development of moderately-priced housing. A set of zoning standards, entitled the Family Housing Incentives Standards, were adopted which provide multi-family dwelling density bonuses, reduced lot size for duplexes, and accessory unit provisions in exchange for housing that is rented or sold to certain household incomes ranges. Since the adoption of the FHIS ordinance, one site plan for the development of a multi-family project on Hatteras Island has been approved by Dare County. The committee has also identified a tract of County-owned land on Bowsertown Road for construction of workforce housing for year-round residents. The County is working with the Outer Banks Community

Development Corporation (CDC) on this project. The CDC is a non-profit group founded in 2003 to provide guidance to local residents in identifying housing opportunities. The County has provided funding assistance to the CDC since its inception.

The Dare County Board of Commissioners has provided financial support to the Dare County Educational Foundation for the construction of a housing complex for teachers to be located in Kill Devil Hills adjacent to the First Flight Schools campus. This project is financed by the North Carolina State Employees Credit Union and will be built on land owned by the Dare County Board of Education. Similar projects have been funded by the State Employee Credit Union in other areas of North Carolina. For years, the Board of Education has struggled with recruitment and retention of teachers in Dare County due to the area's high cost of housing and living expenses. The construction of this housing complex is designed to provide moderately priced housing for newly graduated teachers who may not otherwise be able to live and work in Dare County.

Another factor affecting the workforce housing issue is housing for seasonal employees. In recent years, workers from foreign countries comprise a large sector of the seasonal workforce. These foreign visitors live in Dare County for several months on temporary work visas and provide labor in many restaurants, grocery stores, retail establishments, and other hourly-wage businesses. The same workforce housing that is affordable to the seasonal workers is the same housing market that is affordable to the year-round service industry. This creates competition among the two sectors of the workforce. The lack of affordable housing opportunities often results in many of the foreign workers residing in one residential structure and exceeding the approved occupancy of the structure. The housing of these workers in traditional neighborhoods also results in conflicts with the adjoining property owners due to varying work schedules and lack of understanding of local customs. Noise and trash issues are the most frequent complaints. Some employers provide housing for their seasonal workers but this is the exception not the norm.

The parking of heavy equipment and commercial vehicles in residential neighborhoods is an often-made complaint received by the Planning Department. With many service-oriented and construction related businesses, heavy equipment and commercial vehicles are parked in neighborhoods where current zoning regulations do not address such issues. This often results in complaints from neighbors concerned about the inconsistency of this activity with a residential zoning designation. As neighborhoods continue to build-out and develop over the next several years, the need to amend the Zoning Ordinance to address the parking and location of heavy equipment and commercial vehicles may be necessary. However, such efforts will most likely meet with resistance from the business owners who may be impacted by such a change.

Another issue that has increased in frequency of complaints since the 2003 LUP update is the issue of junked and abandoned vehicles. The County Code of Ordinances includes a junked and abandoned vehicle ordinance that is outdated and extremely cumbersome to enforce. The issue is complicated by the lack of a storage yard available for the relocation of junked and/or abandoned vehicles once removed from private property. In larger metropolitan areas, local governments often own and maintain vehicle yards for the storage of junked vehicles. This is not the case in Dare County where County owned lands are dedicated to other uses such as schools, office buildings, and infrastructure needs. The vehicle storage yards are often the source of contaminants in stormwater which is another concern. As Dare County continues to grow and become more developed, updating the County's junked and/abandoned vehicle ordinance to include alternatives to the traditional removal and mass storage may be needed.

Policy LUC #3

Residential structures shall be the preferred land use in unincorporated Dare County for both seasonal accommodations and permanent housing. All new residential structures, whether attached or detached, are encouraged to be on a scale that is consistent with existing neighborhood patterns of development.

Implementation Strategy:

1. Administration of existing regulations of the Dare County Zoning Ordinance for minimum lot size, dwelling density, building height and other standards for residential development. Changes in wastewater technology, improved construction practices for "green" buildings, market conditions, and demographic trends should be examined periodically to ensure that the standards of the Dare County Zoning Ordinance are not obsolete and recognize newer technologies that may benefit our existing communities. (2010-2015).

Policy LUC #4

To address the housing needs of the year-round population, multi-family dwellings and other types of residential structures such as accessory use dwellings, are considered appropriate alternatives when located in areas zoned for multi-family structures and constructed on lots or parcels greater than the minimum lot size for single family lots established in the individual zoning districts of the Dare County Zoning Ordinance. This diversification of housing opportunities is important to address the needs of Dare County's workforce.

Implementation Strategy:

1. Administration of Family Housing Incentive Standards (section 22-58.2) of the Dare County Zoning Ordinance to address workforce housing needs. (2010-2015)

Commercial Development

As noted in the previous section, residential development is the preferred pattern of development for unincorporated Dare County. However, some commercial development is necessary to provide goods and services to the local residents and our seasonal visitors. One objective established for commercial development is that such development should reflect the Outer Banks coastal heritage. In the Planning Board discussions of this issue, various alternatives were addressed and it was noted that this objective will be difficult to implement. Most often building design standards are used to establish architectural features, façade, and paint schemes. Reaching a consensus of appropriate building design standards is difficult and often faced with opposition from the business community. The importance of aesthetics as a quality of life issue and our continued appeal to seasonal visitors was stressed by the Planning Board in writing the policies for this topic.

One objective identified for this management topic was to keep commercial development on a neighborhood scale and of a scope that is not designed to attract regional markets. In 2003, the Dare County Board of Commissioners adopted gross floor limitations for the commercial zoning districts in unincorporated areas of the County. The zoning maps for Mann Harbor and Wanchese also included gross floor area limitations. In 2007, a gross floor area limitation was also adopted by the Board of Commissioners for the unzoned areas of Dare County. These gross floor area limitations should assist with the objective of neighborhood commercial development, not commercial development for regional markets

The Planning Board also noted that the 2003 policy encouraging the continued existence of locally owned businesses should be included in the 2009 update. Many of the locally owned businesses have been in operation for many years, and in some instances, before zoning regulations were adopted by Dare County. Some of the businesses may have been rendered non-conforming with the overlay of zoning regulations. Amendments to the Zoning Ordinance to address the non-conforming status of older, existing businesses should be considered to ensure the replacement or repair of non-conforming commercial structures in support of the policy for locally-owned businesses. The eclectic nature of the businesses in unincorporated Dare County, especially along the Highway 12 corridor on Hatteras Island, is part of the appeal of the Outer Banks. Creating a favorable environment for the business community will assist with the continued success of the small neighborhood shops and stores in existence today.

Another potential tool identified during the LUP update process to implement the County's objectives is amendment of the Zoning Ordinance to limit drive-thru window service at restaurants and food service businesses. Most franchise food service businesses, especially the fast-food industry, rely on drive-thru window service. An amendment to eliminate this option for food service establishments

would provide an additional layer of protection for the unincorporated areas from franchise businesses that often employ unoriginal, generic, or replicated corporate building designs that are inconsistent with the traditional architecture of the Outer Banks. In addition to the incompatibility of these franchise restaurants with existing coastal village atmosphere, there are secondary impacts such as trash, lines of waiting vehicles, and a decrease in the appeal of the neighborhood that accompany these commercial developments.

The first section of the LUP noted that the needs of the permanent population and the seasonal population vary in terms of what commercial services and goods are desired. Many of the commercial businesses in Dare County are solely focused on the provision of souvenirs and tourist-related goods to the visiting population. The proliferation of these tourist-oriented businesses was identified by a vast majority of the respondents to the Citizen Involvement Poll as an important issue of concern. This concern was also voiced at all of the public input workshops held at the beginning of the update process in 2007. Other jurisdictions have adopted building design standards to address concerns about the aesthetics of these tourist-oriented retail operations. Building design standards do not address the profusion of such retail establishments. The legality of targeting one segment of the retail market and how to do so was identified as an implementation strategy by the Planning Board. Although it may prove extremely difficult to craft an ordinance aimed at tourist-related businesses, there was a strong consensus among the Planning Board that such efforts were worthy of study and research.

Policy LUC #5

Dare County encourages the continued existence and development of locally-owned businesses in unincorporated Dare County.

Implementation Strategy:

1. Inventory of older existing commercial businesses and consideration of zoning amendments to ensure their replacement or repair in the event of damage from a natural disaster. (2011)

Policy LUC #6

Commercial development should be designed to meet the needs of Dare County's unincorporated villages and not to serve as regional commercial centers. The gross floor area limitations of the Dare County Zoning Ordinance and other applicable land use codes shall be used as a tool to manage the footprint of commercial structures. The goal is to manage the size of the commercial structures, which serves as a disincentive for regional commercial centers for location in villages.

Policy LUC #7

Commercial businesses, regardless of size, should individualize their sites and building designs to reflect Dare County's coastal heritage. Adaptations of corporate or franchise designs to reflect our coastal character are encouraged. This is particularly applicable to the food service industry.

Implementation Strategies:

1. Identify amendments to the Dare County Zoning Ordinance and other land use ordinances that may be necessary to implement management objectives for residential and commercial development. This may include the elimination of drive-thru window restaurant service (but not all businesses employing drive-thru window service such as banks and pharmacies) in all commercial and S-1 zonings districts, building design standards for commercial structures, and amendments to Zoning Ordinance and Sign Ordinance as needed for commercial businesses. (2010-2013)
2. Rely on existing dimensional standards of the Dare County Zoning Ordinance for dwelling densities, lot coverage limitations, and commercial gross floor area limitations. These standards should be periodically examined relative to changes in technology for wastewater treatment, improved construction practices, market conditions, and demographic changes. (2011)
3. Study legality of regulations designed to address the proliferation of tourist-oriented retail establishments. (2011)
4. Work with East Lake residents to review zoning alternatives for this area. (2011)

Re-development

The redevelopment of under-utilized land or outdated structures will become more of an issue over the next few years. As the number of vacant tracts diminishes, redevelopment options will be considered by private owners. One factor that influences the redevelopment decision is federal flood regulations. The federal flood regulations require conformance and elevation to current base flood elevations if an older structure is remodeled to exceed 50% of its value. Because of this rule, some owners chose to demolish older structures and simply start again. Dare County encourages redevelopment activities and construction to utilize energy efficient construction methods.

Re-development activities shall be consistent with existing patterns and scale of development although this may prove to be difficult in some of the older subdivisions and neighborhoods that were platted and recorded in the 1970s before the current minimum lot sizes, current building codes, and flood standards.

Policy LUC #8:

Redevelopment of older structures shall be accomplished in a manner that is compatible with current NC building codes and federal flood insurance regulations and conforms with Dare County zoning regulations. Energy efficient construction standards are encouraged.

Implementation Strategy:

1. Consider development of incentives for “green” building techniques and energy efficient construction standards. (2011)

Industrial Development

Dare County does not have any “smokestack” or manufacturing industries similar to those that are found in other areas of North Carolina and the United States. Manufacturing is limited to boat building which is a traditional industry in Dare County and is an important component of our local economy. Other traditional industries include commercial fishing and construction and are recognized as consistent with the coastal heritage of Dare County. The need to diversify the economy of Dare County was noted during public input sessions and during Planning Board workshops. Industries such as medical support services and educational and research facilities were identified as industries that would provide diversified employment opportunities and not be detrimental to our natural resources.

The location of industrial development should be evaluated for impacts on surrounding properties, especially environmentally sensitive areas such as water bodies and wetlands. While it is recognized that the traditional industry of boat building has the need for access and location adjacent to or in close proximity of water bodies, other non-traditional or non-maritime industries should be located in areas developed with similar facilities and accomplished in an environmentally sensitive manner.

Policy LUC #9

The siting of industrial development facilities should be evaluated relative to their impacts on environmentally sensitive natural areas and existing patterns of development. Boat building, commercial fishing, and construction are recognized as traditional occupations and employment sectors in Dare County that are consistent with our coastal heritage.

Implementation Strategy:

1. Rely on the standards of the Dare County Zoning Ordinance for the siting and development of industrial development of both maritime-related uses and non-maritime related uses. (2010-2015)

Policy LUC #10

Diversification of Dare County’s economy to include compatible industries such as medical support services and educational and research facilities, are encouraged. These types of facilities provide employment opportunities and quality of life support for our residents without detriment to our natural resources.

Manmade Hazard Areas

The location of such facilities as the Dare County Regional Airport on Roanoke Island, the Billy Mitchell Airstrip in Frisco, NC, and the US Navy and Air Forces bombing ranges is a significant consideration in terms of land use compatibility due to the potential hazards of landing and departing aircrafts. For the bombing ranges on the Mainland of Dare County, the military activities that occur are generally protected from incompatible land uses because the bombing ranges are located on vast expanses of federally-owned property. The Dare County Zoning Ordinance includes an overlay zone for the lands adjacent to and surrounding the Dare County Regional Airport on Roanoke Island. This overlay zone establishes varying height limits depending on proximity of the land to the Regional Airport facilities. Any proposal for development is verified for compliance with the overlay zone by consultation with the Dare County Airport Authority. The Billy Mitchell Airstrip in Frisco is located on federal land. However, the adjoining land to the south of the Billy Mitchell Airstrip is privately-owned and is currently used as a 9-hole golf course. Residential subdivisions are located in the surrounding area to the south. It has been noted that additional zoning regulations to address the potential re-development of the golf course site may be needed to ensure a safe landing approach for the small airplanes that use the Billy Mitchell Airstrip. The Billy Mitchell Airstrip is also identified as a potential staging area following storms and hurricanes which increases the advisability of ensuring unobstructed airspace around the airstrip.

In 2007, the use of the Bowsertown solid waste transfer station on Roanoke Island was discontinued. Dare County operates a transfer station on the Mainland off Highway US 264 which allowed for the closure of the Bowsertown site. The discontinuation of the use of the Bowsertown transfer station represents the removal of an incompatible land use from the Bowsertown neighborhood. A citizens group in conjunction with the Roanoke Island Rotary Club has been working with Dare County to identify potential uses for the re-development of the Bowsertown transfer site.

Policy LUC #11

Due to potential land use conflicts and hazardous conditions associated with airports and landing strips, development of adjacent properties should be done in awareness of these potential conflicts and conditions. Proposals to expand existing services at the Dare County Regional Airport or other airport facilities in Dare County shall be reviewed on a case by case basis. Support or opposition may be offered depending on the terms of the proposal, its potential impacts on the community, and its potential economic and transportation benefits.

Implementation Strategies:

1. Enforcement of the Airport Overlay zoning regulations to address land uses, especially building height issues, on land adjacent to and surrounding the Dare County Regional Airport on Roanoke Island. (2010-2015)

2. Adoption of additional airport overlay regulations, as needed, to address land uses on land adjacent to and surrounding the Billy Mitchell Airstrip in Frisco, NC. (2011-2012)

Policy LUC #12

Proposals to expand the area of the existing bombing ranges on the Dare County Mainland should be reviewed on a case-by-case basis with support or opposition offered depending on the terms of the proposal and its potential impacts on the local community.

Land Disturbance

For years, Dare County has relied on State regulations to address mining activities in unincorporated portions of Dare County. The State regulations apply to those mining activities that involve more than one acre of land disturbance. There are no local regulations for mining activities that involve less than one-acre of land disturbance except for the SED-1 areas of Buxton Woods. The County does have dune alteration standards which were adopted in 2003 to address the alteration of inland dunes. These regulations create standards to address the alteration of the topography of property to avoid hazardous remnant slope conditions. These regulations were adopted in response to sand removal activities that were occurring in the Colington Harbour Subdivision with no provisions made to address the stabilization of the remnant slopes. There were concerns about the instability of the slopes and the “attractive” nuisance potential to neighborhood children.

During the Planning Board discussions of land disturbance issues, the use of fill material and tree removal activities on private property were discussed. The Citizen Involvement Poll included a question about the regulation of land clearing and tree removal. The CIP results indicate disagreement with the need to adopt County regulations for such activities. The Planning Board acknowledged this resistance to County regulation of land disturbance activities but noted that a policy should be included that encouraged best management practices and some sensitivity to impacts on adjoining properties. Concerning the use of fill material to raise the natural ground elevation beyond the requirements for wastewater systems, the Planning Board indicated that this issue should be evaluated to determine if local regulations are needed. The use of fill material is currently unregulated in unincorporated Dare County except for the Martin’s Point Subdivision and in properties that are designated VE zones on the FIRM maps.

Policy LUC #13

For those mining activities not subject to regulation by the State of North Carolina, Dare County shall rely on the dune alteration regulations of the Dare County Zoning Ordinance to ensure all dune alteration activities are minimal and meet the sloping standards to ensure safety and erosion control.

Implementation Strategy:

1. Administration of Section 22-58.1 Dune Alteration Standards of the Dare County Zoning Ordinance. (2010-2015)

Policy LUC#14

Tree clearing and land disturbing activities on small residential lots or other private property should be done prescriptively or according to the guidelines of NC Cooperative Extension office or the UNC Coastal Studies Institute. The use of fill material on private property, although not currently regulated by the Dare County Zoning Ordinance, should be accomplished in a responsible manner.

Implementation Strategies:

1. Promote best management practices by referrals to State agencies and work with Outer Banks Homebuilders Association to promote best management practices with local general contractors. (2010-2015)
2. Evaluate the need to establish regulations for the placement of fill material on private property to address concerns about impacts on drainage patterns. (2012).

Archaeological/Historic Resources

There are many properties in Dare County which have been identified as important cultural, historical, or archaeological resources as discussed in Section 1, page 85 of this document. Many of these structures and sites are listed in the National Register of Historic Places and under public ownership.

Policy LUC #15

The Dare County Board of Commissioners supports the protection of structures, lands, and artifacts that have been identified by the NC Department of Cultural Resources, Division of Archives and History, as archaeologically or historically significant. On a case-by-case basis individual protection/management strategies should be implemented to ensure archaeological and/or historical resources are not destroyed.

Implementation Strategy:

1. Explore local interest in establishing a formal historic preservation program focused on the unincorporated areas of Dare County. (2011)

Public Acquisitions

As noted throughout Section 1, there are vast amounts of land in Dare County that are held in public ownership and owned by non-profit organizations. This vast public and non-profit ownership adds to the attraction of the area for our visitors and our year-round residents. The majority of the publicly-owned properties is left in its natural state and provides numerous opportunities for

recreation. However, there are drawbacks associated with the public ownership. The placement of land in public ownership or non-profit ownership exempts the land from the collection of ad valorem property taxes. The collection of ad valorem property taxes provides revenue for many of the County programs and services. Although some agencies make in lieu of tax payments, the land is not available for taxation purposes. The land is also not available for development creating competition for the remaining privately- owned lands to serve the needs of seasonal visitors to the Outer Banks and the permanent population. As discussed in the previous section, the needs of the seasonal visitors and the year-round population vary in terms of types of retail stores and consumer goods and services.

Public or non-profit acquisition of lands proposed for development is often identified as a preferred means of protection. Future proposals for large-scale acquisitions should be evaluated in terms of public purpose benefits, impact on the removal of the property from the assessing of ad valorem taxes, and its use potential to the private sector.

It was also noted during the discussion of this topic, that the large of amount of publicly-owned lands in Dare County should be considered by federal and state agencies during rule-making initiatives. New regulatory programs or revised regulatory programs that further impact the development potential of private lands should recognize the unevenly balanced amount of public versus private ownership and the competition this uneven balance creates in addressing the infrastructure needs and commercial and residential development needs of the community.

Policy LUC #16

The vast amount of Dare County land currently owned by public agencies and/or non-profit agencies should be recognized by agencies wishing to acquire additional parcels for public and/or non-profit ownership. Additional acquisitions should be evaluated in terms of public purpose benefits and impacts on tax revenues for Dare County.

Maritime Forests

In 1988, the Dare County Board of Commissioners adopted special zoning standards for the Buxton Woods maritime forest. These zoning restrictions which establish land clearing limitations, wetland setbacks, and a 1-acre minimum lot size are designed to protect the vegetated canopy of the maritime forest and the shallow water aquifer that lies beneath the maritime forest. The local regulation of the Buxton Woods forest by Dare County coupled with acquisition of lands for the development of the Buxton Woods Coastal Preserve was selected by the Coastal Resources in 1998 as the best management alternative for the Buxton Woods maritime forest. The SED-1 zoning restrictions and the acquisition of privately owned lands by the State of North Carolina since that time have been successful in protecting of the natural resources of Buxton Woods and in limiting development in the area. Some of the property owners of the area have expressed the opinion that the most sensitive

areas of the Buxton Woods forest have already been preserved and that the SED-1 zoning regulations should be re-evaluated to allow property owners more flexibility in the use of their land. This group proposes reduction of the 1-acre minimum lot size standard and elimination of the wetland filling prohibition. In 2006 when proposed amendments to revise the SED-1 standards were presented to the Board of Commissioners, the Board expressed a reluctance to relax the standards of the SED-1 zoning district. This topic was again identified at the Buxton public input workshop held in 2007 and on the Citizen Involvement Poll with no clear consensus established on the matter. Without some clear consensus on the issue, it seems likely that the Board of Commissioners will continue to be reluctant to make any substantive changes to the SED-1 zoning district.

Policy LUC #17

Dare County advocates a combination of managed development guided by the Dare County SED-1 zoning ordinance and the Limited Conservation classification on the future land use map and a continued program of acquisition of privately-owned lands by the State for the Buxton Woods Coastal Preserve.

Implementation Strategy:

1. Administration of the SED-1 zoning ordinance. (2010-2015)

Commercial Forestry and Agricultural Uses

A small percentage of land in unincorporated Dare County is used for commercial forestry or agricultural purposes in Dare County. Small individual tracts may be harvested for timber by the individual property owner as part of the development of the land but there are no large-scale commercial forestry activities in Dare County.

Some properties on the Mainland of Dare County are used for crop agricultural uses. Some lands that previously were used for agricultural or livestock purposes have been acquired by the federal government as part of the US Alligator River Wildlife Refuge. In discussions with the Planning Board, it was noted that the 2003 Land Use Plan policy opposing wholesale livestock operations, such as commercial hog farms, should be repeated in the 2009 LUP update.

Policy LUC #18

For those commercial forestry activities that may occur in Dare County, such forestry activities shall be done in accordance with the standards and recommendations of the US Forest Service. Voluntary participation in the State of North Carolina's best management practices for forestry management is advocated.

Policy LUC #19

For those crop agricultural activities that may occur on the Mainland area of Dare County, Dare County advocates voluntary participation in the State of North Carolina's best management practices for farm management.

Policy LUC #20

Wholesale or industrial livestock operations are opposed.

Policy Impacts on CAMA Management Goals and Objectives

The Dare County land use compatibility policies are consistent with the goals and objectives established by CAMA for this management topic. All of the policies direct development to be accomplished in an environmentally sensitive manner and in the best interest of public health, safety and welfare; recognize the need to balance the protection of our natural resources and the continued livelihood of the local economy; and provide direction to the local decision makers in the review of zoning and subdivision matters.

The matrix on the following pages demonstrates the consistency of each of the land use compatibility policies with the management objectives identified for this topic. As noted in the matrix, all of the land use compatibility policies are consistent with each of six objectives identified by Dare County for this management topic. Each policy has been reviewed with a status ranking of beneficial, neutral, or detrimental noted for each policy. Of the twenty policies written for this management topic, all have been ranked as "beneficial" except for five of the policies. These five policies are ranked as "neutral" to reflect an association with the topic of land use compatibility. None of the policies have been determined to be "detrimental" to any of the objectives.

CONSISTENCY OF LAND USE COMPATIBILITY POLICIES WITH OBJECTIVES

MANAGEMENT TOPIC – LAND USE COMPATIBILITY	Policy Benchmarks – Indicate whether the policy is beneficial (B), neutral (N), or detrimental (D)		
	<ol style="list-style-type: none"> 1. Use existing patterns of village communities as “nodes” of activity and living space in a manner that relates to the vast publicly-owned lands and historical landmarks 2. The preferred pattern of development is a mix of residential homes that are compatible with existing development and addresses the needs for workforce housing. 3. Use land use planning and zoning techniques to abate the tendency of rapid growth communities to lose their “sense of place” or be homogenized by growth. 4. Direct development to reflect historical architecture of North Carolina’s coastal heritage. 5. In making and evaluating land use policy and decisions, recognize the vast amounts of publicly –owned lands in Dare County and the resulting difficulties to address the varying, and sometimes competing, needs of the permanent residents and the seasonal visitors on the remaining privately-owned lands. 6. Commercial land use should be neighborhood or village-oriented and not regional or urban. 		
	BENEFICIAL	NEUTRAL	DETRIMENTAL
LUC#1 importance/preservation of coastal village heritage	#1, #3, #4		
LUC#2 Development should reflect coastal heritage in design and site features	#1, #4, #5		
LUC#3 Preferred residential development	#2		
LUC#4 alternative opportunities for workforce housing needs	#2		
LUC#5 encourages locally-owned business	#6		
LUC #6 commercial development should be village-oriented, not regional	#6		
LUC#7 Commercial development should reflect coastal heritage, not franchise designs	#3, #4, #6		
LUC #8 redevelopment should be consistent with applicable codes		X	

CONSISTENCY OF LAND USE COMPATIBILITY POLICIES WITH OBJECTIVES

LUC #9 Industrial development should be sensitive to environment; commercial fishing, boat building recognized as consistent with coastal heritage.	#4		
LUC #10 Diversification of local economy such as medical services, and educational-research facilities	#5		
LUC #11 potential conflicts with airports on surrounding areas.	#5		
LUC #12 expansion of bombing range	#5		
LUC #13 administration of dune alteration standards		X	
LUC #14 tree clearing and land disturbance done in responsible manner		X	
LUC #15 protection of historical and significant lands, structures, and artifacts	#1		
LUC #16 evaluation of additional land by public agencies	#5		
LUC #17 administration of SED-1 zoning	#1, #2		
LUC #18 commercial forestry to be consistent with BMPs		X	
LUC #19 BMPs for agricultural uses		X	
LUC #2) Opposes wholesale livestock operations	#2		

MANAGEMENT TOPIC #3 -- INFRASTRUCTURE CARRYING CAPACITY

CAMA Goal: Ensure that public infrastructure systems are appropriately sized, located and managed so the quality and productivity of the AECs and other fragile areas are protected or restored.

CAMA Objective: Establish level of service policies and criteria for infrastructure consistent with Part (c) (3) (D) (projections of future land needs) of this rule.

Policy Requirements: 1) identify/establish service area boundaries for existing and future infrastructure. 2) correlate future land use map categories with existing and planned infrastructure such as wastewater, water infrastructure, and transportation.

Infrastructure Carrying Capacity Objectives

1. Balance the infrastructure needs of the permanent population with the demands of the seasonal population.
2. Lobby state and federal agencies to provide necessary and adequate transportation improvements and permits for Dare County and northeastern North Carolina.
3. Develop a strategy for an alternative means of transportation for pedestrians and bicycles that connects the various population nodes.

Wastewater

Throughout unincorporated Dare County, on-site individual wastewater systems are the primary method of wastewater treatment. Some residential and commercial developments on Roanoke Island have connected to the Town of Manteo's central wastewater system. A handful of residential subdivisions and housing developments are served by privately-owned central wastewater treatment plants. These include the Baycliff Subdivision in Colington, NC and the soundside portions of the Kinnakeet Shores Subdivision in Avon, NC.

The suitability of soils for use with individual wastewater systems determines the scope of development that can be located on a property. Traditionally, septic tank/drainfield systems have been the predominant type of individual wastewater systems used for residential structures and smaller commercial buildings. Over the past several years, engineered wastewater systems, such as "peat" systems and small individual treatment plants have become popular alternatives to septic tank systems. Most of these engineered systems require review and approval by the local environmental health department and the State environmental health department. These engineered systems require less spatial area on a

property thus freeing up space previously dedicated for reserved drainfield areas which can be used for other improvements.

Previous Dare County land use policies have expressed reservations about the use of off-site central wastewater treatment plants except where required by ordinance or where the use of a central system would mitigate existing water quality and public health concerns. This reluctance was based on the belief that use of off-site wastewater treatment increases pressure for more intense development with greater dwelling densities and decreased minimum lot sizes. There also was concern about the maintenance and failure of wastewater treatment plants, especially privately-owned and operated plants. In discussing the 2009 LUP update, the Planning Board acknowledged the increased use of engineered wastewater systems and the increased awareness that traditional septic tank systems may be a contributing factor to declining water quality, especially in areas served by older and possibly malfunctioning septic systems. The County felt it was important to reflect this changing attitude about off-site wastewater treatment in this update.

The possibility of a County-owned and operated central wastewater collection and treatment systems was also discussed. The construction of any central wastewater collection and treatment system is dependent on a suitable means of discharge of effluent. For many years, the practice was to discharge to a point source water body. The approval of new point-source discharge permits by the State of North Carolina is no longer encouraged and land application of effluent discharge is the preferred method. However, suitable and available sites for land application methods of effluent discharge are limited and would be extremely expensive. The cost factors and lack of suitable tracts to accommodate discharge from a central collection and treatment system would be challenging issues to overcome. It seems unlikely that centralized wastewater on a County-wide scale could be achieved in light of the environmental and cost constraints that would need to be addressed.

In 2008, Dare County began construction of a central wastewater system for the village of Stumpy Point. This plant will serve the village and allow for the replacement of malfunctioning and outdated septic systems that have been identified as contributing to water quality deterioration of Stumpy Point Bay. The composition of soils in the area preclude the use of traditional septic systems on most property. Most of the non-compliant or malfunctioning septic systems in Stumpy Point were installed before the development of standards or government permitting procedures.

Another issue that was discussed by the Planning Board was the use of wastewater treatment systems that utilize surface drip irrigations systems for the dispersal of wastewater effluent.

These systems are authorized by the NC Division of Water Quality instead of the NC Division of Environmental Health since the system components are not located below the soil, or subsurface. One development project has been submitted for review by Dare County that proposes the use of a drip irrigation system and the Planning Board has indicated some concerns about the maintenance of the systems and concerns about the location of the systems in VE flood zones. Maintenance of these systems is important to ensure they function properly and as permitted by the State. Usually the oversight of maintenance is left to the responsibility of a homeowners association or a group of individual property owners. Reliance on management by a homeowners association where most owners are non-residents is uncertain. The Dare County Zoning Ordinance establishes the authority for Dare County to require bonds or other legal agreements to ensure the continuous function of central sewage systems. The establishment of escrow accounts with oversight by Dare County is one avenue that has been identified to address concerns about maintenance of drip irrigation wastewater systems. Supervision of maintenance activities by companies that are regulated by the NC Utilities Commission was recognized by the Planning Board as a better alternative than management by homeowners associations. All structural components of drip irrigation systems including the dispersal fields shall not be located in VE flood zones and when located in AE zones should be elevated to the applicable base flood.

Policy ICC #1

The current minimum lot size standards, as established in the Dare County Zoning Ordinance for the zoned portions of unincorporated Dare County and the Subdivision Ordinance for the unzoned areas of unincorporated Dare County, shall not be reduced regardless of the availability of central wastewater treatment or the availability of a combination of central wastewater treatment and a central water supply.

Implementation Strategy:

1. Application of minimum lot size standards of Dare County Zoning Ordinance and the Dare County Subdivision Ordinance for the development of new subdivisions in unincorporated Dare County. (2010-2015)

Policy ICC #2

Maintenance of privately-owned package treatment plants should be supervised by the NC Utilities Commission or other public agencies.

Policy ICC #3

Centralized wastewater treatment and collection systems, for both on-site and off-site service, are considered appropriate methods for wastewater treatment in addition to the use of individualized on-site wastewater systems and traditional septic tank/drainfield systems. Although there are no publicly-owned central wastewater treatment systems in unincorporated

Dare County except for the Stumpy Point system, such systems may be beneficial alternatives in terms of water quality protection.

Implementation Strategy:

1. Require the establishment of escrow accounts for maintenance and repairs for any new privately-owned centralized wastewater facilities approved for development in unincorporated Dare County. (2010-2015)

Policy ICC #4

Wastewater treatment facilities subject to review and authorization by the NC Division of Water Quality that employ drip irrigation of treated effluent or other non-traditional systems should not be considered for location in Dare County and particularly should not be located in areas subject to storm surge inundation or located in designated flood hazard VE zones as depicted on FIRM (flood insurance rate map) maps.

Implementation Strategies:

1. Consider standards to address the use of drip irrigation wastewater facilities, especially in VE flood zones. (2011)
2. Require the establishment of escrow accounts for maintenance and repairs for any new privately-owned centralized wastewater facilities approved for development in unincorporated Dare County. (2010-2015)

Water

Most areas of unincorporated Dare County are served by a central water supply. The Mainland villages of East Lake, Mashoes and Manns Harbor use private wells for potable water. A central water system for Stumpy Point was constructed in 2002. On Roanoke Island, some areas are connected to the Dare County central water system, however most residents and businesses rely on private wells for drinking water. All of the municipal areas are connected to a central water system supplied by water from the Dare County regional water service.

Throughout the history of Dare County, the provision of central water and construction of water infrastructure has been completed under the auspices of providing a clean, safe drinking water supply for the residents and visitors of Dare County. The expansion of waterline improvements to encourage economic development has never been the goal of Dare County as is the case in other North Carolina communities. In areas not currently served by a central water supply, expansions for private sector development have been approved on a case by case basis with the expenses of infrastructure construction paid by the developer.

In 2007, the Dare County investigated the feasibility of expansion of central water to all areas of Roanoke Island. The Roanoke Island Fire Department had expressed concerns about the lack

of a central system and the ability to adequately fight fires on Roanoke Island. Several public meetings on the topic were conducted by the Dare County Board of Commissioners. Many residents were opposed to the expansion of a central water supply with mandatory hook-up and payment of an impact fee for connection to the system. Others expressed the concern that the availability of central water would lead to increased dwelling density and greater development levels. In 2009, the Board hired an engineering firm to begin work on the expansion of central water to all parts of Roanoke Island. It is hoped that the infrastructure will be installed and completed in 2012.

Policy ICC #5

Public services shall be provided to meet the needs of our permanent and seasonal population and provide a residual capacity for unanticipated contingencies.

Implementation Strategy:

1. Copies of proposed site plans and subdivisions shall be sent to appropriate Dare County agencies and State agencies for review and comment. (2010-2015)

Transportation

Transportation improvements are of great concern to the residents of Dare County. The linear geography of Dare County limits the transportation alternatives available to residents and visitors. The huge influx of seasonal visitors places great demands on existing infrastructure improvements. This concern was voiced numerous times at the public input workshops held in the autumn of 2007 and on the Citizen Involvement Poll.

The most pressing transportation issue for Dare County is the replacement of the Bonner Bridge over Oregon Inlet. Bonner Bridge is the sole access for Hatteras Island from the northern beaches. Ferry service from Ocracoke and Hyde County provides access from the south but this is not a practical transportation route for travel to the northern beaches and other areas to the north and west of Dare County. The Bonner Bridge is critical for the daily transportation needs of the residents of Hatteras Island and Dare County and provides access for the 2.5 million visitors to the Cape Hatteras National Seashore. Summertime traffic counts for Bonner Bridge can exceed 10,000 vehicles per day. Its role in the evacuation of Hatteras Island and Ocracoke Island prior to hurricanes is essential. For sixteen years, the replacement of Bonner Bridge has been studied. The discussion of the replacement bridge has focused on a 17-mile long alternative or a shorter 2.5 mile alternative adjacent to the current location. The long bridge alternative would place the southern-most landing closer to the village of Rodanthe and preclude access to many areas of the Pea Island Wildlife Refuge including the beaches along this stretch of NC 12. The cost of construction of this bridge is in excess of \$1 billion dollars. The short bridge alternative is favored by the Dare County Board of Commissioners and after

years of lobbying of State and federal officials, the NC Department of Transportation has selected the short bridge alternative. The short bridge is estimated to cost \$600 million dollars, which is more economically feasible for the State versus the cost of the long bridge alternative favored by environmental groups and the US Fish and Wildlife Service. The current Bonner Bridge was constructed in 1963. Based on NCDOT examinations of the bridge, the bridge is rated a 2 on a scale of 100 with 100 being an excellent condition. It is hoped that construction of the short bridge will commence in 2010 although environmental studies have resulted in additional delays. Bonner Bridge is an indispensable transportation improvement for Dare County hence the replacement of this bridge will remain a priority for the Dare County Board of Commissioners until construction commences.

Associated with the replacement of the Bonner Bridge is the protection of NC 12 on Hatteras Island. Sections of NC12 are routinely inundated by storm tide from ocean overwash and/or soundside flooding. During these events, NC 12 is impassable and closed to traffic or traffic is restricted to four-wheel drive vehicles due to sand and water on the roadway. The long-term protection and maintenance of NC 12 is essential for Hatteras Island. Emphasis for the need for continual maintenance and long-term solutions for NC 12 was noted during the update process and is reflected in the LUP policies.

The replacement of the Alligator River Bridge and the upgrading to four traffic lanes of Highway 64 through Tyrrell County and East Lake on Dare County's Mainland are other transportation infrastructure improvements that will affect Dare County. These improvements have been included in the NC Department of Transportation Improvement Plan for construction in the next ten-year NCDOT planning period.

Other transportation issues addressed during the update process include the maintenance and development of private streets and the construction of bikeways and walkways. For many years, subdivisions in unincorporated Dare County were constructed with private roads. Maintenance of private roads are the responsibility of the property owners abutting the road and usually accomplished through the collection of homeowners association dues which are used to pay for routine maintenance and resurfacing of the improvements. However, in some instances homeowners associations were not established and maintenance dues not collected. Maintenance of many private roads has not occurred and many roads are in severe disrepair almost to the point of being impassable. Property owners along these private roads cannot afford the cost of repairs or have chosen to not make improvements in a belief that doing so will discourage development of vacant properties that lie adjacent to the private road. Dare County does not have legislative authority to utilize public funds for the repair of private roads or a mechanism for mandating that abutting properties owners make necessary repairs. In an

effort to mitigate future problems with private roads, the Dare County Subdivision Ordinance was amended in 2008 to establish provisions for the construction of private roads in newly platted subdivisions under certain conditions. For smaller divisions that feature less than 6 lots, a private road with reduced right-of-way width and pavement width can be recorded. All other subdivisions must construct roads dedicated for public use and built to include a 45' wide right-of-way with 20 feet of paved improvements. The goal of Dare County is that all new roads may eventually be placed on the State's secondary road maintenance program. The likelihood of such an occurrence increases if new roads are dedicated as public roads and built to State specifications to allow acceptance into the State's maintenance system once the minimum threshold of residences along the roadway is met. However, the standards for the smaller divisions were included to address the division of property for transfer to family members or heirs.

Over the past several years a series of bikeways and walkways have been constructed in many portions of Dare County. In some instances, these walkways connect across municipal boundaries. These improvements provide a safe alternative means of access for residents and visitors. Their popularity among residents and visitors is evident in the high usage of these improvements on a daily basis. Area students use the accessways to travel to school and many people use the improvements for exercise and recreation purposes. The Outer Banks Scenic Byways Committee is working to provide bikepaths along NC 12 on Hatteras Island. The group has identified locations of the improvements in each of the seven villages on Hatteras Island. Opportunities for grant funding are being sought. Such improvements would provide a much safer environment for bicyclists and pedestrians on Hatteras Island where currently only the narrow unimproved shoulder of NC 12 is available.

Policy ICC #6

The Bonner Bridge and NC 12 on Hatteras Island are vital to Dare County. The replacement of Bonner Bridge in its current location is the preferred alternative of the Dare County Board of Commissioners. Other alternatives that feature the elimination of public access to areas north of Rodanthe or re-routing of vehicular traffic to the federally owned lands of the Pea Island Wildlife Refuge are not reasonable alternatives due to cost factors and the decreased access to wildlife areas, ocean beaches, estuarine shorelines and other habitat areas.

Implementation Strategy:

1. Continue to lobby State and Federal agencies for replacement of Bonner Bridge and the long-term protection of NC 12. (2010-2015)

Policy ICC #7

Dare County encourages intergovernmental cooperation with the municipalities and its surrounding counties to study the transportation needs of Dare County and our region.

Policy ICC #8

Dare County supports the development and construction of sidewalks, bike paths, greenways, and other walking/jogging trails to provide a safe setting for these types of outdoor recreation and as alternative transportation routes.

Policy ICC #9

Dare County encourages the recordation of roads and streets as “publicly-dedicated” improvements. Dare County shall not be responsible for maintaining or repairing privately owned streets. The proposed layout of new subdivision streets shall be coordinated with the existing road system of the surrounding area and where possible, existing principal streets shall be extended.

Implementation Strategy:

1. Administer Street standards of Subdivision Ordinance for new subdivisions approved in unincorporated Dare County. (2010-2015)

Solid Waste

For the past several years, Dare County has participated in a solid waste authority with other area governments. It is anticipated that this arrangement will continue as long as it is economically feasible for Dare County to do so. Dare County continues to operate a voluntary residential recycling program with recycling stations located throughout the County. In 2007, the North Carolina General Assembly enacted legislation to require food service operations to recycle all glass and aluminum used in their facilities. Dare County purchased a glass crushing equipment to assist the local restaurants with this recycling mandate.

Another issue identified by the Planning Board was the need for expanded programs of hazardous waste collections by Dare County. Currently, the County conducts two large item pick-ups in the spring and fall of each year. However, paint, used motor oil, and other hazardous materials are not accepted during these pick-ups.

Policy ICC #10

Dare County will continue to participate in a regional solid waste authority. Other alternatives that are identified as more practicable or economical may be considered on a case-by-case basis. Expanded programs for household hazardous materials disposal and recycling are encouraged.

Implementation Strategy:

1. Consider expansion of residential recycling and commercial recycling programs to facilitate greater volumes of recycling materials. (2012-2013)

Energy Facilities

Over the past decade, the topic of offshore drilling for natural gas and oil exploration has been raised several times. Several different proposals have been made by corporations however, a federal moratorium precludes drilling off the North Carolina coast and other coastal states. Public sentiment has always been strongly opposed to the prospect of drilling off the coast of North Carolina and the location of related facilities within the jurisdiction of Dare County. The 1994 LUP and the 2003 LUP both reflected this strong public opposition. Recent (2008) increases in the price of crude oil has resulted in fuel prices exceeding \$4.00 a gallon with all indications that such increases will continue. In light of the high fuel costs, the support for alternative energy sources has grown with many people voicing support for wind and solar generated improvements. There has also been discussion at the federal level of the need to reconsider the federal moratorium on off-shore drilling. As the global demand for petro-chemical products continues to grow, support for a reversal in the federal offshore drilling policy may occur at all levels of government with strong public support due to changing national economic conditions.

At the April 2008 Planning Board policy development workshop, all the members noted the prospect of a revised federal policy on off-shore fuel exploration and that the 2009 LUP update should address this potential. For the 2009 update, three policies have been included under the "Energy Facilities" heading – the first policy to address the issue of petro-chemical energy facilities in the jurisdictional waters and lands of Dare County, a second policy to address energy facilities at the national level, and a third policy that addresses alternative energy sources. The 2003 policy opposing the location of petro-chemical facilities in or near the jurisdictional lands and waters has been included in the 2009 update to address the local aspect of the topic of energy facilities. Federal jurisdiction begins 3-miles off the coast of Dare County and North Carolina. The first energy facilities policy is designed to address the location of on-shore petro-chemical facilities associated with off-shore exploration in local waters and lands under the jurisdiction of Dare County.

The second policy has been added to supplement the 2003 policy and addresses the potential for a change in the national energy policy in terms of off-shore exploration on the Outer Continental Shelf in the Atlantic Ocean. The federal moratorium on off-shore fossil fuel exploration was discontinued in March 2010. In light of this action, this second policy will

demonstrate the County's position if future exploration proposals are considered by the federal government. This policy should not be interpreted de-emphasize the County's opposition to off-shore exploration but recognizes the discontinuation of the federal moratorium that was in place for many years and the need for a national approach that is equitable and addresses environmental concerns.

The third policy (ICC #13) acknowledges support for alternative energy sources. Previously, support for alternative energy sources was included as part of the 2003 energy facilities policy. Strong support for such facilities was evident in the CIP responses and stated at all of the public input workshops held in 2007. A separate policy is included in the 2009 update to reflect the strong level of public support for a transition from reliance on fossil fuels in favor of alternative sources.

Policy ICC #11

Dare County is opposed to the development of any petro-chemical energy facility or related improvements within its jurisdictional lands and/or waters. This includes all structures, operations, and activities associated with petro-chemical energy facility development such as but not limited to on-shore support bases for offshore exploration activities, staging areas, transmission and/or production pipelines, pipeline storage yards, and other similar structural activities and improvements related to petro-chemical energy facility development, exploration, or production.

Policy ICC #12

Dare County supports efforts by the federal government to identify methods to decrease the United States' continued reliance on fossil fuels supplied by foreign sources. A revised national energy policy that fosters alternatives to fossil fuels is strongly encouraged. Proposals for offshore exploration for fossil fuels will be opposed unless it is determined that such proposals are part of a national energy policy implemented equitably throughout the United States and it has been determined that all environmental concerns have been addressed to the satisfaction of all local, state, and federal agencies.

Policy ICC #13

Dare County supports research and development of alternative energy sources, such as wind powered structures and mechanisms.

Implementation Strategy

1. Amend Dare County Zoning Ordinance or other land use codes as may be necessary in response to alternative energy sources. (2010-2015)

Policy Impacts on CAMA Management Goals and Objectives

The Dare County infrastructure carrying capacity policies are consistent with the goals and objectives established by CAMA for this management topic. All of the policies address existing and future infrastructure needs and establish criteria for their location and use, particularly relative AECs and other environmental sensitive areas.

The following matrix demonstrates the consistency of each of the infrastructure carrying capacity policies with the management objectives identified for this topic. As noted in the policy analysis matrix,, all of the infrastructure carrying capacity policies are consistent with the five objectives associated with management topic. Each policy has been reviewed with a status ranking of beneficial, neutral or detrimental noted for each policy. Six of the policies have been ranked as “beneficial” due to their direct support of at least one of the management objectives. Seven of the policies are ranked as “neutral” which indicates that although the policy did not relate directly to the issue of infrastructure carrying capacity, the policies are suitable for inclusion under this management topic. None of the policies have been deemed “detrimental” to the objectives.

CONSISTENCY OF INFRASTRUCTURE CARRYING CAPACITY POLICIES WITH OBJECTIVES

MANAGEMENT TOPIC – INFRASTRUCTURE CARRYING CAPACITY	Policy Benchmarks – Indicate whether the policy is beneficial (B), neutral (N), or detrimental (D)		
	<ol style="list-style-type: none"> 1. Balance the infrastructure needs of the permanent population with the demands of the seasonal population. 2. Lobby state and federal agencies to provide the necessary and adequate transportation improvements and permits for Dare County and northeastern North Carolina. 3. Develop a strategy for an alternative means of transportation that connects the various population nodes for pedestrian and bicycles. 		
	BENEFICIAL	NEUTRAL	DETRIMENTAL
ICC#1 Minimum lot size		X	
ICC#2 Maintenance of private wastewater treatment plants		X	
ICC#3 on—site and off-site wastewater treatment and centralized systems		X	
ICC#4 drip-irrigation wastewater treatment facilities		X	
ICC#5 provision of public services	#1		
ICC #6 replacement of Bonner Bridge	#1, #2		
ICC#7 regional transportation needs	#1, #2,		
ICC #8 development of sidewalks and bike paths	#1, #3		
ICC #9 new subdivision streets	#1		
ICC #10 regional solid waste participation	#1		
ICC #11 opposition to petro-chemical In jurisdictional lands or waters		X	
ICC #12 national energy policy		X	
ICC #13 alternative energy sources		X	

MANAGEMENT TOPIC # 4 – NATURAL HAZARD AREAS

CAMA 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.

CAMA Objective: Develop policies that minimize threats to life, property, and natural resources resulting from development located in or adjacent to hazard areas, such as those subject to erosion, high winds, storm surge, flooding or sea level rise.

Policy Requirements: 1) Develop location, density, and intensity criteria for new, existing development and redevelopment including public facilities and infrastructure so that they can better avoid or withstand natural hazards. 2) Correlate existing and planned development with existing and planned evacuation infrastructure.

Natural Hazard Areas Objectives

1. Direct and design development to fit the natural conditions and landscape rather than modify the natural conditions and landscape to accommodate development.
2. Mitigate the impacts of development in natural hazard areas by participation in the federal flood insurance program and administration of the NC Division of Coastal Management local permit program for development in CAMA identified Areas of Environment Concerns (AECs).

Ocean Shoreline

The immediate oceanfront area on any barrier island requires special management guidelines to address issues associated with shoreline migration, flood hazards, protection of natural resources and access to public trust areas. Management alternatives include setback standards to address erosion, elevations of structures to allow for ocean overwash, and regulations to protect the dune systems and public trust areas along the shorelines.

Dare County participates in the state's coastal management programs established by the NC Coastal Management Act. The CAMA regulations establish specific types of ocean hazard areas of environmental concern that were discussed in Section 1 of this document.

There are four components of this AEC: the ocean erodible AEC, the high hazard flood AEC, the inlet hazard AEC, and the unvegetated beach AEC:

1. The ocean erodible AEC is applicable to oceanfront lands that are subject to long-term erosion and significant shoreline change. The seaward boundary of the ocean erosion AEC is the mean low water line and the landward boundary is measured from the first line of stable natural vegetation plus an erosion rate based on an annual rate of the particular section of shoreline.

This width of the AEC varies depending on the oceanfront location and must be established by CAMA personnel on a site-by-site basis.

2. The high hazard flood AEC involves lands subject to flooding, high waves, and heavy water currents during a major storm. These areas are also known as the “V” flood zones on the federal flood insurance rate maps prepared by the Federal Insurance Administration. These “V” zones can be located on both ocean shoreline and estuarine shorelines. The flood hazard AEC often overlaps areas designated as ocean erodible and inlet hazard AECs.
3. The inlet hazard AEC applies to lands next to ocean inlets due to their vulnerability to erosion and flooding. Each inlet found along the North Carolina coast is analyzed by the Division of Coastal Management and a map prepared based on their analysis of the inlet migration, inlet features both natural and manmade, and previous inlet locations. For each inlet, the inlet hazard AEC is estimated to be large enough to cover those lands where the particular inlet can be expected to migrate. Inlet hazard AECs range in width from 250 feet for inlets that are stable and to about 4,000 feet for those inlets that are more dynamic. There are no inlet hazard AECs in Dare County. The lands on either side of Oregon Inlet and Hatteras Island are federal property and therefore not designated as an AEC.
4. The unvegetated beach area AECs are beach areas within the ocean hazard area where no stable natural vegetation is present and may be designated as an unvegetated beach area on either a permanent or a temporary basis. An area appropriate for permanent designation as an unvegetated beach area is a dynamic area that is subject to rapid unpredictable land changes due to wind or wave action. A temporary unvegetated beach status may be applied to areas that are suddenly unvegetated as a result of hurricanes or other major storm events. An area of Hatteras village was designated as an unvegetated beach AEC following Hurricane Isabel in 2003 until the natural vegetation was re-established along the oceanfront. This AEC was discontinued once the natural vegetation was re-established.

Development within these ocean hazard areas should be constructed according to any applicable local, state or federal regulation to minimize the hazards to structures located within these designated AECs. Dare County assists with the administration of the CAMA program in the provision of a local permit officer and associated administrative support. The local permit officer reviews and permits minor CAMA permits, general permits, and exemption letters for unincorporated Dare County. Dare County is reimbursed by the State for this work.

Local zoning regulations vary from village to village with most oceanfront areas designated for residential development. Market forces have determined the highest and best use for oceanfront property to be residential development which is consistent with objectives and policies of the 2009 Land Use Plan. The Dare County Zoning Ordinance establishes minimum lot sizes, lot coverage limitations, building heights and other dimensional standards for oceanfront property.

Policy NH #1

Oceanfront shoreline development should continue to be managed to protect and preserve the natural and recreational resources along the oceanfront. The appropriate tools for this are the existing CAMA permit program and the Areas of Environmental Concerns (AECs) designated under the CAMA program. Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the regulation of ocean hazards areas of environmental concern.

Implementation Strategies:

1. Rely on existing CAMA AEC regulations to address development activities along the ocean beaches, estuarine shoreline, and other public trust areas in unincorporated Dare County. Dare County will continue to participate in the CAMA permitting process with the provision of a local permit officer for unincorporated Dare County. (2010-2015)
2. Rely on existing regulations of the Dare County Zoning Ordinance for development activities along the ocean front. (2010-2015)

Estuarine Systems

Estuarine waters can be defined as semi-enclosed coastal water bodies having free connection to the open sea and within which seawater is measurably diluted with fresh water drained from the adjacent land. In Dare County, estuarine waters include the Albemarle Sound, Croatan Sound, Currituck Sound, Pamlico Sound, and the Roanoke Sound. The estuarine shorelines are those non-ocean shorelines that run along the estuary area. Although the shorelines are comprised of dry land, the shorelines are managed as components of the overall estuarine system because of their integral functions. In North Carolina, the State has established a 75-foot wide area of environmental concern in recognition of the importance of protecting the estuarine systems. The estuarine AEC extends 75 feet landward from the normal mean high water or normal water level. Development in this 75-foot AEC must comply with applicable CAMA regulations for the protection of water quality and other fragile resources, such as fisheries and wetlands that are found within the estuarine system. The Dare County local permit officer assists with the administration and permitting of development activities within the estuarine AEC.

Internal to the 75-foot AEC is the overlay of a 30-foot wide buffer activity established by the CAMA regulations. Only water-dependant uses, as defined in the CAMA standards, can be located within the 30-foot buffer area. Fences, landscaping, and open decking can be located in the buffer area also.

The continued use of estuarine bulkheads to address shoreline erosion was discussed by the Planning Board during the update process. This issue was also examined on the Citizen Involvement Poll with the support for bulkhead use indicated by the respondents. The Planning Board stressed the importance of the use of estuarine bulkheads and voiced opposition to efforts at the State-level to prohibit or discontinue their use. The Coastal Resources Commission, at the time of writing of the

2009 update, was considering rule changes to prohibit estuarine bulkheads in favor of other shoreline erosion abatement measures such as rip rap, offshore breakwaters, and additional shoreline setbacks.

There are numerous natural and manmade islands located in the estuarine waters that surround Dare County. These islands are only accessible by boat and traditionally have been used for private fish camps and other recreational activities. Over the years, some of these islands have been zoned in conjunction with zoning maps established for Wanchese and other village maps. The applicable zoning designations reflect the traditional uses of these islands for single family development and passive recreational uses.

In addition to the CAMA regulations, local zoning regulations address development activities along the estuarine shoreline. The Zoning Ordinance establishes dimensional standards for building height, lot coverage, and dwelling densities.

Policy NH #2

Estuarine shoreline development should continue to be managed to protect and preserve the natural resources of the estuarine waters and the estuarine shoreline. The appropriate tools for this are the existing CAMA permit program and the Areas of Environmental Concerns (AECs) designated under the CAMA program. Dare County reserves the right to review, comment, advocate or oppose any proposed regulations or programs that may affect the regulation of estuarine waters and/or the estuarine shoreline.

Implementation Strategies:

1. Rely on existing CAMA AEC regulations to address development activities along the ocean beaches, estuarine shoreline, and other public trust areas in unincorporated Dare County. Dare County will continue to participate in the CAMA permitting process with the provision of a local permit officer for unincorporated Dare County. (2010-2015)
2. Rely on the regulations of the Dare County Zoning Ordinance for development activities along estuarine shoreline areas. (2010-2015)

Policy NH #3

Dare County supports the installation and maintenance of estuarine bulkheads. Offshore breakwaters, slopes, rip-rap, and voluntary setbacks are appropriate alternatives for property owners for addressing estuarine shoreline management in lieu of estuarine bulkheads where these other techniques may be equally effective in abating a shoreline erosion problem.

Implementation Strategy:

1. Oppose efforts to eliminate the use of estuarine bulkheads or other efforts designed to prioritize or amend the current State regulations on their installation and maintenance. (2010-2015)

Policy NH #4

Development of estuarine system islands that are only accessible by boat shall be carefully managed. Low intensity uses such as open space, recreation, and detached single family residential development shall be the preferred uses of these islands.

Flood Hazards

The topographic conditions of Dare County and lack of natural ground elevation to preclude flooding from adjacent water bodies is a factor in land development. To the east, our barrier islands are bordered by the Atlantic Ocean and subject to ocean overwash from storm tides, hurricanes and other weather events. To the west, the area is surrounded by numerous sounds and tributaries which also result in flooding during storms and severe weather conditions. The Federal Emergency Management Agency (FEMA) produces flood maps (Flood Insurance Rate Maps or FIRMs) depicting the various flood zones that apply in Dare County. The FIRMs establish flood zones for all properties and construction in the flood zones are impacted by the flood designation. Some areas of unincorporated Dare County are located in X zones which do not require any special construction techniques or elevation to address flood hazard concerns. Properties designated with an AE classification require elevation of any structure to the minimum base flood. VE zones, or areas predicted to experience flooding as well as wave action, establish higher minimum base flood elevations than the AE zones and construction must adhere to limitations on ground floor enclosures and engineered foundation techniques. VE zones are generally found along the oceanfront and estuarine shorelines.

In addition to flood hazard areas, storm surge associated with hurricanes and tropical storms is an issue in Dare County. Storm surge is the increased water levels from hurricanes and tropical storms that results in flooding along the shorelines. The exact area impacted by storm surge depends on each particular storm and its intensity, its forward speed, and the angle of approach to the Dare County shoreline. FEMA produces storm surge models based on the Saffir-Simpson hurricane ranking chart (category 1-5). Slower moving storms will impact less area than faster-moving storms. The storm surge areas for Dare County are depicted on the FIRM maps used for base flood elevation and floodplain management. The storm surge areas depicted on the FIRM maps are for the highest storm intensity and speed. Under this scenario, most areas of Dare County would be included in the storm surge areas. Map 14 in the Map Appendix illustrates these storm surge areas.

Policy NH #5

Dare County supports, as minimum standards, the administration and enforcement of all applicable floodplain management regulations and the National Flood Insurance Program. Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the National Flood insurance Program or other flood hazard legislation.

Implementation Strategy:

1. Administration of Dare County Flood Ordinance and continued participation in Community Rating System to result in the reduction of flood insurance rates for property owners in unincorporated Dare County. (2010-2015)

Policy NH #6

Dare County shall use construction standards, such as the elevation of buildings and the wind zone requirements for mobile homes and zoning regulations, such as the setbacks from water bodies and erosion-prone areas to mitigate the effects of high winds, storm surge, flooding, wave action, and erosion.

Storm Hazard Mitigation

Storm hazard mitigation involves activities, policies, and practices that help reduce the likelihood and extent of property damage, both public and private, in the event a hurricane makes landfall in Dare County. The key mitigation technique utilized for new construction is the enforcement of the base flood elevation standards designed to allow rising floodwaters and storm surge to flow freely under elevated structures. Wind load restrictions in the North Carolina State building code also apply in Dare County and are enforced by the Dare County Building Inspectors. Storm surge maps are included on pages 59-60 in Section 1. These maps illustrate those portions of Dare County that are subject to storm surge inundation during a hurricane. As evident on the maps, the majority of Dare County lacks natural ground elevation to preclude some degree of flooding in a hurricane. Areas with higher elevations may offer protection from flooding but may be more vulnerable to wind damage during the more intense storms.

A key part of storm hazard mitigation involves pre-storm activities that are set forth in the Dare County Emergency Operation Plan. The Emergency Operation Plan establishes a Control Group comprised of a member of the Dare County Board of Commissioners, the mayors of each town, the Dare County Sheriff, and the Superintendent of the National Park Service. This group is responsible for making all decisions associated with evacuation of the Outer Banks prior to a storm or hurricane, initiating re-entry procedures following evacuations, and for handling post-storm recovery actions. The Control Group is assisted by a Support Group which has representatives from all County departments, local utility agencies, and other essential service agencies. The Support Group assists with the implementation of Control Group decisions and provides feedback to the Control Group on the status of highway conditions, utility outages, and other issues that may arise during emergency situations. The Emergency Operation Plan prepared by the Dare County Emergency Management Department addresses the protocol and decision making process for hurricane and other emergency situations. The Control Group and Support Group meet in the offices at the Dare County Detention Center on Roanoke Island.

Following a hurricane or other natural disaster, storm damage assessment is the responsibility of the Dare County Appraisal Department. The Planning Department is often involved in damage assessment by assisting with electrical service disconnections for structures that have been damaged and identification of other structural damage that may render a structure uninhabitable.

Recovery efforts are designed to prioritize reconstruction and repair of essential infrastructure and support facilities, repair and reconstruction of storm damaged homes and businesses of permanent residents, and repair and reconstruction of second homes and rentals. Depending on the extent of storm damage, reconstruction activities may occur in one geographic location while normal construction activities remain uninterrupted in other areas that did not experience any damage. This was the case in 2003 following Hurricane Isabel where Hatteras Island, especially Hatteras village, suffered extensive damage and the other areas of unincorporated Dare County had minor damage. The focus in Hatteras was on recovery and reconstruction whereas on the north beaches, there was little disruption in construction activities of new homes and businesses.

All reconstruction must conform to applicable building codes and other State and federal regulatory programs. Efforts to reduce repetitive flood losses or to correct non-conforming structures should be implemented when feasible and practicable.

One issue that occurs after hurricanes and episodes of ocean overwash is the removal or relocation of sand on private property. Sand deposited on private property, driveways, and streets must be removed to accommodate vehicular access. There are no CAMA regulations to address these sand relocation activities. In past instances, individuals have attempted to remove overwash sand by truck and deposit the sand off-site on other properties sometimes miles away from the overwash site. These instances have resulted in involvement of CAMA officials. The accepted practice is to relocate the sand without removal off-site and this practice will most likely continue unless specific situations demand a more regulated approach by officials.

Policy NH#7

Dare County is committed to maintaining a full-time emergency management department and emergency operation center and places a high priority on storm preparedness and response. The Dare County Board of Commissioners shall be ultimately responsible for supervising the implementation of various policies and procedures regarding reconstruction and recovery after a natural disaster.

Policy NH#8

Recovery priority shall be directed to restoring or repairing infrastructure improvements such as transportation routes, utilities, and medical and emergency management facilities. Once the infrastructure has been restored, recovery priorities shall then be directed at essential commercial and primary residential structures.

Policy NH #9

In the event of extensive storm damage to publicly-owned utilities or other improvements requiring replacement or reconstruction, alternative locations that will mitigate the potential for similar repetitive losses will be examined and implemented whenever feasible and practicable.

Policy NH#10

In the event of a damaging hurricane, storm, or other disastrous event, the Dare County Board of Commissioners may establish a priority ranking system or other administrative measures for the issuance of building permits and/or review of development proposals. Such measures may be established to provide for the orderly processing of permits for reconstruction activities and other construction activities not associated with storm damage recovery with an emphasis on reconstruction activities.

Implementation Strategy:

1. Work with Dare County Emergency Management personnel on storm hazard mitigation and reconstruction issues as needed. (2010-2015)

Policy NH#11

The relocation or removal of sand that may be deposited on private property during storm events and ocean overwash episodes is necessary to accommodate storm damage recovery efforts. It is recognized that there is no current local, state or federal regulation to address this issue and this removal/relocation issue will most likely continue to be addressed on a case by case or an as-needed basis.

Implementation Strategy:

1. As may be needed following flooding or overwash events in which the issue of sand relocation may be pertinent.

Climate Conditions

There has been a great deal of media attention devoted to the issues of global climate change, sea level rise, and global warming. Some in the scientific community are skeptical of the impacts of global climate changes while others advocate a national or state-wide response. Due to the lack of consensus on the issue, the Planning Board felt it was best to include a policy that recognized the continued debate and reserve judgment on any initiatives that may be the result of this continued debate.

Policy NH#12

Dare County believes the issues of global warming, sea level rise and climate change are issues of international and national debate. Federal and/or State initiatives that may be forthcoming to address these issues will be reviewed as proposed with support or opposition offered depending on the impacts for Dare County.

Policy Impacts on CAMA Management Goals and Objectives

The Dare County natural hazards policies are consistent with the goals and objectives established by CAMA for this management topic. All of the policies acknowledge the natural hazards of the area and identify appropriate measures that can be used to mitigate risks to life, property and infrastructure.

The matrix on the following page demonstrates the consistency of each of the natural hazard areas policies with the management objectives identified for this topic. As noted on the following page, all of the natural hazards policies are consistent with the two objectives identified for this management topic. Each policy has been reviewed with a status ranking of beneficial, neutral or detrimental noted for each policy. There are a total of twelve policies under this management topic and seven have been ranked as “beneficial” due to their direct support of at least one of the objectives. The remaining five policies are ranked as “neutral” to indicate an indirect relationship suitable for inclusion under this management topic. None of the policies have been deemed “detrimental” to the objectives.

CONSISTENCY OF NATURAL HAZARD AREAS POLICIES WITH OBJECTIVES

MANAGEMENT TOPIC – NATURAL HAZARDS	Policy Benchmarks – Indicate whether the policy is beneficial (B), neutral (N), or detrimental (D)		
	<ol style="list-style-type: none"> 1. Direct and design development to fit the natural conditions and landscape rather than modify the natural conditions and landscape to accommodate development.. 2. Mitigate the impacts of development in natural hazard areas by participation in the federal flood insurance program and administration of the NC Division of Coastal Management local permit program for development in CAMA identified Areas of Environmental Concerns (AECs). 		
	BENEFICIAL	NEUTRAL	DETRIMENTAL
NH#1 oceanfront development	#1		
NH#2 estuarine shoreline development	#1		
NH#3 support for bulkheads and other shoreline erosion methods	#1		
NH#4 development of estuarine islands	#1		
NH#5 Federal flood insurance program	#1		
NH#6 construction techniques to address flood and erosion	#1, #2		
NH#7 full-time local emergency management office		X	
NH#8 recovery priority of infrastructure		X	
NH #9 mitigation of repetitive losses	#2		
NH#10 priority ranking for permits following a storm		X	
NH #11 relocation of sand following a storm event		X	
NH #12 sea level rise		X	

MANAGEMENT TOPIC #5 – WATER QUALITY

CAMA Goal: Maintain, protect, and where possible, enhance water quality in all coastal wetlands, rivers, streams, and estuaries.

CAMA Objective: Adopt policies for coastal waters within the planning jurisdiction to help ensure that water quality is maintained if not impaired and improved, if impaired.

Policy Requirement: 1) Devise policies that help prevent or control nonpoint source discharges (sewage and storm water) such as, but not limited to the following: impervious surface limits, vegetated riparian buffers, natural areas, natural area buffers, and wetland protection.

2) Establish policies and land use categories aimed at protecting open shellfishing waters and restoring closed or conditionally closed shellfishing waters.

Water Quality Objectives

1. Direct and design development to ensure sustainability of our important natural resources, especially ocean and estuarine water quality. Water quality is vital to the viability of our commercial fisheries, tourism, and recreational fishing and boating.
2. Support the preservation and protection of water quality of the County's surface water bodies, including the continuation of local monitoring programs and local initiatives to address stormwater runoff.

Water Quality

Dare County is surrounded by water and the preservation and protection of water quality is a fundamental concern of our local economy and quality of life. Surface water quality is important to fisheries resources, boating, and numerous other water sports for which our area is famous. There are many factors that impact water quality such as stormwater runoff, wetland protection, development activities, and natural resource management.

Activities occurring on the immediate shoreline, both ocean and estuarine, impact the area's water quality. Activities occurring inland of Dare County also impact the area's water quality and for years Dare County has advocated a regional approach to ensure the continued health of Dare County's water resources. Basin-wide plans for all of the river basins in North Carolina have been prepared. Although these plans are not regulatory, they do provide a good summary of the each basin and particular issues affecting that basin. The majority of Dare County is located in the Pasquotank River basin and specific information from this report is discussed in Section 1 of this update. A small portion of Dare County is included in the Tar-Pamlico River basin as noted in Section 1.

Setbacks and restricted buffers apply to oceanfront and soundfront properties. Development activities are restricted in these buffer areas to protect the near shore nursery areas and wetlands areas that are

important components of the ecosystem. The Planning Board discussed the importance of water quality and its role in the local economy for both permanent residents and seasonal visitors. One item that was noted as a contributing factor to declining water quality was point-source discharges of stormwater and wastewater. There are numerous point-source discharge wastewater treatment facilities in inland communities that discharge to water bodies that flow to our estuaries and bays. The Planning Board stressed that water quality regulatory programs should address water quality issues in all regions of the State and not just focus on coastal areas.

A water quality monitoring program was established in Dare County several years ago which was eventually taken over by the State. Results from the State's testing are conveyed to the Dare County Health Department and appropriate actions taken to close or restrict swimming or other recreational water uses at sites that exceed the State minimum bacteriological standards for safe bodily contact. These closures are usually of a temporary nature and occur following a heavy rain event. The use of pesticides and fertilizers adjacent to canals and waterways and their effects on water quality was identified during the Planning Board discussion also. Runoff from fertilized lawns was noted as a concern and how this issue was addressed by water quality monitoring.

Protection of groundwater supplies is also a high priority. One regulatory tool used by the State of North Carolina for the protection of groundwater resources is the designation of public water supply watersheds and wellfields as Areas of Environmental Concern. In unincorporated Dare County, the Buxton wellfield that supplies water to the four southern villages of Hatteras Island has been designated a public water supply wellfield AEC. The other public water supply AECs in Dare County are located within the municipal boundaries of Nags Head and Kill Devil Hills.

Policy WQ #1

Dare County recognizes the importance of water quality in inland regions which influences and impacts the water quality of the coastal region. This is particularly true where inland communities use point-source discharge of treated wastewater to surface waters that drain into the coastal waters.

Policy WQ #2

Development projects shall be designed and constructed to minimize detrimental impacts on surface water quality, groundwater quality, and air quality. Structures should be designed to fit the natural topographic conditions and vegetation versus modifications to natural conditions to accommodate structures.

Implementation Strategy:

1. Enforcement of dune alteration standard of Section 22-58.1 of the Dare County Zoning Ordinance (2010-2015)

Policy WQ #3

Protection of groundwater resources and public water supply resources is essential for a safe drinking water supply. Protection measures, such as the designation of wellfield areas as CAMA Areas of Environmental Concern are appropriate when nominated by the applicable local government. Development in existing public water supply AECs shall be in accordance with CAMA regulations and any local zoning regulations that may apply, such as increased minimum lot size standards and limited vegetation removal regulations of the Buxton Woods SED-1 zoning regulations. These zoning regulations are designed to reduce the threat of potential negative impacts and pollutants from affecting the surficial aquifer underneath the Buxton Woods maritime forest.

Implementation Strategy:

1. Implementation and enforcement of CAMA use standards for Buxton Woods wellfield AEC and Buxton SED-1 zoning regulations. (2010-2015)

Stormwater

Stormwater runoff has been identified as an influencing factor in water quality. Currently, Dare County relies on State stormwater rules for projects that involve more than one acre of land disturbance. New subdivisions that involve less than one acre of land disturbance are subject to standards set forth in the Subdivision Ordinance which are similar to the current low density regulations used by the State of North Carolina. Also, Dare County participates in the enforcement of the 30-foot CAMA buffer which has been established to protect estuarine shorelines and decrease runoff from development activities occurring adjacent to the estuarine shoreline.

In late 2007, the North Carolina Environmental Management Commission initiated efforts to revise the stormwater management rules that apply in the 20-coastal county area of North Carolina. The proposed revisions represented substantial changes to the stormwater management rules and were met with opposition during the public hearing process. The proposed EMC rules expanded the estuarine shoreline buffer to 50 feet, decreased the amount of impervious coverage area for low density projects, and excluded wetlands from the property calculations for impervious surface limitations. The EMC adopted the revised rules in March 2008 and were to become effective in August 2008. However the NC General Assembly, based on input from local governments in the coastal region and other agencies, repealed the EMC-adopted stormwater regulations and replaced the regulations with a set of standards that were not as stringent as the EMC rules. Many local governments in the coastal region argued that the EMC rules were too strenuous and would negatively impact economic development. The Dare County Board of Commissioners opposed the EMC-adopted stormwater rules and was more receptive to the General Assembly's version that was adopted and became effective in October 2008. It was the Board's position that Dare County is unique with the narrowness of our islands, our sandy soils, and the large amount of federal owned lands that are already protected from development and that the one-size fits all approach may not be practical for our situation. Dare County has considered adoption of a local ordinance but has deferred action on a local stormwater management ordinance until an appropriate amount of time has passed to allow for

an evaluation of the impacts of the October 2008 stormwater regulations on development in Dare County.

Dare County maintains a full-time mosquito control department that works to address mosquito control issues. Ponding of stormwater and standing rainwater creates ideal conditions for the breeding of mosquitoes. The Mosquito Control section of the Dare County Public Works Department works hard to educate people on the hazards of standing water and mosquito breeding.

Policy WQ#4

Efforts to preserve, protect and improve water quality should be managed at the local level. Local level management allows for a regulatory approach designed to specifically address unique local needs and conditions. Existing State stormwater rules should serve as the basis for local programs with adjustments made to address local needs, conditions, and community support.

Policy WQ#5

Efforts to manage stormwater runoff should be based on local conditions and natural features. Properties immediately adjacent to SA classified waters should be developed consistent with the dimensional standards and lot coverage limitations of the Dare County Zoning Ordinance. Vegetative buffers and other low-impact development methods identified by the UNC Coastal Studies Institute are appropriate tools to address stormwater runoff adjacent to SA waters.

Implementation Strategies:

1. Present amendments to the Zoning Ordinance and the Subdivision Ordinance on LID stormwater techniques to the Planning Board and Board of Commissioners for consideration. (2012)
2. Conduct an up-to-date stormwater management study of unincorporated Dare County to identify problem drainage areas. (2013)

Policy WQ#6

Dare County recognizes the public health issues associated with mosquitoes and standing areas of water and the public safety issue for motorists presented by stormwater ponding on roadways.

Implementation Strategy:

1. Continue full-time staff of mosquito control program (2010-2015)

Wetlands

Wetlands can be found throughout Dare County and are subject to regulation by the State of North Carolina and the US Army Corps of Engineers depending on the type and location of wetlands. Coastal wetlands are defined as any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides, whether or not the tide waters reach the marshland areas through natural or artificial sources, providing this does not include hurricanes or other storm tides. In Dare County, coastal wetlands can be found along the estuarine shoreline usually with the coastal wetlands between usable dry land on one side and navigable waters on the other side. These environmentally sensitive areas play a significant role in the habitat of juvenile fisheries and filtering of pollutants from

stormwater runoff of the adjacent lands. The protection of coastal wetlands is delegated to the Division of Coastal Management. The State has adopted stringent rules to protect coastal wetlands from degradation and/or loss. Locally, Dare County relies on the State's wetlands programs to address development impacts on coastal wetlands.

In addition to coastal wetlands, there are freshwater marshes or freshwater wetlands that are subject to the regulatory jurisdiction of the Corps of Engineers under the Federal Clean Water Act, Section 404. These freshwater wetlands and marshes are often referred to as 404 wetlands in reference to the federal legislation. Generally, a freshwater wetland can be described as hydric soils, areas that sustain plant life that depends on periodic flooding, or are areas that are frequented by migratory birds. However this federal definition is subject to interpretation depending on federal policy guidelines. One of the Corps' programs to manage freshwater wetlands is the nationwide permit program that authorizes the filling or altering of small areas or "pockets" of freshwater wetlands and marshes. The nationwide permit program is an integral part of development activities in Dare County where many properties contain small pockets of 404 wetlands areas that may be altered under the terms of the nationwide program. Dare County does not have any regulations for freshwater wetlands except for the SED-1 zoned areas in Buxton Woods and relies on the nationwide permit program to address the protection and management of freshwater marshes and wetlands. The SED-1 zoning regulations prohibit the filling or altering of any wetland areas regardless of Corps authorization under the nationwide permit program. During the update process, the Planning Board endorsed the continued support of the nationwide permit program as currently administered by the Corps of Engineers.

Another aspect of wetlands management discussed by the Planning Board was wetland loss mitigation. Mitigation involves the creation of new wetland areas or the dedication of existing wetland areas, to compensate for the loss of wetlands as a result of development activities. In simple terms, mitigation represents a trade-off of wetlands in one area in exchange for alteration or loss of wetlands in another. Mitigation activities can occur in conjunction with public purpose projects undertaken by a public agency or with a private sector development project. In discussing mitigation, the Board members acknowledged that mitigation is often necessary for the construction of bridges and roads but may be less acceptable to accommodate private sector development. The 2003 policy stated that wetland mitigation should be addressed on a case-by case basis and that mitigation activities should occur in Dare County. The Planning Board endorsed this general language but noted a change on the location of mitigation activities. The 2003 policy language was identified as a potential problem for NC Department of Transportation projects, especially bridge projects, and more flexible language was used in the 2009 policy.

The policy on estuarine bulkheads has been included under this management topic as well as the previous management topic of natural hazard areas. Due to the importance of the issue and the firm support for the continued use of estuarine bulkheads, the Planning Board felt it was important to include the issue under both of the management topics.

Policy WQ#7

Dare County advocates the use of existing (2009) state and federal regulatory programs for protecting and preserving coastal wetland areas of environmental concern. Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the regulation of coastal wetland areas of environmental concern.

Implementation Strategy:

1. Continued support of local permit officer for CAMA for implementation and enforcement of CAMA use standards for coastal wetlands. (2010-2015)

Policy WQ#8

Dare County supports the U.S. Army Corps of Engineers nationwide permit program as administered in 2009. This support is based on the current scope of permitting limits of the nationwide program and not any changes that may result in a different policy. Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the Army Corps of Engineers nationwide permit program.

Policy WQ#9

The use of wetland mitigation to compensate for the loss of wetlands is a suitable alternative for projects identified as “public purpose projects” or projects undertaken by Dare County. The use of wetland mitigation for private development projects may be deemed suitable if such projects are consistent with other policies of the Dare County Land Use Plan and recognized as serving a public need by the Dare County Board of Commissioners.

Policy WQ#10

Dare County supports the installation and maintenance of estuarine bulkheads. Offshore breakwaters, slopes, rip-rap, and voluntary setbacks are appropriate alternatives for property owners for addressing estuarine shoreline management in lieu of estuarine bulkheads where these other techniques may be equally effective in abating a shoreline erosion problem.

Implementation Strategy:

1. Oppose efforts to eliminate the use of estuarine bulkheads or other efforts designed to prioritize or amend the current State regulations on their installation and maintenance. (2010-2015)

Fisheries Resources

Protection of fisheries resources is a significant water quality issue. Good, clean water is essential for the continued production of the fisheries resources, for both commercial and recreational fishermen. Commercial fishing is a traditional industry of Dare County and represents a long-standing employment sector of our coastal heritage. Commercial landings in Dare County exceed the landings for any other county in North Carolina. Recreational fishing represents a key sector of the tourist economy with many visitors coming to the area to fish from the area’s oceanfront piers, ocean beaches, or charter one of the local sport-fishing boats for off-shore trips. Permanent residents also

enjoy recreational fishing and many have been drawn to the area because of the outstanding opportunities offered by the local resources.

Protection of the unique ecosystems needed by the fisheries resources is a high priority for Dare County. The designation of primary nursery areas (PNAs) by the NC Division of Marine Fisheries is one tool used to ensure the continued productivity of the local fisheries.

Other management programs that have been established by the federal and state government to protect certain fish species are often viewed as too restrictive by fisherman, especially those programs that establish quotas for commercial fishermen. The catch quotas frequently remain in place once a designated species has been restored to acceptable levels without any acknowledgement by the regulatory agencies of the restored status of the species with increased catch quotas in response to the increased fish numbers. As is the case with other issues, such as the off-road vehicle issue, national environmental groups influence the federal and state agencies that regulate fisheries in North Carolina resulting in the enactment of restrictions without adequate input at the local level or consideration of local economic impacts on commercial fishermen. In response to these concerns, the Dare County Board of Commissioners has established a local advisory group in an effort to increase the amount of awareness of local fishermen's concerns by those state and federal agencies charged with fisheries oversight responsibilities.

The importance of access for commercial fishermen and recreational fishermen was stressed by the Planning Board during their workshops and by respondents to the Citizen Involvement Poll and public input participants. This concern is reflected in Water Quality Policy #14

Policy WQ#11:

Dare County recognizes the importance of our surrounding waters that serve as habitats for the area's abundant fisheries resources. The continued productivity of Dare County's fisheries shall be fostered through restoration and protection of the unique ecosystems upon which they depend. Dare County supports measures to protect and preserve designated primary nursery areas by the Division of Marine Fisheries. New regulatory initiatives that may limit access to fisheries should be subject to extensive public hearings in Dare County.

Policy WQ#12

Management and regulation of fisheries resources by State and Federal agencies should balance the needs of both commercial and recreational fisherman. Regulatory programs designed to restore depleted or threatened species should be reviewed on a periodic basis and adjustments made to allow increased access or catch quotas where landing records indicate successful restoration of the species.

Implementation Strategy:

1. Continued support of the Dare County Commission of Working Watermen (2010-2015)

Policy WQ#13

Local efforts to develop aquaculture as a source of fisheries production are supported provided the proposed fishery or fish species does not negatively impact fisheries. Dare County supports efforts by the State of North Carolina to promote locally harvested seafood.

Policy WQ#14

Dare County recognizes the traditional practices of commercial fishing in Dare County and supports the use of traditional shellfish and fish harvesting methods including trawling and beach haul netting. Vehicular access to Dare County beaches by commercial fishermen is essential to their continued livelihood.

Implementation Strategy:

1. As may be needed in response to National Park Service efforts on beach driving. (2010-2015)

Marinas and Floating Structures

Another appropriate issue for discussion under the water quality management topic is marinas and floating structures. As noted in the fisheries resources discussion, commercial and recreational fishing are vital to the local economy. The importance of boat-building in the local economy and its role in the heritage of Dare County has been documented. Boating access and boat dockage were discussed during the review of water quality issues. With so much of our geographic region covered by water, there is a high demand for boat access and boat dockage. Water quality regulations must be balanced with the high demand for boating access to the surrounding water bodies. Many visitors travel to Dare County to access our local waters for fishing, watersports, or simply to enjoy being out on the water. Commercial fishermen and charter boat captains need access to the water and docks to practice their trade. In discussing marina development, the Planning Board referenced the extensive review process for any new marina proposal. It was the consensus of the Planning Board that all appropriate water quality issues would be addressed during the exhaustive CAMA major permit review process by the 21-agencies involved in this process. The CAMA regulations define a marina as any public or private dock or wet storage facility that accommodates more than 10 boat slips.

Locally, the Dare County Zoning Ordinance includes certain districts in which marinas are designated as appropriate uses. The Dare County Zoning Ordinance defines a marina as a business having frontage on navigable waters which provides mooring slips and docking facilities. There is no threshold of slips included in the Dare County definition. The need to balance water quality issues with the high demand for access was emphasized by Planning Board members and the resultant policies written to reflect this position. The location of dry stack storage facilities is regulated by the Dare County Zoning Ordinance with height limitations of such facilities set forth in the Zoning Ordinance.

All previous versions of the land use plan have included a policy opposed to the mooring or use of floating homes and structures within the jurisdictional waters of unincorporated Dare County. The CAMA regulations state that it is the policy of the State of North Carolina that floating structures shall

not be allowed within the public trust waters of the coastal area except in permitted marinas. A floating structure is defined in the CAMA rules as any structure, not a boat, supported by a means of flotation, designed to be used without a permanent foundation, which is used or intended for human habitation or commerce and establishes standards for when a boat is rendered to function as a floating structure. The Planning Board indicated support of the 2003 policy opposing floating homes and structures as defined in the CAMA regulations. In discussing this policy during the 2009 update, it was noted that CAMA regulations permit floating homes and/or structures in approved marinas. The Planning Board indicated that regulations to prohibit the location of floating homes/structures in any jurisdictional water of Dare County should be considered.

Policy WQ#15

Marinas, developed according to applicable State and federal guidelines are identified as appropriate uses in Dare County due to the large amount of water resources within our jurisdiction. Facilities built for dry-stack storage of boats should be consistent with height limits and gross floor area limitations of applicable Dare County zoning codes.

Implementation Strategy:

1. Encourage marina operators to participate in the voluntary Clean Marina certification program administered by the State of North Carolina Division of Coastal Management

Policy WQ#16

Dare County is strongly opposed to the mooring of floating homes and other floating structures designed for habitation anywhere in Dare County and its surrounding waters. This policy shall not be interpreted to preclude the permitting of floating accessory structures for recreational water use associated with kiteboarding or other water use activities.

Implementation Strategy:

1. Consideration of regulations to prohibit floating homes and structures in unincorporated Dare County. (2011)

Policy Impacts on CAMA Management Goals and Objectives

The Dare County water quality policies are consistent with the goals and objectives established by CAMA for this management topic. All of the policies support protection of water quality, coastal wetlands, and fisheries resources.

A matrix is included on the following page which demonstrates the consistency of the water quality policies with the two management objectives identified for this topic. Each policy has been reviewed with a status ranking of beneficial, neutral or detrimental noted for each policy. Eleven of the sixteen water quality policies have been ranked as “beneficial” due to their direct support of at least one of the management objectives. Five of the policies are ranked as “neutral” to indicate an association to the issue of water quality and have been deemed “appropriate” for inclusion under this management topic. None of the policies are “detrimental” to the objectives.

CONSISTENCY OF WATER QUALITY POLICIES WITH OBJECTIVES

MANAGEMENT TOPIC – WATER QUALITY	Policy Benchmarks – Indicate whether the policy is beneficial (B), neutral (N), or detrimental (D)		
	1. Direct and design development to ensure sustainability of our important natural resources, especially ocean and estuarine water quality. Water quality is vital to the viability of our commercial fisheries, tourism, and recreational fishing and boating. 2. Support the preservation and protection of water quality of the County’s surface water bodies, including the continuation of local monitoring programs and local initiatives to address stormwater runoff.		
	BENEFICIAL	NEUTRAL	DETRIMENTAL
WQ#1 effects water quality of inland regions	#1, #2		
WQ#2 development designed for minimal impacts on water quality	#1, #2		
WQ#3 protection of groundwater resources	#1, #2		
WQ#4 local management of stormwater	#1, #2		
WQ#5 stormwater regulations based on local conditions and reflect local zoning standards	#1, #2		
WQ#6 public health issue of standing water and mosquitoes		X	
WQ#7 protection of coastal wetlands	#1		
WQ#8 Corps nationwide permit program	#1		
WQ #9 wetland mitigation	#1		
WQ#10 bulkheads and other erosion control methods		X	
WQ #11 protection of ecosystems for commercial fisheries	#1, #2		

CONSISTENCY OF WATER QUALITY POLICIES WITH OBJECTIVES

	Policy Benchmarks – Indicate whether the policy is beneficial (B), neutral (N), or detrimental (D)		
MANAGEMENT TOPIC – WATER QUALITY	1. Direct and design development to ensure sustainability of our important natural resources, especially ocean and estuarine water quality. Water quality is vital to the viability of our commercial fisheries, tourism, and recreational fishing and boating. 2. Support the preservation and protection of water quality of the County’s surface water bodies, including the continuation of local monitoring programs and local initiatives to address stormwater runoff.		
	BENEFICIAL	NEUTRAL	DETRIMENTAL
WQ #12 regulation of commercial fisheries by state and federal agencies		X	
WQ#13 aquaculture		X	
WQ#14 commercial fishing and vehicular access		X	
WQ#15 marina development	#1, #2		
WQ#16 floating homes and structures	#1,		

MANAGEMENT TOPIC #6 LOCAL AREAS OF CONCERN

CAMA Goal: Integrate local concerns with the overall goals of CAMA in the context of land use planning.

CAMA Objective: Identify and address local concerns and issues, such as cultural and historic areas, scenic areas, economic development, downtown revitalization or general health and human services needs.

Policy Requirements: Evaluate local concerns and issues for the development of goals, policies, and implementation strategies. These may include timelines and identification of funding policies.

Local Areas of Concern Objectives

1. Protect and promote the unique nature of Dare County relative to the other coastal counties of North Carolina and how our distinctive characteristics should be recognized and fostered in the development of regulations that affect Dare County.
2. Participate in state and federal regulatory programs and initiatives to ensure that policies and goals of Dare County are appropriately addressed.
3. Advocate the capability of Dare County to effectively manage our natural resources and direct our economic development at the local government level.

ORV Access

Access (vehicular and pedestrian) to the shorelines and public trust areas of Dare County is a fundamental element of the Outer Banks history, way of life and our economy. Many folks visit the Outer Banks to enjoy access to the miles of shorelines and beaches for recreational activities and to observe our natural flora and fauna. Fishermen, both commercial and recreational, rely on vehicular access to the beaches for fishing purposes. For the County's year-round residents, access to the beaches and public trust areas is part of our daily lives and a contributing factor for many people choosing to reside here. Parking and restrooms facilities can be found throughout the municipal areas and on Hatteras Island for access to the ocean and estuarine shorelines. Many of these access points have been developed with funding assistance from the State of North Carolina through the shoreline access grant program. These access points are widely used by our seasonal visitors and our year-round population. The access points also provide fishing opportunities for many people who do not own boats for direct water access. As noted in the public access discussion, many waterfront properties that provided boating access have been re-developed as private communities thus eliminating a public boat/water access. ORV access to the ocean and estuarine shorelines compensates for the lack of widespread boat ramps by providing a means of water access for those without boats.

Historically, vehicular access along the beaches was often the only means of travel. Vehicular access has been the focus of lawsuits against the National Park Service by environmental interest groups seeking to prohibit vehicular access to the beaches of the Cape Hatteras National Seashore. Opponents of beach driving have sought injunctions against the National Park Service due to lack of an official plan to manage access to the federal seashore. These opponents argue that vehicles and pedestrians on the beach result in damage to plant life and wildlife. Proponents of beach driving maintain that all methods of access can be managed without damage to plants and wildlife. In 2008, a settlement of a lawsuit filed by the Southern Environmental Law Center and the Defenders of Wildlife resulted in a temporary agreement to address ORV and pedestrian access to the Hatteras Island beaches managed by the NPS. The Dare County Board of Commissioners was a legal participant against this lawsuit. The agreement established terms for closure of beaches to pedestrian and vehicular access in response to bird and turtle nesting activities. This agreement also established a deadline for adoption of permanent NPS plan by 2010. In 2007, prior to the filing of the lawsuit, the National Park Service initiated a negotiated rule making process to address the issue of access to the federal seashore. Dare County was involved as a stakeholder in this rule-making process. The County will continue to participate in this issue due to the vital importance of vehicular access to our economy and quality of life.

Policy LAC #1

The County recognizes the importance of four-wheel drive vehicles and pedestrian access to the beaches of Hatteras Island that are under the management authority of the federal government. Efforts to completely prohibit beach driving on these federally-managed areas are opposed. National Park Service management plans for the beaches should acknowledge the historical and established practice of vehicular and pedestrian access to the beaches of Dare County. In addition, impacts on Dare County's local economy are important elements that should be a factor in any decision-making process of the National Park Service. Management plans should emphasize the need to allow these practices to continue in an equitable manner that balances species management activities without eliminating or severely limiting vehicular and pedestrian access to the Dare County beaches.

Federal/State Support

Throughout the history of Dare County, the County's relationship with federal and state agencies has ranged from confrontational to cooperative depending on the issue at hand. This is especially true of the federal agencies that have a large presence in Dare County because of federal wildlife refuges and national parks. The goals of these agencies frequently conflict with the goals of the citizens and visitors of Dare County. It is often felt that not enough input is sought by federal and state agencies before they adopt regulations or restrictions that impact Dare County and that not enough emphasis is placed on the local impacts of such regulations or restrictions.

Policy LAC #2

Additional Federal or State regulatory programs or expansion of existing programs will be reviewed on a case by case basis. Dare County reserves the right to support, oppose, review, or comment on additional regulations that may impact Dare County and its economy. Local public hearings by federal or state agencies should be extensively advertised and conducted in Dare County before any new regulations are adopted or existing programs are expanded.

Policy LAC#3

The large percentage of publicly-owned lands in Dare County should be recognized by federal and state agencies when drafting new regulations that will apply to Dare County. This disproportionate ratio of public/private lands and the resultant competition for land resources by the private sector to address the needs of our permanent population and our seasonal population creates unique challenges for Dare County.

Policy LAC#4

Dare County encourages federal and state regulatory agencies to consider fast-tracking of public-purposes projects. Where State grant funds have been secured, consideration of an assumed or accelerated permit process is advocated.

Implementation Strategy:

1. Request North Carolina General Assembly to authorize and establish an expedited permit process for projects funded by State grants. (2012)

Policy LAC #5

Dare County encourages federal and state regulatory agencies to consider impacts from activities occurring on their lands on the surrounding privately-owned land and communities. Although Dare County acknowledges that federal and state properties are exempt from local zoning and other land use ordinances, federal and state agencies should coordinate their efforts with local officials whenever practicable.

Tourism

Tourism is the number one industry in Dare County. Many of the local jobs are service-related jobs focused on the provision of goods and services for the tourists and visitors of the Outer Banks. The tourism industry generates significant amounts of revenue for the County, its municipalities, and the State of North Carolina. The abundant natural resources of our area serve as a drawing card for thousands of visitors each year and the importance of protecting these natural resources has been discussed throughout the land use plan. Tourism is generally viewed as a “clean” industry versus other more traditional industries such as manufacturing.

Although tourism is essential to the economy of Dare County, the seasonal population surges associated with the tourist economy create quality of life issues for the year-round residents. The influx of seasonal visitors challenges the County’s transportation infrastructure and frustrates the local residents as they go about their daily lives. There is a sentiment among the permanent population

that tourist-generated revenues, such as occupancy taxes and prepared food taxes, should be expended to address both the needs of the seasonal population and the permanent population. However, the spending of these tourist generated taxes is mandated for visitor needs and infrastructure improvements.

Policy LAC#6

Dare County supports the concept of combining natural resources and tourism to promote the area's ecological values, known as "eco-tourism".

Policy LAC #7

The quality of life of Dare County residents should be carefully balanced with the tourist-based economy of the Outer Banks. Maintaining a good quality of life for our permanent population and ensuring a safe and enjoyable vacation experience should be a goal of all local, state, and federal agencies responsible for the promotion of tourism in Dare County and North Carolina.

Policy LAC#8

Dare County recognizes the importance of tourism to our local economy and supports efforts to maintain our status as a desirable place to live, visit, and vacation. Tourist generated revenues should be used to offset the infrastructure needs of our seasonal population and our year-round population.

Public Participation

The Dare County Board of Commissioners places a high priority on public participation and public involvement in land use planning issues. The North Carolina General Statutes mandate public hearings before any decision on land use ordinance implementations and amendments. The Dare County Board of Commissioners chose to supplement the public hearing process with other activities to increase awareness of land use issues and other government actions.

One of the first activities of the land use plan update was the adoption of a public participation plan. One element of this plan is the maintenance of a public outreach contact list. This list is comprised of representatives from other local governments in Dare County, local civic and community groups, and other interested individuals who wish to be notified of land use plan update meetings. This group is contacted by email of upcoming land use plan meetings.

For the past several years, the monthly meetings of the Board of Commissioners have been televised and re-played on the local government channel. Public comment periods are also scheduled at all Commission meetings.

The Planning Board Clerk maintains a mailing list of groups and individuals for receipt of the monthly Planning Board agenda. The Planning Board agenda is also advertised in a local newspaper, posted on the Dare County website and sent to a media contact list developed by the Dare County Public Relations office.

Policy LAC #9

Dare County supports the active involvement of all interested persons in its land use planning and policy development activities.

Channel Maintenance-Oregon Inlet

Throughout Dare County, there are many channels, canals, and waterways that are essential to the safe movement of commercial and recreational boats. Oregon Inlet is one of the most important waterways and maintenance of this navigational channel is a high priority for the Dare County Board of Commissioners. Both recreational and commercial fishermen use this channel on a daily basis as access to the off-shore waters of the Atlantic Ocean. The inlet area surrounding Oregon Inlet is one of the most dynamic inlets in the United States. Efforts to maintain a safe passageway through Oregon Inlet have been on-going for decades. Permits to construct jetties to stabilize the inlet have been denied by the federal government and dredging is currently the only method used to keep the inlet navigable. However, federal appropriations for dredging of Oregon Inlet are not automatic and Dare County must remain diligent in our efforts to ensure the continued funding for dredging of Oregon Inlet.

Maintenance of other waterways in Dare County is also subject to federal appropriations and must compete with many other projects in the federal budget. Dare County maintains a full-time staff for the Oregon Inlet and Waterways Commission to advise the Board of Commissioners on issues concerning Oregon Inlet and other waterway management matters.

Policy LAC#10

Dare County advocates the dredging and other associated maintenance activities of all existing navigable channels, canals, boat basins, marinas and waterways. Such activities are of vital importance to our local residents, fisherman, and tourist economy.

Implementation Strategy:

1. Continue working with the Army Corps of Engineers, State and Federal agencies to secure permit authorization for work as needed. (2010-2015)

Policy LAC #11

Dare County recognizes the importance of Oregon Inlet and its continued need for stabilization, protection and navigable maintenance.

Implementation Strategy:

1. Lobby the US Congress for a dedicated funding source for the maintenance dredging for Oregon Inlet. (2010-2015)

Buxton Coast Guard Base

In 2004, the US Coast Guard elected to close its Buxton base in response to maintenance concerns associated with the upkeep of the base facilities. The Buxton base is located along the Atlantic Ocean and a series of oceanfront groins in front of the base mitigate the effects of shoreline erosion in this area. Financial concerns and the difficulties in securing State permits to maintain the groins led to the Coast Guard decision to close the Buxton base and relocate their operations to the Oregon Inlet station. The facilities at the base include water and wastewater treatment plants, recreational facilities, office buildings and a separate adjoining parcel with base housing. For the past two years, Dare County has sought to secure ownership of the Coast Guard facilities. Negotiations with federal officials have been on-going and ownership of the base facilities excluding the housing parcel seems probable. The facilities represent an opportunity for use as County recreational facilities, staging area of equipment and supplies for emergency management purposes, and the potential for a beach access site.

The housing facilities are owned by a separate federal agency, the United States Properties Agency. The agency is prohibited by federal law to authorize the transfer of the housing facility and requires such facilities to be purchased by Dare County at fair market value or auctioned to the private sector. The housing units are connected to the wastewater treatment facility on the adjoining base property and relocation to a different site is not feasible because of high land costs and the difficulty of providing an alternative source of wastewater. Dare County is working to identify a remedy to this transferability conflict that enables Dare County to acquire the housing facility without expenditure of funds.

Policy LAC #12

Dare County will pursue opportunities to acquire and utilize the facilities of the former Buxton Coast Guard base and the housing complex.

Implementation Strategy:

1. Continue to work to acquire selected facilities at the Buxton Coast Guard base. (2010)

Insurance

The rising cost of property insurance was mentioned numerous times during the public input phase of the land use plan update. Homeowners' and commercial insurance costs have increased dramatically within the last three years as a result of losses suffered by the insurance industry from Hurricane Katrina in 2005. Although this hurricane did not impact Dare County, insurance companies have raised insurance rates in the coastal regions. Some insurance companies have chosen to suspend the sale of homeowners' policies in the coastal area. Many property owners are insured through the North Carolina Insurance Underwriting Association, also known as the BEACH Plan, which is an association of all property and casualty insurance companies that do business in North Carolina. The BEACH plan provides insurance in 18 coastal counties for windstorm and hail insurance only. The

BEACH plan is not an agency of the State of North Carolina but is subject to review by the North Carolina Commissioner of Insurance.

Policy LAC #13

The Dare County Board of Commissioners will lobby the NC Commissioner of Insurance to ensure that insurance rates in the coastal region remain equitable compared to insurance rates in other regions of the State.

Policy Impacts on CAMA Management Goals and Objectives

The Dare County local areas of concern policies are consistent with the goals and objectives established by CAMA for this management topic. All of the policies address issues that although not land use related are important to the residents and visitors of Dare County.

A matrix has been included demonstrating the consistency of each of the local areas of concern policies with the objectives identified for this topic. Each policy has been reviewed with a status ranking of beneficial, neutral, or detrimental noted for each policy. Eleven of the policies directly support one of the objectives. Two policies are ranked as “neutral” and have been deemed as appropriate for inclusion under this management topic. None of the policies have been deemed “detrimental” to the objectives.

CONSISTENCY OF LOCAL AREAS OF CONCERN POLICIES WITH OBJECTIVES

MANAGEMENT TOPIC – LOCAL AREAS OF CONCERN	Policy Benchmarks – Indicate whether the policy is beneficial (B), neutral (N), or detrimental (D)		
	<ol style="list-style-type: none"> 1. Protect and promote the unique nature of Dare County relative to the other coastal counties of North Carolina and how our distinctive characteristics should be recognized and fostered in the development of regulations that affect Dare County. 2. Participate in state and federal regulatory programs and initiatives to ensure the policies and goals of Dare County are appropriately addressed. 3. Advocate the capability of Dare County to effectively manage our natural resources and direct our economic development at the local government level. 		
	BENEFICIAL	NEUTRAL	DETRIMENTAL
LAC#1 importance of ORV access to beaches	#2		
LAC#2 expansion of federal/state programs	#1, #2, #3		
LAC#3 impacts public lands on Dare County	#2		
LAC#4 fast-tracking of public purpose projects through federal and state review		X	
LAC #5 federal-state consideration of surrounding communities			
LAC#6 support for eco-tourism	#1		
LAC#7 quality of life issues for permanent population		X	
LAC#8 importance of tourism to area	#1		
LAC#9 public participation in land use planning	#2		
LAC #10 support for dredging and channel maintenance	#2		
LAC#11 maintenance of Oregon Inlet	#2		
LAC#12 acquisition of Buxton Coast Guard base	#2		
LAC #13 insurance rates in Dare County	#2		

Future Land Use Maps

The CAMA land use plan guidelines require the development of a “future land use map”. In previous versions of the Dare County land use plan, this map was known as the land classification map. The assignment of land classifications to the various areas of unincorporated Dare County illustrates anticipated growth patterns, conservation areas, and infrastructure service districts. Due to the size of Dare County and the difficulty to map all of unincorporated Dare County on one map, individual future land use maps have been created for the various geographic regions of unincorporated Dare County.

Narrative descriptions of the future land use designations and each area to which the future land use category has been applied are included in this section. Both the maps and the narrative text should be consulted in the determination of future land use designations. The narratives describe the land uses deemed to be consistent within a specific classification, the level of infrastructure that can be expected in the category, and the overall density and development intensity that is compatible with the land classification. Dwelling densities and compatible land uses are discussed in each narrative description in general terms. The Dare County Zoning Ordinance is the document that establishes specific regulations for properties and should be consulted for site specific land uses and dimensional standards.


The future land use maps and associated land classifications are tools designed to support the policies and implementation strategies of the 2009 Land Use Plan update. The maps and narrative descriptions are not regulatory and cannot be used in a regulatory fashion. The maps are a general guide and are not as detailed as a zoning map, which is regulatory. The future land use maps and land classification system is designed to provide guidance to the Dare County Planning Board and Board of Commissioners in the review of new subdivisions, amendments to the zoning ordinance and other land use ordinances, and to provide guidance to property owners and citizens on the desired land use patterns and infrastructure systems of unincorporated Dare County.

The future land use maps are also referenced by CAMA officials during the review of CAMA major permits. The narrative descriptions and the map are designed to be used in conjunction with policy statements in the management topics to ensure a balanced review of CAMA major permit applications. Throughout the narrative descriptions of each future use classification are discussions on the availability of infrastructure improvements, the type of improvements typically found in each future use category, and any future or planned infrastructure improvements. During the review of CAMA permits, CAMA officials should consult the policy statements that may be applicable to the provision of infrastructure improvements in making determinations of consistency and/or inconsistency within a specific classification. Due to the scale of the maps, it is sometimes difficult to make site specific


boundary interpretations and consultation with the local Planning officials is encouraged for map determinations of a particular future land use map classification.

The CAMA guidelines grant flexibility to local governments in the selection of future land use categories. The future land use designations used in this update are similar to the land classifications used by Dare County in previous land use plan updates. Some changes in the titles and designations have been made for compliance with the CAMA guidelines. The future land use categories reflect current conditions and are as follows *municipal, transition corridor, community, community village, community residential, rural, conservation, and limited conservation*. Copies of the future land use maps for Dare County are found in the at the end of this section.

Municipal

The purpose of this classification is to illustrate the boundaries of the existing towns and cities. For Dare County, this classification has been applied to the incorporated areas of Manteo, Nags Head, Kill Devil Hills, Kitty Hawk, Southern Shores, and Duck. The land use plans prepared by these municipalities contain more specific information on land classification and future use patterns in their respective jurisdictions. Municipal areas are depicted as the color gray 

Transition Corridor

The purpose of the transition corridor category is to provide for more intensive development on lands that are suitable and will be provided with the necessary infrastructure and services to support urban-style development. Connection to a central water system can be expected for this classification. Service by a central wastewater system may be used on land included in the classification but is not necessary. The connection to a central wastewater system will not result in reduced minimum lot sizes under Dare County standards. This area is depicted as yellow  on the future land use map.

Roanoke Island -- One area on Roanoke Island between the southern boundary of the Town of Manteo and Pirates Cove has been assigned the transition corridor classification. This area remains in the regulatory jurisdiction of Dare County but land uses in this area are often connected to the Town of Manteo's central wastewater treatment plant and water system. The Dare County Justice Center, Administration Building, and the Dare County Center are located within this land class. The availability of central wastewater and existing patterns of development will continue to influence land use in this area hence the designation as transition corridor. The area is zoned I-1, industrial or C-3 commercial. Both districts permit land uses that are consistent with urban-style development. Structures in commercial or industrial zoned areas are subject to a gross floor limitation of 20,000 square feet as established in the Dare County Zoning Ordinance. Residential development, including multifamily development at a dwelling density of 8 units per acre, is consistent. Multifamily

development is required by the Dare County Zoning Ordinance to have a centralized or community wastewater system. The minimum lot size for new subdivisions is 15,000 square feet for property served by central water. Some of the development that is connected to the Town of Manteo wastewater treatment can be expected to be annexed by the Town of Manteo in the future. As part of the agreement to provide wastewater treatment services, land uses must be developed to be compliant with the Town of Manteo's land use ordinances. This requirement is in recognition of the potential for future annexation by the Town. Dare County is currently in the planning and design stage of a central water system for Roanoke Island. Once complete (anticipated completion is 2012) all of Roanoke Island will be served by a central water supply.

Rodanthe, Waves, Salvo – An area along NC 12 in these three villages has been designated as Transition Corridor. This classification is in recognition of the S-1 zoning that applies throughout the area and all areas except for those established platted subdivisions have been designated as Transition Corridor on the future land use map. The S-1 zoning district permits all uses. Central water from the Dare County water system is available. Wastewater is provided by individual on-site septic systems. Multi-family dwelling density limitations for the S-1 areas are a range of 3-5 units per acre depending on the soil composition of individual sites. The higher the percentage of wetlands soils on a tract, then the lower the dwelling density for multifamily structures. The minimum lot size for new lots is 15,000 square feet if connected to central water. Development along the NC 12 corridor is mainly commercial with an emphasis on tourist-related goods and services. Several properties in the area have been developed with a mixture of multi-family structures and business uses. Commercial structures are limited to a maximum gross floor area of 20,000 square feet. It is anticipated that this corridor will continue to be developed commercially even if use specific zoning maps are adopted within the next five-year planning period. Redevelopment of existing older structures along the corridor can be expected to take advantage of the highway frontage of NC 12 and the broad nature of the S-1 zoning district.

KDH Outside/Colington – A transition corridor designation has been applied to those portions of Colington Road that are zoned with commercial designations on the zoning map for the Colington/KDH Outside area: VC-2, C-3, and CS. These zoning classifications and associated range of permitted and conditional uses are consistent with the transition corridor designation. Businesses located along Colington Road are designed to serve the needs of the KDH outside/Colington communities. Commercial structures are limited to a gross floor area limitation of 20,000 square feet. Residential uses may be permitted in some of these areas however most property has been developed in a commercial fashion. Multifamily development is consistent only in areas zoned C-3 at a dwelling density of 8 units per acre. Redevelopment of other areas along Colington Road can be expected over the next 5-year planning period. The minimum lot size for new lots is 15,000 square feet if connected to central water. Central water from the Dare County water system is available in this area. Wastewater is addressed through the use of on-site wastewater systems.

Avon – Portions of the NC 12 corridor that are zoned commercially on the Dare County Zoning map for Avon have been designated as a transition corridor in recognition of its zoning class. (C-2, C-3 or VC) Many of the properties are already developed as a commercial use. Many of the commercial land uses are dedicated to the delivery of tourist-related goods and services. Commercial structures are limited to a gross floor area of 20,000 square feet. Some single family residential uses are mixed into the commercial development. Multifamily structures are compatible in this area at a dwelling density of 6 units per acre as established by the zoning regulations. The minimum lot size for new lots is 15,000 square feet if connected to central water. Central water is available from the Dare County water system and the majority of the businesses utilize on-site individualized system for wastewater treatment. The exception is the commercial areas of the Kinnakeet Shores Shopping Center which is connected to the central wastewater treatment plant that serves the Kinnakeet Shores Soundside Subdivision. This privately-owned package treatment plant is designed to serve the commercial areas of Kinnakeet Shores and the residential portions of Kinnakeet Shores Soundside Subdivision. Future development and re-development activities along this transition corridor are expected to follow established patterns of tourist-related goods and services.

Buxton – All areas in Buxton along NC 12, Old Lighthouse Road and the Buxton Back Road that have a commercial or industrial zoning designation on the Buxton zoning map have been assigned the Transition Corridor designation.. The Cape Hatteras High School is located along the NC 12 corridor. The Dare County Fessenden Center is also located in Buxton and serves as an important recreation and community-gathering facility. Commercial structures are limited to a gross floor area limitation of 20,000 square feet. Multi-family structures at a density limitation of 6 units per acre are consistent with this future land use map designation. Central water is available in this transition area from the Dare County central water system. The minimum lot size for new lots is 15,000 square feet if connected to central water. Wastewater is typically addressed through the use of individual on-site systems although there is an existing central wastewater system in place at the former Coast Guard base that served the base facilities. Future development activities along this corridor are expected to focus on providing services for the residents of Hatteras Island and the visitors to the area.

Frisco – Along the NC12 frontage, a transition corridor designation has been mapped for Frisco village. This classification is in recognition of the S-1 zoning that applies to all of Frisco except for the Buxton Woods area. The S-1 district permits all uses. Existing development in the transition corridor area is a mixture of residential and commercial land uses often located adjacent to each other with an emphasis on service-oriented uses such as real estate offices, automobile repair, and outdoor storage. Central water from the Dare County water system is available. Wastewater is provided by individual on-site septic systems. There is no central wastewater facility in Frisco. Multi-family dwelling density limitations for the S-1 areas are a range of 3-5 units per acre depending on the soil composition of individual sites. The higher the percentage of wetlands soils on a tract, then the lower the dwelling density for multifamily structures. The minimum lot size is 15,000 square feet for property served by a


central water supply. Commercial structures are limited to a gross floor area of 20,000 square feet. It is anticipated that this transition corridor will continue to be developed with a mixture of businesses and residential uses. Future development can be expected to follow the established patterns taking advantage of the S-1 zoning with the construction or location of a use that may not be possible in other more restrictive commercial areas found in Avon, Buxton or Hatteras.

Hatteras -- The NC 12 frontage in Hatteras village has been designated with a transition corridor classification along the those portions of NC 12 zoned C-2H on the Hatteras zoning map. Commercial uses are small-scale developments serving the year-round population with some commercial development aimed at the seasonal visitors, especially near the NC Department of Transportation ferry facilities at the terminus of the village. The minimum lot size for newly platted lots is 15,000 square feet for property served by central water. Hatteras village is served by central water from Dare County. The only on-site central wastewater facility serves an existing multifamily project which was required by the zoning classification of the site. Continued development and re-development activities in this transition corridor are expected to follow the established patterns. There are a couple of large undeveloped tracts on the oceanfront that previously featured multifamily structures. These structures were destroyed in 2003 during Hurricane Isabel. Re-development of these tracts consistent with the current zoning classification and future land use map designation is expected to occur in the next five years. Multifamily structures at a dwelling density of 4 units per acre as permitted are consistent with the Hatteras village transition corridor.

Manns Harbor – An area along Highway 64-264 has been designated Transition Corridor on the future land use map for Manns Harbor. This area is consistent with the area zoned MH-B on the Manns Harbor zoning map and all permitted uses in the MH-B district can be expected in this transition corridor area. The zoning districts established for Manns Harbor limit commercial uses to a maximum gross floor area of 20,000 square feet. Central water is currently not available in this area and on-site septic systems are used for wastewater treatment. Multifamily uses at a range of 3-6 units per acre depending on the soil composition are permitted in the MH-B zoning district and consistent in this future land use designation. The minimum lot size for newly platted lots served by private wells is 20,000 square feet.

Community

The purpose of the Community class is to provide for clusters of mixed land uses at low densities to help meet the housing, shopping, employment, and other needs of the less-densely populated areas of unincorporated Dare County. Central water is consistent with the Community classification to ensure a safe and viable drinking water supply although some of the villages assigned this classification are not located within the service boundary of a central water system. Minimum lot sizes are set at 20,000 square feet for new lots served by private wells and 15,000 square feet for areas


served by a central water system. A central water supply may be provided in these areas as noted in each area discussion. Central wastewater treatment facilities are not available except as noted in the individual village discussions and then only to serve specific areas where soil conditions preclude the use of on-site septic systems. The areas designated as Community are colored purple  on the future land use map. Individual village discussions are as follows:

East Lake – East Lake is largely rural in nature with a handful of commercial uses located along the US 64 highway frontage. Although the area is unzoned, a gross floor area of 20,000 square feet was established for East Lake in 2006. It is anticipated that a zoning map for East Lake will be adopted during the next 5-year planning period. Soil conditions are severely limiting in the East Lake community thus impacting the scope of future development activities. On-site septic tank/drainfield systems are used for wastewater treatment and private wells are used for potable water. Central water is not available in East Lake. Minimum lot sizes are set at 20,000 square feet for new lots served by private wells which equates to a dwelling density of 2 units per acre. The planned four-lane expansion of US 64 through the village is anticipated to result in some increased development activity however the poor soil conditions and lack of central water and wastewater facilities will serve as limiting factors.

Stumpy Point - Since the 2003 LUP update, a zoning map for Stumpy Point has been adopted by the Dare County Board of Commissioners. Residential development is limited to single family structures and mobile homes. Commercial uses are designed to serve neighborhood needs. Central water is available in Stumpy Point. Wastewater has historically been managed by on-site septic tank drainfield systems however a central wastewater collection and treatment facility is scheduled for completion in 2010 to mitigate existing public health concerns that exist in Stumpy Point due to the use of malfunctioning or outdated septic systems. The minimum lot size for newly platted lots is 15,000 square feet for lots served by central water/central wastewater. This equates to a density of less than 3 units per acre. Future development in the Stumpy Point area is anticipated to be limited by its remoteness from the more populated communities of Dare County. Residential homes with very limited commercial development is expected over the next planning period.

Community Village

This is a sub-classification of the Community classification that was developed during the 2003 land use plan update process. The purpose of this sub-class is to identify areas with a mixture of low-density residential dwellings, various commercial services and small retail businesses in a village environment. Water-related land uses and facilities such as boat building, fishing, fish processing and crabbing are characteristic of this sub-class. This sub-class seeks to preserve the unique mix of land uses that distinguish a non-urbanized coastal village and to prevent the introduction of urban influences or development that changes or overwhelms the existing patterns of land use by disrupting

the “village” environment. Land disturbing activities that alter or remove vast amounts of vegetation, alter natural drainage patterns, or which divert storm water into surface waters are considered incompatible with this sub-classification. Central water is appropriate as a means of insuring a water supply that is not vulnerable to fluctuations in the shallow water table and the introduction of pollution from on-site septic systems. Wastewater services are discussed in each individual community area for this classification. It is depicted as orange  on the future land use map.

Wanchese – All of the Wanchese tax district is classified as Community Village. Central wastewater treatment plants are not compatible with this sub-class except if located within the Wanchese Seafood Industrial Park for the facilities and operations internal to the Seafood Industrial Park. Since the 2003 update, a use-specific zoning map has been adopted for the Wanchese tax district. The Wanchese zoning map establishes zoning regulations for residential uses, not to include multifamily structures, at a minimum lot size of 20,000 square feet regardless of the source of potable water. This minimum lot size equates to a 2 unit per acre dwelling density. Dare County is currently in the planning and design stage of a central water system for Roanoke Island. Once complete (anticipated completion is 2012) all of Roanoke Island will be served by a central water supply. The commercial zoning districts for Wanchese include gross floor area limitations of 10,000 square feet as detailed in the individual zoning districts. Future development can be anticipated to continue to serve the needs of the residents and businesses of Wanchese.

Historical note -- Previous land use plan updates have addressed the land classification of the site of the Globe Fish Company docks in Wanchese and assigned the land class of “transition” to this site. This site is a natural deep water port and has been in use for shipping and harbor activities for hundreds of years. Commercial shipping activities at this site pre-date all regulatory activities and/or land-use planning documents in Dare County. This site continues to hold potential for commercial shipping, aquaculture, aquaculture related research facilities and loading and docking use. Given the historical nature of this site, the Transition classification is the appropriate land classification for the site despite the presence of indicators that might otherwise lead to the placement of the site in a more restrictive land classification. This area is not depicted on the future land use map for Wanchese due to the small scale of the map however this narrative shall serve as the definitive classification of the site.

Hatteras – the Community Village sub-class applies to those areas of Hatteras village located outside the transition corridor boundaries and zoned NH, RS-1, and R2-AH on the Hatteras village zoning map. Residential uses, include single family homes, mobile homes, and handful of commercial uses, including campgrounds, can be found in these areas. Evidence of the commercial fishing industry can be found throughout the Community Village areas of Hatteras. Central water is available from the Dare County central water system. Minimum lot sizes are 20,000 square feet if served by private wells and 15,000 square feet for lots served by central water for a range of 2-2.8 units per acre

depending on the connection to central water. Central wastewater is consistent with the Community Village sub-class if mandated by the zoning regulations that apply in Hatteras village. Future development patterns can be expected to follow the existing land use patterns with only minor development in the established residential areas. Development of campground areas and larger vacant tracts may occur in a pattern consistent with the Community Village category and the R2-AH zoning classification.


KDH Outside/Colington Several areas of Colington are designated as Commercial Village to reflect the commercial fishing history of the area. These areas are generally zoned as R-2B on the Colington zoning map. The existing uses are predominantly single family residences and mobile homes, many of which are located in mobile home parks. Central water is available from Dare County and wastewater is addressed through the use of individual on-site septic systems. Minimum lot sizes are 20,000 square feet if served by private wells and 15,000 square feet for lots served by central water for a range of 2-2.8 units per acre depending on the connection to central water. Multifamily structures are not compatible with the Community Village designation in Colington as supported by the associated zoning districts that apply in this area. Re-development of some of the mobile home parks may occur within the next five or ten years however such re-development will most likely be of a residential nature unless a change in the current zoning is secured by the property owners

Avon – The area of Avon known as old Kinnakeet village has been designated Community Village on the future use map for Avon. This reflects its rich history as a fishing village and the Community Village designation is consistent with the existing land use patterns found in this area of Avon. Most of the existing structures are single family homes, mobile homes, several churches and fish houses around the harbor area. There are a handful of small commercial uses and a campground which are consistent with the Community Village designation. Central water is available from Dare County and wastewater is addressed through the use of individual on-site septic systems. Minimum lot sizes are 20,000 square feet if served by private wells and 15,000 square feet for lots served by central water for a range of 2-2.8 units per acre depending on the connection to central water. Multifamily structures are not permitted by the zoning district that applies to this area of Avon. The future development of the area will continue to be residential development with limited commercial development designed to serve the community or associated with the fishing industry.

Manns Harbor/Mashoes The majority of Manns Harbor/Mashoes area has been classified as Community Village to reflect the existing land use patterns and compatibility with the zoning classification that applies to the area, MH-A. Most of the existing development consists of residential homes including mobile homes, several churches, boat building operations, a nursery/landscaping business, and a State ferry landing maintenance facility. Central water is currently not available in this area of Mainland Dare County and potable water is provided by the use of individual private wells. Wastewater is managed through the use of individual septic tank/drainfield systems. Multifamily

structures are not consistent in areas designated Community Village in Manns Harbor/Mashoes. The minimum lot size for new lots is 20,000 square feet for lots served by on-site private wells and septic systems. This equals a dwelling density of 2 units per acre. The existing pattern of mixed business uses and residential structures is expected to continue in Manns Harbor/Mashoes over the next several years.

Community Residential

This is a sub-class of the Community classification. The Community Residential classification is used to identify areas predominantly developed with low density residential dwellings. Other land uses may include small businesses, governmental services, educational services, and passive recreational activities associated with natural, cultural, and historic resources and facilities. Central water is appropriate in this sub-class as a means of ensuring a water supply to land uses identified as consistent with the zoning regulations. Central wastewater is currently not available in this district or currently identified as necessary to support the land uses identified for this land classification. This classification seeks to preserve the existing low density development and to prevent the introduction of land uses that are incompatible with the residential setting such as sand mining and other land disturbing activities that alter or destroy natural vegetation, topography, or drainage patterns. Land disturbing activities that alter or destroy existing natural vegetation, drainage, topography, and sand hills are not considered compatible and are discouraged. Prescriptive vegetation removal and best management practices of the NC Forest Service are encouraged. These areas are depicted as pink on the future land use map. 

Additionally, there are many areas that have been designated Community Residential that are platted subdivisions that feature established patterns of residential development that can be expected to continue. Development in these established, stable areas will occur on the remaining vacant platted lots consistent with the applicable residential zoning classification and any protective covenants enforced by private property owners and homeowners associations. The development will continue to be single family homes although it is recognized that some of the residential structures will be used as vacation rentals.

Roanoke Island – The Community Residential sub-class applies to the area of Roanoke Island generally known as “the north end” or the unincorporated portions of Roanoke Island north of the Town of Manteo boundary and the area south of the US 64-Highway 345 intersection known as Skyco. A majority of the area is comprised of existing platted subdivisions that can be described as “stable” neighborhoods. Residential structures, including multifamily structures are permitted according to the zoning map established for this area, in the range of 4-8 units per acre. The multifamily dwelling density limits are set by the applicable zoning classification. Pockets of commercially-zoned areas are located on the north end with permitted uses dedicated to neighborhood retail and service-oriented

uses except for the industrially-zoned area near the Dare County Detention Center. The Skyco area also features some commercial uses along Highway 345. A large tract of land has been purchased by the State of North Carolina in the Skyco area that will be developed as the University of North Carolina Coastal Studies Institute. The development of this campus is expected to occur within the next five years. Gross floor area limitations may apply according to the applicable zoning district. Most of the area relies on private wells for drinking water and on-site septic systems for wastewater. The minimum lot sizes range from 15,000 square feet for property served by a central water supply and 20,000 square feet for property using private wells for drinking water. Dare County is currently in the planning and design stage of a central water system for Roanoke Island. Once complete (anticipated completion is 2012) all of Roanoke Island will be served by a central water supply.

Martins Point – the Martins Point Subdivision is classified as Community Residential. Martin's Point is a stable neighborhood of mostly year-round residents. Permitted uses are limited by the MP-1 zoning district that was created for the residential portions of the Martin's Point Subdivision and include single family homes with customary accessory uses. No commercial uses are permitted in the MP-1 district. The minimum lot size is 15,000 square feet for lots connected to central water and 20,000 square feet for lots utilizing private wells for potable water. The density range is 2-2.8 units per acre depending on the type of water service. Central water is available in Martin's Point. Septic tank/drainfield systems are used for wastewater treatment.

KDH Outside/Colington – Several areas of KDH Outside/Colington have been designated as Community Residential with many of these areas featuring well established neighborhoods. Residential development is mostly year-round single family homes with some mobile homes and a small area of multifamily structures. The area is served by the Dare County central water system and is primarily dependent on septic tank systems for wastewater except for the Baycliff Subdivision which is connected to a small privately-owned package treatment plant and the Colington Pointe development which is served by a centralized wastewater system. The minimum lot size for new lots is 15,000 square feet with connection to a central water supply (approximately 2.8 units per acre).


Avon – An area in Avon has been classified as Community Residential due to its primarily residential nature and the residential zoning classifications applied to these areas. In the platted subdivisions, residential growth will continue on the vacant lots. Central water is available in all areas of Avon and all areas except for the Kinnakeet Shores Soundside Subdivision rely on individual on-site wastewater treatment systems, generally septic tanks. A privately-owned and operated package treatment plant serves the soundside portions of the Kinnakeet Shores Subdivision. Multi-family development in the R-2 zoned areas is consistent with the Community Residential category at dwelling densities of 6 units per acre as established by the Zoning Ordinance.

Buxton – A large area of Buxton has been classified as Community Residential. The Community Residential designation has been applied to those lands zoned R-1, R-2A, and R-3 on the Buxton zoning map. The Community Residential areas of Buxton are a mixture of single family homes and mobile homes. Central water is available from Dare County and wastewater is addressed through the use of on-site individual septic systems. Development in these areas will follow the established mixed patterns of single family homes and mobile homes. Minimum lot size is 15,000 square feet for newly divided lots that are served by central water. For those areas designated Community Residential and zoned R-3 on the Dare County Zoning map, multifamily structures are permitted at a dwelling density of 6 units per acre.

Frisco -- Some areas located in Frisco village have been designated Community Residential. Existing development in Frisco is influenced by the presence of the Buxton Woods maritime forest and its buffer area and the S-1 zoning district which permits all uses. The Community Residential designation has been applied to several existing platted subdivisions where private subdivision covenants restrict development to single family homes. Central water is available in Frisco from the Dare County water system. Minimum lot sizes are 20,000 square feet if served by private wells and 15,000 square feet for lots served by central water for a range of 2-2.8 units per acre depending on the connection to central water. Central wastewater is not available in Frisco and development relies on on-site individual wastewater systems for sewage treatment.


Hatteras – Those areas that are zoned R-2H in Hatteras village have been designated as Community Residential. This designation has been applied to reflect the existence of multifamily developments in the village and is consistent with the R-2H zoning which permits multifamily structures at a dwelling density of four units per acre.

Rural

The Rural classification is to identify those areas that may be used for agriculture, forestry, mineral extraction, or other land uses that because of their potential impacts on surrounding land uses should be located in a remote setting. Individual private wells and on-site wastewater systems are used in this classification. Central water and centralized wastewater treatment are currently not provided in this classification. Newly platted lots are based on a minimum square footage of 20,000 square feet or two units per acre. A central water supply to ensure a safe drinking water source would be appropriate. This classification is depicted on the future land use map as blue hashed areas. 


For unincorporated Dare County, the rural classification has been applied to several tracts of land on the Mainland due to their remote location from surrounding neighborhoods or the existing land use. The Dare County landfill located on Highway 264 is included in the Rural classification.

Conservation

The purpose of this classification is to provide for the effective long-term management and protection of significant, limited, or irreplaceable areas. Management of the areas is needed due to the natural, recreational, scenic, or natural productive values of such lands. Development is not encouraged on privately-owned Conservation-classified lands. When authorized, development should be limited to residential development and traditional accessory uses permitted in the CAMA AECs such as but not limited to piers, docks, and crab-shedders. Development by federal agencies is exempt from local zoning regulation. However, Dare County encourages federal agencies to consider impacts on adjoining lands and Dare County's communities. Urban-style services are considered incompatible with the Conservation land class. Land disturbing activities should not occur unless in conjunction with an authorized development. Permitted density for residential development range from 2 to 2.8 units per acre depending on the availability of central water. Authorized development should include provisions and conditions that minimize impacts to any natural, cultural, historic, and scenic values of the areas authorized for development. Conservation areas are depicted in the color green. 

This classification applies to all CAMA AECs and all federal lands except for the bombing ranges on the Mainland and some state-owned lands in Frisco and Buxton. The bombing range area is denoted on the future land use map as "other federal lands" and activities in this area are regulated and managed by the U.S. Department of Defense. This designation was done at the request of the Department of Defense in the 2003 update and has been included again in this latest update. The State-owned property in Buxton and Frisco that comprises the Buxton Woods Coastal Preserve has also been designated with the Conservation class.

Limited Conservation

This is a sub-class of the Conservation classification. The purpose of this sub-class is to provide for the management and long-term viability of essentially undeveloped land that is compatible with a limited range of uses according to specific guidelines. Land placed in this sub-class includes maritime forests. Limited Conservation appears on the future land use map as color  brown .

Buxton/Frisco All privately-owned lands in the villages of Frisco and Buxton that are zoned SED-1 or privately-owned lands located in the SED-1 buffer area are classified as Limited Conservation. The SED-1 zoning districts are depicted on the Buxton and Frisco zoning maps. The SED-1 buffer area is described in the Dare County Zoning Ordinance. Development in Limited Conservation areas shall be consistent with the SED-1 zoning regulations for those areas zoned SED-1. For the SED-1 buffer, development activities shall be consistent with the standards of the SED-1 buffer and other applicable zoning regulations. The minimum lot size for SED-1 zoned property is 40,000 square feet, one unit per acre. Land clearing is restricted in the SED-1 zoned areas and the SED-1 buffer area. The minimum lot size in the SED-1 buffer areas is 15,000 square feet if connected to a central water supply and

20,000 square feet if utilizing private wells. Central water is available in the Buxton and Frisco areas from the Dare County water system. Wastewater services are generally provided by on-site individual wastewater systems.

Mainland – One area on the Mainland has been designated as Limited Conservation. The area is currently undeveloped and consists mainly of marshland area.

Future Land Use Needs

Tables 33-37 on the following pages are acreage totals from the future land use maps and comparisons to the projected land use needs calculated in Section 1. The CAMA guidelines require such estimates to demonstrate consistency with the future land use projections. Table 25 in Section 1 projects a total of 11,935 acres of land will be developed in the year 2030. In analyzing the acreage totals for each FLUM category, some assumptions have been made regarding the rate and patterns of future development in unincorporated Dare County as follows:

- Based on the current economic situation in Dare County and elsewhere, development is not expected to occur at the robust rate experienced from 2000-2006. Development activities, as evidenced by building permit activity, have decreased substantially since 2006.
- The County does not anticipate a full build-out within the planning period. It should be empathized that these projections are designed to provide a general picture of where development can occur and is expected to occur during the next planning period and do not represent any stated preference or non-preference of Dare County.
- As noted in Section 1 in Table 25, 68% of the existing development is residential, 12% is commercial land uses and 20% is institutional uses. Much of the institutional development that occurred in the last decade involved the construction of schools in unincorporated Dare County and the construction of County facilities on Roanoke Island and Hatteras Island. These facilities are designed to serve the needs of the educational system and the governmental needs for the next decade and beyond. The rate of institutional development is not expected to occur at the pace previously cited in Section 1. It is anticipated that the majority of future development will continue to be residential with some commercial development. Commercial development in the municipalities will continue to supplement the retail and service needs of the unincorporated areas.

Table 36 includes projections for development in each FLUM category. It is anticipated that there will little or no development in the Conservation land use class. In the Rural class, development activities are anticipated to be minimal over the next planning period. Although some development activities are compatible in these areas as detailed in the narrative sections for Conservation on page 217, most of the lands designated as Conservation are federally-owned lands of the Department of Interior or if privately-owned are limited by federal and state development regulations for wetlands. Based on these factors, no developed acreage amounts are included in Table 36 for the Conservation

class. For the Rural class, only a 2% increase in the total amount of land development rate is included in Table 36.

The areas designated as Limited Conservation may experience some development, especially in the Buxton Woods area, but such development will be residential as established by the SED-1 zoning that applies to the majority of Buxton Woods. An estimated development rate of 10% is anticipated for the Limited Conservation areas.

The Other Federal Lands future land use designation has been included at the request of the Department of Defense for the military bombing ranges on the Mainland of Dare County. No acreage for this classification has been indicated in Table 36 since it does not represent opportunities for private sector development purposes

The majority of commercial development is expected to take place in those areas designated as Transition Corridor on the FLUM. Based on historical patterns of development, commercial land uses represent a smaller percentage of development than residential or institutional development. A total development percentage of 75% is estimated in Table 35 for the Transition Corridor class. Residential and institutional uses may occur in the Transition Corridor area as consistent with the Dare County zoning regulations.

For the Community future land use designation, a development rate of 20% has been used. Some development, mostly residential, may occur in the Community classed areas on the Mainland but it is not anticipated to occur at the higher rates that have been used for the other areas of Dare County. Poor soil conditions, low elevations, and the rural nature of the areas designated Community are the reasons for the lower rate.

For the Community Village and the Community Residential classifications, a 45% estimated and 70% development rate has been applied in Table 35 Based on existing developed land use percentages These two classifications account for the majority of unincorporated Dare County and will most likely areas to experience significant development over the next planning period. The majority of the development will be residential in nature although commercial and institutional uses may also occur as permitted by the Dare County zoning regulations.

As previously stated, the estimated development rates used in Table 36 are simply estimates prepared by Dare County and development activities may occur at rates that are greater or less than the rates provided in Table 36. These percentage rates should not be used for permit decisions by property owners, federal or state permitting agencies or other parties.

Table 33 Acreage Calculations for the FLUM Classifications

	T Corr	Comm	C Vlge	C Rsd.	Cons	L Cons.	O Fed	Rural	TOTAL
Colington	125	0	516	943	416	0	0	0	2000
Martins Point	0	0	0	294	0	0	0	0	294
Rodanthe	233	0	0	206	3	0	0	0	442
Waves	226	0	0	119	50	0	0	0	395
Salvo	329	0	0	137	105	0	0	0	571
Avon	108	0	328	736	141	0	0	0	1313
Buxton	444	0	0	494	3714	391	0	0	5044
Frisco	581	0	0	226	1703	445	0	0	2955
Hatteras	215	0	509	114	51	0	0	0	890
R Island	111	0	2657	3530	5055	0	0	0	11353
Mainland	177	2940	3106	0	132030	3920	44515	1104	187792
TOTAL	2551	2940	7116	6799	143268	4756	44515	1104	213049

Table 34 FLUM Category Acreages/ Percentages

FLUM	Acres	% of Total
Transition Corridor	2551	1.2 %
Community	2940	1.4%
Community Village	7116	3.3%
Community Residential	6799	3.2%
Conservation	143268	67.3%
FLUM	Acres	% of Total
Limited Conservation	4756	2.2%
Rural	1104	0.5%
Other Federal	44515	20.9%
TOTAL	213049	100.0%

Table 35 – FLUM Designations Compared to Existing Use Classifications

FLUM Designation	Existing Use Classification	Acres in Use	Percentage	Total Acres
Transition Corridor	Undeveloped	927	36%	927
	Residential	874		
	Non-residential	750	64%	1624
		2551	100%	2551

FLUM Designation	Existing Use Classification	Acres in Use	Percentage	Total Acres
Community	Undeveloped	2410	82%	2410
	Residential	470		
	Non-residential	60	18%	530
		2940	100%	2940
Community Village	Undeveloped	4632	65%	4632
	Residential	2148		
	Non-residential	336	35%	2484
		7116	100%	7116
Community Resd.	Undeveloped	2456	36%	2456
	Residential	3515		
	Non-residential	828	64%	4343
		6799	100%	6799
Rural	Undeveloped	375	34%	375
	Residential	11		
	Non-residential	718	66%	729
		1104	100%	1104
Limited Conservation	Undeveloped	4368	92%	4368
	Residential	329		
	Non-residential	59	8%	388
		4756	100%	4756
Conservation	Public	143268		143268
Other Federal		44515		44515
		213049		213049

The existing use categories in Table 35 are defined as residential – single-family homes, duplexes, multifamily, mobile homes and mobile home parks; non-residential -- commercial, industrial, institutional uses including improved federal, state, and local properties; undeveloped --all vacant, privately-owned land; and public -- all undeveloped federal, state or county property.

Table 36 Comparison of FLUM and Projected land Needs

	Column A	Column B	Column C	Column D	Column E	Column F
FLUM	TOTAL in Development 2010	Total in Development 2030	Residential	Non-residential	Undeveloped	TOTAL
Transition Corridor 2551 Acres	1624 acres (64%)	1913 acres (75%)	1030 acres	883 acres	638 acres	2551 acres
Community 2940 acres	530 acres (18%)	588 acres (20%)	521 acres	67 acres	2352 acres	2940 acres
Community Village 7116 Acres	2484 acres (35%)	3202 acres (45%)	2769 acres	433 acres	3914 acres	7116 acres
Community Residential 6799 acres	4343 acres (64%)	4759 acres (70%)	3852 acres	907 acres	2040 acres	6799 acres

	Column A	Column B	Column C	Column D	Column E	Column F
FLUM	TOTAL in Development 2010	Total in Development 2030	Residential	Non-residential	Undeveloped	TOTAL
Rural 1104 Acres	729 acres (66%)	750 acres (68%)	32 acres	718 acres	354 acres	1104 acres
Limited Conservation 4756 acres	388 acres (8%)	476 acres (10%)	413 acres	63 acres	4280 acres	4756 acres
Conservation (3) 143268 acres	0	0	0	0	0	143268 acres
Other Federal 44515 acres (3)	0	0	0	0	0	44515 acres
213049 acres	10098	11688	8617	3071	13578	213049
Projected acres in development from Table 25		11935	8116	3819		

Notes for Table 36

1. Column A is from Table 35 acres dedicated to residential and non-residential development
2. The estimated acres in Column C and Column D are based on the ratio of development established in Table 35. For example, in the Transition Corridor residential land use of represents 54% of the 1624 acres in development in 2010. This percentage was applied to the estimated year 2030 of development of 1913 acres for a total of 1030 acres.
3. No development anticipated for these two classifications
4. Total taken from Table 25, Section I Projected Acres in Development in 2030
5. In Table 35 are defined as residential – single-family homes, duplexes, multifamily, mobile homes and mobile home parks; non-residential -- commercial, industrial, institutional uses including improved federal, state, and local properties; undeveloped --all vacant, privately-owned land; and public -- all undeveloped federal, state or county property.

As evidenced by the totals in Table 36, the amount of land estimated for development is 11688 acres which is less than the projected total from table 25 of 11935 acres.

Table 37 was produced at the request of the CAMA officials. Its purpose is to estimate the potential water users in unincorporated Dare County in the year 2030. This information is not intended to be used for permitting decisions by the local officials or by state or federal agencies. It is also not intended to conflict with any water usage information that may be produced by the Dare County Water Department. The information included in the table is to illustrate projected utility users based on the future land use estimates provided in this document as requested by the Division of Coastal Management. These future land use predictions are not intended to be used for infrastructure planning or capital improvements planning by Dare County but represent general estimations to demonstrate the ability to support the County's future land use needs.

Table 37 – Estimated Utility Demand 2030

	Column A	Column B	Column C	Column D	Column E	Column F
	Estimated Acreage in Development 2030 (1)	Estimated Development	Average Dwelling Unit per Acre	Total Projected Residential Users (B x C)	Total Projected Non-residential Users (B x D)	Projected Water Demand MGD (2)
FLUM Designations						
Transition Corridor	1913 acres					
Transition Corridor (residential)		1030 acres	2.5 units	2575		0.515
Transition Corridor (non-residential)		883 acres	2.5 units		2207	1.103
Community	588 acres					
Community (residential)		521 acres	2.0 units	1176		0.235
Community (non-residential)		67 acres	2.0 units		134	0.067
Community Village	3202 acres					
Community Village (residential)		2769 acres	2.0 units	5538		1.107
Community Village (non-residential)		433 acres	2.0 units		866	0.433
Community Residential	4759 acres					
Community Residential (residential)		3852 acres	2.0 units	7704		1.541
Community Residential (non-residential)		907 acres	2.0 units		1814	0.907
Rural (4)	750 acres	750 acres	2.0 units	n/a	n/a	n/a
Lmtd Conservation (6)	476 acres					
Lmtd Conservation (residential)		413 acres	1.0 unit	413		0.082
Lmtd Conservation (non-residential)		63 acres	1.0 unit		63	0.031
TOTALS	11688	11688		17406	5084	6.021

NOTES for Table 37

1 – Developed acreage amounts taken from Table 36, Column B

2 – Based upon an average consumption of 200 gpd for residential users and 500 gpd for non-residential users.

3 – Non-residential includes commercial, industrial and institutional users

4 – All land classified as Rural is located outside of the service district of a central water supply.

5 – The only County operated wastewater treatment plant is located in Stumpy Point, a 50,000 gpd facility.

Analysis of Policies and Future Land Use Map

The CAMA guidelines require that local governments analyze their policies and the future land use maps for consistency with land use ordinances and local zoning districts. Matrix 7 includes those policies that have been determined by the Planning staff to have a direct relationship to the zoning and subdivision ordinances. A ranking of general consistency, conditional consistency, or inconsistency, or not applicable has been used. Those policies that do not have a direct relationship to the zoning or subdivision ordinance have been listed as not applicable.

The density and intensity of each future land use category used on the future land use maps must also be analyzed. Matrix 8 illustrates the density and intensity standards of each future land use map category. Six items are listed for each category: infrastructure/services which details the availability of central water and wastewater services; the minimum lot size for each category; the dwelling density per acre for those categories in which multifamily structures are consistent with the future land use category; and multifamily structures are permitted by the applicable zoning district; commercial floor area limitation for each land use category; a range of building heights permitted in the category; and a range of maximum lot coverage for each category. The information included in this matrix is for illustrative purposes and has no bearing on permit decisions for CAMA permits or federal consistency determinations. This information is not intended to serve as statements of support (or non-support) for development proposals but merely to reflect the information as currently contained in the Dare County Zoning Ordinance. This information is not intended for the purposes of “consistency determinations” in the consideration of zoning ordinance amendments, subdivision ordinance amendments, or other land use decisions that may be considered by the Dare County Board of Commissioners subsequent to the adoption of the 2009 Land Use Plan.

The CAMA guidelines also require local governments to perform an analysis of the relationship of the policies and future land use map designations to zoning regulations and subdivision regulations. Some of the policies in the 2009 update do not relate to the regulations of the zoning and/or subdivision ordinances. This is especially true of the policies included in the local areas of concern management topic while other management topics have a direct relationship to the zoning and subdivision ordinances. Matrix 9 has been provided to illustrate the consistency of the future land use map categories with the existing zoning regulations in each community of unincorporated Dare County. A status ranking of general consistency, conditional consistency, inconsistency, and not applicable has been indicated beside each zoning district title. These rankings indicate the status level of the zoning district relative to the future land use map category. A majority of the rankings indicate general consistency between the future land use map designation and the individual zoning districts for each village. There are three instances where a ranking of conditional consistency has been indicated. The villages of Rodanthe, Waves, and Salvo are zoned S-1, which permits all uses. A future land use designation of community residential has been applied to those existing platted residential

subdivisions. The ranking of conditional consistency has been assigned to reflect the broad scope of uses permitted by the S-1 zoning classification although the existing land use patterns in the community residential areas is predominantly single family homes in platted subdivisions that are also subject to subdivision restrictive covenants for residential use. In Frisco village, the S-1 zoning applies to all areas except for the Buxton Woods maritime forest which is zoned SED-1. A ranking of conditional consistency has been applied to the areas zoned S-1 but designated community residential on the future land use map to reflect the expansive nature of the S-1 zoning relative to the areas designated community residential due to the established land use patterns of single family homes in platted subdivisions which are further restricted by private subdivision covenants. The conditional consistency has also been applied to the areas of Frisco subject to the SED-1 buffer. Although these areas are zoned S-1, they are subject to the land clearing restrictions and dwelling density limitations that do not apply district-wide to the other S-1 zoned areas. The conditional consistency rank is used to indicate the presence of the SED-1 buffer restrictions and the limited conservation future land use designation which apply although the area maybe zoned S-1, which permits all uses.

Comparison of Environmental Composite Map, Land Suitability Map and the Future Land Use Maps

In comparing the Environmental Composite Map with the Land Suitability Map there are no material differences in between these two maps. All areas depicted as Class 3 on the Environmental Composite Map have been depicted as Unsuitable Due to Regulatory Protection on the Land Suitability Map. These areas are generally coastal and/or estuarine wetland areas that are under the regulatory jurisdiction of the Army Corps of Engineers and/or the Division of Coastal Management. Development proposals in these wetland areas are subject to review by these federal and state agencies according to strict guidelines, if development is allowed to occur at all. Site specific mapping of wetland areas is performed by field personnel on a site-by-site basis at the time a site is under consideration for permits by these agencies.

On the Future Land Use Maps, some wetland areas that would ordinarily be protected from development or classified as “conservation” are shown as Community, Community Residential, Community Village, or Transition Corridor for ease of interpretations of the Future Land Use Map since wetland areas must be mapped by field personnel on a site specific basis. The wetland areas and their development potential are typically limited by federal and state regulations regardless of the Future Land Use Map designation assigned by Dare County. In some instances, tracts of land may contain both wetland areas and suitable land for development and can be developed in a manner that protects the wetland areas. The future land use map designations are applied to recognize such situations and that fact that wetlands must be mapped on a case-by-case site specific basis. The review process for site plans and subdivision plans by Dare County will be used to ensure that all federal and state

agencies have been involved to the extent necessary based on individual site characteristics and natural resources impacts.

In addition, the definition of a “wetland” has been known to change based on policy directives at the federal level and administered by the U.S. Army Corps of Engineers. This makes the mapping of broad areas of wetlands almost impossible, prompting the apparent conflict between the maps that is resolved by site specific evaluations at the time land is proposed for development.

Rodanthe, Waves, Salvo

- Conservation
- Community Residential
- Transitional Corridor

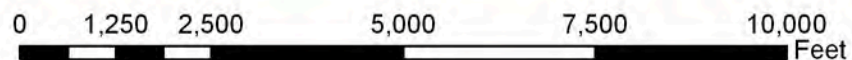


RODANTHE





WAVES

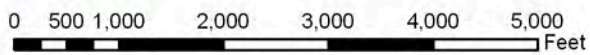
SALVO

<i>ACRES</i>	Rodanthe	Waves	Salvo	Total
Transitional Corridor	232.62	225.54	329.44	787.6
Community Residential	205.94	118.65	137.11	461.7
Conservation	2.5	49.5	104.63	104.63

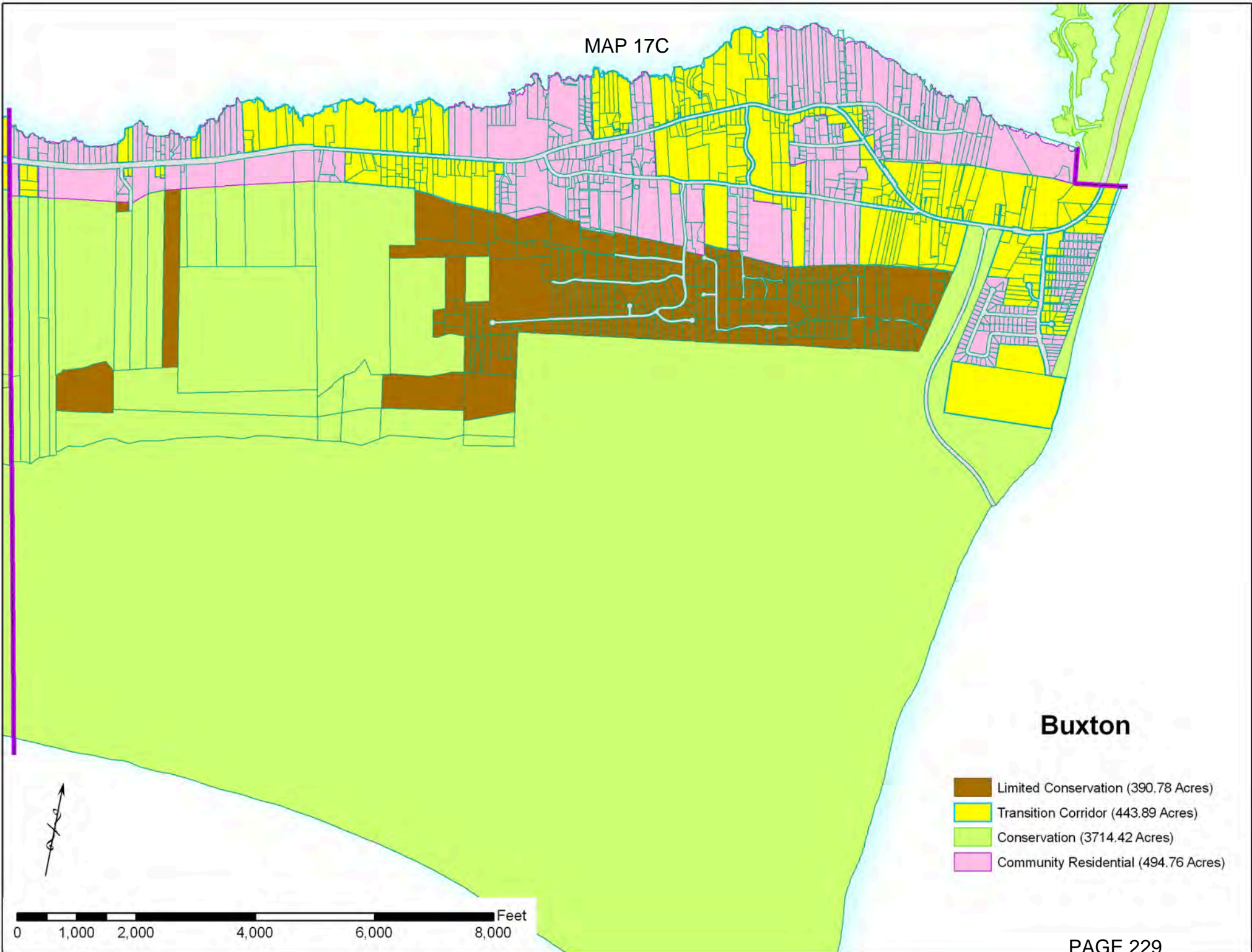


Avon





-  Community Residential (736.18 Acres)
-  Transition Corridor (108.28 Acres)
-  Community Village (328.32 Acres)
-  Conservation (140.58 Acres)



MAP 17C



Buxton




-  Limited Conservation (390.78 Acres)
-  Transition Corridor (443.89 Acres)
-  Conservation (3714.42 Acres)
-  Community Residential (494.76 Acres)

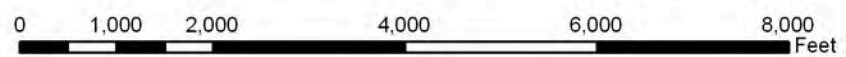
0 1,000 2,000 4,000 6,000 8,000 Feet

Frisco

MAP 17D



-  Transition Corridor (580.76 Acres)
-  Community Residential (226.38 Acres)
-  Limited Conservation (444.96 Acres)
-  Conservation (1702.67 Acres)



Hatteras

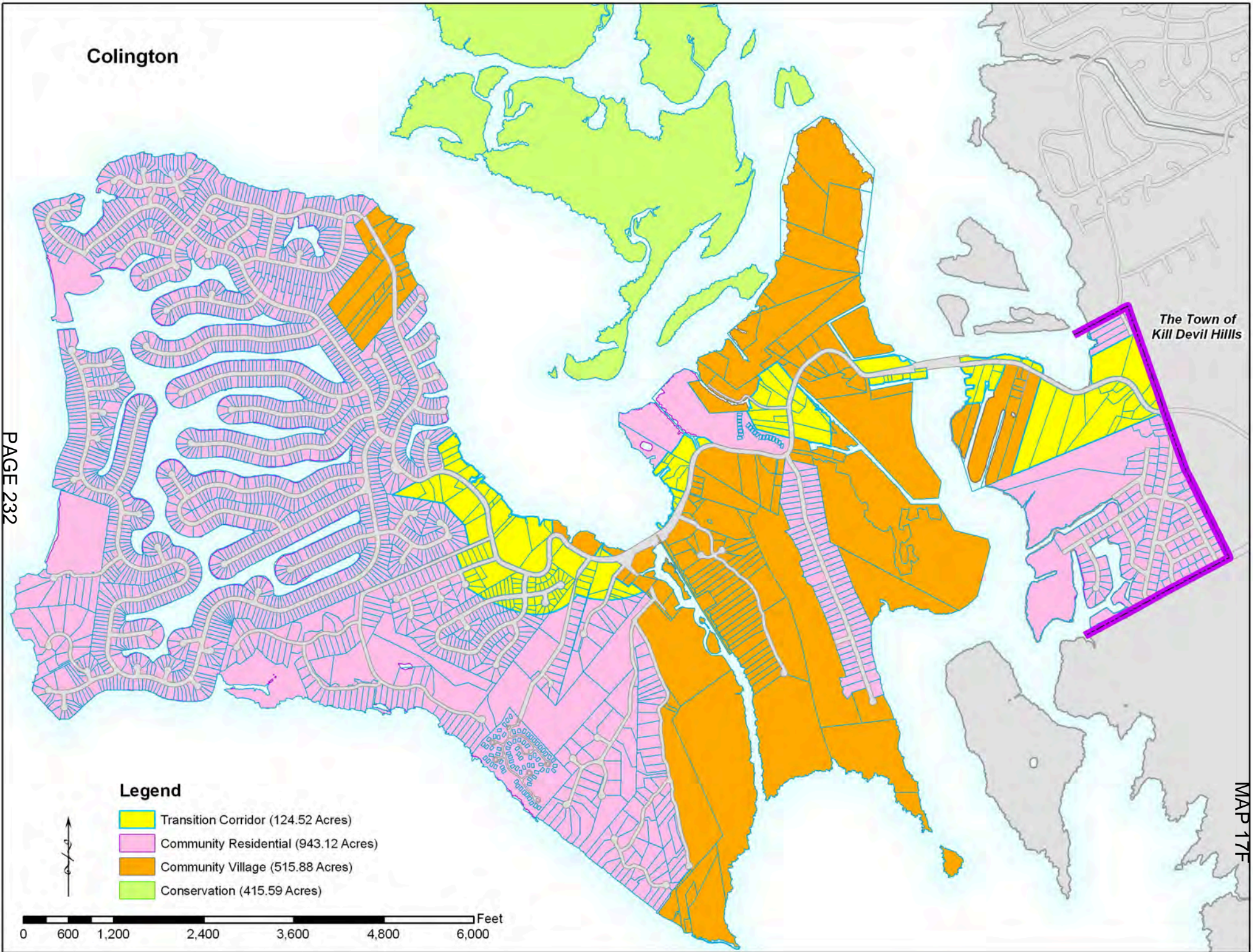


Legend





- Conservation (50.65 Acres)
- Transition Corridor (215.92 Acres)
- Community Village (509.32 Acres)
- Community Residential (114.45 Acres)

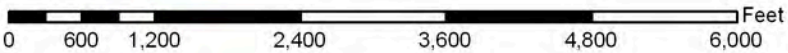


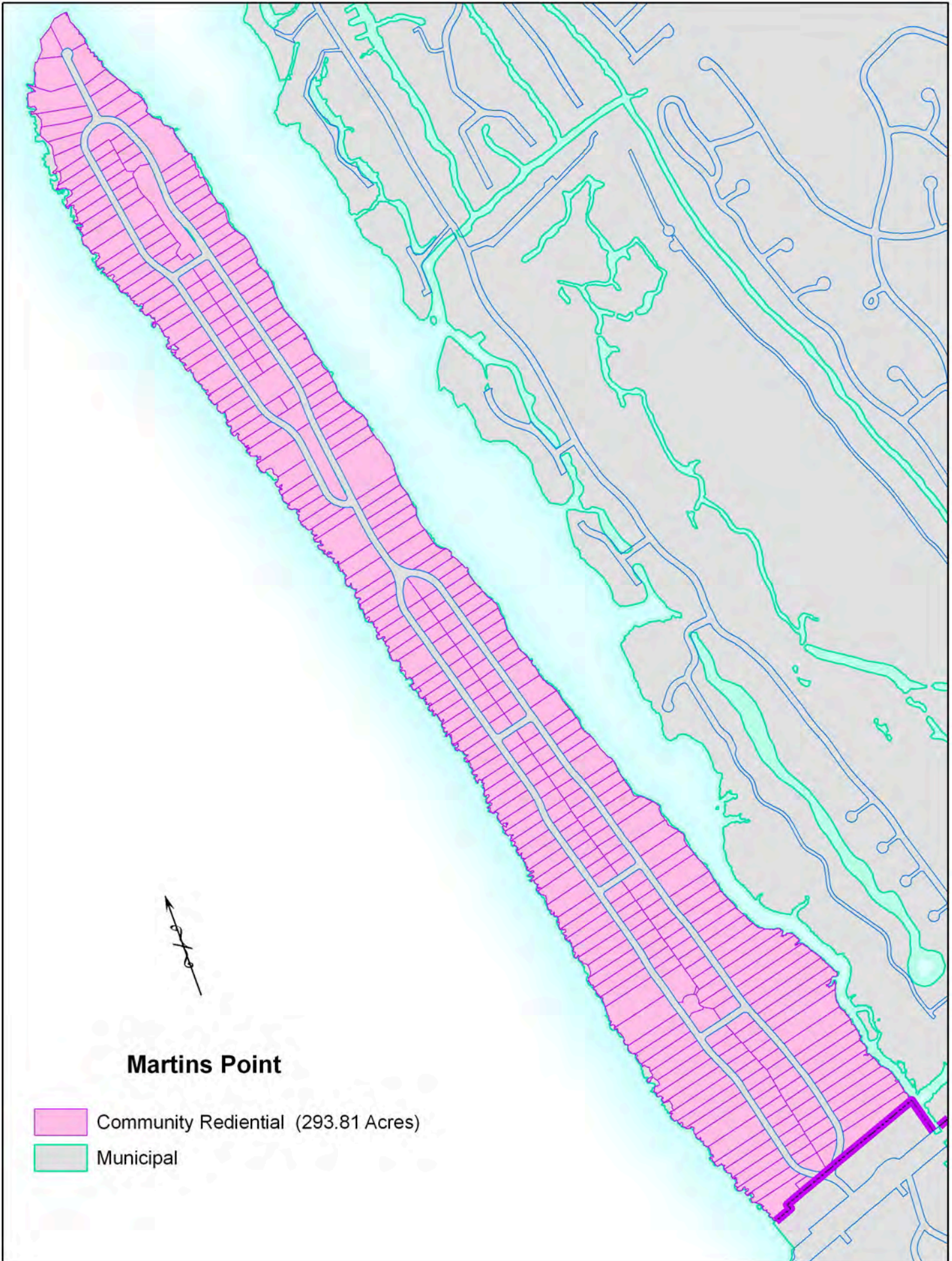
Colington





Legend

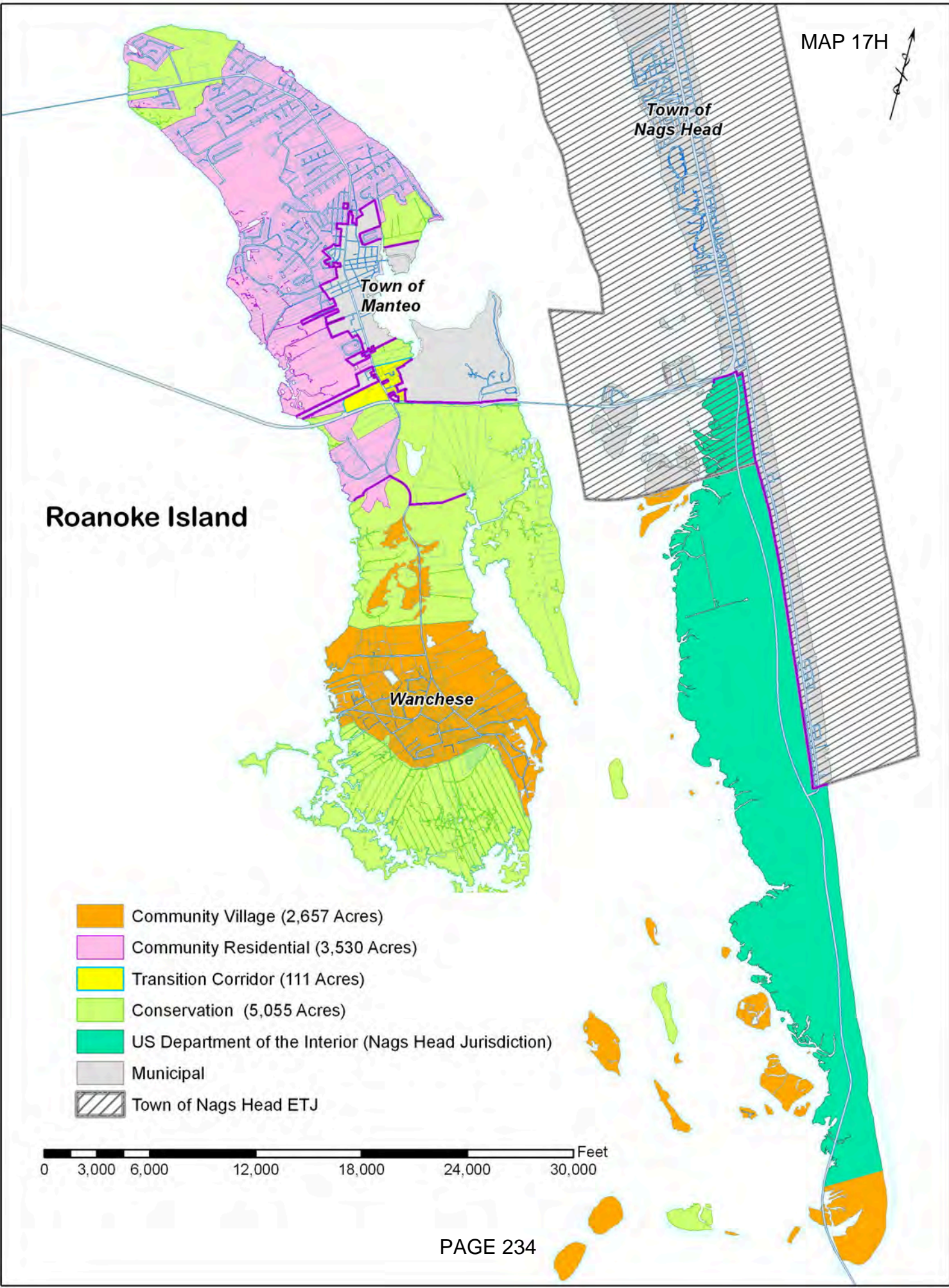
-  Transition Corridor (124.52 Acres)
-  Community Residential (943.12 Acres)
-  Community Village (515.88 Acres)
-  Conservation (415.59 Acres)





Martins Point

-  Community Residential (293.81 Acres)
-  Municipal










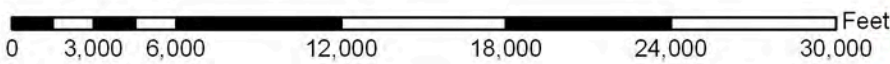
Roanoke Island

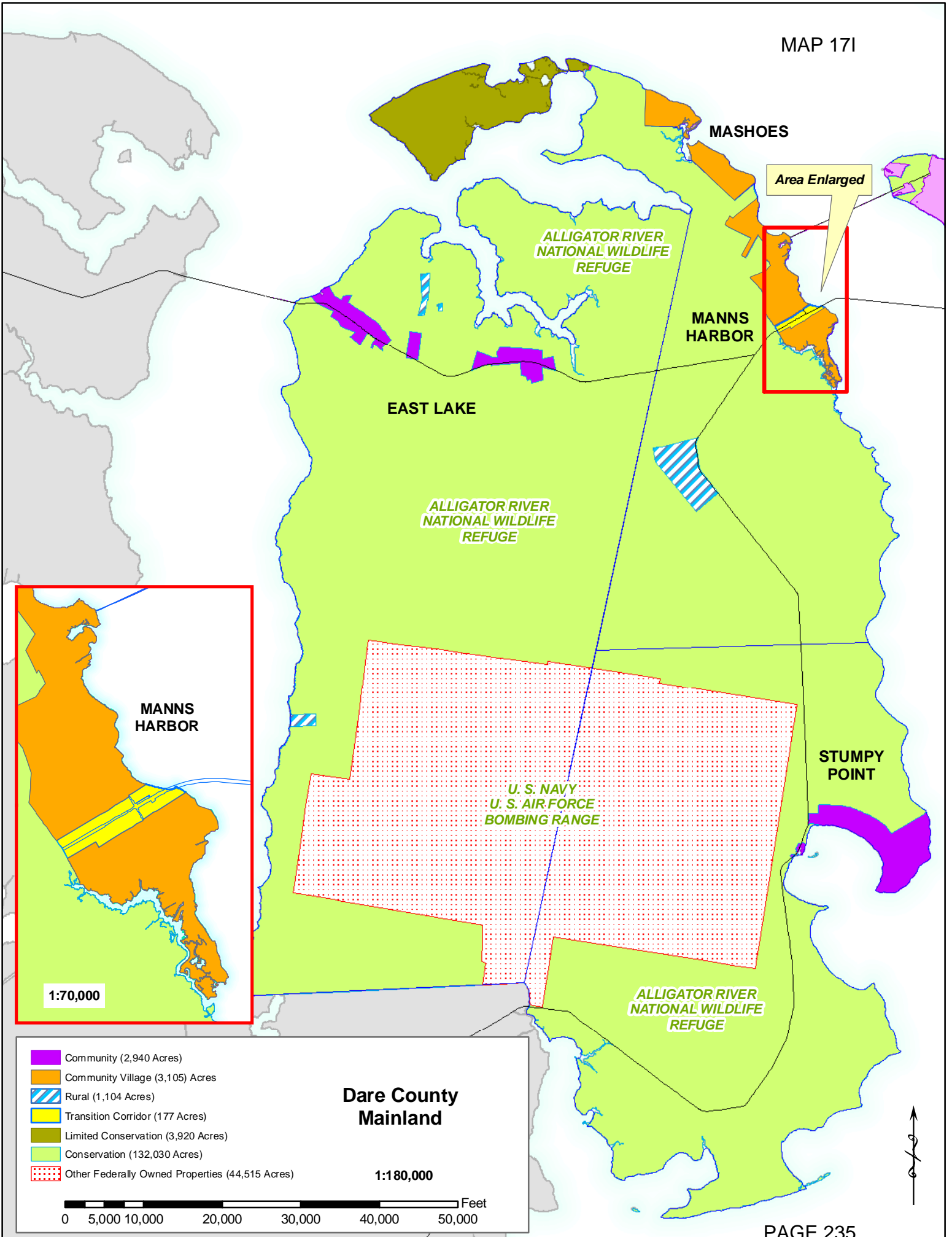
Town of Manteo

Town of Nags Head

Wanchese

-  Community Village (2,657 Acres)
-  Community Residential (3,530 Acres)
-  Transition Corridor (111 Acres)
-  Conservation (5,055 Acres)
-  US Department of the Interior (Nags Head Jurisdiction)
-  Municipal
-  Town of Nags Head ETJ





RELATIONSHIP OF POLICIES TO ZONING REGULATIONS		
Status: general consistency, conditional consistency, inconsistency, and not related		
MANAGEMENT TOPIC – PUBLIC ACCESS POLICIES	STATUS	COMMENTS
PA #1 preservation and protection of access to public trust areas and waters	Not related	
PA#2 reserves right to oppose or support any federal or state programs that affect access	Not related	
PA #3 recognizes importance of shoreline access and seeks to expand opportunities	Not related	
PA #4 importance of ORV access and opposition to prohibit beach driving	Not related	
PA#5 Bonner Bridge replacement with access to all areas	Not related	
PA #6 protect of working waterfronts	Not related	
PA # 7 beach nourishment support	Not related	
PA # 8 Access to wildlife areas	Not related	
MANAGEMENT TOPIC – LAND USE COMPATIBILITY	STATUS	COMMENTS
LUC#1 importance/preservation of coastal village heritage	General Consistency	Supported by current standards
LUC#2 Development should reflect coastal heritage in design and site features	General Consistency	Possible ordinance amendments included as implementation strategy
LUC#3 Preferred residential development	General Consistency	Supported by current standards
LUC#4 alternative opportunities to address workforce housing needs	General Consistency	Supported by current standards
LUC#5 encourages locally-owned business	General Consistency	Supported by current standards
LUC #6 commercial development should be village-oriented, not regional	General Consistency	Supported by current standards
LUC#7 Commercial development should reflect coastal heritage, not franchise designs	General Consistency	Possible ordinance amendments included as implementation strategy
LUC #8 redevelopment should be consistent with applicable codes	General Consistency	Supported by current standards
LUC #9 Industrial development should be sensitive to environment; commercial fishing, boat building recognized as consistent with coastal heritage.	General Consistency	Supported by current standards
LUC #10 Diversification of local economy such as medical services, and educational-research facilities	Not related	
LUC #11 potential conflicts with airports on surrounding areas.	General Consistency	Possible ordinance amendments included as implementation strategy
LUC #12 expansion of bombing range	Not related	
LUC #13 administration of dune alteration standards	General Consistency	Supported by current standards
LUC #14 tree clearing and land disturbance done in responsible manner	General Consistency	Possible ordinance amendments included as implementation strategy
LUC #15 protection of historical and significant lands, structures, and artifacts	General Consistency	Supported by current standards
LUC #16 evaluation of additional land by public agencies	Not related	

RELATIONSHIP OF POLICIES TO ZONING/SUBDIVISION REGULATIONS		
Status: general consistency, conditional consistency, inconsistency, and not related		
MANAGEMENT TOPIC – LAND USE COMPATIBILITY	STATUS	COMMENTS
LUC #17 administration of SED-1 zoning	General Consistency	Supported by current standards
LUC #18 commercial forestry to be consistent with BMPs	Not related	
LUC #19 BMPs for agricultural uses	Not related	
LUC #20 Opposes wholesale livestock operations	Not related	
MANAGEMENT TOPIC – INFRASTRUCTURE CARRYING CAPACITY	STATUS	COMMENTS
ICC#1 Minimum lot size not reduced due to use of central wastewater treatment	General Consistency	Supported by current standards
ICC#2 Maintenance of private wastewater treatment plants	Not related	
ICC#3 on—site wastewater treatment and off-site centralized treatment	General Consistency	Supported by current standards
ICC#4 drip-irrigation wastewater treatment facilities	Conditional Consistency	Possible ordinance amendments included as implementation strategy
ICC#5 provision of public services	General Consistency	Supported by current standards
ICC #6 replacement of Bonner Bridge	Not related	
ICC#7 regional transportation needs	Not related	
ICC #8 development of sidewalks, and bike paths	Not related	
ICC #9 new subdivision streets	General Consistency	Supported by current standards
ICC #10 regional solid waste participation	Not related	
ICC #11 opposition to petro-chemical. In jurisdictional lands or waters	Not related	
ICC #12 national energy policy	Not related	
ICC #13 alternative energy sources	Conditional Consistency	Possible ordinance amendments included as implementation strategy
MANAGEMENT TOPIC – NATURAL HAZARDS	STATUS	COMMENTS
NH#1 oceanfront development	General Consistency	Supported by current standards
NH#2 estuarine shoreline development	General Consistency	Supported by current standards
NH#3 support for bulkheads and other shoreline erosion methods	Not related	
NH#4 development of estuarine island	General Consistency	Supported by current standards
NH#5 Federal flood insurance program	General Consistency	Supported by current standards
NH#6 construction techniques to address flood and erosion	General Consistency	Supported by current standards
NH#7 full-time local emergency management office	Not related	
NH#8 recovery priority of infrastructure	Not related	
NH #9 mitigation of repetitive losses	Not related	
NH#10 priority ranking for permits following a storm	Not related	
NH #11 relocation of sand following a storm event	Not related	
NH #12 sea level rise	Not related	

RELATIONSHIP OF POLICIES TO ZONING/SUBDIVISION REGULATIONS		
Status: general consistency, conditional consistency, inconsistency, and not related		
MANAGEMENT TOPIC – WATER QUALITY	STATUS	COMMENTS
WQ#1 effects water quality of inland regions	General Consistency	Supported by current standards
WQ#2 development designed for minimal impacts on water quality	General Consistency	Supported by current standards
WQ#3 protection of groundwater resources	General Consistency	Supported by current standards
WQ#4 local management of stormwater	General Consistency	Supported by current standards
WQ#5 stormwater regulations based on local conditions and reflect local zoning standards	General Consistency	Supported by current standards
WQ#6 public health issue of standing water and mosquitoes	Not related	
WQ#7 protection of coastal wetlands	General Consistency	Supported by current standards
WQ#8 Corps nationwide permit program	Not related	
WQ #9 wetland mitigation	Not related	
WQ#10 bulkheads and other erosion control methods	Not related	
WQ #11 protection of ecosystems for commercial fisheries	Not related	
WQ #12 regulation of commercial fisheries by state and federal agencies	Not related	
WQ#13 aquaculture	Not related	
WQ#14 commercial fishing and vehicular access	Not related	
WQ#15 marina development	General Consistency	Supported by current standards
WQ#16 floating homes and structures	General Consistency	Supported by current standards
MANAGEMENT TOPIC – LOCAL AREAS OF CONCERN	STATUS	COMMENTS
LAC#1 importance of ORV access to beaches	Not related	
LAC#2 expansion of federal/state programs	Not related	
LAC#3 impacts of vast amounts of public lands on Dare County	Not related	
LAC#4 fast-tracking of public purpose projects through federal and state review	Not related	
LAC#5 federal/state consideration of adjacent land uses	Not related	
LAC#6 support for eco-tourism	Not related	
LAC#7 quality of life issues for permanent population	Not related	
LAC#8 importance of tourism to area	Not related	
LAC#9 public participation in land use planning	General Consistency	Supported by current standards
LAC #10 support for dredging and channel maintenance	Not related	
LAC#11 maintenance of Oregon Inlet	Not related	
LAC#12 acquisition of Buxton Coast Guard base	Not related	
LAC #13 insurance rates in Dare County	Not related	

FUTURE LAND USE MAP	DEVELOPMENT INTENSITY/DENSITY			
	INFRASTRUCTURE/SERVICES	MINIMUM LOT SIZE	MULTIFAMILY DENSITY	COMM. FLOOR AREA LIMIT
TRANSITION CORRIDOR	Central Water service is available Central Wastewater is available from Town of Manteo On-site central wastewater for specific development sites may be required by Zoning Ordinance for multifamily On-site individual wastewater systems	20,000 sq ft for private wells 15,000 sq Ft for central water 15,000 sq ft for central water and central wastewater	C2-H four units per acre for Hatteras village R-3 zoning of 6 units south of Oregon Inlet and 8 units north of Oregon Inlet (C-3 and I-1) R-2 zoning of 4 units per acre S-1 zoning of 3-5 units per acre MHB zoning of 3-5 units per acre SNC zoning of 6 units per acre	20,000 square feet
COMMUNITY	Central water is available Central wastewater is available in Stumpy Point On-site individual wastewater systems	20,000 sq ft for private wells 15,000 sq Ft for central water 15,000 sq ft for central water and central wastewater	East Lake is unzoned Multifamily structures not permitted In Stumpy Point zoning	20,000 square feet for commercial uses
COMMUNITY RESIDENTIAL	Central Water service is available On-site central wastewater for specific development sites may be required by Zoning Ordinance for multifamily On-site individual wastewater systems	20,000 sq ft for private wells 15,000 sq Ft for central water 15,000 sq ft for central water and central wastewater	R-3 zoning of 6 units south of Oregon Inlet and 8 units north of Oregon Inlet (C-3 and I-1) R-2 zoning of 4 units per acre S-1 zoning of 3-5 units per acre MHB zoning of 3-5 units per acre SNC zoning of 6 units per acre	20,000 square feet for commercial uses
COMMUNITY VILLAGE	Central Water service is available Central Wastewater is available In Wanchese Industrial Park On-site central wastewater for specific development sites may be required by Zoning Ordinance for multifamily On-site individual wastewater systems	20,000 sq ft for private wells 15,000 sq Ft for central water 20,000 sq ft for central water and central wastewater In Wanchese 15,000 sq ft for central water and central wastewater	Multifamily structures not permitted in Community Village areas	20,000 square feet 10,000 square feet for Wanchese zoning districts
CONSERVATION	Central Water service is available On-site individual wastewater systems	20,000 sq ft for private wells 15,000 sq Ft for central water 15,000 sq ft for central water and central wastewater	Multifamily structures not permitted in Conservation areas	Not applicable

FUTURE LAND USE MAP	DEVELOPMENT INTENSITY/DENSITY			
	INFRASTRUCTURE/SERVICES	MINIMUM LOT SIZE	MULTIFAMILY DENSITY	COMM. FLOOR AREA LIMIT
LIMITED CONSERVATION	Central Water service is available On-site central wastewater for specific development sites may be required by Zoning Ordinance for multifamily On-site individual wastewater systems	40,000 square feet in SED-1 20,000 sq ft for private wells 15,000 sq Ft for central water 15,000 sq ft for central water and central wastewater	SED-1 buffer zone 3 units per acre	20,000 square feet for commercial uses
RURAL	Central Water service is available On-site individual wastewater systems	20,000 sq ft for private wells 15,000 sq Ft for central water	East Lake is unzoned	20,000 square feet for commercial uses

FUTURE LAND USE MAP	DEVELOPMENT INTENSITY/DENSITY	
	BUILDING HEIGHTS	LOT COVERAGE
TRANSITION CORRIDOR	52' for Rodanthe, Waves, Salvo, and S-1 zoned areas of Frisco and ocean overlay areas of Hatteras village 35' to 52' for Avon, Buxton village 45' for Hatteras 35' for Colington and Manteo Outside tax district 35' to 52' for Manns Harbor MH-B district	30% to 50% for residential uses in Avon, Buxton, Frisco, Hatteras. Colington, Manteo Outside tax district 60% for commercial and industrial uses
COMMUNITY	45' for East Lake (unzoned)	
COMMUNITY RESIDENTIAL	52' for Rodanthe, Waves, Salvo and S-1 zoned areas of Frisco 35' to 52' for Avon, Buxton village 45' for Hatteras village 35' for Colington and Martin's Point, Manteo outside tax district	30% to 50% for residential uses in Avon, Buxton, Frisco, Colington, Manteo Outside tax district 60% for commercial uses 30% for Martin's Point
COMMUNITY VILLAGE	35' to 52' for Avon village 45' for Hatteras village 35' for Colington 40' for Wanchese districts 35' to 52' for Manns Harbor district	30% to 50% for residential uses in Avon, Buxton, Frisco, Hatteras, Colington, Wanchese districts 60% for commercial uses
CONSERVATION	35' - 52' depending on applicable zoning	30% for residential uses
LIMITED CONSERVATION	35' SED-1 zoned areas of Buxton and Frisco 35' for NH zoned areas	30% for residential uses
RURAL	35' for NH zoned areas	30% for residential uses

FUTURE LAND USE MAP CATEGORY CONSISTENCY ANALYSIS							
	Transition Corridor	Community	Community Residential	Community Village	Conservation	Limited Conservation	Rural
Martins Point	Status	Status	Status	Status	Status	Status	Status
MP-1			General Consistency				
AECs					General Consistency		
Colington	Status	Status	Status	Status	Status	Status	Status
RS-1			General Consistency	General Consistency			
R-1			General Consistency				
R-1A			General Consistency				
R-2			General Consistency				
R-2B				General Consistency			
R-3			General Consistency				
R-4			General Consistency				
NH					General Consistency		
VC-2	General Consistency						
CS	General Consistency						
C-3	General Consistency						

FUTURE LAND USE MAP CATEGORY CONSISTENCY ANALYSIS							
	Transition Corridor	Community	Community Residential	Community Village	Conservation	Limited Conservation	Rural
RWS	Status	Status	Status	Status	Status	Status	Status
S-1	General Consistency		Conditional Consistency				
Public					General Consistency		
AECs					General Consistency		
Avon	Status	Status	Status	Status	Status	Status	Status
R-1			General Consistency				
R-2A				General Consistency			
VC	General Consistency						
C-2	General Consistency						
C-3	General Consistency						
Public					General Consistency		
AECs					General Consistency		
BUXTON	Status	Status	Status	Status	Status	Status	Status
R-1			General Consistency				
R-2A	Conditional Consistency		General Consistency				
SED-1						General Consistency	

FUTURE LAND USE MAP CATEGORY CONSISTENCY ANALYSIS							
	Transition Corridor	Community	Community Residential	Community Village	Conservation	Limited Conservation	Rural
BUXTON	Status	Status	Status	Status	Status	Status	Status
C-2	General Consistency						
C-3	General Consistency						
I-1	General Consistency						
Public					General Consistency		
AECs					General Consistency		
FRISCO	Status	Status	Status	Status	Status	Status	Status
S-1	General Consistency		Conditional Consistency				
S-1 Buffer						Conditional Consistency	
Public					General Consistency		
AECs					General Consistency		
HATTERAS	Status	Status	Status	Status	Status	Status	Status
RS-1			General Consistency				
NH				General Consistency			
R-2H	Conditional Consistency		General Consistency				
R2-AH	Conditional Consistency		General Consistency	General Consistency			

FUTURE LAND USE MAP CATEGORY CONSISTENCY ANALYSIS							
	Transition Corridor	Community	Community Residential	Community Village	Conservation	Limited Conservation	Rural
HATTERAS	Status	Status	Status	Status	Status	Status	Status
C-2H	General Consistency						
Public					General Consistency		
AECs					General Consistency		
Manteo Outside	Status	Status	Status	Status	Status	Status	Status
NH			General Consistency				
CPR			General Consistency				
R-1			General Consistency				
R-2			General Consistency				
R-3			General Consistency				
RS-8			General Consistency				
C-3	General Consistency		Conditional Consistency				
I-1	General Consistency		Conditional Consistency				
Public					General Consistency		
AECs					General Consistency		

FUTURE LAND USE MAP CATEGORY CONSISTENCY ANALYSIS							
	Transition Corridor	Community	Community Residential	Community Village	Conservation	Limited Conservation	Rural
Skyco	Status	Status	Status	Status	Status	Status	Status
SNC			General Consistency				
Wanchese	Status	Status	Status	Status	Status	Status	Status
VR				General Consistency			
WR-1				General Consistency			
BT				General Consistency			
RB				General Consistency			
NC				General Consistency			
HML				General Consistency			
WVC				General Consistency			
MC-1				General Consistency			
MC-2				General Consistency			
H345				General Consistency			
WISP				General Consistency			
Public					General Consistency		
AECs					General Consistency		

FUTURE LAND USE MAP CATEGORY CONSISTENCY ANALYSIS							
	Transition Corridor	Community	Community Residential	Community Village	Conservation	Limited Conservation	Rural
East Lake	Status	Status	Status	Status	Status	Status	Status
Unzoned		General Consistency					General Consistency
Public					General Consistency		
AECs					General Consistency		
Manns Harbor/Mashoes	Status	Status	Status	Status	Status	Status	Status
MH-A				General Consistency			
MH-B	General Consistency						
NH					General Consistency		
Public					General Consistency		
AECs					General Consistency		
Stumpy Point	Status	Status	Status	Status	Status	Status	Status
SP-2		General Consistency					
SP-C		General Consistency					
Public					General Consistency		
AECs					General Consistency		

SECTION THREE

Tools for

Managing Development

SECTION THREE -- TOOLS FOR MANAGING DEVELOPMENT

Role of Land Use Plan in Decision Making

The Land Use Plan is a policy document that is used by the Dare County Board of Commissioners, Planning Board, and Planning Department to guide growth and development in the unincorporated areas of Dare County. The policy statements, implementation strategies, and future land use maps are consulted by the Boards and staff during the review of new development projects, rezoning requests, and other land use issues. Although the land use plan and the future land use map are not regulatory documents, the documents are important tools for Dare County. Efforts are made to maintain consistency between the policies and maps of the land use plan and development proposals and zoning decisions. As of January 2006, North Carolina statutes require that all local planning boards and board of commissioners issue a finding of consistency (or inconsistency) on any proposed zoning map or text amendment regarding the consistency of the proposal with the land use plan or other comprehensive plan. Zoning map or text amendments can be adopted by local official even if a finding of inconsistency is determined. However, the finding must identify steps that may be taken to address any inconsistency with the land use plan or comprehensive plan. Such steps may include an amendment to the local land use plan or its maps. Land use plans can be amended if the local conditions merit an amendment before the next update cycle of the entire document. The CAMA guidelines provide an amendment process for which policies or the future land use maps can be amended if the local government determines that such an amendment is necessary. Only the portions proposed for amendment are submitted for certification by the Coastal Resources Commission in the amendment process. A public hearing on any proposed LUP amendment must be held by Dare County before the amendment can be submitted to the Coastal Resources Commission for certification.

For the citizens of Dare County, the land use plan and its maps provide information on certain issues affecting land development in Dare County and other community issues. Demographic information, infrastructure service areas, and other information on state and federal regulatory programs that impact Dare County are also available for consultation by the general public.

The Land Use Plan is used by the staff of the Division of Coastal Management in the review of CAMA major permit applications for development activities in CAMA Areas of Environmental Concerns (AECs) and for federal consistency reviews. Every CAMA major permit application is reviewed for consistency with the policies and maps of the local land use plan. A consistency determination must be rendered by the CAMA staff before a CAMA major permit can be issued. If activities proposed in a CAMA major permit application are found to be inconsistent with local land use plan policies or the future land use map, then the CAMA major permit may not

be issued.

The Dare County Land Use Plan applies to the unincorporated portions of Dare County (Hatteras Island, the Mainland, Colington, Martin's Point, and the areas of Roanoke Island outside the boundaries of the Town of Manteo). The six municipalities in Dare County (Duck, Southern Shores, Kitty Hawk, Kill Devil Hills, Nags Head, and Manteo) have all chosen to prepare and adopt their own land use plans for their respective jurisdictions. These municipal plans should be consulted for policies and future land use maps specific to these six towns.

Existing Development Management Program

There are numerous federal, state and local programs and ordinances that are involved in the development process as detailed in the following sections.

Federal

1. Army Corps of Engineers (ACOE)—The Corps of Engineers has regulatory responsibility for wetlands, including Section 404 or freshwater wetlands, and dredging activities. Permits for wetland alteration and filling activities must be secured from the Corps of Engineers. A field office is maintained in Washington, NC for the permitting of nationwide permits and other wetland-related activities. The Wilmington district office assists with waterway dredging projects in Dare County.
2. Federal Emergency Management Agency (FEMA) – This federal agency is responsible for the enforcement of floodplain management regulations. Dare County delegates the enforcement of these federal rules to a Floodplain Administrator who works as part of the Planning Department. The Floodplain Administrator enforces the Dare County Flood Hazard Ordinance and ensures that all new construction in unincorporated Dare County complies with flood elevations and other flood-related construction standards. FEMA also sponsors a Community Rating System that involves a series of incentives for local governments to promote proper construction techniques and public education of floodplain regulations for discounts on flood insurance rates. Dare County participates in the Community Rating System.
3. Department of Interior – The National Park Service and the US Fish and Wildlife Service both own large amounts of land in Dare County. Their management plans and policies greatly affect the activities of the citizens and visitors of Dare County. The National Park Service is responsible for management of the Cape Hatteras National Seashore and Fort Raleigh on Roanoke Island. This includes enforcing access restrictions on these federal lands, oversight of federal campgrounds, and visitor information services at

these sites. The US Fish and Wildlife manages activities in the Pea Island Wildlife Refuge on Hatteras Island and the Alligator River Wildlife Refuge on the Mainland. Their duties include maintenance of access facilities for visitors and citizens of Dare County and property management of the wildlife refuges for the animal and bird species that inhabit the refuges such as the red wolves. Both of the agencies are also involved in the review of transportation and infrastructure projects that are proposed within their jurisdictions. Examples are the proposed replacement of the Bonner Bridge and the Alligator River Bridge.

State

1. Division of Coastal Management – This State agency is responsible for the administration and enforcement of the Coastal Area Management Act (CAMA) which applies to the twenty-county coastal region of North Carolina. All proposed development in designated CAMA Areas of Environmental Concern (AECs) must be reviewed and approved under these standards. The Coastal Resources Commission is an appointed commission which oversees variances and appeals of the CAMA rules, certifies local land use plans, and revises existing CAMA regulations and/or adopts new coastal regulations. Dare County assists with the administration of CAMA regulations through the designation of a Planning staff member as a local permit officer for the review of minor CAMA permits. Major CAMA permits are administered from the Elizabeth City, NC regional office.
2. Division of Water Quality -- The Division of Water Quality is the State agency which is charged with the protection and management of surface water quality and groundwater quality. Part of these duties include the issuance of stormwater management permits in the coastal area, review of wastewater point source discharges, and water quality monitoring programs. The field office for Dare County is located in Washington NC. This office is responsible for the review and approval of stormwater management permits for development activities in Dare County. Another function of the Division of Water Quality is the review and approval of wastewater systems such as spray irrigation systems or drip irrigation systems.
3. Division of Land Resources – This State agency oversees mining activities and is responsible for the issuance of sedimentation and erosion control permits. The field office for Dare County is located in Washington, NC.
4. Department of Transportation – Development projects that intersect or connect to existing State maintained roads must secure NCDOT permits before construction activities commence. NCDOT also prepares and annually updates the Transportation

Improvement Plan (TIP) which outlines proposed transportation improvements in the state.

5. Department of Insurance – This department has supervision and regulatory authority over the State building and fire codes that apply in Dare County and are enforced by the County building inspectors and Fire Marshal.
6. Dept of Cultural Resources – This State agency is responsible for the identification and protection of historical and archaeologically significant lands and structures.
7. Division of Environmental Health – On-site wastewater treatment systems that involve more than 3,000 gallons per day of effluent are subject to review and approval by this State agency. Smaller systems are approved locally by the Dare County Environmental Health Department.

Local

1. The Dare County Planning Department is responsible for the enforcement and administration of the Dare County Zoning Ordinance, Dare County Mobile Home Park Ordinance, Dare County Travel Trailer Park Ordinance, and the Dare County Subdivision Ordinance. The Planning Department also serves as the staff for the Dare County Planning Board and the Dare County Zoning Board of Adjustment.
2. Dare County Building Inspections and Fire Marshal – The building inspectors and Fire Marshal serve under the departmental structure of the Planning Department and are responsible for the enforcement of the NC State building and fire codes.
3. Dare County Health Department – This department is responsible for the review and approval of on-site wastewater systems that involve less than 3,000 gallons per day of effluent. Other duties include inspection of restaurants, daycare centers and public swimming pools.
4. Dare County Water Department – The Dare County Water Department reviews and approves plans for new developments and subdivisions that will be served by the central water system operated by Dare County.
5. Dare County Public Works Department – The Dare County Public Works Department is consulted for comments on the provision of solid waste services and container locations in new subdivisions and new commercial buildings.
6. Dare County Capital Improvements Plan – A five-year Capital Improvement Plan is adopted by the Dare County Board of Commissioners and updated on an annual basis in

conjunction with the operating budget process. The CIP outlines capital needs and details the estimated costs, description, and anticipated funding sources for capital projects. A capital asset is defined as an asset with a value of \$50000 or more and a useful life of five years or more. A Capital Improvements Committee composed of County staff members and members of the Board of Commissioners prepares the CIP for adoption by the entire Board of Commissioners. Items included in the plan are submitted by the various County departments and agencies based on the infrastructure needs and departmental needs. A copy of the current CIP is available on the Dare County website at www.darenc.com.

Action Plan for 2009 Update

The CAMA regulations require the inclusion of an “action plan” or schedule for the implementation strategies that have been identified in Section Two of the LUP update. The implementation strategies are arranged by management topic and the associated policy or policies. A projected implementation date for consideration or action by Dare County is included with the implementation strategy. Some of the implementation strategies represent on-going activities undertaken by Dare County and have been so noted. Some of the implementation strategies identify new regulations that should be considered or amendments to existing ordinances that should be considered.

Public involvement is an important component in the development of the LUP update and during the implementation phase as well. Efforts to ensure continued public input will be undertaken by Dare County as follows:

1. Notification of proposed ordinance adoption or ordinance amendment as required by North Carolina General Statutes. This involves advertised of the ordinance or amendment in a local newspaper of general circulation and often notification of adjoining property owners depending on the type and scope of proposed regulations. In some instances, more prominent newspaper advertisements may be used to supplement the traditional legal advertisement in the interest of increased public awareness.
2. Posting of proposed implementation actions on Dare County website: www.darenc.com
3. Electronic notification to local media list. This list is developed by the Dare County Public Relations Department and updated as needed.
4. Coordination of other County departments as needed.

Action Plan for 2009 Update

Implementation Strategies for Public Access Management Topic	Associated Policy	Target Date for Implementation
Identify and pursue appropriate grant opportunities for access sites to public trust waters and public trust areas. Any new public access sites shall address the needs of handicap persons and address those needs to the maximum extent practicable in working with the natural conditions of the site.	Public Access Policy #3	2010-2015 when appropriate grant opportunities occur
Continue to actively participate in the negotiated rule making process with the National Park Service in developing a plan for vehicular and pedestrian access to all beaches of Dare County.	Public Access Policy #4	2010 -2015 or until process is complete
Defend and assist with legal interventions that would allow continued off-road vehicle access for federal beaches.	Public Access Policy #4	2010-2015 as needed
Continue to monitor efforts of NC Department of Transportation to permit and construct replacement for the Bonner Bridge.	Public Access Policy #5	2010-2015
Develop a comprehensive inventory of working waterfront and other waterfront access areas in unincorporated Dare County.	Public Access Policy #6	2010
Support efforts by the Shoreline Management Commission to address issues associated with shoreline erosion, public access, and other related issues that involve the ocean beaches and estuarine shorelines in Dare County.	Public Access Policy #7	2010-2015 on-going
Work with federal agencies to ensure continued access to federal property in Dare County for hunting, fishing, and other similar activities.	Public Access Policy #8	2010-2015 on-going

Implementation Strategies for Land Use Compatibility Management Topic	Associated Policy	Target Date for Implementation
Identify amendments to the Dare County Zoning Ordinance and other land use ordinances that may be necessary to implement management objectives for residential and commercial development. This may include the elimination of drive-thru window restaurant service in all commercial and S-1 zonings districts and building design standards for commercial structures.	LUC #2	2010-2015 as needed
Administration of existing regulations of the Dare County Zoning Ordinance for minimum lot size, dwelling density, building height and other standards for residential development.	LUC #3	2010-2015 on-going
Administration of Family Housing Incentive Standards (section 22-58.2) of the Dare County Zoning Ordinance to address workforce housing needs.	LUC #4	2010-2015 as needed
Inventory of older existing commercial businesses and consideration of zoning amendment to ensure their replacement or repair in the event of damage from a natural disaster.	LUC #5	2010
Identify amendments to the Dare County Zoning Ordinance and other land use ordinances that may be necessary to implement management objectives for residential and commercial development. This may include the elimination of drive-thru window restaurant service in all commercial and S-1 zonings districts and building design standards for commercial structures.	LUC #5 LUC #6 LUC #7	2010 -2015 as needed
Rely on existing dimensional standards of the Dare County Zoning Ordinance for dwelling densities, lot coverage limitations, and commercial gross floor area limitations.	LUC #5 LUC #6 LUC #7	2010-2015 on-going
Study legality of regulations designed to address the proliferation of tourist-oriented retail establishments.	LUC #5, LUC #6 LUC #7	2011
Work with East Lake residents to review zoning alternatives for this area.	LUC #5, LUC #6, LUC #7	2011
Consider development of incentives for “green” building techniques and energy efficient construction standards.	LUC #8	2011

Implementation Strategies for Land Use Compatibility Management Topic	Associated Policy	Target Date for Implementation
Rely on the standards of the Dare County Zoning Ordinance for the siting and development of industrial development of both maritime-related uses and non-maritime related uses.	LUC #9	2010-2015 on-going
Enforcement of the Airport Overlay zoning regulations to address land uses, especially building height issues, on land adjacent to and surrounding the Dare County Regional Airport on Roanoke Island.	LUC #11	2010-2015 on-going
Adoption of additional airport overlay regulations, as needed, to address land uses on land adjacent to and surrounding the Billy Mitchell Airstrip in Frisco, NC.	LUC #11	2011-2012
Administration of Section 22-58.1 Dune Alteration Standards of the Dare County Zoning Ordinance.	LUC #13	2010-2015 on-going
Promote best management practices by referrals to State agencies and work with Outer Banks Homebuilders Association to promote best management practices with local general contractors.	LUC #14	2010-2015
Evaluate the need to establish regulations for the placement of fill material on private property.	LUC #14	2012
Explore local interest in establishing a formal historic preservation program focused on the unincorporated areas of Dare County.	LUC #15	2012
Administration of the SED-1 zoning ordinance.	LUC #17	2010-2015 on-going
Implementation Strategies for Infrastructure Carrying Capacity Management Topic	Associated Policy	Target Date for Implementation
Application of minimum lot size standards of Dare County Zoning Ordinance and the Dare County Subdivision Ordinance for the development of new subdivisions in unincorporated Dare County.	ICC #1	2010-2015 on-going
Require the establishment of escrow accounts for maintenance and repairs for any new privately-owned centralized wastewater facilities approved for development in unincorporated Dare County.	ICC #3, ICC#4	2010-2015 on –going

Implementation Strategies for Infrastructure Carrying Capacity Management Topic	Associated Policy	Target Date for Implementation
Consider standards to address the use of drip irrigation wastewater facilities, especially in VE flood zones.	ICC #4	2011
Copies of proposed site plans and subdivisions shall be sent to appropriate Dare County agencies and State agencies for review and comment.	ICC #5	2010-2015 on-going
Continue to lobby State and Federal agencies for replacement of Bonner Bridge and the long-term protection of NC 12.	ICC #6	2010-2015 on-going
Administer Street standards of Subdivision Ordinance for new subdivisions approved in unincorporated Dare County.	ICC # 9	2010-2015 on-going
Consider expansion of residential recycling and commercial recycling programs to facilitate greater volumes of recycling materials.	ICC #10	2012-2013
Amend Dare County Zoning Ordinance or other land use codes as may be necessary in response to alternative energy sources.	ICC # 13	2010-2015 as needed
Implementation Strategies for Natural Hazards Management Topic	Associated Policy	Target Date for Implementation
Rely on existing CAMA AEC regulations to address development activities along the ocean beaches, estuarine shoreline, and other public trust areas in unincorporated Dare County. Dare County will continue to participate in the CAMA permitting process with the provision of a local permit officer for unincorporated Dare County.	NH #1	2010-2015 on-going
Rely on existing regulations of the Dare County Zoning Ordinance for development activities along the ocean front.	NH #1	2010-2015 on-going
Rely on existing CAMA AEC regulations to address development activities along the ocean beaches, estuarine shoreline, and other public trust areas in unincorporated Dare County. Dare County will continue to participate in the CAMA permitting process with the provision of a local permit officer for unincorporated Dare County.	NH #2	2010-2015 on-going
Rely on the regulations of the Dare County Zoning Ordinance for development activities along estuarine shoreline areas.	NH #2	2010-2015 on-going

Implementation Strategies for Natural Hazards Management Topic	Associated Policy	Target Date for Implementation
Oppose efforts to eliminate the use of estuarine bulkheads or other efforts designed to prioritize or amend the current State regulations on their installation and maintenance.	NH #3	2010-2015 as needed
Administration of Dare County Flood Ordinance and continued participation in Community Rating System to result in reduction in flood insurance rates for property owners in unincorporated Dare County.	NH #5	2010-2015 on-going
Work with Dare County Emergency Management personnel on storm hazard mitigation and reconstruction issues as needed.	NH #7, NH #8, NH #9, NH #10	2010-2015 on-going
As may be needed following flooding or overwash events in which the issue of sand relocation may be pertinent.	NH #11	2010-2015 as needed
Implementation Strategies for Water Quality Management Topic	Associated Policy	Target Date for Implementation
Enforcement of dune alteration standards of Section 22-58.1 of the Dare County Zoning Ordinance	WQ #1	2010-2015 on-going
Implementation and enforcement of CAMA use standards for Buxton Woods wellfield AEC and Buxton SED-1 zoning regulations.	WQ #2	2010-2015 on-going
Continue full-time staff of mosquito control program	WQ #6	2010-2015 on-going
Continued support of local permit officer for CAMA for implementation and enforcement of CAMA use standards for coastal wetlands.	WQ #7	2010-2015 on-going
Oppose efforts eliminate the use of estuarine bulkheads or other efforts designed to prioritize or amend the current State regulations on their installation and maintenance.	WQ #10	2010-2015 as needed
Continued support of the Dare County Commission of Working Watermen	WQ #12	2010-2015 on-going
As may be needed in response to National Park Service efforts on beach driving.	WQ #14	2010-2015 as needed
Encourage marina operators to participate in the voluntary Clean Marina certification program administered by the State of North Carolina Division of Coastal Management	WQ#15	2010-2015 on-going

Implementation Strategies for Water Quality Management Topic	Associated Policy	Target Date for Implementation
Consideration of regulations to prohibit floating homes and structures in unincorporated Dare County.	WQ #17	2011
Implementation Strategies for Local Areas of Concern Management Topic	Associated Policy	Target Date for Implementation
Request North Carolina General Assembly to authorize and establish an expedited permit process for projects funded by State grants.	LAC #4	2012
Continue working with the Army Corps of Engineers, State and Federal agencies to secure permit authorization for (dredging) work as needed.	LAC #9	2010-2015 as needed
Lobby the US Congress for a dedicated funding source for the maintenance dredging or Oregon Inlet.	LAC #10	2010-2015 on-going
Continue to work with our congressional delegation to acquire certain facilities the Buxton Coast Guard base.	LAC #11	2010-2015 as needed

APPENDICES 1-5

Appendix 1 – Public Participation Plan

Appendix 2 – Vision Statement/Goal Workshops Report

Appendix 3 -- Citizen Involvement Poll (CIP) Report

Appendix 4 -- Review of 2003 LUP Policies

Appendix 5 – Pasquotank River Basinwide Report and Portions
of the Tar –Pamlico River Basin Report



Dare County 2008 LUP Update Public Participation Plan

Public participation is an important element of any land use planning document. This document details the various public participation activities that will be undertaken during the update process of the Dare County Land Use Plan. Tentative dates are provided however, it is recognized that these dates are subject to change since this Public Participation Plan is one of the first steps taken in the update process. The Dare County website site and local government access channel will be used extensively to provide meeting notification of public participation activities and progress reports of the LUP update.

The Dare County Planning Board will be designated by the Board of Commissioners as the steering committee for the update process. The Planning Board has served in this capacity for every land use plan update completed by Dare County. Most of the work on the LUP update will be completed in-house by the Dare County Planning Department staff with assistance from the Dare County Information Technology Department. Some consultant services will be utilized during the latter stage of the update process at workshops on the draft policies before a draft version of the update is forwarded to the Dare County Board of Commissioners.

In order to accommodate the numerous special interest and community groups in Dare County, a Planning staff will maintain a community outreach mailing and email list of community groups that wish to receive notices of all workshops and meetings held in conjunction with the update process. There are many community groups in the County that represent a broad range of interests such as environmental groups, civic organizations, economic development groups, homeowners associations, and professional organizations. This outreach process will allow the County to facilitate the groups' desire to participate in the update process and receive their input based on their stated objectives and interests of their respective organization.

A hyperlink on the Dare County webpage for the update process will be available which will be used for on-line completion of the Citizen Involvement Poll, for meeting notification, and progress reports on the update.

Phase One – Analysis and Review of Current Policies and Issues

Citizen Workshops -- A series of citizens input workshops throughout Dare County for property owners and residents will be held in the fall of 2007. The workshops will consist of three 2-hour long sessions with the first hour dedicated to a review of the 2003 LUP policies and their saliency to current conditions. The second hour will focus on the discussion of a vision statement and identification of additional issues and concerns that should be addressed in the 2008 update.

Notice of the workshops will be advertised in the local newspapers, posted on the Dare County website and flyers posted at County offices, libraries and other public buildings. One workshop will be held in Buxton for Hatteras Island residents, one workshop will be held in Kill Devil Hills for residents of the northern beaches, and one workshop will be held in Manteo for residents of the Mainland and Roanoke Island. It is anticipated to conduct these workshops in later September or early October.

Citizen Involvement Poll (CIP)– An on-line questionnaire will be provided on the Dare County website for completion by property owners, residents and other interested parties. Copies of the CIP will be mailed to all resident and non-resident property owners in the unincorporated areas. To encourage participation of residents and citizens in the incorporated areas of Dare County, the CIP will be offered on the Dare County website for completion. Newspaper ads will be used to notify the public of the opportunity of the on-line CIP completion. Copies of the CIP will also be placed in all County offices and libraries for pick-up and return mail service. A deadline of October 31 for return of the completed CIP will be set.

Results of the CIP will be compiled by the Dare County Information technology Department and a report of the results prepared by the Planning Department. These results will be used in combination of other public input activities in the development of the policies and goals for the 2008 LUP.

Phase Two – Plan Development

Planning Board Work Sessions -- The Planning Board will conduct numerous workshops separate from their regularly scheduled monthly meetings in order to prepare a draft LUP. Results of the phase one public participation activities will be analyzed. A vision statement will be developed as required by the State land use plan guidelines. Demographic information and maps will be created and policies on the CAMA-specified management topics and other local issues will be drafted by the staff and presented to the Planning Board at these workshops. The exact format and duration of these workshops will be determined at a later date. It is anticipated that these workshops will begin in early 2008. Notice of

the workshops will be posted on the Dare County webpage and advertised as required by the open meeting law of North Carolina. The workshops will be open to the public however interaction at this stage will be between the Planning Board and Planning Department staff. A rough draft of the plan, including policy statements will be completed at these work sessions.

Policy Assessment Workshops -- Upon completion of a rough draft of the LUP update, a second series of public workshops will be conducted at the same locations of the phase one input sessions. The focus of these workshops will be the draft policies and associated maps. Revisions to the policy statements may be necessary as a result of the input at the policy assessment workshops. Similar notification procedures used for the phase one workshops will be used for these workshops.

Following the policy assessment workshops, final revisions to the draft LUP and policy statements and maps will be made by the Planning Board and staff.

Phase Three – Review of Draft Plan

CAMA Review – The Division of Coastal Management staff will be involved in the LUP process and provide coordination and review services to ensure consistency with the CAMA land use plan guidelines. The Planning staff will maintain contact with the CAMA staff throughout the LUP update process. Notice of workshops and meetings will be provided to the CAMA staff. Copies of the draft policies and maps will be submitted to the CAMA staff for feedback following the policy assessment workshops for their comments as required by the State regulations. Revisions to the document and maps that are necessary as a result of the CAMA review will be discussed with the Planning Board and made as needed. It is anticipated that the CAMA review will occur prior to the Planning Board making an official recommendation on the LUP update to the Dare County Board of Commissioners.

Planning Board Review – After the development of a draft plan and any revisions that may be necessary as a result of the policy assessment workshops, a recommendation from the Planning Board to the Board of Commissioners is required. The Planning Board may chose to conduct a public hearing on the draft plan before a recommendation is made to the Board of Commissioners. However, the Planning Board may decide that a public hearing is not necessary depending on the amount of public participation held during the development of the draft LUP. The CAMA guidelines do not require a hearing at the Planning Board level but leave this option to the discretion of the local government.

Board of Commissioners Review – The draft LUP will be presented to the Board of Commissioners following a recommendation by the Planning Board. This does not constitute official adoption of the LUP which can only occur after a formal public hearing is conducted following the procedures set forth in the CAMA land use planning guidelines. A copy of the draft plan, as presented to the Board of Commissioners will be posted on the Dare County website and copies available for viewing in the Planning Department offices and the Dare County libraries. Copies of the draft plan will be sent to all local governments in Dare County and for their review and comment.

The Board of Commissioners may adopt the LUP, upon completion of a Public Hearing. Tentative date: December 2008.



DARE COUNTY LAND USE PLAN

PUBLIC PARTICIPATION

WORKSHOP RESULTS

September 25-27, 2007

“Planning Today, for Dare’s Tomorrow”

Abstract

A critical component to any public initiative is the role and input of the affected citizens. The current update of the Dare County Land Use Plan seeks to “employ a variety of educational efforts and participation techniques to assure that all socio-economic segments of the community and non-resident property owners have opportunities to participate during plan development” [15A NCAC 7L .0506 (a)]. The first of these efforts was to conduct public participation workshops with a twofold purpose of educating the public on the intent and scope of the Land Use Plan, as well as the solicitation of public concerns and ideas about the future of Dare County.

The workshops were conducted during a three day period from September 25-27, 2007. Each workshop was held in a separate targeted region of the county (Roanoke Island, Kill Devil Hills, and Hatteras Island), advertised intensively, and conducted during the evening, to generate as much public participation as possible.

The following results contain those comments received at each workshop and categorized by discussion topics. These comments will be used to complement other research strategies and public participation methods that staff will employ to conduct a comprehensive update of the Dare County Land Use Plan.

Roanoke Island – September 25, 2007

Total Attendance: 9

Planning Staff/Facilitators (4): Elmer Midgett, Chairman, Planning Board; Ray Sturza, Planning Director; Donna Creef, Senior Planner; Ryan Simons, Planner

Commissioners (2): Warren Judge, Chairman; Virginia Tillett

Planning Board Members (1): John Myers

Agency Representatives (1): Cyndy Holda, National Park Service

Citizens (2): Cyndy Holda, Robin Mann

Comments received on Working Waterfronts:

- The development of working waterfronts may be a measure to preserve culture;
- The commercial fishing industry is a traditional economic catalyst;
- Methods should be developed to avoid the displacement of residents due to the rising value of land;

Comments received on Public Access:

- The county should pursue ways to acquire and improve public sound/ocean access;
- A balance should be struck between publicly and privately owned waterfront to control sound/ocean access;
- “Quality of life” programs for residents should be maintained and improved;
- The county and federal agencies should cooperate in efforts to improve public water access on Hatteras Island;
- The county and federal agencies should cooperate in efforts to manage off-road vehicle access on Hatteras Island;
- An emphasis should be placed on free and convenient public water access on Hatteras Island;
- Clarification should be provided on the ownership/title status of National Park Service properties on Hatteras Island;
- Street end public beach access is not a strong possibility on Hatteras Island;

Comments received on Workforce Housing:

- The term “workforce” housing should supplant “affordable” housing in the county’s lexicon, due to the subjective and nebulous nature of the term “affordable”;
- Seek community acceptance of the “workforce” housing concept;

Comments received on Stormwater Regulations:

- New stormwater regulations drafted by the Division of Water Quality are viewed negatively;
- The county should monitor progress of efforts to further regulate stormwater management by the Division of Water Quality;
- The county should look to acquire erosion-prone lots;

- “Tailor-made” stormwater standards may need to be developed, which recognizes the unique features of Dare County, with a focus on managing stormwater without prohibiting growth;

Comments received on Environmental Topics:

- “Green” initiatives, such as recycling and alternative energy, should be considered;
- Our visitors expect services such as curbside recycling;
- Wind energy is an emerging technology, with potential costs and benefits;
- Look to 2003 Policy #32 on sea-level rise for possible revision;
- Off-shore energy exploration, due to rising energy costs, should be considered;
- Architectural controls should be implemented to regulate the aesthetics of certain tourist-oriented commercial structures, including limitations on outdoor displays of goods;
- The presence of “big box” stores with limited regulation, compromises the historical, family-oriented nature of Dare County

Comments received on Wastewater Treatment:

- Central wastewater systems may potentially lead to higher density. However, if managed correctly, such as targeting the capacity of the facility, growth and density can be controlled;
- Policies on central wastewater should be reconsidered;
- Private wastewater treatment systems may need to be acquired by the county in the event of their failure;

Hatteras Island – September 26, 2007

Total Attendance: 17

Planning Staff/Facilitators (3): Elmer Midgett, Chairman, Planning Board; Donna Creef, Senior Planner; Ryan Simons, Planner

Commissioners (0):

Planning Board Members (1): Beth Midgett

Agency Representatives (1): Charlan Owens, NC Division of Coastal Management

Citizens (12): Frank Jacobs, Amberly Dyer, Ricki Shepherd, Carol W. Sanderson, K.P. Lapeya, Sylvia Mattingly, Don Rankin, Jarvis Williams, Danna McDaniel, Bernie Tetreault, Karen Tetreault, John F. Conner, Jr.

Comments received on Workforce Housing and Housing in General:

- Zoning regulations should be “inclusionary” to encourage “workforce” housing;
- Some policies inhibit development directly related to establishing “workforce” housing (“linkage”);
- The integrity of existing wellfields should not be compromised for the sake of establishing “workforce” housing. These wellfields are of greater importance than what is suggested in the SED-1 zoning district language;

- Potential uses for the now defunct USCG base (zoned NH) need discussion;
- Density and minimum lot size requirements for single family, duplex, and multi-family development may need adjustment;
- Oceanfront rental structures should be distinguished from non-rented houses with separate regulatory requirements;
- A regulatory distinction may be made between single family homes and vacation rental accommodations;

Comments received on Development Standards:

- The Village of Avon lacks a sense of “place”, which may need to be remedied with revised zoning and density standards;
- Development should be directed in a way which emphasizes “nodes”, rather than the sprawling nature of “strip” development;
- Further develop pedestrian paths as an alternative means for visitors to experience Hatteras Island;
- Where inconsistencies exist, land use policies should be reconciled with enforced ordinances;
- A corridor management plan would address structural aesthetics along NC Hwy. 12;
- Architectural reviews of “big box” structures and “tourist oriented businesses” are means to improve structural aesthetics;
- Further regulate structural fill material;
- The porosity of surfaces (particularly for residential parking) determined for lot coverage calculations and stormwater management purposes may need reconsideration;
- Residents should be notified of potential zoning changes;

Comments received on Environmental Topics:

- SED-1 setback requirements should be reduced, particularly those affecting the wellfield AEC’s, and acknowledge that such a change would only affect a limited amount of properties;
- Install “flapper valves” to properly maintain Peter’s ditch;
- Monitor reforestation in Buxton Woods;
- Maintain drainage ways including ditches and canals;
- Clean and maintain the old dump site on Hatteras Island, as it continues to devolve into an eyesore;

Comments received on Governmental Cooperation

- The county should continue to monitor efforts by the Division of Water Quality to increase stormwater regulations, and recognize that if imposed, these regulations could have a dramatic affect on development on Hatteras Island;
- Beach driving is a desirable feature of Hatteras Island, and a cooperative effort should be made to properly manage off road vehicle access, rather than their prohibition;
- Acknowledge the uniqueness of Dare County, and Hatteras Island in particular, and relay that sentiment to other regulatory agencies;

- Advocate and monitor efforts to replace the Bonner Bridge, and develop policies to support the replacement strategies endorsed by the Board of Commissioners;
- The county should continue to work cooperatively with state regulatory agencies;

Comments received on Stormwater Management

- Stormwater recharge remains an important environmental issue on Hatteras Island;
- Identify local cemeteries as “local areas of concern” when developing the required maps for the LUP update;
- Current stormwater management regulations should be reconsidered;
- Develop methods to alleviate flooding along the “S” curves on Hatteras Island;

Comments received on Other Topics

- A legitimate public boat launching area in Rodanthe should be considered, perhaps at the current ferry dock location;
- Public access to sound waters should be acquired and improved;
- Working waterfronts is a measure to preserve culture;
- Recognize emerging wastewater treatment technologies, and consider these advancements when regulating development;
- Septic tank maintenance requirements need development and enforcement, particularly as it relates to the degradation of fill material;

Kill Devil Hills – September 27, 2007

Total Attendance: 8

Planning Staff/Facilitators (3): Elmer Midgett, Chairman, Planning Board; Donna Creef, Senior Planner; Ryan Simons, Planner

Commissioners (0):

Planning Board Members (3): John Myers, John Finelli, Cathy Morris

Agency Representatives (0):

Citizens (2): Johnnie Robbins, John Robbins

Comments received on Utility Topics:

- Central water service and other public utility expansion needs consideration;
- Privately owned central wastewater facilities may pose a threat to public health;
- Aesthetic characteristics of wastewater treatment facilities need regulation;
- Drip irrigation systems should be disapproved, or consider requiring back-up systems in the event of drip irrigation system failure;
- No “pump and haul” septic systems;

Comments received on Environmental Topics:

- Windmills are a viable alternative residential energy source;

- There are “cumulative” impacts of growth and development;
- The phrase “at a rate” should be removed from the Resource Protection vision statement on the handout (*this handout was provided at the public meeting*);
- Superior water quality should be maintained and encourage best management practices for lawn maintenance (low impact developments);
- Support legal fishing activities, and the NC saltwater fishing license;
- There exist many distractions and hazards to drivers along Hwy. 158;
- Wildlife management policies which address water fowl need consideration;

Comments received on Transportation Topics:

- The regional airport should be improved and/or relocated;
- Public transportation needs improvement, including the possible consideration of seasonal services to address traffic problems during the peak season;
- Develop multi-use paths;
- Monitor dredging activities to ensure they are conducted appropriately, and that navigation channels are maintained;

Comments received on Development Standards:

- The definition of “floating structures” needs clarification, so that it does not inadvertently prohibit piers or conventional vessels;
- Maintain bedroom density limits;
- The efficacy of where single family and multi family structures are permitted should be reevaluated;
- Architectural review standards should be applied to commercial structures, including churches and publicly owned buildings;
- Stronger regulation of personal water crafts and “jetboats” is needed;
- The cumulative impact of individual boat slips, and their consistency with marina developments, needs consideration;
- Implement architectural reviews of “big box” structures and “tourist oriented businesses” as a means of improving structural aesthetics;

Comments received on Other Topics:

- Relay the uniqueness of Dare County to other regulatory agencies;
- Continue to offer “workforce” housing development incentives;



2007 Citizen Involvement Poll Results Report

Prepared by the Dare County Planning Department
December 2007



2007 Dare County Citizen Involvement Poll

In September 2007, the Dare County Board of Commissioners adopted a Public Participation Plan (PPP) in conjunction with the update of the Dare County Land Use Plan. This PPP outlines the various activities and workshops planned to solicit public input for the 2008 Land Use Plan update. Public participation is an important element of the update process and Dare County makes significant efforts to incorporate citizens and property owners into the update process.

One of the tools used to garner public input was a Citizen Involvement Poll (CIP) of various questions on land use issues and other local matters. Copies of the CIP were mailed to all resident and non-resident property owners in unincorporated Dare County. A large number of the County's property owners are non-residents but their views and opinions are important to the Board of Commissioners and the CIP provides these non-resident property owners an excellent opportunity to participate in the land use plan update process. A total of 13,448 questionnaires were mailed to property owners. The CIP was also available on the Dare County website for completion. Any citizen or resident of the County who was not a property owner was able to complete the survey on-line. Copies of the CIP were also available for pick-up in the County offices or for mailing if requested.

This report details the results of the CIP with a narrative analysis and results tables for each question. A Likert scale (Strongly Agree, Agree, No Opinion, Disagree, and Strongly Disagree) was the response format for the majority of the questions. Several of the questions offered a different set of responses due to the subject nature of the question. All of the responses were tabulated using a software program provided by the Dare County Information Technology Department. The first section of this report is a narrative analysis of the results. The second section is a series of tables. Each table lists the survey question, how many individuals answered the question, how many skipped the question, the total number of responses as a percentage and a total number count for the response category of Strongly Agree, Agree, No Opinion, Disagree, or Strongly Disagree. A total of agreement or disagreement was calculated by the Planning Department staff with the majority category indicated in boldface text. Each table also provides a breakdown of the responses filtered by resident or non-resident property owner status.

Public input from workshops and other public forums will be analyzed with the CIP results and used by the Dare County Planning Board and Planning staff in drafting the 2008 update of the Dare County Land Use Plan. The CIP provides a good foundation of public input.

CIP ANALYSIS

A total of 2,050 responses to the survey were received by mail or by completion of the CIP on-line. This represents a 15.3% response rate based on the number of surveys that were mailed. Of this total, 1,067 responses (54.3%) were completed by Dare County residents and 885 responses were completed by non-resident property owners. Four demographic questions were included in the opening of the CIP to determine residency status and location of property ownership. Respondents were asked to indicate their area of residence by tax district and where they owned property by tax districts. A complete breakdown of the responses is provided in the tables included with this survey report. The Avon tax district had the highest number of responses (326) with the Manteo outside district (314) and the Colington district (292) ranking second and third respectively.

Following the demographic questions, the CIP asked respondents to list what they felt were the most important issues facing Dare County. Table 5 ranks the issues that were mentioned most often in the responses to question 5. Affordable housing and the replacement of the Bonner Bridge tied with the most responses at 172.

Question 6 addressed the limitation of estuarine bulkheads by the State of North Carolina. 47.3% of the respondents indicated that Dare County should support efforts by the State to limit the use of estuarine bulkheads while 31.6% expressed disagreement or strong disagreement with the question.

Questions 7 and 8 focused on the adequacy of the 30-foot CAMA estuarine buffer and ocean front setbacks. In regards to the 30-foot estuarine setback, a majority (60.2%) indicated they felt this buffer was adequate. Concerning ocean front setbacks, the results are evenly matched with 41.5% indicating agreement and 41.4% indicating disagreement.

Regarding the regulation of land clearing on private property, a slight majority of the responses (971 versus 805) felt that land clearing regulations should not be adopted by Dare County. Among the resident property owners, 288 indicated strong disagreement with the adoption of local land clearing regulations.

Question 10 asked about the adequacy of federal flood elevations for first floor elevations of buildings. Of the 1849 responses to this question, 1202 expressed strong agreement or agreement with the statement and 300 expressed disagreement or strong disagreement.

Question 11 posed the need to re-evaluate the 15,000 square foot minimum lot size. The responses were evenly matched with 39.5% of the responses supporting the re-evaluation of minimum lot size standard and 42.2% not supporting any re-evaluation. 18.5% indicated "no opinion" on this question.

Question 12 addressed the use of fill material on lots beyond what is required for wastewater improvements and whether this practice should continue to be unregulated by Dare County. A slight majority (53.3% or 1006 responses) disagreed or strongly disagreed with the question. Among resident property owners, 56.7%

indicated disagreement or strong disagreement with the question, a figure slightly higher than the combined resident/non-resident responses.

Current federal regulations for wetland protection were addressed in question 13. Most respondents, both resident and non-resident, indicated agreement with the adequacy of the current regulations. Of the 1844 answers, 763 were in the agree category combined with 246 answers of strongly agree for a total level of support of 53.6% or 1009 responses.

The adequacy of marina development was the focus of question 14. The highest ranking category for this question was “no opinion” with 43.2% which seems to indicate that most respondents did not understand the question or did not feel informed enough about the issue to respond with agreement or disagreement. The next question asked whether floating homes/structures should be prohibited. 58.0% or 1102 of the individuals answering the question agreed with the prohibition on floating homes/structures.

The continuation of single family homes as the preferred land use in unincorporated Dare County was the issue of question 16. An overwhelming majority (80.9%) expressed support. This strong level of support was shared by both residents and non-resident property owners.

Question 17 involved the use of single family homes as boarding houses and whether this use should be evaluated by Dare County. Of the 1882 responses, 943 answered strongly agree or agree, 350 offered no opinion, and 593 answered disagree or strongly disagree.

The format of question 18 varied by asking respondents what they felt was the appropriate dwelling density range for multi-family structures. Three options were offered – with 72.9% selecting 3-5 units per acre as the preferred range, 19.6% selecting 6-8 units per acre, and 7.7% selecting 10-12 units per acre. These percentages followed the same patterns among the resident property owners and non-resident property owners.

Should single family homes that are rented on a short-term basis have different standards for parking, trash pick-up and water rates? The results for question 19 indicated that 46.2% of the respondents did not think rentals should be treated differently. However, when filtered by residency status, the results indicate a 58.2% of residents agreed that rentals should be held to different standards while 60.5% of the non-resident property owners disagreed with the concept of different standards. This is not surprising since the majority of the non-resident property owners use their homes as short-term rentals.

Currently Dare County does not regulate parking lot/street vendors. Question 20 asked whether this unregulated state should continue. 53.5% indicated that such uses should continue to be unregulated. 19.2% indicated no opinion.

The proliferation of tourist-oriented stores was the focus of question 21 and whether these uses should be studied for possible regulatory standards. A clear consensus of the respondents (70.3% or 1327 answers) felt

these uses should be studied. This consensus was evident in both the resident and non-resident answers. Also, the proliferation of tourist-oriented commercial establishments was listed by several respondents as an important issue in question 5.

Questions 22 and 23 broached the topic of home occupations and the parking of heavy equipment in residential neighborhoods. Question 22 asked if the current regulation of home occupations is adequate. 51.2% of the total respondents indicated agreement. A large number of respondents (33.5%) indicated no opinion. Regarding the possible prohibition on the parking of dump trucks and heavy equipment in residential neighborhoods, the majority (70.8%) answered that such a prohibition was a good idea.

Does there need to be an annual limit on the number of building permits for unincorporated Dare County? Of the 1895 answers, 406 strongly agreed, 574 agreed, 297 offered no opinion, 392 disagreed, and 230 strongly disagreed.

Question 25 asked if funding for the enforcement of junked vehicles and unsightly structures should be increased. There was strong support among residents and non-residents for increased funding. 1416 respondents indicated support for a 74.6% majority.

The adequacy of sign enforcement in unincorporated Dare County was examined in question 26. 46.4% indicated agreement, 27.8% indicated no opinion, and 25.9% indicated disagreement.

The next three questions addressed the use of central wastewater treatment and collection plants, whether Dare County should investigate their construction, and whether they are acceptable alternatives when privately-owned or should only be government owned. Concerning the investigation of construction of central wastewater plants, 62.5% of the total responses offered support for the concept. This support was stronger among the non-resident property owners, perhaps because many of these individuals live in urban areas serviced by central wastewater treatment systems. 50.9% of the respondents to question 28 felt privately-owned central wastewater systems were acceptable. 27.4 % indicated no opinion on this question. Government ownership did not seem to make a difference to the respondents with only 46.3% indicating that central wastewater was more acceptable if owned by a government agency. The status of ownership, public versus private, did not appear to influence support relative to central wastewater facilities.

Questions 30 and 31 followed the theme of central wastewater treatment with these two questions asking if lot sizes should be decreased and dwelling densities increased for properties served by a central wastewater system. The status of public ownership versus private ownership was also factored into the questions. In response to publicly-owned wastewater systems, 53.0% or 998 individuals disagreed or strongly disagreed with decreased lot sizes and increased dwelling densities for properties served by central wastewater systems. This percentage increased to 61.8% of disagreement if the central wastewater facility is privately-owned.

The next question inquired about the zoning of Dare County waters to protect traditional uses and activities. A high percentage (72.2%) of the respondents agreed with this concept. This level of support was evident among both resident and non-resident property owners.

Should Dare County seek consensus from the State to re-evaluate the strict regulation of the SED-1 zoning district that applies to the Buxton Woods maritime forest? 1869 individuals responded to this question. 911 indicated no opinion, for a total of 48.7%. A total of 353 individuals answered strongly agree or agree and 609 answered disagree or strongly disagree. Most of the respondents to this question were resident property owners. Among the 1008 resident property owners that answered this question 215 selected strongly agree or agree and 328 selected disagree or strongly disagree, the largest number of responses among resident property owners was no opinion with 467 responses.

The location of non-maritime related industrial uses on oceanfront and soundfront properties was the topic of question 34. 1229 respondents agreed that non-maritime industries should not be permitted on oceanfront and soundfront sites. This represents a majority opinion of 65.2% of the 1887 individuals that chose to answer this question. This support was similar in both the resident and non-resident responses.

Question 35 examined the funding of a full-time stormwater management and ditch maintenance department. There was support for this effort among both residents and non-residents. A total of 65.2% of the answers indicated agreement with this question.

Question 36 asked about the re-evaluation of current lot coverage standards. No clear consensus can be determined from the results of this question. 1866 individuals chose to answer the question, with 39.6% choosing strongly agree or agree, 30.3% chose no opinion for their answer, and 30.4% chose disagree or strongly disagree. This same pattern was true for the resident and non-resident responses.

No determination of consensus was also the case with question 37 which questioned the adequacy of current State stormwater regulations. The highest number of responses was no opinion at 36.8%, followed by 35.2% responding disagree or strongly disagree and 28.3% indicating strongly agree or agree.

The topic of expenditures of occupancy taxes and land transfer taxes on non-tourist related items and infrastructure was examined in question 38. 64.5% of the 1880 responses expressed the need to re-evaluate the allocation of these two taxes. 18.4% disagreed with the need to examine how these taxes are spent.

The next two questions concentrated on off-shore exploration of oil and natural gas. The current Dare County policy opposes off-shore exploration of oil and natural gas. Question 39 asked if the County should continue to oppose exploration and question 40 asked if the exploration should be supported in light of recent fuel increases. 55.4% of the 1895 respondents felt the current policy opposing exploration should be continued. Of this 55.4% majority, 39.1% indicated strong agreement. 6.5% of the respondents selected no opinion to the question and 38.4% of the respondents disagreed with the continuation of the current policy. When the

question was posed relative to high fuel costs, the level of support for continued opposition to exploration decreased to 39.6% of the 1895 respondents.

Question 41 addressed a similar topic, alternative means of energy production. There was a strong level of support for encouragement of alternative means in unincorporated Dare County. 77.2% of the 1902 individuals that answered this question felt alternative means of energy production, including personal use windmills, should be supported.

The next two questions involved transportation issues. Should Dare County and its municipalities investigate a County-wide public transit system? Only 49.6% indicate such a concept should be investigated. 16.4% offered no opinion to this question. Question 43 asked if current NCDOT funding for transportation improvements in Dare County is adequate. 45.2% of the total answers indicated that the funding is inadequate. There were a large number of no opinions offered for this question, with non-residents selecting this response more often than residents.

Question 44 examined whether Dare County should resist efforts by the federal government to further restrict beach driving on federal lands. 65.1% of the respondents indicated Dare County should resist efforts to restrict beach driving. Of this 65.1% majority, 45.6% of the responses were in the strongly agree category. This strong level of agreement was selected by 44.0% of the resident property owners that answered this question and 47.6% of the non-resident property owners that answered this question. This topic was also listed many times as an important issue in question 5 found earlier in the survey.

Support for the acquisition of lands for future public projects was addressed in question 45. There was support for additional acquisitions with 62.3% of the answers or 1169 individuals offering support for such efforts. This majority was true for both resident and non-resident property owners.

Re-direction of current funding to promote tourism to funding of quality of life issues for Dare County residents was the next question. 68.1% or 1278 persons agreed with this question. The breakdown of resident versus non-resident resulted in a higher level of agreement (78.1%) of the residents responses compared to 56.1% of non-residents responses.

The last 3 questions were of a different format. Question 47 questioned what response to shoreline management the barrier island communities should take: abandon shoreline, beach nourishment, seawalls and groins, or relocate inland. Of the 1678 individuals that chose to answer this question, beach nourishment was chosen as the preferred alternative at 46.5%, followed by abandon shoreline at 25.4%, seawalls and groins at 24.9%, and relocate inland at 17.4%. The pattern of preferred alternatives was the same for both resident and non-resident respondents. Beach nourishment was favored by 35.5% of Dare County residents that responded to this question. Among non-resident property owners, beach nourishment garnered 60.2% of the responses over the other alternatives. Continuing with the shoreline management issue, question 48 presented 5 payment options for shoreline stabilization: occupancy tax, special district taxes, user fees,

federal/state funding, or property taxes. Of the 1738 responses, federal/state funding was selected by 57.7% or 1002 persons. The second preferred option was occupancy tax at 36.4%, followed by user fees at 26.6%, special district taxes at 22.1% and property taxes at 12.2%. This same order of preferred options was selected regardless of residency status.

In the last question, respondents were presented with 9 options and asked to indicate whether they would support paying higher taxes to fund each option. Only one of these options, acquisition of land for public use gained a majority of the responses (50.1%). Several other options such as stormwater management/ditch maintenance and bicycle path construction had favorable responses in the high 40 percentile range. The option of county mass transit system generated the most opposition among responses with 60.1%.

Appendix 3

What is your residence status?	Response	
	Percent	Count
Resident Property owner	52.9%	1067
Non-resident property owner	43.9%	885
Resident Renter	1.3%	26
Other	1.9%	39
	answered question	2017
	skipped question	33

Where do you live?	Tax District	Response	
		Percent	Count
	Avon	7.3%	88
	Buxton	8.8%	106
	Colington	15.6%	187
	Duck	0.8%	9
	East Lake	0.3%	3
	Frisco	8.7%	104
	Hatteras	5.6%	67
	Kill Devil Hills (town)	3.7%	44
	Kill Devil Hills (outside)	3.0%	36
	Kitty Hawk	2.7%	32
	Manns Harbor	2.5%	30
	Manteo (town)	1.2%	14
	Manteo (outside)	19.2%	230
	Martins Point	3.4%	41
	Mashoes	0.3%	3
	Nags Head	3.1%	37
	Rodanthe	1.5%	18
	Salvo	2.8%	33
	Southern Shores	1.7%	34
	Stumpy Point	2.4%	29
	Wanchese	5.1%	61
	Waves	1.4%	17
	answered question		1199
	skipped question		851

Appendix 3

Where do you own property?	Tax District	Response	
		Percent	Count
	Avon	16.4%	326
	Buxton	8.1%	160
	Colington	14.7%	292
	Duck	1.2%	23
	East Lake	0.4%	7
	Frisco	11.8%	234
	Hatteras	9.0%	179
	Kill Devil Hills (town)	3.8%	76
	Kill Devil Hills (outside)	3.9%	78
	Kitty Hawk	2.9%	58
	Manns Harbor	2.4%	48
	Manteo (town)	1.4%	28
	Manteo (outside)	15.8%	314
	Martins Point	2.5%	49
	Mashoes	0.4%	8
	Nags Head	3.5%	70
	Rodanthe	4.5%	90
	Salvo	6.9%	136
	Southern Shores	1.7%	34
	Stumpy Point	1.2%	24
	Wanchese	3.8%	75
	Waves	2.9%	58
	answered question		1984
	skipped question		66

Status of property	Percent	Count
Permanent residence	54.3%	1058
Weekly rental	23.9%	466
Monthly rental	7.0%	136
Business	3.4%	66
Vacant	12.1%	235
Other	17.0%	332
	answered question	1949
	skipped question	101

What issues do you think are most important to the future of Dare County?		
Answered question	1338	
Skipped question	713	
	Response	Number
	Affordable housing/workforce housing	172
	Bonner Bridge replacement -- short (17) long (16)	172
	Wetland protection/conservation of natural resources.	77
	Property taxes	75
	Wastewater/septic issues	73
	Beach access/public access	71
	Continued beach driving/ORV use	62
	Drinking water/central – general comments	55
	Beach nourishment – support	55
	Traffic congestion	53
	Transportation improvements/infrastructure needs	51
	Bikepaths/ multi-use paths	46
	Growth control/overdevelopment/zoning restrictions	45
	Stormwater management	44
	Repairs to NC 12	43
	Drug and alcohol abuse	39
	Commercial development regulations/limitation of tourist-oriented retail stores	39
	Schools	37
	Junk vehicles, junk boats, etc	35
	Density limitations	32
	Use of fill material on property	23
	Commercial fishing/fisheries resources	20
	Rising insurance rates	19
	Controlling government spending	19
	Illegal aliens	19
	Tourism—importance to local economy	19
	Economy growth/ expanded opportunities	18
	Large residential homes	18
	No beach nourishment	17
	Mid Currituck bridge construction	15
	Central water on Roanoke Island (support)	11
	Central water on Roanoke Island (oppose)	9
	Working waterfronts/public access	7
	Economic development – not just tourism	5
	Prohibited beach driving/ORV use	4
	Buxton Woods – revisions for more flexibility	3
	Buxton Woods – no revisions	3

Efforts by the State of North Carolina to limit the installation of bulkheads should be supported by Dare County.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	20.1%	374	Strongly Agree+ Agree		22.4%	226	17.2%	143
Agree	27.2%	505	47.3%	879	25.5%	257	29.4%	244
No Opinion	21.3%	396			17.1%	172	26.3%	218
Disagree	18.4%	342	Strongly Disagree + Disagree		19.6%	197	16.8%	139
Strongly Disagree	13.2%	246	31.6%	588	15.6%	157	10.6%	88
answered question	1859				1007		830	
skipped question	191				86		94	

The State 30-foot setback along ditches and canals that interconnect with estuarine water bodies is adequate.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	17.3%	326	Strongly Agree + Agree		19.4%	196	15.1%	128
Agree	42.9%	807	60.2%	1133	43.5%	439	42.1%	357
No Opinion	19.7%	370			15.0%	151	25.4%	215
Disagree	13.5%	253	Strongly Disagree + Disagree		13.9%	140	12.9%	109
Strongly Disagree	6.9%	129	20.4%	382	8.5%	86	4.8%	41
answered question	1881				1010		848	
skipped question	169				83		76	

Oceanfront setbacks for construction are adequate.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	9.2%	174	Strongly Agree + Agree		9.3%	94	9.2%	78
Agree	32.3%	608	41.5%	782	29.7%	301	35.5%	301
No Opinion	17.3%	326			15.8%	160	19.1%	162
Disagree	24.6%	463	Strongly Disagree + Disagree		25.4%	257	23.5%	199
Strongly Disagree	16.8%	316	41.4%	779	20.1%	204	12.9%	109
answered question	1883				1014		867	
skipped question	167				79		77	

Dare County should adopt regulations to control land clearing and tree removal on your property.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	16.4%	311	Strongly Agree + Agree		15.7%	160	17.4%	148
Agree	26.0%	494	42.4%	805	23.7%	242	29.3%	250
No Opinion	6.6%	125			5.5%	56	8.0%	68
Disagree	27.4%	519	Strongly Disagree + Disagree		27.2%	278	27.0%	230
Strongly Disagree	23.8%	452	51.2%	971	28.2%	288	18.5%	158
answered question	1897				1022		852	
skipped question	153				71		72	

Appendix 3

Current Federal flood regulations for first-floor elevations of buildings are adequate.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	11.3%	212	Strongly Agree + Agree		12.9%	130	9.7%	82
Agree	52.7%	990	64.0%	1202	51.5%	521	53.8%	455
No Opinion	20.3%	381			18.0%	182	22.9%	194
Disagree	11.1%	209	Strongly Disagree + Disagree		11.9%	120	10.4%	88
Strongly Disagree	4.8%	91	15.9	300	5.9%	60	3.4%	29
answered question	1879				1011		846	
skipped question	171				82		78	

The 15,000 square feet minimum lot size for new subdivision lots should be re-evaluated.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	12.6%	235	Strongly Agree + Agree		14.4%	145	10.6%	89
Agree	26.9%	503	39.5%	738	27.9%	280	25.8%	217
No Opinion	18.5%	345			16.0%	161	21.4%	180
Disagree	28.0%	524	Strongly Disagree + Disagree		27.8%	279	28.5%	240
Strongly Disagree	14.2%	266	42.2%	790	14.1%	142	14.0%	118
answered question	1869				1005		842	
skipped question	181				88		82	

The placement of fill on lots in excess of that required for the installation of wastewater improvements should continue to be unregulated.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	10.4%	197	Strongly Agree + Agree		12.5%	127	7.9%	67
Agree	22.4%	424	32.8%	621	21.6%	220	23.2%	197
No Opinion	14.1%	267			9.4%	96	19.7%	167
Disagree	31.5%	595	Strongly Disagree + Disagree		30.9%	315	32.3%	274
Strongly Disagree	21.8%	411	53.3%	1006	25.8%	263	17.1%	145
answered question	1890				1019		848	
skipped question	160				74		76	

Current federal regulations to protect wetlands are adequate.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	13.1%	246	Strongly Agree + Agree		13.8%	140	12.4%	105
Agree	40.5%	763	53.6%	1009	38.1%	386	43.4%	368
No Opinion	10.8%	204			9.4%	95	12.5%	106
Disagree	20.1%	379	Strongly Disagree + Disagree		20.6%	208	19.4%	165
Strongly Disagree	15.7%	296	35.8%	675	18.3%	185	12.6%	107
answered question	1884				1012		849	
skipped question	166				81		75	

Current State regulations for the development of marinas are adequate.								
			Totals	Resident		Non-resident		
	Percent	Count		Percent	Count	Percent	Count	
Strongly Agree	7.6%	144	Strongly Agree + Agree		8.7%	88	6.6%	56
Agree	28.9%	544	36.5%	688	30.6%	311	26.0%	226
No Opinion	43.2%	815			36.9%	375	51.0%	431
Disagree	12.6%	238	Strongly Disagree + Disagree		14.0%	142	10.8%	91
Strongly Disagree	7.9%	148	20.5%	386	10.1%	103	5.1%	43
answered question	1885				1017		845	
skipped question	165				76		79	

Floating homes/structures should be prohibited.								
			Totals	Resident		Non-resident		
	Percent	Count		Percent	Count	Percent	Count	
Strongly Agree	26.8%	509	Strongly Agree + Agree		24.9%	255	29.2%	249
Agree	31.2%	593	58.0%	1102	28.0%	287	34.6%	295
No Opinion	20.5%	390			21.3%	218	19.7%	168
Disagree	15.3%	290	Strongly Disagree + Disagree		16.9%	173	13.5%	115
Strongly Disagree	6.4%	122	21.7%	412	9.1%	93	3.3%	28
answered question	1900				1024		853	
skipped question	150				69		71	

Dare County should continue to advocate single family homes as the preferred land use in unincorporated Dare County.								
			Totals	Resident		Non-resident		
	Percent	Count		Percent	Count	Percent	Count	
Strongly Agree	41.1%	775	Strongly Agree + Agree		39.0%	397	43.5%	369
Agree	39.8%	751	80.9%	1526	39.6%	403	40.3%	342
No Opinion	7.6%	143			7.4%	75	7.5%	64
Disagree	8.4%	159	Strongly Disagree + Disagree		9.7%	99	6.8%	58
Strongly Disagree	3.4%	64	11.8%	223	4.4%	45	2.1%	18
answered question	1888				1017		849	
skipped question	162				76		75	

Dare County should evaluate the use of single family homes as boarding /rooming houses.								
			Totals	Resident		Non-resident		
	Percent	Count		Percent	Count	Percent	Count	
Strongly Agree	16.3%	307	Strongly Agree + Agree		15.3%	155	17.8%	151
Agree	33.8%	636	50.1%	943	35.4%	359	32.1%	272
No Opinion	18.6%	350			17.3%	175	20.0%	169
Disagree	20.7%	390	Strongly Disagree + Disagree		21.6%	219	19.4%	164
Strongly Disagree	10.8%	203	31.5%	593	10.6%	107	11.0%	93
answered question	1882				1013		847	
skipped question	168				80		77	

Appendix 3

Multifamily structures should only be permitted at which dwelling densities.						
			Resident		Non-resident	
	Percent	Count	Percent	Count	Percent	Count
3-5 units per acre	72.9%	1324	69.8%	685	76.3%	621
6.8 units per acre	19.6%	356	21.8%	214	17.1%	139
10-12 units per acre	7.7%	140	8.6%	84	6.9%	56
answered question	981		981		814	
skipped question	112		112		110	

Single family homes that are rented on a short-term basis should be considered as commercial activity with different standards for parking, trash pick-up and water rates.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	23.7%	448	Strongly Agree + Agree		32.5%	329	13.3%	113
Agree	21.1%	398	44.8%	846	25.7%	261	15.5%	132
No Opinion	9.3%	175			7.7%	78	11.0%	94
Disagree	24.9%	471	Strongly Disagree + Disagree		20.6%	209	29.9%	255
Strongly Disagree	21.3%	402	46.2%	873	13.7%	139	30.6%	261
answered question	1890				1014		853	
skipped question	160				79		71	

Parking lot/street vendors should continue to be unregulated.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	7.4%	141	Strongly Agree + Agree		9.2%	94	5.3%	45
Agree	25.9%	490	53.3%	631	29.1%	296	21.6%	184
No Opinion	19.2%	363			18.6%	189	20.0%	171
Disagree	34.9%	660	Strongly Disagree + Disagree		31.9%	324	38.6%	330
Strongly Disagree	12.9%	244	47.8%	904	11.4%	116	14.8%	126
answered question	1894				1017		854	
skipped question	156				76		70	

The proliferation of tourist-oriented retail stores should be studied for regulatory standards.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	31.6%	596	Strongly Agree + Agree		38.6%	391	23.6%	201
Agree	38.7%	731	70.3%	1327	35.4%	359	42.3%	360
No Opinion	14.0%	265			12.0%	122	16.6%	141
Disagree	10.8%	203	Strongly Disagree + Disagree		9.3%	94	12.3%	105
Strongly Disagree	5.1%	97	15.9%	300	4.8%	49	5.5%	47
answered question	1888				1013		852	
skipped question	162				80		72	

Appendix 3

Dare County zoning regulations for home offices/home occupations in residential neighborhoods are adequate.								
	Totals		Resident		Non-resident			
	Percent	Count	Percent	Count	Percent	Count		
Strongly Agree	9.8%	185	Strongly Agree + Agree		12.0%	121	7.3%	62
Agree	41.4%	779	51.2%	964	47.4%	480	34.0%	287
No Opinion	33.5%	630			23.8%	241	45.6%	385
Disagree	11.2%	210	Strongly Disagree + Disagree		12.1%	122	9.9%	84
Strongly Disagree	4.3%	80	15.5%	290	4.9%	50	3.4%	29
answered question	1880				1012		845	
skipped question	170				81		79	

Dare County should amend current zoning regulations to prohibit the parking of dump trucks, 18-wheelers and other similar heavy equipment in residential neighborhoods.								
	Totals		Resident		Non-resident			
	Percent	Count	Percent	Count	Percent	Count		
Strongly Agree	32.8%	624	Strongly Agree + Agree		30.0%	307	36.1%	309
Agree	38.0%	721	70.8%	1345	35.1%	359	41.6%	356
No Opinion	12.1%	230			12.3%	126	11.2%	96
Disagree	12.0%	228	Strongly Disagree + Disagree		15.1%	154	8.5%	73
Strongly Disagree	5.3%	101	17.3%	329	7.6%	78	2.7%	23
answered question	1900				1022		855	
skipped question	150				71		69	

An annual limit on the number of residential and commercial building permits should be considered in unincorporated Dare County.								
	Totals		Resident		Non-resident			
	Percent	Count	Percent	Count	Percent	Count		
Strongly Agree	21.4%	406	Strongly Agree + Agree		18.3%	186	25.0%	214
Agree	30.3%	574	51.7%	980	28.3%	287	32.9%	282
No Opinion	15.7%	297			15.7%	159	15.8%	135
Disagree	20.7%	392	Strongly Disagree + Disagree		22.1%	224	18.9%	166
Strongly Disagree	12.1%	230	32.8%	622	15.9%	162	7.6%	65
answered question	1895				1016		856	
skipped question	155				77		68	

Dare County should increase funding for enforcement activities to address the removal of junked vehicles and unsightly structures.								
	Totals		Resident		Non-resident			
	Percent	Count	Percent	Count	Percent	Count		
Strongly Agree	33.9%	644	Strongly Agree + Agree		34.5%	353	33.1%	282
Agree	40.7%	772	74.6%	1416	38.8%	397	42.8%	365
No Opinion	10.5%	200			9.1%	93	12.3%	105
Disagree	10.4%	197	Strongly Disagree + Disagree		11.9%	122	8.8%	75
Strongly Disagree	4.7%	90	15.1%	287	5.9%	60	3.3%	28
answered question	1899				1023		853	
skipped question	151				70		71	

Appendix 3

Current County regulation of signs, including off-premise billboards, is adequate.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	6.0%	114	Strongly Agree + Agree		7.2%	73	4.7%	40
Agree	40.4%	763	46.4%	877	44.3%	450	35.7%	303
No Opinion	27.8%	525			22.9%	232	34.0%	289
Disagree	17.5%	331	Strongly Disagree + Disagree		16.7%	169	18.5%	157
Strongly Disagree	8.4%	159	25.9%	490	9.2%	93	7.4%	63
answered question	1889				1015		850	
skipped question	162				78		74	

Dare County should investigate the construction of publicly-owned and operated central wastewater collection and treatment facilities for all areas on unincorporated Dare County.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	20.6%	389	Strongly Agree + Agree		21.5%	218	19.7%	169
Agree	41.9%	792	62.5%	1181	38.7%	392	45.4%	389
No Opinion	17.9%	338			16.1%	163	20.1%	172
Disagree	12.1%	229	Strongly Disagree + Disagree		13.1%	133	10.7%	92
Strongly Disagree	7.8%	148	19.9%	377	10.7%	108	4.3%	37
answered question	1892				1012		857	
skipped question	158				81		67	

Privately-owned and operated on-site central wastewater collection and treatment plants are acceptable alternatives only when natural soil conditions preclude the use of traditional on-site wastewater systems.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	8.4%	157	Strongly Agree + Agree		8.4%	85	8.3%	70
Agree	42.5%	797	50.9%	954	42.6%	430	42.7%	360
No Opinion	27.4%	513			24.5%	247	30.8%	260
Disagree	14.5%	271	Strongly Disagree + Disagree		14.8%	149	13.8%	116
Strongly Disagree	7.6%	142	22.1%	413	10.0%	101	4.6%	39
answered question	1876				1010		843	
skipped question	174				83		81	

Off-site central wastewater treatment and collection systems should be authorized only if owned and operated by a government agency.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	14.4%	271	Strongly Agree + Agree		15.2%	154	13.6%	116
Agree	31.8%	603	46.3%	874	31.3%	315	32.9%	281
No Opinion	25.4%	474			23.3%	236	27.3%	233
Disagree	20.7%	391	Strongly Disagree + Disagree		20.5%	207	20.6%	176
Strongly Disagree	8.2%	154	28.9%	545	10.1%	102	5.9%	50
answered question	1889				1012		854	
skipped question	161				81		70	

Decreased lot sizes/increased dwelling densities should be available for property served by a central wastewater treatment plant that is owned and operated by the local governments.

	Totals		Resident		Non-resident			
	Percent	Count	Percent	Count	Percent	Count		
Strongly Agree	6.0%	113	Strongly Agree + Agree		6.7%	68	5.3%	45
Agree	25.1%	472	31.1%	585	26.5%	267	23.6%	201
No Opinion	16.1%	304			14.8%	149	17.6%	150
Disagree	29.9%	563	Strongly Disagree + Disagree		29.1%	294	30.7%	261
Strongly Disagree	23.1%	435	53.0%	998	23.1%	233	23.0%	196
answered question	1883				1009		851	
skipped question	167				84		73	

Decreased lot sizes/increased dwelling densities should be available for property served by a central wastewater treatment plant that is owned and operated by a private company.

	Totals		Resident		Non-resident			
	Percent	Count	Percent	Count	Percent	Count		
Strongly Agree	4.6%	86	Strongly Agree + Agree		4.9%	50	4.1%	35
Agree	16.8%	318	21.4%	404	17.3%	175	16.1%	137
No Opinion	17.1%	322			16.3%	165	18.1%	154
Disagree	33.9%	639	Strongly Disagree + Disagree		33.8%	343	34.0%	289
Strongly Disagree	27.9%	527	61.8%	1166	27.9%	283	28.0%	238
answered question	1888				1014		851	
skipped question	162				79		73	

Dare County should zone its surrounding water bodies to protect traditional activities and uses.

	Totals		Resident		Non-resident			
	Percent	Count	Percent	Count	Percent	Count		
Strongly Agree	30.1%	566	Strongly Agree + Agree		29.0%	294	31.9%	269
Agree	42.1%	791	72.2%	1357	40.7%	413	43.4%	366
No Opinion	10.1%	189			8.9%	90	11.6%	98
Disagree	11.8%	222	Strongly Disagree + Disagree		13.6%	138	9.4%	79
Strongly Disagree	6.2%	117	18.0%	339	8.0%	81	4.0%	34
answered question	1881				1014		844	
skipped question	169				79		80	

Dare County should seek consensus from the State that the strict regulations of the SED-1 zoning district for the Buxton Woods maritime forest should be re-evaluated.

	Totals		Resident		Non-resident			
	Percent	Count	Percent	Count	Percent	Count		
Strongly Agree	5.9%	111	Strongly Agree + Agree		7.1%	72	4.5%	38
Agree	13.0%	242	18.9%	353	14.2%	143	11.3%	95
No Opinion	48.7%	911			46.3%	467	51.6%	432
Disagree	16.5%	308	Strongly Disagree + Disagree		16.7%	168	16.6%	139
Strongly Disagree	16.1%	301	32.6%	609	15.9%	160	16.2%	136
answered question	1869				1008		838	
skipped question	181				85		86	

Non-maritime related industrial uses should not be permitted on oceanfront and soundfront properties.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	31.9%	601	Strongly Agree + Agree		30.3%	307	33.7%	286
Agree	33.3%	628	65.2%	1229	31.7%	322	35.1%	298
No Opinion	13.9%	263			14.6%	148	13.2%	112
Disagree	14.6%	276	Strongly Disagree + Disagree		16.1%	163	13.0%	110
Strongly Disagree	6.5%	123	21.1%	399	7.6%	77	5.3%	45
answered question	1887				1015		849	
skipped question	163				78		75	

Dare County should establish and fund a full-time stormwater management and ditch maintenance department.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	21.2%	402	Strongly Agree + Agree		23.6%	240	18.6%	159
Agree	44.0%	834	65.2%	1236	43.5%	443	44.7%	382
No Opinion	17.1%	324			14.5%	148	20.3%	173
Disagree	12.8%	242	Strongly Disagree + Disagree		12.4%	126	13.1%	112
Strongly Disagree	5.1%	97	17.9%	339	6.3%	64	35%	30
answered question	1895				1019		854	
skipped question	155				74		70	

Current lot coverage standards for residential and commercial uses should be re-evaluated.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	9.5%	177	Strongly Agree + Agree		11.9%	119	6.8%	57
Agree	30.1%	562	39.6%	739	31.2%	313	29.1%	244
No Opinion	30.3%	565			20.9%	210	41.4%	348
Disagree	22.9%	427	Strongly Disagree + Disagree		26.9%	270	17.9%	150
Strongly Disagree	7.5%	139	30.4%	566	9.3%	93	5.1%	43
answered question	1866				1003		840	
skipped question	184				90		84	

Current State regulations to address stormwater runoff are adequate.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	5.2%	98	Strongly Agree + Agree		5.9%	60	4.3%	36
Agree	23.1%	432	28.3%	530	26.0%	263	19.5%	164
No Opinion	36.8%	689			28.9%	292	46.5%	391
Disagree	25.2%	472	Strongly Disagree + Disagree		26.3%	266	23.7%	199
Strongly Disagree	10.0%	187	35.2%	659	13.0%	131	6.3%	53
answered question	1874				1010		841	
skipped question	176				83		83	

The use of occupancy taxes and land transfer taxes should be re-evaluated to allow expenditures on non-tourist related items and infrastructure improvements.

			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	20.6%	387	Strongly Agree + Agree		29.0%	295	10.5%	88
Agree	43.9%	825	64.5%	1212	44.5%	453	42.8%	360
No Opinion	17.3%	325			12.0%	122	24.0%	202
Disagree	12.0%	226	Strongly Disagree + Disagree		9.3%	95	15.3%	129
Strongly Disagree	6.4%	121	18.4%	347	5.3%	54	7.6%	64
answered question	1880				1017		841	
skipped question	170				76		83	

Dare County should continue to oppose off-shore exploration for oil and natural gas off the NC coast.

			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	39.1%	741	Strongly Agree + Agree		39.3%	401	38.9%	332
Agree	16.3%	309	55.4%	1050	14.5%	148	18.6%	159
No Opinion	6.5%	123			5.5%	56	7.5%	64
Disagree	20.3%	384	Strongly Disagree + Disagree		21.3%	217	19.1%	163
Strongly Disagree	18.1%	342	38.4%	726	19.6%	200	16.1%	137
answered question	1895				1020		853	
skipped question	155				73		71	

Off-shore exploration for oil and natural gas off the NC coast should be supported in response to increased fuel costs in the US.

			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	18.4%	349	Strongly Agree + Agree		20.6%	210	15.7%	134
Agree	21.2%	402	39.6%	751	22.2%	226	20.2%	173
No Opinion	7.9%	150			7.6%	77	8.1%	69
Disagree	21.0%	398	Strongly Disagree + Disagree		18.9%	193	23.7%	203
Strongly Disagree	31.7%	600	28.9%	998	30.9%	315	32.5%	278
answered question	1895				1019		855	
skipped question	155				74		69	

Alternative means of energy production, including personal use windmills, should be encouraged in unincorporated Dare County.

			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	37.1%	706	Strongly Agree + Agree		41.3%	421	32.6%	280
Agree	40.1%	762	77.2%	1468	38.1%	389	42.4%	364
No Opinion	10.8%	206			10.7%	109	10.9%	94
Disagree	7.8%	149	Strongly Disagree + Disagree		6.2%	63	9.8%	84
Strongly Disagree	4.4%	83	11.9%	232	3.9%	40	4.5%	39
answered question	1902				1020		859	
skipped question	148				73		65	

Dare County and its municipalities should investigate a County-wide public transit system.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	16.8%	318	Strongly Agree + Agree		22.8%	232	9.9%	84
Agree	32.8%	620	49.6%	938	36.3%	369	28.7%	243
No Opinion	16.4%	309			12.0%	122	21.8%	185
Disagree	21.8%	411	Strongly Disagree + Disagree		18.9%	192	25.5%	216
Strongly Disagree	12.4%	234	34.2%	645	10.3%	105	14.4%	122
answered question	1888				1018		848	
skipped question	162				75		76	

Current State/NCDOT transportation funding of road improvements in Dare County is adequate.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	3.8%	71	Strongly Agree + Agree		3.9%	39	3.8%	32
Agree	24.7%	465	28.5%	336	26.6%	269	22.6%	191
No Opinion	26.5%	499			21.7%	219	32.2%	273
Disagree	27.7%	521	Strongly Disagree + Disagree		28.2%	285	27.0%	229
Strongly Disagree	17.5%	328	45.2%	849	19.8%	200	14.6%	124
answered question	1880				1010		847	
skipped question	170				83		77	

Dare County should resist efforts by the Federal government to further restrict beach driving on Federal lands.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	45.6%	867	Strongly Agree + Agree		44.0%	447	47.6%	411
Agree	19.5%	371	65.1%	1238	19.8%	201	19.2%	166
No Opinion	6.8%	129			7.3%	74	6.0%	52
Disagree	13.8%	262	Strongly Disagree + Disagree		14.4%	146	13.1%	113
Strongly Disagree	14.6%	278	28.4%	540	14.9%	151	14.3%	123
answered question	1903				1017		863	
skipped question	147				76		61	

Acquisition of additional lands for future public projects should be supported.								
			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	20.0%	376	Strongly Agree + Agree		18.8%	190	21.5%	181
Agree	42.3%	793	62.3%	1169	41.8%	422	42.8%	361
No Opinion	17.7%	332			16.6%	168	19.0%	160
Disagree	12.4%	232	Strongly Disagree + Disagree		13.5%	136	11.1%	94
Strongly Disagree	7.9%	148	20.3%	380	9.5%	96	5.9%	50
answered question	1877				1010		844	
skipped question	173				83		80	

Current funding used to promote tourism should be re-evaluated for spending on quality of life issues for Dare County residents.

			Totals		Resident		Non-resident	
	Percent	Count			Percent	Count	Percent	Count
Strongly Agree	30.1%	565	Strongly Agree + Agree		41.4%	419	16.5%	139
Agree	38.0%	713	68.1%	1278	36.7%	371	39.6%	334
No Opinion	13.6%	255			8.4%	85	20.1%	169
Disagree	13.3%	250	Strongly Disagree + Disagree		10.0%	101	17.3%	146
Strongly Disagree	5.2%	98	18.5%	348	3.8%	38	6.8%	57
answered question	1877				1012		843	
skipped question	173				81		81	

The barrier island communities of Dare County should implement which of the following:

			Resident		Non-resident	
	Percent	Count	Percent	Count	Percent	Count
Abandon Shoreline	25.4%	426	30.3%	273	19.2%	145
Beach nourishment	46.5%	780	35.5%	320	60.2%	456
Seawalls, groins, hardened structures	24.9%	418	26.2%	236	23.4%	177
Relocate inland	17.4%	292	20.0%	180	14.3%	108
Answered question	1678		901		757	
Skipped question	372		192		167	

Which of the following options should be used to fund shoreline stabilization:

			Resident		Non-resident	
	Percent	Count	Percent	Count	Percent	Count
Occupancy tax	36.4%	633	42.5%	388	30.1%	243
Special district taxes	22.1%	384	27.3%	249	16.5%	133
User fees	26.6%	463	25.9%	236	27.0%	218
Federal/State funding	57.7%	1002	49.9%	455	67.0%	541
Property taxes	12.2%	212	9.5%	87	15.5%	125
	1738		912		808	
	312		181		116	

Appendix 3

I would support higher taxes to fund:											
	Response			Resident			Non-resident				
	Yes	No	Opinion	Yes	No	Opinion	Yes	No	Opinion		
Stormwater management/ditch maintenance	46.2% (858)	41.5% (770)	12.3% (228)	45.3% (449)	44.6% (442)	10.2% (101)	47.3% (398)	38.0% (320)	14.7% (842)		
Bicycle/multi-use paths	49.4% (926)	43.1% (808)	7.6% (142)	50.3% (508)	42.6% (430)	7.1% (72)	48.3% (408)	43.6% (368)	8.1% (68)		
Acquisition of land for public use and recreation	50.1% (934)	41.8% (780)	8.1% (152)	47.8% (479)	43.7% (438)	8.5% (85)	52.7% (444)	39.5% (333)	7.8% (66)		
Removal of junked vehicles/unsightly structures	46.8% (872)	46.5% (865)	6.7% (125)	44.5% (444)	49.4% (493)	6.0% (60)	49.1% (414)	43.3% (365)	7.6% (64)		
County mass transit system	29.6% (551)	60.1% (1118)	10.3% (192)	36.0% (359)	54.9% (539)	9.1% (91)	22.1% (186)	66.1% (556)	11.8% (99)		
Road improvements to accelerate NCDOT projects	36.7% (679)	49.9% (924)	13.4% (248)	33.9% (337)	54.2% (539)	12.0% (119)	40.4% (337)	44.4% (371)	15.2% (127)		
Curbside recycling pick-up	43.4% (811)	49.3% (920)	7.3% (136)	42.6% (426)	51.4% (515)	6.0% (60)	44.7% (377)	46.4% (392)	8.9% (75)		
Shoreline access improvements	44.9% (840)	44.7% (835)	10.4% (194)	42.9% (431)	47.8% (480)	9.3% (93)	47.4% (400)	40.8% (344)	11.8% (100)		
Community centers	32.3% (602)	54.7% (1019)	13.0% (242)	37.2% (372)	52.8% (528)	10.0% (100)	27.0% (227)	56.5% (476)	16.5% (139)		

ANALYSIS OF 2003 LUP POLICIES AND IMPLEMENTATION STRATEGIES		
Natural Resources		
WETLANDS		
Policy	Implementation Strategies	Response
<p>Policy #1 Dare County advocates the use of existing (2002) State and Federal regulatory programs for protecting and preserving coastal wetland areas of environmental concern. Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the regulation of coastal wetland areas of environmental concern.</p>	<p>1. Implementation and enforcement of CAMA use standards for coastal wetland AECs as identified under 15NCAC7H, Sections .0205 and .0208. 2. The County will continue to administer the CAMA local permit enforcement program and maintain the staff necessary for this work. 3. As may be necessary to facilitate implementation of permit programs for wetland management.</p>	<p>FULLY IMPLEMENTED, the county maintains a full-time permit officer who continues to implement CAMA use standards for coastal wetland AECs and enforces wetland management permit programs. The current policies have been effective in protecting these natural systems.</p>
<p>Policy #2 Dare County supports the use of mitigation for the loss of wetland areas for public purpose projects. Private development projects that proposed wetland mitigation may be supported by Dare County if such projects will serve an identified public need and/or policy of the land use plan. For both public and private mitigation projects, up to 25% of the mitigation should take place on site or in Dare County.</p>		
<p>Policy #3 Dare County supports the U.S. Army Corps of Engineers nationwide permit program as administered in 2002. This support is based on the current scope of permitting limits on the nationwide program and not on any changes that may result in a different policy.</p>		

OCEAN SHORELINE		
<p>Policy #4 Oceanfront shoreline development should continue to be managed to protect and preserve the natural and recreational resources along the oceanfront. Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the regulation of ocean hazards areas of environmental concern.</p>	<ol style="list-style-type: none"> 1. Implementation and enforcement of the CAMA use standards for ocean hazard areas as contained in 15NCAC7H, Sections .0306 through .0310. 2. Implementation and enforcement of the National Flood Insurance Program's base flood elevation standards, including the standards for those areas where wind driven waves create potential for damage by velocity also known as V-zones. 	<p>FULLY IMPLEMENTED, the county maintains a full-time permit officer who continues to implement CAMA use standards for ocean hazard areas. The county continues to enforce the National Flood Insurance Program's base flood elevation standards, including the adoption of the September, 2006 update of the Flood Insurance Rate Maps. These maps ensure that standards applying to V-zones can be properly enforced. The application of these policies have been effective in protecting and preserving the natural and recreational resources along the oceanfront.</p>

ESTUARINE SHORELINE WATERS	
<p>Policy #5 Estuarine shoreline development should continue to be managed to protect and preserve the natural resources of the estuarine waters and the estuarine shoreline. The appropriate tools for this is the existing CAMA permit program and the Areas of Environmental Concerns (AECs) designated under the CAMA program. Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the regulation of estuarine waters and/or the estuarine shoreline.</p>	<p>1. Implementation and enforcement of the CAMA use standards for estuarine shoreline AECs as stated in 15NCAC7H, Section .0209</p> <p>2. Refer property owners to the Elizabeth City regional office for assistance with bulkhead permits.</p> <p>3. Oppose efforts to eliminate or prioritize the use of estuarine bulkheads.</p>
<p>Policy #6 Dare County supports the installation and maintenance of estuarine bulkheads. Offshore breakwaters, slopes, rip-rap, and voluntary setbacks in excess of CAMA 30-foot buffer rules should be promoted as additional methods for estuarine shoreline management in lieu of estuarine bulkheads along estuarine shorelines where these less invasive techniques would be equally effective in abating a shoreline erosion problem</p>	<p>FULLY IMPLEMENTED, the county maintains a full-time permit officer who continues to implement CAMA use standards for estuarine shoreline AECs. The permit officer refers applicants to the Elizabeth City regional office for assistance in securing bulkhead permits when necessary. These measures have effectively protected against shoreline erosion.</p>
<p>Policy #7 Development of estuarine systems islands that are only accessible by boat shall be carefully managed. Low intensity uses such as open space, recreation, and detached single family residential development shall be the preferred uses of these islands.</p>	

PUBLIC TRUST AREAS		
<p>Policy #8 Dare County supports the preservation and protection of the public's right to access and use of the public trust areas and waters.</p>	<p>1. Implementation and enforcement of the CAMA use standards for public trust areas AECs as stated in 15A NCAC 07H, Section .0207.</p> <p>2. Consideration of Dare County management standards for the use of public trust waters by various competing recreation users.</p>	<p>FULLY IMPLEMENTED, the county maintains a full-time permit officer who continues to implement CAMA use standards for public trust area AECs. The county continues to monitor the use of public trust waters by various competing recreation interests, and has taken measures to restrict certain uses through vehicles such as conditional use permits. The current policies have been effective in preserving and protecting the public's right to access and use public trust areas.</p>
<p style="text-align: center;">PUBLIC WATER SUPPLY AEC'S</p>		
<p>Policy #10 Development in any public water supply AEC should be managed to protect the long-term viability of the groundwater resources.</p>	<p>1. Continued support for the CAMA use standards for public water supply wellfield AECs as contained in 15NCAC7H, Section .0406.</p> <p>2. Dare County will continue to implement and enforce the provisions of the SED-1 zoning ordinance for the Buxton Woods maritime forest.</p> <p>3. Nomination of Skyco public wellfields for designation by the Division of Coastal Management as a Public water Supply Area of Environmental Concern.</p>	<p>FULLY IMPLEMENTED. The county maintains a full-time permit officer who continues to implement CAMA use standards for public water supply AECs. The status of the Skyco public well fields as an AEC continues to be monitored. While the policies have been effective in protecting groundwater resources, the efficacy of the SED-1 zoning district may need to be reevaluated during the next review of the LUP, due to a number of requests to amend the district.</p>

GROUNDWATER RESOURCES		
<p>Policy #11 Dare County recognizes groundwater resources as an essential element for the County's drinking water supply. The management of groundwater resources and their protection is a priority issue in Dare County.</p>	<ol style="list-style-type: none"> 1. To continue efforts to make a central water supply available to all areas of unincorporated Dare County. Coordinate with Water Department (multiple years, Stumpy Point 2003) 2. Review any proposals by private sector withdrawals greater than withdrawals for individual residential private wells. 3. Dare County will consider a permitting program for private wells used as a drinking water supply (2004) 4. Contract with independent planning consultant to update Carrying Capacity Study for Dare County. (2004) 	<p>PARTIALLY IMPLEMENTED. The county has proceeded in extending central water service so several areas of the county successfully. However, efforts to do so in Wanchese has recently been met with some resistance from the public. Development proposals which seek to withdraw from the public water supply continue to be reviewed critically by county officials. These measures have proven effective at protecting and preserving local groundwater resources. A Carrying Capacity Study has yet to be implemented by Dare County, however, the prospect of administering such a study is still a matter of consideration.</p>
SURFACE WATER QUALITY		
<p>Policy #12 Dare County supports efforts by local, state, and federal agencies to preserve, protect and improve water quality. These efforts include the designation of Outstanding Resource Waters and shellfish water classification criteria established by the State of North Carolina.</p>	<ol style="list-style-type: none"> 1. Continue local water quality monitoring program. 2. Support State legislation for basin-wide water quality regulations, as exemplified by HB 1858 introduced in the NC House in 2000, which proposed that counties upstream from the coastal area develop and implement water quality management plans. 	<p>FULLY IMPLEMENTED. The Dare County Department of Environmental Health maintains a rigorous surface water quality monitoring program. The Health Department also advocates for basin-wide water quality regulations. These policies have been effective in maintaining the pristine quality of Dare County's surface waters and shellfish habitat.</p>
<p>Policy #13 Dare County encourages the management of surface water quality on basin-wide approach recognizing the importance of water quality in other inland regions influence and impact the water quality of the coastal regions.</p>		

SHORELINE ACCESS		
<p>Policy #14 Dare County supports North Carolina's shoreline access policies as stated in 15A NCAC 7M, Section .0303. Dare County recognizes shoreline access to both ocean and estuarine shorelines as a key component in the local tourist economy.</p>	<p>1. Continue to evaluate opportunities for additional access facilities and grant funding programs to provide money for their construction. 2. Continue to pursue federal Shoreline Protection Plan for beach nourishment to provide sandy beaches and public ownership.</p>	<p>FULLY IMPLEMENTED. The county continues to evaluate opportunities for additional access facilities and grant funding programs to provide for their construction on a case by case basis. The county maintains a full time Shoreline Manager whose responsibility includes the monitoring of federal Shoreline Protection Plans and beach nourishment activities. These measures have been effective at properly managing and promoting shoreline access.</p>
CHANNEL MAINTENANCE		
<p>Policy #15 Dare County advocates the maintenance of all existing navigable channels and will work to secure permit authorization for those non-federal projects that require CAMA permit authorization.</p>	<p>1. Continued funding for Oregon Inlet and Waterways Commission and staff to provide support for the on-going efforts to secure jetty permit authorization.</p>	<p>FULLY IMPLEMENTED, the Oregon Inlet and Waterways Commission and staff continue to be the primary advocates and monitors of the conditions and issues regarding navigable waterways in Dare County. The Commission and staff have been effective in their role, particularly with regards to Oregon Inlet and the fishing industry in Dare County.</p>
<p>Policy #16 Dare County advocates and supports the permit authorization and federal funding necessary to construct jetties to stabilize Oregon Inlet.</p>		

BEACH NOURISHMENT		
<p>Policy #17 Beach nourishment is the preferred shoreline management alternative along the ocean beaches of Dare County.</p>	<ol style="list-style-type: none"> 1. Continue to serve as the non-federal sponsor of the Dare Beaches Hurricane Protection Plan. 2. Use the Dare County Beach Nourishment Committee to advise the County Commissioners on policy issues related ocean shoreline management. 3. Coordinate with NCDOT and the appropriate federal agencies on matters relating to shoreline movement and its impacts on NC 12. 	<p>FULLY IMPLEMENTED. The county maintains a full-time Shoreline Manager whose responsibilities include monitoring beach nourishment strategies. Other measures related to ocean shoreline management, as well as the preservation and maintenance of NC 12 continue to be considered on a case by case basis. These efforts have been effective at balancing the environmental and economic implications of beach nourishment strategies.</p>
DEVELOPMENT IMPACTS ON RESOURCES		
<p>Policy #18 Development projects shall be designed and constructed to minimize detrimental impacts on surface water quality, groundwater quality and air quality. Structures should be designed to fit the natural topographic conditions and vegetation versus modifications to natural conditions to accommodate structures.</p>	<ol style="list-style-type: none"> 1. Consider tree removal and vegetation protection standards for commercial sites. 2. Encourage property owners to design residential sites limit impacts on the natural topography and vegetation. 	<p>FULLY IMPLEMENTED. While no codified vegetation protection standards have yet been implemented, the issue remains a topic of consideration for the county. Developers are encouraged to preserve topographic and vegetative conditions, and in some cases, required to install certain vegetative features (e.g., buffers) as a condition of approval for development. These strategies have been effective at limiting adverse impacts to the natural terrain and vegetation Dare County.</p>
MINERAL RESOURCES		
<p>Policy #19 Dare County advocates local level management of those mining activities that are not subject to permit authorization by the State of North Carolina.</p>	<ol style="list-style-type: none"> 1. Enforcement of dune standards contained in Dare County Zoning Ordinance 2. Dare County will evaluate the need for local level regulations to address mining activities that are exempt from State-level permitting. (2004) 	<p>FULLY IMPLEMENTED. The county continues to enforce standards to protect shoreline dune systems. Borrow pit and sand mining activities are monitored for compliance with State standards, while local level regulations remain an issue for consideration. These efforts have effectively regulated sand mining activities, and limited degradation of dune systems</p>

FISHERIES RESOURCES	
<p>Policy #20 The continued productivity of commercial and recreational fisheries shall be fostered through restoration and protection of the unique coastal ecosystems upon which they depend.</p>	<p>Policy #21 Dare County supports measures to protect and preserve designated primary nursery areas. Dare County also recognizes the importance of all areas in our surrounding waters that serve as habitats for the area's abundant fisheries resources.</p> <p>Policy #22 State and federal agencies with the authority to manage fisheries resources should be the responsible parties for the resolution of conflicts involving fisheries resources in Dare County. However, Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the fisheries resources or management.</p> <p>Policy #23 Dare County supports the development of the aquaculture industry as a source of fishery production as long as the proposed fishery or fish species does not negatively impact native or indigenous fish species.</p> <p>Policy #24 Dare County recognizes the traditional practices of commercial fishing in Dare County and supports the use of traditional shellfish and other fish harvesting methods including trawling.</p>
<p>Policy #21 Dare County supports measures to protect and preserve designated primary nursery areas. Dare County also recognizes the importance of all areas in our surrounding waters that serve as habitats for the area's abundant fisheries resources.</p>	
<p>Policy #22 State and federal agencies with the authority to manage fisheries resources should be the responsible parties for the resolution of conflicts involving fisheries resources in Dare County. However, Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the fisheries resources or management.</p>	
<p>Policy #23 Dare County supports the development of the aquaculture industry as a source of fishery production as long as the proposed fishery or fish species does not negatively impact native or indigenous fish species.</p>	
<p>Policy #24 Dare County recognizes the traditional practices of commercial fishing in Dare County and supports the use of traditional shellfish and other fish harvesting methods including trawling.</p>	<p>Policy #20 The continued productivity of commercial and recreational fisheries shall be fostered through restoration and protection of the unique coastal ecosystems upon which they depend.</p>
<p>FULLY IMPLEMENTED. The county maintains a full-time permit officer who continues to enforce the CAMA 30-foot buffer and AEC regulations. Local zoning setbacks are strictly enforced during the building permit review process. The county advocates the development of "working waterfronts" in an effort to promote responsible and sustainable use of sensitive estuarine shorelines, while contributing to the preservation of certain historically-significant maritime industries. These efforts have been substantially effective at preserving fisheries resources and fishing activities.</p>	

MARITIME FORESTS		
<p>Policy #25 Dare County advocates a combination of limited development guided by the local SED-1 zoning ordinance and a program of public acquisition to manage the Buxton Woods maritime forest.</p>	<ol style="list-style-type: none"> 1. Continued enforcement of SED-1 zoning district. 2. Support of funding sources, like the Clean Water Trust Fund, for acquisition of lands in Buxton Woods and other maritime forest settings. 3. Consideration of other measures on vegetation protection incentives for the maritime forest areas on Colington and Roanoke Island. 	<p>FULLY IMPLEMENTED. Despite various efforts to amend or repeal measures of the SED-1 zoning district, most components of the district have remained fully enforced. However, the S-1 district has been amended to allow mobile homes, in an effort to promote affordable housing options. Dare County continues to advocate funding for the preservation of maritime forests. While no vegetation protection standards have yet been implemented, the issue remains a topic of consideration for the county. The county currently encourages vegetation protection measures to be included in subdivision covenants. These strategies have been effective at preserving maritime forests and other vegetative features throughout the county.</p>
COMMERCIAL FORESTRY		
<p>Policy #26 Commercial forestry activities shall be supported by Dare County, so long as activities are done in accordance with the standards and recommendations of the U.S. Forest Service. The County also advocates the voluntary participation in the State of North Carolina's best management practice program for forestry management.</p>	<p>No strategy necessary at this time due to minimal amount of commercial forestry activities in Dare County</p>	<p>Commercial forestry activities continue to play a minimal role in the commerce of Dare County.</p>

PRODUCTIVE AGRICULTURAL LANDS		
<p>Policy #27 Dare County supports the use of certain portions of the Mainland area for crop agriculture. The County also advocates voluntary participation in the State of North Carolina's best management practices program for farm management.</p>	<p>1. Monitor and advocate State-sponsored legislative efforts that address the location and permitting of wholesale livestock operations.</p>	<p>FULLY IMPLEMENTED. While no new or proposed wholesale livestock operations have been introduced in Dare County, the county continues to monitor legislative activities which might regulate these operations. This may prove effective if livestock operations are proposed in the future.</p>
<p>Policy #28 Wholesale or industrial livestock operations are opposed.</p>		
ARCHAEOLOGICAL/HISTORICAL RESOURCES		
<p>Policy #29 The Dare County Board of Commissioners supports the protection of structures, lands, and artifacts that have been identified by the NC Department of Cultural Resources, Division of Archives and History, as archaeologically or historically significant. On a case-by-case basis individual protection/management strategies should be implemented to ensure archaeological and/or historical resources are not destroyed.</p>	<p>1. Seek funding from the State of North Carolina to undertake a comprehensive inventory of those historic architect and landscape, not already in public ownership, to be used as a planning tool to identify any historic, cultural, and/or archeological resources.</p>	<p>NOT YET IMPLEMENTED. While this strategy has not yet been implemented, the county continues to recognize the importance of preserving archaeological and historic resources. Efforts to preserve these resources will continue to be considered, and may be effective tools to increase cultural awareness.</p>
WILDLIFE RESOURCES		
<p>Policy #30 Dare County supports the maintenance of preserve areas for wildlife habitat and access to the public to these areas for managed wildlife harvesting and observation.</p>	<p>1. Work with appropriate federal agencies to allow the continued access to federal property in Dare County for hunting, fishing and other similar activities.</p>	<p>FULLY IMPLEMENTED. The county continues to advocate for public access to federal property for the purposes of hunting, fishing, and similar activities. These efforts have effectively balanced the protection of wildlife resources and promoting traditionally popular activities such as hunting and fishing.</p>

Regulatory Issues	
TOPOGRAPHIC CONDITIONS	
<p>Policy #31 Dare County supports as minimum standards, the administration and enforcement of all applicable floodplain management regulations and the National Flood Insurance Program.</p>	<p>1. Continue to participate in the Community Rating System and implementation and enforcement of the Dare County Flood Ordinance.</p>
<p>Policy #32 Dare County believes that there is insufficient, reliable data to quantify the rate of sea level rise. The phenomenon needs additional study. Until a more reliable and conclusive database has been established, Dare County will continue to rely of CAMA standards for development in CAMA designated "areas of environmental concern" or AECs.</p>	<p>No implementation strategies were identified at the time of the 2003 Land Use Plan Update.</p>
<p>Policy #33 Stormwater runoff should be managed to the greatest degree possible to protect the water quality of the public trust waters surrounding Dare County, particularly Class SA waters.</p>	<p>1. Consideration of stormwater management ordinance to address those projects that are not subject to State stormwater regulations with an emphasis on addressing stormwater runoff on sites that are adjacent to Class SA waters.</p> <p>2. Recommendation of a full-time stormwater/ditch maintenance program. (coordinate with Public Works Department and NC Department of Transportation.</p> <p>3. The Dare County Planning Board shall continue to address drainage issues associated with proposed new subdivisions.</p> <p>4. Draft amendments to the Dare County Zoning Ordinance to address the use of fill material on vacant sites to alter the existing natural ground elevations and drainage as the need arises. (2204/2005)</p>
<p>Policy #34 Dare County recognizes the public health issues associated with mosquitoes and standing areas of water and the public safety issue for motorists presented by stormwater ponding on roadways.</p>	<p>1. Consideration of stormwater management ordinance to address those projects that are not subject to State stormwater regulations with an emphasis on addressing stormwater runoff on sites that are adjacent to Class SA waters.</p> <p>2. Recommendation of a full-time stormwater/ditch maintenance program. (coordinate with Public Works Department and NC Department of Transportation.</p> <p>3. The Dare County Planning Board shall continue to address drainage issues associated with proposed new subdivisions.</p> <p>4. Draft amendments to the Dare County Zoning Ordinance to address the use of fill material on vacant sites to alter the existing natural ground elevations and drainage as the need arises. (2204/2005)</p>
STORMWATER MANAGEMENT	
<p>Policy #31 Dare County supports as minimum standards, the administration and enforcement of all applicable floodplain management regulations and the National Flood Insurance Program.</p>	<p>FULLY IMPLEMENTED. The county maintains a full-time floodplain administrator who is responsible for the enforcement of the Dare County Floodplain Ordinance and all applicable floodplain management regulations. This strategy has been effective at protecting property loss from flood hazards as much as is applicable.</p>
<p>Policy #32 Dare County believes that there is insufficient, reliable data to quantify the rate of sea level rise. The phenomenon needs additional study. Until a more reliable and conclusive database has been established, Dare County will continue to rely of CAMA standards for development in CAMA designated "areas of environmental concern" or AECs.</p>	<p>Until a more reliable and conclusive database has been established, Dare County will continue to rely on CAMA standards for development in CAMA designated "areas of environmental concern" or AECs.</p>
<p>Policy #33 Stormwater runoff should be managed to the greatest degree possible to protect the water quality of the public trust waters surrounding Dare County, particularly Class SA waters.</p>	<p>FULLY IMPLEMENTED. Stormwater management continues to be a substantial consideration for Dare County. While no local ordinances have been drafted to supplement State regulations, the concept remains under consideration. Subdivisions are reviewed with scrutiny to ensure stormwater management issues are addressed. A Floodplain Hazard Ordinance has been adopted to restrict fill material in VE flood zones. The regulation of fill material on vacant lots continues to be considered, however no consensus has been reached to date. These measures have effectively managed stormwater thus far, however improvements to the current management strategies will continue to be considered.</p>
<p>Policy #34 Dare County recognizes the public health issues associated with mosquitoes and standing areas of water and the public safety issue for motorists presented by stormwater ponding on roadways.</p>	<p>FULLY IMPLEMENTED. Stormwater management continues to be a substantial consideration for Dare County. While no local ordinances have been drafted to supplement State regulations, the concept remains under consideration. Subdivisions are reviewed with scrutiny to ensure stormwater management issues are addressed. A Floodplain Hazard Ordinance has been adopted to restrict fill material in VE flood zones. The regulation of fill material on vacant lots continues to be considered, however no consensus has been reached to date. These measures have effectively managed stormwater thus far, however improvements to the current management strategies will continue to be considered.</p>

MARINAS		
<p>Policy #35 Dare County supports the development of marinas to provide boating access to the area's water bodies. Marina development should comply with all State and federal guidelines concerning location and design. The County encourages the dry stack option of boat storage.</p>	<p>1. Dare County will rely on local land use plan consistency review process used by State and Federal agencies to implement this policy since all proposed marinas require a CAMA major permit. 2. Examine the Dare County Zoning Ordinance and shorelines to ensure the proper location or exclusion of marinas and marina development.</p>	<p>FULLY IMPLEMENTED. Marina developments are monitored on a case by case basis. The siting of marinas are oftentimes addressed in various zoning districts and corresponding maps. The county also continues to rely on the CAMA review process to ensure proper marina development. These strategies have been effective at regulating the location of marina developments, while recognizing the importance of providing opportunities for the development of adequate boat launching and storage facilities.</p>
FLOATING STRUCTURES		
<p>Policy #36 Dare County is strongly opposed to the mooring of floating homes and other floating structures, as defined in 15A NCAC 7M0602, anywhere in Dare County and its surrounding waters.</p>	<p>1. Consideration of local regulations to prohibit the location of floating homes and structures in the surrounding public trust waters of Dare County. (2004)</p>	<p>FULLY IMPLEMENTED. By ordinance, floating structures are effectively prohibited in all portions of unincorporated Dare County.</p>
LAND DISTURBING/TREE REMOVAL ACTIVITIES		
<p>Policy #37 Dare County advocates best management practices of the NC Forest Service for tree removal and land clearing on private property.</p>	<p>1. Enforcement of sand dune protection standards in the Dare County Zoning Ordinance. 2. Draft amendments to the Dare County Zoning Ordinance to address the use of fill material on vacant sites to alter the existing natural ground elevations and drainage as the need arises.</p>	<p>FULLY IMPLEMENTED. The county continues to enforce standards to protect shoreline dune systems. The county has adopted a Floodplain Ordinance to restrict fill material in VE flood zones. These strategies have been effective limit the amount of land disturbing activities.</p>

MANMADE HAZARDS		
<p>Policy #38 Due to potential land use conflicts and hazardous conditions, Dare County does not support the expansion of the Dare County Regional Airport at its current location.</p>	<p>No implementation strategies were identified at the time of the 2003 Land Use Plan Update.</p>	<p>The Dare County Regional Airport has not substantially expanded.</p>
<p>Policy #39 Proposals to expand the area of the existing bombing ranges on the Dare County mainland should be reviewed on a case-by-case basis with support or opposition offered depending on the terms of the proposal and its potential impacts on the local community and the importance to our Nations' national defense.</p>	<p>No implementation strategies were identified at the time of the 2003 Land Use Plan Update.</p>	<p>Any proposals will be reviewed on a case by case basis.</p>
BEACH DRIVING/OFF-ROAD VEHICLES		
<p>Policy #40 The County recognizes the importance of four-wheel drive vehicle access to the beaches of Hatteras Island that are under the management authority of the federal government. Efforts to prohibit beach driving on these federally-managed areas are not supported. Proposals to impose additional driving restrictions will be reviewed on a case by case basis with support or opposition offered depending on the proposal and its potential negative impacts on the local tourist economy.</p>	<p>1. The County will continue to monitor actions of the U.S Department of Interior to further restrict beach driving and/or initiate other management programs that will impact or prohibit beach driving access along Hatteras Island. These monitoring activities may include participation at public hearings and workshops or correspondence with our congressional delegation and other federal officials.</p>	<p>FULLY IMPLEMENTED. The county monitors closely any activity which may prohibit beach driving along Hatteras Island, and actively participates in rule-making for off-road vehicle access to Cape Hatteras National Seashore. Understanding the cultural importance of beach driving on the island, the county will continue to advocate properly managed public access for four-wheel drive vehicles. These actions have effectively preserved public vehicle access along Hatteras Island.</p>

FEDERAL AND STATE SUPPORT		
<p>Policy #41 Additional Federal or State regulatory programs or expansion of existing programs will be reviewed on a case by case basis. Dare County reserves the right to support, oppose, review, or comment on additional regulations that may impact Dare County and its economy. Local Public Hearings by federal or state agencies should be extensively advertised and conducted in Dare County before any new regulations are adopted or existing programs are expanded.</p>	<p>1. Monitor federal and state proposals and participate as needed.</p>	<p>FULLY IMPLEMENTED. The county continues to monitor state and federal proposals which impact the citizens of Dare County, and will continue to participate in decision-making processes whenever applicable. This strategy has been effective at maintaining open dialogue and cooperative relationships among local, state, and federal agencies.</p>

Growth and Development WASTEWATER	
<p>Policy #42 The current minimum lot size standards shall not be reduced regardless of the availability of central wastewater treatment or the availability of a combination of central wastewater treatment and a central water supply.</p>	<p>1. The creation of a wastewater treatment authority or commission to address wastewater treatment issues including the maintenance of traditional septic/drainfield systems, package treatment plants, non-traditional methods of wastewater treatment, such as the peat systems, and the monitoring of existing septic tank and nitrification fields. (2004-2006)</p> <p>2. Continue to pursue opportunities to address wastewater issues in unincorporated Dare County including construction of a publicly-owned package treatment plant or publicly-owned small centralized treatment plant as a remedial measure to replace existing outdated septic systems that threaten estuarine water quality due to their location in poorly drained soils or to facilitate a publicly-financed or publicly-endorsed housing developments.</p>
<p>Policy #43 Dare County advocates the use of on-site septic tank/drainfield systems as the primary method of wastewater treatment in unincorporated Dare County. Non-traditional methods of wastewater treatment should be used only when natural soil conditions dictate their use and not solely to accommodate larger structures or a greater dwelling density.</p>	
<p>Policy #44 Package treatment plants may be considered only when natural conditions prohibit the use of septic systems, as remedial efforts to correct existing failing septic improvements, or if required by ordinance and should be constructed to serve a specific development without excess capacity for off-site wastewater treatment connections.</p>	<p>PARTIALLY IMPLEMENTED. The county is actively seeking permits for the construction of a wastewater treatment facility in Stumpy Point. Construction of this project should commence in 2008. Other opportunities which might address county-wide wastewater treatment are constantly explored. While several wastewater treatment issues remain to be considered, actions thus far have proven effective at treating wastewater in an environmentally sensitive manner.</p>
<p>Policy #45 Maintenance of privately owned package treatment plants should be supervised by the NC Utilities Commission or other public agencies.</p>	

TRANSPORTATION		
<p>Policy #46 Dare County recognizes the vital importance of NC 12 to Hatteras Island and the need to protect this transportation route, including Bonner Bridge. Recommendations by the NC Department of Transportation on NC 12, including beach nourishment, the replacement of Bonner Bridge, elevated sections of the highway, or other options that may be identified, will receive the highest level of consideration from Dare County.</p>	<p>1. Continue to require all subdivisions that feature private roads to bear a disclaimer stamp on the final plat indicating that Dare County shall never be responsible for the road maintenance. Restrictive covenants shall also contain language concerning the road maintenance responsibility. Due to clean-up and repair needs which tend to arise in the wake of major storm events such as Hurricane Isabel, the county continues to encourage that new subdivisions dedicate roads as public rather than private. The county continues to monitor NCDOT activities regarding private road maintenance and repair assessment. A Bonner Bridge replacement committee has been established to address issues related to the eventual replacement of the bridge spanning Oregon Inlet. These strategies have been effective at maintaining and improving transportation systems in Dare County.</p> <p>2. Work with our State legislative delegation to secure authorization for a NC Department of Transportation private road maintenance and repair assessment program.</p>	<p>FULLY IMPLEMENTED. The county continues to require all subdivisions that feature private roads to bear a disclaimer stamp on the final plat indicating that Dare County will never be responsible for the road maintenance. Restrictive covenants shall also contain language concerning the road maintenance responsibility. Due to clean-up and repair needs which tend to arise in the wake of major storm events such as Hurricane Isabel, the county continues to encourage that new subdivisions dedicate roads as public rather than private. The county continues to monitor NCDOT activities regarding private road maintenance and repair assessment. A Bonner Bridge replacement committee has been established to address issues related to the eventual replacement of the bridge spanning Oregon Inlet. These strategies have been effective at maintaining and improving transportation systems in Dare County.</p>
<p>Policy #47 Dare County encourages intergovernmental cooperation with the municipalities and its surrounding counties to study of the transportation needs of Dare County and our region.</p>		
<p>Policy #48 Dare County shall not be responsible for the cost of maintaining or repairs to privately owned streets. Experimental programs sponsored by the State to maintain private roads shall be supported.</p>		
<p>Policy #49 Whenever possible, local roads should be designed to interconnect to result in alternative transportation routes subordinate to the principal and well-known highway system</p>		

SOLID WASTE		
<p>Policy #50 Dare County advocates participation in a regional solid waste authority and continued operation of voluntary recycling efforts. Additional programs for hazardous materials disposal and large item pick-ups are encouraged.</p>	<p>1. Develop a public information campaign using public information office brochures and local governmental access channel to circulate information about hazardous waste collections and large item pick-up schedules.</p>	<p>FULLY IMPLEMENTED. The county continues to utilize a variety of public information mediums to notify the public of waste collection. This has been an effective method of ensuring that solid waste is collected as frequently as applicable.</p>
COMMUNITY GROWTH PATTERNS		
<p>Policy #51 Dare County values its coastal village atmosphere and will continue to work toward the development of use-specific zoning maps for those areas currently unzoned.</p>	<p>1. Continue work to develop use-specific zoning maps for those portions of unincorporated Dare County that are unzoned or have minimal S-1 zoning. (2002-2005) 2. Work with the Town of Manteo to coordinate regulation of development on Roanoke Island where the County's unincorporated boundary joins the Town's boundary. 4. Contract with independent planning consultant to update Carrying Capacity Study for Dare County. (2004) 5. Draft for Dare County Board of Commissioners consideration a set of building design, landscaping, and parking standards for commercial uses as overlay districts along NC 12 on Hatteras Island and other areas of unincorporated Dare County.</p>	<p>PARTIALLY IMPLEMENTED. The county has zoned the previously unzoned villages of Wanchese, Manns Harbor, and Mashoes, and anticipates a continued effort to zone other portions of the county. A Carrying Capacity Study remains a topic of consideration, but such a study has yet to be implemented. Some additional draft development standards have been drafted and reviewed, however, a consensus has not been reached. Gross-floor limitations have been adopted in all areas of Dare County. The strategies which have been adopted have effectively managed certain community growth patterns.</p>
<p>Policy #52 Private sector development is encouraged to acknowledge Dare County's coastal village qualities and incorporate these traits in their development plans and building designs.</p>		
<p>Policy #53 Public services shall be provided to meet the needs of, but not to serve as an incentive to growth and development.</p>		
<p>Policy #54 Dare County reserves the right to review additional acquisitions of private property for public ownership on a case-by-case basis.</p>		

RESIDENTIAL DEVELOPMENT		
<p>Policy #55 Detached residential structures shall be the preferred land use in unincorporated Dare County. Although the expanding market for seasonal accommodations as structures that resemble traditional domiciles has resulted in a shortage of year-round housing, it is agreed that the policy advocating residential structures as the preferred land use shall continue.</p>	<p>1. Amend the Dare County Zoning Ordinance to delete the term "single family" residential houses and replace with "detached individual residential housing units" in recognition of the possibility that neighborhoods may contain seasonal rentals or that structures in the neighborhood may be occupied by unrelated individuals. (2003)</p> <p>2. Adopt standards that address unsightly structures and conditions that are more flexible than the current Nuisance Ordinance, which is designed to address public safety and welfare issues rather than eyesores. (2004)</p> <p>3. Amend Zoning Ordinance to better define an acceptable level of home occupations (2004)</p> <p>4. Consider revisions to Zoning Ordinance to lower the number of permitted dwelling densities for multifamily structures. (2003)</p> <p>5. Consideration of an intergovernmental task force on housing issues. (2003)</p>	<p>PARTIALLY IMPLEMENTED. While the possibility that neighborhoods may contain seasonal rentals or structures in the neighborhood may be occupied by unrelated individuals is recognized, use of the term "single family" has proven effective with no immediate public request for its change having been made. The county continues to address unsightly structures, nuisances, and home occupations on a case by case basis. New zoning districts have been established in Wanchese, Manns Harbor, and Mashoes which address limited densities for residential development. An intergovernmental Affordable Housing Committee has been established to address workforce housing in Dare County. These strategies which have been implemented have been effective at properly managing residential development as a preferred land use in Dare County.</p>
<p>Policy #56 Dare County recognizes the diverse housing needs of the community. Private sector development projects intended to expand housing opportunities for year-round residents are encouraged. Partnerships between the private sector and the public sector will be reviewed on a case-by-case basis when appropriate. Regional efforts to address the housing needs of the Outer Banks will also be reviewed on a case-by-case basis.</p>		

COMMERCIAL DEVELOPMENT		
<p>Policy #57 Dare County will address opportunities for commercial development by adopting zoning maps for those portions of unincorporated Dare County currently unzoned or with minimal S-1 zoning regulations.</p>	<p>Policy #58 Dare County encourages the continued existence and development of locally owned businesses in unincorporated Dare County.</p>	<p>Policy #59 Large franchise operations proposing to locate in unincorporated Dare County are encouraged to individualize their establishments to reflect Dare County's coastal village character and not rely solely on corporate building designs, color designs or manner of construction.</p>
REDEVELOPMENT		
<p>Policy #60 Redeveloped areas and structures shall conform to current development standards.</p>	<p>1. The County shall enforce the NC State Building Codes for coastal construction and the Dare County Flood Ordinance in the event of reconstruction. 2. Whenever feasible, non-conforming structures destroyed by an act of nature or an accident will be rebuilt to comply with applicable zoning codes. 3. The re-use and rehabilitation of historic structures is encouraged as a means of preserving Dare County's coastal village environment.</p>	<p>FULLY IMPLEMENTED. The county employs a staff of inspectors whose responsibility centers on enforcing the NC State Building Code. And though the county generally requires that non-conformities come into compliance when destroyed by natural means, Dare County seeks to act sensitively when these circumstances occur. The county continues to encourage the preservation and proper rehabilitation of historic structures. These strategies have been effective at promoting responsible redevelopment and swift economic recovery following disaster events</p>
<p>FULLY IMPLEMENTED. The county continues to consider zoning amendments which serve the best interests of its citizens. Recent zoning initiatives have been pursued to embrace detached residential development as the preferred land use, with limited commercial development. Gross floor area limitations have been established, and new zoning districts have been adopted in Wanchese, Manns Harbor, and Mashoes. These strategies have proven effective in creating desired land use patterns related to commercial development.</p>		

INDUSTRIAL DEVELOPMENT		
<p>Policy #61 Industrial development that is environmentally suited to Dare County and its surrounding water bodies is encouraged. Dare County also supports the traditional industries of commercial fishing, boat building, and construction.</p>	<p>1. Proposals for industrial development in zoned areas will be reviewed for compatibility under the provisions of the Dare County Zoning Ordinance. For unzoned areas and those areas currently zoned S-1, use-specific zoning maps will be established and the designation of industrial zoned areas thoroughly evaluated based on geographic proximity to water bodies and other sensitive natural areas.</p> <p>2. Update the Zoning Ordinance to evaluate the scope of uses allowed in the I-1 zoned areas of unincorporated Dare County.</p> <p>3. Investigate the need for a County-owned industrial park on the Mainland of Dare County.</p>	<p>PARTIALLY IMPLEMENTED. Industrial development is reviewed with substantial scrutiny by the county to ensure its compatibility with its vicinity and the Zoning Ordinance. New zoning districts in Wanchese, Manns Harbor, and Mashoes address the impact of industrial development with similar caution. The I-1 zoning district has been amended to include gross floor area limitations. No immediate need for an industrial park on the mainland of Dare County has yet been identified. These measures have effectively regulated the limited industrial activity in Dare County.</p>
ENERGY FACILITIES		
<p>Policy #63 Dare County is opposed to the development of any petro-chemical energy facility or related improvements within its jurisdictional lands and/or waters. This includes all structures, operations, and activities associated with petro-chemical energy facility development such as, but not limited to on-shore support bases for offshore exploration activities, staging areas, transmission and/or production pipelines, pipeline storage yards, and other similar structures activities, and improvements related to petro-chemical energy facility development, exploration, or production. Dare County supports research and development of non-fossil fuel alternatives for energy production.</p>	<p>1. Any major energy facility proposed to be located in Dare County shall make a full disclosure of all costs and benefits associated with the project. This disclosure shall be in the form of an environmental impact statement independent of and not funded by any petro-chemical company or the Mineral Management Service.</p> <p>2. In the event an energy facility is proposed for Dare County, the County will support the policy statements and administrative regulations referenced in 15NCAC7M, Section .0400 entitled "coastal energy policies."</p>	<p>FULLY IMPLEMENTED. While no recent energy-related development has been proposed in Dare County, any such future proposal will be monitored closely for compliance with current policies and strategies. This will effectively ensure that any proposed energy facility will be constructed with minimal risk to the community.</p>

TOURISM		
<p>Policy #64 Dare County recognizes the vital importance of tourism to our local economy and supports efforts to maintain our status as a desirable place to visit and vacation. Dare County also recognizes the need to address the infrastructure and service demands of our seasonal populations. The use of tourist-generated revenues, such as occupancy taxes, to address the year-round and seasonal population needs is encouraged.</p>	<p>1. Use revenues generated by tourism to fund quality of life related projects such as sidewalks, bikepaths, streetscape and landscaping improvements and open space acquisitions</p>	<p>FULLY IMPLEMENTED. The county continues to monitor revenue generated by tourism for its application towards "quality of life" related projects. This will effectively ensure that the tourism industry will continue to be recognized for its importance to the economy of Dare County.</p>
<p>Policy #65 Dare County supports the concept of combining natural resources and tourism to promote the area's ecological values, known as "eco-tourism".</p> <p>Policy #66 The quality of life of Dare County residents should be carefully balanced with the growing tourist-based economy of the Outer Banks. Maintaining a good quality of life for our permanent population and ensuring a safe and enjoyable vacation experience should be a goal of all local, state, and federal agencies responsible for the promotion of tourism in Dare County and North Carolina.</p>	<p style="text-align: center;">BIKEWAYS/WALKWAYS/GREENWAYS</p> <p>1. Continue to work with participating agencies to pursue opportunities for construction of additional walkways/bike paths throughout all of unincorporated Dare County, including interconnection of the Roanoke Voyages multi-use path into Wanchese 2. Request revenues through local funding or grants to provide an areawide greenway plan (2004)</p>	<p>FULLY IMPLEMENTED. The county continues to support efforts which might promote the construction of additional pedestrian paths. The county may continue consideration of seeking funds for other pedestrian projects, including greenways. These strategies have been effective at promoting the development of multi-use path facilities.</p>
<p>Policy #67 Dare County supports the development and construction of sidewalks, bike paths, greenways, and other walking/jogging trails to provide a safe setting for these types of outdoor recreation and as alternative transportation routes.</p>		

Appendix 4

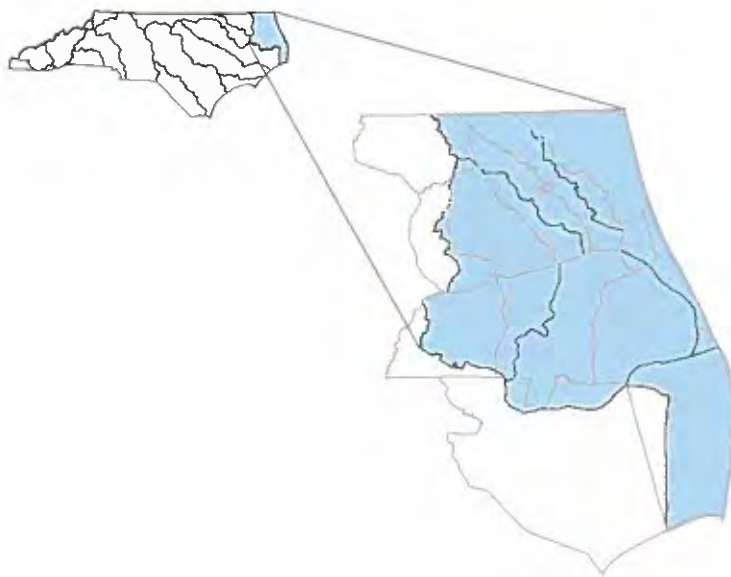
Storm Hazard Mitigation, Reconstruction, and Recovery		
<p>Policy #68 Dare County shall use construction standards and zoning regulations to mitigate the effects of high winds, storm surge, flooding, wave action, and erosion.</p>	<p>I. Dare County will continue to enforce all applicable Federal, State, and local regulations relating to construction in storm hazard areas.</p>	<p>FULLY IMPLEMENTED. The county, through several enforcement programs including those mandated by CAMA , continues to implement those regulations imposed by local, state, and federal agencies regarding storm hazard areas. This inter-agency cooperation has been effective at addressing a variety of storm hazard issues.</p>
<p>Policy #69 Dare County is committed to maintaining a full-time emergency management department and emergency operation centers and places a high a priority on hurricane preparedness and response.</p>	<p>No implementation strategies were identified at the time of the 2003 Land Use Plan Update.</p>	<p>The County maintains a fully-staffed Emergency Management Department. During periods of local emergencies, the Emergency Management Dept. is capable of immediate response, while operating from a secure operations center</p>
<p>Policy #70 The Dare County Board of Commissioners shall be ultimately responsible for supervising the implementation of various policies and procedures regarding reconstruction and recovery after a natural disaster.</p>	<p>No implementation strategies were identified at the time of the 2003 Land Use Plan Update.</p>	
<p>Policy #71 Recovery priority shall be directed to restoring or repairing infrastructure improvements such as transportation routes, utilities and medical and emergency management facilities. Once the infrastructure has been restored, recovery priorities shall then be directed at essential commercial and primary residential structures.</p>	<p>No implementation strategies were identified at the time of the 2003 Land Use Plan Update.</p>	

	<u>Storm Hazard Mitigation, Reconstruction, and Recovery</u>	
<p>Policy #72 In the event of extensive hurricane damage to publicly-owned utilities or other improvements requiring replacement or reconstruction, alternative locations that will mitigate the potential for similar repetitive losses will be examined and implemented wherever feasible and practicable.</p>	<p>No implementation strategies were identified at the time of the 2003 Land Use Plan Update.</p>	
<p>Policy #73 In the event of a damaging hurricane or other disastrous event, the Dare County Board of Commissioners may declare a moratorium on all building permits and/or rezoning requests pending an evaluation of the damage and any reconstruction strategies that may serve to mitigate future damage or repetitive losses.</p>	<p>No implementation strategies were identified at the time of the 2003 Land Use Plan Update.</p>	
<p>Policy # 74 Dare County supports the active involvement of all interested persons in its land use planning and policy development activities.</p>	<ol style="list-style-type: none"> 1. The County will continue efforts to inform, educate, and involve the public in planning for the future of the County, primarily through the regular and special meetings of the Dare County Planning Board and Board of Commissioners. 2. The County will encourage continued representation by a broad range of Dare County residents on its Planning Board. 3. Continue to maintain the mailing list for the Planning Board meetings. 	<p>FULLY IMPLEMENTED. The county takes substantial measures to involve the public in all forms of community planning activities, giving particular consideration to meetings conducted by the Board of Commissioners and Planning Board. Several methods of information distribution, including extensive use of the county website and mailings are used. Residents are also encouraged to participate as members of various advisory boards. When requested, any citizen may receive periodic mailings informing them of Planning Board meetings and agendas. These measures have been effective in keeping the public abreast of Planning Department issues and activities.</p>



Pasquotank River Basinwide Water Quality Plan

August 2007

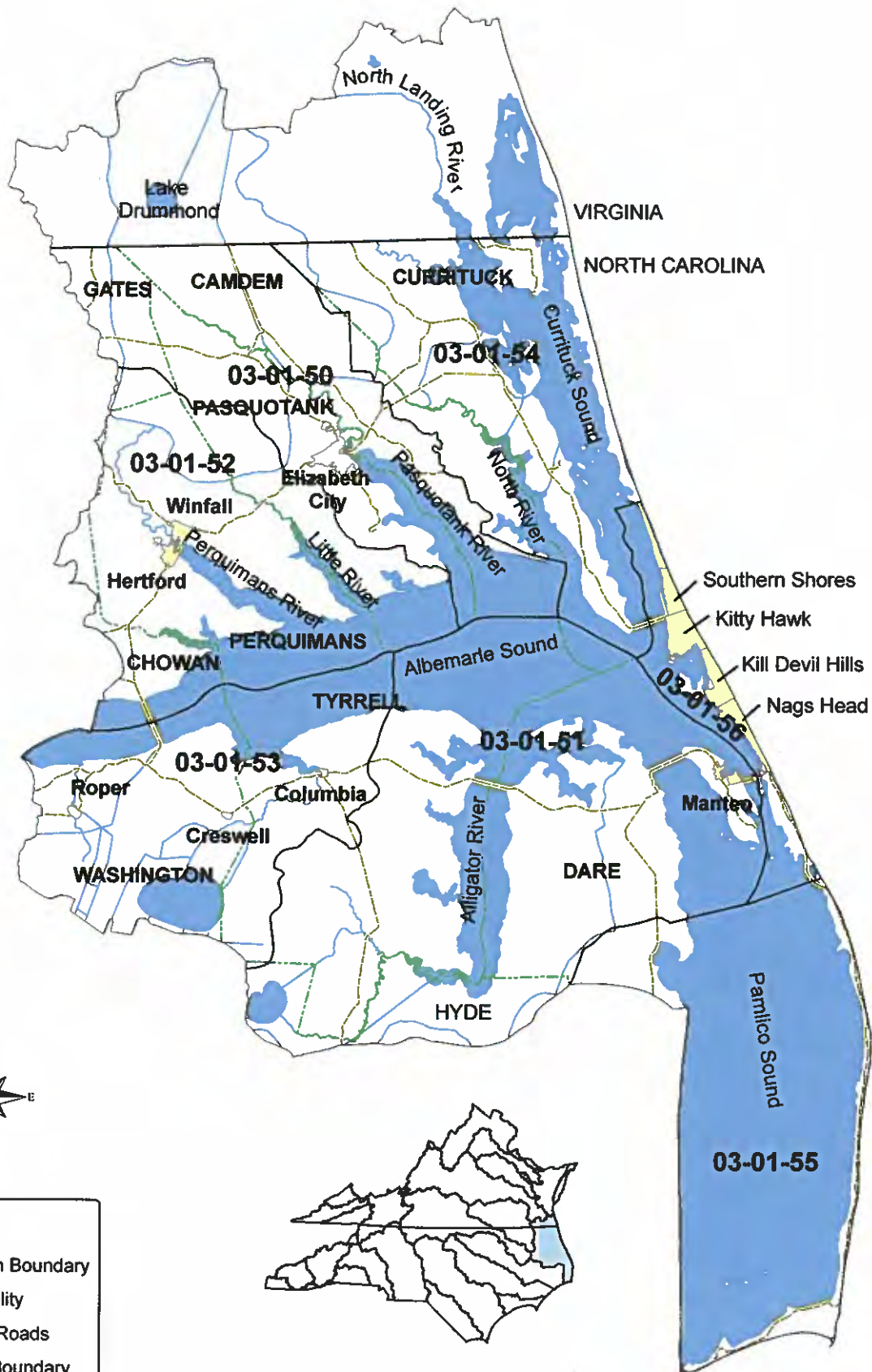


North Carolina Department of
Environment and Natural Resources



Division of Water Quality
Basinwide Planning Unit

Figure i General Map of the Entire Pasquotank River Basin in North Carolina and Virginia



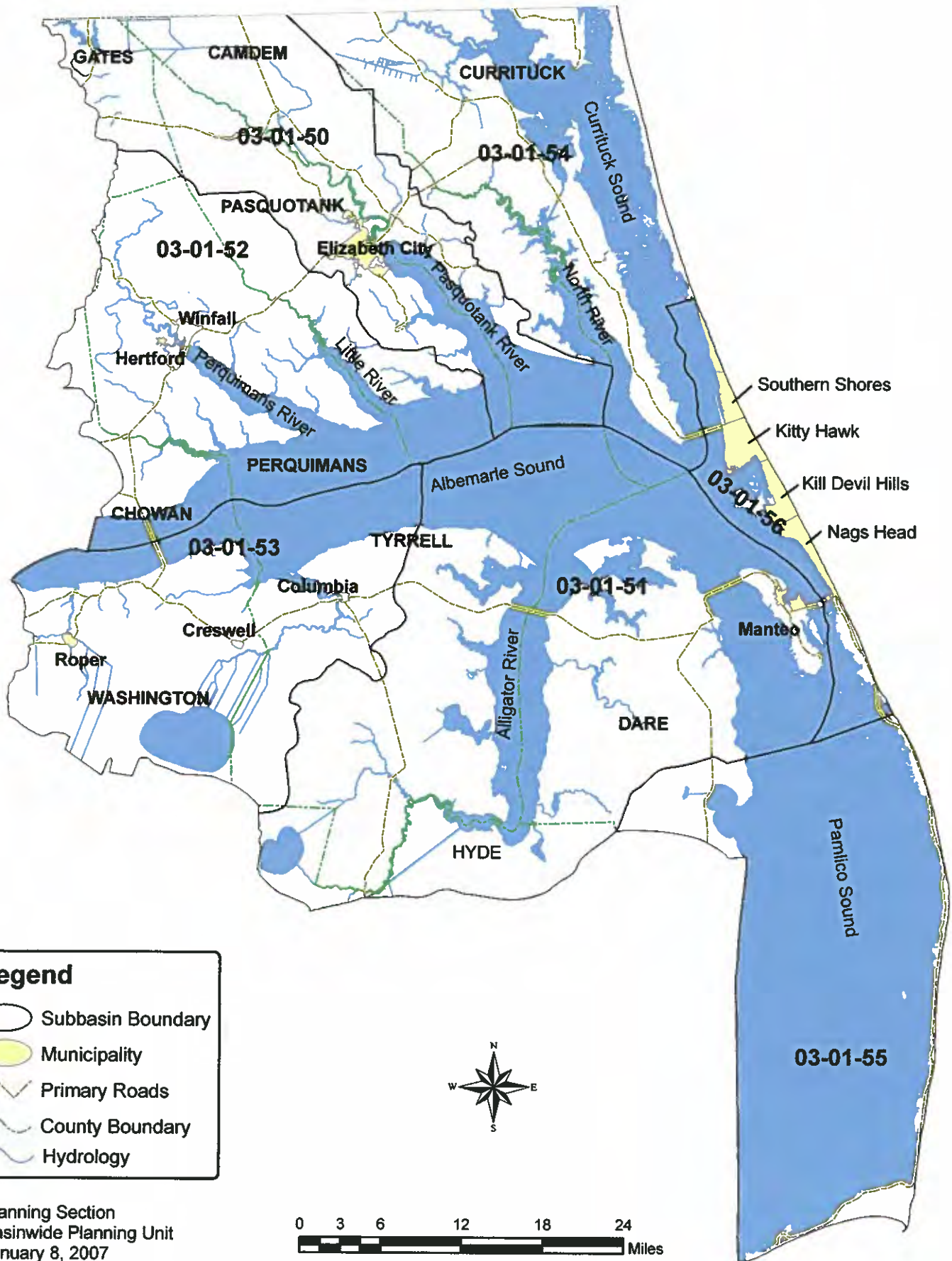
Legend

- Subbasin Boundary
- Municipality
- Primary Roads
- County Boundary
- Hydrography








Planning Section
Basinwide Planning Unit
May 8, 2007

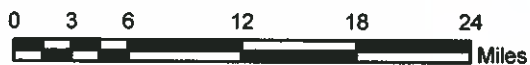
Figure ii General Map of the Pasquotank River Basin in North Carolina



Legend

-  Subbasin Boundary
-  Municipality
-  Primary Roads
-  County Boundary
-  Hydrology

Planning Section
 Basinwide Planning Unit
 January 8, 2007



Pasquotank River Subbasin 03-01-51

Including: Alligator River and portions of the Albemarle, Croatan and Roanoke Sounds

2.1 Subbasin Overview

Subbasin 03-01-51 at a Glance

Land and Water Area

Total area:	978 mi ²
Land area:	568 mi ²
Water area:	410 mi ²

Land Cover (percent)

Forest/Wetland:	53%
Surface Water:	39%
Cultivated Crop:	8%
Urban:	<1%
Pasture/ Managed Herbaceous:	<1%

Counties

Dare, Hyde and Tyrrell

Municipalities

Manteo

Monitored Waterbody Statistics

Aquatic Life:

Total:	8.8 mi/106,724.7 ac
Supporting:	8.8 mi/106,724.7 ac

Recreation:

Total:	8.8 mi/132,564.3 ac
Supporting:	8.8 mi/132,564.3 ac

Shellfish Harvesting:

Total:	54,628.7 ac
Supporting:	52,547.2 ac
Impaired:	2,081.5 ac

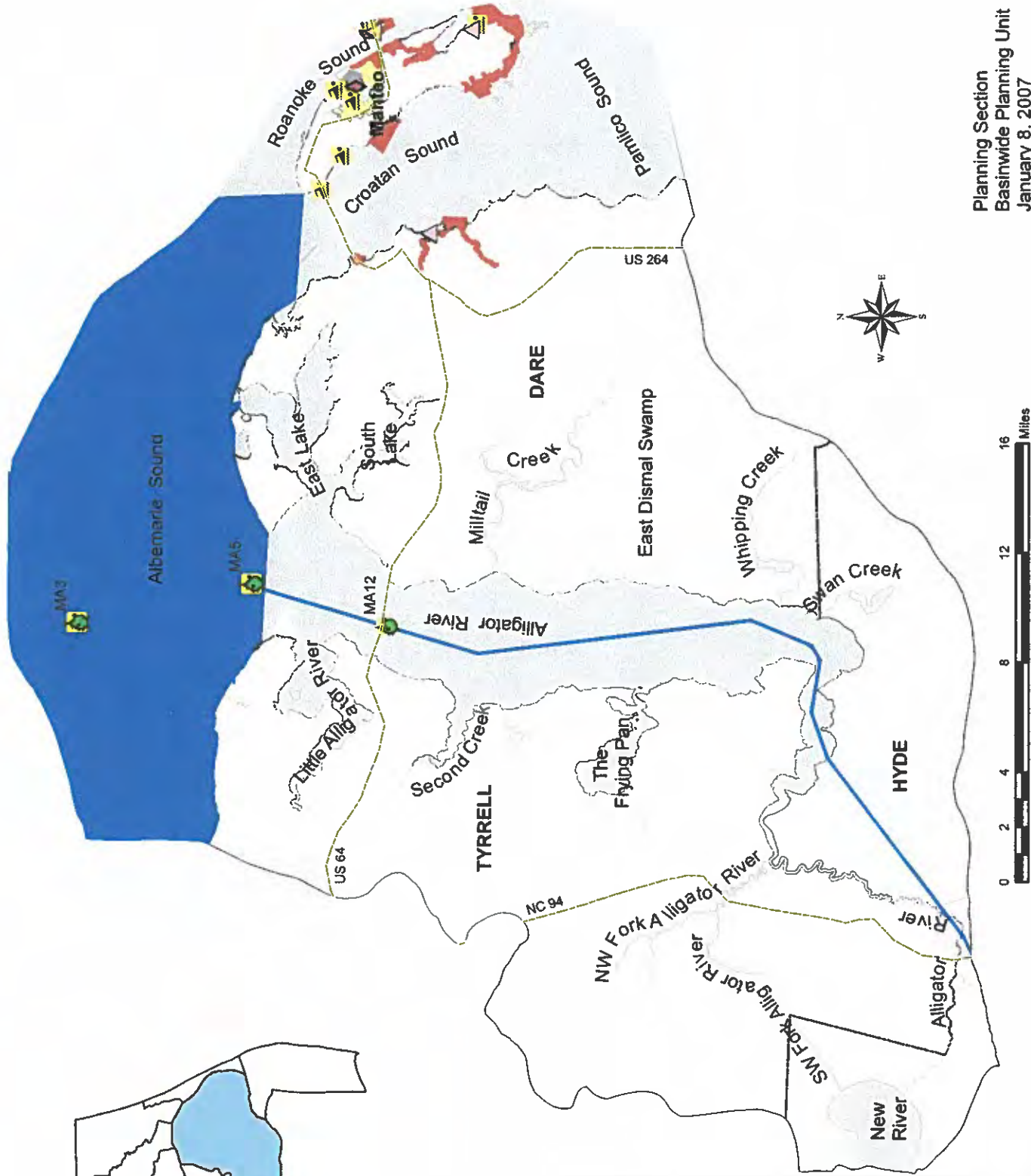
This subbasin contains the Alligator River and several tributaries. Most streams are of low relief and often swampy. Channelized ditches are common. Most waters in this subbasin are brackish estuarine, including Albemarle, Croatan and Roanoke Sounds, and the Alligator River to the Intracoastal Waterway (ICWW). Ecologically, the subbasin contains characteristics of the Chesapeake-Pamlico lowlands and tidal marshes, as well as nonriverine swamps and peatlands. Land cover generally consists of evergreen forests, mixed forests, forested wetlands and marshes.

The Alligator River upstream of US 64 and all of its natural tributaries (not canals, Alligator Lake or ICWW) are classified as Outstanding Resource Waters (ORW). Based on their designations by the Marine Fisheries Commission as primary nursery areas, two tributaries (upper Scarboro Creek and Doughs Creek) to Shallowbag Bay are classified as High Quality Waters (HQW).

This subbasin contains a mixture of public lands and Significant Natural Heritage Areas including Roper Island, Durant Island, Pocosin Lakes National Wildlife Reserve, the Alligator River National Wildlife Refuge and the Preyer Reserve. Portions of Dare, Hyde and Tyrrell Counties can be found in this subbasin with the highest concentration of urbanized areas located on Roanoke Island in the Towns of Manteo and Wanchese. Rapid population growth is occurring in Dare County and along coastal areas. Additional information regarding population and land use changes throughout the entire basin can be found in Chapter 11.

There is one major and five minor National Pollutant Discharge Elimination System (NPDES) discharges in this subbasin with a total permitted flow of 1.5 MGD. The major NPDES facility is the Manteo Wastewater Treatment Plant (WWTP) with a permitted flow of 1.0 MGD. The Manteo WWTP discharges to Shallowbag Bay [AU# 30-21-3] on Roanoke Island and significant noncompliance issues were identified during the last two years of the assessment period. There are two stormwater discharge permits in this subbasin. For the listing of NPDES permit holders, refer to Appendix III.

Figure 4 Pasquotank River Subbasin 03-01-51



Legend

- Municipality
- County Boundary
- Subbasin Boundary
- Primary Roads

Monitoring Stations

- Ambient Monitoring Station
- Benthic Community
- Recreation Locations

NPDES Dischargers

- Major
- Minor

Non-Dischargers

- Major
- Minor

Aquatic Life Rating/Shellfish Harvesting Rating

- Impaired
- No Data
- Not Rated
- Supporting

Planning Section
 Basinwide Planning Unit
 January 8, 2007

Table 5 Pasquotank Subbasin 03-01-51

AU Number	Classification	Length/Area	Aquatic Life Assessment			Recreation Assessment			Shellfish Harvesting				
			AL Rating	Station	Result	Parameter % Exc	REC Rating	Station	Result	SH Rating	GA	Stressors	Sources
ALBEMARLE SOUND													
30b	SB	106,724.7	S Acres	S	MA3	NCE		S	MA3	NCE		Dioxin	Industrial Site
Portion of Albemarle Sound in subbasin 03-01-51. Waters of Albemarle Sound (All waters south and east of a line running in a southerly direction from Hornblow Point (North end of Norfolk-Southern Railroad Bridge) to a point of land on the east side of R													
Baum Creek													
30-20-5	SA;HQW	10.9	S Acres	ND				ND					Fecal Coliform Bacteria
From source to Croatan Sound													
Broad Creek													
30-21-7a	SA;HQW	126.0	S Acres	ND				ND					Fecal Coliform Bacteria
DEH closed area at head of creek													
30-21-7b	SA;HQW	392.2	S Acres	ND				ND					Fecal Coliform Bacteria
Approved area at mouth of creek													
Callaghan Creek													
30-20-4	SA;HQW	24.8	S Acres	ND				ND					Fecal Coliform Bacteria
From source to Croatan Sound													
Cedar Bush Bay													
30-20-7	SA;HQW	207.8	S Acres	ND				ND					Fecal Coliform Bacteria
Entire Bay													

Table 5 Pasquotank Subbasin 03-01-51

AU Number	Classification	Length/Area	Aquatic Life Assessment		Recreation Assessment		Shellfish Harvesting		Stressors	Sources
			AL Rating	Station Result Parameter % Exc Year/	REC Rating	Station Result	SH Rating	GA		
Croatan Sound										
30-20-(2)a	SA;HQW	24,496.4 S Acres	ND		S	N68 N69	NCE NCE	S I	APP I-2	
From Northwest Point on Roanoke Island following a line west to Reeds Point on the Dare County mainland to a line running from a point of land just below Long Wrench Creek on Dare County mainland to the Southern tip of Smith Island south of Roanoke Island										
30-20-(2)b	SA;HQW	169.3 S Acres	ND		ND			I	PRO	Fecal Coliform Bacteria
The waters of Croatan Sound enclosed in a line beginning at a point near north shore of Spencer Creek at 35 degrees 51' 45" N- 75 degrees 44' 53" W; and thence 250 yards in an easterly direction to a point at 35 degrees 51' 45" n- 75 degrees 44' 43" west										
30-20-(2)c	SA;HQW	340.9 S Acres	ND		ND			I	PRO	Fecal Coliform Bacteria
The waters of Croatan Sound which include all waters within a line beginning at a point on the shore at 35 degrees 53' 56" N- 75 degrees 41' 36" W; thence WSW 800 yards to a point in the sound at 35 degrees 53' 38" N- 75 degrees 41' 53" W, thence 1975 yard										
30-20-(2)d	SA;HQW	156.3 S Acres	ND		ND			I	PRO	Fecal Coliform Bacteria
The waters of Croatan Sound which include all waters on the North shore of Baum Creek to a straight line to Fl. Beacon number 2 at 35 degrees 50' 27" n-75 degrees 40' 06" W, thence in a straight line to a point on an island at 35 degrees 50' 05" N- 75 de										
30-20-(2)e	SA;HQW	92.2 S Acres	ND		ND			I	PRO	Fecal Coliform Bacteria
The waters of Croatan sound which include all waters below Oyster Creek southeast to Cut Through. DEH closed area Croatan Sound 5-e										
30-20-(2)f	SA;HQW	22.1 S Acres	ND		ND			I	PRO	Fecal Coliform Bacteria
DEH Closure Area at Mann's Harbor										
Cut Through										
30-20-8a	SA;HQW	128.6 S Acres	ND		ND			S	APP	
From DEH closure line to Croatan Sound										
30-20-8b	SA;HQW	178.5 S Acres	ND		ND			I	PRO	Fecal Coliform Bacteria
From Roanoke Sound to DEH closure line										

Table 5 Pasquotank Subbasin 03-01-51

AU Number	Classification	Length/Area	Aquatic Life Assessment		Recreation Assessment		Shellfish Harvesting								
			AL Rating	Station	Result	Parameter % Exc	REC Rating	Station	Result	SH Rating	GA	Stressors	Sources		
Doughs Creek															
30-21-3-2	SC;HQW	21.2 S Acres	ND						S	N86	NCE				
From source to Shallowbag Bay															
Hog I Creek															
30-20-9	SA;HQW	15.4 S Acres	ND						ND			S	APP	H-2	
Entire Creek															
Intracoastal Waterway (Pungo River-Alligator River Canal)															
30-16-12	SC;Sw	8.8 S Miles	S	MA12	NCE	Turbidity	9%		S	MA12	NCE				Unknown
From Currituck-Fairfield Township line to Alligator River															
Johns Creek															
30-21-5	SA;HQW	10.7 S Acres	ND						ND			I	PRO	H-1	Fecal Coliform Bacteria
From source to Roanoke Sound															
Long Wretch Creek															
30-20-10	SA;HQW	1.7 S Acres	ND						ND			S	APP	H-2	
From source to Croatan Sound															
Mill Landing Creek (Mill Creek)															
30-21-8	SC	29.8 S Acres	ND						S	N67	NCE				
From source to Roanoke Sound															
Oyster Creek															
30-21-9	SA;HQW	84.2 S Acres	ND						ND			S	APP	H-2	
Entire Creek															
Oyster Creek (Croatan Sound)															
30-20-6	SA;HQW	62.8 S Acres	ND						ND			I	PRO	H-2	Fecal Coliform Bacteria
From source to Croatan Sound															
Pamlico Sound															
30-22j	SA;HQW	18,083.5 S Acres	ND						ND			S	APP	H-6	
Portion of Pamlico Sound (from Croatan and Roanoke Sounds to a line running from Sandy Point south of Stumpy Point Bay to the northeast tip of Ocracoke Island) in subbasin 03-01-51.															

Table 5 Pasquotank Subbasin 03-01-51

AU Number	Classification	Length/Area	Aquatic Life Assessment			Recreation Assessment			Shellfish Harvesting			
			AL Rating	Station	Result	Parameter % Exc	REC Rating	Station	Result	SH Rating	GA	Stressors
Pond Island												
30-21-4a	SA;HQW	165.1 S Acres	ND				ND		I	PRO	Fecal Coliform Bacteria	WWTP NPDES
The waters surrounding the Island within 1,000 feet from shore within subbasin 03-01-51												
Roanoke Sound												
30-21a	SA;HQW	9,134.1 S Acres	ND				ND		S	APP		
Those waters in subbasin 03-01-51 in the western portion of Roanoke Sound, from a line running from Northwest Point on Roanoke Island northward to Rhodoms Point on Colington Island, thence a line running eastward through Wright Memorial Monument, to a line												
30-21b	SA;HQW	130.2 S Acres	ND				ND		I	PRO	Fecal Coliform Bacteria	WWTP NPDES
DEH closed area on east side of Roanoke Island extending from mouth of Shallowbag Bay to Johns Creek along the shoreline												
30-21c	SA;HQW	109.2 S Acres	ND				ND		I	PRO	Fecal Coliform Bacteria	
DEH closed area west of Pond Island in subbasin 03-01-51												
30-21d	SA;HQW	351.4 S Acres	ND				ND		I	PRO	Fecal Coliform Bacteria	
DEH closed area adjacent to Mill Landing on east side of Roanoke Island												
Rockhall Creek												
30-21-6	SA;HQW	5.7 S Acres	ND				ND		I	PRO	Fecal Coliform Bacteria	
Entire Creek												
Sand Beach Creek												
30-21-5-1	SA;HQW	38.7 S Acres	ND				ND		I	PRO	Fecal Coliform Bacteria	WWTP NPDES
From source to Johns Creek												
Shallowbag Bay												
30-21-3	SC	534.1 S Acres	NR				S	N70	NCE		Fecal Coliform Bacteria	WWTP NPDES
Entire Bay												
Smith Creek												
30-20-11	SA;HQW	3.3 S Acres	ND				ND		S	APP		
Entire Creek												

Table 5 Pasquotank Subbasin 03-01-51

AU Number 30-20-3 **Classification** SA:HQW **Length/Area** 86.8 S Acres **AL Rating** ND **Aquatic Life Assessment** ND **Recreation Assessment** I **PRO** H-2 **Shellfish Harvesting** Fecal Coliform Bacteria

Description Spencer Creek From source to Croatan Sound **AL Rating** ND **Station** **Result** **Parameter % Exc** **REC Rating** **Station** **Result** **SH Rating** **GA** **Stressors** **Sources**

Use Categories:	Monitoring data type:	Results:
AL - Aquatic Life	MF - Fish Community Survey	E - Excellent
REC - Reoreation	MB - Benthic Community Survey	G - Good
SH - Shellfish Harvesting	MA - Ambient Monitoring Site	GF - Good-Fair
	ML- Lake Monitoring	F - Fair
	N- DEH RECMON	P - Poor
GA - DEH SS Classification and Growing Area		NI - Not Impaired
APP- Approved		S- Severe Stress
CAO- Conditionally Approved-Open		M-Moderate Stress
CAC- Conditionally Approved-Closed		N- Natural
PRO- Prohibited		

Use Support Ratings 2006:
 S - Supporting, I - Impaired
 NR - Not Rated
 NR* - Not Rated for Recreation (screening criteria exceeded)
 ND-No Data Collected to make assessment
 NR+-Not rated because draft criteria used for rating

Results
 CE-Criteria Exceeded > 10% and more than 10 samples
 NCE-No Criteria Exceeded
 Miles/Acres
 FW- Fresh Water
 S- Salt Water

Aquatic Life Rating Summary		Recreation Rating Summary		Fish Consumption Rating Summary		Shellfish Harvesting Rating Summary	
S	8.8 S Miles	S	8.8 S Miles	I	m	S	m
S	106,724.7 S Acres	S	131,806.2 S Acres	I	e	I	m
NR	e 534.1 S Acres	ND	1.1 S Miles	I	c	I	m
ND	1.1 S Miles	ND	100,949.7 S Acres	I	e	I	m
ND	125,497.0 S Acres	ND	497.2 FW Miles	I	e	I	m
ND	497.2 FW Miles	ND	4,980.6 FW Acres	I	e	I	m
ND	4,980.6 FW Acres						

A map including the locations of the NPDES facilities and water quality monitoring stations is presented in Figure 4. Table 5 contains a summary of assessment unit numbers (AU#) and lengths, streams monitored, monitoring data types, locations and results, along with use support ratings for waters in the subbasin. Appendix V provides definitions of the terms used throughout this basin plan.

No benthic samples were collected during this assessment period (2000 – 2005); however, data was collected from three ambient monitoring stations (MA3, MA5 and MA12). No water quality standards were exceeded.

Many of the waters in subbasin 03-01-51 are classified for shellfish harvesting (Class SA). Many also have the supplemental classification of High Quality Waters (HQW) or Outstanding Resource Waters (ORW). Several management strategies are in place to protect these waters.

Waters in the following sections and in Table 5 are identified by an assessment unit number (AU#). This number is used to track defined segments in the water quality assessment database, list 303(d) Impaired waters, and to identify waters throughout the basin plan. The AU# is a subset of the DWQ index number (classification identification number). A letter attached to the end of the AU# indicates that the assessment is smaller than the DWQ index segment. No letter indicates that the AU# and the DWQ index segment are the same.

2.2 Use Support Assessment Summary

All surface waters in the state are assigned a classification appropriate to the best-intended use of that water. Waters are regularly assessed by DWQ to determine how well they are meeting their best-intended use. Table 6 provides a summary of use support for waters in subbasin 03-01-51.

In subbasin 03-01-51, use support was assigned for aquatic life, recreation, fish consumption and shellfish harvesting categories. Waters are Supporting, Impaired, Not Rated, and No Data in the aquatic life and recreation categories on a monitored or evaluated basis. All waters are Impaired in the fish consumption category on an evaluated basis based on fish consumption advice issued by the Department of Health and Human Services (DHHS). There are no water supply watersheds designated in this subbasin.

Criteria for making use support determinations for the shellfish harvesting category were based on Division of Environmental Health (DEH) Sanitary Surveys (SS) growing area classifications. The problem parameter for all shellfish waters is the potential for fecal coliform water quality standard exceedances. Differences in acreage estimates between basin cycles are not just related to changes in water quality; they are also due to changes in acreage are related to more refined methods of estimating acreages, changes in growing area classifications, extension of closure areas as a result of additional boat slips, and changes in use support methodology.

For more information about use support determinations, refer to Appendix II or the *Supplemental Guide to North Carolina's Basinwide Planning: Support Document for Basinwide Water Quality Plans* found at DWQ's website <http://h2o.enr.state.nc.us/basinwide/SupplementalGuide.htm>.

Table 6 Summary of Use Support Ratings by Category in Subbasin 03-01-51

Use Support Rating	Aquatic Life		Recreation		Shellfish Harvesting	
	Freshwater	Saltwater	Freshwater	Saltwater	Freshwater	Saltwater
Monitored Waters						
Supporting	0	8.8 mi 106,724.7 ac	0	8.8 mi 131,806.2 ac	0	52,547.2 ac
Impaired*	0	0	0	0	0	2,081.5 ac (3.8%)
Total	0	8.8 mi 106,724.7 ac	0	8.8 mi 131,806.2 ac	0	54,628.7 ac
Unmonitored Waters						
Not Rated	0	534.1 ac	0	0	0	0
No Data	497.2 mi 4,980.6 ac	1.1 mi 125,497 ac	497.2 mi 4,980.6 ac	1.1 mi 100,949.7 ac	0	0
Total	497.2 mi 4,980.6 ac	1.1 mi 126,031.1 ac	497.2 mi 4,980.6 ac	1.1 mi 100,949.7 ac	0	0
Totals						
All Waters	497.2 mi 4,980.6 ac	9.9 mi 232,756 ac	497.2 mi 4,980.6 ac	9.9 mi 232,756 ac	0	54,628.7 ac

* The noted percent Impaired is the percent of monitored miles/acres only.

2.3 Status and Recommendations of Previously and Newly Impaired Waters

The following waters were either identified as Impaired in the previous basin plan (2002) or are newly Impaired based on recent data. If previously identified as Impaired, the water will either remain on the state's 303(d) list or will be delisted based on recent data showing water quality improvements. If the water is newly Impaired, it will likely be placed on the 2008 303(d) list. The current status and recommendations for addressing these waters are presented below, and each is identified by an assessment unit number (AU#). Information regarding 303(d) listing and reporting methodology is presented in Chapter 15.

For more information about use support determinations for the Impaired Class SA waters presented in Table 7 below, refer to Appendix II or the *Supplemental Guide to North Carolina's Basinwide Planning: Support Document for Basinwide Water Quality Plans* found at DWQ's website <http://h2o.enr.state.nc.us/basinwide/SupplementalGuide.htm>. Refer to Figure 4 for a map of subbasin 03-01-51.

Table 7 Summary of DEH Growing Areas H-1, H-2 and I-2 Classifications in Subbasin 03-01-51

Class SA Waters	Assessment Unit #	Growing Area Classification	DEH Growing Area
Broad Creek	30-21-7a	PRO	H-1
	30-21-7b	APP	
Johns Creek	30-21-5	PRO	H-1
Pond Island	30-21-4a	PRO	H-1
Roanoke Sound	30-21a	APP	H-1, I-2
	30-21b	PRO	
	30-21c	PRO	
	30-21d	PRO	
Rockhall Creek	30-21-6	PRO	H-1

Sand Beach Creek	30-21-5-1	PRO	H-1
Baum Creek	30-20-5	PRO	H-2
Callaghan Creek	30-20-4	PRO	H-2
Croatan Sound	30-20-(2)a	APP	H-2, I-2
	30-20-(2)b	PRO	
	30-20-(2)c	PRO	
	30-20-(2)d	PRO	
	30-20-(2)e	PRO	
	30-20-(2)f	PRO	
Cut Through	30-20-8a	APP	H-2
	30-20-8b	PRO	
Oyster Creek (Croatan Sound)	30-20-6	PRO	H-2
Spencer Creek	30-20-3	PRO	H-2

PRO=Prohibited, CAC=Conditionally Approved Closed, CAO=Conditionally Approved Open

2.3.1 West Shore Roanoke Sound Growing Area H-1



The following DWQ Class SA waters and the Impaired assessment units associated with these waters are located within Growing Area H-1. If the entire Class SA water is located within more than one growing area it is noted in Table 7 or refer to the basinwide Growing Area map in the Executive Summary.

According to the *Sanitary Survey of Roanoke Sound, Area H-1 (DEH Shellfish Sanitation & Recreational Water Quality Section, October 2002 and August 2006)*, little change in bacteriological water quality has occurred since the last review in 2002; however, some water quality improvements have resulted in opening of shellfish waters. Area H-1 includes waters of the Roanoke Sound, Shallowbag Bay, Broad Creek, and Mill Creek. Roanoke Sound is bordered on the east by the Outer Banks and on the

west by Roanoke Island. H-1 is located in Dare County, which is undergoing rapid population growth with large influxes in seasonal populations. Manteo population is estimated at approximately 1,100 permanent residents and with a seasonal peak population of approximately 3,500 people (CAMA LUP-Town of Manteo, 2007). However, much of the survey area in area H-1 is uninhabited marshland. Wildlife and waterfowl are abundant in the marshland areas of this growing area.

Notable activities on Roanoke Island include new housing developments and the construction of wetlands. This area has had significant flooding with heavy rainfall events affecting low-lying areas and flooding septic systems. The growing Pirate's Cove subdivision also hosts the largest marina in the area with 181 boat slips. The survey reports all violations noted from previous surveys have been corrected. The Manteo Municipal WWTP is the only WWTP in H-1 that discharges to the sound. The discharge location is approximately 3,400 feet offshore in Shallowbag Bay. The WWTP has a history of exceeding its permit limits for fecal coliform, petroleum, and ammonia levels in its effluent.

As a result of the DEH 2006 survey report, approximately 45 acres around Manteo have been reclassified from Prohibited to Approved for shellfish harvesting and an additional 240 acres are classified as Approved in the Wanchese area. However, approximately 34 acres are Prohibited east of Wanchese Harbor due to development and observed pollution in runoff waters.

Broad Creek [AU# 30-21-7a]

Broad Creek (126 acres) is Impaired for shellfish harvesting. Broad Creek is classified by DEH SS as prohibited in growing area H-1 due to potential fecal coliform bacteria levels. Broad Creek will remain on the state's 303(d) list of Impaired waters.

The marina along Broad Creek is limited to 29 boats with no boats over 24' in length. Runoff from boat maintenance and from the parking lot of the marina drains to Broad Creek and eventually to waters east of Wanchese Harbor. Constructed wetlands have recently been completed in the mouth of Broad Creek and were observed to be hosting an abundant waterfowl population with associated accumulated fecal matter. Further downstream (AU# 30-21-7b), 392 acres are classified as approved and supporting shellfish harvesting

Johns Creek [AU# 30-21-5]

Johns Creek (10.7 acres) is Impaired for shellfish harvesting. Johns Creek is classified by DEH SS as prohibited in growing area H-1 due to potential fecal coliform bacterial levels. Johns Creek will remain on the state's 303(d) list of Impaired waters.

Pond Island [AU# 30-21-4a]

Pond Island (165.1 acres) is Impaired for shellfish harvesting. Pond Island is classified by DEH SS as prohibited in growing area H-1 due to potential fecal coliform bacterial levels. Pond Island will remain on the state's 303(d) list of Impaired waters.

Roanoke Sound [AU# 30-21b, 30-21c and 30-21d]

Portions of the Roanoke Sound (590.8 acres) is Impaired for shellfish harvesting. Roanoke Sound is classified by DEH SS as prohibited in growing area H-1 due to potential fecal coliform bacterial levels. Roanoke Sound will remain on the state's 303(d) list of Impaired waters. An additional 9,134.1 acres are classified as approved and supporting shellfish harvesting in area I-2.

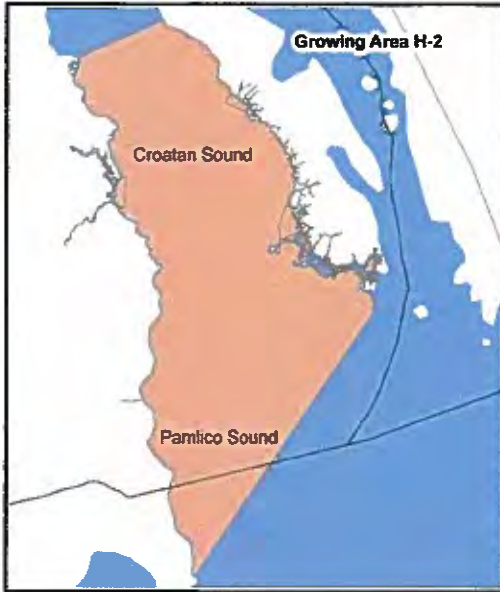
Rockhall Creek [AU# 30-21-6]

Rockhall Creek (5.7 acres) is Impaired for shellfish harvesting. Rockhall Creek is classified by DEH SS as prohibited in growing area H-1 due to potential fecal coliform bacterial levels. Rockhall Creek will remain on the state's 303(d) list of Impaired waters.

Sand Beach Creek [AU# 30-21-5-1]

Sand Beach Creek (38.7 acres) is Impaired for shellfish harvesting. Sand Beach Creek is classified by DEH SS as prohibited in growing area H-1 due to potential fecal coliform bacterial levels. Sand Beach Creek will remain on the state's 303(d) list of Impaired waters.

2.3.2 Croatan Sound Growing Area H-2



The following DWQ Class SA waters and the Impaired assessment units associated with these waters are located within Growing Area H-2. If the entire Class SA water is located within more than one growing area it is noted in Table 7 or refer to the basinwide Growing Area map in the Executive Summary.

According to the *Sanitary Survey of Croatan Sound, Area H-2* (DEH Shellfish Sanitation & Recreational Water Quality Section, December 2005), water quality remains good. The largest water quality issues are along the backside of Roanoke Island, near Manteo and Wanchese with high bacteria counts. Oyster production is limited to areas surrounding Wanchese and no clams are produced there. Area H-2 is bordered by Roanoke Island in the east and the mainland village of Manns Harbor to the west. The

permanent population is estimated at approximately 2,000 people, but drastically increases during the summer months.

Development is scattered throughout much of the area. In North Manteo, 100+ lots have been created, Sunnyside Subdivision in Manteo has extended to make room for an additional 30 units and several new residential units have been built in Skyco. With the exception of the houses connected to the Manteo WWTP, all the residences utilize onsite septic systems and seven violations were noted during the sanitary survey. Of these violations, one house had a crushed septic system with drainage to the sound and pipes from four mobile homes were disconnected and were found to be discharging directly onto the ground within 20 feet of the marsh.

Other possible water quality pollution sources include landfills, wildlife, and increased impervious surface runoff. Dredge material from Shallowbag Bay in area H-1 was deposited in a 30-acre site in area H-2. Several drainage ditches connect possible runoff from Dare County's demolition landfill to the sound. An illegal dumpsite was discovered in Manteo consisting of boats, appliances and other trash. Possible chemical pollutants may come from the NCDOT Marine Maintenance Facility located on Spencer Creek.

Baum Creek [AU# 30-20-5]

Baum Creek (10.9 acres) is Impaired for shellfish harvesting. Baum Creek is classified by DEH SS as prohibited in growing area H-2 due to potential fecal coliform bacterial levels. Baum Creek will remain on the state's 303(d) list of Impaired waters.

Callaghan Creek [AU# 30-20-4]

2002 Status

To evaluate the impact of a fire treatment berm at a Dare County landfill in 1998, DWQ monitored chemicals (metals), toxicity and benthic macroinvertebrates. One station failed

toxicity tests and metals were extremely high (i.e., silver, selenium, copper, zinc, arsenic, aluminum, lead, manganese and iron). Biologists noted some impacts to the benthic communities nearest the landfill. DWQ recommended that a follow-up study be conducted on Callaghan Creek. It was also recommended that DWQ regional office staff work with landfill managers to generate appropriate disposal options.

Current Status

Callaghan Creek (24.8 acres) is Impaired for shellfish harvesting. Callaghan Creek is classified by DEH SS as prohibited in growing area H-2 due to potential fecal coliform bacterial levels. Callaghan Creek will remain on the state's 303(d) list of Impaired waters.

DWQ sampled unnamed tributaries to Callaghan Creek and Billys Creek in October 2000 to assess the long-term impacts from the 1998 landfill fire. The sample sites were all channelized drainage ditches without bends or pools. Use of a non-standard sampling methodology precluded assignment of bioclassifications to these sites; however, this method collected enough taxa to make between site comparisons of the invertebrate communities. All sites had dissolved oxygen levels below 4.0 mg/l and no flow conditions existed. Substrate consisted of detritus-mud mixture. Macroinvertebrate communities at all sites in this study were very pollution tolerant. The sample site near the landfill showed a biotic community still impacted from the landfill fire; however, several taxa rarely found in DWQ collections were also found during the study (DWQ ESS, December 2000).

Croatan Sound [AU# 30-20-(2)b, 30-20-(2)c, 30-20-(2)d, 30-20-(2)e and 30-20-(2)f]

Croatan Sound (580.3 acres) is Impaired for shellfish harvesting. Croatan Sound is classified by DEH SS as prohibited in growing area H-2 due to potential fecal coliform bacterial levels. Croatan Sound will remain on the state's 303(d) list of Impaired waters.

Cut Through [AU# 30-20-8b]

Cut Through (178.5 acres) is Impaired for shellfish harvesting. Cut Through is classified by DEH SS as prohibited in growing area H-2 due to potential fecal coliform bacterial levels. Cut Through will remain on the state's 303(d) list of Impaired waters. An additional 128.6 acres are classified as approved and supporting shellfish harvesting in area H-2.

Oyster Creek [AU# 30-20-6]

Oyster Creek (62.8 acres) is Impaired for shellfish harvesting. Oyster Creek is classified by DEH SS as prohibited in growing area H-2 due to potential fecal coliform bacterial levels. Oyster Creek will remain on the state's 303(d) list of Impaired waters.

Spencer Creek [AU# 30-20-3]

Spencer Creek (86.8 acres) is Impaired for shellfish harvesting. Spencer Creek is classified by DEH SS as prohibited in growing area H-2 due to potential fecal coliform bacterial levels. Spencer Creek will remain on the state's 303(d) list of Impaired waters.

2.4 Status and Recommendations for Waters with Noted Impacts

The surface waters discussed in this section are not Impaired. However, notable water quality problems and concerns were documented for these waters during this assessment. Attention and resources should be focused on these waters to prevent additional degradation and facilitate water quality improvements. DWQ will notify local agencies of these water quality concerns and work with them to conduct further assessments and to locate sources of water quality protection funding. Additionally, education on local water quality issues and voluntary actions are useful tools to prevent water quality problems and to promote restoration efforts. The current status and recommendations for addressing these waters are presented below, and each is identified by an AU#. Nonpoint source program agency contacts are listed in Appendix IV.

2.4.1 Shallowbag Bay [AU#30-21-3]

Shallowbag Bay (534.1 acres) is Not Rated on an evaluated basis in the aquatic life category due to significant noncompliance issues with biochemical oxygen demand (BOD) and ammonia permit limits at the Manteo WWTP (Permit NC0079057). Manteo's WWTP is permitted to discharge 0.6 MGD and it has a phased NPDES permit under which it can expand to 1 MGD by obtaining an Authorization to Construct from DWQ. Many of the effluent violations with Manteo WWTP were results of mechanical malfunctions. In 2005 and 2006, there were two Notice of Violations issued against MWWTP and 9 Permit Enforcement penalties issued against the plant. In 2005, the Town of Manteo received a grant from the North Carolina Clean Water Management Trust Fund (CWMTF) to develop a feasibility study of nutrient removal options for wastewater discharged to Shallowbag Bay. The 2007 Manteo Land Use Plan states water quality conditions in Shallowbag Bay are concerns and recommends actions to improve their WWTP and reduce pollutants from stormwater runoff and marinas to improve water quality. BMPS are needed to reduce runoff from highly impervious areas of historic downtown Manteo to reduce stormwater runoff into Shallowbag Bay (CAMA LUP- Town of Manteo, 2007). The Town of Manteo prepared a stormwater management plan in 2000 with intentions to augment its zoning ordinance with stormwater management requirements. The 2005 Zoning Ordinance requires the runoff generated by new development to not exceed the predevelopment site volume for the first 1.5" and it shall be retained on the site. Residential and historic sites are exempt from this ordinance.

Shallowbag Bay is also monitored by the Division of Environmental Health (DEH) Recreational Monitoring Program (RECMON). Based on DEH monitoring data, the bay is Supporting in the recreation category.

2.5 Additional Water Quality Issues within Subbasin 03-01-51

The previous sections discussed water quality concerns for specific stream segments. The following section discusses issues that may threaten water quality in the subbasin that are not specific to particular streams, lakes, or reservoirs. The issues discussed may be related to waters near certain land use activities or within proximity to different pollution sources.

The increase in impervious surfaces throughout the basin contributes to the growing water quality issues associated with stormwater runoff. An increase in the numbers of slips at marinas is a concern to water quality because of the limited number of marina facilities with pump out

capabilities. Establishing marinas that meet Clean Marina standards is essential to protect public health and water quality.

According to the *Sanitary Survey of Albemarle and Currituck Sounds, Areas I-1, I-3 through I-16* (DEH Shellfish Sanitation & Recreational Water Quality Section, December 2005), there has been little change in water quality since the last survey. The only shellfish found in this area is *Rangia* clams. No commercial shellfish harvesting occurs. Freshwater runoff is the most significant factor affecting water quality in this region and can be associated with agricultural runoff or natural runoff from swampwaters following heavy rains.

Area I-4 consists mainly of forest and swamps surrounding the Alligator River. Logging is the main industry in this region. There are some farming operations on the western side of the river. The eastern side of the river is part of the Alligator River National Wildlife Refuge.

According to the *Sanitary Survey of Eastern Albemarle Sound, Area I-2* (DEH Shellfish Sanitation Unit, June 2005), water quality has improved with a few exceptions. The only shellfish present in this area is *Rangia* clams. The estimated population of this area is 11,000 people, which is a 50 percent increase since the last survey. With the influx of tourists the population more than triples. There are 15 subdivisions, many of which are located along closed waters.

Chapter 6

Pasquotank River Subbasin 03-01-55

Including: Northeastern Pamlico Sound

6.1 Subbasin Overview

Subbasin 03-01-55 at a Glance

Land and Water Area

Total area:	574 mi ²
Land area:	96 mi ²
Water area:	478 mi ²

Land Cover (percent)

Surface Water:	89%
Forest/Wetland:	11%
Urban:	<1%
Cultivated Crop:	<1%
Pasture/ Managed Herbaceous:	<1%

Counties

Dare

Communities

Stumpy Point, Rodanthe, Avon, Waves

Monitored Waterbody Statistics

Aquatic Life:

Total: 0

Recreation:

Total: 315,259.3 ac

Supporting: 315,259.3 ac

Shellfish Harvesting:

Total: 319,557.8 ac

Supporting: 316,953.0 ac

Impaired: 2,604.8 ac

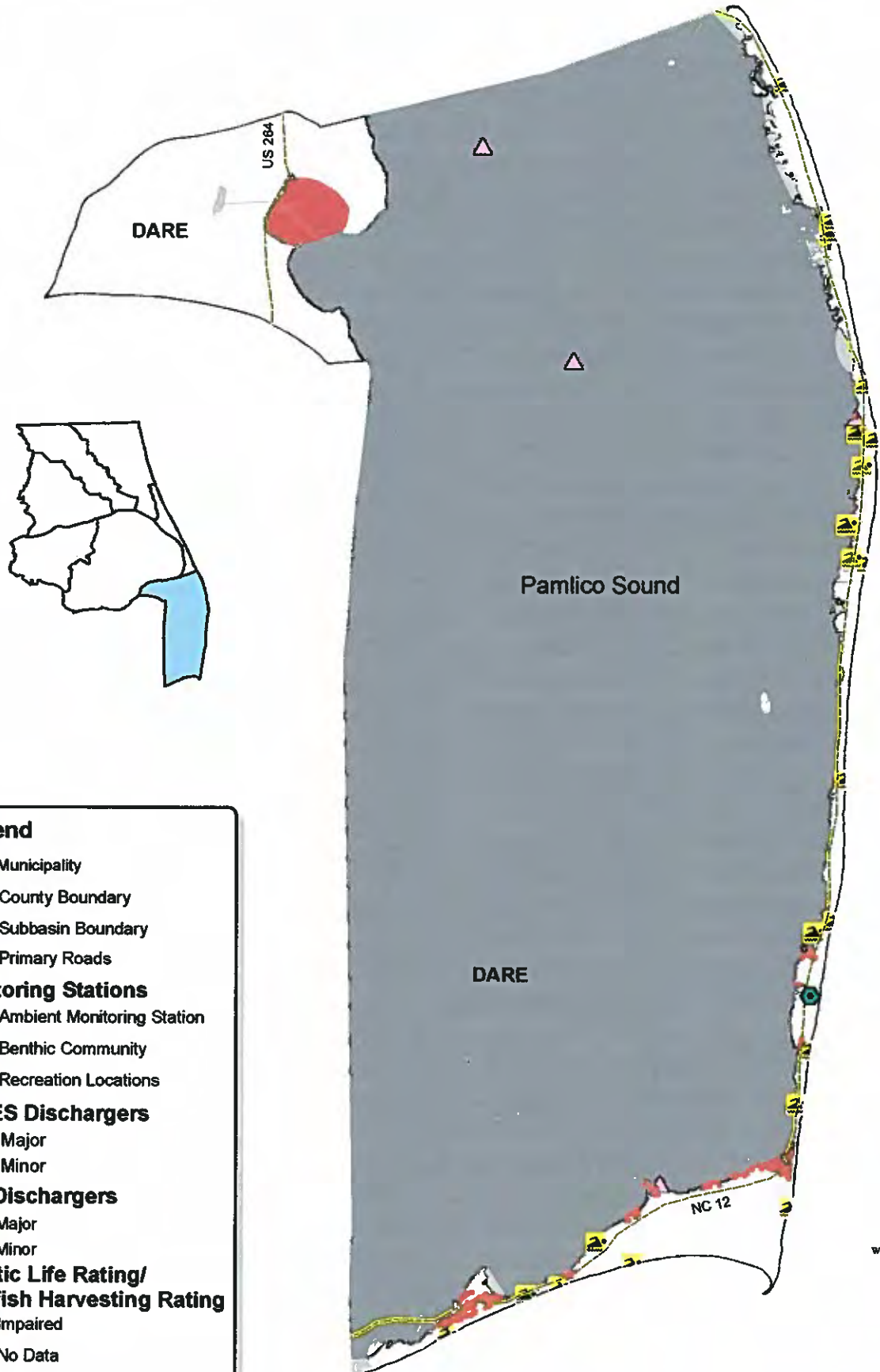
This subbasin consists of Pamlico Sound from Oregon Inlet to Hatteras Inlet and the Outer Banks in Dare County. Subbasin 03-01-55 contains Black Lake and Stumpy Point Bay on the mainland and the Pea Island National Wildlife Refuge and Cape Hatteras National Seashore on the Outer Banks. Ecologically, the subbasin consists primarily of Carolinian Barrier Islands and coastal marshes with portions of the mainland consisting of nonriverine swamps and peatlands. Streams on the mainland are few and low gradient with channelized ditches being common and all are either estuarine or oceanic. Land cover generally consists of surface water and forested wetlands.

Dare County, located in this subbasin, experiences a high seasonal population fluctuation with tourists visiting the Outer Banks. Dare County projected to experience a population increase of 35 percent by 2020. Additional information regarding population and land use changes throughout the entire basin can be found in Chapter 11.

There are three minor National Pollutant Discharge Elimination System (NPDES) permitted facilities in this subbasin with a total permitted flow of 2.1 MGD. All three facilities are reverse osmosis (RO) water treatment plants (WTP) that discharge filtered backwash or reject water into saline waters. All three are required to monitor whole effluent toxicity (WET). The permit for the Cape Hatteras RO WTP specifies chronic toxicity monitoring. WET results submitted by the facility indicate that it failed to meet its chronic toxicity target on one occasion between January 2000 and December 2005. The permits for the Stumpy Point RO WTP and the Rodanthe/Waves/Salvo RO WTP specify acute toxicity monitoring. No acute effluent toxicity violations were reported at the Stumpy Point RO

WTP; however, results from the Rodanthe/Waves/Salvo RO WTP show that the facility failed to meet its 90 percent acute toxicity target effluent concentration on four occasions between January 2000 and December 2005. There is one non-discharge permit and no stormwater discharge permits for this subbasin. For the listing of NPDES permit holders, refer to Appendix III.

Figure 8 Pasquotank River Subbasin 03-01-55



Legend

- Municipality
- County Boundary
- Subbasin Boundary
- Primary Roads

Monitoring Stations

- Ambient Monitoring Station
- Benthic Community
- Recreation Locations

NPDES Dischargers

- Major
- Minor

Non-Dischargers

- Major
- Minor

**Aquatic Life Rating/
Shellfish Harvesting Rating**

- Impaired
- No Data
- Not Rated
- Supporting



Planning Section
Basinwide Planning Unit
January 8, 2007

Table 18 Pasquotank Subbasin 03-01-55

AU Number	Classification	Length/Area	Aquatic Life Assessment			Recreation Assessment			Stressors	Sources
			AL Rating	Station	Result	Parameter % Exc	REC Rating	Station		
Description										
Askins Creek										
30-22-24	SA;HQW	4.9 S Acres	ND							
From source to Pamlico Sound										Fecal Coliform Bacteria
										PRO H-5
Austin Creek (Clubhouse Creek)										
30-22-31	SA;HQW	7.9 S Acres	ND							
From source to Pamlico Sound										Fecal Coliform Bacteria
										PRO H-4
Beach Slue										
30-22-9	SA;HQW	76.9 S Acres	ND							
Entire area of Beach Slue										
										APP H-5
Blackmar Gut										
30-22-13	SA;HQW	4.6 S Acres	NR							
From source to Pamlico Sound										Toxic Impacts WWTP NPDES
										Fecal Coliform Bacteria
										PRO H-5
Boat Creek										
30-22-25	SA;HQW	1.9 S Acres	ND							
From source to Pamlico Sound										
										APP H-5
Brooks Creek										
30-22-28	SA;HQW	24.8 S Acres	ND							
From source to Pamlico Sound										Fecal Coliform Bacteria
										PRO H-4
Cape Creek										
30-22-27	SA;HQW	15.8 S Acres	ND							
From source to Pamlico Sound										Fecal Coliform Bacteria
										PRO H-5
Clarks Bay										
30-22-16	SA;HQW	19.8 S Acres	ND							
Entire Bay										
										S N29 NCE S APP H-5
Duck Ponds and Isaac Pond										
30-22-30-1-1	SA;HQW	10.3 S Acres	ND							
Entire ponds and connecting streams to The Slash										Fecal Coliform Bacteria
										PRO H-4
Eagle Nest Bay										
30-22-2	SA;HQW	55.5 S Acres	ND							
Entire Bay										
										S APP H-5

Table 18 Pasquotank Subbasin 03-01-55

AU Number	Classification	Length/Area	Aquatic Life Assessment			Recreation Assessment			Shellfish Harvesting			
			AL Rating	Station	Result	Parameter % Exc	REC Rating	Station	Result	SH Rating	GA	Stressors
Goat Island Bay												
30-22-3	SA;HQW	40.8 S Acres	ND			ND			S	APP		H-5
Entire Bay												
Goose Creek												
30-22-32	SA;HQW	1.7 S Acres	ND			ND			S	APP		H-4
From source to Pamlico Sound												
Gull Island Bay												
30-22-18	SA;HQW	16.5 S Acres	ND			ND			S	APP		H-5
Entire Bay												
Hatteras Inlet												
30-22-33	SA;HQW	143.1 S Acres	ND			ND			S	APP		H-4
Entire Inlet												
Joe Saur Creek												
30-22-29	SA;HQW	17.9 S Acres	ND			ND			I	PRO		Fecal Coliform Bacteria H-4
From source to Pamlico Sound												
Long Point Creek												
30-22-26	SA;HQW	6.3 S Acres	ND			ND			S	APP		H-5
From source to Pamlico Sound												
Middett Cove												
30-22-15	SA;HQW	36.4 S Acres	ND			ND			S	APP		H-5
From source to Pamlico Sound												
Mill Creek												
30-22-22	SA;HQW	16.2 S Acres	ND			ND			I	PRO		Fecal Coliform Bacteria H-5
From source to Pamlico Sound												
No Ache Bay												
30-22-17	SA;HQW	38.1 S Acres	ND			ND			S	APP		H-5
Entire Bay												
North Drain												
30-22-14	SA;HQW	2.0 S Acres	ND			ND			S	APP		H-5
From source to Pamlico Sound												

Table 18 Pasquotank Subbasin 03-01-55

AU Number	Classification	Description	Length/Area	Aquatic Life Assessment			Recreation Assessment			Shellfish Harvesting		
				Year/Parameter	Station Result	% Exc	REC Rating	Station Result	GA	SH Rating	GA	Stressors
30-22-1	SA, HQW	Entire Inlet	571.2 S Acres	ND			ND			S	APP H-6	

Table 18 Pasquotank Subbasin 03-01-55

Shellfish
Harvesting

AU Number Classification Length/Area Aquatic Life Assessment Recreation Assessment

Description AL Rating Station Result Parameter % Exc REC Rating Station Result SH Rating GA Stressors Sources

AU Number	Classification	Length/Area	AL Rating	Station	Result	Parameter	% Exc	REC Rating	Station	Result	SH Rating	GA	Stressors	Sources
30-22a	SA;HQW	315,239.5 S Acres	NR					S	N26A	NCE	S	APP	Low Dissolved Oxygen	WWTP NPDES
									N26C	NCE				
									N28	NCE				
									N28A	NCE				
									N29A	NCE				
									N31	NCE				
									N33	NCE				
									N33A	NCE				
									N38	NCE				
									N39	NCE				
												H-6		
30-22b	SA;HQW	28.5 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria	
												H-4		
30-22c	SA;HQW	15.2 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria	
												H-4		
30-22d	SA;HQW	3.6 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria	
												H-4		
30-22e	SA;HQW	18.7 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria	
												H-4		

Portion of Pamlico Sound (from Croatan and Roanoke Sounds to a line running from Sandy Point south of Stumpy Point Bay to the northeast tip of Ocracoke Island) in subbasin 03-01-55 except DEH closure areas 30-22b through 30-22j.

The waters of Pamlico Sound which include the DEH closed area of a boundary beginning at a point on land west of the Hatteras Ferry Landing at 35 degrees 12' 30" N- 75 degrees 42' 24" W, thence to a point in the ferry channel at 35 degrees 12' 37" N-75 deg

The waters of the Pamlico Sound which include the DEH closed area with mouth 1.17 miles southwest of Durant Point.

The waters of Pamlico Sound which include the DEH closed area with mouth 321 meters east of east mouth of Austin Creek

The waters of Pamlico Sound which include the DEH closed area all creeks, canals, and tributaries along Hatteras Island between Brooks Point to west mouth of Joe Saur Creek.

Table 18 Pasquotank Subbasin 03-01-55

Shellfish
Harvesting

AU Number	Classification	Length/Area	AL Rating	Station	Result	Parameter	% Exc	RE C Rating	Station	Result	SH Rating	GA	Stressors	Sources
Description			AL Rating	Station	Result	Parameter	% Exc	RE C Rating	Station	Result	SH Rating	GA	Stressors	Sources
30-22f	SA,HQW	187.8 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria	
The waters of Pamlico Sound which include the DEH closed area. All waters south of a line beginning at a point on the shore north of Buxton at 35 degrees 16' 44" N. 75 degrees 31' 05" W, thence in westerly direction through Bald Point to a point on the B														
30-22g	SA,HQW	1.3 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria	
The waters of Pamlico Sound which include the DEH closed area at the mouth of Askins Creek														
30-22h	SA,HQW	29.2 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria	
The waters of Pamlico Sound which include the DEH closed area at the mouth of Mill Creek. This includes all waters south of a line from Big Island to the Outer Banks and all waters east of line from Big Island to Gibbs Point														
Pauls Ditch														
30-22-12	SA,HQW	6.9 S Acres	ND					ND			S	APP		
From source to Pamlico Sound														
Pea Island Bay														
30-22-6	SA,HQW	18.3 S Acres	ND					ND			S	APP		
Entire Bay														
Pea Island Creek														
30-22-5	SA,HQW	4.6 S Acres	ND					ND			S	APP		
Entire Creek														
Peters Ditch														
30-22-23	SA,HQW	2.7 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria	
From source to Pamlico Sound														
Phipps Cove														
30-22-19	SA,HQW	5.8 S Acres	ND					ND			S	APP		
From source to Pamlico Sound														
Round Hammock Bay														
30-22-11	SA,HQW	276.4 S Acres	ND					ND			S	APP		
Entire Bay														

Table 18 Pasquotank Subbasin 03-01-55

AU Number	Classification	Length/Area	Aquatic Life Assessment			Recreation Assessment			Shellfish Harvesting				
			AL Rating	Station	Result	Parameter	% Exc	REC Rating	Station	Result	SF Rating	GA	Stressors
Description													
Sandy Bay													
30-22-30a	SA,HQW	37.6 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria
DEH Closure Area													
30-22-30b	SA,HQW	123.7 S Acres	ND					ND			S	APP	
Entire Bay excluding DEH closure Area													
Spencer Creek													
30-22-21	SA,HQW	4.4 S Acres	ND					ND			S	APP	
From source to Pamlico Sound													
Stumpy Point Bay													
30-22-8a	SA,HQW	1,688.5 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria
Entire Bay except DEH area closures													
30-22-8b	SA,HQW	198.2 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria
All those waters bounded by a line beginning at a point 35 degrees 41' 55" N-75 degrees 46' 09" W, thence in a southeasterly direction to a point 400 yards offshore at 35 degrees 41' 46" N- 75 degrees 45' 54" W, thence in a southwesterly direction in a st													
30-22-8c	SA,HQW	260.3 S Acres	ND					ND			I	PRO	Fecal Coliform Bacteria
All those waters within an area bounded by a line beginning at a point on the east shore at 35 degrees 41' 44" N- 75 degrees 44' 18" W, thence to a point in the bay at 35 degrees 41' 28" N- 75 degrees 44' 45" W, thence to a point in the bay at 35 degrees													
Terrapin Creek													
30-22-7-1	SA,HQW	2.8 S Acres	ND					ND			S	APP	
From source to Terrapin Creek Bay													
Terrapin Creek Bay													
30-22-7	SA,HQW	163.7 S Acres	ND					ND			S	APP	
Entire Bay													
The Drain													
30-22-20	SA,HQW	1.4 S Acres	ND					ND			S	APP	
From source to Pamlico Sound													

Table 18 Pasquotank Subbasin 03-01-55

AU Number Classification Length/Area Aquatic Life Assessment Year/ Recreation Assessment Shellfish Harvesting

Description AL Rating Station Result Parameter % Exc REC Rating Station Result SH Rating GA Stressors Sources

The Slash
 30-22-30-1 SA:HQW 30.9 S Acres ND ND Fecal Coliform Bacteria
 From source to Sandy Bay I PRO H-4

The Trench
 30-22-4 SA:HQW 51.5 S Acres ND ND
 From source to Pamlico Sound S APP H-5

Wreck Creek
 30-22-10 SA:HQW 43.5 S Acres ND ND
 Entire Creek S APP H-5

Use Categories:
 AL - Aquatic Life MF - Fish Community Survey
 REC - Recreation MB - Benthic Community Survey
 SH - Shellfish Harvesting MA - Ambient Monitoring Site
 ML - Lake Monitoring
 N- DEH RECMON
 GA - DEH SS Classification and Growing Area
 APP- Approved
 CAO- Conditionally Approved-Open
 CAC- Conditionally Approved-Closed
 PRO- Prohibited

Monitoring data type:
 MF - Fish Community Survey
 MB - Benthic Community Survey
 MA - Ambient Monitoring Site
 ML - Lake Monitoring
 N- DEH RECMON

Results:
 E - Excellent
 G - Good
 CF - Good-Fair
 F - Fair
 P - Poor
 NI - Not Impaired
 S- Severe Stress
 M-Moderate Stress
 N- Natural

Use Support Ratings 2006:
 S - Supporting, I - Impaired
 NR - Not Rated
 NR* - Not Rated for Recreation (screening criteria exceeded)
 ND-No Data Collected to make assessment
 NR+-Not rated because draft criteria used for rating

Results
 CE-Criteria Exceeded > 10% and more than 10 samples
 NCE-No Criteria Exceeded
 Miles/Acres
 FW- Fresh Water
 S- Salt Water

Aquatic Life Rating Summary Recreation Rating Summary Fish Consumption Rating Summary Shellfish Harvesting Rating Summary

NR e	315,244.1 S Acres	S m	315,259.3 S Acres	I e	319,580.0 S Acres	S m	316,953.0 S Acres
ND	4,335.9 S Acres	ND	4,320.6 S Acres	I e	117.6 FW Miles	I m	2,604.8 S Acres
ND	117.6 FW Miles	ND	117.6 FW Miles				

Flooding continues to be a concern along the Outer Banks. Groundwater levels are high, limiting the lands ability to infiltrate rainwater. Also, the increase in impervious surfaces contributes to higher stormwater runoff and flooding events.

A map including the locations of the NPDES facilities and water quality monitoring stations is presented in Figure 8. Table 15 contains a summary of assessment unit numbers (AU#) and lengths, streams monitored, monitoring data types, locations and results, along with use support ratings for waters in the subbasin. Appendix V provides definitions of the terms used throughout this basin plan.

Neither benthic samples nor ambient stations are located in this subbasin; however, there are several recreational monitoring stations (RECMON) located throughout the subbasin. These stations are evaluated by the NC Division of Environmental Health (DEH). Long-term trends in water quality cannot be assessed in this subbasin. Refer to the *2006 Pasquotank River Basinwide Assessment Report* <http://h2o.enr.state.nc.us/esb/Basinwide/PASQUOTANK2006Final.pdf> and Appendix I for more information on monitoring.

Many of the waters in subbasin 03-01-55 are classified for shellfish harvesting (Class SA). Many are also classified as High Quality Waters (HQW) or Outstanding Resource Waters (ORW). Several management strategies are in place to protect these waters.

Waters in the following sections and in Table 15 are identified by an assessment unit number (AU#). This number is used to track defined segments in the water quality assessment database, list 303(d) Impaired waters, and to identify waters throughout the basin plan. The AU# is a subset of the DWQ index number (classification identification number). A letter attached to the end of the AU# indicates that the assessment is smaller than the DWQ index segment. No letter indicates that the AU# and the DWQ index segment are the same.

6.2 Use Support Assessment Summary

All surface waters in the state are assigned a classification appropriate to the best-intended use of that water. Waters are regularly assessed by DWQ to determine how well they are meeting their best-intended use. Table 16 provides a summary of use support for waters in subbasin 03-01-55.

In subbasin 03-01-55, use support was assigned for aquatic life, recreation, fish consumption and shellfish harvesting categories. Waters are Supporting, Impaired, Not Rated, and No Data in the aquatic life and recreation categories on a monitored or evaluated basis. All waters are Impaired in the fish consumption category on an evaluated basis based on fish consumption advice issued by the Department of Health and Human Services (DHHS). There are no water supply watersheds designated in this subbasin.

Criteria for making use support determinations for the shellfish harvesting category were based on Division of Environmental Health (DEH) Sanitary Surveys (SS) growing area classifications. The problem parameter for all shellfish waters is the potential for fecal coliform standards exceedances. Differences in acreage estimates between basin cycles are not just related to changes in water quality. Changes in acreage are related to more refined methods of estimating acreages, changes in growing area classifications, extension of closure areas as a result of additional boat slips, and to changes in use support methodology.

For more information about use support determinations, refer to Appendix II or the *Supplemental Guide to North Carolina's Basinwide Planning: Support Document for Basinwide Water Quality Plans* found at DWQ's website <http://h2o.enr.state.nc.us/basinwide/SupplementalGuide.htm>.

Table 16 Summary of Use Support Ratings by Category in Subbasin 03-01-55

Use Support Rating	Aquatic Life		Recreation		Shellfish Harvesting	
	Freshwater	Saltwater	Freshwater	Saltwater	Freshwater	Saltwater
Monitored Waters						
Supporting	0	0	0	315,259.3 ac	0	316,953.0 ac
Impaired*	0	0	0	0	0	2,604.8 ac (0.8%)
Total	0	0	0	315,259.3 ac	0	319,557.8 ac
Unmonitored Waters						
Not Rated	0	315,244.1 ac	0	0	0	0
No Data	117.6 mi	4,335.9 ac	117.6 mi	4,320.6 ac	0	0
Total	117.6 mi	319,580 ac	117.6 mi	4,320.6 ac	0	0
Totals						
All Waters	117.6 mi	319,580 ac	117.6 mi	319,579.9 ac	0	319,557.8 ac

* The noted percent Impaired is the percent of monitored miles/acres only.

6.3 Status and Recommendations of Previously and Newly Impaired Waters

The following waters were either identified as Impaired in the previous basin plan (2002) or are newly Impaired based on recent data. If previously identified as Impaired, the water will either remain on the state's 303(d) list or will be delisted based on recent data showing water quality improvements. If the water is newly Impaired, it will likely be placed on the 2008 303(d) list. The current status and recommendations for addressing these waters are presented below, and each is identified by an assessment unit number (AU#). Information regarding 303(d) listing and reporting methodology is presented in Chapter 15.

For more information about use support determinations for the Impaired Class SA waters presented in Table 17 below, refer to Appendix II or the *Supplemental Guide to North Carolina's Basinwide Planning: Support Document for Basinwide Water Quality Plans* found at DWQ's website <http://h2o.enr.state.nc.us/basinwide/SupplementalGuide.htm>. Refer to Figure 8 for a map of subbasin 03-01-55.

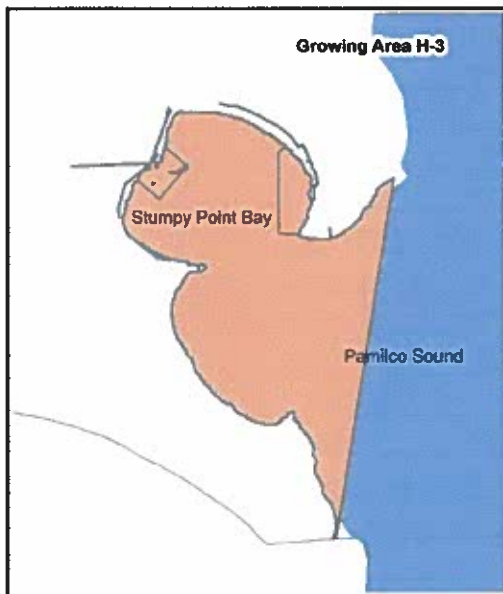
Table 17 Summary of DEH Growing Areas H-3, H-4, H-5, H-6 Classifications in Subbasin 03-01-55

Class SA Waters	Assessment Unit #	Growing Area Classification	DEH Growing Area
Stumpy Point Bay	30-22-8a	PRO	H-3
	30-22-8b	PRO	
	30-22-8c	PRO	
Austin Creek	30-22-31	PRO	H-4
Brooks Creek	30-22-28	PRO	H-4
Duck Ponds and Isaac Pond	30-22-30-1-1	PRO	H-4
Joe Saur Creek	30-22-29	PRO	H-4

Pamlico Sound	30-22a1	APP	H-4, H-5, H-6
	30-22a2	PRO	
	30-22b	PRO	
	30-22c	PRO	
	30-22d	PRO	
	30-22e	PRO	
	30-22f	PRO	
	30-22g	PRO	
	30-22h	PRO	
Sandy Bay	30-22-30a	PRO	H-4
	30-22-30b	APP	
The Slash	30-22-30-1	PRO	H-4
Askins Creek	30-22-24	PRO	H-5
Blackmar Gut	30-22-13	PRO	H-5
Cape Creek	30-22-27	PRO	H-5
Mill Creek	30-22-22	PRO	H-5

PRO=Prohibited, CAC=Conditionally Approved Closed, CAO=Conditionally Approved Open

6.3.1 Stumpy Point Growing Area H-3



The following DWQ Class SA waters and the Impaired assessment units associated with these waters are located within Growing Area H-3. If the entire Class SA water is located within more than one growing area it is noted in Table 17 or refer to the basinwide Growing Area map in the Executive Summary.

According to the *Sanitary Survey of Stumpy Point, Area H-3 (DEH Shellfish Sanitation & Recreational Water Quality Section, May 2006)*, oyster production is considered fair and there is no clam production. The entire area consists of marsh and forest of the Alligator River National Wildlife Refuge with the exception of the community of Stumpy Point. The area has a total population of 230 people with little seasonal variation. The population is not expected to grow unless a WWTP is constructed to facilitate

further development. There are two seafood businesses in area H-3.

Stumpy Point Bay [AU# 30-22-8a, 30-22-8b and 30-22-8c]

Stumpy Point Bay (2,147.0 acres) is Impaired for shellfish harvesting. Stumpy Point Bay is classified by DEH SS as prohibited in growing area H-3 due to potential fecal coliform bacteria levels. Stumpy Point Bay [AU# 30-22-8a, AU# 30-22-8b and 30-22-8c] will be added to the state's 303(d) list of Impaired waters.

The Stumpy Point area does not have any central wastewater collection or treatment facilities. Unsuitable soils in this area leave homeowners with limited on-site wastewater treatment options. Currently, 63 of the 110 known septic systems are known to have straight pipe discharges that drain to a canal emptying directly into Stumpy Point Bay, or have failed. A new WWTP to serve the residents of Stumpy Point has been proposed. A Septic Tank Effluent Pump

system would collect the wastewater in Stumpy Point and deliver it to a membrane bioreactor wastewater treatment plant to provide advanced tertiary biological treatment and accomplish disinfection by an ultraviolet light system. This system would discharge into Bayview Drive Canal.

6.3.2 Hatteras Growing Area H-4



The following DWQ Class SA waters and the Impaired assessment units associated with these waters are located within Growing Area H-4. If the entire Class SA water is located within more than one growing area it is noted in Table 17 or refer to the basinwide Growing Area map in the Executive Summary.

According to the *Sanitary Survey of Hatteras Area, Area H-4* (DEH Shellfish Sanitation & Recreational Water Quality Section, May 2002, March 2007), an overall decline in water quality has occurred. As a result of the 2007 survey an additional 4.5 acres will be reclassified from approved to prohibited for

shellfish harvesting. The area covers 5,800 acres, of which 229.5 acres are closed for shellfish harvesting. Oyster production is considered poor and clam production is poor. Samples taken near an area referred to as Little Ditch, showed extremely high bacteria counts, but no major pollution sources were noted. Area H-4 is located along the Outer Banks at the western end of Hatteras Island where tourism is the main industry. Hatteras Village has an approximate population of 1,700 with an increase to 6,000 during peak tourist months; the Town of Frisco has approximately 700 permanent residents, increasing to 5,000. There is no WWTP within this area and all residences and businesses utilize conventional septic systems. Many of the septic systems are old and are installed in fill or coarse sand, allowing possible discharge to adjacent water via groundwater. Hatteras Landing uses a low-pressure pipe system for waste disposal. Additional multifamily residences are being built on fill in this area.

Austin Creek (Clubhouse Creek) [AU# 30-22-31]

Austin Creek (7.9 acres) is Impaired for shellfish harvesting. Austin Creek is classified by DEH SS as prohibited in growing area H-4 due to potential fecal coliform bacterial levels. Austin Creek will remain on the state's 303(d) list of Impaired waters.

Brooks Creek [AU# 30-22-28]

Brooks Creek (24.8 acres) is Impaired for shellfish harvesting. Brooks Creek is classified by DEH SS as prohibited in growing area H-4 due to potential fecal coliform bacterial levels. Brooks Creek will remain on the state's 303(d) list of Impaired waters.

Duck Ponds and Isaac Pond [AU# 30-22-30-1-1]

Duck Ponds and Isaac Pond (10.3 acres) are Impaired for shellfish harvesting. Duck Ponds and Isaac Pond are classified by DEH SS as prohibited in growing area H-4 due to potential fecal coliform bacterial levels. Duck Ponds and Isaac Pond will be added to the state's 303(d) list of Impaired waters.

Joe Saur Creek [AU# 30-22-29]

Joe Saur Creek (17.9 acres) is Impaired for shellfish harvesting. Joe Saur Creek is classified by DEH SS as prohibited in growing area H-4 due to potential fecal coliform bacterial levels. Joe Saur Creek will remain on the state's 303(d) list of Impaired waters.

Portions of the Pamlico Sound [AU# 30-22b, 30-22c, 30-22d and 30-22e]

Portions of the Pamlico Sound (66.0 acres) is Impaired for shellfish harvesting. The Pamlico Sound is classified by DEH SS as prohibited in growing area H-4 due to potential fecal coliform bacterial levels. The Pamlico Sound will remain on the state's 303(d) list of Impaired waters.

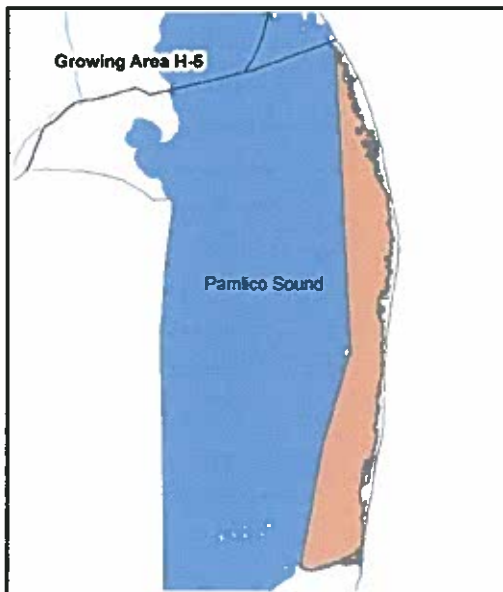
Sandy Bay [AU# 30-22-30a]

Sandy Bay (37.6 acres) is Impaired for shellfish harvesting. Sandy Bay is classified by DEH SS as prohibited in growing area H-4 due to potential fecal coliform bacterial levels. Sandy Bay will remain on the state's 303(d) list of Impaired waters.

The Slash [AU# 30-22-30-1]

The Slash (30.9 acres) is a tributary to Sandy Bay and Impaired for shellfish harvesting. The Slash is classified by DEH SS as prohibited in growing area H-4 due to potential fecal coliform bacterial levels. The Slash will remain on the state's 303(d) list of Impaired waters.

6.3.3 Outer Banks Growing Area H-5



The following DWQ Class SA waters and the Impaired assessment units associated with these waters are located within Growing Area H-5. If the entire Class SA water is located within more than one growing area it is noted in Table 17 or refer to the basinwide Growing Area map in the Executive Summary.

According to the *Sanitary Survey of Outer Banks, Area H-5* (DEH Shellfish Sanitation & Recreational Water Quality Section, October 2002, September 2006), water quality has declined in some areas. As a result of the 2006 survey approximately 15 acres will be closed to shellfish harvesting in Askins Creek and an additional 10 acres has been reclassified as prohibited near Salvo Marina. However, 120 acres in

the Cape Creek Area has been opened for shellfish harvesting. Area H-5 includes 66,800 acres and oyster and clam production is considered fair. The survey area is characterized by three small-populated areas separated by miles of uninhabited dunes and marshes. The permanent population is estimated at 2,400 while seasonal tourism increases population to 40,000. Several hurricanes impacted this area during this last Sanitary Survey resulting in debris from destroyed houses, fuel tanks and vehicles being washed into the waterways. Most of the area is within Cape Hatteras National Seashore and will never be developed.

Askins Creek [AU# 30-22-24]

Askins Creek (4.9 acres) is Impaired for shellfish harvesting. Askins Creek is classified by DEH SS as prohibited in growing area H-5 due to potential fecal coliform bacterial levels. Askins Creek will remain on the state's 303(d) list of Impaired waters.

Beach Slue [AU# 30-22-9]

Beach Slue is listed on the 2004 303(d) list of Impaired waters for shellfish harvesting. Beach Slue (76.9 acres) is currently Supporting for shellfish harvesting. Beach Slue is now classified by DEH SS as approved for harvesting, therefore DWQ will recommend that Beach Slue be removed from the state's 303(d) list of Impaired waters.

Blackmar Gut [AU# 30-22-13]

Blackmar Gut (4.6 acres) is Impaired for shellfish harvesting. Blackmar Gut is classified by DEH SS as prohibited in growing area H-5 due to potential fecal coliform bacterial levels. Blackmar Gut will be added to the state's 303(d) list of Impaired waters.

Blackmar Gut is Not Rated on an evaluated basis in the aquatic life category due to WET failures associated with the Rodanthe/Waves/Salvo Reverse Osmosis (RO) Water Treatment Plant (WTP) (Permit NC0083909). Between January 2000 and December 2005, the facility failed to meet its 90 percent acute toxicity target effluent concentrations on four occasions.

Cape Creek [AU# 30-22-27]

Cape Creek (15.8 acres) is Impaired for shellfish harvesting. Cape Creek is classified by DEH SS as prohibited in growing area H-5 due to potential fecal coliform bacterial levels. Cape Creek will remain on the state's 303(d) list of Impaired waters.

Eagle Nest Bay [AU# 30-22-2]

Eagle Nest Bay was listed on the 2004 303(d) list of Impaired waters for shellfish harvesting. Eagle Nest Bay (55.5 acres) is currently Supporting for shellfish harvesting. Eagle Nest Bay is now classified by DEH SS as approved for harvesting, therefore DWQ will recommend that Eagle Nest Bay be removed from the state's 303(d) list of Impaired waters.

Mill Creek [AU# 30-22-22]

Mill Creek (16.2 acres) is Impaired for shellfish harvesting. Mill Creek is classified by DEH SS as prohibited in growing area H-5 due to potential fecal coliform bacterial levels. Mill Creek will remain on the state's 303(d) list of Impaired waters.

Portions of the Pamlico Sound [AU# 30-22f, 30-22g and 30-22h]

Portions of the Pamlico Sound (218.3 acres) are Impaired for shellfish harvesting. The Pamlico Sound is classified by DEH SS as prohibited in growing area H-5 due to potential fecal coliform bacterial levels. The Pamlico Sound will remain on the state's 303(d) list of Impaired waters.

Peters Ditch [AU# 30-22-23]

Peters Ditch (2.7 acres) is Impaired for shellfish harvesting. Peters Ditch is classified by DEH SS as prohibited in growing area H-5 due to potential fecal coliform bacterial levels. Peters Ditch will remain on the state's 303(d) list of Impaired waters.

Pasquotank River Subbasin 03-01-56

Including: Roanoke Sound and small portion of Albemarle and Currituck Sound

7.1 Subbasin Overview

Subbasin 03-01-56 at a Glance

Land and Water Area

Total area:	109 mi ²
Land area:	37 mi ²
Water area:	72 mi ²

Land Cover (percent)

Surface Water:	70%
Forest/Wetland:	22%
Urban:	7%
Cultivated Crop:	<1%
Pasture/ Managed Herbaceous:	2%

Counties

Dare

Municipalities

Kill Devil Hills, Nags Head,
Kitty Hawk, Southern Shores

Monitored Waterbody Statistics

Recreation:

Total:	134.9 mi/22,216.2 ac
Supporting:	134.5 mi/22,211.5 ac
Impaired:	0.5 mi/4.7 ac

Shellfish Harvesting:

Total:	21,045.2 ac
Supporting:	19,258.3 ac
Impaired:	1,786.9 ac

This subbasin includes the Outer Banks from the northern portion of Dare County south to Oregon Inlet. It also includes portions of Currituck Sound, Albemarle Sound and Roanoke Sound. Ecologically, it is within the Carolinian Barrier Islands and Coastal Marshes ecoregions. Land cover generally consists of beaches, marshes, forested wetlands and evergreen forests with scattered urbanized areas, wildlife habitat and recreational areas. Several public lands and significant natural heritage areas can be found in this subbasin, including Jockey's Ridge State Park, Nags Head Woods Preserve, Run Hill State Natural Area, Wright Brothers National Memorial and Kitty Hawk Woods Coastal Reserve.

Portions of Currituck and Dare Counties are in this subbasin. The Outer Banks have experienced rapid population growth and development with the Towns of Kill Devil Hills and Nags Head experiencing growth estimated at an increase of 39 and 47 percent by 2020, respectively. Refer to Chapter 11 for more information about population growth and trends.

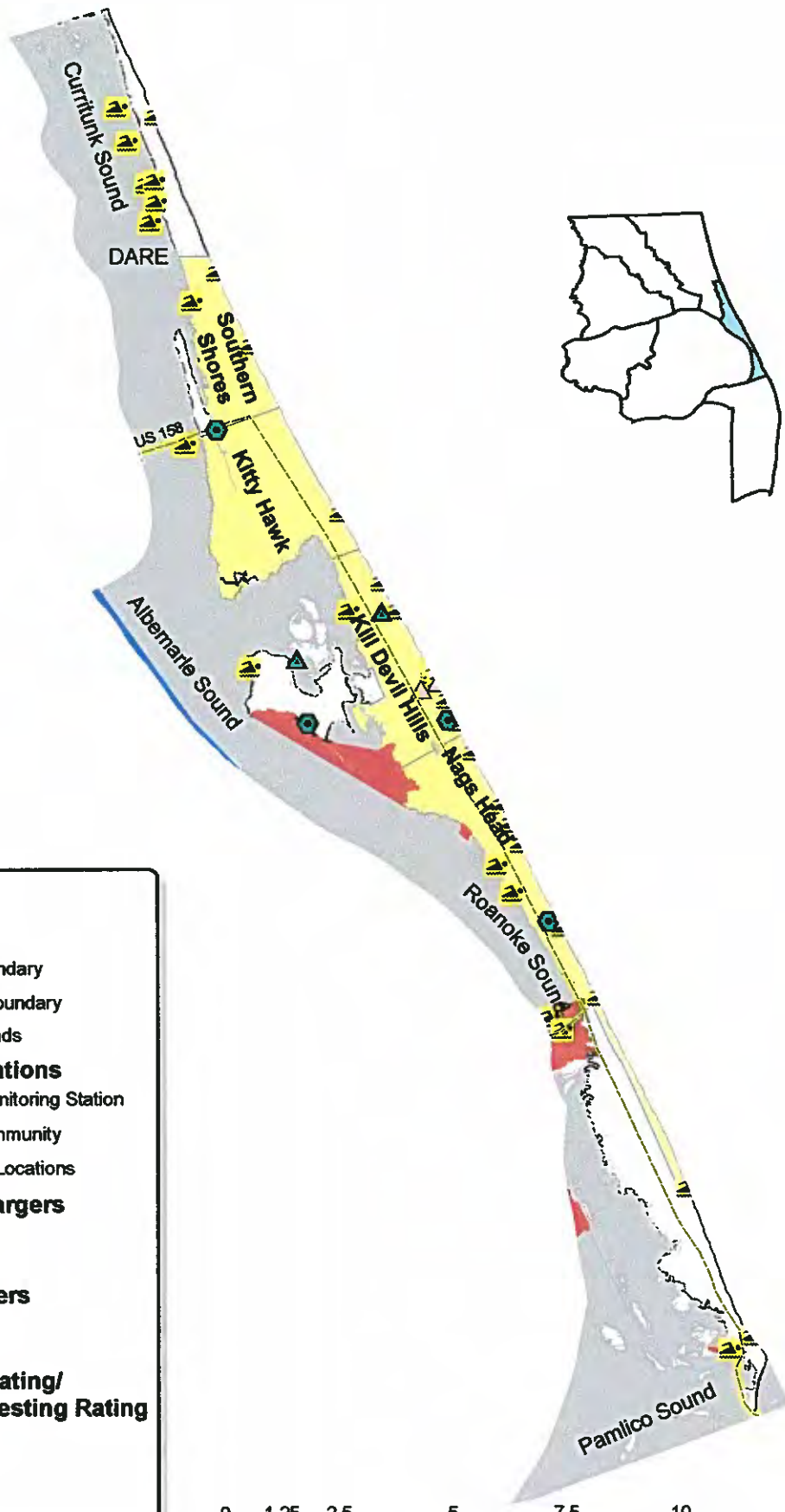
Water quality in areas with growing populations would benefit from individual or community implementation of backyard wetlands, rain gardens, bioretention areas, conversion of impervious surfaces, use of cisterns, streambank protection and restoration.

The Kill Devil Hills Reverse Osmosis (RO) Water Treatment Plant (WTP) holds the only National Pollutant Discharge Elimination System (NPDES) minor permit in

the subbasin with a permitted discharge of 0.03 MGD. The permit specifies that the facility monitor whole effluent toxicity (WET). During the last two years of the assessment period, WET tests show that the facility has failed to meet its 90 percent acute toxicity target effluent concentration on three occasions for both outfalls (outfall 001 and outfall 002). More information can be found in Section 7.4.1. There are six non-discharge permits and two stormwater discharge permits in this subbasin. For the listing of NPDES permit holders, refer to Appendix III.

A map including the locations of the NPDES facilities and water quality monitoring stations is presented in Figure 9. Table 18 contains a summary of assessment unit numbers (AU#) and

Figure 9 Pasquotank River Subbasin 03-01-56



Legend

- Municipality
- County Boundary
- Subbasin Boundary
- Primary Roads

Monitoring Stations

- Ambient Monitoring Station
- Benthic Community
- Recreation Locations

NPDES Dischargers

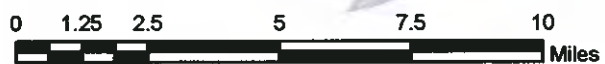
- Major
- Minor

Non-Dischargers

- Major
- Minor

**Aquatic Life Rating/
Shellfish Harvesting Rating**

- Impaired
- No Data
- Not Rated
- Supporting



Planning Section
Basinwide Planning Unit
January 8, 2007

Table 18 Pasquotank Subbasin 03-01-56

AU Number	Classification	Length/Area	Aquatic Life Assessment		Recreation Assessment		Shellfish Harvesting		Stressors	Sources
			AL Rating	Station Result Year/ Parameter % Exc	REC Rating	Station Result	SH Rating	GA		
ALBEMARLE SOUND										
30F1	SB	7,713.5 S Acres	ND		S	N9A	NCE		Fecal Coliform Bacteria	Marina
Portion of Albemarle Sound in subbasin 03-01-56. Waters of Albemarle Sound (All waters south and east of a line running in a southerly direction from Hornblow Point (North end of Norfolk-Southern Railroad Bridge) to a point of land on the east side of R										
30F2	SB	0.1 S Acres	ND		I	N9I	CE		Fecal Coliform Bacteria Enterococcus	Marina Unknown
Collington Harbor swimming beach										

Table 18 Pasquotank Subbasin 03-01-56

AU Number	Classification	Length/Area	Aquatic Life Assessment			Recreation Assessment			Shellfish Harvesting					
			AL Rating	Station	Result	Parameter % Exc	REC Rating	Station	Result	SH Rating	GA	Stressors	Sources	
99-(7)b	SB	0.5 Coast Miles	ND											
	Coastline 0.25 miles north and south of RECMON station N22 near Old Oregon Rd and NC12													
99-(7)c	SB	0.5 Coast Miles	NR											
	Coastline 0.25 miles north and south of NCO070157													

Blossie Creek

30-21-12	SA,HQW	33.3 S Acres	ND											
----------	--------	--------------	----	--	--	--	--	--	--	--	--	--	--	--

Entire Creek

Collington Creek

30-19-1a	SC	758.1 S Acres	ND											
----------	----	---------------	----	--	--	--	--	--	--	--	--	--	--	--

From Kill Devil Hills Bridge north to Kirtly Hawk Bay

30-19-1b	SC	0.4 S Acres	ND											
----------	----	-------------	----	--	--	--	--	--	--	--	--	--	--	--

Wildlife Ramp on Bayview Dr.

Fresh Water Lake at Kill Devil Hills

30-23	WS-III,CA	23.8 FW Miles	ND											
-------	-----------	---------------	----	--	--	--	--	--	--	--	--	--	--	--

Entire Lake

Georges Creek

30-21-10	SA,HQW	3.0 S Acres	ND											
----------	--------	-------------	----	--	--	--	--	--	--	--	--	--	--	--

From source to Roanoke Sound

Lighthouse Bay

30-21-11	SA,HQW	19.3 S Acres	ND											
----------	--------	--------------	----	--	--	--	--	--	--	--	--	--	--	--

Entire Bay

Pamlico Sound

30-22i	SA,HQW	5,150.1 S Acres	ND											
--------	--------	-----------------	----	--	--	--	--	--	--	--	--	--	--	--

Portion of Pamlico Sound (from Croatan and Roanoke Sounds to a line running from Sandy Point south of Stumpy Point Bay to the northeast tip of Ocracoke Island) in subbasin 03-01-56

Table 18 Pasquotank Subbasin 03-01-56

AU Number	Classification	Length/Area	Aquatic Life Assessment			Recreation Assessment			Shellfish Harvesting				
			AL Rating	Station	Result	Parameter	% Exc	REC Rating	Station	Result	SH Rating	GA	Stressors
Pond Island													
30-21-4b	SA,HQW	40.3 S Acres	ND				S	N20A	NCE	I	PRO	Fecal Coliform Bacteria	
The waters surrounding the Island within 1,000 feet from shore within subbasin 03-01-56													
Roanoke Sound													
30-21e1	SA,HQW	14,052.7 S Acres	ND				S	N24 N88A	NCE NCE	S	APP		
Those waters in 03-01-56 in the eastern portion of Roanoke Sound, from a line running from Northwest Point on Roanoke Island northward to Rhodoms Point on Colington Island, thence a line running eastward through Wright Memorial Monument, to a line running													
30-21e2	SA,HQW	4.2 S Acres	ND				I	N88	CE			Enterococcus	Stormwater Runoff
Jockey's Ridge Soundside Access													
30-21f	SA,HQW	1,177.4 S Acres	NR				ND			I	PRO	Total Suspended Solids Fecal Coliform Bacteria Fecal Coliform Bacteria	WWTP NPDES WWTP NPDES Marina
DEH closed area northeast of a line from Rhodoms Point to Mann Point including Buzzard bay													
30-21g	SA,HQW	26.3 S Acres	NR				ND			I	PRO	Low Dissolved Oxygen Fecal Coliform Bacteria	WWTP NPDES
The waters of Roanoke sound which include those waters around the Villa Condominium STP Outfall beginning at a point 35 degrees 57' 54" N- 75 degrees 38' 46" W, thence 200 yards in a southwesterly direction to a point in the sound at 35 degrees 57' 48" N-													
30-21h	SA,HQW	405.0 S Acres	ND				S	N21B	NCE	I	PRO	Fecal Coliform Bacteria	WWTP NPDES
DEH closed area east of Pond Island adjacent of HWY 264 bridge													
30-21i	SA,HQW	100.7 S Acres	ND				ND			I	PRO	Fecal Coliform Bacteria	
DEH closed area adjacent to Mill Landing in subbasin 03-01-56													
30-21j	SA,HQW	37.1 S Acres	ND				ND			I	PRO	Fecal Coliform Bacteria	
DEH closed area in southern portion of Roanoke Sound adjacent to Big Tim Island													

Table 18 Pasquotank Subbasin 03-01-56

**Shellfish
Harvesting**

AU Number Classification Length/Area Aquatic Life Assessment Recreation Assessment Sources

Description AL Rating Station Result Parameter % Exc REC Rating Station Result SH Rating GA

Use Categories:	Monitoring data type:	Results:	Use Support Ratings 2006:
AL - Aquatic Life	MF - Fish Community Survey	E - Excellent	S - Supporting, I - Impaired
REC - Recreation	MB - Benthic Community Survey	G - Good	NR - Not Rated
SH - Shellfish Harvesting	MA - Ambient Monitoring Site	GF - Good-Fair	NR* - Not Rated for Recreation (screening criteria exceeded)
	ML - Lake Monitoring	F - Fair	ND-No Data Collected to make assessment
	N - DEH RECMON	P - Poor	NR+-Not rated because draft criteria used for rating
GA - DEH SS Classification and Growing Area		NI - Not Impaired	Results
APP - Approved		S - Severe Stress	CE-Criteria Exceeded > 10% and more than 10 samples
CAC - Conditionally Approved-Open		M - Moderate Stress	NCE-No Criteria Exceeded
CAC - Conditionally Approved-Closed		N - Natural	Miles/Acres
PRO - Prohibited			FW - Fresh Water
			S - Salt Water

Aquatic Life Rating Summary	Recreation Rating Summary	Fish Consumption Rating Summary	Shellfish Harvesting Rating Summary
NR e 1,203.7 S Acres	S m 22,969.7 S Acres	I e 29,670.0 S Acres	S m 19,258.3 S Acres
NR e 0.5 Coast Mile	I m 4.7 S Acres	I e 23.8 FW Miles	I m 1,786.9 S Acres
ND 28,466.3 S Acres	S m 23.8 FW Miles	I e 111.1 Coast Mile	
ND 23.8 FW Miles	S m 110.6 Coast Mile		
ND 110.6 Coast Mile	I m 0.5 Coast Mile		
	ND 6,695.6 S Acres		

lengths, streams monitored, monitoring data types, locations and results, along with use support ratings for waters in the subbasin.

Many of the waters in subbasin 03-01-56 are classified for shellfish harvesting (Class SA). Many are also classified as High Quality Waters (HW) or Outstanding Resource Waters (ORW). Several management strategies are in place to protect these waters.

Neither benthic samples nor ambient stations are located in this subbasin; however, there are several recreational monitoring stations (RECMON) located throughout the subbasin. These stations are evaluated by the NC Division of Environmental Health (DEH). Long-term trends in water quality cannot be assessed in this subbasin. Refer to the *2006 Pasquotank River Basinwide Assessment Report* <http://h2o.enr.state.nc.us/esb/Basinwide/PASQUOTANK2006Final.pdf> and Appendix I for more information on monitoring.

Waters in the following sections and in Table 18 are identified by an assessment unit number (AU#). This number is used to track defined segments in the water quality assessment database, list 303(d) Impaired waters, and is used to identify waters throughout the basin plan. The AU# is a subset of the DWQ index number (classification identification number). A letter attached to the end of the AU# indicates that the assessment is smaller than the DWQ index segment. No letter indicates that the AU# and the DWQ index segment are the same.

7.2 Use Support Assessment Summary

All surface waters in the state are assigned a classification appropriate to the best-intended use of that water. Waters are regularly assessed by DWQ to determine how well they are meeting their best-intended use. Table 19 provides a summary of use support for waters in subbasin 03-01-56.

In subbasin 03-01-56, use support was assigned for aquatic life, recreation, fish consumption and shellfish harvesting. Waters are Supporting, Impaired, Not Rated and No Data in the aquatic life and recreation categories on a monitored or evaluated basis. All waters are Impaired in the fish consumption category on an evaluated basis based on fish consumption advice issued by the Department of Health and Human Services (DHHS). There are no water supply watersheds designated in this subbasin.

Criteria for making use support determinations for the shellfish harvesting category were based on Division of Environmental Health (DEH) Sanitary Surveys (SS) growing area classifications. The problem parameter for all shellfish waters is the potential for fecal coliform standards exceedances. Differences in acreage estimates between basin cycles are not just related to changes in water quality. Changes in acreage are related to more refined methods of estimating acreages, changes in growing area classifications, extension of closure areas as a result of additional boat slips, and to changes in use support methodology.

For more information about use support determinations, refer to Appendix II or the *Supplemental Guide to North Carolina's Basinwide Planning: Support Document for Basinwide Water Quality Plans* found at DWQ's website <http://h2o.enr.state.nc.us/basinwide/SupplementalGuide.htm>. Appendix V provides definitions of the terms used throughout this basin plan.

Table 19 Summary of Use Support Ratings by Category in Subbasin 03-01-56

Use Support Rating	Aquatic Life		Recreation		Shellfish Harvesting	
	Freshwater	Saltwater	Freshwater	Saltwater	Freshwater	Saltwater
Monitored Waters						
Supporting	0	0	23.8 mi	110.6 mi 22,969.7 ac	0	19,258.3 ac
Impaired*	0	0	0	0.5 mi 4.7 ac (0.02%)	0	1,786.9 ac (8.5%)
Total	0	0	23.8 mi	111.1 mi 22,974.4 ac	0	21,045.2 ac
Unmonitored Waters						
Not Rated	0	0.5 mi 1,203.7 ac	0	0	0	0
No Data	23.8 mi	110.6 mi 28,466.3 ac	0	6,695.6 ac	0	0
Total	23.8 mi	111.1 mi 28,771.4 ac	0	6,695.6 ac	0	0
Totals						
All Waters	23.8 mi	111.1 mi 28,771.8 ac	23.8 mi	111.1 mi 29,670 ac	0	21,045.2 ac

* The noted percent Impaired is the percent of monitored miles/acres only.

7.3 Status and Recommendations of Previously and Newly Impaired Waters

The following waters were either identified as Impaired in the previous basin plan (2002) or are newly Impaired based on recent data. If previously identified as Impaired, the water will either remain on the state's 303(d) list or will be delisted based on recent data showing water quality improvements. If the water is newly Impaired, it will likely be placed on the 2008 303(d) list. The current status and recommendations for addressing these waters are presented below, and each is identified by an AU#. Information regarding 303(d) listing and reporting methodology is presented in Chapter 15.

For more information about use support determinations for the Impaired Class SA waters presented in Table 20 below, refer to Appendix II or the *Supplemental Guide to North Carolina's Basinwide Planning: Support Document for Basinwide Water Quality Plans* found at DWQ's website <http://h2o.enr.state.nc.us/basinwide/SupplementalGuide.htm>. Refer to Figure 9 for a map of subbasin 03-01-56.

Table 20 Summary of DEH Growing Areas H-1, I-2 Classifications in Subbasin 03-01-56

Class SA Waters	Assessment Unit #	Growing Area Classification	DEH Growing Area
Pond Island	30-21-4b	PRO	H-1
Roanoke Sound	30-21e1	APP	H-1, I-2
	30-21e2	APP	
	30-21f	PRO	
	30-21g	PRO	
	30-21h	PRO	
	30-21i	PRO	
	30-21j	PRO	

PRO=Prohibited, CAC=Conditionally Approved Closed, CAO=Conditionally Approved Open

7.3.1 Eastern Shore of Roanoke Sound Growing Area H-1



The following DWQ Class SA waters and the Impaired assessment units associated with these waters are located within Growing Area H-1. If the entire Class SA water is located within more than one growing area it is noted in Table 20 or refer to the basinwide Growing Area map in the Executive Summary.

According to the *Sanitary Survey of Roanoke Sound, Area H-1 (DEH Shellfish Sanitation & Recreational Water Quality Section, October 2002 and August 2006)*, little changes in water quality were detected. Roanoke Sound is bordered on the east by the Outer Banks and on the west by Roanoke Island. H-1 is located in Dare County, undergoing rapid population growth and large influxes in seasonal populations. Nags Head has an estimated permanent population of 3,200 with an increase to

over 60,000 during summer months.

Nags Head area continues to have significant construction of seasonal residences and retail businesses adding to impervious surface cover. Much of the construction ties into the municipal wastewater treatment system with land application disposal or package plants with low-pressure pipe drain fields for final effluent disposal. One of the two septic systems operated by the US National Park Service was found to be failing during the 2006 survey.

As a result of the 2002 survey an additional 10 acres of shellfishing waters were closed at the canals of Old Nags Head Cove.

Pond Island [AU# 30-21-4b]

Pond Island (40.3 acres) is Impaired for shellfish harvesting. Pond Island is classified by DEH SS as prohibited in growing area H-1 due to potential fecal coliform bacteria levels. Pond Island will remain on the state's 303(d) list of Impaired waters.

Roanoke Sound (Jockey's Ridge Soundside) [AU# 30-21e2]

Roanoke Sound at Jockey's Ridge State Park (4.2 acres) is Impaired in the recreation category based on RECMON exceedences at site N88 for enterococci bacteria. The sampling location is near the storm drain just south of Jockey's Ridge. This section of the Roanoke Sound will be added to the state's 303(d) list of Impaired recreational waters.

Roanoke Sound [AU# 30-21g]

2002 Status

DEH posted a swimming advisory for a portion of the Roanoke Sound centered around the discharge associated with the Villas Association, Inc. The Villas is a residential/resort

community in the Town of Nags Head. The advisory was posted in 1998. In 2002, the Villas Association received a non-discharge permit to eliminate the direct discharge to Roanoke Sound. The facility is now utilizing a land application method for its treated wastewater.

Current Status

Roanoke Sound (26.3 acres) is Impaired for shellfish harvesting. This section of the sound is classified by DEH SS as prohibited in growing area H-1 due to potential fecal coliform bacteria levels. This section of the Roanoke Sound will remain on the state's 303(d) list of Impaired waters for shellfish harvesting.

This segment of the Roanoke Sound [AU# 30-21g] is Not Rated for recreation due to concerns with the previous WWTP discharges and will remain on the 303(d) list until further bacterial assessment is completed. No RECOM samples were collected in this section of the Roanoke Sound. The RECOMON sampling location closest to the Villas is near the storm drain just south of Jockey's Ridge. DEH has had 35 advisory days at this location since the 2004 swimming season.

Roanoke Sound [AU# 30-21h, 30-21i and 30-21j]

Current Status

These segments of the Roanoke Sound (542.8 acres) are Impaired for shellfish harvesting. This portion of the Roanoke Sound is classified by DEH SS as prohibited in growing area H-1 due to potential fecal coliform bacteria levels. Roanoke Sound will remain on the state's 303(d) list of Impaired waters.

7.3.2 Eastern Shore of Roanoke Sound Growing Area I-2



The following DWQ Class SA waters and the Impaired assessment units associated with these waters are located within Growing Area I-2. If the entire Class SA water is located within more than one growing area it is noted in Table 20 or refer to the basinwide Growing Area map in the Executive Summary.

According to the *Sanitary Survey of Eastern Albemarle Sound, Area I-2* (DEH Shellfish Sanitation & Recreational Water Quality Section, June 2005), water quality has improved with a few exceptions. The only shellfish present in this area is *Rangia* clams. The estimated population of this area is

11,000 people, which is a 50 percent increase since the last survey. With the influx of tourists the population in this area more than triples. There are 15 subdivisions, many of which are located along waters closed for shellfish harvesting.

Roanoke Sound (Buzzard Bay) [AU# 30-21f]

Roanoke Sound (1,177.4 acres) is Impaired for shellfish harvesting. This impaired section runs from Rhodams Point to Mann Point and includes Buzzard Bay. It is classified by DEH SS as prohibited in growing area I-2 due to potential fecal coliform bacteria levels. This section of the Roanoke Sound will remain on the state's 303(d) list of Impaired waters.

7.3.3 Previously or Currently Impaired Freshwater and Non-Shellfish Harvesting Waters

Albemarle Sound [AU# 30f2]

The Colington Harbor Swimming Beach in the Albemarle Sound (0.1 acres) is Impaired in the recreation category based on recreational monitoring (RECMON) exceedances at site N91. This section of Albemarle Sound will be added to the state's 303(d) list of Impaired recreational waters.

Atlantic Ocean [AU# 99-(7)b]

This 0.5 mile of coast line is Impaired in the recreation category based on RECMON exceedances at site N22. This section of the Atlantic coastline will be added to the state's 303(d) list of Impaired recreational waters.

Colington Creek [AU# 30-19-1b]

Colington Creek (0.4 acres) is Impaired in the recreation category based on recreational monitoring (RECMON) exceedances at site N13. During the assessment period extreme elevated bacteria counts were detected. Shore birds and other waterfowl are abundant in this area. The predominant southwest winds lead to limited flushing rates and often the waters become stagnant adjacent to the shoreline. Also, a dock was being built at the end of Dock Street, which was the location of the sampling site. During construction, sediments that include bacteria were being re-suspended in the water column by the pumping of pilings and the use of heavy equipment. This sampling station (N13) has now been dropped and replaced with a station (N13a) about 200 yards offshore.

7.4 Status and Recommendations for Waters with Noted Impacts

The surface waters discussed in this section are not Impaired. However, notable water quality problems and concerns were documented for these waters during this assessment. Attention and resources should be focused on these waters to prevent additional degradation and facilitate water quality improvements.

7.4.1 Atlantic Ocean [AU# 99-(7)c]

The Dare County Reverse Osmosis (RO) WTP (Permit NC0070157) for Kill Devil Hills discharges to an unnamed tributary that reaches this 0.5-mile section of the Atlantic coastline. The permit specifies that the facility monitor whole effluent toxicity (WET). During the last two years of the assessment period, WET tests show that the facility has failed to meet its 90 percent acute toxicity target effluent concentration on three occasions for both outfalls (outfall 001 and outfall 002). DWQ regional office staff report that outfall 001 is currently in compliance per the

permit; however, outfall 002 is showing high levels of chlorine. DWQ staff is working with the facility to ensure that both outfalls are in compliance per permit limits.

7.5 Additional Water Quality Issues within Subbasin 03-01-56

The previous sections discussed water quality concerns for specific stream segments. The following section discusses issues that may threaten water quality in the subbasin that are not specific to particular streams, lakes, or reservoirs. The issues discussed may be related to waters near certain land use activities or within proximity to different pollution sources.

Several pump stations contribute to the Kill Devil Hills WWTP non-discharge system (Permit WQ0002829), which have been non-compliant because of maintenance issues. Improved operational management and the possible consolidation of ownership of the pump stations would make inspections easier and maintenance issues could possibly be resolved. The facility is also expanding from 300,000 GPD to 500,000 GPD.

Town of Nags Head

In the fall of 2000, the Town of Nags Head implemented the Septic Health Initiative to improve management of septic systems and to reduce a potential source of microbes. This initiative includes four major programs including a public education program, septic tank inspection and pumping, water quality monitoring and the development of a long term decentralized wastewater management plan. This voluntary program is designed to encourage homeowners to have their septic systems inspected and pumped on a regular basis by providing refunds for inspection costs and utility credits for septic pumping. A homeowner low interest loan program also promotes the replacement of failing systems. The development of a decentralized wastewater management plan is Nags Head's long-term strategy in protecting water quality while allowing the continued use of on-site wastewater systems. (<http://www.townofnagshead.net>)

Section B - Chapter 8
Tar-Pamlico River Subbasin 03-03-08
Pamlico Sound, Lake Mattamuskeet and Swanquarter Bay

8.1 Subbasin Overview

Subbasin 03-03-08 at a Glance

Land and Water Area
 Total area: 1,220.0 mi²
 Land area: 356.1 mi²
 Water area: 863.9 mi²

Population Statistics
 2000 Est. Pop.: 9,053 people
 Pop. Density: 25 persons/mi²

Land Cover (percent)
 Forest/Wetland: 21.3
 Surface Water: 71.0
 Urban: 0.2
 Cultivated Crop: 7.3
 Pasture/
 Managed Herbaceous: 0.2

Counties
 Carteret, Dare, Hyde and Pamlico

Municipalities
 Swanquarter and Englehard

With the exception of the Outer Banks, this subbasin is one of the most rural on the coast. Lake Mattamuskeet and the Swanquarter National Wildlife Refuges also cover large areas in this subbasin. The predominant land cover is forest and wetland with some cultivated cropland.

There are seven NPDES wastewater discharge permits in this subbasin with a total permitted flow of 0.58 MGD (Figure B-8). There is also one general NPDES stormwater permit in the subbasin. Refer to Appendix I for identification and more information on individual NPDES permit holders. Significant issues related to compliance with NPDES permit conditions are discussed below. There are also four registered animal operations in this subbasin.

Fish tissue data have been from the Atlantic Ocean in this subbasin. DEH monitors four swimming areas and five shellfish growing areas in the basin as well (Figure B-8 and Table B-15).

Refer to *2003 Tar-Pamlico River Basinwide Assessment Report* at <http://www.esb.enr.state.nc.us/bar.html> and Section A, Chapter 3 for more information on monitoring.

Use support ratings for all waters in subbasin 03-03-08 are summarized in Part 8.2 below. Recommendations, current status and future recommendations for waters that were Impaired in 1999 are discussed in Part 8.3 below. Current status and future recommendations for newly Impaired waters are discussed in Part 8.4 below. Waters with noted water quality impacts are discussed in Part 8.5 below. Water quality issues related to the entire subbasin are discussed in Part 8.6. Refer to Appendix III for a complete list of monitored waters and more information on Supporting monitored waters.

Table B-15 DWQ Assessment and Use Support Ratings Summary for Monitored Waters in Subbasin 03-03-08

Waterbody	Assessment Unit Number	DWQ Classification	Length/Area	Category	Data Type with Map Number and Data Results			Use Support Rating	
					Biological	Ambient	Other	2004	1998
Pamlico Sound Swanquarter Bay/Juniper Bay ORW Area, including the Northeast Swanquarter Bay Area	29-46.5	SA ORW	11,670.0 ac	AL		A-44 to A-46 nce		S	
Lake Mattamuskeet	29-57-1-1	SC	40,314.1 ac	AL			L-I nce	S	
Swanquarter Bay	29-49a	SA ORW	136.2 ac	REC			DEH nce	S	
Atlantic Ocean	99-(6)	SB	17.3 mi	FC				I	
See Appendix III	89 segments	SA	505621.5 ac	SH			DEH nce	S	
See Appendix III	23 segments	SA	2404.6 mi	SH			DEH ce	I	

Assessment Unit Number	Portion of DWQ Classified Index where monitoring is applied to assign a use support rating.
Use Categories: AL - Aquatic Life REC - Recreation FC - Fish Consumption	Monitoring data type: F - Fish Community Survey B - Benthic Community Survey SF - Special Fish Community Study SB - Special Benthic Community Study A - Ambient Monitoring Site L - Lakes Assessment FT - Fish Tissue Site
Bioclassifications: E - Excellent G - Good GF - Good-Fair F - Fair P - Poor	Use Support Ratings 2004: S - Supporting, I - Impaired, NR - Not Rated Use Support Ratings 1998: FS - fully supporting, ST - supporting but threatened, PS - partially supporting, NS - not supporting, NR - not rated, N/A - not applicable
Ambient Data nce - no criteria exceeded ce - criteria exceeded	

8.2 Use Support Assessment Rating Summary

Use support ratings were assigned for waters in subbasin 03-03-08 in the aquatic life, recreation, fish consumption and shellfish harvesting categories. All waters are Impaired on an evaluated basis in the fish consumption category because of statewide fish consumption advice for mercury that is applied in this category to basins east and south of I-85 (page 90). Also, 17.3 Atlantic coastline miles are Impaired in the fish consumption category based on fish tissue monitoring data.

There were 509,926.1 estuarine acres (93 percent) monitored during this assessment period in the aquatic life category. There were no Impaired acres in the aquatic life category. There are 2,404.6 estuarine acres Impaired in the shellfish harvesting category. Refer to Table B-16 for a summary of use support ratings for waters in the subbasin 03-03-08.

Table B-16 Summary of Use Support Ratings by Category in Subbasin 03-03-08

Use Support Rating	Aquatic Life	Fish Consumption	Recreation	Shellfish Harvesting
Monitored Waters				
Supporting	509,926.1 Est ac	0	136.2 Est ac	505,621.5 Est ac
Impaired	0	17.3 coastline mi	0	2,404.6 Est ac
Not Rated	0	0	0	0
Total	509,926.1 Est ac	17.3 coastline mi	136.2 Est ac	508,026.1 Est ac
Unmonitored Waters				
Supporting	77.0 Est ac	0	0	0
Impaired	0	71.3 mi 548,788.2 Est ac	0	0
Not Rated	28.5 mi	0	0	0
No Data	42.7 mi 38,785.1 Est ac 17.3 coastline mi	0	71.3 mi 548,652.0 Est ac 17.3 coastline mi	0
Total	71.3 mi 38,862.2 Est ac 17.3 coastline mi	71.3 mi 548,788.2 Est ac	71.3 mi 548,652.0 Est ac 17.3 coastline mi	0
Totals				
All Waters	71.3 mi 548,788.2 Est ac 17.3 coastline mi	71.3 mi 548,788.2 Est ac 17.3 coastline mi	71.3 mi 548,788.2 Est ac 17.3 coastline mi	508,026.1 Est ac

8.3 Status and Recommendations of Previously Impaired Waters

8.3.1 Impaired Class SA Waters

Portions of Class SA waters were partially supporting in the 1999 basin plan because they were classified as prohibited to shellfish harvesting by DEH SS. No specific recommendations were made to address bacterial contamination in these waters in the 1999 basin plan. Because of changes in use support methodology, there are changes in the acreages and areas that are Impaired in the shellfish harvesting use category. These waters are discussed below in Part 8.4.2.

8.4 Status and Recommendations of Newly Impaired Waters

Waters in the following section are identified by assessment unit number (AU#). This number is used to track defined segments in the water quality assessment database, 303(d) Impaired waters list, and the various tables in this basin plan. The assessment unit number is a subset of the DWQ index number (classification identification number). A letter attached to the end of the AU# indicates that the assessment is smaller than the DWQ index segment. No letter indicates that the assessment unit and the DWQ index segment are the same.

8.4.1 Atlantic Ocean [AU# 99-(6)]

Current Status and 2002 Recommendations

The Atlantic Ocean (17.3 coastline miles) is currently Impaired in the fish consumption category because there is a statewide consumption advice for mercury in fish tissue that is applied to waters east and south of I-85, including the Atlantic Ocean where king mackerel fish tissue was analyzed in 1999.

8.4.2 Impaired Shellfish Harvesting Waters (Class SA)

Current Status

The following groups of waters are Impaired in the shellfish harvesting category. The current status is discussed briefly for each below. Recommendations are presented at the end of this section for all the Impaired waters. Refer to Appendix III for descriptions of the specific assessment units areas.

Pamlico River [AU# 29-(40.5) b, c, d and e]

Portions of the Pamlico River (759.3 acres) adjacent to Middle Town, Long and Far Creeks near Ocracoke are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Middle Town Creek and Far Creek are part of DEH shellfish growing area G-5. The Long Creek area is part of DEH shellfish growing area G-3. The Ocracoke area is part of DEH shellfish growing area G-6. DEH sanitary surveys indicate fair clam and oyster production in G-6, and good oyster production in G-5 and G-3.

Rose Bay [AU# 29-44a] and Rose Bay Creek [AU# 29-44-1]

Rose Bay and Rose Bay Creek (472.3 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). These segments are part of DEH shellfish growing area G-3. DEH sanitary surveys indicate good oyster production in G-3, with no clam production.

Germantown Bay and Tributaries [AU# 29-42-1a]

Germantown Bay and tributaries (241.6 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Germantown Bay and tributaries are part of DEH shellfish growing area G-3. DEH sanitary surveys indicate good oyster production in G-3, with no clam production.

Swanquarter Bay [AU# 29-49a]

Swanquarter Bay and tributaries (171.5 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Swanquarter Bay and tributaries are part of DEH shellfish growing area G-3. DEH sanitary surveys indicate good oyster production in G-3, with no clam production.

Juniper Bay [AU# 29-52a]

Juniper Bay and tributaries (86.0 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Juniper Bay and tributaries are part of DEH shellfish growing area G-4. DEH sanitary surveys indicate fair oyster production in G-4, with no clam production.

Wysocking Bay [AU# 29-60a]

Wysocking Bay (126.3 acres) is currently Impaired because this area is prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Wysocking Bay is part of DEH shellfish growing area G-4. DEH sanitary surveys indicate fair oyster production in G-4, with no clam production.

Middle Town Creek [AU# 29-66]

Middle Town Creek (71.5 acres) is currently Impaired because this area is prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Middle Town Creek is part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

Cedar Creek [AU# 29-67]

Cedar Creek (12.1 acres) is currently Impaired because this area is prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Cedar Creek is part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

Lone Tree Creek [AU# 29-69]

Lone Tree Creek (1.8 acres) is currently Impaired because this area is prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Lone Tree Creek is part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

Far Creek and Tributaries [AU# 29-70-(4)]

Far Creek and tributaries (545.8 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Far Creek and tributaries are part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

Berrys Bay [AU# 29-71a]

Berrys Bay (1.8 acres) is currently Impaired because this area is prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Berrys Bay is part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

Long Shoal River [AU# 29-73-(2) a and c]

Long Shoal River and tributaries (455 acres) are currently Impaired because these areas are prohibited or permanently closed to shellfish harvesting by DEH SS (page 51). Long Shoal River and tributaries are part of DEH shellfish growing area G-5. DEH sanitary surveys indicate good oyster production in G-5, with no clam production.

2004 Recommendations

DEH SS will continue to monitor bacterial water quality. DWQ, DEH, DCM are currently developing tools to better track water quality changes, make use support assessments, and support research in shellfish harvesting waters of North Carolina. The North Carolina Coastal Nonpoint Source Program (page 176) is developing a series of programs to help local governments address bacterial contamination in coastal waters. DWQ is also cooperating with DCM to assure that water quality problems identified in basinwide water quality plans are considered in development of local land use plans in coastal counties.

8.5 Status and Recommendations for Waters with Noted Impacts

Waters in the following section are identified by assessment unit number (AU#). This number is used to track defined segments in the water quality assessment database, 303(d) Impaired waters list, and the various tables in this basin plan. The assessment unit number is a subset of the DWQ index number (classification identification number). A letter attached to the end of the AU# indicates that the assessment is smaller than the DWQ index segment. No letter indicates that the assessment unit and the DWQ index segment are the same.

The surface waters discussed in this section are not Impaired. However, notable water quality problems and concerns have been documented for these waters based on this assessment. While these waters are not Impaired, attention and resources should be focused on these waters to prevent additional degradation or facilitate water quality improvement.

8.5.1 Lake Mattamuskeet [AU# 29-57-1-1]

Current Status and 2004 Recommendations

Lake Mattamuskeet (40,314 acres) is currently Supporting in the aquatic life category based on lakes monitoring data at site L-1. Both nitrogen and turbidity were elevated during monitoring

in 2002. Lake levels were low during the drought and bottom material may have been mixed readily into the water column.

DWQ will continue to monitor water quality in Lake Mattamuskeet. Land-disturbing activities should implement BMPs to minimize or prevent future impacts to water quality in the Lake Mattamuskeet watershed.

8.5.2 Boundary Canal [AU# 29-70-5-2-1]

Current Status and 2004 Recommendations

Boundary Canal (28.5 miles) is currently Not Rated in the aquatic life category because of six whole effluent toxicity failures at the Hyde County-Fairfield water treatment plant during the last two years of the assessment period.

DWQ is working with Hyde County to minimize potential impacts to aquatic life that may be caused by the discharge.

8.6 Additional Water Quality Issues within Subbasin 03-03-08

This section discusses issues that may threaten water quality in the subbasin that are not specific to particular streams, lakes or reservoirs. The issues discussed may be related to waters near certain land use activities or within proximity to different pollution sources.

8.6.1 Impacts of Post-Hurricane De-Snagging on Instream Habitats

Many streams in the subbasin have noted impacts from the recent hurricanes. The biological community in the streams can recover rapidly if instream habitat is maintained. De-snagging operations should carefully remove debris from stream channels to restore natural flow and leave enough instream habitats so the biological community can recover. For more information on this issue, refer to page 81.