

2005 Land Use Plan Update

CARTERET COUNTY NORTH CAROLINA

**Adopted by Carteret County
April 20, 2009**

**Certified by the North Carolina Coastal Resources Commission
December 20, 2010**

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The preparation of this report was financed in part through a grant provided by the North Carolina Coastal Management Program, through funds provided by the Coastal Zone Management Act of 1972, as amended, which is administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration.

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CARTERET COUNTY 2005 LAND USE PLAN UPDATE

INTRODUCTION

The 2005 Carteret County Land Use Plan represents an update to the 1996 Carteret County Land Use Plan, which was prepared with assistance from Holland Consulting Planners, Inc. of Wilmington, North Carolina. The 1996 plan was locally adopted by the Carteret County Board of Commissioners on September 13, 1999, and was certified by the Coastal Resources Commission on November 19, 1999.

The 2005 Carteret County Land Use Plan has been prepared in accordance with the requirements contained in the North Carolina Coastal Area Management Act (CAMA), the North Carolina Coastal Resources Commission (CRC) Land Use Planning Requirements [15A NCAC 7B], and the relevant planning process requirements of Local Planning and Management Grants [15A NCAC 7L]. The Land Use Plan follows the organizational format prescribed in 15A NCAC 7B and utilizes the methodology and data sources suggested by the Technical Manual for Coastal Land Use Planning, prepared by the North Carolina Department of Environment and Natural Resources.

In November 2001, the CRC adopted revisions to the 1996 Land Use Planning Requirements. The new guidelines are designed to be less complicated than the past guidelines, better tailored to the needs of local governments, and more in line with the goals of CAMA. The revised guidelines became effective in August 2002, and are the basis for this planning effort.

The CAMA legislation requires that each of the twenty coastal counties prepare and adopt a land use plan. Municipalities within these counties have the option of adopting individual plans, or the option of falling under the authority of their county plan. In Carteret County, the Towns of Bogue, Peletier and Cedar Point fall under the purview of the Carteret County Land Use Plan. The remaining incorporated municipalities prepare individual land use plans. The Towns of Cedar Point and Peletier use the Carteret County Land Use Plan for guidance in rezonings and other land use decisions and rely on the County plan for CAMA permitting decisions and state and federal consistency determinations. The Town of Bogue relies on the County plan for CAMA permitting and consistency determinations, as well as a guide for development of an initial land use plan for the community.

This Land Use Plan is intended to provide a framework that will guide local government officials and private citizens as they make day-to-day and long-term decisions affecting development. The Land Use Plan serves as an overall “blueprint” for the development of Carteret County that when implemented, results in the most suitable and appropriate use of the land and protection of the county’s natural resources. In addition to serving as a guide to the overall development of Carteret County, the Land Use Plan will be used by local, state and federal agencies in CAMA permitting decisions, project funding and project consistency determinations.

The Coastal Resources Commission places great emphasis on involving citizens and property owners in the development and implementation of the Land Use Plan. The goal is to involve as many citizens as possible in the development of the plan, and thereby enhance the likelihood that the plan will be implemented. Accordingly, on October 6, 2003, the Carteret County Board of Commissioners adopted a Citizen Participation Plan (Appendix A), which designated the Carteret County Planning Commission as the lead group responsible for preparation of the Land Use Plan. The Planning Commission is composed of citizens that represent a broad cross-section of the population of Carteret County. The purpose of the Citizen Participation Plan is to ensure that all interested citizens have an opportunity to participate in the development of the plan. The Citizen Participation Plan describes the public participation tools that are to be used to inform the public of planning progress and to solicit public participation. The Citizen Participation Plan also provides a general outline of the Planning Commission's meeting schedule for discussion and development of the Land Use Plan.

In accordance with the Citizen Participation Plan, the Carteret County Planning Commission held an initial public information meeting on November 10, 2003 and a Community Forum on December 8, 2003. These meetings were held to receive public input from citizens on issues, concerns and opportunities available to Carteret County. "Open house" informational meetings were also held in July 2004 and February 2005 to allow citizens an opportunity to review maps and draft policies developed in conjunction with the planning process and to interact informally with members of the Planning Commission.

In addition, all Planning Commission meetings that included discussion of the Land Use Plan Update provided time on the agenda for public comment. Participation by non-resident property owners was encouraged by regular planning updates to the Carteret County website. Viewers of the website were encouraged to direct questions and comments to the Carteret County Planning Director.

The Planning Commission reviewed the technical information developed for the Land Use Plan Update and identified major land use assets and problems as a basis for the *Community Concerns and Aspirations* section of this report. The assets, problems and key planning issues identified through this process, as well as public comments provided at the initial public information meeting and Community Forum, were used by the Planning Commission to develop the Community Vision. The Community Vision is a description of the general physical appearance and form that represents the citizens' plan for the future. It also serves as the foundation for the objectives and policies contained in the Land Use Plan.

One of several steps in the planning process included an analysis of existing and emerging conditions that affect Carteret County. Examples include current and projected population trends, housing characteristics and economic conditions. Natural systems and environmental hazards were analyzed and compiled onto an environmental composite map. This map depicts environmentally sensitive areas where development may already be limited or limited in the future due to public safety issues or protection of the environment. Other factors that were analyzed and considered in the planning process included existing land use and development patterns, projected land use needs and community facilities and utilities.

A land suitability analysis was conducted to determine the relative suitability for development of land in the Carteret County planning jurisdiction. Considerations included proximity to important natural features, existing and planned community services, existing developed areas and existing local, state and federal regulations affecting growth and development.

A plan for the future was developed and includes land use and development goals and policies for Carteret County. This section of the Land Use Plan addressed the CRC's management topics, which include the following: Public Access, Land Use Compatibility, Infrastructure Carrying Capacity, Natural Hazard Areas, Water Quality and Local Areas of Concern. Carteret County selected Economic Development as the local areas of concern. A future land use map was developed to show areas that are expected to see future growth and development, as well as "protected lands" such as state and federally owned properties that are not available for development, and those areas designated for conservation.

An implementation strategy or tools for managing development was developed to describe Carteret County's implementation strategies for the updated Land Use Plan. This includes a description of existing ordinances, policies, codes and regulations and how they will be coordinated and employed to implement land use and development policies. This section also describes additional tools, such as new or amended ordinances or other specific projects selected by Carteret County to implement the updated Land Use Plan. The effective period for the 2005 Land Use Plan Update is for the ten-year period following adoption of the plan.

ORGANIZATION OF PLAN

The land use plan is organized into a series of sections, in accordance with the outline contained in the CRC's Land Use Planning Requirements (15A NCAC 7B).

- Section 1 addresses community concerns and aspirations. This section provides an overview of the community's perceptions of the dominant growth related conditions affecting land use, development, water quality and other environmental conditions, and economic conditions. This section also includes the Community Vision and summarizes the results of a Community Forum held on December 8, 2003.
- Section 2 provides an analysis of population, housing, and economy trends that influence land use and impact natural resources.
- Section 3 provides an analysis of natural systems in Carteret County. This section describes Areas of Environmental Concern (AECs) present in Carteret County, as well as other important natural features. An Environmental Composite Map is included which shows the overlap and extent of these features and the County's determination of the capabilities and limitations of these features and conditions for development.
- Section 4 provides an analysis and map of existing land use and development.
- Section 5 describes and analyzes water, wastewater, and transportation systems in Carteret County.
- Section 6 contains the land suitability analysis and map required by the Coastal Resources Commission.
- Section 7 summarizes the existing policies and describes implementation and an assessment of policy effectiveness.
- Section 8 contains the County's land use and development goals and policies and the future land use map.
- Section 9 describes the County's implementation strategies or "tools" for managing development. These include a description of the role and status of the land use plan, a description of the current development management program and additional tools that will be required to implement the plan, and an action plan and schedule for implementation.

- The Citizen Participation Plan and public forum comments are contained in Appendices at the end of the plan. Also included is an explanation of demographic and population statistics and local definitions for “action” works contained in land use and development policies.

SECTION 1. **COMMUNITY CONCERNS AND ASPIRATIONS**

The purpose of the *Community Concerns and Aspirations* section of the Carteret County Land Use Plan is to provide overall guidance and direction for the development of the plan. The Planning Commission used the following three-part process to describe dominant growth-related conditions that influence land use and development patterns in Carteret County, describe key planning issues and develop a community vision:

1. Review of technical information related to existing and emerging conditions;
2. Identification of major community assets and problems related to land use and development; and
3. Development of the community vision statement to serve as the foundation for more specific objectives and policies stated elsewhere in the Land Use Plan.

DOMINANT GROWTH-RELATED CONDITIONS

During the planning process, the Carteret County Planning Commission, citizens, and staff of the Carteret County Planning and Development Department identified the following growth-related conditions that influence land use, development, water quality, and other environmental conditions:

- Population trends indicate that the population of Carteret County is aging. The number of older and retirement age residents is increasing, while younger age groups are showing a significant decline. The lack of good paying jobs is thought to be a major reason for the decline in working-age adults, while the area's attractiveness as a retirement destination helps explain the increase in older age groups. Steps should be taken to further improve the attractiveness of the County as a retirement area by developing a more "senior friendly" community and thus capitalizing on this potential economic growth opportunity. Likewise, economic development strategies should be developed to create more and better paying jobs to attract and retain younger adults.
- Carteret County continues to experience steady subdivision and land development activities. In recent years the majority of this growth has occurred in the western portion of the County, with the greatest percentage of growth occurring in the White Oak Township. This pattern is expected to continue throughout the planning period, although areas of central Carteret County, particularly those served by central water service, are expected to also experience increased growth.
- The number of acres of closed shellfishing waters in Carteret County continues to increase, although not at the rates experienced in the early 1990's. Most of the closed waters are located in more densely populated areas, with Core Sound and Back Sound containing larger percentages of open waters. The relationship of development to closed shellfishing waters is a concern, although some believe that existing land use policies are partly responsible for the slowing of this trend. Since the status of shellfishing waters is thought to be one of the best determinants of overall water quality, the County should work to protect water quality, while recognizing the qualities that attract residents and visitors to the area.
- The Carteret County economy is strongly influenced by the military presence in the area. Military and associated civilian employment constitutes the largest employment sector in the County. Impacts from the upcoming Base Realignment and Closure (BRAC) 2005

- could potentially hurt the County's economy by closing military installations or reducing the level of military and associated civilian employment.
- Tourism continues to have major impacts on land use, natural resources, and economic conditions.
 - Commercial and recreational saltwater fishing continue to provide significant economic impacts to Carteret County. Water quality and other environmental conditions impact this industry.
 - Marine trades (boat building) and marine research are important contributors to the local economy.
 - Transportation issues surround major highways (US 70, NC 24, NC 58, and NC 101). These include the need for improved safety, regional accessibility, and traffic flow. Anticipated growth of the County is expected to continue to place transportation pressures on the County.
 - Carteret County lacks central sewer service. The development of countywide sewer has not occurred due to cost and permitting restrictions that have not been resolved. Central water service is available in some areas. Individual septic tanks and wells serve most homes.
 - Approximately one-third of the area under Carteret County planning jurisdiction is zoned. All zoned areas are located in the western and central portions of the County.

ASSETS AND PROBLEMS

The following list summarizes the planning conditions that are important to the future of Carteret County and are the focus of this Land Use Plan. These conditions address the CAMA Land Use Plan Management Topics, which include public access, land use compatibility, infrastructure carrying capacity, natural hazard areas, water quality and local areas of concern. The identification of assets and problems was developed with input from local citizens and property owners.

Assets

- Plentiful waterfront areas throughout Carteret County to attract tourism and retirement and/or second home development
- Countywide waterfront access plan in place to guide future acquisitions and improvements for public access
- Opportunities available for acquisition of additional waterfront access sites through the buy-out provisions of the FEMA Hazard Mitigation Program
- County policies require local determination of consistency of proposed zoning and subdivision actions with Land Use Plan policies and Land Classification Map
- State and federal permitting programs (such as those administered by the NC Division of Coastal Management and the US Army Corps of Engineers) provide a measure of protection for natural resources and provide basic requirements that affect construction of infrastructure (roads, utilities, etc.)
- County employs a variety of local programs and regulations to protect natural features
- County is a National Flood Insurance Program participant and has adopted a Flood Damage Protection Ordinance
- Public outreach and education activities are in place to minimize flood damage risk
- As a result of the damage caused by Hurricane Isabel, all substantially damaged pre-FIRM (Flood Insurance Rate Maps) constructed dwellings are to be elevated

- New revised FIRM maps are more accurate than previous FIRM maps
- Opportunities exist for participation in the Scenic Byways Program, particularly in Down East area of Carteret County
- Retiree population is an economic growth opportunity
- Existing lifestyle of smaller communities is desirable

Problems

- Limited beachfront areas under Carteret County planning jurisdiction
- Inadequate funding for needed public access land acquisition and improvements
- Much of available waterfront is privately owned
- Subdivision regulations require water access for residents but not for the general public
- Existing access to public beaches is often inadequate to meet requirements for federally funded beach nourishment projects
- Local land use and development regulations often mimic state and federal standards and provide no additional protection for natural features
- Much of Carteret County is designated as wetlands
- Closed shellfishing areas due to impacts from development
- Lack of county-wide zoning
- Limited soil suitability for septic tanks
- Lack of central sewer systems to eliminate problems with malfunctioning septic tanks
- Lack of County capital improvements and infrastructure plans
- No County engineer results in lack of professional oversight of technical projects
- Much of County is located in a designated flood zone
- County's location and topography make it vulnerable to hurricanes, tropical storms and other storm events
- Much of the County and adjacent waters are affected by uncontrolled stormwater runoff
- Funding and permit approvals for needed beach nourishment projects are difficult to obtain
- Attractiveness of waterfront areas for development stresses fragile areas
- Transportation improvements are needed to enhance economy and improve traffic patterns
- Capacity issues on major roads are troublesome
- Some residents view existing environmental regulations as excessive
- Seasonal population stresses local services, but helps support the economy of area
- Lack of job opportunities for young adults results in migration from the County
- Economic development versus resource protection is a source of conflict in County
- Economic growth is limited by lack of suitable jobs
- Impacts from Base Realignment and Closure (BRAC) 2005 could hurt County's economy

On December 15, 2003, the Planning Commission sponsored a Community Forum to receive input from the public on the identification of the County's assets and problems relative to the CAMA Land Use Plan Management Topics. The results of the meeting were considered in the development of the Community Vision. Please see Appendix B for a summary of public comments provided at the Community Forum.

COMMUNITY VISION

The Community Vision for Carteret County was developed by the Carteret County Planning Commission at the beginning of the planning process to provide the foundation for setting priorities,

defining goals and developing land use policies to achieve local government goals. The Community Vision is an important feature of the Land Use Plan because it provides a description of how the area will look in the future. Input from the public was considered in development of the following community vision:

Carteret County creates an atmosphere and infrastructure that is conducive to sustainable economic development and growth of the County.

Carteret County balances growth with protection of its natural resources.

Water quality and the area's rich history are vital to the County's continuing development.

Carteret County explores traditional and alternative methods for the protection of its waters.

Carteret County strives to blend the benefits of new development with the County's heritage by actively taking steps to preserve community character.

Carteret County recognizes the contributions of the military community to its economy and actively promotes its continued presence in the County.

Carteret County strives to improve the quality of life for its residents and the economic stability of the County by encouraging and promoting sustainable industries and job opportunities.

SECTION 2.

POPULATION, HOUSING AND ECONOMY

POPULATION

Information on Carteret County's permanent and seasonal population and the degree to which it will change during the planning period is an important component of the land use planning process. Population analysis can help identify growth areas, as well as the amount of land that should be allocated for future uses. Population trend analysis provides information on expected impacts on the area's natural resources and future infrastructure needs. Population age and income characteristics help estimate demands for different types of housing and related land use, as well as special needs of the community. Appendix C provides an explanation of demographic and population statistics and how they are compiled.

Regional and County Growth Trends

Population growth in Carteret County has increased at significant rates since 1970. The permanent population increased more than 95% from 1970 to 2003, making it the sixth fastest growing North Carolina coastal county (Table 2.1). Two of the reasons for the growth increase are the national trends of population movement toward the coast and the area's increasing popularity as a retirement/resort area. Another important reason is the expansion of nearby military facilities.

Eighteen of the twenty North Carolina counties regulated by the Coastal Area Management Act (CAMA), including Carteret County, experienced a net permanent population growth from 1990 to 2000. During this period, only two coastal counties lost population (Bertie and Washington Counties). Compared to surrounding counties (Beaufort, Craven, Hyde, Pamlico and Onslow), Carteret was the second fastest growing county, slightly behind Pamlico at 13.8%.

The highest rates of permanent population growth from 1970 through 2000 in the coastal region have occurred in oceanfront counties. These six counties are Carteret, Brunswick, Currituck, Dare, New Hanover and Pender (Table 2.1).

Population statistics from 2000 to 2003 reflect a slowing of the growth rate in Carteret County. For this three-year period, Carteret County population grew from 59,383 to an estimated 60,712. On average, between 1990 and 2000 the population of Carteret County grew 1.3% per year compared to the estimated average yearly growth rate of 0.7% between 2000 and 2003.

Population growth projections anticipate an annual growth rate of 0.82% for the 2000-2005 period. Reasons for this projected slowing of the growth rate compared to the 1990-2000 period are attributed to Carteret beaches being largely developed by 2000, lack of adequate jobs to attract and retain younger residents and transportation deficiencies which may result in Carteret County being less accessible than other coastal areas. Table 2.1 provides populations and percentage change for the twenty CAMA-regulated counties from 1970 through 2003 and includes population change projections through 2005.

Table 2.1 - Total Population and Percent Change for CAMA Regulated Counties

Area Name	Year						Percent Change				
	1970	1980	1990	2000	2003 (estimate)	2005 (projected)	1970-1980	1980-1990	1990-2000	2000-2005 (estimate)	1970-2005 (estimate)
Carteret County	31,603	41,092	52,553	59,383	60,712	61,825	30.0%	27.9%	13.0%	4.1%	95.6%
Beaufort County	35,980	40,355	42,283	44,958	45,792	46,244	12.2%	4.8%	6.3%	2.9%	28.5%
Bertie County	20,528	21,024	20,388	19,757	19,649	19,441	2.4%	-3.0%	-3.1%	-1.6%	-5.3%
Brunswick County	24,223	35,777	50,985	73,141	80,751	84,610	47.7%	42.5%	43.5%	15.7%	249.3%
Camden County	5,453	5,829	5,904	6,885	7,265	7,455	6.9%	1.3%	16.6%	8.3%	36.7%
Chowan County	10,764	12,558	13,506	14,150	14,710	14,929	16.7%	7.5%	4.8%	5.5%	38.7%
Craven County	62,554	71,043	81,613	91,523	93,236	94,504	13.6%	14.9%	12.1%	3.3%	51.1%
Currituck County	6,976	11,089	13,736	18,190	19,726	20,591	59.0%	23.9%	32.4%	13.2%	195.2%
Dare County	6,995	13,377	22,746	29,967	32,440	33,697	91.2%	70.0%	31.7%	12.4%	381.7%
Gates County	8,524	8,875	9,305	10,516	10,726	10,960	4.1%	4.8%	13.0%	4.2%	28.6%
Hertford County	24,439	23,368	22,523	22,977	22,289	22,395	-4.4%	-3.6%	2.0%	-2.5%	-8.4%
Hyde County	5,571	5,873	5,411	5,826	5,830	5,922	5.4%	-7.9%	7.7%	1.6%	6.3%
New Hanover County	82,996	103,471	120,284	160,327	171,279	178,754	24.7%	16.2%	33.3%	11.5%	115.4%
Onslow County	103,126	112,784	149,838	150,355	150,633	152,804	9.4%	32.9%	0.3%	1.6%	48.2%
Pamlico County	9,467	10,398	11,368	12,934	13,144	13,440	9.8%	9.3%	13.8%	3.9%	42.0%
Pasquotank County	26,824	28,462	31,298	34,897	35,678	36,325	6.1%	10.0%	11.5%	4.1%	35.4%
Pender County	18,149	22,262	28,855	41,082	44,548	47,046	22.7%	29.6%	42.4%	14.5%	159.2%
Perquimans County	8,351	9,486	10,447	11,368	11,678	11,811	13.6%	10.1%	8.8%	3.9%	41.4%
Tyrrell County	3,806	3,975	3,856	4,149	4,219	4,291	4.4%	-3.0%	7.6%	3.4%	12.7%
Washington County	14,038	14,801	13,997	13,723	13,529	13,457	5.4%	-5.4%	-2.0%	-1.9%	-4.1%

Source: NC State Agency Data: Office of the Governor, obtained March 2004

Geographic Distribution of Growth

Most of the About 96% of the 24 municipal and township areas in Carteret County experienced net population growth from 1980 to 1990 (Table 2.2). The fastest growing township from 1980 to 1990 was the White Oak Township in the western portion of the County. The two fastest growing municipalities from 1980 to 1990 were Indian Beach (183.3%) and Emerald Isle (181.4%). During that same period, Atlantic Township experienced a 0.6% net loss in population. The only municipality that experienced a net loss in population between 1980 and 1990 was Beaufort, with a 0.5% loss.

The 1980's showed a much larger growth rate for all areas in Carteret County when compared to the 1990's. This slowing of population growth rates from 1990 to 2000 is consistent with most of the North Carolina coastal counties (Table 2.1). Between 1990 and 2000 almost half of the areas in Carteret County experienced a net loss in population. Most of the areas that lost population are located in the eastern portion of the County. Six Down East townships lost population, with Stacy Township and Sea Level Township experiencing the greatest population losses from 1990 to 2000, at -48.6% and -40.4% respectively. Three municipalities also lost population from 1990 to 2000, Indian Beach (-37.9%), Atlantic Beach (-8.1%) and Beaufort (-1.0%). The western portion of the County experienced the greatest growth for the 1990-2000 period. The fastest growing township from 1990 to 2000 was again the White Oak Township, which grew 55.4%. The fastest growing municipalities in the same decade were Cedar Point (47.9%) and Emerald Isle (43.3%).

Table 2.2 shows population changes for the County's townships and municipalities from 1980 to 2000. Township boundaries are delineated on Map 4.1 Existing Land Use.

Table 2.2 - Summary of Year-Round Population Growth

Township	Municipality or Area	Year Round Population			Percent Change		
		1980	1990	2000	1980-1990	1990-2000	1980-2000
1) Atlantic		810	805	817	-0.6%	1.5%	0.9%
2) Beaufort		6,992	8,013	7,665	14.6%	-4.3%	9.6%
	Beaufort	3,826	3,808	3,771	-0.5%	-1.0%	-1.4%
	Unincorporated Area	3,166	4,205	3,894	32.8%	-7.4%	23.0%
3) Cedar Island		333	385	324	15.6%	-15.8%	-2.7%
4) Davis		492	535	412	8.7%	-23.0%	-16.3%
5) Harkers Island		1,910	2,237	1,525	17.1%	-31.8%	-20.2%
6) Harlowe		956	1,190	1,272	24.5%	6.9%	33.1%
7) Marshallberg		580	646	528	11.4%	-18.3%	-9.0%
8) Merrimon		426	542	657	27.2%	21.2%	54.2%
9) Morehead		15,803	20,482	23,748	29.6%	15.9%	50.3%
	Atlantic Beach	941	1,938	1,781	106.0%	-8.1%	89.3%
	Indian Beach	54	153	95	183.3%	-37.9%	75.9%
	Morehead City	4,359	6,046	7,691	38.7%	27.2%	76.4%
	Pine Knoll Shores	646	1,360	1,524	110.5%	12.1%	135.9%
	Unincorporated Area	9,803	10,985	12,657	12.1%	15.2%	29.1%
10) Newport		5,469	7,333	8,326	34.1%	13.5%	52.2%
	Newport	1,883	2,516	3,349	33.6%	33.1%	77.9%
	Unincorporated Area	3,586	4,817	4,977	34.3%	3.3%	38.8%
11) Sea Level		540	773	461	43.1%	-40.4%	-14.6%
12) Smyrna		637	782	679	22.8%	-13.2%	6.6%
13) Stacy		322	401	206	24.5%	-48.6%	-36.0%
14) Straits		1,520	1,948	2,686	28.2%	37.9%	76.7%
15) White Oak		4,302	6,483	10,073	50.7%	55.4%	134.1%
	Cape Carteret	944	1,008	1,214	6.8%	20.4%	28.6%
	Emerald Isle	865	2,434	3,488	181.4%	43.3%	303.2%
	Cedar Point	0	628	929	NA	47.9%	NA
	Unincorporated Area	2,493	2,413	4,442	-3.2%	84.1%	78.2%
Total Municipalities		13,518	19,891	23,842	47.1%	19.9%	76.4%
*Total Unincorporated Areas		27,574	32,662	35,541	18.5%	8.8%	28.9%
Total County		41,092	52,553	59,383	27.9%	13.0%	44.5%

Source: 1980-1990 Population - 1996 Carteret County LUP

Source: 2000 Municipal Population - NC State Agency Data: Office of the Governor, obtained March 2004

Source: 2000 Township Population - U.S. Census Bureau data, obtained March 2004

* Extrapolated by subtracting Total Municipalities from Total County Population

Population Age Characteristics

An analysis of population broken down by age provides insight into the population trends that affect Carteret County. This data provides valuable information for use in projecting infrastructure, service, housing, and other special needs of the County, as well as land use needs.

One of the most notable trends in the County is the increase in average age of the population. Since 1970, significant increases have been seen in all age groups over 40 (Table 2.3). The largest percent increase in population from 1990 to 2000 came in the 50-59 and 70+ age groups. The growth of these age groups is largely attributed to the County's popularity as a retirement location and the resulting immigration of older adults. Other reasons for growth in older age groups include non-migratory demographic factors such as birth rates, death rates and aging of the existing population. In general, age groups over 50 are projected to grow faster than the County as a whole through 2030, especially in the 70+ age group (Table 2.4). This trend has significant implications for housing, future land needs, transportation, medical care and other personal and professional services.

Decreases in growth rates were seen in all age groups under 40, except for the 5-19 group, which experienced a modest growth of 6.6% during the 1990-2000 period (Table 2.3). The decline is associated with aging into older age groups and the emigration of the younger childbearing age groups. This trend has implications for schools and other services associated with younger age groups.

Since 1970, population in the 20-29 age group has declined steadily, with a dramatic negative growth rate of more than 25% occurring between 1990 and 2000 (Figure 2.1). This decline may reflect the overall job market in Carteret County and the resulting emigration of the younger working group population. This trend has implications for economic development planning.

Table 2.3 provides information on the relative changes in Carteret County's population age characteristics from 1970 to 2003. Figure 2.1 shows a detailed comparison of age groups from 1990 to 2000. Table 2.4 shows population projections by age group and changes through 2030 as computed by the Office of the Governor.

Table 2.3 - Population by Age Group

Age	Year					Percent Change		
	1970	1980	1990	2000	2003 (estimate)	1970-1980	1980-1990	1990-2000
70 & up	1,774	2,913	4,620	7,033	7,556	64.2%	58.6%	52.2%
60-69	2,517	3,917	5,881	6,691	7,177	55.6%	50.1%	13.8%
50-59	3,253	4,675	5,512	8,671	9,562	43.7%	17.9%	57.3%
40-49	3,954	4,310	6,859	9,570	10,024	9.0%	59.1%	39.5%
30-39	3,608	5,625	8,532	8,102	7,428	55.9%	51.7%	-5.0%
20-29	4,767	7,361	7,927	5,888	5,870	54.4%	7.7%	-25.7%
5-19	9,103	9,517	9,861	10,515	10,159	4.5%	3.6%	6.6%
0-4	2,627	2,774	3,361	2,913	2,936	5.6%	21.2%	-13.3%
Total	31,603	41,092	52,553	59,383	60,712	30.0%	27.9%	13.0%

Source: 2003 estimate - NC State Agency Data: Office of the Governor, obtained March 2004

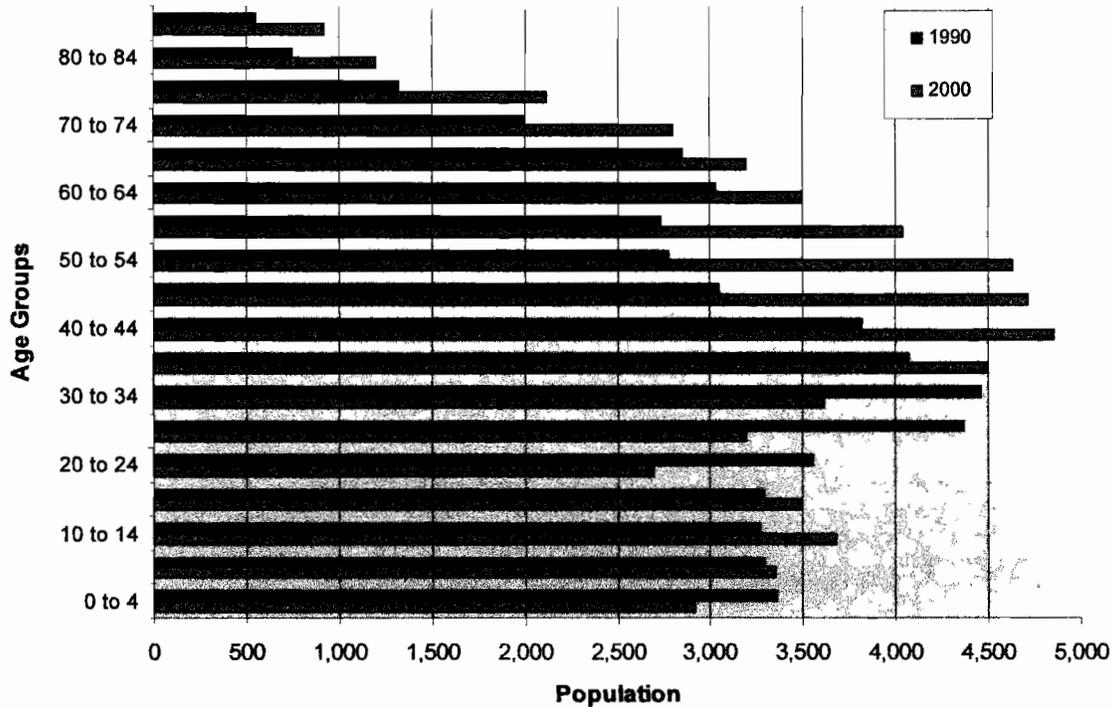
Source: 1970-2000 population - NC State Agency Data Corrected: Office of the Governor, obtained March 2004

Table 2.4 - Population Projection by Age Group

Age	Population by Age Group							Percent Change					
	2000	2005	2010	2015	2020	2025	2030	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030
70 & up	7,033	7,892	8,934	10,472	13,722	12,428	16,708	12.2%	13.2%	17.2%	31.0%	-9.4%	34.4%
60-69	6,691	7,722	9,630	10,971	11,872	12,122	11,922	15.4%	24.7%	13.9%	8.2%	2.1%	-1.6%
50-59	8,671	10,217	11,316	11,628	10,096	10,994	9,233	17.8%	10.8%	2.8%	-13.2%	8.9%	-16.0%
40-49	9,570	10,026	9,188	8,169	6,708	7,313	7,897	4.8%	-8.4%	-11.1%	-17.9%	9.0%	8.0%
30-39	8,102	7,031	6,173	6,542	6,621	6,747	6,495	-13.2%	-12.2%	6.0%	1.2%	1.9%	-3.7%
20-29	5,888	6,200	6,471	6,623	4,160	6,189	5,925	5.3%	4.4%	2.3%	-37.2%	48.8%	-4.3%
5-19	10,515	9,816	9,872	9,199	11,521	9,592	9,608	-6.6%	0.6%	-6.8%	25.2%	-16.7%	0.2%
0-4	2,913	2,921	2,883	2,953	2,935	2,896	2,804	0.3%	-1.3%	2.4%	-0.6%	-1.3%	-3.2%
Total	59,383	61,825	64,467	66,557	67,635	68,281	70,592	4.1%	4.3%	3.2%	1.6%	1.0%	3.4%

Source: 2000-2030 projected - NC State Agency Data: Office of the Governor, obtained March 2004

Figure 2.1 - Carteret County Population Age Groups



Current estimates and projections of permanent and seasonal populations

Table 2.1 shows estimates of the County’s current (2003) permanent population. Table 2.4 shows permanent population projections through 2030.

Carteret County’s 2003 population estimate is 60,712. This estimate is based on official state estimates for 2001 and 2003 and the number of housing units added since the 2000 Census. The projections show Carteret County’s population growing from 60,712 in 2003 to 68,281 in 2025 for an increase of 7,569 people. This is an increase of almost 12.5%, or an average annual growth rate of less than 1% for this time period.

Estimates and projections of seasonal population for 2000 to 2025 were determined using a combination of information from the Census, the Carteret County Economic Development Commission (EDC) and the Carteret County Tourism Development Authority. The number of seasonal housing units (13,333) from the 2000 Census was estimated to have eight people per unit. That population was added to the number of seasonal population staying in hotel and bed and breakfast rooms (estimated to be 1,826 rooms, three people per room) to obtain the estimated seasonal population of 112,142 for the year 2000. Permanent population would bring the overall total seasonal population to 171,525 (Table 2.4). Projections in five-year intervals up to 2025 are also provided in Table 2.4. These projections were calculated using growth rates from the EDC for the 2000-2010, 2010-2020 and 2020-2025 periods. The five-year growth rates were extrapolated. The total seasonal population (including permanent population) is expected to increase approximately 27% from 2000 to 2025.

Table 2.5 Seasonal Population Estimates and Projections

Year	Seasonal Population	Percent Change	Permanent Population	Percent Change	Total	Percent Change
2000	112,142	NA	59,383	NA	171,525	NA
2005	119,207	6.3%	61,825	4.1%	181,032	5.5%
2010	126,717	6.3%	64,467	4.3%	191,184	5.6%
2015	132,673	4.7%	66,557	3.2%	199,230	4.2%
2020	138,909	4.7%	67,635	1.6%	206,544	3.7%
2025	150,022	8.0%	68,281	1.0%	218,303	5.7%

Source: 2000-2025 Permanent Population Estimate and Projections / 2000 Seasonal Housing Units -

NC State Agency Data: Office of the Governor, obtained March 2004

Source: 2000 Seasonal Lodging - Carteret County Tourism Development Authority

Source: 2000-2025 Seasonal Population Growth Rate - Carteret County EDC

*Growth rates for five-year periods extrapolated based on EDC data

HOUSING

Housing Characteristics

The summary of population trends in the previous section indicates that the seasonal population of Carteret County continued to grow faster than the permanent population from 1990 to 2000, similar to previous decades. This trend continues to be reflected by the higher growth rate of seasonal housing units than year-round units over the same period (Table 2.6). While growth of the seasonal housing market continued to be strong during the 1990's, the number and percentage of seasonal housing units showed a slower rate of growth over that of the large 1980's population growth.

Data from the year 2000 shows that owners occupy a large percentage, almost 77%, of the permanent occupied units in Carteret County. Average household size has been consistently decreasing since 1980. The 2000 average household size was 2.31 persons, compared to 2.66 persons in 1980. Table 2.6 provides an overview of the characteristics of Carteret County's housing.

Table 2.6 - Carteret County Housing Characteristics

Statistics	Year			Percent Change		
	1980	1990	2000	1980-1990	1990-2000	1980-2000
Total housing units	23,740	34,576	40,947	45.6%	18.4%	72.5%
Permanent housing units	17,292	24,604	27,614	42.3%	12.2%	59.7%
Occupied units	15,128	21,238	25,204	40.4%	18.7%	66.6%
Vacant units	2,164	3,366	2,410	55.5%	-28.4%	11.4%
Owner units	11,394	15,761	19,316	38.3%	22.6%	69.5%
Renter units	3,734	5,477	5,888	46.7%	7.5%	57.7%
Seasonal units	6,448	9,972	13,333	54.7%	33.7%	106.8%
Average household size (persons)	2.66	2.43	2.31	-8.6%	-4.9%	-13.2%

Source: NC State Data Center, obtained

March 2005

1999 Carteret County Land Use Plan

Housing Types

Table 2.7 portrays the types of housing units that make up Carteret County's permanent housing stock. In 2000, the majority, or 65.9% of the county's housing consisted of single-family detached dwellings. Mobile homes are the second largest type of housing at 22.1%. Duplexes and multifamily units make up 9.6% of the housing stock.

Table 2.7 - Types of Occupied Housing Units in Carteret County

Occupied units in structure	1990	1990%	2000	2000%
Single-family detached	12,858	60.5%	16,601	65.9%
1 unit attached	431	2.0%	591	2.3%
2 units	682	3.2%	685	2.7%
3 or 4 units	682	3.2%	797	3.2%
5 to 9 units	493	2.3%	424	1.7%
10 to 19 units	242	1.1%	135	0.5%
More than 20 units	347	1.6%	390	1.5%
Mobile homes	5,385	25.4%	5,570	22.1%
Other	118	0.6%	11	0.0%
Total occupied housing units	21,238	100%	25,204	100%

Source: 1990 H022 Tenure by Units in Structure - U.S. Census Bureau data, obtained March 2004

Source: 2000 DP-4 Profile of Selected Housing Characteristics - U.S. Census Bureau data, obtained March 2004

Housing Age

Age of the housing stock in Carteret County has remained fairly consistent since 1990. There has been a moderate increase in homes ranging in ages from 11 to 30 years from 1990 to 2000. Table 2.8 provides a summary of the age of Carteret County's housing stock.

Table 2.8 - Housing Age in Carteret County

Age	1990	1990%	2000	2000%
more than 50 years	2,248	6.5%	3,295	8.0%
41-50	1,767	5.1%	2,706	6.6%
31-40 years	2,894	8.4%	3,885	9.5%
21-30 years	4,209	12.2%	7,279	17.8%
11-20 years	9,401	27.2%	12,564	30.7%
6-10 years	7,173	20.7%	5,334	13.0%
2-5 years	5,808	16.8%	4,595	11.2%
Less than 2 years	1,076	3.1%	1,289	3.1%
Total housing units	34,576	100%	40,947	100%

Source: 2000 QT-H4. Physical Housing Characteristics - U.S. Census Bureau data, obtained March 2004

Source: 1990 H025 Year Structure Built - Universe: Housing units - U.S. Census Bureau data, obtained March 2004

Building Permits

Table 2.9 provides information on the number, type and value of residential building permits issued by Carteret County since the last land use plan update (1999-2003). Consistent with recent population growth trends which showed higher growth in the western portion of the County, the Carteret County Building and Inspections Department records indicate that approximately 50% of building permits issued annually were in the fast-growing White Oak Township.

Table 2.9 Carteret County Building Permits

Housing Type	Year				
	1999	2000	2001	2002	2003
Number of Permits (Total)	466	465	458	429	358
Modulars	19	37	37	39	7
Mobile Homes	262	263	263	221	145
Frame Houses	185	165	158	169	206
Value (Total)	\$38,586,310	\$32,762,925	\$30,662,101	\$34,905,950	\$38,544,413
Modulars	\$1,536,000	\$3,002,500	\$2,383,331	\$3,530,000	\$620,000
Mobile Homes	\$13,430,080	\$7,745,280	\$8,817,270	\$7,928,600	\$4,261,890
Frame Houses	\$23,620,230	\$22,015,145	\$19,461,500	\$23,447,350	\$33,662,523

Source: Carteret County Planning Department (2004)

ECONOMY

Carteret County's economy is strong and has been growing consistently over the last twenty years. Retail sales slowed some in the 1990's, as did the population growth; nonetheless, the growth is still on an upward trend with a 142.6% increase in sales from 1980 to 1990 and 70.0% increase from 1990 to 2000. The employed labor force has also seen a steady growth in the decades leading to the present. Paralleling this economic growth, income in the county has increased significantly and poverty rates have decreased steadily since 1980.

At no surprise, this insurgence of economic activity has raised the cost of housing. The median housing value in Carteret County is above the North Carolina state average. For the year 2000, the Carteret County median occupied housing value of \$123,900 was 14.4% higher than the North Carolina state average of \$108,300, however, the median gross rent was 7.2% below the North Carolina state average of \$548.

Despite the fact that Carteret County's economy is growing significantly, and because the housing cost is only marginally above the state average, Carteret County should not be considered exclusionary to low or moderate-income persons. Key economic factors for Carteret County from 1980 through 2003 are shown in Table 2.10.

Table 2.10 - Carteret County Key Economic Indicators

Statistics	Years				Percent Change		
	1980	1990	2000	2003	1980-1990	1990-2000	1980-2000
*Per capita income							
Carteret County	\$6,146	\$13,227	\$21,260	NA	115.2%	60.7%	245.9%
North Carolina	\$6,133	\$12,885	\$20,307	NA	110.1%	57.6%	231.1%
Total personal income (\$1,000's)	\$325,198	\$801,864	\$1,543,915	NA	146.6%	92.5%	374.8%
Median family income	\$15,300	\$29,100	\$45,400	NA	90.2%	56.0%	196.7%
Median occupied housing value	\$36,900	\$72,600	\$123,900	NA	96.7%	70.7%	235.8%
Median gross rent**	\$205	\$385	\$511	NA	87.8%	32.7%	149.3%
Gross retail sales (\$1,000's)	\$188,684	\$457,743	\$778,265	\$883,303	142.6%	70.0%	312.5%
Total employed labor force	17,128	24,301	32,163	NA	41.9%	32.4%	87.8%
Families in poverty	11.5%	9.1%	8.0%	NA	-20.9%	-11.8%	-30.3%

Source: 1980-2000 PCI - Federal Agency Data: Bureau of the Census - Census of Population and Housing, obtained from LINC March 2004

*PCI is total money income per resident of the area, including young children, elderly, and others who may not be earning money

**Median gross rent is monthly contract rent plus the estimated average monthly cost of utilities

Employment and Income

There have been significant increases in a few of Carteret County's employment sectors since 1970 (Table 2.11). Farm employment is the only sector that experienced significant decline losing 64.5% of the employment from 1970 to 2000; non-farm employment increased 218.5% in that same period. Private employment has consistently grown from 1970 to 2000 with services and retail trade employment being driving forces within the county. Government employment has also grown 178.5% between 1970 and 2000, with only modest losses to federal military employment. Manufacturing showed a net 17.9% increase from 1970 to 2000 (Figure 2.2). Overall, all economic sectors, except farm employment and federal military, have showed net increases from 1970 to 2000.

Earnings by major industry complement the employment data and provide information about which sectors produced the most revenue for Carteret County. Even though the government does not employ the largest numbers of people, it has the second largest earning sum while the service industry has the largest earning capacity. From 1990 to 2000 the amount of earnings increased in three industry sectors at above average rates; the construction sector (135.4%), local government (127.7%), and the services industry (108.2%). The only net loss in earnings from 1990 to 2000 came from the federal military sector. Farm earnings showed a net increase in earnings from 1970 to 2000 despite losing a significant amount of employment during that same period. Table 2.12 shows Carteret County wages and salaries by industry type from 1970 to 2000. Table 2.13 shows the largest Manufacturing and Non-manufacturing employers in Carteret County.

Table 2.11 - Employment by Major Industry in Carteret County

Total employment	Years				Percent Change			
	1970	1980	1990	2000	1970-1980	1980-1990	1990-2000	1970-2000
Agriculture, services, forestry, and fishing	529	1,291	1,222	1,329	144.0%	-5.3%	8.8%	151.2%
Mining	-	-	-	15	NA	NA	NA	NA
Construction	557	941	1,586	2,996	68.9%	68.5%	88.9%	437.9%
Manufacturing	1,650	2,268	1,795	1,945	37.5%	-20.9%	8.4%	17.9%
Transportation, communications, and public utilities	616	591	806	1,147	-4.1%	36.4%	42.3%	86.2%
Wholesale trade	549	803	791	996	46.3%	-1.5%	25.9%	81.4%
Retail trade	1,788	3,424	6,316	7,671	91.5%	84.5%	21.5%	329.0%
Finance, insurance, and real estate	455	1,113	1,901	2,710	144.6%	70.8%	42.6%	495.6%
Services	2,163	3,304	5,693	8,346	52.8%	72.3%	46.6%	285.9%
Total private employment	8,308	13,741	20,114	27,155	65.4%	46.4%	35.0%	226.9%
Federal Civilian	156	200	274	297	28.2%	37.0%	8.4%	90.4%
Federal military	410	533	624	367	30.0%	17.1%	-41.2%	-10.5%
State	NA	552	679	977	NA	23.0%	43.9%	NA
Local	NA	1,612	2,336	3,186	NA	44.9%	36.4%	NA
Total Govt employment	1,733	2,897	3,913	4,827	67.2%	35.1%	23.4%	178.5%
Non-Farm employment (private + government)	10,041	16,638	24,027	31,982	65.7%	44.4%	33.1%	218.5%
Farm employment	510	490	274	181	-3.9%	-44.1%	-33.9%	-64.5%
Total employment	10,551	17,128	24,301	32,163	62.3%	41.9%	32.4%	204.8%

Source: 1970-2000 Employment - Federal Agency Data: Bureau of Economic Analysis SIC, obtained from LINC March 2004

Source: 1970-2000 Government Employment - obtained from Bureau of Economic Analysis, Table CA25 (SIC) March 2004

Figure 2.2 - Employment by Major Industry

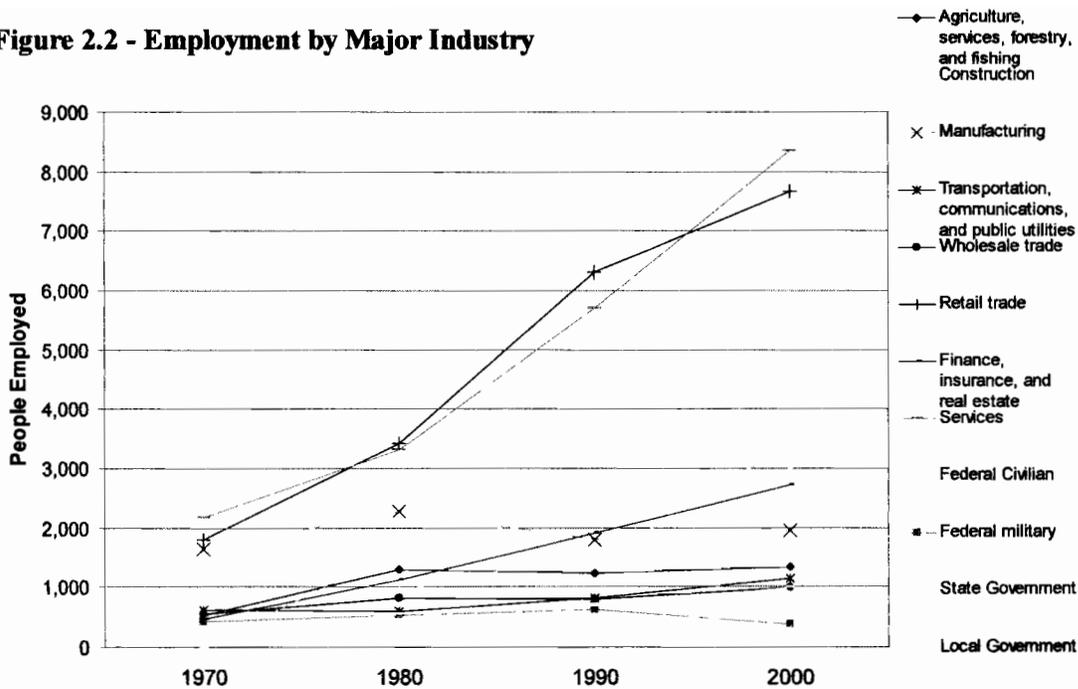


Table 2.12 - Earnings by Major Industry in Carteret County

Industry	Total earnings in THOUSANDS of dollars				Percent Change			
	1970	1980	1990	2000	1970-1980	1980-1990	1990-2000	1970-2000
Agricultural services, forestry, fishing and other	\$1,820	\$7,216	\$9,366	\$11,631	296.5%	29.8%	24.2%	539.1%
Mining	*(L)	\$594	*(L)	\$122	NA	NA	NA	NA
Construction	\$4,106	\$11,594	\$27,986	\$65,885	182.4%	141.4%	135.4%	1504.6%
Manufacturing	\$8,102	\$30,752	\$32,015	\$44,882	279.6%	4.1%	40.2%	454.0%
Transportation and public utilities	\$3,994	\$8,868	\$17,237	\$33,022	122.0%	94.4%	91.6%	726.8%
Wholesale trade	\$3,067	\$9,671	\$14,731	\$25,368	215.3%	52.3%	72.2%	727.1%
Retail trade	\$7,306	\$26,789	\$68,627	\$112,316	266.7%	156.2%	63.7%	1437.3%
Finance, insurance, and real estate	\$1,126	\$5,028	\$20,894	\$37,750	346.5%	315.6%	80.7%	3252.6%
Services	\$9,040	\$28,596	\$80,496	\$167,586	216.3%	181.5%	108.2%	1753.8%
Total Private earnings	\$38,582	\$129,108	\$271,384	\$498,562	234.6%	110.2%	83.7%	1192.2%
Federal civilian	\$1,453	\$4,512	\$9,538	\$16,221	210.5%	111.4%	70.1%	1016.4%
Military	\$2,085	\$7,741	\$13,767	\$11,552	271.3%	77.8%	-16.1%	454.1%
State government	NA	\$7,328	\$18,375	\$31,998	NA	150.8%	74.1%	NA
Local government	NA	\$16,856	\$46,580	\$106,054	NA	176.3%	127.7%	NA
Total Government earnings	\$10,686	\$36,437	\$88,260	\$165,825	241.0%	142.2%	87.9%	1451.8%
Nonfarm earnings (private + government)	\$49,268	\$165,545	\$359,644	\$664,387	236.0%	117.2%	84.7%	1248.5%
Farm earnings	\$1,361	\$2,000	\$3,085	\$1,747	47.0%	54.3%	-43.4%	28.4%
Total earnings	\$50,629	\$167,545	\$362,729	\$666,134	230.9%	116.5%	83.6%	1215.7%

Source: 1970-2000 Government Employment - obtained from Bureau of Economic Analysis, Table CA05 (SIC) March 2004
 *(L) Less than \$50,000

Table 2.13: Largest Manufacturing and Non-manufacturing Employers in Carteret County

<i>Manufacturing Employers</i>		<i>Non-manufacturing Employers</i>	
Name	Employees	Name	Employees
Atlantic Veneer	327	Carteret County Public School System	1442
Bally Refrigerated Boxes	178	Carteret General Hospital	788
SPX Air Treatment	178	Wal-mart	527
Parker Marine Enterprises	147	Carteret County Government	345
Creative Outlet	139	Carteret Community College	317
Jarrett Bay Boatworks	138	Food Lion	243
Veneer Technologies	115	Henry's Tackle and Sporting Goods	221
Beaufort Fisheries	55	U.S. Coast Guard	201
Sea Striker	50	NC Dept. of Transportation	149
NCCOAST Communications	49	Lowes Foods	134
Franklin Baking Company	37	Town of Morehead City	132

Source: Carteret County Economic Development Council, obtained March 2004

Military

Marine Corps Air Station (MCAS) Cherry Point is the leading employer of Carteret County residents. Thirty percent of the 1,770 civilians employed at the base reside in Carteret County. Carteret County civilian employees earn approximately \$106,273,702 (30%) out of a total payroll of \$354,245,674 for the quad-county region of Carteret, Craven, Jones and Pamlico Counties.

Ten percent, or 884 people, of the total active military population at MCAS Cherry Point reside in Carteret County. Carteret County active military residents earn approximately \$42,640,550 (10%) out of a total active duty payroll of \$426,405,497 for the quad-county region. Active military and retired personnel, civilian employees and their families account for 9,517 people, or 16% of the County's population (Carteret County EDC-A 2004).

Tourism Impact

Much of the local economic activity in Carteret County is based on or related to tourism. Restaurants, accommodations, fishing, retail trade, services, construction, and the real estate and finance industries benefit directly from the impact of tourism. In 2000, approximately 24.4% of all housing in Carteret County was considered to be for seasonal or recreational use. This ranked Carteret County third in North Carolina in the number of seasonal housing units, following Brunswick and Dare Counties. Table 2.14 shows the CAMA-regulated counties and their seasonal housing units in 2000.

According to the NC Department of Commerce, Division of Tourism, the Carteret County tourism industry generated \$206.87 million dollars in revenue and was ranked twelfth in the state in travel impact in 2002. Over 3,170 jobs were created due to tourism. These jobs generate an annual payroll of \$47.03 million. A total net occupancy tax of 5% generated \$2,831,114 from 2001 to 2002. This was divided between the county, municipalities, and the Tourism Development Authority. State and local tax revenues from travel to Carteret County amounted to \$10.13 million and \$13.69 million respectively, and represent a \$396 tax savings to each county resident. Table 2.15 shows the economic impact tourism has on Carteret County. (Carteret County EDC-B).

Table 2.14: 2000 Seasonal Housing Units

<i>Rank</i>	<i>County</i>	<i>Seasonal Housing Units</i>
1	Brunswick	15,540
2	Dare	13,355
3	Carteret	13,333
4	New Hanover	4,387
5	Currituck	3,297
6	Onslow	2,906
7	Pender	2,881
8	Beaufort	1,890
9	Pamlico	903
10	Hyde	666
11	Perquimans	614
12	Craven	433
13	Bertie	354
14	Chowan	337
15	Tyrrell	246
16	Washington	208
17	Pasquotank	157
18	Hertford	82
19	Gates	72
20	Camden	44

Source: 2000 NC State Agency Data: Office of the Governor, obtained March 2004

Table 2.15 - Tourism Impact in Carteret County

<i>Year</i>	<i>Payroll (\$Millions)</i>	<i>Employment (\$Thousands)</i>	<i>State Tax Receipts (\$Millions)</i>	<i>Local Tax Receipts (\$Millions)</i>
2002	47.03	3.17	10.13	13.69
2001	48.30	3.25	10.18	13.63
2000	48.10	3.29	10.34	13.94
1999	45.03	3.27	9.93	13.98
1998	48.99	3.64	9.42	10.63
1997	44.81	3.73	9.13	10.52
1996	38.44	3.42	8.28	9.84
1995	37.82	3.45	8.01	9.58
1994	36.74	3.39	7.48	9.22
1993	34.83	3.25	7.42	9.01
1992	32.99	3.16	6.81	8.46
1991	30.54	3.24	5.53	7.02
1990	29.07	3.11	4.83	6.95

Source: NC Department of Commerce Tourism - County by County Statistics, obtained March 2004

Commercial Seafood Impact

According to the NC Division of Marine Fisheries, Carteret County consistently leads North Carolina in commercial seafood landings. A 1994 Marine Fisheries study found that commercial fishing in Carteret County generated an estimated \$46 million in sales of goods and services, and an additional \$24 million in value added. Approximately \$14 million in employee compensation was paid to nearly 5,000 part or full-time workers employed in the commercial seafood industry in 1994. Recreational saltwater fishing adds an additional \$130 million in sales of goods and services and employs over 600 people with an annual payroll exceeding \$12 million (Carteret County EDC-C).

Retiree Population Impact

While attracting retirees is not the traditional type of economic development, it is important because retirees provide significant economic benefits to the community in which they live. Retirees have the ultimate effect of attracting business. The spending of retirees provides the same type of spending multiplier effect as does adding employment to a community. Factors which tend to influence retirees location decisions include housing characteristics, availability of health care facilities, continuing education opportunities, availability of restaurants, number of stores (grocery, department, and specialty), ease of transportation, recreational opportunities, entertainment and cultural amenities, availability of part-time jobs, social opportunities, and climate.

As expected, the percentage of individuals who receive retirement income is higher in Carteret County than for the state. In 2000, according to the U.S. Census Bureau, 6,736 people, or 26.7% of the permanent population, received retirement income. For North Carolina, 16.4% of the population received retirement income.

SECTION 3: NATURAL SYSTEMS ANALYSIS

This section of the Land Use Plan provides a description of the natural features and environmental conditions within the planning jurisdiction of Carteret County and an analysis of the suitability or limitation of these features for development. In accordance with the requirements of the Coastal Resources Commission's Land Use Planning Guidelines [15A NCAC 7B], this section of the Land Use Plan addresses the following components:

- A summary of the inventory of the major natural features and an interpretation of the capabilities or limitations that these features have for development
- A composite map that shows the extent and overlap of environmental features in Carteret County and the compatibility of these features for development
- An assessment of environmental conditions and trends with an emphasis on water quality, natural hazards and natural resources

NATURAL FEATURES INVENTORY

The inventory of natural systems addresses the following features and conditions:

- Areas of Environmental Concern (AECs)
- Soil characteristics
- Water quality classifications
- Primary Nursery Areas
- Flood and other natural hazard areas
- Storm surge areas
- Non-coastal wetlands
- Environmentally fragile areas

Areas of Environmental Concern (AECs)

Areas of Environmental Concern (AECs) are the foundation of the Coastal Resources Commission's (CRC) permitting program for coastal development. AECs are areas of natural importance and are classified by the CRC. The purpose of the AEC classification is to protect these areas from uncontrolled development, which may cause irreversible damage to property, public health or the environment. Development within the designated Areas of Environmental Concern is limited by CAMA regulations and minimum use standards. The CRC establishes use standards to regulate development in AECs. Local governments, through the CAMA Land Use Plan, can establish development standards for AECs that are more stringent than state standards.

The CRC has established four categories of AECs:

- Estuarine and Ocean System
- Ocean Hazard System
- Public Water Supplies
- Natural and Cultural Resource Areas

Estuarine and Ocean System AECs

Public Trust Areas are all waters of the Atlantic Ocean and the 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 watermark on shore (a body of water is considered navigable if you can float a canoe in it), not including privately owned lakes where the public doesn't have access rights; all water in artificially created water bodies that have significant public fishing resources and are accessible to the public from other waters; and all waters in artificially created water bodies where the public has acquired rights by prescription, custom, usage, dedication or any other means. Public trust areas often overlap with estuarine waters.

Estuarine Waters are the ocean, sounds, tidal rivers and their tributaries that stretch across coastal North Carolina and link to other parts of the estuarine system: public trust areas, coastal wetlands and coastal shorelines. For regulatory purposes, the inland/upstream boundary of estuarine waters is the same line used to separate the jurisdictions of the NC Division of Marine Fisheries and the NC Wildlife Resources Commission.

Coastal Shorelines include all lands within 75 feet of the normal high water level of estuarine waters. This definition also includes lands within 30 feet of the normal high water level of public trust waters located inland of the dividing line between coastal fishing waters and inland fishing waters. Along Outstanding Resource Waters (ORWs), this definition includes lands within 575 feet of the normal high water level. Uses in coastal shoreline AECs can significantly impact water quality and the productivity of the estuary.

Coastal Wetlands are any marsh in the 20 coastal counties that regularly or occasionally floods by lunar or wind tides and that includes one or more of 10 plant species:

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 Red or Giant Cord Grass

Freshwater swamps and inland, non-tidal wetlands are not in the CAMA permit jurisdiction unless the CRC specifically designates them as AECs. However, these wetlands are protected by the federal Clean Water Act. An Army Corps of Engineers 404 permit may be required for projects taking place in these wetlands.

Ocean Hazard System AECs

The *Ocean Erodible* AEC includes beaches and other oceanfront lands that are subject to long-term erosion and significant shoreline changes. The seaward boundary of this AEC is the mean low water line. The landward limit of the AEC is measured from the first line of stable natural vegetation and is determined by adding a distance equal to 60 times the long-term, average annual erosion rate for the shoreline to the distance of erosion expected during a major storm. The width of this AEC varies from about 145 feet to more than 700 feet.

The *High Hazard Flood* AEC includes lands subject to flooding, high waves and heavy water currents during a major storm. These are the lands identified as coastal flooding with velocity hazard, or V Zones, on flood insurance rate maps prepared by the Federal Insurance Administration. V Zones are determined by an engineering analysis of expected flood levels during a storm, expected wave and current patterns and the existing topography of the land. The high hazard flood AEC often overlaps with the ocean erodible and inlet hazard AECs.

The *Inlet Hazard* AEC includes lands near ocean inlets. Inlet shorelines are especially vulnerable to erosion and flooding and can shift suddenly and dramatically. For each inlet, the inlet hazard AEC is determined by a statistical analysis of inlet migration, previous inlet locations, narrow or low lands near the inlet, and the influence of man-made features, such as jetties and channelization projects. The distance the inlet hazard AEC extends inland is estimated to be large enough to encompass those lands where the inlet can be expected to migrate. At a minimum, this distance is the same distance inland as the ocean erodible AEC. Inlet hazard AECs range in width from about 250 feet for a fairly stable inlet to about 4,000 feet for the most dynamic inlets.

Public Water Supply AECs

The *Small Surface Water Supply Watershed* AEC protects coastal drainage basins that contain a public water supply classified as A-II by the NC Environmental Management Commission. Currently, only two such watersheds in the state have been designated as AECs: the Fresh Pond at the Nags Head and Kill Devil Hills border and Toomer's Creek near Wilmington, neither of which are located in Carteret County.

Public Water Supply Wellfields are areas of rapidly draining sands extending from the earth's surface to a shallow groundwater table that supply public drinking water. Only one wellfield in NC, on Hatteras Island at Buxton, is designated as an AEC.

Natural and Cultural Resources AECs

Natural and Cultural Resources AECs include natural and cultural resources of more than local significance in which uncontrolled or incompatible development could result in major or irreversible damage to scientific, educational, associative values or aesthetic qualities of natural systems cultural resources. These areas include coastal complex natural areas, coastal areas that sustain remnant species, unique coastal geologic formations and significant coastal archaeological resources and significant coastal historical archeological resources. Any person can nominate an area as a natural or cultural resource AEC. However, the CRC makes the final decision on designation.

AECs in Carteret County

Areas of Environmental Concern located in the Carteret County planning jurisdiction include the Estuarine and Ocean System and Ocean Hazard System AECs, with the exception of the Inlet Hazard AECs. There are currently no Public Water Supply or Natural and Cultural Resources AECs within the County.

The County's Estuarine and Ocean System AECs include the waters and tributaries of the White Oak, Neuse, Newport and North Rivers and Bogue, Back, Core and Pamlico Sounds, as well as waters of the Atlantic Ocean and the shorelines of these water bodies. Coastal wetland AECs are located throughout the County and are identified on-site by the permitting staff of the Division of Coastal Management. Locations of extensive coastal wetland areas located under Carteret County planning jurisdiction include Cedar Island and adjacent areas in the eastern portion of the County,

Brown's Island, Middle Marshes in Back Sound, shore of the North River and the Bogue Sound area in the western portion of the County.

While the CRC's use standards give priority to the conservation of coastal wetlands, estuarine waters and public trust areas, certain water-dependent uses are allowed. Generally, those uses which require water access and which cannot function elsewhere, such as simple access channels, structures to prevent erosion, navigation channels, boat docks, marinas, piers, wharfs and mooring pilings are allowed provided construction occurs in compliance with state standards.

The CRC's guidelines for development within the coastal shoreline AEC are found in 15A NCAC 7H. Key guidelines include the following:

- Not weaken or eliminate natural barriers to erosion
- Limit impervious surfaces such as buildings, paved parking lots and roads to the amount necessary to support the use and generally not exceed 30% of the AEC area of the lot, except along the shoreline of an Outstanding Resource Water (ORW) where the built-upon limit is 25% of the AEC area
- Maintain a buffer zone for a distance of 30 feet landward of the normal water level, except along shorelines where the Environmental Management Commission has adopted its own buffer standards

The only Ocean Hazard System AECs under Carteret County planning jurisdiction are located along the ocean shoreline areas of the unincorporated community of Salter Path, located on Bogue Banks. The CRC allows uses in the ocean hazard AECs, consistent with use standards contained in 15A NCAC 7H. A key consideration contained in these standards includes compliance with setback requirements based on erosion rates. The erosion setback line extends inland from the first line of stable vegetation and varies based on size of the structure as well as local erosion rates.

Due to map scale and size, the exact locations of AECs are difficult to map, particularly coastal wetlands, coastal shorelines and ocean hazard AECs. However, for general information purposes, a general depiction of the location of AECs in Carteret County may be found on the Areas of Environmental Concern Map, available for review at the Carteret County Planning and Development Department. It is stressed that this map is for informational purposes only. The exact location of AECs must be identified on-site by the permitting staff of the NC Division of Coastal Management (DCM).

Soil Characteristics

In 1987, a soil survey was completed in Carteret County by the Soil Conservation Service, now known as the United States Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS). According to the survey, there are 53 different soil types in Carteret County. Only ten of these soil types are considered to have slight or moderate limitations for septic systems. According to the soil survey, all soil types in Carteret County have slight erosion hazard ratings.

The soil survey is for planning purposes and is not completed at the detailed scale needed for permit decisions. Based on the soil survey, the Soil Suitability for Septic Systems Map available in the Carteret County Planning and Development Department provides a general soils map of the County planning jurisdiction. Because the map is for general planning purposes only, all determinations of septic suitability must be made by onsite investigation by a licensed soil scientist or county

environmental systems health specialist. In general, the soils in the planning jurisdiction have limitations for many uses due to wetness, flooding and high sand content.

Countywide, approximately 99% of the soils in Carteret County have moderate to severe limitations for conventional onsite soil absorption waste treatment systems (septic systems). Soils with slight limitations for septic systems are primarily located in western Carteret County along the White Oak River and the Newport River. The extent of soils suitable for development is important due to the stems in most areas.

Planned development densities in areas without central sewer service must consider soil suitability for septic systems or alternative systems must be developed.

Water Quality Classifications

All surface waters in North Carolina are assigned a primary classification by the NC Division of Water Quality (DWQ). The Water Quality Classes and Subbasins Map, available for review at the Carteret County Planning and Development Department, provides the use classifications for estuarine waters in Carteret County. As shown on the map, a wide range of primary and supplemental classifications are present. These classifications are described in Table 3.1 DWQ Primary Classifications. Further discussion of surface waters is provided under the Environmental Assessment discussion found later in this section.

Table 3.1 WATER QUALITY CLASSIFICATIONS**DWQ PRIMARY CLASSIFICATIONS**

Class C	Waters protected for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, agriculture and other uses suitable for Class C. Secondary recreation includes wading, boating, and other uses involving body contact with water where such activities take place in an infrequent, unorganized or incidental manner. There are no restrictions on watershed development or types of discharges.
Class SC	All tidal salt waters protected for secondary recreation such as fishing, boating and other activities involving minimal skin contact; aquatic life propagation and survival; and wildlife. Stormwater controls are required under CAMA and there are no categorical restrictions on discharges.
Class SB	Surface waters that are used for primary recreation, including frequent or organized swimming and all SC uses. Stormwater controls are required under CAMA and there are no categorical restrictions on discharges.
Class SA	Surface waters that are used for commercial shellfishing or marketing purposes and all SC and SB uses. All SA waters are also HQW by definition. Stormwater controls are required under CAMA. No domestic discharges are permitted in these waters.

DWQ SUPPLEMENTAL CLASSIFICATIONS

High Quality Waters (HQW)	Supplemental classification intended to protect waters with quality higher than state water quality standards. In general, there are two means by which a water body may be classified as HQW. They may be HQW by definition or they may qualify for HQW and then be supplementally classified as HQW through the rule-making process. The following are HQW by definition: <ul style="list-style-type: none"> • SA (shellfishing) • ORW • Waters designated as Primary Nursery Areas or other functional nursery areas by the Marine Fisheries Commission
Nutrient Sensitive Waters (NSW)	Supplemental classification intended for waters needing additional nutrient management due to their being subject to excessive growth of microscopic or macroscopic vegetation. In general, management strategies for point and nonpoint source pollution control require control of nutrients (nitrogen and/or phosphorus usually) such that excessive growths of vegetation are reduced or prevented and there is no increase in nutrients over target levels. Management strategies are site-specific.
Outstanding Resource Waters (ORW)	Supplemental classification 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: <ul style="list-style-type: none"> • Outstanding fish habitat or fisheries • Unusually high level of water based recreation • A special designation such as NC or National Wild / Scenic / Natural / Recreational River, National Wildlife Refuge, etc. • Important component of state or national park or forest • Special ecological or scientific significance (rare or endangered species habitat, research or educational areas) No new or expanded wastewater discharges are allowed although there are no restrictions on the types of discharges to these waters. There are associated development controls enforced by DWQ. ORW areas are HQW by definition.

ADDITIONAL CLASSIFICATIONS BY OTHER AGENCIES

Primary Nursery Areas (PNA)	Primary Nursery Areas, as defined by the Marine Fisheries Commission, are those areas in the estuarine system where initial post-larval development takes place. These areas are usually located in the uppermost sections of a system where populations are uniformly very early juveniles. The Division of Marine Fisheries is responsible for preserving, protecting and developing Primary Nursery Areas for commercially important finfish and shellfish.
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Primary Nursery Areas

Primary nursery areas are areas where initial post-larval development of fish or shellfish take place and are generally located in the upper reaches of creeks and bays. These areas are usually shallow with soft muddy bottoms and are surrounded by marshes and wetlands. Table 3.2 shows the locations

of significant Primary Nursery Areas (over 100 acres) in Carteret County. Primary nursery areas are shown on the Fragile Areas Map available at the Carteret County Planning and Development Department.

Table 3.2 Major Primary Nursery Areas in Carteret County

<i>Primary Nursery Areas</i>	<i>Area (acres)</i>
Thorofare Bay	2,174
Cedar Island Bay	2,171
Newport River	1,532
Jarrett Bay	1,461
North River	1,359
Nelson Bay	1,063
Long Bay	792
West Thorofare Bay	783
Ward Creek	596
Ditch Bay	482
Upper Cedar Island Bay	381
Back Creek	262
Brett Bay	249
Pettiford Creek	230
Broad Creek	204
Oyster Creek	173
Sleepy Creek	150
Crab Point Bay	148
Calico Creek	140
Harlow Creek	139
Codduggen Creek	108
Lewis Creek	103
Areas less than 100 acres	1,824
TOTAL	16,524

Source: NC Center for Geographic Information and Analysis (pna.shp)

Flood Hazards and Storm Surge Areas

Flood hazard areas are usually defined by the 100-year floodplain (one percent chance of flooding in any year). In Carteret County, the flood hazard areas include the following:

- V zones – one percent chance of flooding in any year that includes wave action
- A zones – one percent chance of flooding in any year
- X shaded zones – 0.2 percent annual chance of flooding and areas with a one percent chance of flood with average depths of less than one foot or with drainage areas less than one square mile
- X zones – areas determined to be outside of 0.2 percent annual chance of flooding

A general depiction of the 100-year floodplain is shown on the Flood Hazard Areas Map available at the Carteret County Planning and Development Department. More detailed flood maps prepared by the Federal Emergency Management Agency (FEMA) are also available for review, both at the County Department and at www.ncfloodmaps.com

Storm surge is the relatively rapid rise in sea level caused by water being pushed towards shore by the force of the winds associated with a hurricane or other intense storm. As the water comes ashore with the storm, it causes flooding that is often a hurricane's most dangerous and damaging characteristic. Extensive areas of Carteret County are vulnerable to storm surge hazards associated with hurricanes. Depending upon the severity and speed of the storm, much of the area could be impacted by storm surge. According to the storm surge models prepared by FEMA, slow-moving Category 1-3 storms (forward velocities less than 15 miles per hour) would impact greater areas than fast moving Category 1-3 storms. Likewise, fast-moving Category 4-5 storms (forward velocities greater than 15 miles per hour) would produce a more intense impact than slow-moving Category 4-5 storms. The Flood Hazard Areas Map depicts the areas subject to storm surge based on the most intense storm intensity and speed. This map may be reviewed at the Carteret County Planning and Development Department.

Carteret County is a participant in the National Flood Insurance Program (NFIP). The NFIP is a federal program that enables property owners in participating communities to purchase insurance protection against losses by flooding. Communities that participate in the NFIP agree to adopt and enforce floodplain management ordinances to reduce future flood damage in flood hazard areas

Non-coastal Wetlands

According to the US Army Corps of Engineers (USACE), wetlands are "areas that are periodically or permanently inundated by surface or groundwater and support vegetation adapted for life in saturated soil." Wetlands include swamps, marshes, bogs and similar areas. Wetlands serve important functions relating to fish and wildlife, food chain production, habitat, nesting, spawning, rearing and resting sites for aquatic and land species, protection of other areas from wave action and erosion, storage areas for storm and flood waters, natural recharge areas where ground and surface water are interconnected, and natural water filtration and purification functions (USACE Wilmington Regulatory Division).

While individual alterations of wetlands may constitute a minor change, the cumulative effect of numerous changes often results in major damage to wetland resources. The USACE regulates development in wetlands under Section 404 of the Clean Water Act, which determines which areas qualify for protection as wetlands. The NC Division of Water Quality regulates uses in wetlands under Section 401 of the Clean Water Act.

The North Carolina Coastal Region Evaluation of Wetland Significance (NC-CREWS) rates wetlands as having *exceptional, substantial, or beneficial* functional significance. Carteret County served as the pilot county for the NC-CREWS program and as such, was the first county to benefit from the information provided by this program. NC-CREWS was later expanded to other coastal and non-coastal counties.

The following brief explanation of NC-CREWS and the overall wetland functional significance rating definitions are based on information contained on the NC Division of Coastal Management website (<http://www.nccoastalmanagement.net>). Please refer to this website for additional information on NC-CREWS.

NC-CREWS is the name of the procedure used by the NC Division of Coastal Management to assess the functions of wetlands in the coastal region. The process rates each wetland type on its ability and opportunity to provide water quality, hydrologic, and wildlife habitat functions. Although most wetlands perform a variety of wetland functions, all wetlands do not provide all functions. Some

wetlands may not perform some functions due to degradation or alteration, but may provide other functions at below normal levels.

NC-CREWS rates a wetland as exceptional when it performs at well above normal levels, or when any two of the primary wetland functions (water quality, hydrology, and wildlife habitat) are rated as exceptional. The system also rates wetlands that are located adjacent to primary nursery areas, unique natural ecosystems or special wildlife habitat areas, wetlands that contain threatened or endangered species, and estuarine shrub-scrub wetlands as exceptional.

A wetland is rated substantial when the wetland performs the three wetland functions at normal or slightly above normal levels. A wetland that is a buffer to a wetland rated exceptional is also rated as substantial.

A wetland is rated as beneficial when it performs the three primary wetland functions at below normal levels or, in some cases, not at all. A wetland is rated beneficial when any two of the primary wetland functions are rated low and none are rated high.

A Fragile Areas Map is available at the Carteret County Planning and Development Department. This map shows areas that may be classified as non-coastal wetlands. While this map does not provide a lot-by-lot identification of wetlands, it does provide information as to the general areas that may contain non-coastal wetlands. These areas are extensive in Carteret County and must be determined by on-site investigation.

Natural Heritage Areas

Natural Heritage Areas include lands that support rare plant and animal species, rare or high quality natural communities, or other important ecological features as identified by the North Carolina Natural Heritage Program within the NC Department of Environment and Natural Resources. The program inventories, catalogues and facilitates protection of the rarest and the most outstanding elements of the natural diversity of our state. These elements of natural diversity include those plants and animals that are so rare, or the natural communities that are so significant, they merit special attention as land use decisions are made. The Natural Heritage Program has identified 176 sites, constituting approximately 146,000 acres, in Carteret County.

Significant Natural Heritage Areas are those Natural Heritage Areas that have particular bioersity significance. In Carteret County approximately 45 sites (approximately 99,627 acres) are classified as significant. The Fragile Areas Map shows general locations of Significant Natural Heritage Areas in Carteret County. A list of these sites is found on Pages 95 - 96.

The Natural Heritage Program is not a regulatory program, although some of these sites may be protected or regulated by other state or federal agencies. Many of these sites are unprotected.

Anadromous Fish Spawning Areas

Anadromous fish spawning areas are those tributary streams where fish swim upstream to spawn. These fish migrate from their primary ocean habitat to spawn, or breed, in freshwater areas. Anadromous fish are valuable recreational and commercial species and are an important component of the ecosystem.

Three main anadromous fish spawning areas are located in Carteret County. These include the Newport River upstream from Morehead City, the White Oak River from north of the NC Highway

24 bridge to Jones County and Pettiford Creek. The Fragile Areas Map shows the locations of anadromous fish spawning areas in Carteret County.

ENVIRONMENTAL COMPOSITE MAP

Map 3.1 Environmental Composite Map shows the extent and overlap of natural features described in this section. Based on the County's analysis of the features and the determination of the capabilities and limitations of these areas for development, this map also contains the general locations of three classes of land. The Carteret County Planning Commission reviewed each of the natural features to be considered in the development of the map and judged the features listed below to be appropriate for inclusion in the respective classes.

The land classes shown on the Environmental Composite Map, the description of the classes and the natural features contained in each class are shown below:

Class I

Class I is land containing only minimal hazards and limitations that may be addressed by commonly accepted land planning and development practices. In Carteret County, this class contains the following natural features:

- Soils with slight to severe limitations for septic tanks
- Soils with slight to severe erosion hazards
- Non-wetland area or wetlands rated *beneficial significance* (NC-CREWS)
- Land located inside or outside 100-year flood hazard area
- Land located inside or outside storm surge area
- Land located more than 500 feet from a historic or archaeological site

Class II

Class II is 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. In Carteret County, this class contains the following natural features:

- Estuarine shoreline
- Public Trust shoreline
- Ocean erodible area
- High hazard flood area
- Non-coastal wetlands rated as *substantial significance* (NC-CREWS)
- ORW watersheds

Class III

Class III is land containing serious hazards for development or lands where the impact of development may cause serious damage to the functions of natural systems. In Carteret County, this class contains the following natural features:

- Coastal wetland
- Estuarine waters

- Public trust areas
- Unvegetated beach area
- Non-coastal wetlands rated as *exceptional significance* (NC-CREWS)
- Protected lands

Map 3.1 Environmental Composite Map is a “broad-brush” depiction of the location of the three land classes discussed above. Due to the size and scale of the map, it cannot be used for permit decision-making or for final development plans. The Geographic Information System (GIS) – based model that was used to create the map uses one acre units. Therefore, one “cell” in the model represents one acre. When the different data sets overlay in the model, the highest class present will be assigned to the cell. For example, an area that is located inside an exceptional wetland with high potential risk (Class III) inside the storm surge area (Class I) and in an area with soils with severe limitations for septic systems (Class II) will be assigned to Class III.

It is not technically feasible to calculate the amount of land included in each class on the Environmental Composite Map. However, the following percentages are provided as estimates:

Class I	35%
Class II	25%
Class III	40%

Insert Environmental Composite Map



Environmental Conditions

This section of the Land Use Plan provides an assessment of the following environmental conditions and features and discusses their limitations or opportunities for development: water quality, natural hazards and natural resources.

Water Quality

Surface Water and Impaired Streams

Parts of three river basins are found in Carteret County: the White Oak River Basin, Neuse River Basin, and Tar-Pamlico River Basin. The White Oak encompasses most of the populated land area whereas the Neuse encompasses undeveloped, agricultural, and sparsely populated land. A small area of the Pamlico Sound is part of the Tar-Pamlico River Basin portion of the County.

Basinwide water quality planning is a non-regulatory watershed-based approach to restoring and protecting the quality of North Carolina's surface waters. The NC Division of Water Quality (DWQ) prepares and updates basinwide water quality plans at five-year intervals. While DWQ prepares the basinwide plans, their implementation and the protection of water quality requires the coordinated efforts of many agencies, local governments, and stakeholders. Recommendations contained in the applicable basinwide plans were reviewed and considered in the development of this plan.

Each river basin is divided into subbasins or smaller watersheds. (A watershed is a geographic area draining to a common water body.) The basinwide plans describe water quality and make recommendations for actions to improve or protect water quality on a subbasin basis. A Water Quality Classes and Subbasins Map, which portrays the boundaries of the subbasins, is available at the Carteret County Planning and Development Department. (sentence relocated from below).

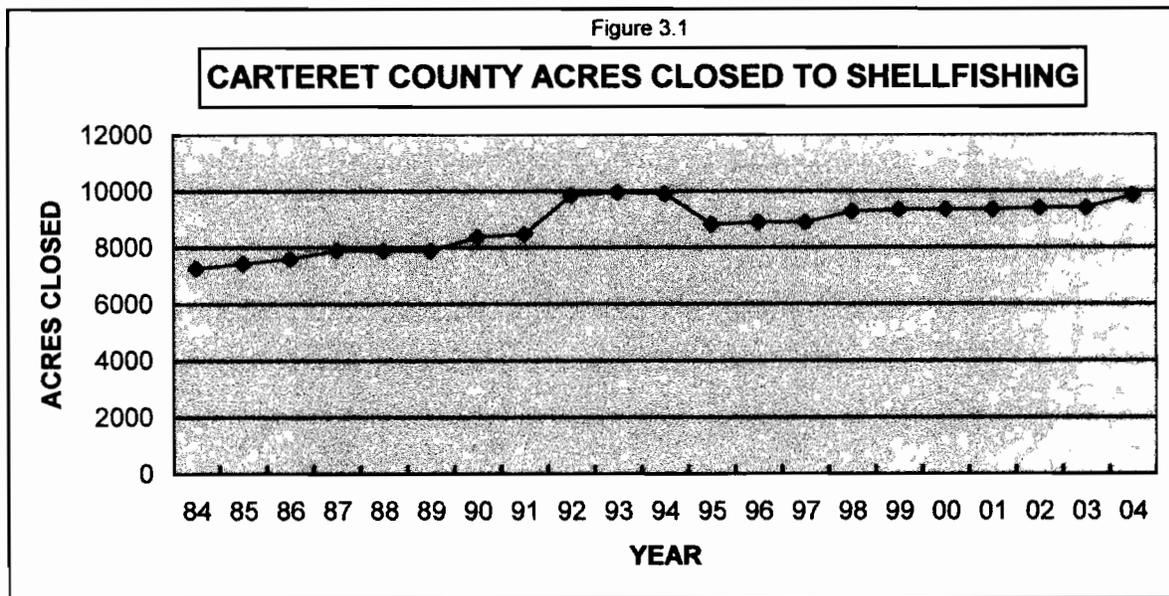
The North Carolina Environmental Commission has designated certain waters within North Carolina as Outstanding Resource Waters (ORW). This designation is intended to protect unique and special waters having excellent water quality and being of exceptional state or national ecological or recreational significance. (Please see Table 3.1 DWQ Primary Classifications for more information on this classification.) Three areas of Carteret County are designated: (1) Western Bogue Sound, (2) Core and Back Sounds, and (3) Southeast Pamlico Sound. Locations of ORW waters in Carteret County are found on the map of Water Quality Classes and Subbasins located in the Carteret County Planning and Development Office and is available on the NC Division of Water Quality website at <http://h2o.enr.state.nc.us/admin/maps/counties/index.htm>.

The Shellfish Sanitation and Recreational Water Quality Section of the NC Division of Environmental Health is responsible for protecting the consuming public from shellfish that could cause illness. The Section is responsible for testing and monitoring coastal waters to ensure that harvested shellfish is safe and for establishing shellfish growing area classifications. These classifications include approved, conditionally approved – open, conditionally approved – closed, and prohibited areas for shellfish harvesting. Areas that are classified conditionally approved – open are considered safe for shellfish harvesting, except following heavy rainfall. The Shellfish Sanitation Section is responsible for testing these waters and recommending to the Division of Marine Fisheries temporary closures when heavy rainfall increases fecal coliform bacteria levels above acceptable levels. Likewise, waters classified as conditionally approved – closed are usually closed, except that in very dry weather the Shellfish Sanitation Section is responsible for testing and recommending temporary openings when fecal coliform bacteria counts are acceptable.

Shellfishing waters are located throughout Carteret County. In the western portion of the County, shellfishing waters include the White Oak River and its tributaries, Bogue Sound and its tributaries (including Broad Creek, Gales Creek, and Spooners Creek), and the Newport River and its tributaries (including Core Creek and Harlowe Creek). Shellfishing waters in the eastern portion of the County include South River, North River, Jarrett Bay, Nelsons Bay, Back Sound and Core Sound. A map of the 2004 Carteret County Shellfishing Classifications is also available for review at the Carteret County Planning and Development Office. For shellfishing classifications of specific water bodies, please contact the Shellfish Sanitation and Recreational Water Quality Section at 252-726-6827.

In 2004 in Carteret County, 9,861 acres of shellfish growing areas were classified as prohibited or permanently closed. This was an increase from 9,409 acres classified as prohibited in 2003. The prohibited areas in 2004 represent approximately 3.3 percent of the total 305,050 acres of shellfishing waters in the County.

Figure 3.3 depicts the pattern of permanent shellfish closures in Carteret County from 1984 through 2004. Overall during this time period, the number of closed acres has steadily increased, with a major peak in 1992. Staff with the Shellfish Sanitation and Recreational Water Quality Section indicate that the spike may have been a result of clear-cutting a large area of land adjacent to the South River that occurred that year. As the land re-vegetated, the number of closed acres gradually decreased over a



four-year period, thus showing the value of vegetated buffers for protecting and restoring shellfishing waters.

The status or classification of shellfishing waters is considered by many to be among the best indicators of water quality. The 2004 shellfish growing area classifications, in conjunction with information contained in the 2001 White Oak and 2002 Neuse Basin-wide Plans, were used to develop the following subbasin descriptions of impaired waters and potential sources of pollution:

White Oak River Subbasin 03-05-01

Carteret County represents a portion of the area within this subbasin. The subbasin contains the White Oak River and its tributaries in Onslow, Jones, Craven, and Carteret County.

In the subbasin, 60.5% of the waters are listed as SA, 15.5% of the waters are considered ORW, and 59% of the shellfish harvesting waters are considered impaired. The only area of concern in the Carteret County portion of the subbasin is the upper reaches of the White Oak River. The listed cause of impairment is fecal coliform bacteria. Potential sources of pollution are runoff from subdivisions and agricultural land. Some problems with septic systems have also been reported along the NC24 causeway between Cedar Point and Swansboro. The remaining impaired streams in the subbasin are mostly west of the White Oak River in Onslow County (NCDENR 2001).

White Oak River Subbasin 03-05-03

This subbasin contains the center of Carteret County, extending from the Croatan National Forest to the Town of Beaufort and Beaufort Inlet. In the subbasin, 88.9% of the waters are listed as SA, 29.6% of the waters are considered ORW, and 22% of the shellfish harvesting waters are considered impaired (NCDENR 2001).

Current areas of concern include the Newport River and its tributaries (including Core Creek and Harlowe Creek) to the north of the Town of Morehead City, the north shore of Bogue Sound, Broad Creek, Gales Creek, and Spooners Creek. The cause of impairment for waters in this subbasin is fecal coliform bacterial contamination, resulting from runoff from urbanized areas and subdivisions and agricultural/forestry land uses (NCDENR 2001).

White Oak River Subbasin 03-05-04

This subbasin contains major waterbodies, including the North River, Jarrett Bay, Nelson Bay, and the landward halves of Back Sound and Core Sound. A large part of the subbasin is cultivated cropland (Open Grounds Farm). In this subbasin, 90% of the waters are listed as SA, 59.6% of the waters are considered ORW, and 29% of the shellfish harvesting waters are considered impaired (NCDENR 2001).

Water quality in this subbasin is generally considered good, although there are areas in the North River and adjacent bays and tributaries that are not supporting shellfish harvesting. These waters include Wards Creek, Davis Bay and a small portion of Back Sound. There are also areas of concern in the tributaries of Jarrett Bay and Nelson Bay. The cause of impairment for waters in this subbasin is fecal coliform bacterial contamination. Potential sources of pollution include runoff from subdivisions, agricultural land, domesticated animals, forestry practices, and wildlife (NCDENR 2001).

White Oak River Subbasin 03-05-05

This subbasin includes Core Banks and Shackelford Banks and is outside of the Carteret County planning jurisdiction. All of the waters in this subbasin except the Atlantic Ocean are Class SA, and over 91% are classified as ORW. None of the waters are closed to shellfishing.

Neuse River Subbasin 03-04-10

Carteret County represents only a portion of the area within this subbasin. Of the entire subbasin, 29.5% of the total waters are impaired while 4% of those waters are impaired in the shellfish harvesting use support category. The impaired shellfish harvesting waters are located in the South River and its tributaries. The cause of impairment is overloading of nutrients into this segment of the

Neuse River and high fecal coliform bacterial levels. According to the Lower Neuse Basin Association, since 1998 there has been a 48% reduction in total nitrogen discharges. Open Grounds Farm, adjacent to South River, has recently removed cattle operations and installed flashboard risers on many ditches. Both of these Best Management Practices help reduce sources and delivery of bacterial contaminants to shellfish harvesting waters. However, because of the chronic overloading of nutrients into the Neuse River over a long period of time in the past, it may be some time before current reductions will result in improved water quality. (NCDENR 2002).

Neuse River Subbasin 03-04-13

A small sliver of this subbasin is found in the county. The sliver is part of Pamlico Sound and contains no land area. This small area is classified as SA NSW.

Neuse River Subbasin 03-04-14

This subbasin is almost entirely encompassed by Carteret County and has very little developed land area. There is persistent bacterial contamination from the abundant wildlife in Thorofare Creek and Golden Creek (NCDENR 2003). Despite this, almost 100% of the waters are listed as fully supporting for shellfish harvesting.

Tar River Subbasin 03-03-08

A small sliver of this sub-basin is found in the county. The sliver is part of Pamlico Sound and contains no land area. This small area is classified as SA.

Information and recommendations contained in the DWQ Basinwide Plans were considered in the development of local land use policy contained in Section 8.

303(d) Listed Waters

Section 303(d) of the Clean Water Act requires states to develop a list of waters not meeting water quality standards or which have impaired uses. Listed waters must be prioritized, and a management strategy must subsequently be developed for all listed waters (NCDENR 2003). There are 138 water bodies in Carteret County listed on 2002 North Carolina §303(d) list (NCDENR 2003). Combined, the impaired waterbodies listed constitute about 24,555 acres (less than 10% of the total water areas in Carteret County); 80 water bodies are rated high priority, 52 are rated medium priority, and 6 are rated low priority (NCDENR 2002). All calculations were derived from areas and miles distributed by the state of North Carolina and are assumed to constitute those geographic areas within Carteret County only.

The NC Division of Water Quality prepares and maintains the list of impaired waters in North Carolina. Further information and the list of impaired waters are available at http://h2o.enr.state.nc.us/tmdl/General_303d.htm#Questions_About_the_List

Wastewater Treatment Systems

Portions of three river basins are located in Carteret County; the White Oak, Neuse, and Tar-Pamlico river basins. The Carteret County portion of the Tar-Pamlico river basin contains no land area and therefore is not addressed in this section. There are portions of three White Oak subbasins and two Neuse subbasins in the county. Three major National Pollutant Discharge Elimination System (NPDES) dischargers, all municipal wastewater treatment plants, operate within the geographic bounds of the county and include the Town of Morehead City Wastewater Treatment Plant (WWTP), Town of Newport WWTP, and Town of Beaufort WWTP (NCDENR 2001). All three WWTPs have been fined at least twice since 1998 for limits violations to a total sum of over \$11,000 in fines

(NCCF 2004). There are 11 (5 in Carteret County jurisdiction) other minor NPDES dischargers within the geographic bounds of Carteret County, some of which have had chronic system malfunctions in the past. Beaufort Fisheries, Inc. has been cited for limits violations eight times since 2001. Other frequent violators include 'Peppertree Atlantic Beach Assoc-Drip,' 'Pebble Beach HOA-Condos,' 'Point Emerald Villas Wastewater Treatment Facility (WWTF),' and 'A Place at Atlantic Beach' (NCCF 2004). Of the total of 14 NPDES permitted dischargers located within the geographic bounds of Carteret County, eight (one in the Carteret County planning jurisdiction) have been cited frequently for limits violations and would constitute having chronic systems malfunctions.

Much of the County is dependent upon individual septic systems. As expected, some septic systems experience failures. Notable areas with concentrations of septic failures include the Hibbs Road, Lake Road, and Mill Creek areas.

Public Health Hazards

Septic systems in Carteret County are generally considered to be well-functioning. Some septic problems occur in low-lying areas and in high-density areas on the fringe of sewer supply lines. Septic systems that were permitted or installed prior to 1977 North Carolina regulations are more likely to be problematic.

There is one registered animal operation in Carteret County (NCDWQ 2004). The animal operation is located in Newport, NC, and is a farrow to wean swine operation with an estimated 818 animals (NCDWQ 2004). Other health hazard trends have been developing within Carteret County, and are best described by referencing each of the subbasins that occur in Carteret County.

White Oak River Subbasin 03-05-01

Carteret County exists only partially in this subbasin and all of the WWTPs located in this subbasin exist in Onslow County. Most of the area exists as undeveloped forested and wetland areas, and septic system problems are frequent (NCDENR 2001). Areas that are potential sources of polluted runoff include development and agricultural land in the northern part of the subbasin and areas around the NC 24 causeway near Swansboro (NCDENR 2001).

White Oak River Subbasin 03-05-03

This subbasin is relatively developed. The cause of impairment for impaired waters in this subbasin is fecal coliform bacterial contamination, and is likely caused by rapid growth rates and large seasonal populations (NCDENR 2001). Current areas of concern include the Newport River and its tributaries to the north of the Town of Morehead City, and Bogue Sound to the south of the city. One other notable source of water contamination has been occurring on Bogue Banks and Atlantic Beach because of stormwater pumping onto beaches and into shellfish harvesting waters (NCDENR 2001).

White Oak River Subbasin 03-05-04

This subbasin is mostly undeveloped and agricultural. Many acres of water are classified as ORW, however continuing urban development is having a detrimental effect on water quality in the subbasin. Septic system problems have been noted around the community of North River, and in the low-lying areas around Jarrett Bay, Oyster Creek, and Nelson Bay (NCDENR 2001).

Neuse River Subbasin 03-04-14

This subbasin is almost entirely encompassed by Carteret County and has very little developed land area. There are two sewer systems in this subbasin not listed as NPDES dischargers; the BT-11

Marine Corps Air Station and Atlantic Field. There are no noted septic system problems for residences or businesses located in this area.

Neuse River Subbasin 03-04-10

A small eastern portion of this subbasin is located in Carteret County. There are no WWTPs located in the Carteret County portion of this subbasin, but many are located in the adjacent counties and have reported effluent problems (NCDENR 2002). There is one sewer system in this subbasin not listed as NPDES discharger; it is BT-11 Marine Corps Air Station. Even though the WWTPs are located in other counties, they are still in the same subbasin and pose a potential risk to the water quality in Carteret County.

Beaches

Since 1997, there has been one beach advisory in the planning jurisdiction area of Carteret County. An advisory for the beach at North River Highway 70 Bridge was issued 8/19/03 and lifted the next day for high levels of fecal coliform bacteria. Other similar beach advisories have been issued for municipalities in Carteret County (NCDEH 2004).

Natural Hazards

Repetitive Flood Losses

Portions of Carteret County have been subject to recurrent flooding. Repetitive loss data compiled through the National Flood Insurance Program's (NFIP) Community Rating System (CRS) has identified 222 properties with at least two flood insurance claims within the County's planning jurisdiction.

The claim areas are sporadic, but generally located within communities in close proximity to one another. The Down East area contains 63 of these claims, or 28% of the total. Repetitive claims are reported in Williston, Stacy, Sea Level, Harkers Island, Gloucester, Davis, and Cedar Island. The largest number of repetitive claims in this area are in Sea Level, Davis, and Cedar Island.

The Merrimon area contains 48 claims, or 21% of the total. The claims near Beaufort and the North River community consist of 43, or approximately 19% of the overall claims within the County jurisdiction.

The number of repetitive claims located to the west of Morehead City within the County's planning jurisdiction total 68, or 30% of the total claims. This includes property within the Broad Creek and Salter Path communities.

In addition to the above statistics, repetitive loss properties within the Town of Cedar Point total 27.

Shoreline Erosion

The Division of Coastal Management Erosion Rate Maps incorporate shoreline erosion data over the past 50 years. These maps indicate that beach erosion in the small oceanfront area in the Carteret County planning jurisdiction (Salter Path) is minimal and rated in the lowest category (NCDCM 1992, 1998). The majority of ocean beaches in Carteret County are outside the planning jurisdiction.

The Carteret County Shore Preservation Office coordinates ocean beach preservation efforts throughout the County, including beach areas located in the Towns of Atlantic Beach, Pine Knoll

Shores, Indian Beach, and Emerald Isle. The Carteret County Shore Beach Preservation Plan contains preservation strategies that encompass the entire Bogue Banks barrier chain.

Natural Resources (Environmentally Fragile Areas)

Fragile areas are sensitive areas that are easily destroyed by inappropriate or poorly planned development. Fragile areas include the following: coastal and non-coastal wetlands, sand dunes, ocean beaches and shorelines, estuarine waters, public trust waters, primary nursery areas, estuarine and public trust shorelines, complex natural areas, prime wildlife habitats, areas that contain endangered species, maritime forests, natural heritage areas, and prime farmland. Much of Carteret County is located within or in close proximity to fragile areas. Incompatible development could result in a loss of these resources or impacts to the resource functions of these areas. Many of these areas have been previously discussed in this section. Agricultural resources are discussed below.

Agricultural Resources

Prime farmland soils are those that are best suited to production of food, feed, forage, fiber, and oilseed crops (USDA 1987). There are seven prime farmland soil types found in Carteret County, accounting for 6.3% (21,174 acres) of all the soils in the county (USDA 1987). Currently, approximately 14% of the land use (57,747 acres) is devoted to agriculture in Carteret County. Current trends show the continuing loss of agricultural land due to conversion into residential uses. This loss is attributed to development and economic pressures.

SECTION 4: EXISTING LAND USE AND DEVELOPMENT

This section of the Land Use Plan provides a description of current and emerging development trends in Carteret County and a forecast of future development based on existing trends. The analysis of existing development is a major component of the foundation upon which land use policies and the future land use map are built. It provides a base for projecting future land needs and for forecasting the location of development.

Existing Land Use

Carteret County is considered to have three distinct areas in terms of general land use. The first area is the Down East area, which lies east of the Intracoastal Waterway connecting Core and Adams Creeks. The central area is generally described as being north of the Town of Beaufort and includes the Towns of Morehead City and Newport. The third area lies west of Morehead City along the NC 24 and NC 58 corridors and Bogue Banks. This area is generally referred to as western Carteret County.

The Down East area continues to be predominantly rural with large areas of wetlands and agriculture. The population is concentrated in numerous unincorporated communities along the waterfront. A major land use in this area of the County is Open Grounds Farm.

Central Carteret County has traditionally contained the population centers of Newport, Morehead City, and Beaufort, all of which are outside of the Carteret County planning jurisdiction. Other than these municipalities and their planning jurisdictions, this area has been considered to be mostly rural in character. However, recent and anticipated residential growth has been influenced by the provision of central water service and the development of additional subdivisions. The Jarrett Bay Marine Industrial Park is also located in this area.

Western Carteret County continues to be the major development and population base of the County. Development is concentrated in the incorporated areas on Bogue Banks and along NC Highway 24 and Bogue Sound west of Morehead City. Increasingly, new subdivisions and other development are occurring in areas near the White Oak River and in the farthest western portions of the County, including areas along NC Highway 58. The majority of the County's zoned areas are in Western Carteret County in the areas experiencing the heaviest growth.

According to the Carteret County Planning Department, subdivision activity from 1997 to 2003 throughout the County resulted in the creation of 1,792 new lots. On a township basis, the majority, or 43% (778 lots), of these new lots are located in the White Oak Township in western Carteret County. Subdivision activity in Morehead Township accounted for almost 13% of the total (232 lots) and new lots in Beaufort Township were approximately 11% (203 lots) of the total. The remaining 579 lots (33%) are located in the remaining 12 townships.

In addition to residential development, scattered commercial and industrial development continues to occur throughout the County. Concentrated commercial and industrial development has occurred along US Highway 70 between Newport and Morehead City, with increasing development along the NC Highway 24 corridor.

The developed areas of the County extend well beyond central water and sewer systems operated by municipalities and private entities. The majority of the unincorporated areas under Carteret County planning jurisdiction are served by individual septic systems or package treatment plants. In addition to individual wells, Carteret County's water supply system is composed of 20 individual systems, including five large systems. Section 5 of this land use plan provides information on these systems and the service areas.

Second home, retirement and tourist related development is concentrated in the Bogue Banks communities, with increasing presence in mainland areas both Down East and in western Carteret County. Carteret County's vast shoreline areas are attractive for development and are expected to continue to attract resort/retirement development.

A large percentage of the land in the County consists of areas that are not under Carteret County or municipal planning or regulatory authority. Included are federal, state, local, and non-profit property and easements that are managed for conservation or open space and federally owned lands used for military purposes. These lands are not available for future development. The Croatan National Forest covers large portions of western and central Carteret County. The Cedar Island Wildlife Refuge is located in the Down East area. The Cherry Point Marine Corps Air Station in Havelock, Craven County operates three facilities in Carteret County. BT-11 Piney Island and the Marine Corps Outlying Airfield Atlantic are both located Down East. The Marine Corps Auxiliary Landing Field [MCALF] Bogue Field is located near the community of Bogue along the NC 24 corridor. Other areas within the County that are unavailable for development include Cape Lookout National Seashore, Cedar Island National Wildlife Refuge, and Fort Macon State Park.

Incompatible land uses (primarily residential) associated with the Marine Corps outlying field in Bogue are a concern due to noise associated with the facility and the potential for aircraft crashes in populated areas. The Eastern Carolina Joint Land Use Study (ECJLUS), developed by local governments impacted by the facility, has been adopted by Carteret County to address this concern. AICUZ zoning has also been implemented for areas adjacent to the facility and in the flight path of the aircraft. Due to the Down East area being less populated, safety and noise concerns associated with the MCAS outlying field in Atlantic have not been as prevalent. Additionally, use of the Atlantic site by the military has lessened in recent years. The Down East area is unzoned, so no special protection is currently available.

Other potential land use or land use/water quality conflicts include junkyards located adjacent to residential areas and public trust waters. One such site exists on NC 101 north of the Town of Beaufort. While the area was recently rezoned to an industrial zone that allows junkyards, the facility is out of compliance with existing regulations aimed to mitigate impacts. The site drains to Ware Creek, which is a tributary of the Newport River, and is adjacent to residential uses. Another junkyard is located in western Carteret County, on SR 1106 (West Firetower Road) that is adjacent to existing and anticipated residential areas.

Another land use conflict is located on a site formerly used for industrial purposes in Marshallberg. There are concerns with the quality of the land and potential impacts to ground water. Soil and groundwater testing for a proposed redevelopment project identified soil and groundwater contamination. While the levels were within state-accepted levels, they were considered to be high. Adjacent uses include the Harbor of Refuge and a public picnic area maintained by the County.

The Existing Land Use Map (Map 4.1) provides a general pattern of existing land use in areas under Carteret County planning jurisdiction. Land uses shown on this map include commercial, industrial, institutional, residential and undeveloped. The institutional category, as shown on this map, includes all military bases, federal lands such as the Croatan National Forest, state-owned land, county parks and beach access points. This category also includes churches, schools and other institutions. The undeveloped category includes sparsely developed land or land that might be used for agriculture or forestry practices.

Table 4.1 provides an estimate of the number of acres and percentages for the various land uses in the Carteret County planning area (unincorporated areas, plus the Towns of Bogue, Cedar Point, and Peletier), based on analysis of 2005 tax parcel data. For the table, all military bases, federal lands such as the Croatan National Forest, and state-owned lands, as well as sparsely developed, agricultural, and forestry lands have been counted in the undeveloped category. This distinction is important for projecting land needs in the various land use categories as required by the CRC’s planning guidelines and provided in Chapter 8 of this plan.

Table 4.1 Land Use in Carteret County Planning Area

<i>Land Use</i>	<i>Acres</i>	<i>Percentage of Total Land</i>	<i>Percentage of Total Developed Land</i>
Residential	14,400	4.0%	92%
Commercial	828	0.2%	5%
Institutional	351	0.1%	2%
Industrial	43	< 0.1%	<1%
Total developed acres	15,622	4.3%	100%
Undeveloped	347,447	95.7%	
Total acres in County planning area	363,069	100%	

Future Development Trends/Conflicts with Classes II and III Lands

Western and central portions of Carteret County are expected to continue to experience growth pressures during the planning period. Areas near or adjacent to the White Oak River and Bogue Sound will continue to attract retirees, second-home owners, seasonal visitors, and others, thus maintaining strong residential and associated development trends. The NC 24 corridor, from Morehead City to Cape Carteret (including the Town of Bogue) and the NC 58 corridor north of Cape Carteret are expected to experience increasing development. Redevelopment and infill development of existing developed areas, such as the Town of Cedar Point and the Salter Path community on Bogue Banks, are also expected to continue.

Other areas of the County are also expected to continue to grow, particularly those areas served by central water service. In particular, the areas north of the Town of Beaufort along the NC 101 and US 70 corridors and north of the Newport River, are expected to experience increased development when planned water service improvements are in place.

The CRC’s planning guidelines require an analysis and description of any potential conflicts between the expected growth areas and lands designated as Class II or Class III on the Environmental Composite Map. It is important to understand that the Environmental Composite Map is a “broad

brush” depiction of the area’s capabilities and limitations for development and that the development trends described above are also general descriptions.

No major conflicts between these areas have been identified. The areas expected to experience development during the five years following certification of this plan are primarily designated as Class I, although small pockets of Class II and Class III lands may be found in the general area. In most cases, the Class II and Class III lands consist of protected lands (usually federal or state owned lands which are not available for development) or wetlands which are often precluded from development by state and federal requirements.

Future Land Needs Forecast

Carteret County has prepared a forecast of future residential, commercial, industrial, and institutional land use needs for five, ten, and twenty-year periods. Future land use needs are estimated based on permanent and seasonal population projections contained in Section 2 of the Land Use Plan and likely land use patterns.

Table 4.2 shows these estimates for residential land needs through the twenty-year planning period. In developing future residential land needs, population data for the County was adjusted to account for populations of municipalities outside Carteret County planning jurisdiction. (The percentage of the municipal population of the entire county population was estimated and subtracted from the County population to determine growth rates for areas under County planning jurisdiction.) Growth rates for the entire County were used to determine the projected population. Seasonal population for the County planning jurisdiction was estimated to be 25% of the County’s estimated seasonal population. Average household size of 2.3 persons was based on current Census data for Carteret County. Average number of households per acre is estimated at 2.86, based on average densities contained in the land classification descriptions and County zoning.

According to these estimates, approximately 1,740 acres will be needed to accommodate the residential land needs of the projected increase in permanent and seasonal population during the twenty-year period. The projected number of residential acres needed to accommodate future population has been increased by fifty percent to allow for unanticipated growth and to provide market flexibility, as provided for in the CRC’s Land Use Planning Guidelines. A total of 2610 acres are projected to be needed for residential development during the twenty-year period.

Table 4.2 Estimate of Future Land Needs for Residential Use

	2005 - 2010	2010 - 2015	2015 - 2025	2005 - 2025
Permanent Population Growth	1,549	1,226	1,015	3,790
Seasonal Population Growth	1,878	1,489	4,337	7,704
Additional Permanent Households	671	531	440	1,642
Additional Seasonal Households	813	645	1,877	3,335
Total Additional Households (permanent plus seasonal)	1,484	1,176	2,317	4,977
Estimate of Average Residential Households/acre (average density allowed by future land use categories)	2.86	2.86	2.86	2.86
Residential acres required for growth (projected)	518	411	810	1,740
Total projected acres (based on 1.5 adjustment)	778	617	1,215	2,610

Table 4.3 projects the amount of land needed for development by land use category for the next five, ten, and twenty years. The amount of future residential land estimated (2610 acres) accounts for 92% of the additional estimated acres for development. The remaining acres are estimated at the same percent as the developed land in 2005 and as shown for the Carteret County planning area in Table 4.1.

The percentages of land use by category were determined by analyzing 2005 Carteret County tax parcel data for the planning area (unincorporated areas of the County, plus the Towns of Cedar Point, Bogue, and Peletier). Tax parcel data was used to identify the developed parcels and categorize them by land use. It is assumed that the percentage of developed land by category will remain roughly the same throughout the twenty-year planning period.

Table 4.3 Projected Land Use in Development, 2005 to 2025

Land Use Category	Percentage of Developed Land (2005)	Acres 2005	Acres 2010	Acres 2015	Acres 2025	Percentage of Developed Land (2025)
Residential	92%	14,400	15,178	15,795	17,010	92%
Commercial	5%	828	870	904	970	5%
Industrial	<1%	43	47	50	57	<1%
Institutional	2%	351	372	389	422	2%
Totals	100%	15,622	16,467	17,138	18,459	100%

Table 4.4 displays the calculations for the additional land area needed for development incrementally for the next 20 years by major land use category. The additional land area was calculated using the total projected acres for residential growth as shown in Table 4.2 and calculating the projected development to be at the same percent as the existing land use in 2005 as shown in Table 4.1. The projections assume that current development trends will continue and that the population will continue to increase as projected in Section 2 of this plan.

Table 4.4 Additional Land Area in Acres Needed for Development, 2005 to 2025

Land Use Category	Additional Land Needed 2005-2010	Additional Land Needed 2010-2015	Additional Land Needed 2015-2025	Total Added Land Needed 2005 -2025	Percentage of Land Needed by Land Use Category 2005 through 2025
Residential	778	617	1,215	2,610	92%
Commercial	42	34	66	142	5%
Industrial	4	3	7	14	<1%
Institutional	21	17	33	71	2%
TOTALS	845	671	1,321	2,837	100%

Insert Existing Land Use Map

SECTION 5: COMMUNITY FACILITIES ANALYSIS

An important consideration in developing the land use plan is analyzing the capacity of Carteret County's community facilities. It is important that the County's infrastructure carrying capacity is sufficient to meet the needs of current and planned development. This section of the Land Use Plan analyzes the existing and planned capacity and adequacy of Carteret County's larger water, wastewater and transportation systems.

Water and Wastewater Systems

In many areas, private wells and septic tanks are the basic forms of service. A map of Water and Wastewater Systems is available for review at the Carteret County Planning and Development Department.

Water Systems

In addition to individual wells, Carteret County's water supply system is composed of 20 individual facilities (NCCGIA 1997). These facilities and their service areas are shown in Table 5.1. Of the 20 water supply systems, operational and engineering information is available for the following five systems: 1) West Carteret Community Water Corporation, 2) Harkers Island Water Sanitary District, 3) North River Community Water System, 4) Merrimon Community Water System and 5) Bogue Banks Water Corporation. Information is unavailable for the other 15 private water systems and is therefore not included in this analysis.

Of the five systems for which information is available, the North River and Merrimon Community systems are operated and maintained by Carteret County. Combined, the five facilities are able to provide 4.91 million gallons per day (MGD) of supply and serve approximately 10,900 metered connections. Overall, the combined average daily use for the facilities is 2.33 MGD, which represents 47.4% of the supply. [Data sources include West Carteret Water Corporation (2003), Bogue Banks Water Corporation (2004) and NCDENR (2002, 1997-A, 1997-B).] These facilities serve areas classified as developed, limited transition, and rural with services. Below are detailed descriptions of the five water supply systems for which information is available.

West Carteret Community Water Corporation

The system consists of four 10-inch wells located in the Croatan National Forest. From the ground, water is softened, color is removed, the water is chlorinated and it is injected with polyphosphate for system-wide corrosion control before being distributed (West Carteret Water Corporation 2003). The total treated water storage capacity is 1.35 million gallons distributed in two elevated storage tanks. In 2003, there were 3,950 active customers, and of these, 36 customers were large volume users. There are approximately 4,250 equivalent residential customers (West Carteret Water Corporation 2003). According to the 2003 Water Quality Report, the system had no violations and drinking water met or exceeded all federal and state requirements.

The West Carteret Water Corporation has an available supply of 1.6 MGD. Average daily use in 2002 was calculated at 0.676 MGD with a peak daily use of 1.176 MGD (West Carteret Water Corporation 2003). The current average daily use represents 42.3% of the current available supply. Future system plans include adding a fifth well which is expected to be located in the Croatan National Forest (West Carteret Water Corporation 2003).

Distribution lines are installed from Gethsemane Memorial Park near Morehead City along the NC 24 corridor to the White Oak River in Cedar Point (West Carteret Water Corporation 2003). The northernmost supply lines are on NC 58 near Hadnot Creek (West Carteret Water Corporation 2003).

Table 5.1 Water System Service Areas

<i>Water Systems</i>	<i>Service Area</i>
West Carteret Community Water Corporation	Along NC 24 and NC 58 in the White Oak Township
Harkers Island	All of Harkers Island
North River	Parts of Harlowe and Beaufort Townships
Merrimon Community	Along Silver Dollar Road
Seagate I	Subdivision Seagate Drive
Seagate IV	Subdivision Steel Tank Road east of SR 1161
River Oaks Plantation	Subdivision near Stella
Sea Level	On US 70 near North Street
Down East Mobile Home Park	On Harkers Island Road
Bogue Banks Water Corporation	All of Bogue Banks
Dutch Treat	MHP off of NC 24
E-MA-HENWU	Camp off of Sam Hatcher Road
Country Pine Estates	Near intersection of NC 24 and SR 1122
Coral Shores/Holiday Village	Sanders Creek Road off of NC 24
Goose Creek Landing & Campground	Off of SR 1119
Bogue Field	Marine Base in Town of Bogue
Comer's Cove	On Jones Street off of NC 24
Ocean Spray MH S/D	MH S/D south of VFW Road
Page's MHP	MHP north of VFW Road
Pondside MHP	Off of NC 58

Harkers Island Water Sanitary District (WSD)

The system consists of two 10-inch wells. Well #1 is located on Guthrie Drive near the intersection of Bayview Drive. Well #2 is located at the corner of Yeomans Drive and Bayview Drive (NCDENR 2002). Each well is capable of providing 0.324 MGD, although well #2 is currently not operational. The total storage capacity of the system is 0.250 million gallons with one elevated tank located in conjunction with well #2 (NCDENR 2002).

In 2003, there were 952 metered connections with 94% residential and the remaining 6% commercial customers (NCDENR 2002). According to the 2002 Water Quality Report, the system had no violations and drinking water met or exceeded all federal and state requirements (Harkers Island Sanitary District 2002).

Harkers Island WSD has an available supply of 0.324 MGD. The average daily use in 2002 was 0.137 MGD, and the peak daily use was 0.248 MGD (NCDENR 2002). The current average daily use represents 42.3% of the available supply. The estimated future service demand in 2020 is expected to grow to 0.211 MGD. The expected available supply in 2020 will be 0.648 due to planned expansions (NCDENR 2002). This future projected need will represent 33% of the available supply. This is far below 80% of the available supply, which is the most allowed without adding additional supply (NCDENR 2002).

The Harkers Island Water Sanitary District provides service to all of Harkers Island. Future expansion plans include bringing well #2 into operation to provide an additional 0.324 MGD in 2005. There are indications that a third well may be built at some point in the future (NCDENR 2002).

North River Community Water System

The system consists of two 10-inch wells. Well #1, located on Laurel Road, is capable of supplying 0.238 MGD and well #2, located on Merrimon Road, is capable of supplying 0.104 MGD (NCDENR-A 1997). The total finished storage capacity of the system is 0.200 million gallons. In 1997 there were 180 metered connections; three connections were commercial, two were institutional and the remainder were residential (NCDENR-A 1997). According to the 2002 Water Quality Report, the system had no violations and drinking water met or exceeded all federal and state requirements (Carteret County-A 2002).

Future plans for this system include being owned and connected to the Town of Beaufort by 2010 (NCDENR-A 1997). This system is located in the proposed Central Coastal Plain capacity area and the water supply may be limited in the future due to declining aquifer water levels (NCDENR-A 1997).

The service area includes NC 101 and SR 1163 Laurel Road to the north, the intersection of SR 1300 and US 70 to the south, SR 1300 Merrimon Road to the east, and NC 101 / SR 1155 Old Winberry Road to the west. An expansion completed in early 2006 enlarged the service area south to the southern intersection of SR 1466 and US 70. As noted previously, this system is operated and maintained by Carteret County.

Merrimon Community Water System

The Merrimon Community water supply system has a total available supply of 0.064 MGD. The system consists of one 6-inch well located at Jonaquin Creek Road. The total finished storage capacity of the system is 0.010 million gallons (NCDENR-B 1997). In 1997, there were 30 metered connections; one connection was institutional and the remaining were residential (NCDENR-A 1997). According to the 2002 Water Quality Report, the system had no violations and drinking water met or exceeded all federal and state requirements (Carteret County-B 2002).

The average daily use in 1997 was 0.007 MGD and the peak daily use was 0.010 MGD (NCDENR-B 1997). The current average daily use represents 11% of the available supply. The projected future supply in 2020 is 0.064 MGD and the projected future demand for 2020 is 0.012. This future projected need will represent 18% of the available supply. This is far below 80% of the available supply, which is the most allowed without adding additional supply (NCDENR-B 1997).

There are no future plans for additional development to this small rural system. The system is owned and operated by Carteret County. The service area extends along Silver Dollar Road in the community of Merrimon.

Bogue Banks Water Corporation

The system consists of 11 wells located along Bogue Banks (Bogue Banks Water Corporation 2004). From the ground, the water is chlorinated at each well before being distributed (Bogue Banks Water Corporation 2004). The total water storage capacity is 3.20 million gallons distributed in two elevated storage tanks and four ground storage tanks (Bogue Banks Water Corporation 2004). There is also an Electro-Dialysis Reversal Plant installed at well #4 to treat high chloride levels (Bogue Banks Water Corporation 2004).

In 2003, there were 5,795 active customers, and of these, 94 customers were large volume users. There are approximately 6,400 equivalent residential customers (Bogue Banks Water Corporation 2004). According to the 2002 Water Quality Report, the system had no violations and drinking water met or exceeded all federal and state requirements (Bogue Banks Water Corporation 2002).

The Bogue Banks Water Corporation has an available well supply of 2.7 MGD (Bogue Banks Water Corporation 2004). Average daily use in 2003 was calculated at 1.48 MGD with a peak daily use of 3.56 MGD (Bogue Banks Water Corporation 2004). The current average daily use represents 54.8% of the current available supply.

There are 73 miles of water mains and 5400 service laterals located along most of Bogue Sound (Bogue Banks Water Corporation 2004). The service area includes Emerald Isle to the west along the outer banks to Lost Treasure Golf & Raceway located at 976 Salter Path Road in Salter Path, NC (Bogue Banks Water Corporation 2004). Within the Carteret County planning jurisdiction, Bogue Banks Water Corporation provides service to the Salter Path community.

Sewer Systems

Most of the unincorporated areas of Carteret County are served by individual septic systems and package treatment plants. Of the wastewater treatment systems located within Carteret County's planning jurisdiction, 108 are Type V on-site wastewater treatment systems and 43 are Type VI (Carteret County-C).

Type V systems are any systems with sand filter pretreatment, any >3,000 gallon per day septic system with a permit nitrification field designed for >1,500 gallon per day, aerobic treatment unit, or any other mechanical, biological, or chemical pretreatment plan <3,000 gallon per day. Type VI systems are any systems with >3,000 gallon per day with mechanical, biological, or chemical pretreatment system plant; and any wastewater reuse/recycle (NCSWNR 2004).

Operational and engineering information is readily available for the following six systems: 1) Beaufort Wastewater Treatment Plant, 2) Snug Harbor Wastewater Treatment Plant, 3) Taylor Hospital and Extended Care, 4) Bogue Landing Field (MCAS), 5) Atlantic Field (MCAS) and 6) BT-11 Cherry Point (MCAS). These wastewater treatment systems serve relatively small areas of unincorporated areas of the County and are described below in greater detail.

Beaufort Wastewater Treatment Plant (NPDES permit # NC0021831)

This point discharge system consists of 17 sewage-pumping stations that operate as a linear system and are located in different areas throughout Beaufort (Town of Beaufort 2003). The plant operates as a 1.5 million gallon per day (MGD) activated sludge process using a combination of air, microorganism, and chlorine gas treatment before the effluent is discharged into Taylor's Creek (Town of Beaufort 2003). The discharge pipe is located at the end of Leonda Drive on Front Street (Town of Beaufort 2003).

For the fiscal year period 2002-2003, the treatment plant processed an average daily quantity of about 1.08 MGD (398 million gallons total) (Town of Beaufort 2003). The system is currently at 72% capacity and nearing 80% capacity. The plant experienced a 35% increase in treated flow compared to the fiscal year 2001-2002, which led to several system overflows. This was due to excess stormwater infiltration during the 2002-2003 fiscal year. Overflows were also caused by accumulation of fats, oils and greases in the wastewater collection system (Town of Beaufort 2003). The system has been fined five times since 1999 for limits violations; once in 1999, twice in 2001, once in 2002 and once in 2004. The combined total fines exceeded \$7,490 (NCCF 2004, NCDENR-C 2004, NCDENR-D 2002).

The Beaufort Wastewater Treatment system provides service to limited areas of the Carteret County planning jurisdiction, including East Carteret High School, Jarrett Bay Marine Industrial Park, and the Eastman Creek Landing subdivision.

Sailors Snug Harbor Wastewater Treatment Plant (NPDES permit # NC0028827)

This point discharge facility has a designed capacity of 0.02 MGD (USEPA-A 2004). It located in Sea Level, North Carolina. There have been two past limits violations; on 8/21/02 the facility was fined \$290.55 and on 2/7/03 the facility was fined \$290.55 (NCDENR-D, NCDENR-E)

Taylor Hospital and Extend Care (NPDES permit # NC0047759)

This point discharge facility has a designed capacity of 0.014 MGD (USEPA-B 2004). It located in Sea Level, North Carolina. There have been two past limits violations; on 11/12/2003 the facility was fined \$368.70, and on 1/8/04 the facility was fined \$248.40. (NCDENR-C, NCDENR-F)

Bogue Landing Field (MCAS)

The permitted effluent discharge for this system is 3,400 gallons per day (NCDENR-H). This facility consists of a treatment lagoon with concrete baffles, a polishing lagoon, a new tablet chlorinator, a modified irrigation pump station and a four-acre spray field (NCDENR-H). The facility is serviced by the Marine Corps Air Station and accepts no public wastewater.

Atlantic Field (MCAS)

The permitted effluent discharge for this system is 2,000 gallons per day (NCDENR-G). This facility consists of one primary stabilization lagoon, one 468,000 gallon polishing and storage pond, one chlorine tablet contact chamber and two one-half acre spray irrigation fields (NCDENR-G). The facility is serviced by the Marine Corps Air Station and accepts no public wastewater.

BT-11 Cherry Point (MCAS)

The permitted effluent discharge of this system is 1,750 gallons per day (NCDENR-I). This facility consists of approximately 805 linear feet of six inch gravity sewer, a 3,800 gallon septic tank, two 265 square foot recalcitrating surface sand filters, a re-circulation pump tank, a tablet chlorine unit and contact tank, a 64,100 gallon holding tank, a spray irrigation pump tank, and a total application field area of 62,832 square feet (NCDENR-I).

TRANSPORTATION

Transportation issues, particularly surrounding major highways, are of concern to Carteret County. These include the need for improved safety, regional accessibility, and traffic flow.

Carteret County's major road network is limited. The four major arteries are US 70, NC 24, NC 58, and NC 101. Each of these roadways has a varying speed limit, capacity, and number of lanes. The primary access to the County is by US 70. However, there are numerous stoplights and other problems along US 70 from Raleigh to Carteret County that result in diminished traffic flow, congestion, and other transportation difficulties. A major upgrade of NC 24 was completed in 2002, which provides a link to Interstate 40. Carteret County's major road systems are summarized on the Transportation Systems map that is available for review in the Carteret County Planning and Development Department.

The County's transportation system is highly dependent on automobile use. There is no comprehensive public transportation system, although limited transit service is available for the elderly and disabled. Bicycle and pedestrian networks are also limited, particularly along roadways. Numerous state and privately operated ferry services provide access to natural and recreational areas, neighboring communities, and the Outer Banks.

Carteret County adopts Transportation Improvement Program (TIP) priorities on regular cycles. The Carteret County Transportation Committee presented transportation priorities for the County to the North Carolina Department of Transportation (NCDOT) in November of 2003 to be considered for inclusion in the state's 2006-2012 TIP. The Committee report identified six priorities for the 2006-2012 Transportation Improvement Program. Five of these pertain to the US70 corridor.

- The highest priority is the replacement of the Gallants Channel Bridge (TIP project R-3307 mentioned below).
- The second priority for the County is the completion of bypasses at Clayton, Goldsboro, Kinston, and Havelock as well as projects between these cities so that US70 will be a fully controlled-access freeway from Raleigh to the Port of Morehead City.
- The third priority involves widening and improvement of US70 from Beaufort to East Carteret High School.
- The fourth priority consists of stormwater improvements for Beaufort and Morehead City.
- Priority five is the widening and improvement of the Newport River Bridge.
- Priority six is construction of the Northern Bypass from the Havelock Bypass to the Port of Morehead City. A preliminary environmental feasibility study identified three potential locations for the bypass.

The Carteret County Transportation Committee also reported on capacity deficiencies for the western half of the county. Roads that were near, at, or over capacity in 1996 were identified.

- US70 was near capacity from Newport to Old Murdock Road in Morehead City, from 24th to 4th Streets in Morehead City, and from downtown Beaufort to the North River. US70 is at or over capacity from Old Murdock Road to 24th Street in Morehead City, from 4th Street to downtown Beaufort.
- NC24 was at or over capacity from the Onslow/Carteret County border to the intersection with US70 (improvements to address this deficiency were completed in 2002).
- NC58 was at or over capacity from the intersection of NC24 to Islander Drive and from Headen Lane in Salter Path to Ocean Ridge Road. NC58 was near capacity from Coast Guard Lane to Emerald Isle and from Ocean Ridge Road to the Atlantic Beach Causeway.
- The Atlantic Beach Causeway was at or over capacity.

Other road sections near capacity in Morehead City include a section of Country Club Road less than one mile in length near the intersection with US70, North 35th Street between US70 and Bridges Street, and Bridges Street near Barbour Street.

The report includes estimates of capacity deficiencies for 2025. All roads identified in 1996 as at or over capacity continue to be so. Those roads near capacity in 1996 are all at or over capacity by 2025. The only exception is the segment of US70 through downtown Beaufort. The capacity deficiency in this area will be eliminated after completion of TIP project R-3307 mentioned above.

Additional roads identified as at or over capacity in 2025 are:

- Hibbs Road from US70 to NC24
- NC101 from Beaufort to the Carteret/Craven county line
- Two additional segments of NC58, one from SR1111 to SR1259 (Taylor Notion Road) and the second from the Atlantic Beach Causeway east for 0.5 miles.

Roads identified as near capacity in 2025 include:

- NC58 from SR1106 (West Fire Tower Road) to SR1111
- Nine Foot Road from Sam Hatcher Road to NC24
- Merrimon Road from US70 to Laurel Road
- Country Club Road from US 70 to North 35th Street (Morehead City)
- Bridges Street from North 35th Street east to US 70 (Morehead City)

Table 5.3 shows traffic volumes for 1999 and 2002 for roads in the Carteret County (NCDOT 1999, NCDOT 2002). The roads are broken down into five corridors: US70, NC24/NC58, NC101, Merrimon, and Harkers Island.

Table 5.2 1999 and 2002 Traffic Volumes

<i>Road #</i>	<i>Location</i>	<i>1999</i>	<i>2002</i>
US70 Corridor (west to east)			
SR1125	North of intersection with SR1124	3400	4100
US70	US70 north of Newport	20000	22000
SR1247	North of SR1129	2800	2700
US70	North of Beaufort and south of SR1300	11000	9400
US70	Between SR1140 and SR1247	18000	21000
SR1247	At intersection with SR1124	4600	6100
US70	West of the US 70/NC 24 Intersection	27000	31000
US70	East of the US 70/NC 24 Intersection	30000	32000
SR1176	Between 24 th and 25 th Streets	14000	13000
US70	Between N 35 th St and Taylor Street	26000	30000
US70	Between 28 th and 30 th Streets	25000	31000
US70	Between 8 th and 9 th Streets	21000	21000
SR1177	Near intersection with SR1241	4300	5200
SR1178	Between SR1241 and SR1176	1100	1300
US70	East of Radio Island	19000	21000
US70	Between SR1174 and SR1312	14000	15000
SR1174	Between US70 and SR1170	4200	3700
US70	Between SR1310 and NC101	17000	17000

SR1331	Near SR1329	1200	1200
US70	Between SR1332 and SR1347 (west of Smyrna)	6100	5300
SR1333	North of intersection with SR1339	480	480
SR1343	Between SR1342 and SR1335	960	900
US70	US70 west of Davis	4400	2900
US70	East of SR1363	4400	2900
US70	Between SR1368 and SR1369	4100	2900
SR1363	Between US70 and SR1362	940	820
US70	US70 west of NC12	3000	2300
SR1381	Near intersection with SR1417	400	290
SR1378	Between SR1384 and SR1387	1100	990
NC12	NC 12 north of SR 1387	1200	1100
	<u>NC24/NC58 Corridor</u>		
SR1100	Between SR1102 and NC58	1100	1200
SR1104	Between NC58 and SR1105	140	150
SR1109	North of SR1106	300	360
NC24	Between SR1116 and NC58	16000	20000
SR1118	East of Barrington Ridge	600	490
NC24	Between SR1123 and SR1143	14000	15000
SR1141	Between NC24 and SR1285	5400	6100
NC24	Between SR1141 and SR1672	13000	15000
NC101	Between SR1631 and SR1644	7200	7000
NC101	NC 101 north of Beaufort, south of SR1163	4500	4600
NC101	NC 101 north of SR1163	6000	6600
SR1155	South of intersection with SR1154	1800	2100
SR1154	North of intersection with SR1157	720	590
	<u>Merrimon Corridor</u>		
SR1300	North of SR1163	1600	1900
SR1318	Between SR1319 and SR1407	470	580
	<u>Harkers Island</u>		
SR1337	Between SR1335 and SR1338	1400	1500
SR1335	Between SR1337 and SR1336	4800	4600

The US70 corridor saw an increase in traffic volume between 1999 and 2002 from the Craven County border to Beaufort. From 1999 to 2000 there was a decrease in traffic volume from the North River Bridge to Cedar Island.

The NC24/NC58 corridor and the Merrimon corridor also saw increases in traffic volume between 1999 and 2002. There is no clear trend on Harkers Island as traffic volume decreased in one area and increased in another. The NC101 corridor has some increases and some decreases in traffic volume.

The NCDOT Transportation Improvement Program for 2004-2010 includes seven road improvements / new routes, three enhancement projects, eight bridge replacements, two ferry projects, a feasibility study for upgrading US70/NC12 from Beaufort to Cedar Island (FS-9902D) and a corridor management plan for the Outer Banks (S-4004). TIP construction projects are described below.

Roads:

- Guardrail rehabilitation on US70 (portion of project R-4401 affecting Carteret County)
- Widening and relocation of US70 from Radio Island to SR1303 (Pinners Point) (R-3307)
- Convert intersection of NC24 and NC58 to an interchange (R-4721)
- Relocate NC101 by the Beaufort-Morehead City Airport (to accommodate runway extension) (R-3624)
- New connector between US70 and NC101 in Newport (R-3437)
- New bypass from Havelock to Beaufort (R-4431)
- Widen SR1124 (Nine Foot Road / Nine Mile Road) to 24 feet from SR1140 (Roberts Road) to west of US70 (W-4700)

Enhancement:

- Sidewalks on NC58 from Ocean Ridge Drive to Atlantic Beach Corporate Limits (E-4734)
- Bike path on NC58 from Coast Guard Road to Merchants Park in Emerald Isle (E-4733)
- Multi-use trail in Morehead City parallel to North 35th Street, Friendly Road, and Country Club Road (E-4510)

Bridges:

- US70 over North River (B-4722)
- SR1101/SR1442 over White Oak River (B-2938)
- SR1124 over the East Prong of Broad Creek (B-3625)
- SR1124 over a branch of Newport River (B-4055)
- SR1133 over Deep Creek (B-4454)
- SR1154 over Black Creek (B-3428)
- SR1154 over a branch of Newport River (B-3626)
- Oakleaf Drive in Pine Knoll Shores over McNeil Inlet (B-4335)

Ferry:

- Fast ferry for Cedar Island/Ocracoke (F-4004)
- Parking and roadwork at Cedar Island (F-4405)

STORMWATER

Like most counties in North Carolina, Carteret County does not operate a stormwater infrastructure. The only systems in the County are ditches for mosquito control, side ditches along roadways, and private drainage systems. No mapping of these facilities is currently available. No comprehensive or significant data is available on the location or condition of stormwater systems in the County.

The North Carolina Department of Transportation (NCDOT) maintains structures associated with public roadways. The North Carolina Department of Transportation generally maintains records through County Maintenance Engineers for all culverts (but not other stormwater system components) in the systems they maintain. The location of these, however, is generally only referenced by a sketch and estimated mileage to nearest intersections. Similarly, Carteret County does not regulate stormwater systems owned by nongovernmental entities beyond property development permit application review and approval. Large developments require stormwater management and sedimentation and erosion control plans. Available information on such systems is

generally limited to subdivision design plans held by the County Planning and Development Department. As a result, though these systems have a significant and direct affect on water quality, an assessment of such is not currently feasible.

Phase II of the Environmental Protection Agency (EPA) Stormwater program requires some larger communities to apply for permits for their stormwater system. A community may fall under the requirements of the Phase II program in one of three ways: automatic designation under the Federal rules, designation by the state, or designation by petition of a third party. Currently Carteret County is not a designated Phase II community.

Should designation occur, Carteret County will be required to develop a stormwater plan that is designed to reduce the discharge of pollutants. The plan must include the following components:

1. Education and outreach program to inform citizens how to reduce pollutants in stormwater.
2. Public involvement program that meets state requirements.
3. Detection of illicit discharges.
4. Reduction of runoff pollutants from construction.
5. Reduction of pollutants from new construction or reconstruction that disturbs one acre or more.
6. Pollution prevention/good housekeeping program for local government operations to prevent or reduce pollutant runoff.

Land use policies contained in this plan address many of the major requirements contained in this list.

SECTION 6: LAND SUITABILITY ANALYSIS

The land suitability analysis (LSA) is a process for identifying land in Carteret County that is most suitable for development. The analysis is not intended to “rule out” any land or site from development. The LSA simply ranks land from least suitable to most suitable for development. It is intended to provide this information to local decision-makers in order to guide the formulation of local land use and development policies.

The LSA is based on consideration of several factors. These include the following:

- Natural features and their capabilities
- Existing development
- Compatibility with existing land uses
- Proximity/availability of community facilities
- Regulatory restrictions on land development

As part of the land suitability analysis, the CAMA Land Use Planning Guidelines require the development of a Land Suitability Map. The Division of Coastal Management (DCM), in conjunction with the NC Center for Geographic Information and Analysis, has provided a geographic information system (GIS)-based model for analyzing land suitability and development of the LSA map. This system utilizes the suitability factors shown in the table on the following page.

The LSA model puts land areas into one of four categories: least, low, medium, and high suitability. Areas that are the most undesirable for development, such as coastal wetlands, are placed into the least suitable category and cannot be weighted or changed in the model.

The remaining characteristics, such as soil septic suitability or proximity to water lines, are weighted as important, very important or extremely important in determining suitability. Using a weighting scale, the local planners and decision-makers can determine the relative importance of these characteristics in Carteret County. The chart below illustrates the weighting scale.

<u>Relative Importance</u>	<u>Numerical Weight</u>
Important	1
Very important	2
Extremely important	3

To develop the local LSA map, the Carteret County Planning Commission assigned numerical weights indicating the relative importance of each factor. The following table represents the factors included in the analysis, the suitability rating of each factor and the locally assigned weights.

Table 6.1 Carteret County Land Suitability Analysis Weights

<i>Suitability factor</i>	<i>Least Suitable Rating</i>	<i>Low Suitability Rating</i>	<i>Medium Suitability Rating</i>	<i>High Suitability Rating</i>	<i>Local Assigned Weight</i>
A) Coastal Wetlands	Inside		Outside		n/a
B) Exceptional & Substantial Noncoastal Wetlands	Inside		Outside		n/a
C) Estuarine Waters	Inside		Outside		n/a
D) Protected Lands	Inside		Outside		n/a
E) Beneficial Noncoastal Wetlands		Inside		Outside	1
F) High Quality Waters		Inside		Outside	1
G) Storm Surge Areas		Inside		Outside	1
H) Soils with septic limitations		Severe	Moderate	Slight	1
I) Flood Zones		Inside		Outside	1
J) Significant Natural Heritage Areas		<500'		>500'	3
K) Hazardous Substance Disposal Sites		<500'		>500'	1
L) NPDES Sites		<500'		>500'	1
M) Wastewater Treatment Plants		<500'		>500'	1
N) Sewer Discharge Points		<500'		>500'	1
O) Airports		<500'		>500'	1
P) Developed Land		>1 mi	.5 – 1 mi	<.5 mi	3
Q) Primary Roads		>1 mi	.5 – 1 mi	<.5 mi	3
R) Water Pipes		>.5 mi	.25 – .5 mi	<.25 mi	3
S) Sewer Pipes		>.5 mi	.25 – .5 mi	<.25 mi	3

The suitabilities have been established in the LSA model by DCM. Factors in rows A through D are least suitable for development and cannot be weighted. However, the Planning Commission has determined the importance of each of the other factors (rows E through S) and assigned weights (1, 2 or 3) to meet local goals and policies. Weights have been assigned based on Carteret County’s determination of the importance of each factor as it relates to suitability to development.

Map 6.1 shows the results of the land suitability analysis for Carteret County. The map shows four classes of land – least suitable, low suitability, medium suitability and high suitability.

In general, the higher and medium suitability areas for development are located along the Highways 24 and 58 corridors, as well as north of Beaufort and scattered areas in the southeastern portion of the County. In general, these areas are near other developed land, primary roads, and central water service, and do not contain features which the County has determined make them unavailable for

development. Vacant land is available in these areas to accommodate new residential and associated development.

Areas determined to be least suitable include large areas of protected lands. These include federal properties used for military activities or managed for conservation and open space, such as the Croatan National Forest and Cedar Island Wildlife Refuge. These areas are unavailable for development and are therefore included in the least suitable category for development. Areas containing exceptional and substantial non-coastal wetlands are also included in the least suitable category.

A relatively large area of the Down East portion of the County, which includes Open Grounds Farm, is included in the low suitability category. This is due in large part to its agricultural use and not being in close proximity to existing developed lands and primary roads.

Insert Land Suitability Analysis Map

SECTION 7: REVIEW OF EXISTING POLICIES

The purpose of this section of the Land Use Plan is to evaluate how the 1999 Carteret County Land Use Plan has been used to guide growth and development and the County's success in implementing policies contained in the plan.

The 1999 Carteret County Land Use Plan included local policies required by the Coastal Resources Commission (CRC) in effect at the time of plan adoption. At a minimum, the 1999 Carteret County policies met the CRC's standards for land use planning and development in Areas of Environmental Concern (AECs).

Several policies contained in the 1999 Carteret County Land Use Plan exceeded the CRC's minimum requirements for development in AECs or federal standards for development in 404 wetlands. Those policies are listed below:

- Carteret County opposes the installation of package treatment plants and septic tanks or discharge of waste in any areas classified as coastal wetlands or freshwater wetlands (404). This policy applies only to areas shown as freshwater wetlands and coastal wetlands on Maps 17A and B, Land Classification Maps contained in the 1999 Land Use Plan.
- No marina associated dredging will be allowed through active shellfishing areas. When dredging through coastal wetlands is essential for access to upland marinas, as provided for in 15A NCAC 7H, the county requires replacement of lost wetland areas with mitigation at a 1:1 ratio.
- When new navigational channels and canals must be constructed through coastal wetlands, Carteret County requires replacement of lost wetlands areas with mitigation at a 1:1 ratio.
- Unless essential for mosquito and vector control, new drainage ditches shall not be constructed which discharge into primary nursery areas. Existing drainage ditches may be maintained but not increased in depth or width.
- Carteret County opposes the location of floating structures in all marinas, primary nursery areas, outstanding resource waters, public trust areas, and estuarine waters. Floating structures as defined as any structure or vessel used, designed, and occupied as a permanent dwelling unit, business, office, or source of any occupation or any private or social club, which floating structure or vessel is primarily immobile and out of navigation or which functions substantially as a land structure while moored or docked on waters within county jurisdiction. Floating structures shall not be used commercially or inhabited in one place for more than 15 days.
- Carteret County opposes marina construction or expansion in coastal wetlands and primary nursery areas, and opposes upland marina construction with access channels connected to primary nursery areas. Coastal wetlands that have volunteered within upland marinas shall be exempted from this policy. Carteret County will allow access structures not exceeding six

feet in width to be constructed above coastal wetlands for the purpose of providing access to marinas which otherwise meet state standards.

- Carteret County opposes the construction of docks or piers with more than four boat slips in primary nursery areas. One dock or pier with four or less slips used for residential purposes or purposes directly related to commercial fishing shall be allowed per parcel of land that borders a primary nursery area. Waterfront parcels of land with more than one-quarter mile of shoreline bordering a primary nursery area shall be allowed one dock or pier with four or less slips for residential purposes or purposes directly related to commercial fishing within every one-quarter mile (1,320 feet) of shoreline along the primary nursery area.
- For all waterfront development, parking lots shall be set back from the shoreline 75' or 20% of the depth of the lot, whichever is less. This setback issue shall be further studied by any such committee established for the purpose of developing a county-wide Comprehensive Plan.
- Industrial development should occur in areas classified as developed, urban transition, and limited transition. Industries generating only domestic sewage are acceptable in areas classified as community and rural with services. Carteret County does not oppose industries locating within rural classified areas. Industrial uses that are not water dependent or related to fishing or aquaculture activities will not be allowed in estuarine shoreline and ORW estuarine shoreline areas. This policy shall not apply to the estuarine shorelines of mosquito ditches.

Implementation of 1999 Land Use Plan

The Carteret County Planning Commission used the Land Use Plan to establish general planning policy. In addition, the Land Use Plan policies were implemented in the following ways:

- All rezoning requests were reviewed for consistency with the Land Use Plan.
- Policies contained in the 1999 Land Use Plan were used to develop storm hazard mitigation, post-disaster recovery and evacuation plans.
- Land Use Plan policies guided the extension of central water service in the unincorporated areas of the County.
- The building permit process, subdivision regulations, and CAMA permitting program were used to implement all policies affecting development/land-disturbing activities within AECs.
- Zoning and subdivision regulations were used to implement a minimum 20,000 square foot lot size in areas without central or community sewer or water service.
- Subdivision regulations were used to require compliance with 404 wetland permitting requirements for development with land disturbing activities in excess of one acre. The County required 404 wetland delineation on all subdivision plats.
- The subdivision regulations were amended in 2001 to bring into consistency with the land use plan.

Consistency of existing development program with 1999 Land Use Plan

The NC Division of Coastal Management implements local land use plan policies affecting Areas of Environmental Concern (AECs) through the CAMA permitting process. However, further implementation of the plan is the responsibility of Carteret County, primarily through its existing development management program. In order to effectively implement policies and guidance contained in the 1999 Carteret County Land Use Plan, an assessment was made of the consistency of the plan with local ordinances affecting land use and development. Minor inconsistencies with the

subdivision regulations were noted and resolved with the 2001 revision of the ordinance. No other conflicts between the plan and local ordinances were found.

Effectiveness of 1999 Land Use Plan policies

Policies contained in the land use plan were judged to be effective in meeting the planning and development goals of Carteret County. The policies were particularly effective in the following ways:

- Restrictions on construction of marinas, docks, piers, and drainage ditches in primary nursery areas and wetland areas have served to protect both water quality and the County's commercial and recreational fishing resources. Water quality has also been protected through policies that prohibit floating structures in all public trust waters.
- Set-back requirements for new parking lots associated with waterfront developments has helped control run-off into public trust waters.
- Restrictions on industrial development in shoreline areas has helped control pollution of estuarine and Outstanding Resource Waters (ORWs).

SECTION 8: GOALS, POLICIES, AND FUTURE LAND USE MAP

Land Use and Development Goals

Carteret County's land use and development goals are the desired ends toward which the policies and programs of the land use plan are directed. The goals also describe the values and general principles that guide the development of the County.

The land use and development goals listed below were developed based on key planning issues and concerns identified by the Planning Commission and through citizen input, the community vision, and the analysis of existing and emerging trends. They provide the benchmark for developing effective policies and programs to achieve the County's desired future.

- Conveniently located access for residents and visitors to Carteret County's public trust waters for a range of activities.
- Land use and development patterns that are consistent with the capabilities and limitations of the County's natural systems, preserve the area's heritage and life styles, and promote sustainable economic growth.
- Protect natural areas that have high biologic, economic, and scenic values.
- Infrastructure systems (such as water, wastewater, transportation, natural gas, and telecommunications) that encourage and promote sustainable industries and job opportunities as well as orderly residential development.
- Mitigation of risks associated with storms, flooding, and shoreline erosion.
- Maintain, protect, and where possible, enhance water quality in the County's public trust waters, including shellfishing areas.
- Quality of life that attracts and retains young adults, retiree population, military community and other groups that contributes to the County's economic diversity and well being.

Future Land Use and Development Policies

Carteret County's policies are the principles and decision guidelines or courses of action that have been selected to attain its land use and development goals.

The CRC's planning guidelines require that local policies address six management topics. The management topics are listed below:

- Public Access
- Land Use Compatibility
- Infrastructure Carrying Capacity
- Natural Hazards

- Water Quality
- Local Concerns: In Carteret County the topic of local concern is Economic Development.

In addition to the role that land use and development policies play in local government, policies are also regulatory in that they are used by the Division of Coastal Management in making consistency determinations for the issuance of CAMA permits. Other state and federal agencies use the local land use plan policies in making project consistency, funding, and permit decisions.

The CRC's planning guidelines also provide planning objectives for each of the management topics. Objectives are intermediate, attainable steps toward goals. The management objective(s) for each management topic is shown at the beginning of each policy section.

Carteret County's policies that address each of the six management topics are described below.

Policy Notes:

1. The Carteret County Board of Commissioners accepts state and federal law regarding land uses in AECs, with the exception of a few local policies that exceed state and federal requirements.
2. Carteret County policies that affect CRC designated AECs and that are more stringent than state standards are printed in *Italics*. These policies are also found in Appendix D.
3. Active words contained in many of these policies (such as "support" or "encourage") are defined in Appendix E.

1.0 Public Access

Public Access CAMA Planning Objective

Develop comprehensive policies that provide beach and public trust water access for shorelines within Carteret County's jurisdiction for all segments of the community, including persons with disabilities.

Discussion

As a shoreline county located in a mild climate, Carteret County offers a variety of water access opportunities. In addition to pedestrian access to its ocean beaches and public trust shorelines, these opportunities include boating, swimming, scuba diving, water skiing, surfing and fishing. Visual access to its waters is also important to Carteret County and its residents and visitors.

The limited number of regional and neighborhood public access sites in unincorporated areas of the county is a need that has assumed greater importance as these areas continue to grow. Ocean shoreline access is primarily a municipal concern as the beachfront communities on Bogue Banks have expanded. Ocean beaches under the County's jurisdiction are limited to those in the unincorporated community of Salter Path on Bogue Banks.

Carteret County considers boating activities to be an extremely important part of its tourist economy and overall economy. The County recognizes that the provision of adequate ocean and public trust access improves tourism and enhances the economy of the entire county. Additionally, the provision of public access is a requirement for federal assistance in beach nourishment activities.

Carteret County maintains the following public access facilities:

- Salter Path Regional Beach Access
- Radio Island Water Access
- Harkers Island Beach Access
- West Beaufort Water Access
- Straits Fishing Pier
- Airport Marina
- Marshallberg Picnic Area

In addition to County maintained access facilities, other major access points include the following:

- Fort Macon State Park
- Cape Lookout National Seashore
- Cedar Island National Wildlife Refuge
- Croatan National Forest/Cedar Point Campground
- Roosevelt Natural Area
- Cedar Island Boat Ramp
- Newport River Boat Ramp
- Salter Creek Boat Ramp
- Stella Boat Ramp
- Highway 24 Boat Ramp (Cedar Point)

Policy 1.1

Carteret County supports the development of additional estuarine and ocean shoreline access facilities for pedestrian, boating, and fishing access in all areas of the County.

1. The County will encourage and cooperate with municipalities and state and federal agencies to locate and develop public access sites where appropriate. Areas that have traditionally been used by the public will be given special attention.
2. The County will seek financial assistance from the State for development of additional public access facilities.
3. The County will make the location and acquisition of access facilities on the County's major water bodies a high priority.
4. The County encourages the NC Department of Transportation (DOT) to provide limited access for fishing, kayaking and other water activities at new or rebuilt bridges. DOT should replace any existing access facilities that are removed or destroyed with new access facilities.

Policy 1.2

Carteret County will provide satisfactory access to residents and visitors of all abilities. The County will review and update the 1999 Shoreline Access/Parks and Recreation Comprehensive Master Plan to develop a multi-year plan, including timelines, to expand public access throughout its jurisdiction. The update of the plan will serve as a guide to the location, development and improvement of ocean and sound access. The updated plan shall address the following objectives:

- Review the community's needs for universal access and identify steps to eliminate barriers.
- Identify existing and potential boat ramp locations throughout the County. In addition, the plan will provide for adequate parking for boat ramps.
- Capitalize on existing ramps and access areas. There are numerous formal and informal access locations throughout the County. The plan will review the status and condition of these locations and identify those that are available and suitable for public access.
- Identify a system of small sites for put-in/take-out facilities for sailboats, canoes, and kayaks.
- Explore mechanisms through which property owners may donate property or easements for public access and describe potential federal and state tax advantages associated with property donation.
- Develop a long-range financial plan that identifies sources of revenue to acquire and/or develop access facilities.

Policy 1.3

Carteret County will require new waterfront residential developments to provide neighborhood access for non-waterfront lots as provided for in the Carteret County Subdivision Ordinance. Non-waterfront developments must provide areas for recreation or pay a fee in lieu of recreation areas. The County will revisit the existing fee structure to determine if fees are sufficient to provide for additional recreational opportunities.

Policy 1.4

Carteret County does not wish to impose local restrictions that would deny any waterfront property owner the opportunity for water access. The County also wishes to allow for water access opportunities for non-waterfront property owners. Subject to the following policies, Carteret County does not oppose the construction of marinas or other boat docking or storage facilities.

1. Carteret County will allow marina construction or expansion in all areas, provided local, state, and federal minimum standards are met.

2. Carteret County will allow dredging associated with the construction of new or expanded marinas, provided all local, state, and federal standards are satisfied.
3. Carteret County's policy for marina construction in Outstanding Resource Waters (ORW) or ORW shorelines shall be consistent with the state's management strategies for ORWs.
4. Carteret County will allow construction of dry stack storage facilities for boats associated either with or independent of marinas. All applicable zoning and subdivision regulations must be satisfied.
5. This plan does not prohibit that docks and piers in primary nursery areas existing as of the date of the Coastal Resources Commission certification of this plan may be rebuilt to the original size and capacity.
6. To help protect the visual quality of public trust waters, the County will encourage joint development of piers and docks to serve nearby residential properties.

Policy 1.5

Carteret County will continue to maintain Harbors of Refuge at Harkers Island, Atlantic, and Cedar Island. The Carteret County Harbor Authority is responsible for these sites.

Policy 1.6

Carteret County will maintain the regional Public Beach Access facility in Salter Path to ensure meeting current (2005) US Army Corps of Engineers access requirements for nourished beaches.

2.0 Land Use Compatibility

Land Use Compatibility CAMA Planning Objective

Local policies that (a) balance protection of natural resources and fragile areas with economic development and (b) that provide direction in local land use decisions and consistency determinations for zonings, divisions of land, and public and private projects.

Discussion

Carteret County supports protection and long-term management of its natural resources and fragile areas, due to the strong role these resources play in protecting water quality, providing food and habitat for fish and wildlife, and otherwise maintaining the coastal “way-of-life.” At the same time, the County recognizes the rights of its property owners and the need for continuing economic development improvements. As such, the County supports the Coastal Resources Commission’s development regulations for Areas of Environmental Concern (AECs) and other state and federal regulations regarding development in wetlands. In addition, the County believes that state standards are sometimes insufficient to protect its natural resources and in these cases has adopted policies that exceed or are more restrictive than the State’s minimum use standards.

Carteret County considers all lands classified as coastal wetlands and freshwater wetlands to be valuable. Some development, as allowed by state and federal regulations and consistent with policies contained in this plan, may occur in these areas.

Carteret County strongly supports management of development in its coastal shoreline areas, estuarine waters, and public trust areas to protect water quality, conserve valuable coastal resources, and maintain the aesthetics of the waterfront. The County concurs with the CAMA minimum use standards for coastal shorelines, although some policies contained in the Land Use Plan exceed, or are more stringent, than the State’s use standards for development in wetlands and public trust waters.

Carteret County will support growth and development at the average densities specified in the land classification definitions. During the planning period, it is projected that western Carteret County will contain the majority of the county's urban type development. The "Down East" area is expected to remain a low density, relatively undeveloped area, consistent with the average densities portrayed on the Future Land Use Map. Low density land classifications include Limited Transition (three dwelling units per acre), Rural (two dwelling units per acre), Community (two dwelling units per acre), and Rural with Services (two dwelling units per acre).

Currently, only about 30% of the planning jurisdiction of the County is zoned. All of the zoned areas are located in the central and western portions of the County. The Down East Conservation Ordinance (DECO), which applies to all land within the Down East section of the County, was adopted by the County in September 2006 and regulates density and other development in these areas. The County’s Subdivision Ordinance applies to all areas under Carteret County planning jurisdiction and also contains requirements designed to ensure that proper development patterns are considered. (See Section 9: Tools for Managing Development, Existing Development Program for more information on zoning, subdivision, and DECO regulations.)

Policy 2.1

Carteret County's policies for development in coastal and non-coastal ("404," "401," or jurisdictional) wetlands are as follow:

1. Carteret County will allow only land uses in coastal wetlands that require water access, cannot function elsewhere, and are consistent with state and federal regulations. Examples of acceptable uses are utility easements, piers, and docks.
2. *When new navigational channels and canals must be constructed through coastal wetlands, Carteret County requires replacement of lost wetland areas at a 1:1 ratio.**
3. Carteret County concurs with state and federal standards for residential, commercial, and industrial development in freshwater wetlands except as prohibited by this plan.
4. Carteret County will cooperate with the U.S. Army Corps of Engineers in the regulation/enforcement of the "404" wetlands permit process. The County will require that areas of non-coastal wetlands be shown on all new subdivision plats.
5. *Carteret County opposes the installation of package treatment plants and septic tanks or discharge of any wastewater in coastal or freshwater wetlands.**

Policy 2.2

Carteret County's policies for development in coastal shoreline areas are as follow:

1. Residential and commercial development meeting the state's minimum use standards shall be allowed in coastal shorelines and ORW estuarine shoreline classified lands. Construction will be in accordance with all Carteret County ordinances. Allowed densities are set forth in future land use map category descriptions beginning on Page 94 of the land use plan.
2. Carteret County will allow all uses (such as residential, commercial, industrial, and institutional) in estuarine shoreline and ORW estuarine shoreline areas, provided all local, state, and federal standards are satisfied.
3. For all waterfront developments, parking lots that meet local, state, and federal requirements will be allowed.

Policy 2.3

Carteret County believes that "Living Shorelines" may provide a better alternative to shoreline stabilization than conventional structures. "Living Shorelines" are vegetated marshes and small stone sills used to prevent erosion rather than conventional hard bulkheads. The County will provide property owners with information on "Living Shorelines" as a shoreline stabilization option.

Policy 2.4

Carteret County's policies for development in estuarine and public trust waters are as follow:

1. Carteret County will only allow development activities in estuarine and public trust waters that are associated with water-dependent uses, consistent with state and federal standards, and meet all local policies contained in this plan. .
2. *Carteret County will not allow floating structures in any public trust waters. Carteret County defines a floating structure as any structure, not a boat, supported by means of floatation, designed to be used without a permanent foundation, which is used or intended for human habitation or commerce. A structure will be considered a floating structure when it is inhabited or used for commercial purposes for more than thirty days*

* This policy exceeds state and federal standards for development in AECs or other fragile areas.

*in any one location. A boat may be deemed a floating structure when its means of propulsion has been removed or rendered inoperative and it contains at least 200 square feet of living space area.**

3. Marinas and other docking facilities must be constructed in accordance with state requirements and must meet local requirements contained in 1.0 Public Access.

Policy 2.5

1. Major development of an urban nature should be concentrated in the developed and limited transition areas. Major development is considered to be development that utilizes urban services, particularly water and sewer.
2. In areas classified as developed and limited transition and not served by public or community sewer and water service, a minimum lot size of 20,000 square feet (2.2 units per acre) shall be required through existing zoning, subdivision, and other regulatory ordinances. In areas classified as developed and limited transition and served by community water service, but having no public or community sewer service, minimum lot size is 15,000 square feet (2.9 units per acre).

Note: Carteret County ordinances consider package treatment plants to be public or community sewer service.

Policy 2.6

The county will initiate zoning of unzoned areas when requested by the community.

Policy 2.7

Carteret County encourages private acquisition of conservation areas by purchase or gift from property owners for the purpose of preserving these areas.

Policy 2.8

Carteret County supports efforts by the NC Division of Marine Fisheries to identify areas suitable for shellfish bottom leases.

Policy 2.9

Carteret County will allow the development of estuarine islands consistent with the CRC's minimum use standards and local ordinances. However, the County encourages purchase for conservation of sound and estuarine islands that have been identified by the North Carolina Natural Heritage Program as Significant Natural Heritage Areas.

Policy 2.10

Carteret County regulates building heights in zoned areas and in close proximity to the Michael J. Smith Field. Residential structures are limited to fifty (50) feet, with commercial, industrial, and other structures limited to sixty (60) feet. Heights adjacent the runways of the Michael J. Smith Field are restricted through the Airport Height Regulations. Permitted heights are determined based on a sliding scale of distance from the runways.

*This policy exceeds state or federal standards for development in AECs or other fragile areas.

3.0 Infrastructure Carrying Capacity

Infrastructure Carrying Capacity CAMA Planning Objective

Establish level of service policies and criteria for development, extension, and upgrade of County infrastructure.

Discussion

Policies addressing the Infrastructure Carrying Capacity management topic deal primarily with the provision of water service, wastewater treatment, and transportation systems throughout the County's planning jurisdiction. However, policies addressing other infrastructure concerns (such as solid waste management, public schools, natural gas service, the North Carolina State Port, and Internet access) that were identified during the planning process are included in this section.

Individual septic systems and package treatment plants serve most of the unincorporated areas of Carteret County. Although the development of countywide sewer has been of great interest, no solutions have been developed to satisfactorily address the high cost of building and operating such a system. Also permitting requirements that accompany wastewater collection, treatment, and disposal have not been satisfactorily addressed in previous proposals for central sewer service. It should be noted that the Towns of Morehead City, Beaufort, and Newport operate municipal sewer systems.

In the absence of central sewer service, areas under Carteret County planning jurisdiction will continue to rely primarily on septic tanks and private package treatment plants. The County is concerned about the efficiency and effectiveness of these systems and has adopted policies to address these concerns. Although a countywide system does not appear to be feasible during the planning period, the County will continue to support the provision of sewer service including alternative methods, where appropriate.

Central water service is available or is currently being extended to areas classified on the future land use map as developed, limited transition, and rural with services. The County anticipates that Phase II improvements to the North River Community Water System will be completed in June 2005. Additionally, West Carteret Water System continues to make improvements to its service in the western end of the County. It is not anticipated that any other major extensions of water service will be provided during the planning period.

The service area boundary for provision of central water service for the planning period corresponds to areas classified on the Future Land Use Map as developed, limited transition, and rural with services. In addition to being shown on the map, these areas are described in the Future Land Use Map discussion found later in this section.

Transportation issues, particularly surrounding major highways (US 70, NC 24, NC 58, and NC 101) are of concern to the County. These include the need for improved safety, regional accessibility, and traffic flow. Anticipated growth of the County, and the increasing number of commercial rezoning requests along major highways, particularly NC 24 are expected to continue to place transportation pressures on the County.

Carteret County has no established stormwater infrastructure, other than ditches and other traditional stormwater conveyances. A variety of state and federal programs address stormwater control.

However, there is no central management of drainage issues. Carteret County is considering changes to local ordinances or development of an initial stormwater ordinance that address reducing and controlling stormwater. Policies addressing these potential changes are found in 5.0 Water Quality of this section.

Policy 3.1

The County will provide educational information on alternative septic systems for soils that have severe limitations for conventional on-site soil absorption waste treatment systems (septic tanks).

Policy 3.2

Carteret County will undertake an educational program that provides information to property owners on proper maintenance of septic tanks and will pursue federal and state funding to assist property owners in identifying, mitigating, and upgrading failing or failed septic tanks.

Policy 3.3

Carteret County encourages the use of monitored pilot projects using advanced technology for wastewater treatment in areas not suitable for septic tanks, including the use of constructed wetlands.

Policy 3.4

Carteret County will support the provision of centralized sewer services in areas classified as developed, limited transition, and rural with services when the following conditions are met:

- Sewer service will serve to steer dense development away from environmentally sensitive areas, such as floodplains and fragile coastal ecosystems.
- Service will encourage a more compact development pattern in areas adjoining existing urban areas, thereby conserving farmland and other open spaces.
- Citizens request service.
- Zoning is in place prior to the extension of service.

Policy 3.5

Carteret County supports the provision of central sewer service that results in the development of new or expanded industry and the creation of permanent jobs in numbers commensurate with the expenditure required.

Policy 3.6

Carteret County encourages the development of sewer services that employ water reuse technologies for agriculture and other uses.

Policy 3.7

Carteret County allows the construction of package treatment plants in areas not provided with central sewer service. The county supports more effective monitoring of package treatment plants by the state and local health department.

Policy 3.8

Carteret County supports efforts to extend central water service to areas classified as developed, limited transition, and rural with services.

1. The County supports development of a countywide plan for the provision of central water service.

2. Carteret County will cooperate with and support the West Carteret Water Corporation's efforts to expand a central water system in Western Carteret County.
3. The County supports efforts to extend the county-operated systems serving the North River and Merrimon areas.

Policy 3.9

The County's solid waste disposal policies are as follows:

1. The County will support and dispose of its solid waste in the Tri-County Landfill, located in Tuscarora in Craven County.
2. Carteret County will provide education on waste reduction and recycling through postings to the County's website and development of an informational brochure.
3. The County supports recycling by users of the landfill and supports setting up practical collection methods and education efforts to achieve a high degree of countywide recycling.
4. Carteret County favors the siting of recycling centers by its solid waste management contractor throughout the County, except in Conservation areas.

Policy 3.10

The County will coordinate facility planning with the school system and the municipalities by sharing growth projections and plans for new development which impact school capacities.

Policy 3.11

Carteret County supports highway projects that will improve highway safety, regional accessibility, and traffic flow within the County's planning jurisdiction. Carteret County requests that the following transportation improvement priorities be included in the 2007-2013 Transportation Improvement Program (TIP):

- Replacement of the Gallants Channel Bridge
- Completion of bypasses at Clayton, Goldsboro, Kinston, and Havelock as well as projects between these cities so that US70 will be a fully controlled-access freeway from Raleigh to the Port of Morehead City
- Construction of the Carteret County Northern Bypass from the Havelock Bypass to the Port of Morehead City
- Widening and improvement of the Newport River Bridge on US70 from the Town of Morehead City to the Beaufort Causeway
- Feasibility study for the construction of a third bridge on to Bogue Banks
- Extension of Bridges Street to the vicinity of Newport
- Widening of NC58 not to exceed 3 lanes, from Emerald Isle to Atlantic Beach

Policy 3.12

Carteret County will support and participate in the multi-county effort spearheaded by the Highway 70 Corridor Rural Planning Organization (RPO) Committee. The goal of this effort is to improve traffic flow along US70 from Wake County to the Port of Morehead City.

Policy 3.13

Carteret County shall require that new development along US70, NC24, NC101, and NC58 provide safe access to these corridors while minimizing the need for additional stoplights. Amendments to subdivision and/or zoning regulations will require new commercial development to minimize access points to these highways by use of such techniques as shared driveways and access roads.

Policy 3.14

Carteret County will undertake a Highway 24 corridor management study to identify and understand causes of increased traffic pressures and develop strategies to improve the safety and mobility of this route. The study will address the following areas: access management, land use and subdivision management, right-of-way needs and preservation, operational strategies, intergovernmental cooperation, financing of corridor management improvements, and aesthetic concerns. Strategies developed for the Highway 24 corridor will be expanded to apply these principles to other highways experiencing growth pressures.

Policy 3.15

Carteret County supports growth and material expansion of the North Carolina State Port Terminal, provided plans are prepared that address the impact of associated rail and road traffic increases in Morehead City and Carteret County. Carteret County will rely on the State Port Authority to prepare these plans prior to any material expansion.

Policy 3.16

Carteret County supports the extension of fiber-optic cabling throughout Carteret County to provide high speed Internet access for the entire County.

Policy 3.17

Carteret County supports the extension of natural gas lines throughout the County.

Policy 3.18

Carteret County supports plans for expansion of Michael J. Smith Field as detailed in the airport's Master Plan. This plan is the responsibility of the Carteret County Airport Authority.

4.0 Natural and Man-made Hazard Areas

Natural Hazard Areas CAMA Planning Objective

Develop policies that minimize threats to life, property, and natural resources resulting from development located in or adjacent to natural and man-made hazard areas.

Discussion

Hazard areas in Carteret County include those associated with both natural and man-made hazards. Natural hazards are related to its location as a coastal county subject to flooding, high winds, erosion and other impacts of storm events. Additionally, accident potential and noise impacts associated with aircraft operations at Marine Corps Auxiliary Landing Field (MCALF) Bogue represent man-made hazards in the western portion of the County.

Carteret County recognizes the risks to life, health, public safety, and property that exist within its flood hazard areas and the ocean hazard area AECs. The County also recognizes that a significant amount of its housing stock was built prior to implementation of the Flood Damage Prevention Ordinance (1980) and is working to obtain funding to assist in elevating existing homes in flood-prone areas above base flood level. The County participates in the National Flood Insurance Program (NFIP) that requires the community to adopt a Flood Damage Prevention Ordinance and the Flood Insurance Rate Maps (FIRM). The County joined the program in 1980 and updated the ordinance and maps effective July 16, 2003. Additionally, the County participates in the Community Rating System, a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the NFIP minimum standards. As a result, flood insurance premium rates in Carteret County are discounted to reflect the reduced flood risk resulting from the community actions.

Carteret County has adopted a Hazard Mitigation Plan that contains mitigation actions aimed toward reducing vulnerability to all natural hazards that can be addressed in a practical manner at the local level. Mitigation actions contained in the Hazard Mitigation Plan have been determined to be cost effective, environmentally sound, and technically feasible. Mitigation policies fall into six mitigation categories provided by FEMA. These include the following: prevention measures, property protection measures, natural resource protection, emergency services, structural projects, and public information activities. The Carteret County Hazard Mitigation Plan and the Carteret County Land Use Plan Update are consistent with one another. In the event that any policy statements are found to be conflicting, the Land Use Plan will take precedence over the Hazard Mitigation Plan. The mitigation action plan as contained in the Hazard Mitigation Plan is included as Appendix G of the Land Use Plan.

The County has considered traffic handling capacity in emergencies and during evacuations in its Thoroughfare Planning. Needed improvements that affect evacuation are included in the NCDOT Transportation Improvement Program. Hurricane evacuation routes in Carteret County are marked with blue and white evacuation route signs. The evacuation routes for Carteret County are US 70, NC HWY 101, and NC HWY 58.

Carteret County supports measures to mitigate the impacts of aircraft accident potential and elevated noise levels associated with operations at MCALF Bogue. The County was a partner in the East Carolina Joint Land Use Study (JLUS) that addressed the impacts of military activities at Bogue Landing Field and provided recommendations for mitigating impacts of aircraft accident potential. The County has also implemented an overlay district to its zoning ordinance that affects areas in the western portion of the County that are in “accident potential” and “noise impact” zones. The total number of parcels affected by the overlay district in 2005 was 1340. Of these parcels, 443 were located in the Town of Bogue.

The County recognizes the need for maintaining navigation inlets and harbors to promote commercial and recreational uses of coastal waters. The County further recognizes that dredging activities to maintain and deepen navigation channels within tidal inlets and harbors often alter the natural movement of sand resources within the littoral zone. Negative alterations are exacerbated when sand resources are removed and subsequently deposited in designated offshore or upland disposal areas instead of being returned to the natural beach, shoreface, and inlet system. This is particularly relevant to the Morehead City Federal Navigation Project located within and adjacent to Beaufort Inlet, Carteret County as documented by the County, the U.S. Army Corps of Engineers, and N.C. Division of Coastal Management. These negative alterations adversely impact recreation, tourism, coastal economies, and the County’s ability to protect life and property.

Mitigation strategies for risks associated with these hazards also include providing information to residents, local development requirements, support of the North Carolina Coastal Management Program, and support of local beach nourishment programs, including the Carteret County Shore Protection Program.

Policy 4.1

All development within the flood hazard areas and ocean hazard area AECs will be coordinated with the County Department of Planning and Development, North Carolina Division of Coastal Management, Federal Emergency Management Agency (FEMA), and the U.S. Army Corps of Engineers. The County will implement the following measures to mitigate risks:

1. Carteret County will continue to enforce its existing zoning and flood damage prevention ordinances.
2. The County concurs with the CAMA use standards for the ocean hazard AECs. Examples of suitable land uses in these areas include low-density residential and commercial uses, recreation and beach management activities.
3. The County allows development and redevelopment within the 100-year floodplain subject to the provisions and requirements of the National Flood Insurance Program, CAMA, the County’s Flood Damage Prevention Ordinance, and other local ordinances.
4. The County will finalize and implement the Hazard Mitigation Plan that addresses a broad range of natural hazards in the County, per the Disaster Mitigation Act of 2000 (DMA2K). The County will periodically update this plan.
5. The future location of public facilities and structures will take into consideration the existence and magnitude of natural hazards. The County will not allow construction of public facilities (utilities) in hazard areas unless no other option is available. When location in hazard areas is unavoidable, all facilities, utilities, and structures will be designed and located to comply with requirements of the National Flood Insurance Program, the Carteret County Flood Damage Prevention Ordinance, and CAMA.
6. Carteret County is supportive of local beach nourishment programs, including the Carteret County Shore Protection Program.

Policy 4.2

Carteret County will maintain or improve its NFIP Community Rating System (CRS) score to allow for continued discounted flood insurance rates for property owners.

Policy 4.3

In order to mitigate risks for older properties and keep communities intact, the County will continue to cooperate with state and federal agencies and property owners to elevate residences and other structures above the base flood elevation. Funds from the Hazard Mitigation Grant Program and the Community Development Block Grant Program will be used for elevation projects.

Policy 4.4

To minimize the impact of high winds, Carteret County will continue to enforce the North Carolina State Building Code on wind resistant construction with design standards of 130-mph wind loads (or current code requirements) for residential construction and wind loads for commercial construction as required by the code.

Policy 4.5

The County will implement and regularly update the Carteret County Emergency Operations Plan. This plan addresses/assigns responsibilities following a variety of disasters.

Policy 4.6

Reconstruction of damaged properties in Carteret County after a natural disaster will be subject to the following:

1. The Flood Damage Prevention Ordinance requires that all existing structures comply with requirements related to the 100-year floodplain elevation and flood-proofing if they are substantially improved. A substantial improvement is defined as "any repair, reconstruction, or improvement of a building, the cost of which equals or exceeds 50 percent of the market value of the building either before the improvement or repair is started, or before damage occurred if the building has been damaged."
2. The North Carolina Building Code requires that all new construction meet code requirements. Repairs to damaged structures are also considered to be new construction.

Policy 4.7

Carteret County supports measures to mitigate the impacts of aircraft accident potential and elevated noise levels associated with operations at Marine Corps Auxiliary Landing Field (MCALF) Bogue. The County has amended the Zoning Ordinance to establish the Bogue Field Air Installation Compatible Use Zones (AICUZ) Overlay District which identifies properties within the proximity of the landing field. The following policies have been established for these properties:

1. Disclosure of proximity to Bogue Field is required at the time of property transfers, leases for greater than 90 days, and the issuance of building permits. Disclosure is also required on subdivision plats with any lots located within the AICUZ.
2. Compatible Use Zones (CUZ-1 and CUZ-2) have been included in the Table of Permitted and Special Uses of the Zoning Ordinance. Permitted uses may be developed, provided the use meets the zoning requirements for the underlying zoning district and other requirements of the ordinance. Uses listed as a special use in the CUZ-1 and CUZ-2 require a special use permit from the Zoning Board of Adjustment.

3. The County will not rezone areas within the CUZ to a zoning district that allows higher residential densities than the current district.
4. The County requires property owners and developers within the AICUZ to implement compatible land uses and encourages appropriate construction techniques when developing or redeveloping their property.
5. The County provides property owners with informational brochures and access to maps that can assist them in evaluating the impact of potential accidents or noise on their property. The County has available a sound attenuation construction manual to offer voluntary measures to reduce the impacts of sound within structures within the AICUZ.

Policy 4.8

Carteret County will enforce height regulations for areas in the vicinity of the Michael J. Smith Airport.

Policy 4.9

Carteret County will coordinate with Morehead City and the North Carolina State Ports Authority on emergency operations and procedures associated with the port facility and its operations.

Policy 4.10

With the exception of bulk fuel storage tanks used for retail and wholesale sales, and individual heating fuel storage tanks, Carteret County opposes the bulk storage of hazardous materials in areas classified as developed and limited transition unless the specific sites are zoned for industrial use. Storage of hazardous materials, other than chemical toxic waste, in low-density areas classified as rural or rural with services will be allowed. In those areas within the County in which federal holdings are located, applicable state and federal regulations shall apply.

Policy 4.11

Carteret County is opposed to the establishment of toxic waste dumpsites within the County.

Policy 4.12

Carteret County will coordinate the regulation of underground storage tanks with the North Carolina Division of Water Quality. Carteret County concurs with the state's criteria and standards applicable to underground storage tanks.

Policy 4.13

It is the policy of the County that there shall be no net loss of sand from the County's barrier beaches resulting from dredging activities to maintain and deepen navigation channels within tidal inlets and harbors. Specifically, the following shall apply to all beach compatible sand that is collected from dredging maintenance and deepening of the Morehead City Harbor Federal Navigation Project:

1. The sand must be utilized for direct placement on beaches. If any dredging maintenance or deepening effort does not include the direct placement of sand on beaches, then an alternate plan must be approved by the County.
2. If sand encountered during maintenance or deepening activities is placed elsewhere than the barrier beach, then an equal volume of sand from an alternative location shall be used to nourish barrier beaches.

The definition of beach compatible sand for the purposes of this policy is as defined by the Coastal Resources Commission through its rules and policies as contained in 15A NCAC 07H .0312 Technical Standards for Beach Fill Projects.

5.0 Water Quality Policies

Water Quality CAMA Planning Objective

Policies for coastal waters within the County's jurisdiction to help ensure that water quality is maintained if not impaired and improved if impaired.

Discussion

Carteret County supports management of land uses and development in its coastal shoreline to maintain and enhance water quality, conserve valuable coastal resources, and maintain the aesthetics of the waterfront. The County's wetlands also play a major role in managing stormwater runoff and protecting water quality and are designated by the County as conservation areas. Within these areas, development is required to be consistent with state and federal policies and regulations and with all local ordinances. At a minimum, the County concurs with the CAMA minimum use standards. Some policies contained in the land use plan exceed, or are more stringent, than the State's use standards. A summary of those policies that exceed the minimum use standards is found in Appendix D of this plan.

State regulations implement buffer requirements along coastal shorelines. Carteret County does not currently implement waterfront buffer requirements beyond those required by the State. The Carteret County Planning and Development Department, through the central permitting process, identifies areas subject to the CAMA coastal shoreline buffer requirements and the NC Environmental Management Commission (EMC) Neuse River buffer requirements. The County implements the CAMA requirements through the Minor CAMA permit program. Property owners are responsible for compliance with the EMC Neuse River buffer rules.

The County recognizes the impact of paved areas, rooftops, and other hard surfaces on water quality. These hard surfaces, known as impervious surfaces, prevent infiltration of water into soil and create runoff that carries pollutants into surface waters. Carteret County believes that education on the "cause and effect" relationship of everyday household practices, construction techniques, and land development principles for elected and appointed officials, developers, property owners, and residents is needed as an initial step to protect water quality. Additionally, more study and consideration of potential reductions in impervious surfaces and building density and stormwater and erosion controls along the County's waterfront areas are in order. The County is concerned about water quality, but also recognizes existing development patterns, the rights of property owners, and the need to provide affordable housing as considerations in the balance of resource protection and economic development.

Much of the existing residential development in Carteret County consists of traditional subdivisions that include fairly large lots, little or no open space, and other site design features that do not take into account techniques to protect water quality. The County is supportive of Low Impact Development (LID) as an innovative, ecologically friendly approach to land development and stormwater management that seeks to mitigate development impacts to land, water, and air. Also known as "conservation development," this approach to subdivision design can lower site infrastructure costs, protect water quality, and improve lot and community marketability.

Agriculture and forestry operations are often the source of nonpoint source water pollution. Common agricultural nonpoint source pollutants are sediment, nitrogen, phosphorus, pathogens, and pesticides.

However, many agricultural and forestry production activities are exempted from CAMA and state and federal water quality permitting requirements.

Carteret County does not impose additional regulations on agriculture and forestry operations beyond state and federal requirements. The County is supportive of the State's soil erosion and sedimentation program and stormwater management programs.

It should be noted that farming operations in the County are continuing to convert to other uses, especially residential development. In 2005, approximately 15 commercial full-time operations farmed about 54,000 acres. Open Grounds Farm, the largest agriculture operation in the County with approximately 44,000 acres, has implemented practices that have resulted in improved water quality adjacent its farm area. According to staff of the Soil and Water Conservation District, the smaller established agricultural operations in the County have also been amenable to implementing Best Management Practices (BMPs) to improve on-farm management and reduce the potential for polluting surface and ground water.

Policy 5.1

Carteret County will promote awareness of good water quality practices. The Carteret County Planning and Development Department will coordinate an inter-departmental water quality outreach/educational effort for elected and appointed officials, property owners and citizens. The effort will include the following components:

1. Inform citizens of specific household actions that can be undertaken to protect or improve water quality.
2. One cause of fecal coliform contamination of waters that results in closure of shellfishing waters is failing septic systems. The County will provide information to property owners on proper maintenance of septic tanks and will pursue federal and state funding to assist property owners in identifying, mitigating, and upgrading failing or failed septic systems.
3. Educate developers and property owners on methods for low impact development designed to protect or improve water quality.
4. Provide information to developers and property owners about steps that can be taken to reduce the volume and rate of stormwater runoff and the amount of pollutants that the runoff carries, including small scale stormwater controls distributed throughout a building site.
5. Educate and encourage actions to prevent erosion in construction areas (use appropriate best management practices for controlling sediment, re-grade or use structural controls on steep slopes, seed bare areas or apply a thick layer of leaves, wood chips, or other mulch in barren spots.)
6. Educate citizens on actions to prevent water pollution from pet waste.

Outreach/educational efforts will include use of the County's website, news releases, pamphlets, and seminars to respond to citizen inquiries.

Policy 5.2

Carteret County supports measures to address drainage concerns and protect water quality. Carteret County will pursue the following specific steps through changes to zoning, subdivision, and other land use ordinances:

1. Limit density in areas adjacent to water bodies, wetlands, and other sensitive areas. In particular, limit development density in areas adjacent to shellfishing waters.
2. Investigate and consider reducing impervious surface limits in areas adjacent to shellfishing waters.

3. Investigate and consider implementation of a stormwater ordinance, including controls for post-construction runoff for new development and redevelopment. The County will consider provisions for engineered solutions to stormwater problems in the ordinance.
4. Investigate and consider implementing local erosion and sedimentation controls for site disturbances of less than one acre (state regulations require an approved erosion and sedimentation control plan prior to disturbing areas greater than one acre).

Policy 5.3

Carteret County will encourage the use of Low Impact Development (LID) to control the volume, rate (velocity), and quality of stormwater into surface waters. This will be achieved through outreach/education throughout the County and changes to the subdivision ordinance. LID provisions of the subdivision ordinance will emphasize site design and address stormwater controls and rate of flow and volume characteristics of stormwater runoff. The County will take the following steps to reduce development impacts:

1. Encourage the use of bio-retention areas, rain gardens and other innovative practices (such as constructed wetlands, infiltration trenches/wells, level spreaders, forested or grassed buffers alongside streams and rivers, and reinforced grassy swales) to help manage and treat stormwater on site.
2. Encourage innovative construction of roadways using the minimum required pavement width to support projected traffic volumes, in compliance with the Subdivision Ordinance.
3. Encourage new road construction to avoid curbs from road designs to allow water from the roadway to sheet flow to adjacent vegetated shoulders.
4. Encourage actions to prevent erosion in construction areas (use appropriate best management practices for controlling sediment, re-grade or use structural controls on steep slopes, seed bare areas or apply a thick layer of leaves, wood chips, or other mulch in barren spots).
5. The County will continue to allow the use of pervious paving materials, where practical, and innovative development techniques to reduce impervious surfaces associated with new development or significant redevelopment. The County encourages the use of alternative types of paving surfaces on individual lots to decrease imperviousness. Porous surfaces include washed stone or gravel, paver blocks and bricks set in sand, grass pavers, and grid pavers. All development must be consistent with local ordinances.

Policy 5.4

Carteret County will seek to conserve its surface groundwater resources by supporting CAMA and N.C. Division of Water Quality stormwater run-off regulations. The County will coordinate local development activities involving chemical storage or underground storage tank installation/abandonment with Carteret County Emergency Management personnel and the Groundwater Section of the North Carolina Division of Water Quality (See 4.0 Natural and Man-made Hazard Areas).

Policy 5.5

To preserve conservation areas and avoid water quality impacts due to development, Carteret County encourages private acquisition of these areas by purchase or gift from property owners.

Policy 5.6

Carteret County discourages inappropriate disposal of hazardous wastes which may impact water quality, Carteret County will establish, promote, and facilitate periodic hazardous waste collections in areas throughout the County. This effort will be coordinated with the Coastal Regional Solid

Waste Management Authority (CRSWMA), NC Cooperative Extension Service, and NC Department of Agriculture.

Policy 5.7

Carteret County supports design of NC Department of Transportation projects to minimize destruction of wetlands and stormwater runoff into public trust waters.

Policy 5.8

Carteret County allows the construction of state-approved package treatment plants in areas not provided with central sewer service. The County supports more effective monitoring by the State of the operation of package treatment plants. If any package plants are approved by the State, Carteret County supports the requirement of a specific contingency plan specifying how ongoing private operation and maintenance of the plant will be provided, and detailing provisions for assumption of the plant into a public system should the private operation fail. Operational plans should also address elimination of package treatment plants when the system owner elects to connect to a central sewer system.

Policy 5.9

Carteret County does not impose additional regulations on agriculture and forestry operations beyond state and federal requirements. County water quality policies related to agriculture and forestry operations are as follows:

1. Carteret County agrees with and encourages use of the United States Department of Agriculture (USDA) Natural Resources Conservation Service BMP program to limit non-point source pollution of public trust waters. BMP's include vegetative, structural, and management systems that can improve the efficiency of farming operations. The County strongly encourages farmers and timber operators to employ accepted Best Management Practices to minimize the impact of these operations on water quality.
2. Carteret County recommends control of forestry runoff through implementation of forestry Best Management Practices as provided by the North Carolina Division of Forest Resources.
3. Carteret County discourages non-point source, as well as the direct point source discharge, of agricultural runoff into primary nursery areas, productive shellfishing waters, and ORW designated areas.

Policy 5.10

When sedimentation and erosion control and stormwater management plans are required by State regulations, Carteret County requires the submission of State-approved plans and proper State permits prior to granting final approval of subdivisions.

Policy 5.11

For all waterfront development, parking lots that meet local, state, and federal requirements will be allowed.

Policy 5.12

Carteret County will work with staff of the Soil and Water Conservation District to identify strategies to lessen existing drainage problems that impact water quality.

Policy 5.13

Carteret County encourages the use of monitored pilot projects using advanced technology and engineered solutions to treat stormwater runoff.

Policy 5.14

Carteret County encourages marinas to participate in the “Clean Marina” program. This is a voluntary program administered by the NC Division of Coastal Management and the NC Marine Trades Association to recognize marina operators who use management and operations techniques that exceed regulatory requirements.

Policy 5.15

Carteret County will pursue the development of a tree-protection ordinance that will provide benefits to the County, including limiting soil erosion and mitigating stormwater runoff.

6.0 Local Areas of Concern – Economic Development

Local Areas of Concern Planning Objective

Identify and address local concerns and issues regarding economic development of Carteret County

Discussion

Participants in the public participation process associated with the land use plan have indicated a desire that Carteret County take steps to foster sustainable economic growth to provide jobs and a better way of life for its citizens. Population trends show that young adults are leaving Carteret County in large numbers. This trend is thought in large part to be the result of limited good-paying employment opportunities for young adults. The Local Area of Concern Management Topic of the CRC's Land Use Planning Guidelines require local governments to identify those areas that are of particular local concern, but are not addressed elsewhere in the CRC's requirements. Carteret County has chosen Economic Development as its Local Area of Concern.

The planning process identified several economic development topics that are addressed in this policy section. These topics are listed below:

- The existing and future retiree population is considered to be an economic growth opportunity. The County will treat retirees as an industry.
- Carteret County contains a wealth of marine science operations that have contributed to its economy for decades. Included are Carteret Community College (Aquaculture Program), Duke University Marine Laboratory (Nicholas School of the Environment and Earth Sciences), National Oceanic and Atmospheric Administration, NC Aquarium at Pine Knoll Shores, NC Division of Marine Fisheries, NC Maritime Museum, NC Sea Grant, NC State University Center for Marine Sciences and Technology, and the University of North Carolina at Chapel Hill Institute of Marine Sciences. This marine sciences cluster creates good paying jobs for Carteret County. These agencies are members of the Marine Science and Education Partnership.
- The boat building industry is important to Carteret County. In 2004 there was approximately 33 boat building operations located along the Atlantic Intra-Coastal Waterway (AICW), including Jarrett Bay Marine Industrial Park.
- Carteret County recognizes the uniqueness and economic value of Cape Lookout National Seashore and Cedar Island Wildlife Refuge. The County acknowledges that heritage tourism helps communities preserve their unique character while helping to diversify the economy.
- Carteret County recognizes the relationship between a community's character and its economic well being. The County appreciates that attractive, well-planned communities attract visitors and high quality investment.
- Carteret County is concerned with the impacts from the Base Realignment and Closure (BRAC) 2005 that could potentially hurt the County's economy by closing military installations or reducing the level of military and associated civilian employment.

Policy 6.1

Carteret County encourages efforts to capitalize upon the potential economic impacts of the retiree population. In order to plan for this growth opportunity, the Carteret County Economic Development Council (EDC) will undertake an evaluation or study of the attractiveness of the County as a retirement destination. The study will compare Carteret County to other areas that compete for this

group and will identify the factors that attract retirees to Carteret County. Results of the evaluation will be used by the County to encourage cooperation among the County, municipalities, and private entities to develop “Senior Friendly Communities.”

Policy 6.2

Carteret County supports the Marine Science and Education Partnership and its goals to utilize existing and future assets in marine sciences to attract and create spin-off industries and new jobs. The County has adopted the following policies related to the Marine Science and Education Partnership:

1. In conjunction with Carteret Community College, the County supports a feasibility study, and if feasible a wet lab incubator facility for private research in marine sciences. The facility would be utilized for manufacturing activities associated with local marine science research.
2. Carteret County supports development of additional dormitories and offices for expansion activities of local marine science operations.

Policy 6.3

Carteret County will support the existing public/private partnership for expanding and growing the Jarrett Bay Marine Industrial Park. The County will support the following actions:

- Acquisition of additional properties contiguous to the existing site, including properties across the AICW.
- Extensions of water and sewer service and construction of new roads to serve the industrial park, including consideration for establishment of a Development Zone to fund infrastructure improvements.

Policy 6.4

Carteret County has adopted the following policies to preserve the uniqueness and economic value of the Down East Community:

1. In conjunction with the Economic Development Council, the County will initiate an educational program aimed at protecting those aspects of the Down East Community that make it unique and special.
2. In an effort to balance nature and the economy, the County will investigate measures to protect this “Gateway Community” and will support by resolution the designation of eastern Carteret County by the federal government as a Scenic Byway. The designation will promote the economic health of the area by attracting visitors to the area, including the national seashore and wildlife refuge.

Policy 6.5

Carteret County encourages efforts to enhance the relationship between its community character and economic vitality. The County will take the following steps:

1. The Carteret County EDC will undertake educational efforts to show how commercial development (such as chain stores, franchises, and big box retailers) can be made more attractive, efficient, profitable, and compatible with the identity or uniqueness of Carteret County.
2. Carteret County will consider changes to subdivision and other land use regulations to promote development that is consistent with the unique character of Carteret County. This includes allowing “conservation subdivisions” that maximize open spaces, recreational opportunities with water and greenways, and other low impact features as permitted uses, rather than conditional or special uses. Carteret County believes that these

developments, as opposed to conventional developments, have the potential to increase quality of life for residents, promote sense of community in rural areas, and provide benefits to developers in terms of reduced costs of development and increased marketability.

Policy 6.6

Carteret County will discourage the growth of additional strip commercial development in favor of mixed-use town centers. Mixed-use town centers include a mixture of commercial and residential facilities or development. To improve its attractiveness for retirees, tourists, and other citizens and residents, the County will investigate the following actions suggested by the Conservation Fund to transform existing strip shopping centers into mixed-use town centers:

- Limit the length of new commercial areas, but allow expansion in greater depth. This encourages walking between stores.
- Limit curb cuts and consolidate entrances along the road to a few main driveways. This relieves traffic back-ups, accidents, and the need for road widening projects.
- Require high quality parking lot landscaping.
- Build sidewalks and crosswalks to encourage walking between stores.
- Develop incentives for the use of attractive architecture, smaller signs, and multi-story buildings.
- Encourage a mix of other uses, including nearby housing, to begin to build a walkable neighborhood, rather than a driving-only strip district.
- Improve the attractiveness of the development by controlling signs, undergrounding utility wires, planting street trees, and improving the design of new buildings.

Policy 6.7

During the planning period, Carteret County will revisit the existing sign ordinance and consider amending it with the goal of visibly improving the County's appearance and maintaining its distinctive character.

Policy 6.8

Carteret County will encourage the use of conservation easements to preserve important scenic resources such as coastal wetlands, pocosins, swamps, farms and timberlands. The County will implement an outreach/educational program on the value of conservation easements and will provide technical assistance to property owners who wish to apply these to their property.

Policy 6.9

Carteret County will pursue the development of a tree-protection ordinance for the purpose of adding value to real estate and protecting and enhancing the County's aesthetic image (See 5.0 Water Quality).

Policy 6.10

In an effort to protect the existing military presence in Carteret County and its economic impact upon the area, the County will work to implement the recommendations of the Joint Land Use Study. In accordance with the study, Carteret County has recently implemented a zoning overlay adjacent and near Bogue Landing Field. (See 4.0 Natural and Man-made Hazards.)

Future Land Use Map

The CAMA Land Use Planning Guidelines require the development of a future land use map that depicts the application of the County's policies for growth and development and the desired land use and land development patterns. The map must also consider the constraints of natural systems and the County's infrastructure policies.

It is important to understand the purpose of the future land use map in the context of the full land use plan. The future land use map is an extension of the County's planning vision and is considered to be part of its planning goals. The future land use map contained in this plan is a "broad brush" depiction of the County's land use policies and desired growth patterns. The map portrays where the County wants growth to occur and the appropriate density of development and where land should be devoted to conservation or rural and other low-intensity uses. The map also shows the general location of resources the County wishes to protect or conserve. It is not as detailed as a zoning map and does not specify detailed locations of land uses such as residential, commercial, industrial, etc.

The future land use map is an important component of the land use plan that is used by local, state, and federal governments to assist in determining the consistency of projects located within the Carteret County planning jurisdiction. Due to its size and scale, the map is only a guide and is not to be substituted for on-site investigation.

The Land Use Planning Guidelines provide flexibility to Carteret County decision-makers in designing a land use classification framework that best addresses the County's needs. Previous updates of the Carteret County Land Use Plan incorporated a traditional land classification approach. Since this approach has been useful for the County, the current planning effort continues use of this system, with the following land classifications:

- Developed
- Limited transition
- Community
- Rural with services
- Rural
- Protected lands
- Conservation

Each of the future land use map categories and the policy intent of each class are described in the section below. The land classifications contained in this section and portrayed on the future land use map are intended to be general guidelines. However, due to the "broad brush" nature of the map, there may be small areas within the mapped categories where different densities may be appropriate, based on the County's land use plan policies and ordinances. Users of the land use plan should refer to both the future land use map and the text descriptions to determine land classifications. In the event of a conflict, text descriptions take precedence over mapped locations of the land classifications.

The densities must be accomplished through land use control ordinances and other tools for managing development that are described later in this section. Descriptions of the land classifications that apply in Carteret County are provided below.

DEVELOPED: Areas included in the developed land classification are currently urban in character, with only minimal undeveloped land remaining. Central water service is in place and, in some cases, individual private package treatment plants exist. Land uses include residential (single- and multi-family), commercial, institutional, industrial, and other urban land uses at high or moderate densities. In areas classified as developed, urban development pressures are expected to continue during the planning period. Redevelopment and infill development activities are also expected to continue.

Residential densities are allowed in excess of an average of three dwelling units per acre. In areas served by central water and sewer, minimum single-family residential lot size is 10,000 square feet or 4.4 dwelling units per acre. Areas served only by central water are subject to a minimum single-family residential lot size of 15,000 square feet or 2.9 dwelling units per acre.

For commercial development in zoned areas, minimum lot size is based on availability of services, as well as the zoning district designation. In general, properties served by either central water or sewer must be a minimum of 15,000 square feet (or 2.9 units per acre), while properties served by both water and sewer are allowed to be a minimum of 10,000 square feet (4.4 units per acre). The exceptions are in the B-3 and OP (office/professional) districts that require minimum 30,000 square feet lots (1.5 units per acre) and the B-1A district, which requires a minimum of one acre (1 unit per acre).

Areas of the County included in this category include the Town of Cedar Point, the unincorporated portion of Bogue Banks, and the Morehead City/Beaufort causeway and northeast portion of Radio Island.

LIMITED TRANSITION: The limited transition classification applies to areas that have some urban services, such as central water and individual private package treatment systems, but are suitable for lower densities than those associated with the developed class or are geographically remote from existing towns and municipalities. Areas included in the limited transition category will experience increasing development during the next five to ten years, with the bulk of development occurring in the western portion of the County and will require some municipal type services. Many areas in this category are found near valuable estuarine waters or other fragile natural systems.

The limited transition classification is intended for predominantly residential use, with minimum lot size based upon the availability of water and sewer services. However, some commercial, institutional, health care, and industrial development occurs in these areas, with the majority located along the major highways. Clustering or development associated with planned unit developments (PUDs) and low impact development discussed in the policy section of the land use plan may be appropriate.

Residential densities at an average of three units per acre or less are acceptable. For those areas with water and sewer service, lot sizes may be as small as 10,000 square feet (4.4 units per acre) but must average three dwelling units per acre or less. When only central water service is available, single-family residential lots may not be smaller than 15,000 square feet or 2.9 units per acre. For PUD developments, residential densities are no greater than 2.9 units per net acre.

For commercial development in zoned or other areas, minimum lot size is based on availability of services, as well as the zoning district. In general, minimum lot sizes for areas served by individual wells and septic tanks are 20,000 square feet (or 2.2 units per acre). Properties served by either central water or sewer must be a minimum of 15,000 square feet (2.9 units per acre), while properties

served by both water and sewer are allowed to be a minimum of 10,000 (4.4 units per acre). The exceptions are in the B-3 and OP (office/professional) districts that require minimum 30,000 square feet lots (1.5 units per acre), and the B-1A district, which requires parcels that are at least one acre in size (1 unit per acre).

This classification accommodates increasing development in the following areas:

- north of the Town of Beaufort along the N.C. 101 and U.S. 70 corridors
- NC 24 corridor from Morehead City to Cape Carteret, including the Town of Bogue
- NC 58 corridor north of Cape Carteret, including the Town of Peletier
- Harkers Island

All of the areas in this classification are currently served by central water service. Areas along NC 101 and US 70 north of Beaufort were recently provided with central water when Phase II of the North River Community System expansion was completed in 2006 at a cost of approximately \$2.9 million. Growth pressures along NC 101 are expected to increase with the provision of water service.

COMMUNITY: Areas included in the community classification are presently developed with mixed land uses at low densities. Uses include single-family residences, general and convenience stores, churches, public facilities, health care facilities, and other mixed land uses at low densities mainly along US 70 East and NC 12. Residential densities average two dwelling units per acre, with a minimum lot size of 20,000 square feet (2.2 units per acre). Individual wells and septic systems serve these areas.

Areas of Carteret County within this classification include the Down East communities of Sea Level, Stacy, Davis, Atlantic, Bettie, Otway, Smyrna, and Marshallberg. The areas are depicted on the Future Land Use Map and are described below:

Atlantic

Starting at Winston Drive and proceeding east on Highway 70 (becomes Seashore Drive) to the end of Morris Marina Road, then following Old Cedar Island Road east and ending at the west end of the Monroe Gaskill Memorial Bridge.

Bettie

Starting on the east end of the North River bridge on Highway 70 East and proceeding to the west end of the Ward Creek bridge.

Davis

Starting at the east end of the Smyrna Creek bridge on Highway 70 East and proceeding east to the intersection of Community Road, to include all of Community Road, then proceeding east on Highway 70 to the west end of the Oyster Creek bridge.

Marshallberg

Starting on Straits Road at Pigott Road, proceeding east to the intersection of Marshallberg Road, to include all of Marshallberg Road to the south, and Star Church Road from Marshallberg Road to the Sleepy Creek bridge to the east of Pigott Road. Then from the intersection of Straits Road proceeding north on Marshallberg Road to Lige Piner Road.

Otway

Starting at the east end of the Ward Creek bridge (from Bettie), proceeding east on Highway 70 to 0.4 miles past North River Farm Road (1175 Highway 70 Otway), also proceeding south on Harkers Island Road to the north end of the Harkers Island bridge.

Sea Level

Starting at the east end of the Salters Creek high rise bridge on Highway 70 East and proceeding east to the west of Winston Drive.

Smyrna

Starting at 0.3 miles west of the intersection of Marshallberg Road and Highway 70 (1175 Highway 70 Otway) and proceeding east on Highway 70 to the intersection of Marshallberg Road, then proceeding south on Marshallberg Road ending north of Middens Creek Drive. Also proceeding east on Highway 70 from Marshallberg Road to Stephen Willis Road.

Stacy

Starting at the east end of the Brett Bay bridge on Highway 70 East and proceeding east to include Stacy Loop Road and ending at the west end of the Salters Creek bridge.

RURAL WITH SERVICES: Areas included within the rural with services classification are developed at very low densities. Land uses include residential, public facilities, health care facilities, and scattered commercial and industrial uses. Central water service is provided or is currently being extended to the areas. Wastewater treatment is by individual septic tanks. Lot sizes are large and the provision of services should not disrupt the primary rural character of the landscape.

Development should remain low density in order to maintain a rural character. Residential densities average two dwelling units per acre, with a minimum lot size of 15,000 square feet. In planned unit developments, residential densities are no greater than 2.1 units per net acre. For commercial development in zoned areas, minimum lot size is based on availability of services, as well as the zoning district classification. In general, minimum lot sizes for areas served by individual wells and septic tanks are 20,000 square feet (2.2 units per acre). Properties served by either central water or sewer must be a minimum of 15,000 square feet (2.9 units per acre). The exceptions are in the B-3 and OP (office/professional) districts that require minimum 30,000 square feet lots, which calculates to 1.5 units per acre, plus the B-1A district which has a minimum one acre lot size (1 unit per acre).

Areas currently classified as rural with services are described as follows:

- Merrimon Road (SR 1300) north of US 70 to Laurel Road (SR 1163); Laurel Road west to NC 101; north on NC 101 to the Atlantic Intracoastal Waterway.
- NC 101 from the AICW west to the Craven County line
- South on Hardesty Loop Road (SR 1160) from the intersection of NC 101 to Hardesty Farm Road (SR 1158) to the Newport River
- Mill Creek Community [Old Winberry Road (SR 1155) from NC 101 to Mill Creek Road (SR 1154) and along Mill Creek Road east looping back to Old Winberry Road]

RURAL: Areas included within the rural classification include lands that are appropriate for or presently used for agriculture, forestry, mineral extraction, and other uses that should be located in a

relatively isolated and undeveloped area. The predominant land uses are agricultural and residential. However, public facilities, health care facilities, and scattered industrial and commercial uses are allowed. Areas classified as rural are usually served by individual wells and septic systems. No central water service is anticipated during the planning period.

Residential densities average two dwelling units per acre, with a minimum lot size of 20,000 square feet (2.2 units per acre). Extensive portions of the Down East area are classified as rural, as are areas in northwest Carteret County.

Within areas depicted as Conservation on the Future Land Use Map, there may be high-ground areas that are suitable for development. These high-ground areas shall be considered as Rural and development shall be consistent with densities and requirements contained in the Rural classification description, policies contained in the Land Use Plan, and applicable local, state, and federal regulations.

PROTECTED LANDS: This classification consists of lands that are not under Carteret County or municipal planning or regulatory jurisdiction. Included in this category are federal, state, local, and non-profit property and easements that are managed for conservation and open space. These designations permanently preclude development. Many of these areas are also designated as Significant Natural Heritage Areas (see Conservation classification). The protected lands category also includes lands under federal ownership used for military purposes.

These lands are unavailable for growth and development of the County. Consequently, the County has not designated appropriate uses, nor has the County planned for the provision of infrastructure to serve areas within the boundaries of protected lands. Due to the large area of the County comprised of Protected Lands, and the resulting impact on planning for growth and development of the County, these areas are shown on the Future Land Use Map.

The protected lands classification includes the following areas:

- Cape Lookout National Seashore
- Cedar Island National Wildlife Refuge
- Croatan National Forest
- Fort Macon State Park
- Salter Path Regional Beach Access
- Theodore Roosevelt Natural Area
- Wildlife Resources Commission (WRC) Cedar Island Access Area
- WRC Cedar Point-Swansboro Access Area
- WRC Sea Level Access Area
- Sea Level/Snug Harbor Park I
- Shackleford Banks National Wilderness
- John R. Jones Tract (wetlands)
- Hay Stack Marsh Preserve
- Hoop Hole Creek
- Walkers Millpond
- Jones Island Audubon Sanctuary
- North River Marshes

- WRC New Dump Island
- WRC Sand Bag Island
- Piney Island Bombing Range
- Bogue Landing Field

CONSERVATION CATEGORY: The primary purpose of this classification is to provide protection and long-term management of Carteret County’s significant and fragile natural systems. The classification also assists the County to mitigate risks associated with development in areas with significant hazards associated with wind, flooding, and erosion. The conservation classification is applied to areas that due to their unique, productive, limited, cultural, or natural features should either not be developed at all (preserved), or if developed, done so in a limited and cautious manner. Some development activities, as specified in the following sections, are allowed by Carteret County.

The conservation classification in Carteret County includes the following:

1. Areas of Environmental Concern (AECs) designated by the Coastal Resources Commission
2. Non-coastal wetlands (often referred to as “404,” “401,” or jurisdictional wetlands)
3. Significant Natural Heritage Areas.

Areas of Environmental Concern - AECs present in Carteret County include Estuarine and Ocean System AECs (public trust areas, estuarine waters, coastal shorelines, coastal wetlands) and Ocean Hazard System AECs (ocean erodible and high hazard flood areas). The general locations of AECs in Carteret County are described in Section 3 of this plan. Due to map size and scale, it is difficult to accurately map the exact location and extent of AECs. Precise determinations of locations must be determined on-site by permitting staff of the Division of Coastal Management. Uses allowed by Carteret County in AECs are those that are consistent with the State’s minimum use standards, except when the policies contained in this plan are more restrictive than State standards. Those policies were previously discussed in this section of the plan.

Non-coastal wetlands - Other areas included in the conservation classification include non-coastal wetlands (often referred to as “404” wetlands, “401” wetlands, or jurisdictional wetlands). Non-coastal wetlands are subject to regulation by the US Army Corps of Engineers and the NC Division of Water Quality. Non-coastal wetlands are further discussed in Section 3: Natural System Analysis.

The location of non-coastal wetlands is extensive in Carteret County. Carteret County accepts applicable state and federal regulations regarding development activity in non-coastal wetland areas, with the exception of Land Use Compatibility Policy 2.1.5 which exceeds state and federal standards. The Fragile Areas Map that shows general locations of areas classified as non-coastal wetlands is available for review at the Carteret County Planning and Development Office.

Significant Natural Heritage Areas – The conservation category also includes lands that support rare plant and animal species, rare or high quality natural communities, or other important ecological features as identified by the North Carolina Natural Heritage Program within the NC Department of Environment and Natural Resources. Significant Natural Heritage Areas are those Natural Heritage Areas that have particular biodiversity significance.

Significant Natural Heritage Areas should be primarily preserved in their natural state with only the development activities listed below allowed. Since the primary purpose of including these areas in the conservation classification is to provide protection, in as much as possible all allowed development activities should be done in such a manner as to protect the fragile nature of these sites. Carteret County allows the following uses in Significant Natural Heritage Areas:

- Public facilities and improvements to provide limited shoreline access;
- The use of areas by the U.S. Army Corps of Engineers as spoil disposal sites;
- Development of public facilities by the National Parks Service and the State of North Carolina. However, Carteret County requests the opportunity to review and comment on all plans for development of public facilities.
- Development of any sound or estuarine island that is consistent with the development of sound and estuarine islands policy included in this plan.
- Uses consistent with the policies in this plan.

Significant Natural Heritage Areas located wholly or in part in the Carteret County planning jurisdiction are shown in Table 8.1.

Table 8.1 Significant Natural Heritage Areas

Site Name	Site Code	Acres
INDIAN BEACH MARITIME FOREST	S.USNCHP*897	0.773
WHITE OAK RIVER MARSHES AND SWAMPS	S.USNCHP*1763	0.828
HUNTERS CREEK UPLAND FOREST	S.USNCHP*352	2.637
THEODORE ROOSEVELT STATE NATURAL AREA	S.USNCHP*612	3.153
HIBBS ROAD PINE RIDGES	S.USNCHP*965	3.425
SANDBAG ISLAND BIRD NESTING COLONY	S.USNCHP*622	8.913
NEW DUMP ISLAND BIRD NESTING COLONY	S.USNCHP*495	9.225
JONES ISLAND/WHITE OAK RIVER	S.USNCHP*1829	12.848
HOOP HOLE CREEK MARITIME FOREST	S.USNCHP*908	14.965
CORE SOUND (WAINWRIGHT) BIRD NESTING ISLANDS	S.USNCHP*205	17.716
SALTER PATH DUNES NATURAL AREA	S.USNCHP*620	27.738
OCRACOCK INLET BIRD NESTING ISLANDS	S.USNCHP*522	54.542
PHILLIPS AND ANNEX ISLANDS	S.USNCHP*553	82.658
HUGGINS/DUDLEY ISLAND	S.USNCHP*350	122.498
SEA GATE WOODS	S.USNCHP*644	124.704
NINE FOOT ROAD/ROBERTS ROAD LIMESINK PONDS	S.USNCHP*506	125.761
EMERALD ISLE/WEST END BEACH	S.USNCHP*260	131.53
RADIO ISLAND ACCESS SITE	S.USNCHP*2066	143.002
BRANDT ISLAND	S.USNCHP*110	197.504
MILLIS SWAMP ROAD PINEWOODS	S.USNCHP*966	346.192
CEDAR POINT/WHITE OAK RIVER MARSHES	S.USNCHP*776	347.201
HUNTERS CREEK FLATWOODS	S.USNCHP*2191	423.759
FORT MACON STATE PARK	S.USNCHP*286	440.818
HADNOT CREEK NATURAL AREA	S.USNCHP*321	456.527
HADNOT CREEK PONDS AND LONGLEAF PINE WOODS	S.USNCHP*322	584.839

CEDAR ISLAND/NORTH BAY BARRIER STRAND	S.USNCHP*1232	606.45
BROWNS ISLAND	S.USNCHP*819	671.804
WALKERS MILLPOND AND BLACK CREEK	S.USNCHP*762	688.244
PATSY POND LIMESINK COMPLEX	S.USSERO1*1107	712.004
NINE FOOT ROAD/BROAD CREEK PINEWOODS	S.USNCHP*507	732.58
RACHEL CARSON ESTUARINE RESEARCH RESERVE	S.USNCHP*585	1,022.593
MILLIS ROAD SAVANNAS AND POCOSINS	S.USNCHP*455	1,392.568
MASONTOWN POCOSIN	S.USNCHP*437	1,616.225
NORTH RIVER BRACKISH MARSHES	S.USNCHP*516	2,050.025
PRINGLE ROAD BAY RIMS	S.USNCHP*579	2,453.981
CEDAR ISLAND FLATWOODS AND BAYS	S.USNCHP*1231	3,094.074
PETTIFORD CREEK OPEN FLATWOODS	S.USNCHP*967	3,741.288
UNION POINT POCOSIN	S.USNCHP*738	4,374.643
BOGUE INLET/BOGUE SOUND BIRD NESTING ISLANDS	S.USNCHP*102	4,406.105
SHACKLEFORD BANKS	S.USNCHP*647	5,165.997
ATLANTIC NATURAL AREA	S.USNCHP*46	8,236.135
CEDAR ISLAND MARSHES	S.USNCHP*1230	1,0464.55
POCOSIN WILDERNESS	S.USNCHP*1233	1,1672.63
CHERRY POINT PINEY ISLAND	S.USNCHP*964	1,2160.48
CORE BANKS AND PORTSMOUTH ISLAND	S.USNCHP*204	2,0681.73
TOTAL		99,627.86

Areas designated as Conservation often overlap other land use classifications. Areas of Environmental Concern, non-coastal wetlands, and Significant Natural Heritage Areas are present in many areas generally classified as Developed, Limited Transition, Community, Rural, and Rural with Services. Due to their size and scale, these overlapping Conservation areas are not mapped on the Future Land Use Map. Their locations must be identified and confirmed in the field by the appropriate state or federal agency. In these situations, the density of the underlying land classification is applied. Development within these Conservation classified areas must also be consistent with applicable local, state, and federal regulations, including applicable Land Use Plan policies.

Within larger areas depicted as Conservation on the Future Land Use Map (predominantly wetland areas), there may be high-ground areas that are suitable for development. Development in these high-ground areas may be permitted in accordance with applicable local, state, and federal regulations. These high-ground areas are not mapped on the Future Land Use Map. In areas where there is no underlying land classification, these high ground areas shall be developed consistent with densities and requirements contained in the Rural classification found earlier in this section.

Allocation of Land to Various Land Use Categories

The land use planning guidelines require Carteret County to provide an analysis of the amount of land allocated to each of the land use classifications shown on the future land use map. This analysis must be compared with the land needs forecast contained in Section 4 Existing Land Use and Development. Tables 8.2, 8.3, and 8.4 provide details of this analysis.

Total acres developed, as shown in Tables 8.2 and 8.3, were determined by analyzing 2005 Carteret County tax parcel data. Using this data, the developed acres were identified and their locations

applied to the land use classifications as contained on the Future Land Use Map. Table 8.3 provides additional detail of the total acres developed in Table 8.2 and portrays the existing development by major land use type as well as land classification.

Table 8.2 Existing Development (2005) by Future Land Use Map Classifications

Future Land Use Classification	Total Acres Allocated per Land Use Classification	Total Acres Developed
Developed	2,125	588
Limited Transition	25,619	5,721
Community	3,416	1,176
Rural with Services	13,369	1,189
Rural	101,172	3,736
Protected Lands	107,504	147
Conservation	109,864	3,065
Totals	363,069	15,622

Table 8.3 Existing Development by Land Use Type and Future Land Use Classification

Future Land Use Classification	Residential (acres)	Commercial (acres)	Industrial (acres)	Institutional (acres)	Total Developed (acres)	Total Undeveloped (acres)	Total Acres
Developed	402	134	11	41	588	1,537	2,125
Limited Transition	5,326	241	10	144	5,721	19,898	25,619
Community	1,078	76	11	11	1,176	2,240	3,416
Rural with Services	1,131	19	5	34	1,189	12,180	13,369
Rural	3,538	153	0	45	3,736	97,436	101,172
Protected Lands	95	17	6	29	147	107,357	107,504
Conservation	2,830	188	<1	47	3,065	106,799	109,864
Totals	14,400	828	43	351	15,622	347,447	363,069

Additional acres needed for residential, commercial, industrial, and institutional uses as shown in Table 8.4 were projected by calculating needs at the existing percentages of developed uses as shown on Table 4.1 (residential = 92%, commercial = 5%, institutional = 2%, industrial = <1%). It is assumed that current development trends and patterns will continue at the same percentages existing at the time of plan development. It is important to note that the CRC's land use planning guidelines allow the projection of land needs to be increased by 50% to allow for unanticipated growth and to provide market flexibility. Accordingly, the numbers shown in Table 8.4 reflect this 50% increase.

As shown in Table 8.4, the amount of land needed for residential development (2,610 acres) is consistent with the estimated residential land needs provided in Table 4.2. Areas needed for future commercial, industrial, and institutional development are projected at currently existing ratios to residential areas. The Land Use Plan does not anticipate additional development in areas classified as Protected Lands or Conservation.

Table 8.4 Additional Land Area (acres) Needed for Development By Land Use Type Through 2025

Future Land Use Classification	Residential	Commercial	Industrial	Institutional	Total
Developed	146	8	1	5	160
Limited Transition	1,414	77	5	47	1,543
Community	79	5	1	5	90
Rural with Services	505	27	4	13	549
Rural	466	25	3	1	495
Protected Lands *	0	0	0	0	0
Conservation **	0	0	0	0	0
Total Acreage	2,610	142	14	71	2,837

Gross Versus Net Acreages

Areas projected to support future development are located in the Developed, Limited Transition, Community, Rural with Services, and Rural classifications of the Future Land Use Map. All of these classifications contain significant acreages that are not available (cannot support) development or are capable of supporting only limited development, thus reducing net land availability. Areas included in gross acreages, but that reduce net available land, include streets, utility easements, wetlands, farmland, privately-owned forests, and soils with severe limitations for septic use. Additionally, land use buffers and restrictions applied by CAMA regulations, the Division of Water Quality buffer rules in the Neuse River watershed, and the Carteret County Down East Conservation Overlay District (DECO) further limit net available land.

Detailed charts of estimates of unavailable acreage used to calculate net buildable acres are found in Appendix K to this plan. Methodologies used to prepare the estimates are also included in the appendix. Table 8.5 shows the preliminary estimate of net buildable acres for those classifications expected to support future development when readily identifiable and calculated areas are removed from the calculation of gross acreage for those land use classifications anticipated to experience development (see Tables K-1 and K-2 located in Appendix K).

Table 8.5 Estimated Net Buildable Acreage Available for Development

Future Land Use Classification	Total (Gross) Acres Allocated on FLUM	Total Acres Currently Developed	Estimated acres unavailable for development	Net Estimated Buildable Acres
Developed	2,125	588	778	759
Limited Transition	25,619	5,721	17,604	2,294
Community	3,416	1,176	1,820	420
Rural with Services	13,369	1,189	11,788	392
Rural	101,172	3,736	85,225	12,211
Total	145,701	12,410	117,215	16,076

The preliminary estimate of net buildable acres, or acreage available for development, as shown in Table 8.5 exceeds the estimate of future land needs (2,837 acres) as shown in Tables 4.2 and 4.3. However, additional factors further limit the area actually available for development within these acres. Therefore net buildable acres contained in Table 8.5 should be viewed as areas where the anticipated growth will occur, but not as projected built-out acres.

These additional limiting factors include state and federal land use regulations (such as CAMA, stormwater, and wetland rules) that restrict land use and/or densities and further reduce the net acreage density in Carteret County. Limiting factors also include restrictions associated with the prevalence of soils with severe limitations for septic and the general unavailability of central sewer service in Carteret County. State and federal rules limiting loss of wetlands to development also impact the net availability of buildable land.

Areas located outside the CAMA buffer but within the Coastal Shoreline AEC are normally limited to no more than 25% to 30% built-upon-areas (BUA), depending upon the classification of adjacent waters. (BUA includes all portions of a project that is covered by impervious or partially impervious surfaces, including, but not limited to, buildings, pavement and gravel areas such as roads, parking lots, and paths, and recreation areas such as tennis courts.)

Areas located within 575' of ORW waters, such as Western Bogue Sound, Back Sound, and Core Sound ORWs are normally restricted by CAMA regulations to 25% BUA. Areas adjacent estuarine waters not classified as ORWs are usually limited by CAMA regulations to no more than 30% BUA. Based on these regulations the amount of land available for development within the Coastal Shoreline AEC is reduced as shown in Tables K-1 and K-2 contained in Appendix K.

Future development is also subject to revised North Carolina coastal stormwater regulations. Stormwater regulations adopted by the Environmental Management Commission and implemented by the NC Division of Water Quality in 2008 further limit density, particularly in areas located within one-half mile of SA (shellfishing) waters. Projects classified as "low-density" by these rules are normally limited to 12 % BUA. Low-density development located more than one-half mile from shellfishing waters is normally limited to 24% BUA. In general the revised rules permit lower densities than allowed under previous regulations. The land use classifications suitable for future development contain more than 54,000 acres within one-half mile of shellfishing waters. Based on County tax parcel data, and as shown in Appendix K, approximately 17 percent of this sector is already developed and further limits available land. Higher density developments usually impose additional planning and construction costs which serve as a restraint to higher densities.

In areas subject to the Downeast Conservation Overlay District (DECO), Carteret County adds an additional 20' buffer in addition to the 30' CAMA buffer, thus further reducing net buildable land. Approximately 1,052 acres in these areas, in addition to the CAMA buffer area, are affected by the local regulation.

Significant areas within the future development classifications consist of soils with severe limitations for septic suitability. Within those land classifications anticipated to accommodate future development more than 125,000 acres contain soils with severe limitations for septic.

Additionally, 404 wetland jurisdictional rules usually limit wetland loss to ten percent. As such, of the estimated 32,187 acres of non-coastal wetlands within these classifications, approximately 28,968 acres should be considered unavailable for development due to the presence of wetlands. Coastal wetlands are estimated to total more than 13,000 acres in the future development classifications. State and federal regulations strictly limit (disallow) most residential, commercial, industrial, and institutional development of coastal wetlands.

At the scale of the Land Use Plan maps, most of these limitations for development cannot be readily mapped. Comparison of estimates of gross and net acreages must consider that many of the limiting

characteristics overlap and therefore complicate projections and calculations of available land. The gross acreages allocated to each of these classes indicate total land areas where development may occur, but do not represent projected build-out acreages.

Carteret County tax parcel data, GIS data collected by the Division of Coastal Management and provided to the County as part of the land use planning process, and data from other state agencies were assimilated to estimate the difference between gross and net acreages as shown on the Future Land Use Map. Detailed estimates of acres unavailable for development are found in Appendix K.

Cost of Required Community Facility Extensions

Water facility usage at build-out of the net available acres in the Carteret County planning jurisdiction has been projected based on existing land use patterns, total net acres of land allocated to each land classification on the Future Land Use Map, local records and experience, and industry standards for water use. A breakdown of usage by land classification can be found in Appendix J.

The development patterns shown on the future land use map required the extension of central water service along US 70 East and NC 101 to accommodate the limited transition and rural with services classifications. Improvements to the North River Community Water System were completed in 2006 to address this need.

Carteret County completed Phase I improvements to the North River Community Water System at an approximate cost of \$3.6 million in April 2004. Phase I provided water service to properties along NC 101, Old Winberry Road, Hardesty Farm Road, and parts of Hardesty Loop Road.

Phase II improvements were completed in early 2006 at a cost of \$2.9 million. Completion of this phase provided water service to the area generally described as the intersection of NC 101 and Tuttle's Grove Road to the Russells Creek Road community looping back to NC 101. Service was also extended along US 70 south of Merrimon Road.

Water service, for areas where this service is available, should be adequate to serve projected growth during the planning period.

Carteret County does not maintain a central sewer system and has no plans to establish one during the planning time addressed by this plan.

Insert Future Land Use Map A



Future Land Use Map B

SECTION 9: TOOLS FOR MANAGING DEVELOPMENT

This section of the land use plan provides Carteret County's strategy and action plan for implementing the policies contained in Section 8. The following components are included:

1. A description of the role of the plan and the status of its policies in Carteret County's land use and development decisions.
2. A description of Carteret County's current development management program, including policies, ordinances, codes, and regulations and how it will be employed to implement the County's land use and development policies.
3. Additional tools that will be used to implement the land use plan.
4. An action plan and schedule for implementing the plan.

Role and Status of Plan (or How to Use the Plan)

The Carteret County Land Use Plan provides a framework to guide local government officials and citizens as they make day-to-day and long-term decisions affecting development. The land use plan serves as an overall "blueprint" for development of Carteret County that when implemented, should result in the most suitable and appropriate use of the land and protections of the County's natural resources. In addition to serving as a guide to the overall development of Carteret County, the land use plan will be used by local, state, and federal officials in CAMA permitting decisions, project funding, and project consistency determinations.

The CAMA legislation provides that no permit for development in Areas of Environmental Concern (described in Section 3) may be issued unless the proposed development is consistent with the local land use plan. State and local permit officers who implement the CAMA permitting program will evaluate consistency of proposed development with the local government policies contained in the plan and will use this information in permit determinations. Policies in the plan will also affect other state and federal consistency and funding decisions.

In addition to its well-known use in CAMA permitting, an equally important use of the Carteret County Land Use Plan is the establishment of policy for both short-term and long-range planning. The plan will be used by the County's administrative staff and elected and appointed boards, as well as property owners and citizens. These uses are described below.

Short-term or day-to-day functions relate primarily to use of the plan by County staff, Planning Commission, and Board of Commissioners in the administration of land use and development ordinances and the public's understanding and use of these ordinances in development decisions affecting their own property.

Property owners and developers will use the policies contained in the land use plan to determine the types of land uses and development that is desired by the community. They will use this information to design or formulate development proposals (such as rezoning requests, special use permits, and subdivision approvals) that are consistent with the land use plan, thus increasing chances for approval. The land use plan will also provide information to property owners to help them understand the capabilities and limitations of their property.

Planning and Development staff will review development proposals in light of policies contained in the land use plan. Staff will identify policies that support proposals or that are in conflict, and will point out those policies that carry the most weight. This information will be used by staff to formulate an overall response or recommendation to the Planning Commission.

The general public will use the plan to obtain information that will help them better understand development proposals in developing a position in favor or opposition to proposed development.

The Planning Commission will make individual determinations of the consistency of development proposals with the land use plan policies. Planning Commission members will consider staff recommendations, but may choose to give different weights to the land use plan policies. The Planning Commission will then make recommendations to the Board of Commissioners for final approval of development requests.

The Board of Commissioners will consider the policy interpretations of the petitioner, Planning and Development staff, Planning Commission, and public comments by citizens in making its own policy interpretations and final decisions regarding proposals.

Long range functions of the land use plan include providing a policy and decision guide to the Carteret County Planning Commission and Board of Commissioners in developing new ordinances (tools) and amendments to existing ordinances to implement the land use and development policies. The land use plan itself is not a local ordinance or code.

Other long-range functions include guidance in planning public expenditures for developing new capital improvement projects, such as new roads, water system extensions, or sewer systems. Additionally, the land use plan will be used to guide development of plans for projects that support implementation of the plan. The Board of Commissioners will periodically review the implementation plan and make necessary adjustments based on changing community needs, budget considerations, and coordination with other projects.

Existing Development Program

Carteret County will use its existing development program as the basis for implementing the land use plan. The plans, ordinances, and policies that make up this program are listed below:

1. Plans

a. 1999 Carteret County Land Use Plan

The land use plan was adopted by Carteret County on September 13, 1999 and was certified by the Coastal Resources Commission on November 19, 1999. The plan is an update to previous land use plans prepared in 1967, 1978, 1985, and 1991. The Carteret County Planning and Development Department is responsible for coordinating the implementation of the land use plan.

b. Shoreline Access/ Parks and Recreation Comprehensive Master Plan

This document was completed in 1999 for use by the County for decision-making concerning parks and recreation, including public access facilities, through the year 2010. This plan replaced a

previous parks and recreation plan that was developed in 1974 and updated in 1985. The Carteret County Parks and Recreation Department and Board of Commissioners are responsible for implementing this plan.

c. Transportation Plan

In 1971, the North Carolina Department of Transportation prepared a transportation plan for portions of the county; however, the document was not adopted. In 1998 the Crystal Coast Thoroughfare Plan was developed. The Carteret County Board of Commissioners adopted the plan in November 2003 and has appointed a Transportation Committee to advise the Board on implementation.

d. Hazard Mitigation Plan

Carteret County adopted a Hazard Mitigation Plan on December 15, 2005. The purpose of the document is to outline the County's vulnerability to each of the hazards it faces and outline steps it can take to lessen or eliminate the impact of each of them. The Hazard Mitigation Plan lists supporting agencies that can be counted on for technical or fiscal help. The plan also documents the legal, political, technological, fiscal, and institutional capability that Carteret County has to implement mitigation measures within its boundaries.

A summary of hazard mitigation actions for Carteret County and the Towns of Bogue, Cape Carteret, Cedar Point, Newport, and Peletier as contained in the Hazard Mitigation Plan is included as Appendix G of the Land Use Plan.

2. Regulations and Ordinances

a. Carteret County Subdivision Regulations

The Carteret County Subdivision Regulations were adopted in 1961 and updated in 1983, 1986, and 2001. The 1986 and 2001 revisions involved a complete review and rewrite of the ordinance. The ordinance includes shoreline access requirements, Sedimentation and Erosion Control Plan approval requirements, standards of design to address nonconforming storm damaged structures, stormwater management permits, and requirements to note presence of 404 wetlands on subdivision plats.

The Carteret County Planning and Development Department staff and a Subdivision Technical Review Committee review subdivision plats to ensure consistency with the subdivision regulations. The technical review team is composed of representatives of all county departments affected by development. The plats are presented to the Planning Board for preliminary and final approval. Staff may administratively approve some final plats.

b. Carteret County Zoning Ordinance

The Carteret County Zoning Ordinance was originally adopted in 1963 and revised in 1980. By the early 1980s, the ordinance became very disjointed and difficult to implement. A thorough review and rewrite was undertaken and the new ordinance was adopted in 1990. One area of concern addressed was the incorporation of planned unit development regulations and a conditional use overlay. Amendments approved since the last update of the Land Use Plan included updates for

Planned Unit Developments (PUDs), allowed locations of docks and piers, added a recreational camper park district, provided for maximum building heights, and added temporary provisions following emergencies/disasters. Approximately thirty percent of the County's land area is zoned. All of the zoned areas are in western Carteret County and the central (Beaufort) area.

The Carteret County Planning and Development Department staff reviews all requests to amend the Zoning Ordinance, both for text and map amendments, and makes recommendations to the Planning Commission. The Planning Commission then considers the requests and makes recommendations to the Board of Commissioners for final action.

c. Carteret County Mobile Home Park and Camp Park Ordinance

The county's Mobile Home and Camp Park Ordinance was adopted in 1972 and revised in 1980 and 1997. The Carteret County Planning and Development Department staff reviews all plans for mobile home parks and camp parks to ensure consistency with the ordinance. The plans are subsequently reviewed and approved by the Carteret County Planning Commission. The Planning and Development staff enforces the ordinance to ensure compliance with the approved plans. Amendments since the last land use plan update addressed temporary RV use following an emergency or disaster and screened enclosures, sunrooms, and other enclosures in approved RV parks.

d. Group Housing Ordinance

This ordinance was adopted in 1981. The ordinance regulates the construction of condominiums, townhouses, rowhouses, and apartments. The Carteret County Planning and Development Department reviews all plans to ensure consistency with the ordinance. Site plans are reviewed and approved by the Carteret County Planning Commission.

e. North Carolina State Building, Electrical, Plumbing, and Mechanical Codes

The Carteret County Planning and Development staff enforces all state building codes to ensure compliance with minimum construction standards. Amendments to the North Carolina Building Code were included in 2002. Additional updates are expected in 2005.

f. Septic Tank Regulations

In 1974, the Carteret County Health Department adopted regulations to govern the design, construction, installation, cleaning, and usage of sewage disposal systems. The county's Environmental Health Department enforces the regulations.

g. National Flood Insurance Program/Flood Damage Prevention Ordinance

Carteret County began participation in the National Flood Insurance Program in 1980. A Flood Damage Prevention Ordinance was adopted that year. The program is administered locally by the Carteret County Planning and Development Department. In 2003 Carteret County amended the Flood Damage Prevention Ordinance to incorporate updated National Flood Insurance Program (NFIP) Maps. This action ensured compliance with the minimum NFIP criteria and NC law.

h. Carteret County Sign Ordinance

In 1985, the County adopted a sign ordinance to regulate the location, size, and appearance of signs in the unzoned areas of the County's planning jurisdiction. The County's Planning and Development staff enforces the ordinance. Signs in the zoned areas of the County are regulated by the Zoning Ordinance.

i. Junkyard Control Ordinance

In 1983, Carteret County adopted a Junkyard Control ordinance. The ordinance regulates the location and screening of yards. Enforcement is the responsibility of the Carteret County Sheriff's Department.

j. CAMA Minor Permit Program

Carteret County issues permits for all developments that meet the CAMA regulatory definition of a minor permit. Carteret County building inspectors serve as the local permit officers.

k. North Carolina Sedimentation Pollution Control Act

Carteret County does not enforce the 1983 Sedimentation Pollution Control Act. However, the County cooperates with the State to ensure that new developments meet the standards of the act. The act is designed to control siltation and surface stormwater runoff.

l. National Fire Prevention Regulations

The Carteret County Fire Marshal enforces these federal regulations, which are designed to increase the safety of public buildings and privately operated establishments.

m. "404" Wetlands Regulations

Carteret County does not have any regulatory authority for enforcement of the "404" wetlands program authorized by the Clean Water Act. Regulation is provided by the Regulatory Branch of the U.S. Army Corps of Engineers through the Wilmington, North Carolina district office. Anyone who undertakes work in a wetland area is required to obtain a permit. The County coordinates its local planning, and in particular its subdivision review and approval process, with the "404" program. The subdivision plat approval process requires that "404" wetland areas as delineated by the U.S. Army Corps of Engineers are identified on subdivision plats.

n. Airport Height Regulations for the Michael J. Smith Field

In 2001 Carteret County implemented Airport Height Regulations to protect approaches to the runways of the Michael J. Smith Field. The regulations regulate the height of structures and natural objects within the approaches to the airport. The regulations do not address uses in the vicinity of the airport. The Carteret County Planning and Development Department is responsible for implementing these regulations.

o. Down East Conservation Ordinance

In September 2006 Carteret County adopted an ordinance establishing comprehensive conservation regulations for certain areas of the Down East portion of the County. The purpose of the conservation

regulations is to protect the sensitive environmental areas located in the Down East area by reducing and controlling future surface water quality degradation to Outstanding Resource Waters and Areas of Environmental Concern.

This ordinance governs the development of land and structures in the Down East portion of the County, which includes the following areas: Straits Township, Harkers Island Township, Marshallberg Township, Smyrna Township, Davis Township, Stacy Township, Sea Level Township, Atlantic Township, and Cedar Island Township. The regulations do not apply to bona fide farms, although nonfarm uses on a farm are subject to the Ordinance.

The Down East Conservation Ordinance regulates building heights, density (lot sizes), and package treatment plants and implements a 50' buffer requirement for all building within Areas of Environmental Concern.

Table 9.1 Existing Management Development Program shows how each of these ordinances and plans are used to implement the land use plan.

The Carteret County Planning and Development Department is responsible for coordinating the administration of the development management program and the implementation of the land use plan. It is also responsible for administering all ordinances related to building and development in areas under County planning jurisdiction and for administering the State Building Code.

The Planning and Development Department works closely with other County departments, including the Parks and Recreation Department, Environmental Health, Emergency Management Services, and the Transportation Committee to coordinate management of development throughout the County.

**Table 9.1
Carteret County CAMA Land Use Plan
Existing Development Management Program**

<u>Ordinances And Policies</u>	<u>Public Access</u>	<u>Land Use Compatibility</u>	<u>Infrastructure Carrying Capacity</u>	<u>Natural and Manmade Hazard Areas</u>	<u>Water Quality</u>	<u>Economic Development</u>
Subdivision Regulations	requires water access for waterfront SD; major SD shall dedicate recreation/ open space or pay fee in lieu of land dedication	"unsuitable for septic" lots are identified on final plats; AECs identified	lot-by-lot septic evaluations; requires connection to public water supply where available; road construction standards; certain projects require NCDOT driveway permits	must comply with Bogue Field AICUZ Overlay District, CAMA regulations, Flood Damage Prevention Ordinance and Airport Height Regulations	Sedimentation & Erosion Control approval and Stormwater permit required for projects disturbing >1 acre; must comply with CAMA regulations/ amount of impervious surface; require 404 wetland delineation on final plat	
Zoning Ordinance	parking/ handicapped parking requirements for public parks	zoning districts protect against incompatible uses; limits density; dimensional requirements/ setbacks; screening/ buffering; signage requirements for commercial uses	certain projects require NCDOT driveway permits	Bogue Field AICUZ Overlay District requires disclosure, limits uses; development must comply with FDPO and CAMA regulations; buffering requirements for incompatible uses	development must comply with CAMA regulations; parking improvements may include innovative materials	provides protection for residential uses; specifications for commercial development
Flood Damage Prevention Ordinance (FDPO)	MHPs shall dedicate recreation/ open space or pay fee in lieu of land dedication	no solid/ hazardous waste/chemical storage facilities, or salvage yards allowed in Special Flood Hazard Areas	all new/ replacement water supply and sanitary sewage systems designed to minimize/ eliminate infiltration of flood waters	all new and substantially improved structures must meet flood ordinance standards; must comply with CAMA regulations	septic systems located and constructed to avoid impairment/ contamination from flooding	allows participation in FEMA's Community Rating System
Manufactured Home, Park and Recreational Vehicle Park Ordinance MH, MHP & RVP (ORD)	MHPs shall dedicate recreation/ open space or pay fee in lieu of land dedication	vegetative buffer required to screen uses within the MH/RV park from abutting properties	Option for RVP to provide central structure/toilet facilities; requires underground utilities for RVP; requires each MH/RV space to have water, sewer/ septic, electric connection; road construction standards	must comply with FDPO, CAMA regulations	proper grading and drainage required; Sedimentation & Erosion Control approval and Stormwater permit required for projects disturbing >1 acre; must comply with CAMA regulations	

Group Housing Ordinance	requires minimum acreage for group housing projects; limits density	EH septic evaluations/ State permitted WWTP; EH individual wells/ State permitted community well; requires road and parking plans within development	must comply with FDPO	Sedimentation & Erosion Control approval and Stormwater permit required for projects disturbing 1 acre; must comply with CAMA regulations	
North Carolina State Building Code	no septic/ sewage required for certain uses (miniwarehouse, boat storage); fire walls between mixed uses; distance requirements between buildings	specifications for connection to public water supply	require zone III, exposure D manufactured homes within 1,500 feet of Atlantic Ocean; wind load and V flood zone requirements		
Shoreline Access/Parks & Recreation Master Plan	depending on size/category of site, provides requirements for pedestrian, parking and boat access	depending on size/category of site, offers dune crossover pier, litter receptacle, public access sign, parking, restrooms, foot showers, concession stand, open space	must comply with CAMA regulations, FDPO, building codes	Sedimentation & Erosion Control approval and Stormwater permit required for projects disturbing >1 acre; must comply with CAMA regulations/ amount of impervious surface; parking improvements may include innovative materials	promotes local and tourism activity by providing public water access
Hazard Mitigation Plan (Draft)	must comply with CAMA regulations that limit impervious surface, provide buffer, acquisition/ elevation of primary residences; land use regulations	protect infrastructure from damages; building code enforcement	must comply with FDPO, floodplain management; discourage development in flood plains/ special Flood Hazard Areas	restoration of natural area to provide natural storage/flood peak attenuation	reduce public/ private damage costs, social/emotional/ economic disruption; better access to funding for mitigation projects; improve ability to implement post-disaster recovery projects
Sign Ordinance (for un-incorporated and unzoned areas of the County)	principal use/ on-premise signs allowed for businesses; limits location, spacing, height, area and setbacks of billboards (off-premise signs)				prevent adverse community appearance and protect character of the area/ natural resources
Airport Height Regulations	encourage land use patterns consistent with airport operations	preserve utility of airport	limits height and location of structures/ equipment and trees within approaches to airport		does not limit uses (only location and height)
Down East Conservation Ordinance	limits density & building height, requires waterfront buffers	regulates package treatment plants, prohibits discharge of waste into wetlands		limits density, prohibits discharge of waste into wetlands, requires buffers, regulates package treatment plants	provides protection to water quality, thus protecting natural attractiveness of area

New Tools

Implementation of the land use and development policies contained in the land use plan will require review and possible amendments to existing ordinances, as well as potential development of new tools (ordinances). These reviews and amendments/ordinances are listed below.

New Ordinances and Amendments

1. Consider amendments to Subdivision Regulations and Zoning Ordinance to:
 - minimize number of access points for new development along US 70, NC 24, NC 101, and NC 58.
 - implement a Highway 24 over-lay zone.
 - encourage development of mixed-use town centers rather than strip shopping centers.
2. Consider amendments to Subdivision Regulations to limit development densities in areas adjacent to shellfishing waters.
3. Consider amendments to Subdivision Regulations or adoption of a Stormwater Ordinance to:
 - reduce impervious surface limits in areas adjacent to shellfishing waters.
 - control post-construction runoff for new and redevelopment projects.
4. Consider amendments to Subdivision Ordinance to designate Low Impact Development practices or “conservation subdivisions” as allowed uses. These practices include the following:
 - Use of bio-retention areas, rain gardens, and other innovative practices to manage and treat stormwater on site.
 - Innovative construction of roadways.
 - Actions to prevent erosion in construction areas.
 - Use of alternative paving materials to reduce impervious surfaces.
 - Smaller lot sizes to retain/protect open spaces and valuable natural features within individual developments.
5. Revisit existing sign regulations and consider amendments to improve the County’s appearance.
6. Pursue the development of a tree-protection ordinance.
7. Consider implementing local erosion and sedimentation controls for site disturbances of less than one acre.

Projects and Plans

1. Update the 1999 Shoreline Access/Parks and Recreation Comprehensive Master Plan to develop a multi-year plan, including timelines, to expand and improve public water access throughout the County’s jurisdiction.
2. Revisit, and if necessary update, the existing fee structure to determine if existing fees in lieu of dedicated recreation areas provided for in the subdivision ordinance are adequate.

3. Pursue federal and state funding to assist property owners in identifying and repairing/upgrading faulty septic tanks.
4. Develop a countywide plan for the provision of central water service.
5. Coordinate facility planning with the Carteret County School System and municipalities.
6. Finalize and implement the Hazard Mitigation Plan.
7. Continue participation in the Hazard Mitigation Grant Program and Community Development Block Grant Program to fund elevation projects in flood prone areas.
8. Implement the Carteret County Emergency Operations Plan.
9. In coordination with the Town of Morehead City and the NC State Ports Authority, develop emergency operations procedures for the State Port.
10. Develop educational materials on:
 - waste reduction and recycling
 - value and use of conservation easements
11. Develop an inter-departmental water quality outreach/educational program geared towards elected and appointed officials, property owners, and citizens. The program will aim to provide information to protect or improve water quality. The following components will be included:
 - Specific “everyday” household actions that impact water quality
 - Proper maintenance of septic tanks
 - Alternative septic systems for soils that have severe limitations for conventional on-site systems
 - Construction techniques to prevent erosion
 - Construction techniques to reduce the volume and rate of stormwater runoff, including small scale stormwater controls
 - Prevention of water pollution from pet waste
12. Work with the Coastal Regional Solid Waste Management Authority (CRSWMA), establish periodic hazardous waste collections in areas throughout the County.
13. Work with staff of the Soil and Water Conservation District to identify strategies to lessen drainage problems.
14. In conjunction with Carteret Community College, undertake a feasibility study and subsequent development of a wet lab incubator facility.
15. Request the Carteret County Economic Development Council (EDC) to
 - undertake an evaluation or study of the attractiveness of the County as a retirement destination
 - initiate an educational program with the goals of a) protecting the uniqueness of the Down East community from unplanned development and b) showing how commercial development can be made more compatible with the uniqueness of the County
16. Support by resolution the designation of eastern Carteret County by the federal government as a “Scenic Byway.”

Action Plan and Schedule

Table 9.2 Action Plan and Schedule shows the implementation action plan for the Carteret County Land Use Plan. The action plan includes the priority actions that Carteret County will

undertake to implement the land use plan. The accompanying schedule specifies the fiscal year in which the actions are to be initiated and the year they will be completed. The schedule covers a 6-year period.

The proposed action plan and schedule is an ambitious work plan for the County and other organizations. Due to the multiple actions, it will be necessary to annually evaluate the work plan in terms of funding availability and changing priorities. It may be necessary to adjust the schedule to add or delete projects and to change completion dates.

Citizens will be involved in the implementation of the plan in much the same manner as with the development of the land use plan. All local government meetings involving land use plan implementation will be open to the public and public comment will be solicited. Updates to the County's website and local news releases will be used to keep the public informed as to implementation progress.

**Table 9.2
Carteret County CAMA Land Use Plan
Action Plan and Schedule
2005-2012**

<u>Action</u>	<u>Responsibility</u>	<u>2005-06</u>	<u>2006-07</u>	<u>2007-08</u>	<u>2008-09</u>	<u>2009-10</u>	<u>2010-11</u>
Review Subdivision Regulations <ul style="list-style-type: none"> • Highway Development • Densities, Impervious Surfaces, Run-off • Low Impact Development Highway 24 Corridor Study	Planning Commission Board of Commissioners/ Planning Commission		X	X			
Review Zoning Ordinance <ul style="list-style-type: none"> • Highway Development • Mixed use town centers 	Planning Commission		X	X			
Revisit sign regulations	Planning Commission		X	X			
Develop Tree Protection Ordinance	Planning Commission		X				
Update Shoreline Access/Parks & Recreation Comprehensive Master Plan	Parks and Recreation Dept.	X					

Study of County's attractiveness as a retirement location	Economic Development Council	X								
Education/outreach on protecting & enhancing the unique qualities of the Down East areas & County as a whole	Economic Development Council		X	X	X	X	X	X	X	X
Coordinate the development of water quality outreach/education program	Interdepartmental coordination by the Planning Dept with County Cooperative Ext. County Health Dept (Env. Health Division), Soil Conservation Service.	X	X	X	X	X	X	X	X	X

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Appendix A:

Carteret County Land Use Plan Update CITIZEN PARTICIPATION PLAN

Carteret County has received grant funding from the Department of Environment and Natural Resources (DENR) through the Local Government Planning and Management Grant Program to prepare an update to the existing CAMA Land Use Plan. A condition of the funding agreement requires the local government 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 NCAC7L .0506 (a)].

Development and implementation of a Citizen Participation Plan is the main resource to address these public participation requirements.

The Citizen Participation Plan provides the following opportunities:

- Sharing of information about the CAMA land use planning process between the local government, the State, and local residents
- Actively involving citizens in the process of identifying land use issues, identifying and evaluating options and the development of land use policies

Active citizen involvement in the development of the Land Use Plan is essential to the development of a quality plan and the success of its implementation. To provide information to the public and to encourage adequate citizen involvement, the following Citizen Participation Plan will be utilized by Carteret County.

Designation of Lead Planning Group: The Carteret County Board of Commissioners will designate the Carteret County Planning Commission to take the lead role in preparing the land use plan. The Planning Commission is composed of citizens that represent a broad cross-section of the population of Carteret County.

The Planning Commission will advise and coordinate plan development with the Carteret County Board of Commissioners and the County’s Planner-in-Charge Kathy B. Vinson. The Planning Commission will have the following duties and responsibilities:

- Provide overall direction for development of the Draft Land Use Plan
- Serve as a public contact for citizens to get information and to comment on the proposed plan
- Review technical planning materials for accuracy
- Assist with preparation of major plan elements, including identification of concerns and key planning issues, development of a community vision, goal development, preparation of draft policies and future land use map
- Assist with organization, management and facilitation of public participation events
- Help publicize public participation events in the community
- Recommend and present a draft land use plan to the Carteret County Board of Commissioners

The Planning Commission meets on the second Monday of each month at 6:00 PM in the Commissioners Meeting Room in the Carteret County Administration Building. Special meetings will be called as needed. All meetings of the Planning Commission that include

discussion or consideration of the Land Use Plan will include time for public comment from citizens. The County will keep a record of residents and property owners who speak at Land Use Plan meetings and other plan events and will retain any written comments that are received. The names of the speakers and written comments will be provided to the Division of Coastal Management (DCM) District Planner for use in draft plan review.

An initial orientation meeting with the Planning Commission is scheduled for Monday, October 13, 2003 at 6:00 PM.

Initial Public Information Meeting: The County's funding agreement with DENR requires a public information meeting(s) at the beginning of the process. The meeting will be an educational opportunity to inform the general public of the purpose of the CAMA Land Use Plan and to outline the County's public participation process. The meeting is tentatively scheduled for Monday, November 10, 2003 at 6:00 PM in the Commissioners Meeting Room in the Carteret County Administration Building.

The following items will be discussed at the Initial Public Information Meeting:

- Policy statements contained in the current (1999) Carteret County Land Use Plan
- Effect of current policies on the County
- Ways the current plan has been used to guide development during the last planning period
- An explanation of how Carteret County will report to the public and solicit the views of citizens in the development of updated policy statements
- The tools to be used to report on the planning process to the public during plan development
- A description of the methods and techniques that shall be used to solicit public participation and input from residents of the County and non-resident property owners, including the results that are expected from these methods and techniques
- The general meeting schedule for meetings of the Planning Commission to discuss the Land Use Plan

Opportunity for public comment will be provided during the Initial Public Information Meeting.

The County will give two public notices of the initial public information meeting. The first notice will be published in the Carteret County News-Times not less than 30 days before the meeting (no later than October 11, 2003). The second notice will be published not less than 10 days before the meeting (no later than October 31, 2003). In addition, the County will notify local members of the Coastal Resources Advisory Council (CRAC) and the DCM District Planner of the date, time, and place of the meeting.

Public participation tools: Carteret County will use several methods to solicit public participation in the Land Use Plan process. These methods were selected to assist in meeting the citizen participation objectives of education, listening, collaboration and support. The public participation tools include:

- A *community forum* near the beginning of the process will provide an opportunity for a wide range of residents and property owners to express their views on land use and development issues and the Land Use Plan. It will also provide an opportunity for citizens to learn about the views of others. This method will help meet the listening

and education goals of the citizen participation program. The community forum is not designed for debate, for negotiation or for decision-making.

- *Open houses* near the end of Phase I and Phase II will allow for public review of maps and policies. This will provide an opportunity for the community to express views and concerns about what is being proposed. It provides an informal setting for stakeholders to examine work products and to interact with members of the planning group. This technique will assist in meeting the listening and collaborative objectives of the citizen participation program.
- *Media releases* will keep the community informed and educated about the Land Use Plan process. Newspaper articles and public service announcements will be used to report planning progress, as well as to encourage participation in and support for the planning process.
- *Carteret County website updates* will be used to report planning progress to and solicit participation by the public, including non-resident property owners.

Tentative Meeting/Public Participation Schedule *

1. **September 8, 2003** – Carteret County Planning Commission discussion of the draft Citizen Participation Plan.
2. **October 6, 2003** – Carteret County Board of Commissioners approval of Citizen Participation Plan.
3. **October 13, 2003** – Orientation session with Planning Commission on the Land Use Plan process.
4. **November 10, 2003** - Initial Public Information Meeting.
5. **December 15, 2003** – Community Forum to receive input on issues, concerns and opportunities.
6. **January 2004** – Planning Commission review of existing and emerging conditions, key planning issues, vision statement for Carteret County.
7. **February 2004** – Planning Commission review of technical analysis of population, housing, and economy.
8. **March 2004** – Planning Commission review of technical analysis of natural systems and existing land use.
9. **April 2004** – Planning Commission review of technical analysis of stormwater and community facilities.
10. **May 2004** - Planning Commission review of land suitability and current plans and policies.
11. **July 2004** – Open House for citizens to review work completed on Land Use Plan and to express support or offer suggestions for change.
12. **September 2004** – Planning Commission identifies any needed changes to Citizen Participation Plan, begin development of Land Use Plan goals.
13. **October 2004** – Board of Commissioners approval of Phase II Citizen Participation Plan.
14. **October 2004** – Planning Commission finalizes Land Use Plan goals, begin development of draft policies.
15. **November 2004** – Planning Commission continues development of draft policies.
16. **December 2004** – Planning Commission continues development of draft policies.
17. **January 12, 2005** – Planning Commission completes development of draft policies.
18. **February 14, 2005** – Planning Commission reviews Future Land Use Map and Tools for Managing Development.
19. **February 28, 2005** - Open House for citizens to review and comment on work completed on Land Use Plan; Planning Commission reviews preliminary draft Land Use Plan and identifies any needed adjustments.
20. **March 7, 2005** – Staff presents information on planning process to Board of Commissioners.
21. **March 21, 2005** – Present draft Land Use Plan to Board of Commissioners.
22. **April 4, 2005** – Receive comments on draft Land Use Plan from Board of Commissioners.
23. **April 2005** – Planning Commission revisits draft Land Use Plan, if necessary based on Board of Commissioners’ comments.
24. **May 2005** – Final draft Land Use Plan submitted to Board of Commissioners, Planning Commission, and Division of Coastal Management.
25. **July 2005** – Review DCM comments on draft Land Use Plan and make necessary adjustments.
26. **September 2005** – Board of Commissioners hold required Public Adoption Hearing.

*Revised December 2004

APPENDIX B:

MAJOR ISSUES IDENTIFIED BY CITIZENS CARTERET COUNTY PLANNING COMMISSION MEETING COMMUNITY FORUM DECEMBER 15, 2003

Citizens in attendance were asked to comment on their likes/dislikes of Carteret County, areas where development should be directed, areas where development should be discouraged, other development issues/concerns and opportunities for improvement. At the conclusion of the meeting, each attendee was given five (5) voting dots to place next to the issues they felt most important.

The following comments were offered by citizens. The number of votes each item received is indicated in parenthesis following the comment.

- Water quality concerns (20)
- Stormwater concerns (15)
- Engineered solutions to stormwater problems should be allowed (13)
- Need to protect shellfishing and other waters (12)
- Maintain current policies in Land Use Plan which exceed state standards when appropriate for Carteret County (11)
- Balance economic development and natural resource protection (9)
- Preserve existing Down East lifestyle (8)
- Sensible growth (5)
- Customize policies for Carteret County (5)
- Enforce existing rules rather than add new rules (4)
- Some constraints on growth are needed (4)
- Control tax burden on residents (3)
- CAMA fits our area – state policies are sufficient (3)
- More stringent policies are sometimes needed (3)
- Need more public access to waterways (3)
- Target retirees as residents (3)
- Need smart growth (2)
- Provide rationale for rejected policies (2)
- Important to implement land use plan (2)
- Sensible, enforceable plan (2)
- Avoid increasing costs of building lots (2)
- Consider economic future of citizens (1)
- Regulations increase building costs (1)
- Opposed to impact fees (1)
- Grayden Paul Bridge – keep closed and turn area into a park (0)
- Change in policies which affect water quality is needed (0)
- Infrastructure needs to be considered (0)
- More stringent regulations are needed on the water (0)

APPENDIX C:

EXPLANATION OF DEMOGRAPHIC AND POPULATION STATISTICS

According to the US Census Bureau (USCB) decennial census statistics are considered to be 100% data based on short-form questionnaires that are sent to every person and housing unit and long-form questionnaires that are sampled of every 1 in 6 persons and households. All demographic data for the non-decennial years are estimates based on the latest decennial data. Population estimates are released annually by the US Census Bureau and are calculated by using predictor variables or administrative records that are available on an annual basis. Examples of some administrative records include: birth and death certificates, Internal Revenue Service data, Medicare enrollment records, Armed Forces data, etc. Growth rates based on changes in these administrative records are combined with the latest decennial census statistics to form the yearly demographic estimates (USCB 2003).

Population Estimates

U.S. Census Bureau annual demographic estimates are considered to be rough estimates based on administrative records easily available to Federal Demographers. State Demographers are privy to more detailed annual administrative records and may have access to local data from the Department of Motor Vehicles, housing permits, Medicare, birth and death data, and school enrollment data which can be analyzed to produce population estimates. The North Carolina Demographers Unit uses a similar methodology and any annual administrative records available to make their population estimates.

For example, in calculating the 2002 North Carolina county population estimates, the North Carolina State Demographer used the 2002 US Census Bureau population estimates (that were released in April 2003) as a starting base (North Carolina State Demographics Unit 2003). For this 2002 estimate, the U.S. Census Bureau assumed that the institutional population for each North Carolina county would be the same as that of 2001 (NCSDU 2003). Available data from current state Medicare enrollees and all North Carolina military bases and institutions proved that assumption invalid, so the data was used to adjust the US Census Bureau's original estimate (NCSDU 2003). Due to the fact the North Carolina Demographer has access to more detailed administrative records, demographic data released by the state may differ slightly from US Census Bureau data estimates and can be considered to be more accurate.

Population Projections

A population projection differs from an estimate in that it relies on certain assumptions about long-term trends in data that are not yet available, while an estimate is based on data from predictor variables or administrative records that are available for the estimate year. Recent population projections were released in June 2002 by the North Carolina Office of State Budget and Management for all geography types in the state. The base decade used to determine the forecasting trend for the population projections is 1990-2000 (NCSDU 2002). The most fundamental base year for these projections is the 2000 US Census Bureau's modified age, race and sex file (NCSDU 2002). The most basic technique used to project the population projections for age, race and sex is to combine the trends of birth and death data, migration data and institutional population (NCSDU 2002). It is important to note that it was assumed all institutional population would remain constant after 2000 (NCSDU 2002).

Housing, Income, Employment and Economic Statistics

Statistics regarding housing, income, employment and economics are not generated by the North Carolina State Demographics Unit. They are listed on the North Carolina State Demographics Internet site for convenience, but are generated by federal agencies including the US Census Bureau and the Bureau of Economic Analysis. All data of this type included in this report has been checked for consistency between the federal agencies and the North Carolina State Demographics Unit. Any discrepancies have been noted.

Appendix D:

Policies That Exceed State and Federal Minimum Standards for Development in AECs and Fragile Areas

Policy 2.1.2 When new navigational channels and canals must be constructed through coastal wetlands, Carteret County requires replacement of lost wetland areas at a 1:1 ratio.

Policy 2.1.5 Carteret County opposes the installation of package treatment plants and septic tanks or discharge of any wastewater in coastal or freshwater wetlands.

Policy 2.4.2 Carteret County will not allow floating structures in any public trust waters. (A floating structure is defined as any structure, not a boat, supported by means of floatation, designed to be used without a permanent foundation, which is used or intended for human habitation or commerce. A structure will be considered a floating structure when it is inhabited or used for commercial purposes for more than thirty days in any one location. A boat may be deemed a floating structure when its means of propulsion has been removed or rendered inoperative and it contains at least 200 square feet of living space area.)

Appendix E: Definitions of “Active Terms” Used in Policies

Consider: Examine or evaluate and discuss a possibility or options

Continue: Follow past and present procedures.

Discourage: Show opposition to, seek to check or hinder by disfavoring.

Encourage: Foster the desired goal through County policies and staff assistance. May include financial assistance.

Implement: Take action to guide the accomplishment of the plan recommendations.

Provide: Take the lead role by supplying the needed staff support or information to achieve the desired goal.

Recommend: To advise or counsel in favor of.

Shall: Indicates a mandatory requirement or action that *must* occur.

Should: An officially adopted course or method of action intended to be followed to implement the County’s goals. Though not as mandatory as “shall,” it is an obligatory course of action unless clear reasons can be identified that an exception is warranted.

Support: Supply the needed staff support and policies to achieve the desired goal. May include financial assistance.

Appendix F:

Required Policy Analysis

The CRC's Land Use Planning Guidelines require Carteret County to provide two types of analysis of local land use and development policies and the future land use map. The first required analysis is of the consistency of the land use plan with the CRC's Management Topics. The second required analysis is of the impact of the local policies on the Management Topics. Both of these analyses are contained in this appendix to the plan.

Consistency of Plan with Management Topics

1. Consistency between goals and management topics – direction of policies.

Public access. Access policies contained in the plan are intended to provide “conveniently located access for residents and visitors to Carteret County’s public trust waters for a range of activities.” The policies provide for development of additional estuarine and ocean shoreline public access facilities to serve all areas of the County and provide access opportunities for all waterfront property owners. In particular, the policies provide for additional public access along major water bodies, capitalize on existing ramps and access sites (including those that have traditionally existed at the County’s bridge sites), and establish a system of launching facilities for sailboats, canoes, and kayaks. The policies provide for continued public access along nourished beaches on Bogue Banks, address the elimination of barriers for universal access, and provide for continued maintenance of Harbors of Refuge. The County intends to update its Shoreline Access/Parks and Recreation Comprehensive Master Plan to incorporate these policies. The update will provide a multi-year plan, including timelines, to serve as a guide to the location of improved public access.

Land use compatibility. The Carteret County goals are “land use and development patterns that are consistent with the capabilities and limitations of the County’s natural systems, preserve the area’s heritage and life styles, and promote sustainable growth.” The policies support management of the County’s public trust waters, wetlands, and coastal shoreline areas to protect water quality, conserve valuable coastal resources, and maintain the aesthetics of the waterfront. The plan recognizes the value of non-coastal wetlands in managing stormwater runoff and protecting water quality and classifies them as conservation to encourage compatible development. The policies support the use of “living shorelines” or vegetated marshes and small stone sills to prevent erosion, and believe that these may be better alternatives than conventional hard bulkheads. Policies promote educational efforts on the “cause and effect” relationship of everyday household practices, construction techniques, and land development principles to protect and improve water quality.

Infrastructure carrying capacity. The plan’s goal focuses on development, extension, and upgrade of infrastructure systems (such as water, wastewater, transportation, natural gas, and telecommunications) that encourage and promote sustainable industries and job opportunities, as well as orderly residential development. Policies address central water service extension into areas classified as developed, limited transition, and rural with services. Policies support the development of central sewer service in unincorporated areas of the County (while recognizing the difficulties associated with this effort) and educational efforts on maintenance of septic tanks and alternative septic systems. Policies

support the use of advanced technology to treat wastewater, including the use of constructed wetlands (Policy 3.3). However, if a state or federal permitting agency identifies a constructed wetland as a coastal or freshwater wetland, Policy 2.1.5 shall apply. Policy 2.1.5 prohibits the discharge of wastewater into areas classified as coastal or freshwater wetlands.

Transportation policies address issues associated with US 70, NC 24, NC 58, and NC 101 and address the need for improved safety, regional accessibility, and traffic flow. Transportation policies include development of a Highway 24 corridor management study and requirements for safe access by new development to the County's major corridors. Other policies address the Michael J. Smith Field, the NC State Port Terminal, fiber-optic cabling, and natural gas extensions.

Natural and man-made hazards. The plan's goal is to "minimize threats to life, property, and natural resources resulting from development located in or adjacent to natural and man-made hazard areas." The plan supports continued enforcement of the North Carolina State Building Code, Flood Damage Prevention Ordinance and CAMA use standards for development in flood hazard areas and participation in the National Flood Insurance Program to maintain or improve the County's Community Rating System (CRS) score. To mitigate risks for older properties and to keep communities intact, policies support elevation of residences and other structures above the base flood elevation through funding assistance from the Hazard Mitigation Grant Program and the Community Development Grant Program.

Policies in the plan support measures to mitigate the impacts of aircraft accident potential and elevated noise levels associated with operations at Marine Corps Auxiliary Landing Field (MCALF) Bogue in the western portion of the County. The plan also supports local beach nourishment programs, including the Carteret County Shore Protection Program.

Water quality. The plan's goal for coastal waters is to maintain, protect, and where possible, enhance water quality, including shellfishing waters. Policies include providing education for county officials, developers, property owners, and residents on impacts of everyday activities and construction and land development practices on water quality. Additional policies include undertaking more study and consideration of reducing impervious surfaces and building density and implementation of stormwater and erosion controls along the County's waterfront. Policies also encourage the use of monitored pilot projects using advanced technology and engineered solutions to treat stormwater runoff.

Plan policies also support Low Impact Development (LID), an innovative, ecologically friendly approach to land development and stormwater management that seeks to mitigate development impacts on land, water, and air. Existing state regulatory programs, such as CAMA use standards and the stormwater runoff regulations, and Best Management Practices (BMPs) of the US Department of Agriculture Natural Resources Conservation Service and the NC Division of Forest Resources are also incorporated into plan policies.

Local concerns – economic development. Carteret County selected economic development as the local area of concern to address in the land use plan. The goal is the development and maintenance of a "quality of life that attracts and retains young adults, retirees, the military community, and other groups that contribute to the County's economic diversity and well being." Policies include capitalizing upon the area's

attractiveness as a retirement location and the related economic impacts. Policies also support the Marine Sciences and Education Partnership and its efforts to attract and create spin-off industries and new jobs and the expansion of Jarrett Bay Marine Industrial Park.

Policies in the plan aim to improve the County's appearance and maintain its distinctive character. These include recognition of the uniqueness of the Down East Community and support for the development of heritage tourism, including the designation of this area by the federal government as a Scenic Byway. Policies include educational efforts and amendments to land use ordinances, such as the existing sign ordinance, to promote development that is consistent with the unique character of the County. Policies in this section also include implementation of the East Carolina Joint Land Use Study that addressed impacts of military activities in Bogue Landing Field.

2. Consistency between future land use map and land use plan requirements.

A. Residential density.

The residential densities depicted on the future land use map are consistent with the capabilities of Carteret County's natural systems. Typical densities are shown below:

<u>Classification</u>	<u>Estimated density</u>
Developed	4.4 units/acre
Limited Transition	3.5 units/acre
Community	2.2 units/acre
Rural with Services	2.5 units/acre
Rural	2.2 units/acre
Protected Lands	N/A
Conservation	N/A*

*AECs are not mapped on the future land use map, although a note is provided on the map that precise locations must be identified in the field by the appropriate permitting agency. AECs, non-coastal wetlands, and significant natural heritage areas generally overlay other land classifications, and would be subject to the overall density of the general classification, as well as regulations of permitting agencies.

B. Comparison of environmental composite map, land suitability map, and future land use map.

There are no material differences between the development patterns shown on the future land use map and the development constraints shown on the environmental composite map and the land suitability patterns shown on the land suitability map. All of the lower capability areas shown on the composite map and the lower suitability areas shown on the land suitability map are classified as Conservation or as Protected Lands.

C. Comparison of land classifications that depend on central water service and planned water service extensions.

The Developed, Limited Transition, and Rural with Services classifications depend on the provision of central water service. Water service is available in areas classified as Developed. Except for the NC 101 and US 70 corridors, all areas classified as Limited Transition are served by central water service. Areas along NC 101 and US

70 north of Beaufort will be provided with central water when Phase II of the North River Community System expansion is completed, anticipated to be in the summer of 2005. Central water service is provided or is currently being extended (at the time of plan preparation) to all areas classified as Rural with Services.

The provision of water service to these classifications is consistent with policies contained in Section 8 of the land use plan.

D. Natural Hazards

Policies for land uses in flood hazard areas and ocean hazard AECs adopt the CAMA minimum use standards. The use standards ensure that risks to life and property in these areas are reasonable. Carteret County will continue to enforce existing zoning and flood damage prevention ordinances and the state building code to mitigate risks. The County will implement and regularly update the Hazard Mitigation Plan and the Emergency Operations Plan.

The major evacuation infrastructure for Carteret County is US 70, NC 24, NC 101, and NC 58. A major upgrade of NC 24 was completed in 2002, which provides a link to Interstate 40.

Policies in the land use plan support improved highway safety and traffic flow on these highways, and identify transportation improvement priorities for the County. The transportation priorities, identified by the Carteret County Transportation Committee, include improving traffic flow on US 70 (including construction of bypasses at Clayton, Goldsboro, Kinston, and Havelock) and construction of the Northern Bypass from Beaufort/Port of Morehead City to the Havelock Bypass. Other priorities include widening and improvement of the Newport River Bridge on US 70 from Morehead City to the Beaufort Causeway, conducting a feasibility study for a third bridge from the mainland to Bogue Banks, and widening of NC 58 from Emerald Isle to Atlantic Beach. Completion of these transportation priorities will improve storm and hurricane evacuation capability. The Transportation Committee will continue to consider traffic handling capacity in emergencies and evacuations in its recommendations for transportation improvements.

E. Protection of shellfishing waters.

AECs (including coastal wetlands, estuarine waters, public trust areas, and coastal shorelines) and non-coastal wetlands are classified by Carteret County as Conservation. Uses allowed by the CRC's regulations for AECs are limited to those that are compatible with natural characteristics and that have acceptable impacts. Additional state regulatory programs (stormwater and erosion and sedimentation control) and federal (US Army Corps of Engineers) wetland regulations also provide protection to shellfishing waters. Carteret County concurs with these standards, except that some policies in this plan affecting wetland areas and public trust waters are more stringent than state and federal standards.

Residential land use patterns shown on the Future Land Use Map are not high density. These densities provide limits to non-point pollution, which is a major factor for impaired shellfishing waters. Policy statements included in the land use plan reflect the commitment of the Board of Commissioners to investigate and consider development of additional land use controls to protect shellfishing waters. These controls include implementation of a local stormwater ordinance and amendments to

existing ordinances to reduce impervious surface limits and densities in areas adjacent to shellfishing waters, control post-construction runoff, and implement local erosion and sedimentation controls for site disturbances of less than one acre.

Additional policies in the plan establish educational programs on the “cause and effect” relationship of everyday activities, construction techniques, and development practices that affect water quality. Policies in the plan also encourage use of Low Impact Development to control the rate of flow and volume characteristics of stormwater runoff into shellfishing waters.

Analysis of the Impact of Policies on Management Topics

The planning guidelines require Carteret County to analyze the impacts of the land use and development policies on the CRC’s Management Topics. This analysis must include both positive and negative impacts. If negative impacts are identified, the plan must include policies to mitigate the negative impacts.

The impacts of the Carteret County land use plan policies are shown on the following Table-. Analysis of Impacts of Carteret County Policies on Management Topics. Based on this analysis, all of the policies have either a beneficial or neutral impact on the Management Topics. Therefore no mitigation policies are required.

Analysis of Impacts of Carteret County Policies on Management Topics

<u>Management Topics</u>	<u>Public Access</u>	<u>Land Use Compatibility</u>	<u>Infrastructure Carrying Capacity</u>	<u>Natural Hazard Areas</u>	<u>Water Quality</u>	<u>Local Concerns (Economic Development)</u>
	<ul style="list-style-type: none"> More planned access locations Upgrades to existing access locations 	<ul style="list-style-type: none"> Policies protect natural systems Policies allow economic development 	<ul style="list-style-type: none"> Water & other key facilities & services available in required locations at adequate capacities to support planned growth & development patterns 	<ul style="list-style-type: none"> Policies have location, density, & intensity criteria to help new development & redevelopment avoid or withstand hazards 	<ul style="list-style-type: none"> Land use & development criteria & measures that abate impacts that degrade water quality 	<ul style="list-style-type: none"> Policies support Carteret County economic development goals
1.1.1	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.1.2	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.1.3	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.1.4	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.2	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.3	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.4.1	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.4.2	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.4.3	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.4.4	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.4.5	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.4.6	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
1.5	Beneficial	Neutral	Neutral	Beneficial	Neutral	Beneficial
1.6	Beneficial	Neutral	Neutral	Neutral	Neutral	Beneficial
2.1.1	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
2.1.2	Neutral	Beneficial	Neutral	Neutral	Beneficial	Neutral
2.1.3	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
2.1.4	Neutral	Beneficial	Neutral	Neutral	Neutral	Neutral
2.1.5	Neutral	Beneficial	Neutral	Neutral	Beneficial	Neutral
2.2.1	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
2.2.2	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
2.2.3	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
2.3	Neutral	Beneficial	Neutral	Neutral	Neutral	Neutral
2.4.1	Neutral	Beneficial	Neutral	Neutral	Beneficial	Neutral

	<u>Public Access</u>	<u>Land Use Compatibility</u>	<u>Infrastructure Carrying Capacity</u>	<u>Natural Hazard Areas</u>	<u>Water Quality</u>	<u>Economic Development</u>
3.17	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
3.18	Neutral	Neutral	Neutral	Neutral	Neutral	Beneficial
4.1.1	Neutral	Beneficial	Neutral	Beneficial	Neutral	Neutral
4.1.2	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
4.1.3	Neutral	Beneficial	Neutral	Beneficial	Neutral	Neutral
4.1.4	Neutral	Beneficial	Neutral	Beneficial	Neutral	Neutral
4.1.5	Neutral	Beneficial	Beneficial	Beneficial	Neutral	Neutral
4.1.6	Neutral	Neutral	Neutral	Beneficial	Neutral	Neutral
4.2	Neutral	Neutral	Neutral	Beneficial	Neutral	Neutral
4.3	Neutral	Neutral	Neutral	Beneficial	Neutral	Neutral
4.4	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
4.5	Neutral	Neutral	Neutral	Beneficial	Neutral	Neutral
4.6.1	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
4.6.2	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
4.7.1	Neutral	Beneficial	Neutral	Neutral	Neutral	Neutral
4.7.2	Neutral	Beneficial	Neutral	Neutral	Neutral	Neutral
4.7.3	Neutral	Beneficial	Neutral	Neutral	Neutral	Neutral
4.7.4	Neutral	Beneficial	Neutral	Neutral	Neutral	Neutral
4.7.5	Neutral	Beneficial	Neutral	Neutral	Neutral	Neutral
4.8	Neutral	Beneficial	Neutral	Neutral	Neutral	Neutral
4.9	Neutral	Beneficial	Neutral	Beneficial	Neutral	Neutral
4.10	Neutral	Beneficial	Neutral	Neutral	Neutral	Neutral
4.11	Neutral	Beneficial	Neutral	Neutral	Neutral	Neutral
4.12	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
4.13.1	Beneficial	Neutral	Neutral	Beneficial	Neutral	Neutral
4.13.2	Beneficial	Neutral	Neutral	Beneficial	Neutral	Neutral
5.1.1	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
5.1.2	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
5.1.3	Neutral	Beneficial	Neutral	Neutral	Beneficial	Neutral
5.1.4	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
5.1.5	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral

	<u>Public Access</u>	<u>Land Use Compatibility</u>	<u>Infrastructure Carrying Capacity</u>	<u>Natural Hazard Areas</u>	<u>Water Quality</u>	<u>Economic Development</u>
5.1.6	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
5.2.1	Neutral	Beneficial	Neutral	Neutral	Beneficial	Neutral
5.2.2	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
5.2.3	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
5.2.4	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
5.3.1	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
5.3.2	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
5.3.3	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
5.3.4	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
5.3.5	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
5.4	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
5.5	Neutral	Beneficial	Neutral	Neutral	Beneficial	Neutral
5.6	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
5.7	Neutral	Neutral	Beneficial	Neutral	Beneficial	Neutral
5.8	Neutral	Neutral	Beneficial	Neutral	Beneficial	Neutral
5.9.1	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
5.9.2	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
5.9.3	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
5.10	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
5.11	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
5.12	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
5.13	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
5.14	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
5.15	Neutral	Neutral	Neutral	Neutral	Beneficial	Neutral
6.1	Neutral	Neutral	Neutral	Neutral	Neutral	Beneficial
6.2.1	Neutral	Neutral	Neutral	Neutral	Neutral	Beneficial
6.2.2	Neutral	Neutral	Neutral	Neutral	Neutral	Beneficial
6.3	Neutral	Neutral	Beneficial	Neutral	Neutral	Beneficial
6.4.1	Neutral	Beneficial	Neutral	Neutral	Neutral	Beneficial
6.4.2	Neutral	Neutral	Neutral	Neutral	Neutral	Beneficial
6.5.1	Neutral	Beneficial	Neutral	Neutral	Neutral	Beneficial

	<u>Public Access</u>	<u>Land Use Compatibility</u>	<u>Infrastructure Carrying Capacity</u>	<u>Natural Hazard Areas</u>	<u>Water Quality</u>	<u>Economic Development</u>
6.5.2	Beneficial	Beneficial	Neutral	Neutral	Neutral	Beneficial
6.6	Neutral	Beneficial	Neutral	Neutral	Neutral	Beneficial
6.7	Neutral	Neutral	Neutral	Neutral	Neutral	Beneficial
6.8	Neutral	Beneficial	Neutral	Neutral	Neutral	Beneficial
6.9	Neutral	Neutral	Neutral	Neutral	Neutral	Beneficial
6.10	Neutral	Beneficial	Neutral	Neutral	Neutral	Beneficial

Appendix G:

Maps Used in Plan Preparation

The land use plan makes reference to the maps listed below that were produced as part of the land use planning process. The maps are available for review in the Carteret County Planning and Development Office.

- Water and Wastewater Systems
- Transportation Systems
- Areas of Environmental Concern
- Soil Suitability for Septic System
- Water Quality Classes and Subbasins
- Flood Hazard Areas
- Fragile Areas
- Shellfishing Classifications
- Primary Nursery Areas

Appendix H: Carteret County & Towns of Bogue, Cape Carteret, Cedar Point, Newport and Peletier Mitigation Action Plan

<u>Action #</u>	<u>Carteret County Actions (including the Towns of Bogue, Cape Carteret, Cedar Point, Newport and Peletier)</u>	<u>Hazard</u>	<u>Relative Priority</u>	<u>Funding Sources</u>	<u>Responsible Party</u>	<u>Target Completion Date</u>
Preventative Actions						
P-1	Review and include hazard mitigation policies at the next CAMA Land Use Plan Update.	All	Moderate	Local	Planning Dept	Ongoing
P-2	Develop a policy to minimize public services to proposed new structures that will be located in 100-year floodplain areas.	Flood	Moderate	Local	Planning Dept	Ongoing
P-3	Review the Floodplain Ordinance to provide improved flood protection standards.	Flood	Moderate	Local	Planning Dept	Ongoing
P-4	Update the land use regulatory ordinances by reviewing and incorporating hazard mitigation objectives.	All	Moderate	Local	Planning Dept	Ongoing
P-5	Review the Zoning Ordinance to allow for clustering of residential lots.	Flood	Moderate	Local	Planning Dept	Ongoing
P-6	Revise and update the regulatory floodplain maps.	Flood	High	Federal State	State Planning Dept	Ongoing
P-7	Damage Assessments – Flood Damaged Structures. Any and all portions of buildings that have been submerged for any length of time will be inspected for flood related damage as well as other conditions that may be dangerous to life, health or other property.	Flood	High	Local	Inspection Dept Tax Dept	Ongoing
P-8	Develop policy and procedures related to storm damage and disconnected utility services.	All	High	Local	Inspection Dept	Ongoing
P-9	Maintain and update County's GIS System	All	High	Local	Planning Dept Tax Dept	Continuous
P-10	Sponsor/Co-sponsor a hazard mitigation seminar for elected officials, business leaders, and all municipal, county and regional organizations (American Red Cross, Salvation Army, etc.) which includes educational information on natural hazards, potential impact and mitigation measures to reduce risk	All	Medium	Local	Planning Dept	Every 4 years
P-11	Continue participation in FEMA's Community Rating System	Flood	High	Local	Planning Dept	Continuous
P-12	Establish a reconstruction policy that includes procedures for issuance of building permits after a natural disaster	All	Medium	Local	Planning Dept	January, 2006
P-13	Apply for grant funding to enhance the County's hazard	All	Medium	Varies	All	Varies

<u>Action #</u>	<u>Carteret County Actions</u> <u>(including the Towns of Bogue, Cape Carteret, Cedar Point, Newport and Peletier)</u>	<u>Hazard</u>	<u>Relative Priority</u>	<u>Funding Sources</u>	<u>Responsible Party</u>	<u>Target Completion Date</u>
	mitigation effort, as applicable.				Departments	
P-14	Establish local and regional partnerships to identify funding sources for natural hazard mitigation activities and seek to obtain funding.	All	Medium	Varies	All Departments	Varies
P-15	Maintain the Hazard Mitigation Advisory Committee to continue relationship building and keep updated on mitigation measures taking place throughout the community	All	Medium	N/A	All Departments	Continuous
P-16	Require all new developments to submit storm water management plans as required by the State.	Flood	Medium	Local Private	Planning Inspections	Ongoing
P-17	Encourage utilization of alternatives to impervious surfaces in all projects.	Flood	High	Local Private	Planning	Ongoing
P-18	Revise development ordinances to encourage use of alternatives to impervious surfaces	Flood	High	Local	Planning Inspections	Ongoing
P-19	Review wetlands maps for possible updates.	Erosion	Low	Local	Planning Tax Dept	2 years/ annually
P-20	Revise development ordinances to encourage shoreline vegetation along marshes & other AEC's	Erosion	Medium	Local	Planning Inspections	2 years/every 5 years
P-21	Develop water shortage response guidelines	Drought	Medium	N/A	Public Works	Ongoing
P-22	Coordinate with other utility providers to inform residents of drought hazards and regional drought policies.	Drought	Medium	N/A	Public Works County Manager	Ongoing
P-23	Coordinate with other utility providers to inform residents of water conservation techniques.	Drought	Medium	N/A	Public Works County Manager	3 years/every 5 years
P-24	Join the National Insurance Program	Flood	High	Local	Town of Peletier Planner	6 months
Property Protection						
PP-1	Maintain a list of repetitive flood loss properties.	Flood	Moderate	Local	Planning	Ongoing
PP-2	Monitor trees and vegetation on publicly owned property to assure that no property or utility damage will occur as a result of diseased or dying trees/vegetation.	Hurricanes Severe Storms	Low	Local	Public Works Dept. Parks & Rec. Dept.	Continuous
PP-3	Partner with Utility Companies to identify problem areas and	All	Low	Local	Public Works	Continuous

<u>Action #</u>	<u>Carteret County Actions</u> (<u>including the Towns of Bogue, Cape Carteret, Cedar Point, Newport and Peletier</u>)	<u>Hazard</u>	<u>Relative Priority</u>	<u>Funding Sources</u>	<u>Responsible Party</u>	<u>Target Completion Date</u>
	work to eliminate them where feasible.			Private	Dept. Utilities	
Emergency Services						
ES-1	Ensure adequate evacuation warning in case of major hazard event.	All	High	Local	Emergency Services	Ongoing
ES-2	Improve shelter capacities with alternate power/heat/air conditioning sources.	All	High	Local	Emergency Services	When funding becomes available
ES-3	Establish program to maintain continuity of government operations.	All	High	Local	Emergency Services	When funding becomes available
ES-4	Identify alternate Emergency Operations Center locations.	All	High	Local	Emergency Services	When funding becomes available
ES-5	Maintain current emergency response plan	All	High	Local	Emergency Services Department	Continuous
ES-6	Familiarize local public officials with the principles and practices of emergency management and emergency operations.	All	Medium	Local	Emergency Services Department	Bi-annual following election
ES-7	Procure and maintain backup generators for all critical public facilities. Evaluate the equipment on a regular basis to assure it continues to meet the needs of the operations occurring at each facility.	All	High	Varies	All Departments	When funding becomes available
ES-8	Prepare a Hazardous Material Action Plan that addresses proper containment of spills, etc.	Hazardous Materials	Low	Local	Fire Marshal Fire Departments	January 2006
ES-9	Develop plan for consolidated E-911 dispatch center and EOC	All	High	Varies	Emergency	Ongoing

<u>Action #</u>	<u>Carteret County Actions</u> (<u>including the Towns of Bogue, Cape Carteret, Cedar Point, Newport and Peletier</u>)	<u>Hazard</u>	<u>Relative Priority</u>	<u>Funding Sources</u>	<u>Responsible Party</u>	<u>Target Completion Date</u>
	located outside of floodplain.				Services Department	When funds become available
ES-10	Identify alternate detour routes from major arteries in the county.	All	High	Local	Emergency Services Department	Ongoing
Public Information						
PI-1	Place flood protection and other hazard education materials in all branches of the Carteret County public library system.	All	High	Local	Planning	When funding becomes available
PI-2	Maintain a zoning map (digital) that can be easily reproduced/updated for staff and public use.	All	High	Local	Planning	Ongoing
PI-3	Conduct a natural hazard awareness program in County Schools	All	Low	Local	Planning Dept	Ongoing
PI-4	Include articles in the papers/newsletters explaining hazard mitigation and preparing for natural disasters	All	Medium	Local	All Departments	Continuous
PI-5	Promote nationally recognized "awareness" weeks (i.e. hurricane preparedness, severe weather preparedness, etc.) through local media	All	Medium	Varies	Planning Dept.	Continuous
PI-6	Provide public links to relevant hazard mitigation websites.	All	Low	Local	Planning Dept.	Continuous
PI-7	Coordinate with other utility providers to inform residents of drought hazards and regional drought policies.	Drought	Medium	N/A	Public Works County Manager	Ongoing
PI-8	Coordinate with other utility providers to inform residents of water conservation techniques.	Drought	Medium	N/A	Public Works County Manager	Ongoing

Appendix J:

Holding Capacity Analysis

This appendix provides the following:

1. Approximate level of density and intensity of development allowed in each category shown on the Future Land Use Map,
2. Water infrastructure projections for maximum density build-out and total projected usage, and
3. Transportation (roads) analysis for each category shown on the Future Land Use Map.

<u>Land Classification</u>	<u>Conservation</u>	<u>Protected Lands</u>	<u>Rural</u>	<u>Rural/with Services</u>	<u>Community</u>	<u>Limited Transition</u>	<u>Developed</u>
<p>Generally not applicable. High-ground areas located in Conservation areas and suitable for development shall be considered as Rural and consistent with densities and requirements applicable to the Rural classification.</p>	<p>Not applicable; (consists of lands not under Carteret County or municipal planning jurisdiction.)</p>	<p>Primarily agricultural and residential uses, with some public facilities, health care facilities, and scattered industrial and commercial uses; minimum 20,000 square feet lots; average 2 units per acre; height limit in unzoned areas = 45' mean roof height with highest roof height not to exceed 50', zoned residential areas = 50'.</p>	<p>Residential, public facilities, health care facilities, and scattered industrial and commercial uses; average densities based upon the availability of services; in general, minimum lot sizes served by individual wells & septic tanks are 20,000 square feet (2.2 units per acre), properties served by central water or sewer are minimum of 15,000 square feet (2.9 units per acre). Exceptions include properties in the B-3 and OP (office/professional) districts that require 30,000 square feet lots (1.5 units per acre) and the B-1A district that has a minimum one-acre lot size (1 unit per acre); height limit in unzoned areas = 45' mean roof height with highest roof height not to exceed 50'; zoned residential areas = 50'; exceptions are B-3 = 60', O-P = 60', and B-1A = 35'.</p>	<p>Mixed land uses, including single-family residences, general and convenience stores, churches, public facilities, health care facilities, and other mixed uses at low densities. Minimum 20,000 square feet lots; average two units per acre.</p>	<p>Predominantly residential; However, some commercial, institutional, health care, and industrial development primarily along major highways. Minimum lot sizes based on availability of services and zoning district. For residential properties, those served by central water and sewer may be as small as 10,000 square feet with an average of 3 units per acre or less, properties served only by central water may be a minimum of 15,000 square feet (2.9 units per acre). PUD developments allow residential densities no greater than 2.9 units/acre. Commercial development, minimum lot sizes for properties served by wells and septic tanks are 20,000 square feet (2.2 units per acre) those served by either central water or sewer are minimum of 15,000 square feet (2.9 units per acre), and properties served by both central water & sewer may be 10,000 square feet (4.4 units per acre). Exceptions include properties in the B-3 and OP (office/professional) districts require 30,000 square feet lots (1.5 units per acre) and the B-1A district that has a minimum one-acre lot size (1 unit per acre); height limits in zoned areas are residential = 50' and commercial = 60'.</p>	<p>Residential (single- and multi-family), commercial, institutional, industrial, and other urban uses at high to moderate densities. Residential densities average 3 units per acre, with minimum lot sizes based on availability of services. If central water & sewer is available, minimum lot size is 10,000 square feet (4.4 units per acre). Areas served by central water are subject to a 15,000 square foot minimum (2.9 units per acre). Commercial densities are based on zoning district and availability of services. In general, areas served by either central water or sewer are subject to a 15,000 square foot minimum (2.9 units per acre). Exceptions include properties in the B-3 and OP (office/professional) districts require 30,000 square feet lots (1.5 units per acre) and the B-1A district that has a minimum one-acre lot size (1 unit per acre); height limits in zoned areas are residential = 50' and commercial = 60'.</p>	<p>Approximate Level of Intensity and density</p>

	<u>Conservation</u>	<u>Protected Lands</u>	<u>Rural</u>	<u>Rural/with Services</u>	<u>Community</u>	<u>Limited Transition</u>	<u>Developed</u>
Water Infrastructure Projections for Maximum Density Build-out * Total Projected Usage**	Generally not applicable. High-ground areas located in Conservation areas and suitable for development shall be developed at densities consistent with the Rural classification if there is no underlying classification portrayed on the Future Land Use Map.	Not applicable (consists of lands not under Carteret County or municipal planning jurisdiction).	Will continue to be served by individual on-site water and wastewater.	Central water: .14 million gpd (residential) Residential central water calculation: 392 net acres per FLUM x 92% residential x 2.9 average density x 136 average gpd (per local utility actual usage records) = 142,236. Will generally continue to be served by individual on-site wastewater.	Will continue to be served by individual on-site water and wastewater.	Central water: .86 million gpd (residential) Residential central water calculation: 2,294 net acres per FLUM x 92% residential x 3.0 average density x 136 gpd (per local utility actual usage records) = 861,076. Will generally continue to be served by individual on-site wastewater.	Central water: 0.42 million gpd (residential) Residential central water calculation: 759 net acres (FLUM) x 92% residential x 4.4 average density x 136 gpd (per local utility actual usage records) = 417,851. Will generally continue to be served by individual on-site wastewater.

* Water Infrastructure: Carteret County does not maintain a central sewer system and has no plans to establish one within the planning period addressed by this plan. Assumptions for water usage are based on existing and projected development patterns (percentage of developed land in residential use), total net acres of land allocated to each land classification, average allowed densities, records of local utilities (actual usage), and the experience of local engineers. The calculations are based on complete build-out of net acres available for development in the Carteret County planning jurisdiction as shown in Table 8.5 on Page 102 at the estimated average densities described in Section 8. The forecast only accounts for residential development. The reader should note that this plan does not anticipate build-out during the planning period.

** Water: 1.42 million gpd

	<u>Conservation</u>	<u>Protected Lands</u>	<u>Rural</u>	<u>Rural/with Services</u>	<u>Community</u>	<u>Limited Transition</u>	<u>Developed</u>
Transportation	<p>Generally not applicable. High-ground areas located in Conservation areas and suitable for development shall be considered as Rural and development shall be consistent with requirements applicable to the Rural classification.</p>	<p><i>Not applicable (consists of lands not under Carteret County or municipal planning jurisdiction).</i></p>	<p>US 70 East is the major artery for this classification. The section of this highway from downtown Beaufort to the North River are near capacity, while traffic volumes from the North River Bridge to Cedar Island have shown some decreases in recent years. The North River Bridge has been identified for replacement in the NCDOT Transportation Program (TIP) for 2004 – 2010. The TIP also identified parking and roadway at the Cedar Island Ferry and a fast ferry for Cedar Island to Ocracoke.</p>	<p>This classification is primarily served by NC 101 and secondary roads, including Merrimon Road, Laurel Road, Hardesty Loop Road, Hardesty Farm Road, Old Winberry Road, and Mill Creek Road. NC 101 from Beaufort to the Carteret/Craven County line is expected to be over capacity in 2025, Merrimon Road from US 70 to Laurel Road is expected to be near capacity in 2025. The NCDOT TIP for 2004 – 2010 provides for a bridge replacement over the Newport River on Mill Creek Road.</p>	<p>US 70 East and NC 12 are the primary arteries serving this classification. Information contained under the Rural classification related to these highways is also applicable to the Community classification.</p>	<p>Major highways serving this classification are NC 24, NC 58, NC 101, and US 70. Capacity issues along NC 24 from the Onslow/Carteret County border to the intersection with US 70 were addressed by improvements completed in 2002. US 70 from the Craven County border to Beaufort and the NC 24/NC 58 corridor continue to see increased traffic volumes. Hibbs Road from US 70 to NC 24 is expected to be at or near capacity in 2025. Portions of NC 58 and Nine Foot Road are expected to be near capacity in 2025. Priority improvements include projects that affect the major arteries, including the Gallanis Channel Bridge replacement project, widening of the Newport River Bridge, and construction of a new bypass from Havelock to Beaufort. Additional priorities include widening of portions of Nine Foot Road, several bridge replacements on secondary roads, and widening and improvements to US 70 from Beaufort to East Carteret High School.</p>	<p>Major highways serving this classification include NC 24 (Town of Cedar Point), NC 58 (Bogue Banks), and portions of US 70 (Morehead City/Beaufort Causeway). Capacity issues along NC 24 were addressed by improvements completed in 2002. Seasonal traffic volumes continue to affect the major roads in this classification. Priority improvements include projects affecting US 70, including road widening and bridge improvement projects.</p>

Appendix K: Gross versus Net Acreages for Future Development

Table K-1 Estimated Acres Unavailable for Development

Land Use Classification	Roads	Utility Easements	Coastal Wetlands	Non-coastal wetlands (90% of total)	Farmland	Privately Owned Forests	Unavailable in Coastal Shoreline AEC*	EMC Neuse River Buffer	Carteret County DECO Buffer	TOTAL
Developed	154.9	38.9	81.2	137.2	0.0	0.0	365.3	0.0	0.0	777.5
Limited Transition	1,158.1	277.6	1,259.1	12,143.7	175.1	187.3	2,288.1	0.0	115.3	17,604.3
Community	219.9	42.3	156.0	529.8	0.5	0.0	738.3	0.0	133.4	1,820.2
Rural with Services	273.7	52.7	1,159.9	8,415.9	1.9	1,137.1	736.8	0.0	9.8	11,787.8
Rural	1,320.1	300.7	10,386.6	7,741.5	50,890.1	8,388.2	5,238.4	166.6	793.2	85,225.4
Totals	3,126.7	712.2	13,042.8	28,968.1	51,067.6	9,712.6	9,366.9	166.6	1,051.7	117,215.2

*From Table K-2

Table K-2 CAMA Coastal Shoreline AEC Acres Unavailable for Development

Land Use Classification	75' AEC	Available for Development*	Unavailable for Development	575' AEC	Available for Development**	Unavailable for Development	Total Unavailable
Developed	343.6	103.1	240.5	166.4	41.6	124.8	365.3
Limited Transition	2,062.6	618.8	1,443.8	1,125.7	281.4	844.3	2,288.1
Community	458.2	137.5	320.7	556.7	139.2	417.5	738.3
Rural with Services	1,052.6	315.8	736.8	0.0	0.0	0.0	736.8
Rural	5,793.1	1,737.9	4,055.2	1,577.6	394.4	1,183.2	5,238.4
Totals	9,710.1	2,913.0	6,797.1	3,426.4	856.6	2,569.8	9,366.9

*CAMA regulations normally allow only 30% of the area to be developed

** CAMA regulations normally allow only 25% of the area to be developed

Table K-3 Undeveloped Acres Located Within One-Half Mile of SA Waters

Land Use Classification	# Acres located within ½ mile of Class SA waters	# Acres developed	# Acres Undeveloped
Developed	289.6	157.7	131.9
Limited Transition	14,455.8	4,321.0	10,134.8
Community	3,000.2	1,137.6	1,862.6
Rural with Services	5,746.5	806.5	4,940.0
Rural	30,709.2	2,910.0	27,799.2
Totals	54,201.3	9,332.8	44,868.5

Table K-4 Soils with Severe Limitations for Septic

Land Use Classification	# Acres
Developed	1,459.9
Limited Transition	25,701.8
Community	3,184.1
Rural with Services	13,235.0
Rural	82,117.4
Total	125,698.2

Assumptions and methodology for development of data shown in Tables K-1, K-2, K-3, and K-4:

- Roads – areas calculated using buffered NCDOT roads (60’) and private roads (30’); intersected with land use layers.
- Utility easements – assumed 10’ easement (calculated using roads layer) on both sides of roads.
- Coastal wetlands – DCM data layers were intersected with Carteret County parcels layer. Assumed no residential, commercial, industrial, or institutional uses in these areas
- Non-coastal wetlands – DCM data layers were intersected with Carteret County parcels layer. Jurisdictional (404) rules usually limit wetland loss to 10%; therefore assumptions made that in general up to 90% of such areas are undevelopable.
- Farmland – created farmland shapefile from Carteret County parcel data.
- Privately-owned forests – created forest shapefile from Carteret County parcel data.
- Unavailable in Coastal Shoreline Area of Environmental Concern (AEC) – CAMA regulations usually limit built-upon-area (BUA) within this AEC to no more than 25% to 30%, depending upon the classification of adjacent waters. Areas located within 575’ of ORW waters are limited to no more than 25% BUA, thus resulting in 75% of the area being unavailable for development. Areas adjacent to estuarine waters not classified as ORW are usually limited to no more than 30% BUA, rendering 70% of the AEC in these areas unavailable for development. Areas adjacent public trust waters are subject to the 30’ CAMA buffer where no new residential, commercial, industrial, or institutional uses are allowed. For areas located within the 75’ and 575’ Coastal Shoreline AEC the CAMA 30’ buffer does not reduce the allowed percentage

of BUA, which is calculated on the entire AEC area. Acres shown in the above table as being unavailable for development were estimated by creating buffers around DCM data for rivers and streams and calculating the appropriate percentages.

- EMC (Environmental Management Commission) Neuse River Buffer – created 50’ buffer around river and estimated each land use overlaying the buffer. Since the Neuse River Buffer includes the CAMA 30’ buffer, only areas within the remaining 20’ of the Neuse buffer are shown in this table.
- DECO 50’ buffer – created buffers around DCM data for rivers/streams. Since the DECO buffer includes the CAMA 30’ buffer, only areas within the remaining 20’ of the DECO buffer are shown in this table.
- Acres located within ½ mile of Class SA waters – buffered ½ mile from DCM data for SA waters.
- Soils with severe limitations for septic – used soils layer from DCM; used acreage from “severe” type and intersected with Carteret County parcel layer.