Town of Ocean Isle Beach

Phase I Report on Land Use and Future Development

Final Report

Prepared for the

Cape Fear Council of Governments

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February 1, 2007

Town of Ocean Isle Beach
CAMA Land Use Plan Update

2006 - 2007

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Financial Support

The preparation of this document was financed, in part, through a grant provided by the North Carolina Coastal Management Program, through funds provided by the 1972 Coastal Zone Management Act (CZMA), as amended, which is administered by the Office of Ocean and Coastal Resource Management, National Oceanic Atmospheric Administration (NOAA). The Town of Ocean Isle Beach also provided funding and staff support for the planning effort.

Acknowledgements

The creation of this Phase I report began late in 2005 with a decision by Town leaders to commit the community's economic resources and the valuable time of citizens and staff to update the Town of Ocean Isle Beach's CAMA Land Use Plan. Funding and technical assistance for the planning process was obtained from the Department of Environment and Natural Resources (DENR) Division of Coastal Management (DCM). Additional technical assistance in the preparation of this document was obtained from the Cape Fear Council of Governments (COG) and Dr. Mark T. Imperial, an Assistant Professor at the University of North Carolina at Wilmington (UNCW) Master of Public Administration Program. Kristina Theodorson, Jill Peleuses, and Courtney Pickett, graduate student interns from UNCW's MPA program also provided valuable assistance to the COG and Dr. Imperial in the preparation of this document. Special recognition and thanks go to the following individuals who supported the development of this Phase I report:

- Larry Sellers, Daisy Ivey, and Justin Whiteside for their willingness to share knowledge of Ocean Isle Beach and guidance in the development of the Land Use Plan;
- Mr. Scott Logel and the Cape Fear Council of Governments for their assistance with the mapping and land suitability analysis;
- Kitty Coley for her tireless preparation of the Land Use Plan Steering Committee minutes, staff support, and her assistance in updating and maintaining the website for the Land Use Plan Update planning process;
- Department heads and staff for their willingness to share their knowledge of the operation of the Town of Ocean Isle Beach with the Land Use Plan Steering Committee;
- All Land Use Plan Steering Committee Members who willingly donated their time and expertise to the development of the Land Use Plan Update; and,
- All members of the public who participated in the May 4, 2006 Public Workshop and provided comments to the Land Use Plan Steering Committee.

Acronyms Used In the Report

AEC	Areas of Environmental Concern
CAMA	Coastal Area Management Act
CFCC	Cape Fear Community College
COE	Corps of Engineers, United States
CRAC	Coastal Resource Advisory Committee
CRC	Coastal Resource Commission
CRS	Community Rating System
CZMA	Coastal Zone Management Act
DCM	Division of Coastal Management
DENR	Department of Environment and Natural Resources
DWR	Division of Water Resources
DWQ	Division of Water Quality
EMS	Emergency Medical Service
EMT	Emergency Medical Technician
ETA	Extraterritorial Area
ETJ	Extraterritorial Jurisdiction
FAR	Floor Area Ratio
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
HQW	High Quality Waters
ICWW	Intracoastal Waterway
LPO	Local Permit Officer
LSA	Land Suitability Analysis
LUP	Land Use Plan
LUPSC	Land Use Plan Steering Committee
MG	Million Gallons
MGD	Millions of Gallons per Day
MHWL	Mean High Water Line
MLWL	Mean Low Water Line
MS4	Municipal Separate Storm Sewer System
NC	North Carolina
NCAC	North Carolina Annotated Code
NCDOT	North Carolina Department of Transportation
NFIP	National Flood Insurance Program
NPDES	National Pollutant Discharge Elimination System Nonpoint Source
NSW	Nutrient Sensitive Waters
ORW	Outstanding Resource Water
OSDS	Onsite Sewage Disposal System
PL	Public Law
SW	Swamp Waters
UNCW	University of North Carolina Wilmington
U.S.	United States

Vision Statement

We, the residents, businesses and property owners of the Town of Ocean Isle Beach, shall maintain and enhance our community as the finest family oriented beach community in the United States. This requires due diligence and working to retain our small town, family friendly character while preserving and where possible enhancing the quality of the natural and man-made environment. It is essential that we maintain the quality of life that makes Ocean Isle Beach a community that is a desirable place for visitors and residents alike.

Section I

Introduction

1.0 Introduction

Coastal areas of the United States have experienced tremendous population growth and development since the 1960s. In response, the United States Congress passed the 1972 Coastal Zone Management Act (CZMA), as amended. The State of North Carolina established itself as a leader amongst the states by enacting the 1974 Coastal Area Management Act (CAMA). The overall objective of CAMA is to insure the orderly balanced use and preservation of our coastal resources on behalf of the people of North Carolina and the nation (NC PL 113-102A b4). Of particular importance, the Act:

- Defined North Carolina's Coastal Area to include its twenty coastal counties.
- Created the Coastal Resource Commission (CRC), a fifteen member body appointed by the Governor to create policy and pass rules governing development activity in the Coastal Area
- Created the Coastal Resource Advisory Council (CRAC), a forty-five member advisory body that advises the CRC and works as a liaison between the CRC and local governments.
- Created the Division of Coastal Management (DCM), the division that carries out the policies of the CRC and CAMA.

An essential feature of CAMA is the requirement that each coastal county prepare a land use plan that is updated every five years. The Town of Ocean Isle Beach recognizes the benefit of land use planning and has chosen to create its own land use plan rather than be folded into Brunswick County's plan. At nearly every Town Council and Planning Board meeting, decisions are made concerning zoning, variances, location of buildings, and allocation of funds for projects. Ocean Isle Beach's Land Use Plan provides guidance to local decision-makers to achieve the long-term vision for the community as articulated in previous plans. This allows local decision makers to be proactive rather than reactive and helps maintain Ocean Isle Beach as one of the finest family oriented beaches on the East Coast of the United States. This plan builds on the previous land use plans prepared by Ocean Isle Beach in 1986, 1990, and 1997. It encompasses all geographic areas in the community and its extraterritorial jurisdiction (ETJ). It also considers issues pertaining to future land use and development and natural resource protection. The plan is long range in nature and looks beyond current issues to address potential future land use and environmental issues over the next ten to 15 years.

This report, *The Town of Ocean Isle Beach Phase I Report on Land Use and Future Development,* was prepared in accordance with newly promulgated guidance by DCM entitled *Technical Manual for Land Use Planning.* The objective of this report is to analyze data on the economy, population, land use, land suitability, and natural systems of Ocean Isle Beach. The effort also involved updating the Town's Geographic Information System (GIS) and developing a series of maps contained in Appendix A. Finally, this report analyzes the policies contained in Ocean Isle Beach's *1997 CAMA Land Use Plan Update* in light of the Division of Coastal Management's new guidance on preparation of local land use plans and the data contained in this report. This analysis is presented in a series of tables contained in Appendix B. Appendix C contains the environmental composite and land suitability analysis maps required pursuant to DCM's new land use planning guidelines.

1.0.A *Organization of the Report*

This report is organized into a series of sections. Section II addresses the community's aspirations and concerns. This section also identifies existing and emerging conditions and summarizes the issues discussed at a public workshop held May 4, 2006. Section III focuses on describing the Town of Ocean Isle Beach's population, housing, and economy to identify trends that potentially influence land use or impact natural resources. This section also presents a profile of the community and its key demographic characteristics as well as estimates of its projected year round and seasonal populations. Section IV contains the natural systems analysis. It describes the Areas of Environmental Concern (AECs) found within and adjacent to Ocean Isle Beach. The section also describes other important natural features and flood zones. Section V analyzes existing land use and development. It also includes a description of the state and local regulatory requirements pertaining to development activities within Ocean Isle Beach. Section VI analyzes the community facilities and Town services to identify issues to be considered when revising the Land Use Plan's policies and recommendations. Section VII examines the Town's infrastructure carrying capacity and its adequacy to serve the year round population and the influx of summer residents and visitors. Section VIII contains a land suitability analysis required by DCM. Finally, Section IX summarizes the analysis of existing policies and identifies actions taken since the last land use plan. It also identifies the implementation status and constraints. A detailed version of the policy analysis is contained in Appendix B.

Section II

Community Aspirations & Concerns

2.0 Introduction

This section of the land use plan identifies the community's aspiration and concerns. This process took place in a series of steps. First, a series of existing and emerging conditions were identified by examining a wide range of data sources including:

- *1997 CAMA Land Use Plan Update*;
- Ocean Isle Beach's inventory of Public Beach Access Crossovers (CAMA and Non-CAMA) (Last updated August 5, 2005);
- Discussions with Town staff;
- Input from the public; and,
- Analysis of data contained in subsequent sections of this report.

The product of this analysis was the identification of a series of existing and emerging conditions warranting further investigation during Phase II of the planning process. These conditions can be categorized into 5 broad categories

- Population Housing and Economy
- Water Quality and Environmental Conditions
- Infrastructure Carrying Capacity
- Public Access
- Hazard Mitigation

Each of the conditions described in Table 2.1 has the potential to influence future land use and development decisions and could impact other environmental and quality of life concerns.

Next, a public workshop was held May 4, 2006. After a short presentation, the public was asked to identify issues and concerns for the steering committee to consider during the planning process. When participants entered the workshop, they were also given an index card and asked to identify problems. This ensured that we had a record of their concerns even if they were afraid or unwilling to speak up in a public forum. The results of the public workshop were then combined with comments received by phone and by email from residents who were unable to attend the public workshop. This produced a master list of

Table 2.1 Existing and Emerging Conditions

Population, Housing, & Economy	▪ Permanent population is relatively steady ▪ A smaller percentage of year round households than many of the other barrier beach communities in Southeastern NC ▪ A possible decline in the number of rental properties as a result of increasing home values ▪ Limited lots for new development ▪ Increasing property values ▪ Increasing redevelopment ▪ Building to maximum size allowed under zoning ▪ Need to maintain height and density controls as land values continue to increase ▪ No heavy industry and limited commercial activity on the Island ▪ Small tourist oriented businesses are seen as appropriate
Water Quality & Environmental Conditions	▪ Preserve dunes in order to protect from storm damage ▪ Protect remaining habitat where possible ▪ Need to maintain/improve water quality of beaches and ICWW ▪ Problems with storm drainage in some neighborhoods ▪ Need to address nonpoint pollution from impervious surfaces ▪ Impacts of recreational users on creeks and sensitive aquatic and riparian habitat ▪ Protect greenspace where possible
Infrastructure Carrying Capacity	▪ Heavy traffic congestion in summer months ▪ Increasing traffic congestion year round in the ETJ and surrounding areas ▪ Not enough parking spaces at some access points ▪ Need to encourage more pedestrian and bike traffic. ▪ Impacts of development in ETJ and Brunswick County ▪ Impacts of possible future annexation on the town's infrastructure
Public Access	▪ Need to maintain visual access to water ▪ Plentiful public access sites ▪ Need more facilities like restrooms, bike racks, and showers ▪ Need more access sites on the ICWW ▪ Congested waters and possible user conflicts in ICWW (e.g., boaters, kayakers, jet skis, wake boards, etc.) ▪ No wake zones not enforced and may need expansion ▪ More parking needed near boat ramp ▪ Need for some additional recreational facilities to serve residents and visitors alike ▪ Preserving access to the beach and parking for property owners
Hazard Mitigation	▪ Beach erosion, particularly at the eastern end of the island ▪ Need to have regular beach renourishment and funding to support it

issues and concerns that became the basis for discussion at subsequent land use plan steering committee meetings.

Table 2.2: Planning Issues and Concerns

Land Development	▪ Determining the appropriate density of development on the Island ▪ Maintaining the current balance of residential and commercial development ▪ Determining if the current height and other restrictions on house size are adequate
Infrastructure Carrying Capacity	▪ Improving traffic flow in the ETJ and onto the Island, particularly during summer months ▪ Examining feasibility of shuttle service or other means of mass transportation to reduce traffic flow ▪ Examining potential impacts that annexation might have on the infrastructure's carrying capacity ▪ Examining how development in and adjacent to the ETJ may influence the carrying capacity on the Island ▪ Using bike paths or other steps to encourage more pedestrian traffic
Public Access	▪ Identify possible ways to expand facilities (bathrooms, showers, etc.) and services for beachgoers at some access sites ▪ Reducing user conflicts on the ICWW ▪ Improving parking associated with the boat ramp and some oceanfront access sites ▪ Improving public access along the ICWW and identifying possible enhancements such as a fishing or crabbing pier
Natural Hazards	▪ Protecting and preserving current building setbacks and restrictions to prevent further encroachment in hazard areas ▪ Continuing to protect dunes and preserve their ability to minimize potential storm damage ▪ Renourishing the beach on a regular basis to minimize impacts that beach erosion has on property owners ▪ Ensure that the town takes the proper steps to be prepared in the event of a major storm
Water Quality & Natural Resources	▪ Protecting and preserving water quality by addressing NPS pollution ▪ Protecting and preserving natural habitat when possible ▪ Improving storm drainage where possible

Over the next few months, the list of issues was refined based on discussion and analysis of the information contained in this Phase I report, as well as ongoing public input. The product of these discussions is the list of planning issues and concerns to be addressed in the land use plan update contained in Table 2.2. During Phase II of the planning process, this list of issues will continue to be revised and updated. The final land use plan update will include policies and recommended actions designed to address these issues identified in Tables 2.1 and 2.2.

Section III

Population, Housing, & Economy

3.0 Introduction

The Town of Ocean Isle Beach is widely recognized as one of the finest family oriented beach towns on the East Coast of the United States. The mix of residential and resort development, the quality of the natural and man-made environment, and the beautiful sandy beaches, clear water, and small town atmosphere create a high quality of life for residents and visitors alike. This section of the report identifies important community characteristics and demographic trends that warrant consideration when formulating policies and recommendations for the Land Use Plan (LUP) update. The analysis draws primarily on data drawn from the 2000 Census and U.S. Census Bureau projections, Ocean Isle Beach land use records, and other regional data sources. Unless explicitly stated in the tables, the data included are for the Ocean Isle Beach municipal areas only. The extra-territorial jurisdiction (ETJ) areas are not included. In order to estimate ETJ characteristics, data must be looked at on the Census block level, and only select data are available in this small unit of measurement.

In the discussion that follows, comparisons are drawn with the state of North Carolina, Brunswick County, and other barrier beach communities summarized in Table 3.1 to help interpret these data.

3.1 Permanent Population Estimates

The population of a municipality with a large influx of seasonal residents requires a careful analysis of the population because there are many distinct categories of residents including:

- Property owners and non-property owners
- Residents and non-residents
- Registered voters and non-registered voters
- Business owners and non-business owners

The Division of Coastal Management (DCM) guidelines require input from all groups of potentially affected residents and members of the public. This section of the Phase I report focuses on the population and demographic characteristics of the year-round population of Ocean Isle Beach. Since the Bureau of the Census and other state agencies collect these data,

Table 3.1: Comparison of Population Characteristics of Selected North Carolina Beach Communities

Local Government	Median Age	Percent Housing Units Occupied All Year	Percent in Labor Force16 & Over	Median House-hold Income	Median Family Income	Per Capita Income	Percent of Total Housing in 1-unit Detached	Median Value of Owner Occupied Housing
Southern Shores	51.4	49.2 %	51.3 %	$61,676	$68,250	$35,933	97.4 %	$221,500
Kitty Hawk	40.6	48.3 %	69.9 %	$42,813	$48,676	$22,960	67.8 %	$144,600
Kill Devil Hills	36.7	48.8 %	76.6 %	$39,713	$44,681	$20,679	82.9 %	$104,500
Nags Head	42.7	27.4 %	67.0 %	$53,095	$61,302	$30,157	83.3 %	$143,900
Atlantic Beach	48.7	20.5 %	63.3 %	$38,313	$52,411	$31,339	30.8 %	$207,800
Pine Knoll Shores	61.8	37.9 %	36.8 %	$53,800	$60,662	$34,618	47.7 %	$220,500
Indian Beach	58.8	4.1 %	52.7 %	$47,250	$45,250	$25,826	2.7 %	$625,000
Emerald Isle	50.1	27.3 %	54.3 %	$53,274	$60,257	$31,316	58.7 %	$200,000
North Topsail Beach	45.1	21.6 %	64.4 %	$45,982	$53,125	$33,972	25.7 %	$137,500
Surf City	48.1	26.7 %	61.7 %	$40,521	$48,854	$25,242	55.6 %	$177,100
Topsail Beach	55.6	21.9 %	53.7 %	$55,750	$64,167	$35,838	81.1 %	$281,300
Wrightsville Beach	37.1	41.8 %	65.6 %	$55,903	$71,641	$36,575	31.3 %	$480,600
Carolina Beach	43.6	56.2 %	68.0 %	$37,662	$44,882	$24,128	42.8 %	$156,000
Kure Beach	50.5	46.3 %	60.8 %	$47,143	$55,875	$26,759	61.2 %	$188,300
Bald Head Island	56.3	14.7 %	56.7 %	$62,083	$56,964	$45,585	87.6 %	$525,000
Caswell Beach	59.9	32.7 %	39.9 %	$57,083	$63,750	$41,731	43.7 %	$242,300
Oak Island	49.2	46.2 %	56.1 %	$40,496	$48,775	$23,964	83.5 %	$119,400
Holden Beach	55.4	18.4 %	48.8 %	$59,583	$70,000	$35,114	84.7 %	$247,300
Ocean Isle Beach	**53.4**	**8.3 %**	**49.6 %**	**$67,639**	**$65,625**	**$42,605**	**69.3 %**	**$340,700**
Sunset Beach	60.2	30.5 %	37.8 %	$47,356	$57,019	$36,181	51.8 %	$219,600
Brunswick County	42.2	59.2 %	57.7 %	$35,888	$42,037	$19,857	55.7 %	$127,400
North Carolina	35.3	88.9 %	65.7 %	$39,184	$46,335	$20,307	64.4 %	$108,300
NC Beach Municipal Average.	50.3	31.44 %	56.75 %	$50,357	$57,108	$32,026	59.48 %	$249,145
Ocean Isle Beach Rank	**8th highest**	**2nd lowest**	**5th lowest**	**1st highest**	**3rd highest**	**2nd highest**	**8th highest**	**4th highest**

Source : US Census Bureau - 2000 Census of Population and Housing

there is more precision with this information than there is in the seasonal population estimates presented later in this section of the report.

The Population Division of the U. S. Census Bureau estimates the July 1, 2004 year-round population of Ocean Isle Beach as 483 persons [Table 3.2]. According to the Bureau of the Census, the 2000 population was 426 persons. The 2000 population for Ocean Isle Beach's ETJ area is estimated at 706 persons. This estimate was prepared by overlaying the ETJ

Table 3.2: Population

Year	Ocean Isle Beach	Percent of County Pop.	ETJ Estimate	ETJ Percent of County Pop.	Brunswick County
1970	78	0.32%	NA	NA	24,223
1980	138	0.39%	NA	NA	35,777
1990	534	1.05%	NA	NA	50,985
2000	426	0.58%	706	0.97%	73,143
2004*	483	0.57%	NA	NA	84,575

Source: NC State Data Center – US Census of Population and Housing – 1970 to 2000
*US Census Bureau, Population Estimates Program – July 1, 2004
NA – Not Available

boundaries on the U.S. Census map depicting area blocks. The population within each block of the ETJ area was totaled to produce the ETJ area's estimated population. U.S. Census block data is not available for years other than 2000.

The permanent population of Ocean Isle Beach in 1990 was 534 persons. The ten-year growth rate from 1990 to 2000 was –20.2 percent. The U.S. Census estimates population increases in other years to account for population changes in the years between census counts. This data suggests that Ocean Isle Beach's population grew by 13.4 percent between 2000 and 2004, while Brunswick County's population increased at a rate of 15.6 percent during the same period. It is unclear whether this represents an actual growth in population or is simply due to the procedures the U.S. Census uses to estimate population changes in the years between census periods. This gives us a net change of -9.6 percent during the 14-year period from 1990 to 2004. Regardless of whether the 2000 or 2004 data is used, there has been a decrease in the permanent year round population of between 108 and 51 people.

During the 2000 to 2004 time period, Ocean Isle Beach's population remained relatively constant, at approximately 0.6 percent of the county's overall population. The ETJ area's population in 2000 was estimated at approximately one percent of the county's overall population. The population growth rate within the ETJ area is likely to track the county growth rate.

3.1.A *Year Round Population Trends*

Figure 3.1 examines population growth in Ocean Isle Beach and Brunswick County from 1970 to 2004 (note that the population data are plotted on separate axes). It is readily apparent that while Brunswick County's population continues to increase steadily, Ocean Isle Beach's greatest period of growth was from 1980 to 1990. The population then decreased between 1990 and 2000. Between 2000 and 2004, Ocean Isle Beach's population appears to have increased slightly but this increase may simply be the product of the procedures used by the U.S. Census and may not represent an actual increase in population.

Table 3.3: Percent Population Growth (1970 – 2000)

Decade	Ocean Isle Beach	Absolute Increase	Percent Growth	Brunswick County	Absolute Increase	Percent Growth
1970-1980	138	60	76.9 %	35,777	11,554	47.7 %
1980-1990	534	396	287.0 %	50,985	15,208	42.5 %
1990-2000	426	-108	-20.2 %	73,143	22,158	43.5 %
2000-2004*	483	57	13.4 %	84,575	11,432	15.6 %

Source: United States Census of Population and Housing 1970 to 2000
* US Census Bureau, Population Estimates Program – July 1, 2004

Figure 3.1: Population Growth in Brunswick County and Ocean Isle Beach (1970 – 2004)

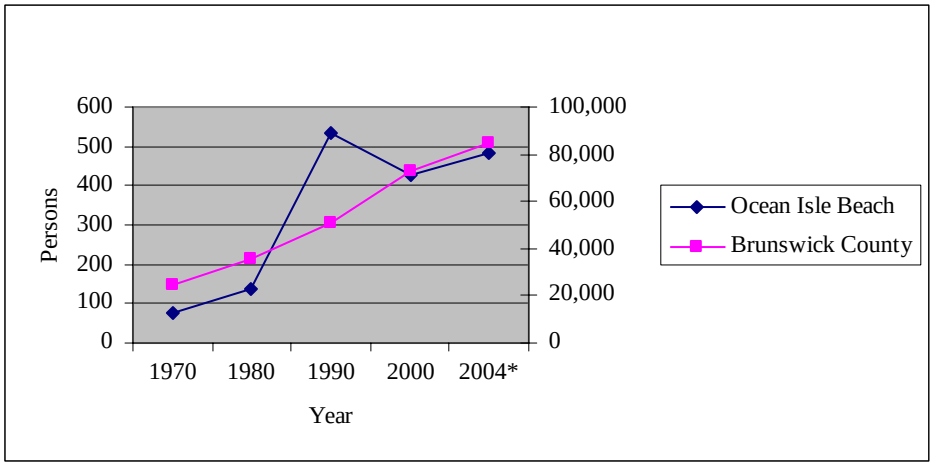


Table 3.3 shows that from 1970 to1990, Ocean Isle Beach's growth rate was faster than Brunswick County's. Between 1990 and 2000, Ocean Isle Beach had a net loss in population, while Brunswick County's population continued to increase. Between 2000 and 2004, the population growth rates in Ocean Isle Beach and Brunswick County are estimated to be relatively similar; at 13.4 percent and 15.6 percent, respectively.

It is clear that Brunswick County is in the early stages of a period of steady population growth as areas near downtown Wilmington, Shallotte, and North Myrtle Beach continue to grow. Retirement, seasonal population, a growing regional economy, and large public capital projects including the outer loop, the new bridge across the Cape Fear River, the extension of Interstate 20, a new international port, and the upgrade of the 74/76 corridor to an interstate, will have a profound impact on population growth and development in Brunswick County. While most of the population growth will not occur in barrier beach communities due to limits on developable land and existing limits on density, the population growth will have

Table 3.4: Population Growth in North Carolina Coastal Communities (1990 - 2004)

Municipality	1990 Population	2004 Population	Percent Growth 1990 – 2004	Percent Growth (Avg. Yearly 90-04)
Sunset Beach	321	2,095	553 %	39.47 %
Ocean Isle Beach	**534**	**483**	**(9.55) %**	**(0.68) %**
Holden Beach	642	835	30.06 %	2.15 %
Oak Island	NA	7,281	NA	NA
Caswell Beach	155	457	194.84 %	13.92 %
Bald Head Island	78	246	215.38 %	15.38 %
Kure Beach	618	2,020	226.86 %	16.20 %
Carolina Beach	3,631	5,192	42.99 %	3.07 %
Wrightsville Beach	2,797	2,539	(9.22) %	(0.66) %
Topsail Beach	362	523	44.48 %	3.18 %
Surf City	948	1,641	73.10 %	5.22 %
North Topsail Beach	NA	844	NA	NA
Emerald Isle	2,434	3,648	49.88 %	3.56 %
Indian Beach	146	96	(34.25) %	(2.45) %
Pine Knoll Shores	1,367	1,557	13.90 %	0.99 %
Atlantic Beach	1,938	1,805	(6.86) %	(0.49) %
Nags Head	1,838	3,067	66.87 %	4.78 %
Kill Devil Hills	4,238	6,425	51.60 %	3.69 %
Kitty Hawk	1,937	3,313	71.04 %	5.07 %
Southern Shores	1,447	2,595	79.34 %	5.67 %
Duck	0	508	NA	N/A

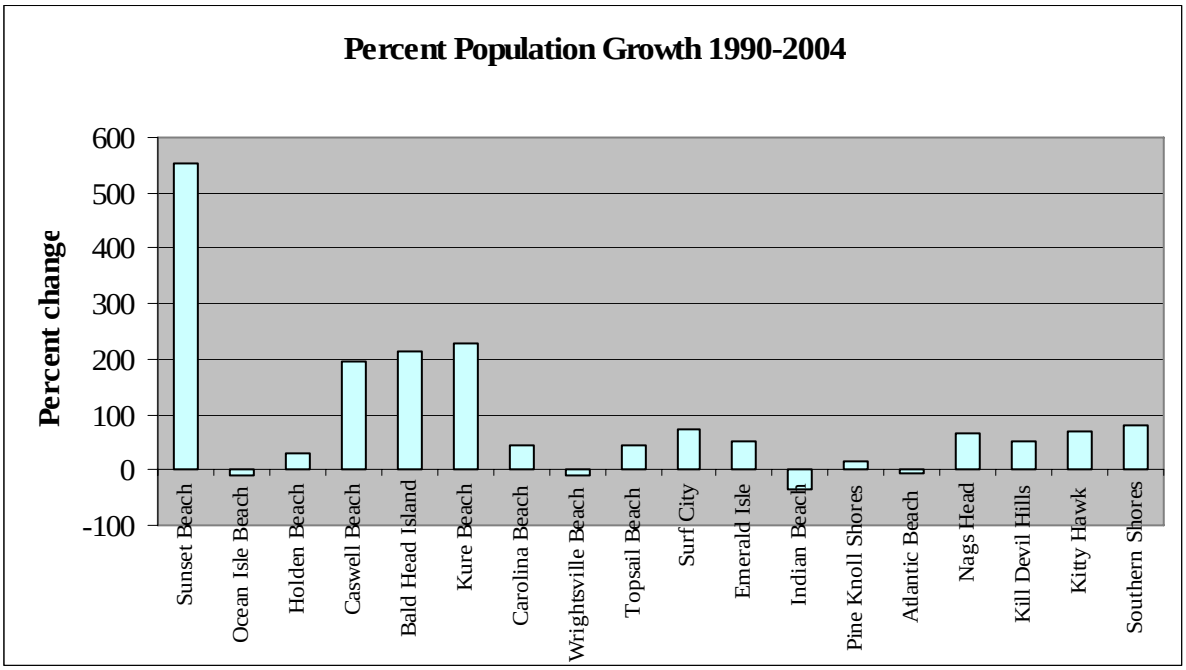
Source: NC State Data Center – 1990 Bureau of the Census – Census of Population and Housing
US Census Bureau, Population Estimates Program – July 1, 2004
NA – Not available

impacts on the island, many of which are discussed in subsequent chapters of this report.

Given the rapid population growth in Brunswick County, the scope of proposed large-scale infrastructure projects, and the uncertain impacts of a retiring baby boom population, it is difficult to predict the future population of Ocean Isle Beach. For example, there is also a great potential for an increase in year-round residents in Ocean Isle Beach. Ocean Isle Beach has the second lowest occupancy rate of North Carolina municipal beaches. This occupancy rate could change as Shallotte grows and more residents choose to live in Ocean Isle Beach as a suburb. Similarly, as the baby boomer population reaches retirement, the portion of the population that owns seasonal housing on Ocean Isle Beach may choose to retire on the Island, or baby boomers may purchase property on the Island and retire there. This could increase the year-round population of Ocean Isle Beach. Any annexation of land on the inland side of the ICWW would also change the population demographics in the community.

The continued increase in home prices on the Island is likely to cause other demographic changes. As home values in Ocean Isle Beach increase, there may be an incentive for some year-round residents to sell their properties for a profit. It may also become harder for year-

Figure 3.2: Percent Population Growth
In North Carolina Coastal Communities (1990-2004)



round residents to afford to live in Ocean Isle Beach if the home values go up faster than in areas in Brunswick County. Those residents on fixed-incomes will be particularly affected as taxes increase during re-evaluations. The future tax rate in Brunswick County may also increase to pay for services requested by new citizens. Thus, some existing year-round residents may sell their homes to seasonal residents. It could also lead to the conversion of rental properties to seasonal homes.

3.1.B *Permanent Population Projections*

When preparing a land use plan, it is useful to include a projection of future population so that local decision makers can plan for growth. Typically, population projections for beach communities are presented as an extrapolation from the overall countywide growth trends and historic patterns over the past several decades. This estimation technique would assume that Ocean Isle Beach's permanent population would continue to hold steady at around 0.6 percent of Brunswick County's total. Unfortunately, this technique would provide an unrealistic estimate of Ocean Isle Beach's population due to the development trends described in the subsequent sections of this report.

Given the existing height and density restrictions, there is no reason to believe that Ocean Isle Beach's population will grow in a significant way over the next five to ten years if it maintains its existing zoning and height and density limitations. There are currently 696

vacant parcels within the Ocean Isle Beach municipal boundary. If development continues at its present rate, the Island should become built out within ten years and have few vacant parcels left. If one assumes that the same percentage of housing units is occupied on a year round basis (8.3 percent), then this would produce a population at build-out of 544. This figure is produced by multiplying the number of occupied housing units (267) by the average number of people per household in 2000 (2.04). However, these increases are likely to have a negligible affect on the Town's infrastructure or services.

However, it is important to note that Ocean Isle Beach is currently the North Carolina barrier beach community with the second lowest percentage of housing units that are occupied year-round (8.3 percent) [Table 3.1]. The percentage of housing units that are occupied year-round could increase due to population trends in neighboring areas or a retiring baby boom population. Either situation could increase the year round population (i.e., the percentage of occupied housing units). This could have a large impact on the Town's year round population. If Ocean Isle Beach's percentage of housing units occupied year-round increased from the second lowest percentage to the average for North Carolina municipal beaches (31.44%), the island population would increase by about 23 percent. This would translate into a year round population of about 1,608, an increase of 1,182 people (277 percent increase). If we assume at build out that the percentage of housing units occupied by year round residents is the average of North Carolina municipal beaches (31.44percent) then the population in 2015 might reach 2,060 (*assumes additional 696 units will be added using all of the vacant parcels; total units = 3211; occupancy = 31.44; 2.04 people/unit).*

3.2 Key Population Demographics

In order to better understand the population of Ocean Isle Beach, it is informative to examine several of the key population, economic, and housing demographics and compare these with Brunswick County and other NC barrier beach communities [Table 3.1].

3.2.A *Age of the Population*

The *median age* of residents of the Town of Ocean Isle Beach is 53.4 years. This is comparable to the average among NC beach communities, which is 50.3 years. Of the 20 barrier beach communities, Ocean Isle Beach has the eighth highest median age. The barrier beach municipality with the highest median age is Pine Knoll Shores (61.8) and the lowest is Kill Devil Hills (36.7). In both 1990 and 2000, on a percentage basis, Ocean Isle Beach had fewer school age children than Brunswick County [Table 3.5]. This may be due to the high cost of housing on Ocean Isle Beach and the economics of young families. In both 1990 and 2000, there were lower percentages of young adults aged 18 to 24 in Ocean Isle Beach than in Brunswick County. In 1990, the age group ranging from 25-54 was similar in Ocean Isle Beach and Brunswick County on a percentage basis; in 2000, Ocean Isle Beach saw a slight decrease in this age group, and had a percentage slightly lower than Brunswick County's. In

Table 3.5: Persons by Age (1990 – 2000)

Age Group	Ocean Isle Beach 1990	Percent Total	Ocean Isle Beach 2000	Percent Total	Brunswick County 1990	Percent Total	Brunswick County 2000	Percent Total
0-4	22	4.1 %	10	2.3 %	3,278	6.4 %	4,005	5.5 %
5-17	62	11.6 %	34	8.0 %	8,766	17.2 %	11,504	15.7 %
18-24	8	1.5 %	23	5.4 %	4,186	8.2 %	5,103	7.0 %
25-54	223	41.8 %	159	37.3 %	20,883	41.0 %	29,411	40.2 %
55-64	139	26.0 %	110	25.8 %	6,411	12.6 %	10,740	14.7 %
65+	80	15.0 %	90	21.1 %	7,461	14.6 %	12,380	16.9 %
Total	534	100.0 %	426	100.0 %	50,985	100.0 %	73,143	100.0 %

Source: NC State Data Center - United States Census Population and Housing 1990 and 2000

Table 3.6: Racial Composition (1990 – 2000)

Race	Ocean Isle Beach 1990	Percent Total	Ocean Isle Beach 2000	Percent Total	Brunswick County 1990	Percent Total	Brunswick County 2000	Percent Total
Total	534	100.0 %	426	100.0 %	50,985	100.0 %	73,143	100.0 %
White	531	99.4 %	420	98.6 %	41,303	81.0 %	60,200	82.3 %
Black	0	0.0 %	0	0.0 %	9,185	18.0 %	10,516	14.4 %
Other	3	0.6 %	6	1.4 %	497	1.0 %	2,427	3.3 %

Source: NC State Data Center Municipal Population-Race 1990 and 2000

Table 3.7: Educational Attainment for Persons 25 and Over (2000)

Education Completed	Ocean Isle Beach (2000)	Percent Total	Brunswick County (2000)	Percent Total
Less than 9th Grade	0	0.0 %	3,337	6.3 %
9-12 no Diploma	11	3.1 %	8,098	15.4 %
HS Graduate	73	20.9 %	17,482	33.2 %
College, No Degree	73	20.9 %	11,821	22.5 %
Associates Degree	48	13.7 %	3,417	6.5 %
Bachelors Degree	126	36.0 %	5,774	11.0 %
Graduate or Professional Degree	19	5.4 %	2,676	5.1 %
Total	350	100.0 %	52,605	100.0 %

Source: United States Census of Population and Housing 2000

1990 and 2000, the percentage of people aged 65 and over in Ocean Isle Beach was slightly higher than the percentage in Brunswick County [Table 3.5]. However, while Ocean Isle Beach has a median age similar to that of other barrier beach communities, it appears to be experiencing a slight aging of its overall population. This aging is to be expected given the aging baby boomer population, and the fact that Ocean Isle Beach attracts wealthy retirees.

3.2.B *Racial Composition*

Table 3.6 demonstrates that less than 0 percent of Ocean Isle Beach's population is black and two percent is non-white. This stands in contrast to Brunswick County where 14.4 percent of the population is black and 3.3 percent of the population is non-white. Comparing the 1990 and 2000 racial compositions, Ocean Isle Beach has become slightly more diverse, but still lags far behind Brunswick County [Table 3.6].

3.2.C *Educational Attainment*

Residents of Ocean Isle Beach are generally better educated than residents in Brunswick County [Table 3.7]. Approximately 96.9 percent of all adults in Ocean Isle Beach are high school graduates compared to 78.3 percent in Brunswick County. Forty-one percent of residents have a bachelor's degree or additional advanced degrees compared to only 16.1 percent of County residents.

3.2.D *Housing Stock*

Tables 3.8 and 3.9 and Figures 3.3 and 3.4 look at changes in the housing stock in Ocean Isle Beach and Brunswick County from 1990 to 2000. Compared to Brunswick County (6.94 percent), a larger percentage of the housing stock on Ocean Isle Beach is multi-family development (29.66 percent); Ocean Isle Beach also has a larger percentage of single-family homes (70.26 percent) than Brunswick County (56.95 percent) when looking at the 2000 U.S. Census data. Brunswick County has a much larger percentage of mobile homes (35.89 percent) as compared to Ocean Isle Beach (0.08 percent) [Table 3.9].

The number of single-family homes in Brunswick County increased by 44.93 percent from 1990 to 2000; a similar increase was observed in Ocean Isle Beach, as a 45.79 percent increase in single-family homes was recorded during the same time period [Table 3.8]. These similar growth patterns are likely to diverge as the amount of vacant land suitable for development in Ocean Isle Beach decreases. There are approximately 696 undeveloped lots suitable for development left in Ocean Isle Beach.

Within Ocean Isle Beach, more than half of the total housing units are classified as *single-family unit/detached housing* (69.30 percent). This is the eighth highest percentage of any NC barrier beach community. The U.S. Census reports that two mobile homes are found in

Table 3.8: Percent Change in the Housing Stock (1990 - 2000)

Housing Units	Ocean Isle Beach 1990	Ocean Isle Beach 2000	Percent Change	Brunswick County 1990	Brunswick County 2000	Percent Change
Total, All Housing Units	1,915	2,515	31.33	37,574	51,431	36.88
Total All Single Family Units	1,212	1,767	45.79	20,211	29,291	44.93
Detached	1,200	1,743	45.25	19,867	28,626	44.09
Attached (Townhouse)	12	24	100.00	344	665	93.31
Multi-Family	694	746	7.49	2,693	3,569	32.53
Two to four units per structure	356	395	10.96	1,443	1,673	15.94
Five to nine units per structure	94	101	7.45	604	1,001	65.73
Ten or more units per structure	244	250	2.46	646	895	38.54
Mobile Homes	9	2	(77.78)	14,210	18,458	29.89
Other	-	0	-	460	113	(75.43)

Source: United States Census of Population and Housing 1990 and 2000

Figure 3.3: Percent Change in the Housing Stock (1990-2000)

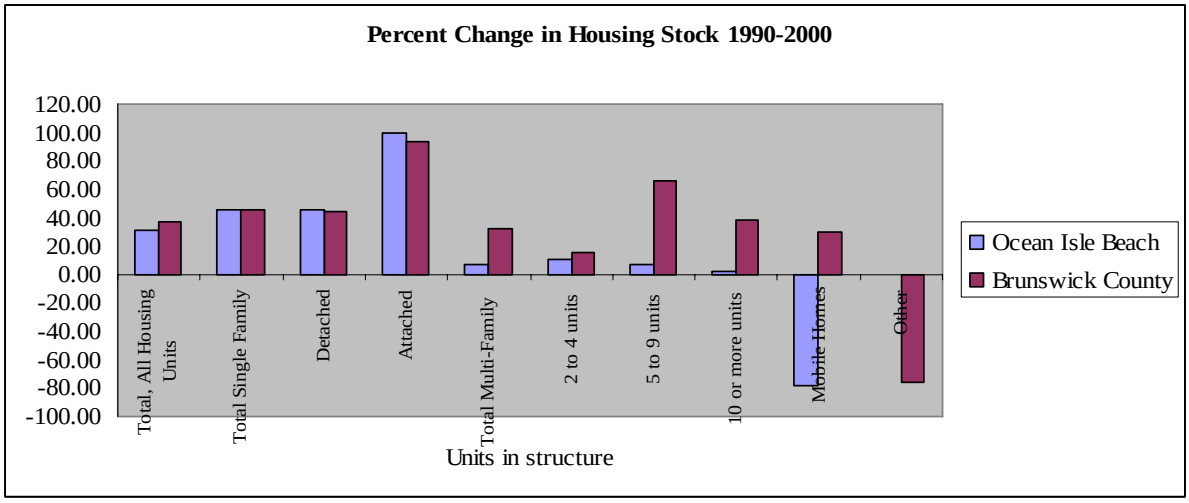


Table 3.9: Percent of Housing Stock (1990 – 2000)

Housing Units	Ocean Isle Beach 1990	Percent Total	Ocean Isle Beach 2000	Percent Total	Brunswick County 1990	Percent Total	Brunswick County 2000	Percent Total
Total, All Housing Units	1,915	100.00	2,515	100.00	37,574	100.00	51,431	100.00
Total All Single Family Units	1,212	63.29	1,767	70.26	20,211	53.79	29,291	56.95
Detached	1,200	62.66	1,743	69.30	19,867	52.87	28,626	55.66
Attached (Townhouse)	12	0.63	24	0.95	344	0.92	665	1.29
Multi-Family	694	36.24	746	29.66	2,693	7.17	3,569	6.94
Two to four units per structure	356	18.59	395	15.71	1,443	3.84	1673	3.25
Five to nine units per structure	94	4.91	101	4.02	604	1.61	1001	1.95
Ten or more units per structure	244	12.74	250	9.94	646	1.72	895	1.74
Mobile Homes	9	0.47	2	0.08	14,210	37.82	18,458	35.89
Other	-	-	0	0.00	460	1.22	113	0.22

Source: United States Census of Population and Housing 1990 and 2000

Figure 3.4: Percent of Housing Stock (2000)

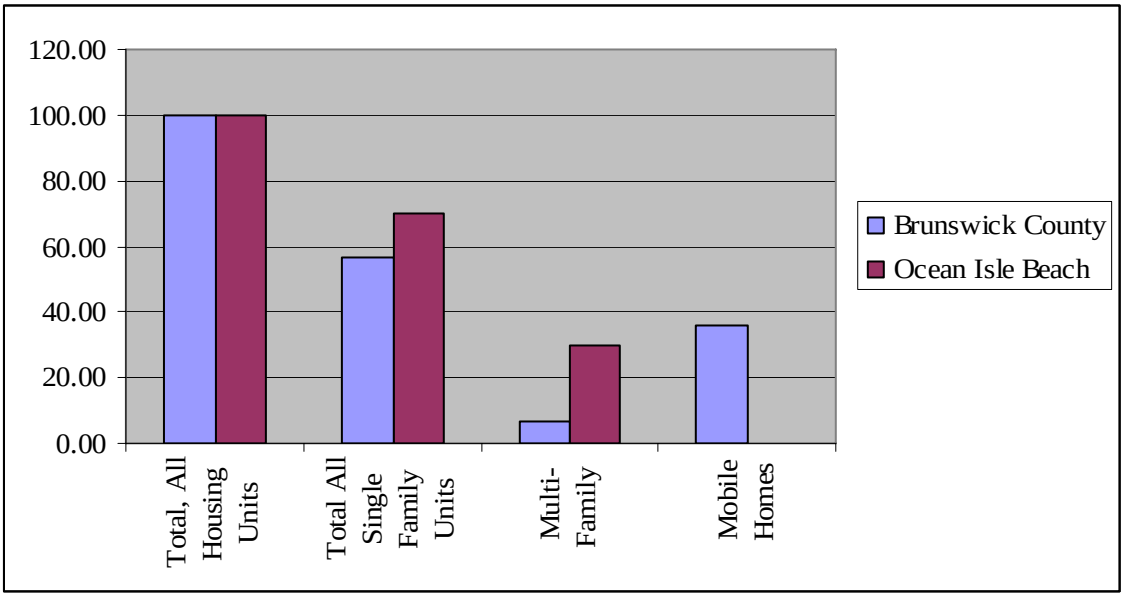
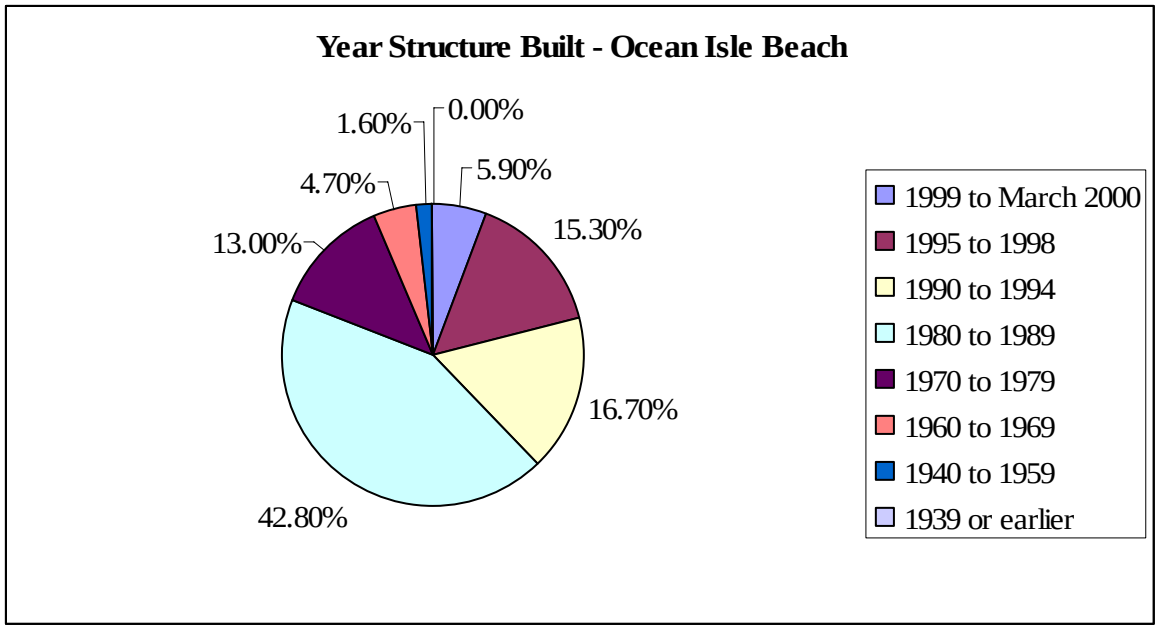


Table 3.10: Age of Structures in Ocean Isle Beach

Year Structure Built	Number	Percent
1999 to March 2000	149	5.9 %
1995 to 1998	385	15.3 %
1990 to 1994	419	16.7 %
1980 to 1989	1077	42.8 %
1970 to 1979	327	13.0 %
1960 to 1969	118	4.7 %
1940 to 1959	40	1.6 %
1939 or earlier	0	0.0 %
Total	2,515	100 %

Source: United States Census of Population and Housing 2000

Figure 3.5: Age of Structures in Ocean Isle Beach by Percentage



Ocean Isle Beach, these mobile homes are located in the mainland portion of the Town. The NC barrier beach with the highest percentage of single family/detached homes is Southern Shores (97.4 percent). The lowest percentage of single-family homes is in Indian Beach (2.7 percent) and the second lowest is North Topsail Beach (25.7 percent). In Brunswick County, 55.7 percent of housing is in single family/detached units, while in North Carolina it is 64.4 percent.

Table 3.11: Percent of Owner vs. Renter Occupied Housing (1990 – 2000)

Housing Units	Ocean Isle Beach 1990	Percent Total	Ocean Isle Beach 2000	Percent Total	Brunswick County 1990	Percent Total	Brunswick County 2000	Percent Total
Total Housing Units	1,915	100.0%	2,507	100.0 %	37,114	100.0 %	51,431	100.0 %
Occupied	242	12.6 %	209	8.3 %	20,069	54.1 %	30,438	59.2 %
Owner Occupied	200	10.4 %	180	7.2 %	16,358	44.1 %	25,013	48.6 %
Renter Occupied	42	2.2 %	29	1.2 %	3,711	10.0 %	5,425	10.5 %
Vacant	1,673	87.4 %	2,298	91.7 %	17,045	45.9 %	20,993	40.8 %

Source: Census of Population and Housing 1990 and 2000

Multi-family structures containing two to four units accounted for 15.71 percent of all housing units in Ocean Isle Beach in 2000 compared to only 3.25 percent in the County. The percentage of multi-family structures containing two to four units in Ocean Isle Beach decreased slightly from 18.59 to 15.71 percent from 1990 to 2000 while the percentage of multi-family structures containing two to four units in the County decreased slightly from 3.84 to 3.25 percent. The number of multi-family structures containing two to four units in Ocean Isle Beach increased by 10.96 percent from 1990 to 2000 while the number of multi-family structures containing two to four units in the County increased by 15.94 percent over the same period of time.

Structures containing five or more housing units accounted for 17.65 percent of housing in Ocean Isle Beach in 1990. The percentage decreased slightly to 13.96 percent in 2000. Comparatively, the same type of units increased slightly during this period in Brunswick County from 3.33 to 3.69 percent.

3.2.D.1 ***Age of Structures***: The last inventory of housing age in Ocean Isle Beach was completed during the 2000 U.S. Census; 37.9 percent of housing in Ocean Isle Beach has been built since 1990. Only 19.3 percent of the housing in Ocean Isle Beach was built before 1980. The trend to notice here is that development within the municipal boundaries for Ocean Isle Beach is relatively new. Future development is expected to be both redevelopment and new development, until the vacant, buildable lots are depleted.

3.2.D.2 ***Occupancy***: In Ocean Isle Beach, only 8.3 percent of the total *housing units were occupied year round.* An occupied unit is defined as a unit where a person or group of persons is living at the time the Census is conducted. The occupants must have no other normal place of residence for the unit to be counted as occupied. Similarly, if the occupants are only temporarily absent (i.e., on vacation) the unit is counted as occupied. Ocean Isle Beach has the second lowest occupancy rate among NC barrier beach communities. The highest percentage is Carolina Beach (56.2 percent) while the lowest is Indian Beach (4.1 percent).

Table 3.12: Percent Change in Owner vs. Renter Occupied Housing (1990 – 2000)

Housing Units	Ocean Isle Beach 1990	Ocean Isle Beach 2000	Percent Change	Brunswick County 1990	Brunswick County 2000	Percent Change
Total All Housing Units	1,915	2,507	30.91	37,114	51,431	38.58
Occupied	242	209	(13.64)	20,069	30,438	51.67
Owner Occupied	200	180	(10.00)	16,358	25,013	52.91
Renter Occupied	42	29	(30.95)	3,711	5,425	46.19
Vacant	1,673	2,298	37.36	17,045	20,993	23.16

Source: United States Census of Population and Housing 2000

Figure 3.6: Percent Change in Owner vs. Renter Occupied Housing (1990 – 2000)

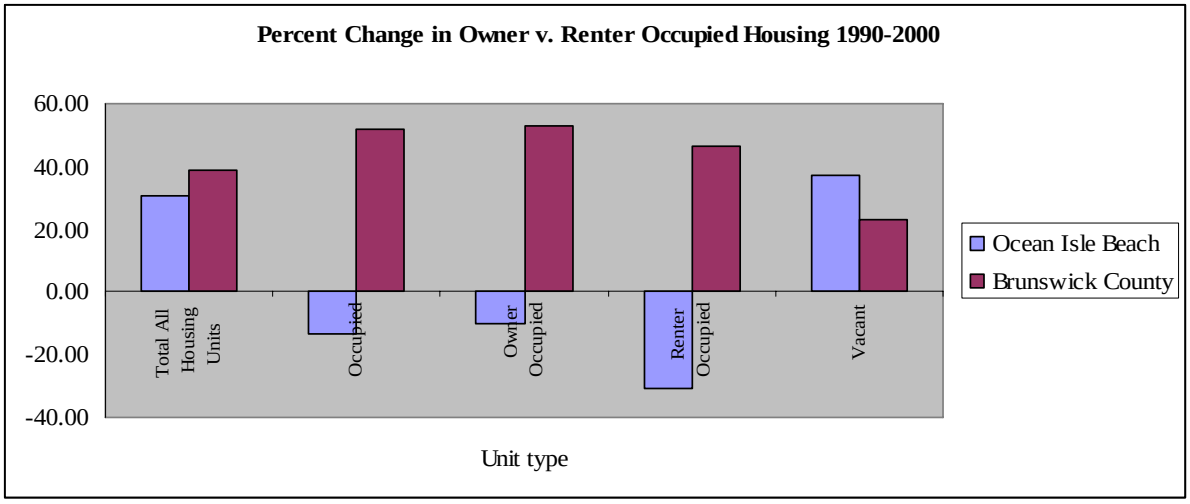


Table 3.13: Vacant and Seasonal Housing (1990 – 2000)

Housing Units	Ocean Isle Beach 1990	Percent Total	Ocean Isle Beach 2000	Percent Total	Brunswick County 1990	Percent Total	Brunswick County 2000	Percent Total
Total of All Housing units	1,915	100 %	2,507	100 %	37,114	100.0 %	51,431	100 %
Vacant	1,673	87.4 %	2,298	91.7 %	17,045	45.9 %	20,993	40.8 %
Seasonal, recreational & occasional use	1,374	71.7 %	1,470	58.6 %	12,840	34.6 %	15,540	30.2 %
All other vacant	299	15.6 %	828	33.0 %	4,205	11.3 %	5,453	10.6 %

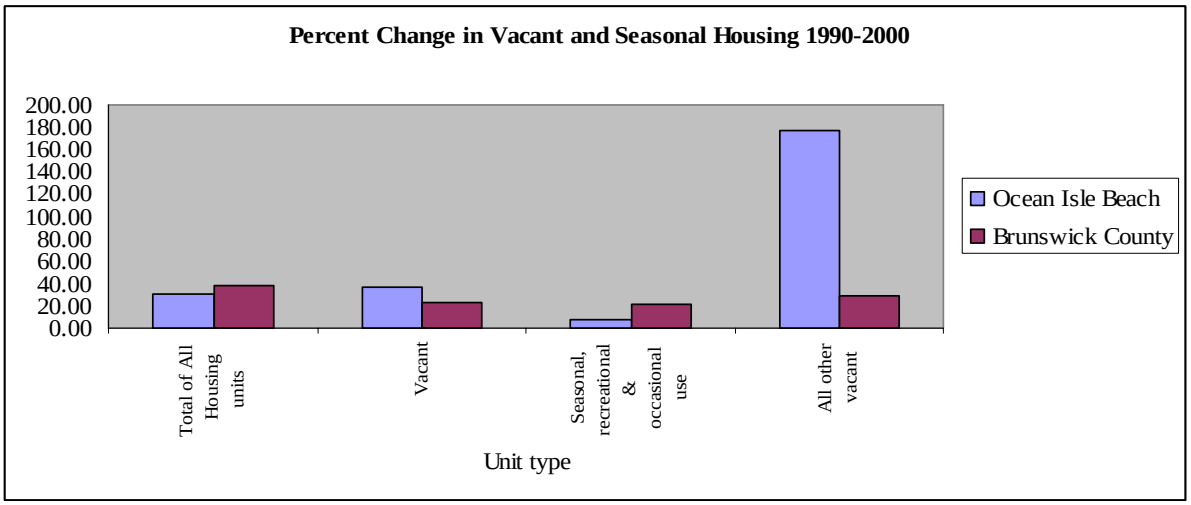
Source: United States Census of Population and Housing 1990 and 2000
*Seasonal: held for occupation during summer
*Occasional Use: Unoccupied but not for rent or for sale

Table 3.14: Percent Change in Vacant and Seasonal Housing (1990 – 2000)

Housing Units	Ocean Isle Beach 1990	Ocean Isle Beach 2000	Percent Change	Brunswick County 1990	Brunswick County 2000	Percent Change
Total of All Housing units	1,915	2,507	30.91 %	37,114	51,431	38.58 %
Vacant	1,673	2,298	37.36 %	17,045	20,993	23.16 %
Seasonal, recreational & occasional use	1,374	1,470	6.99 %	12,840	15,540	21.03 %
All other vacant	299	828	176.92 %	4,205	5,453	29.68 %

Source: 1990 and 2000 Census of Population and Housing

Figure 3.7: Percent Change in Vacant and Seasonal Housing (1990 – 2000)



This statistic characterizes Ocean Isle Beach as a seasonal community, with population spiking during summer months and approximately 90 percent of the housing standing empty during the winter months. By way of contrast, in North Carolina, the percentage of housing units occupied year round is 88.9 percent. In Brunswick County the figure is 59.2 percent.

In Ocean Isle Beach, owner occupied housing accounts for 10.4 percent of all units in 1990 and 7.2 percent in 2000 [Table 3.11]. As shown in Table 3.12, the number of occupied units in Ocean Isle Beach actually decreased by 13.64 percent from 1990 to 2000, while it increased by 51.67 percent in the County. From 1990 to 2000, the number of owner occupied units also decreased (-10.0 percent), while during the same period the County's owner occupied units increased by 52.91 percent. Renters occupied 2.2 percent of all housing at Ocean Isle Beach in 1990, and 1.2 percent in 2000. During this same period, renter occupied housing decreased by 30.95 percent at Ocean Isle Beach, while in the County renter occupied housing increased by 46.19 percent. The increased housing values and the

Table 3.15: Building Permits Issued for Ocean Isle Beach (2000 – 2005)

Type of Building	2000	2001	2002	2003	2004	2005	Total
Single Family	58	50	78	88	79	73	426
Commercial	2	4	3	2	2	2	15
Multi Family	2	1	4	3	10	7	27
House Moving Permits	6	2	5	1	8	6	28
Total	68	57	89	94	97	88	496

Source: Ocean Isle Beach Planning and Inspections Yearly Reports 2000 to 2005

Table 3.16: Building Permits Issued for Ocean Isle Beach ETJ Area (2000 – 2005)

Type of Building	2000	2001	2002	2003	2004	2005	Total
Single Family	27	16	8	20	17	19	107
Mobile Home	11	10	6	4	0	5	36
Commercial	-	-	-	-	-	-	-
Multi Family	0	1	0	1	0	0	2
House Moving Permits	-	-	-	-	-	-	-
Total	38	27	14	25	17	24	145

Source: Ocean Isle Beach Planning and Inspections Yearly Reports 2000 to 2005

growth of seasonal, recreational, and occasional housing units, and vacant housing units, helps explain the low occupancy rate. The trends in the Ocean Isle Beach housing occupancy between 1990 and 2000 are generally reflective of the population trends during this same time period.

3.2.D.3 ***Vacant and Seasonal Housing***: Given the large influx of seasonal residents, it is useful to understand the vacant and seasonal housing available on Ocean Isle Beach. As indicated in Table 3.13, 87.4 percent of all housing at Ocean Isle Beach was vacant in 1990. Of this, 71.7 percent was for seasonal, recreational or occasional use, which is defined as vacant but not for rent or sale. In 2000, the percentage of vacant housing increased to 91.7 percent with 58.6 percent used for seasonal, recreational or occasional purposes. This translates into a 6.99 percent increase in the housing used for seasonal, recreational or occasional purposes during the 1990 to 2000 time frame. During the same period, there was a 30.91 percent increase in total housing units [Table 3.14] while the percentage of vacant housing units increased by 176.92 percent (from 299 to 828 units).

The vacancy rates are obviously much higher in Ocean Isle Beach than in Brunswick County, due to the large number of seasonal properties and the influx of seasonal residents, many of whom rent properties for some period of time. For example, Brunswick County as a whole had a relatively low rate of vacancy during this time period. In 1990, 45.9 percent of all units

were vacant, with 34.6 percent being used for recreational purposes. In 2000, 40.8 percent of all housing was vacant in Brunswick County with 30.2 percent being used for recreational purposes [Table 3.13]. However, the vacancy rate for non-seasonal housing in Ocean Isle Beach is much higher than in the county as a whole and has increased at almost six times the pace of the county vacancy rate.

3.2.D.4 ***Development and Redevelopment Activity***: Another important trend is the redevelopment of existing parcels. Tables 3.15 and 3.16 report the building permits issued from 2000 until the end of 2005. There were 496 newly erected structures in Ocean Isle Beach, and 145 newly erected structures within the Ocean Isle Beach ETJ. Between 2000 and 2005, approximately 83 percent of the new construction within Ocean Isle Beach and the Ocean Isle Beach ETJ were single-family residential type.

3.3 Housing Value

One measure of a community's vitality is the value of its housing stock. Since Ocean Isle Beach is a barrier beach community, it is not surprising to find that the value of owner occupied units is generally much higher at Ocean Isle Beach than in the County. Approximately 63.9 percent of owner occupied housing at Ocean Isle Beach is valued at $300,000 or greater. In comparison, only 9.9 percent of housing is valued above $300,000 in Brunswick County. Not surprisingly, the cost of rent is also much higher at Ocean Isle Beach than in the County. In Ocean Isle Beach, 100 percent of rent is above $500, while in Brunswick County only 49.7 percent of rent is above $500, among those who pay rent.

Based upon data from the 2000 Census, the *median value of owner occupied housing* in the Town of Ocean Isle Beach is $340,700. This is the fourth highest value amongst NC barrier beach communities. The NC Barrier Island Beach municipal average is $249,145. By way of contrast, Brunswick County's median value of owner occupied housing is $127,400, while in North Carolina it is $108,300. The highest median value for owner occupied housing is at Indian Beach ($625,000). The second highest is at Bald Head Island ($525,000). The lowest median value of owner occupied housing is in Kill Devil Hills ($104,500).

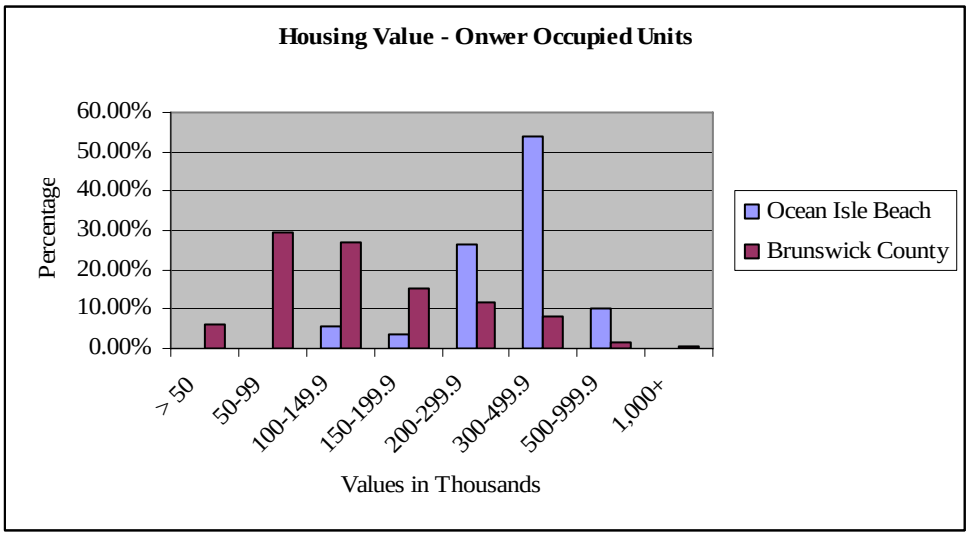
The value of property in NC barrier beach communities has increased significantly since the 2000 Census. In an effort to obtain a more realistic value for owner occupied housing in NC barrier beach communities, contact was made with the various Boards of Realtors along the NC coast. Not all Boards would supply the requested information on 2005 home sales prices; however, among those that did, an average increase of 160% was seen between the median value of owner occupied housing in 2000, and the 2005 average home sales price. The 2005 average home sales prices were obtained from the Brunswick County Board of Realtors; the Carteret County Association of Realtors provided similar data for Carteret County beaches. For Ocean Isle Beach, the median value of owner occupied housing in 2000 was $340,700; the 2005 average home sales price for Ocean Isle Beach was $642,106; this is an increase of 88 percent. For Brunswick County, the median value of owner occupied housing in 2000 was $127,400; the 2005 average home sales price for Brunswick County was $304,659; this is an increase of 139 percent.

Table 3.17: Housing Value for Specified Owner Occupied Housing Units (2000)

Values	Ocean Isle Beach 2000	Percent Total	Brunswick County 2000	Percent Total
Less Than $50,000	0	0.0 %	930	5.9 %
50-99,000	0	0.0 %	4,666	29.7 %
100-149,999	9	5.7 %	4,280	27.2 %
150-199,999	6	3.8 %	2,442	15.5 %
200-299,999	42	26.6 %	1,868	11.9 %
300-499,999	85	53.8 %	1,235	7.9 %
500,000-999,9999	16	10.1 %	267	1.7 %
1,000,000+	0	0.0 %	43	0.3 %
Total	158	100.0 %	15,731	100.0 %

Source: United States Census of Population and Housing 2000

Figure 3.8: Percentage of Owner Occupied Housing at Specified Values (2000)



3.4 Income

Given the value of its housing stock, it should not be surprising to find that Ocean Isle Beach is an affluent community with approximately 65.2 percent of the population making more than $50,000 per year. The U.S. Bureau of the Census gathered the latest information on the income in Ocean Isle Beach in 2000, but the income information was gathered from the previous year. Consequently, the latest information available is for the calendar year 1999 [Table 3.19 & 3.20.].

Table 3.18: Contract Rent for Specified Renter Occupied Housing Units (2000)

Contract/Rent	Ocean Isle Beach 2000	Percent Total	Brunswick County 2000	Percent Total
Gross Rent				
Less than $200	0	0.0 %	131	2.4 %
$200-$299	0	0.0 %	195	3.6 %
$300-$499	0	0.0 %	1,619	30.0 %
$500-$749	16	45.7 %	1,814	33.6 %
$750-$999	3	8.6 %	605	11.2 %
$1,000-$1,499	11	31.4 %	205	3.8 %
$1,500 or more	3	8.6 %	59	1.1 %
No Cash Rent	2	5.7 %	763	14.2 %
Total	35	100.0 %	5,391	100.0 %

Source: United States Census of Population and Housing 2000

Figure 3.9: Percentage of Renters Paying Specified Rent Values (2000)

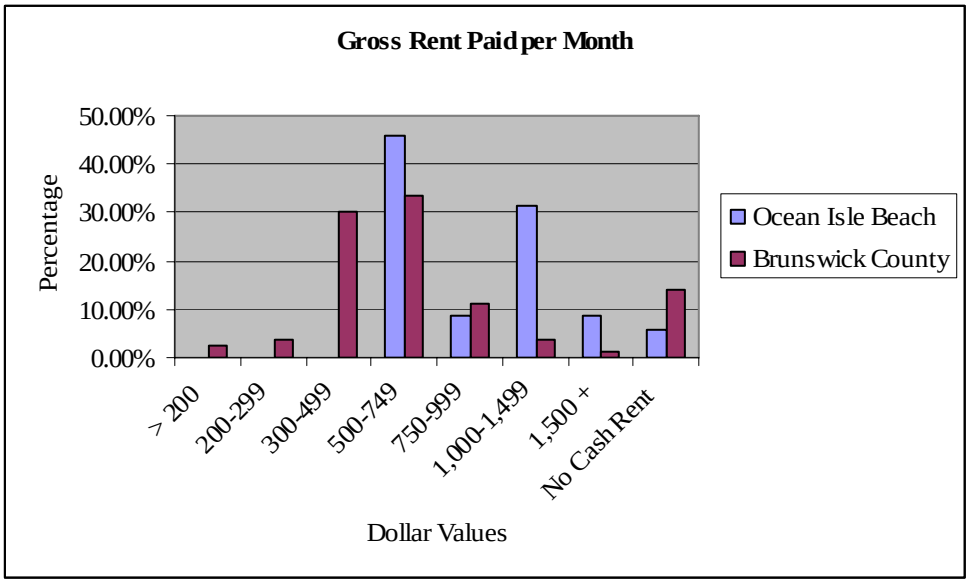


Table 3.19: Income (1999)

Income Range	Number	Percent
Less than $10,000	8	4.1 %
$10,000 to $14,999	2	1.0 %
$15,000 to $24,999	22	11.3 %
$25,000 to $34,999	14	7.2 %
$35,000 to $49,999	22	11.3 %
$50,000 to $74,999	48	24.6 %
$75,000 to $99,999	22	11.3 %
$100,000 to $149,999	29	14.9 %
$150,000 to $199,999	12	6.2 %
$200,000 or more	16	8.2 %
Total	195	100.0 %

Source: United States Census Population and Housing 2000

Table 3.20: Median Incomes (1999)

Ocean Isle Beach Income	1989	1999	Percent Growth
Median Income Households	$40,278	$67,639	67.93 %
Median Income Families	$48,750	$65,625	34.62 %
Per Capita Income	$36,818	$42,605	15.72 %

Source: United States Census Population and Housing 1990 and 2000

The *median household income* in Ocean Isle Beach is $67,639, making it the highest amongst NC barrier beach communities. This is substantially higher than Brunswick County ($35,888). The second highest median household income among NC barrier beach communities is in Bald Head Island ($62,083) and the lowest is found in Carolina Beach ($37,662). The *median family income* in Ocean Isle Beach is $65,625, making it the third highest of all NC barrier beach communities and is substantially higher than Brunswick County ($42,037) and North Carolina ($46,335). By way of contrast, the lowest median family income is in Kill Devil Hills ($44,681).

The *per capita income* in Ocean Isle Beach is $42,605, making it the second highest among NC barrier beach communities. This is substantially higher than Brunswick County ($19,875) and North Carolina ($20,307). The highest per capita income among NC barrier beach communities is at Bald Head Island ($45,585), while the lowest is Kill Devil Hills ($20,679).

The important conclusion to draw from these data is that regardless of how you measure income in Ocean Isle Beach, the trends over the last decade are towards a growth in income with median household income rising by 67.93 percent, median family income increasing by 34.62 percent, and per capita rising 15.72 percent.

Table 3.21: Poverty Status

Poverty Status 1999	Ocean Isle Beach (Number)	Ocean Isle Beach (Percentage)	Brunswick County (Percentage)	North Carolina (Percentage)
Families	5	3.5 %	9.5 %	9.0 %
Families with related children under 18	0	0.0 %	16.0 %	13.3 %
Families with related children under five	0	0.0 %	21.7 %	16.5 %
Families with female householder with no husband present	0	0.0 %	34.2 %	27.4 %
With related children under 18	0	0.0 %	43.4 %	34.3 %
With related children under five	0	0.0 %	61.7 %	45.9 %
Individuals	17	4.1 %	12.6 %	12.3 %
18 years and over	17	4.5 %	10.6 %	11.0 %
65 years and over	5	5.9 %	8.1 %	13.2 %

Source: United States Census of Population and Housing 2000

3.4.A *Low and Fixed Income Populations*

Given the high rent and home values, it should not be surprising to learn that there is very little of what the U.S. government refers to as "poverty" in Ocean Isle Beach. There are five families and 17 individuals, or 3.5 percent and 4.1 percent of the population, defined as living in poverty, respectively. The average amount of public assistance income for this population was $9,600. By way of contrast, in Ocean Isle Beach there are 57 households earning in excess of $100,000, approximately 29.3 percent of all households. Moreover, the percentage of persons living in poverty in Ocean Isle Beach (3.5 percent) is lower than the percentages found in the state (9.0 percent) and Brunswick County (9.5 percent).

The number of households in Ocean Isle Beach reporting Social Security income is 60 with a mean social security income per household of $14,585. The number of Ocean Isle Beach households reporting retirement income was 69 with a mean retirement income of $34,519. By way of contrast, North Carolina's mean retirement income was $16,831. Thus, there is a significant population of retired individuals in Ocean Isle Beach, many of which may be on fixed incomes. However, these retirees are more affluent than those found elsewhere in the county or state.

Table 3.22: Employment Status

Ocean Isle Beach Employment Status	Number	Percent
Population 16 years of age and over	391	100 %
In Labor Force	194	49.6 %
Civilian Labor Force	194	49.6 %
Employed	190	48.6 %
Unemployed	4	1.0 %
Armed Forces	0	0.0 %

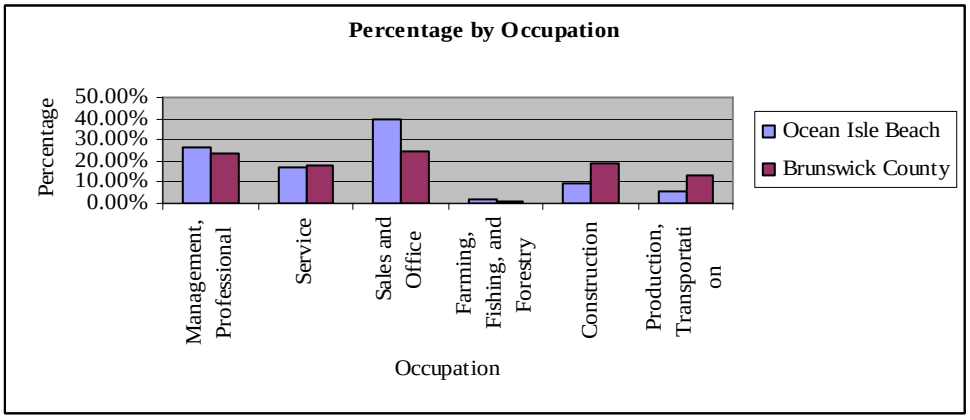
Source: United States Census of Population and Housing 2000

Table 3.23: Ocean Isle Beach Occupations

Occupation	Number	Ocean Isle Beach Percentage	Brunswick County Percentage
Management, Professional, and related	51	26.8 %	23.5 %
Service	32	16.8 %	18.0 %
Sales and Office	75	39.5 %	25.0 %
Farming, Fishing, and Forestry	3	1.6 %	1.0 %
Construction, Extraction, and maintenance	18	9.5 %	19.0 %
Production, Transportation, and material moving	11	5.8 %	13.5 %

Source: United States Census of Population and Housing 2000

Figure 3.10: Percentage Employed by Occupation Type (2000)



3.5 Local Economy

A vibrant economy is essential to assure a community's continued prosperity. Ocean Isle Beach is a seasonal community with only 8.3 percent of housing occupied year round. During the summer months, the Ocean Isle Beach population more than triples as tourists and vacationers as well as summer residents flood the island. Accordingly, Ocean Isle Beach is dominated by a service-based economy. No traditional industry is found on the island. Many of the year round residents work in the Brunswick County area. Approximately 88.2 percent of all persons employed who live in Ocean Isle Beach drive to work alone while 2.7 percent car pool. Many of the service jobs related to tourism on Ocean Isle Beach are occupied by non-Ocean Isle Beach residents seeking temporary employment during summer months or by local students from area high schools and colleges.

3.5.A *Employment*

The *percentage of persons in the labor force* (16 and over) at Ocean Isle Beach is 49.6 percent, making Ocean Isle Beach the fifth lowest among NC barrier beaches [Table 3.22]. This is likely due to the higher median age in Ocean Isle Beach. This is also comparable to the percentage of persons in Brunswick County in the workforce (57.7 percent). It is somewhat lower than the percentage of the total North Carolina population in the work force (65.7 percent). Examining Table 3.23, it appears that slightly more Ocean Isle Beach residents work in the sectors of management, professional and related occupations; sales and office sector; and farming, fishing, and forestry sectors than is found in Brunswick County. This is likely due to the well-educated population and the Island's reliance on service-oriented business establishments.

Table 3.24 summarizes employment patterns of permanent residents in Ocean Isle Beach age 16 and over. Employment patterns are similar to those found in Brunswick County; however, a few differences deserve attention. Manufacturing employs only 1.1 percent of Ocean Isle Beach residents, but almost 8.2 percent of Brunswick County residents. Finance and real estate employ 17.9 percent of Ocean Isle Beach residents and 6.0 percent of the Brunswick County. Educational health and social services industries employ only 5.8 percent of residents of Ocean Isle Beach, but 14.8 percent of the County. The larger number of residents employed in finance, real estate and professional industries also reflect its more educated population and higher median income. The class of worker statistics for Ocean Isle Beach and Brunswick County are very similar for 2000 [Table 3.25].

Table 3.24: Employed Persons 16 and Over (2000)

Industry	Ocean Isle Beach 2000	Percent Total	Brunswick County 2000	Percent Total
Agriculture, Forestry, Fishing, Hunting and Mining	3	1.6 %	422	1.3 %
Construction	26	13.7 %	5,375	16.6 %
Manufacturing	2	1.1 %	2,660	8.2 %
Wholesale Trade	8	4.2 %	799	2.5 %
Retail Trade	35	18.4 %	4,301	13.3 %
Transportation, Warehousing and Utilities	17	8.9 %	2,027	6.3 %
Information	1	0.5 %	451	1.4 %
Finance, Real Estate, Rental and Leasing	34	17.9 %	1,930	6.0 %
Professional Scientific, Management, Administrative, and Waste Management Services	9	4.7 %	2,469	7.6 %
Educational Health and Social Services	11	5.8 %	4,779	14.8 %
Arts, Entertainment, Recreation, Accommodation and Food Services	30	15.8 %	3,957	12.2 %
Other Services (Except Public Administration)	7	3.7 %	1,675	5.2 %
Public Administration	7	3.7 %	1,510	4.7 %
Total Employed Persons 16+	190	100.0 %	32,355	100.0 %

Source: United States Census of Population and Housing 2000

Figure 3.11: Percent Population Employed in Specific Industries

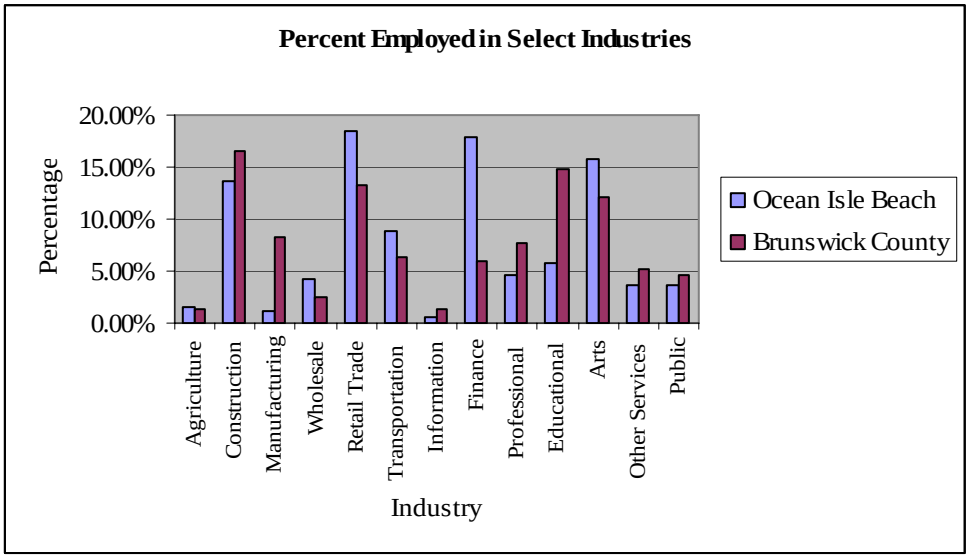


Table 3.25: Ocean Isle Beach Class of Worker

Class of Worker	Ocean Isle Beach Number	Ocean Isle Beach 2000 (Percent)	Brunswick County 2000 (Percent)
Private Wage and Salary	146	76.8 %	76.5 %
Government	19	10.0 %	12.7 %
Self-employed	21	11.1 %	10.4 %
Unpaid Family	4	2.1 %	0.5 %

Source: United States Census Population and Housing 2000

Table 3.26: Unemployment Rates

Area Unemployment Rates - 2005	December 2005	September 2005	May 2005	December 2004
Brunswick County	4.4%	4.4%	4.4%	5.5%
New Hanover County	3.5%	3.8%	3.9%	4.1%
Columbus County	6.1%	6.6%	5.9%	6.5%
Pender County	4.3%	4.5%	4.3%	4.2%
North Carolina	4.7%	5.1%	5.0%	5.3%

Source: North Carolina Employment and Security Commission Labor Market Information Division

3.5.B *Unemployment*

Unemployment tends to be a lagging indicator in that it follows the business cycle. Overall, unemployment rates for Brunswick County generally declined between December 2004 and May 2005, and have held relatively steady since that time. The Brunswick County unemployment rates are generally lower than those in Columbus County, and the state. Unemployment rates in Pender County are similar to Brunswick County; unemployment rates in New Hanover County are generally lower than those in Brunswick County.

3.5.C *Retail Sales*

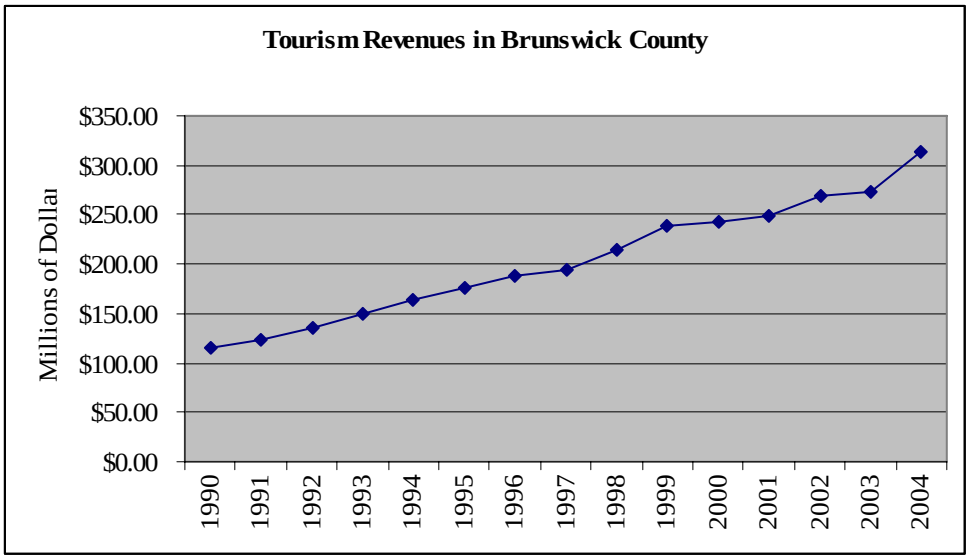
Another measure of a community's economic vitality is its retail sales. According to the North Carolina Department of Revenue, the gross retail sales in Brunswick County rose by 12.03 percent between 2003 - 2004 and 2004 - 2005 (most recent data available). They rose from $1.02 billion to $1.14 billion. Statewide, sales rose 9.6 percent to $153.6 billion.

Table 3.27: Tourism Revenue in Brunswick County ($ Millions)

Year	$ Millions
1990	$115.83
1991	$122.61
1992	$136.04
1993	$149.16
1994	$162.97
1995	$176.22
1996	$188.76
1997	$194.57
1998	$215.01
1999	$238.01
2000	$243.51
2001	$248.00
2002	$269.92
2003	$272.58
2004	$313.65

Source: North Carolina Department of Commerce

Figure 3.12: Tourism Revenue in Brunswick County



3.5.D *Summary of Community Economic Activity*

Ocean Isle Beach's economy generally reflects the trends that occur in Brunswick County and the larger four-county region (Brunswick, New Hanover, Columbus, and Pender). Therefore, it is expected that as the regional economy improves or declines, so will Ocean Isle Beach's. Ocean Isle Beach is also heavily dependent on the tourism industry. In general, if this industry is doing well, the Town's economy is doing well. Thus, the local economy is affected by larger statewide and national fluctuations in the economy that influence tourism. As noted in Table 3.27 and on Figure 3.12, the county tourism has been steadily increasing since 1990; the same trend appears to hold on the Island. As described in Section IV, the local economy can also be influenced by events outside of human control (weather, hurricanes, etc.).

3.6 Future Population Estimates

Given the large influx of summer tourists and the corresponding impacts on the Town's infrastructure, services, and natural resources, it is important to have good estimates of the seasonal population. The following distinctions are useful to consider:

- ***Permanent population***: year round residents who declare Ocean Isle Beach as their primary residence on their census form and other government documents. This includes people who both own and rent residential property on a year round basis.

- ***Seasonal population***: people who are temporary residents of Ocean Isle Beach who either rent or own property but declare another location as their primary residence. This includes people who own or rent property and reside at Ocean Isle Beach for the summer season or perhaps visit only on weekends. It also includes the additional population occupying housing units rented on a weekly or monthly basis. Given the transitory nature of this population, it is likely to vary over the course of the summer and during any given week with lower numbers on weekdays and higher numbers on weekend days.

Related to seasonal population is the *peak seasonal population*. This figure is the largest and is the combination of the permanent and seasonal residents plus the additional visitors, guests, and tourists that visit the Island during a peak summer *weekend day* rather than a typical weekday.

While it is important for planning purposes to know these numbers, they are difficult to estimate with any precision and require making assumptions based upon experience and an understanding of the underlying population demographics, seasonal tourism industry, and the habits of beach goers. In making these estimates, it is also important to use a variety of techniques whenever possible to help evaluate the reasonableness of the assumptions used by any one technique.

Table 3.28: Ocean Isle Beach Motels & Number of Rooms

Name of Hotel	# of Units
Causeway Inn	35
Ocean Isle Inn	70
The Winds Oceanfront Inn & Suites	86
Islander Inn	70
Total:	**261**

Source: Brunswick County Chamber of Commerce and Contact with Individual Hotels

One of the most frequently used techniques is to base the estimate on the number of housing units by determining what a typical occupancy rate might be and how many people occupy a housing unit on average. According to the 2000 Census and the number of building permits issued for residential construction between 2000 and 2005 as determined by the Ocean Isle Beach Department of Planning and Parks, there were approximately 3,003 (or 2,507 + 496) housing units in Ocean Isle Beach in 2005. If we assume the same occupancy rate for 2005 as the U.S. Bureau of Census found in 2000 (8.3 percent), there are 250 housing units occupied by permanent residents in 2005. This equates to an average of 2.04 persons per unit. Using the same methodology, there were 1,761 (or 1,470 + 291) seasonal and recreational housing units, and vacant housing accounted for additional 992 (or 828 + 164) units. For the purposes of this analysis, vacant housing is treated similar to seasonal and recreational housing in terms of the assumptions made about the number of persons per unit, however, slightly different occupancy rates are used in the calculations. There are also 261 hotel rooms [Table 3.28].

Table 3.29 summarizes the seasonal population projections and it includes both a high and a low estimate. The high estimates use many of the standard estimates of the number of persons per unit used by other barrier beach communities, however, only a 95 percent occupancy rate was used in calculating seasonal and vacant housing [See Table 3.29]. Since the assumptions made in other barrier beach communities may be unrealistic given the higher rental costs and home values in Ocean Isle Beach, a low estimate was also calculated using more conservative estimates of the average number of people per unit and occupancy rates.

The high and low estimates make several assumptions. First, to account for occasional visitors staying with year round residents, the high estimate assumes that there is an additional person per unit (3.04). The low estimate drops this estimate to .25 persons per unit (2.29). In both cases, a 100 percent occupancy rate is assumed. Second, the high estimate uses the standard number used for the number of occupants in a vacation cottage (6.5 persons per unit) and assumes a 95 percent occupancy rate for seasonal and vacant housing units. The low estimate drops the average number of people per unit to 4.5 per unit and assumes an 85 percent occupancy rate for seasonal housing, and a 75 percent occupancy rate for vacant housing. Finally, the high estimate uses the standard number of 3.5 persons per hotel/motel unit with a 100 percent occupancy rate. The low estimate assumes only 2.5 per hotel/motel unit and a 90 percent occupancy rate. The calculations are fairly simple and involve using the following equations:

Table 3.29: High and Low Seasonal Population Estimates

	Low[1]		High[2]	
Housing Units	**Persons/unit**	**Total**	**Persons/unit**	**Total**
Permanently Occupied Housing (250)	2.29	573	3.04	760
Seasonal or Recreational Housing (1,761)	4.5	6,736	6.5	10,875
Vacant Housing (992)	4.5	3,348	6.5	6,125
Hotel/Motel Rooms (261)	2.5	588	3.5	914
Total		11,245		18,674

[1]For the low estimate, the following assumptions were used to calculate the total number of persons: .25 guests per permanent housing unit on average; 85 percent occupancy rate for seasonal recreational housing; 75 percent occupancy rate for vacant housing; and 90 percent occupancy rate for hotel rooms.
[2]For the high estimate, the following assumptions were used to calculate the total number of persons: 1 guest per permanent housing unit on average; 95 percent occupancy rate for seasonal recreational housing; 95 percent occupancy for vacant housing; and, 100 percent occupancy rate for hotel rooms.

(# units) X (Occupancy rate) X (# of people per unit) = # of people

These calculations produce a high estimate of 18,674 and a low estimate of 11,245 people with a mid-range estimate of around 14,960. Thus, while the high estimates may typify a peak summer weekend (e.g., July 4th), the low estimate may better reflect an average summer weekend. In either case, these numbers reflect the population on weekends as compared to a weekday, where the number of people per unit and the occupancy rates will be substantially lower.

These figures do not include people who may travel to the island during the day. This additional strain on the Town's infrastructure is difficult to estimate. However, data from the *Wrightsville Beach 2003 Survey of Beachgoers* provides information that allows us to make some informed assumptions about travel behaviors of people frequenting beaches in southeastern NC. The average carload of people traveling to the beach is unlikely to be much larger than four people, and is probably closer to three people. The typical length of stay at the beach is about five hours. Since people tend to arrive at the beach after 11 AM, only a limited turnover in the parking spaces is likely to occur by beachgoers. This does not include people who may travel to the Island for shopping and to frequent restaurants. They will also occupy parking spaces.

It is hard to estimate the peak number of beachgoers with precision because you run the risk of double counting these individuals since many of the daily visitors are accounted for in the assumptions used to produce Table 3.29. However, we do know that beachgoers will need a place to park. There are 472 public parking spaces on Ocean Isle Beach. If we assume an average of three people per car and that all of the spaces turn over 1.5 times, an additional 2,124 people may travel to the beach by automobile in any given weekend day.

3.6.A *Alternative Ways of Estimating Peak Population*

It is also useful to look at other ways of estimating peak population. Given its geographic configuration with only one entry point at the Odell Williamson Bridge over the Intracoastal Waterway, it might be possible to estimate changes in seasonal population by looking at changes in the traffic counts at the bridge. Unfortunately, DOT does not regularly take traffic counts on the Odell Williamson Bridge. Portable Traffic Count Stations (PTC) are set up on primary routes, and are generally counted once a year by DOT; a few stations are selected periodically to count at different intervals throughout the year in order to obtain an estimate of seasonal traffic. During 2006, DOT set up a PTC on NC 904, just south of the intersection with SR1294; although vehicles traveling past this PTC do have opportunities to turn off NC 904 prior to crossing the Odell Williamson Bridge, the traffic patterns in the vicinity of PTC Station 900016 may be estimated to reflect general traffic trends on the island. Seasonal traffic counts were obtained for six days for a week in February 2006; for five days for a week in May 2006; and for five days for a week in July 2006. The lowest total traffic count was on a Sunday in February. This count showed 4,318 vehicle trips. The highest total traffic count was on a Friday in July. This count showed 19,847 vehicle trips. By way of comparison, the Average Annual Daily Traffic (AADT) on NC 904, leading to the Odell Williamson Bridge at PTC Station 900016 during 2005 was 9,300.

During the 2006 seasonal counts, the highest total count observed was 19,847 vehicle trips on Friday in July. Subtracting the total trips observed on Friday in February (6,720), 13,127 additional car trips were observed on the Island in the summer compared to the winter. This indicates that there is three times more traffic in the vicinity of the Odell Williamson Bridge during the summer compared to the winter. If one assumes that the travel patterns of year round residents are similar to seasonal residents, this might suggest an average summer population of around 1,449 (2004 population = 483 x 3). However, since the summer traffic counts include people visiting the beach, this likely overestimates the average seasonal population.

It is also possible to estimate the seasonal population by comparing water consumption and wastewater discharges during summer and winter months using the figures provided later in Section VII. Ocean Isle Beach reads residential water usage every two months; therefore, collected water usage data during 2005 has been divided in half to get the average monthly usage. The lowest months for average daily use of water were November and December, with 5,989,565 gallons of water used per month. The highest months for average daily use were July and August with 30,448,409 gallons used per month. Irrigation usage has not been included in these water usage counts. Accordingly, average daily water use is 5.08 times greater during summer months. If we assume that water use patterns among seasonal residents during summer months are similar to permanent residents in winter months, then the average seasonal population would be approximately 2,164.

In terms of average daily wastewater discharges, the lowest month is February, with an average daily discharge of 125,000 gallons. The highest month is July, with an average daily discharge of 796,000 gallons. Accordingly, wastewater discharges are 6.4 times higher in the

summer than in the winter. Assuming that seasonal residents use their toilets in a manner similar to year round permanent residents, then the average seasonal population would be approximately 2,727.

Using these alternative estimation techniques, the average seasonal population appears to be somewhere between 2,164 and 2,727. Since the water consumption and wastewater numbers are based on average daily use, it is important to remember that the population for five weekdays could be much lower than the two weekend days. Using the following algebraic formula, it is possible to estimate various peak seasonal populations based on different assumptions about the summer weekday populations:

$$2x + 5y = 2{,}727 \text{ X } 7$$
$$2x = 19{,}089 - 5y$$
$$x = 9{,}545 - 5/2y$$

Where
x = population on a weekend day
y = population on a weekday

If we assume that the average population is about 2,727 and use this formula, then a population of 1,000 on a summer weekday equates to 7,045 on a weekend day. Similarly, a population of 2,000 on a summer weekday would equate to 4,545 on a weekend day. These estimates are substantially lower than the estimates of the peak seasonal population described in the previous section which seems to indicate that the vacant and seasonal housing units may not be occupied at the assumed rate, or by the assumed number of persons.

Section IV

Natural Systems

4.0 Introduction

Protecting and enhancing Ocean Isle Beach's natural systems is critical to the quality of life of residents and visitors. Previous land use plans demonstrate a strong commitment to preserving the beautiful and abundant natural resources of the Town. Accordingly, any residential, commercial, or other development activities permitted by the Town of Ocean Isle Beach shall be compatible with current regulations, development patterns, Areas of Environmental Concern (AEC), wetlands requirements, and soil suitability and measures must be taken to mitigate any potential environmental degradation. This section of the land use plan describes and analyzes the natural features and environmental conditions within the jurisdiction of the Town of Ocean Isle Beach.

One of the basic purposes of North Carolina's Coastal Area Management Act (CAMA) is to establish a management program capable of rational and coordinated management of coastal resources. Development of local land use plans and the designation and regulation of AECs provide the foundation for North Carolina's coastal resource management program. In combination, these mechanisms allow state and local governments to preserve and enhance the state's coastal resources. State guidelines have been adopted to ensure uniformity and consistency in land use plans and in the regulation of AECs; local governments, however, are granted significant flexibility when developing policies and taking actions to protect them. Accordingly, an important component of this Phase I report is to identify those AECs present within the Town of Ocean Isle Beach's jurisdiction.

4.1 Areas of Environmental Concern

The State Guidelines for Area of Environmental Concern (15A NCAC 7H, or regulations governing development for AECs) require that local land use plans give special attention to the protection of appropriate AECs. CAMA charges the Coastal Resources Commission (CRC) with the responsibility for identifying the areas—water and land—in which uncontrolled or incompatible development might result in irreversible damage. CAMA further instructs the CRC to determine what development activities are appropriate in such areas, and local governments are required to give special attention to these areas when developing land use plans. An AEC is an area of natural importance designated by the CRC. An AEC may be easily destroyed by erosion or flooding. It may also have environmental, social, economic or aesthetic values worthy of protection. AECs have also been designated

to protect them from uncontrolled development that causes irreversible damage to property, public health, or the environment.

To limit detrimental impacts on AECs, CAMA established a permitting program. The intent of the permitting program is not to stop development, but rather to ensure the compatibility of development with continued productivity and value of critical land, waters and natural resources. Responsibility for the permitting program is shared between the CRC and local governments. Local governments permit "Minor" development activities while "Major" development activities require permits from the CRC (DCM personnel are the staff representatives of the CRC). This permitting process is discussed in more detail in Section V.

The CRC established four categories of AECs:

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

Two categories of AECs are not present within the Town of Ocean Isle Beach's jurisdiction, public water supplies and natural and cultural resources areas. The two categories found within the Town's jurisdiction are Estuarine and Ocean Systems, and Ocean Hazard Systems. As a result, shoreline erosion is an important issue for residents in the Town of Ocean Isle Beach. According to a study conducted by the NC Division of Coastal Management, the long-term average annual erosion rate within the Town of Ocean Isle Beach is two feet per year.

4.1.A *Estuarine and Ocean System*

The estuarine and ocean system AEC is a broad category that includes the Town's sounds, marshes, and surrounding shorelines. The system includes the following components:

- Estuarine waters;
- Estuarine shorelines;
- Coastal wetlands; and,
- Public trust areas.

4.1.A.1 ***Estuarine Water***: Estuarine waters include all waters of the Atlantic Ocean with the boundary of North Carolina and all waters of the bays, sounds, rivers, and tributaries seaward of the dividing line between coastal fishing waters and inland fishing waters (*GS 113A-113(b)(2)*). Ocean Isle Beach's estuarine waters include the Intracoastal Waterway (ICWW), Shallotte River, Apricot Creek, Eastern Channel, Needham Hote Creek and Spring Branch. The Gold Mine Creek and Gause Landing Creek are located in the town's ETJ. Estuaries are extremely productive natural systems [See Coastal Wetland Areas and Protected Lands Map in Appendix A].

Estuarine waters in and around Ocean Isle Beach provide important habitat for a diverse range of shellfish, birds and other forms of marine wildlife. Important habitat features of an estuarine system include its mud and sand flats, eel grass beds, salt marshes, submerged vegetation flats, and clam and oyster beds. They provide nursery areas and serve as habitat for a variety of marine and benthic species. Generally speaking, development activities which are water dependent and require water access and cannot function elsewhere (e.g. simple access structures, structures to prevent erosion, boat docks, marinas, wharves and mooring piling) may be allowed within this AEC.

4.1.A.2 ***Estuarine Shoreline***: The estuarine shoreline is the non-ocean shoreline, extending from the normal high water level or normal water level along the estuarine waters, estuaries, sounds, bays, fresh and brackish waters, and public areas (15NCAC 7H.0209). For non-Outstanding Resource Waters, the estuarine shoreline is defined as 75-feet landward from mean high water line (MHWL) [See Coastal Wetland Areas and Protected Lands Map in Appendix A]. For ORW waters the distance is 575 feet, however, there are no ORW waters within Ocean Isle Beach. CAMA permits control development within the shoreline areas. Generally, development in this area may not weaken natural barriers to erosion, must have limited hard surfaces, and must take steps to prevent pollution of the estuary by sedimentation and runoff.

4.1.A.3 ***Coastal Wetlands***: The U.S. Army Corps of Engineers (COE) defines wetlands as those areas inundated and saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands have significant values that support the unique lifestyle and quality of life enjoyed by Ocean Isle Beach residents and visitors. These values include:

- ***Water Storage***: wetlands are able to store heavy rain, surface runoff, and flood waters, and thereby reduce downstream flooding.
- ***Shoreline Stabilization***: ground cover and roots of wetland plants help hold soil in place and prevent sedimentation and nutrient transport.
- ***Water Quality***: wetlands plants can enhance water quality by removing pollutants from surface water runoff.
- ***Wildlife and Aquatic Habitat***: the variety of plants, hydrologic and soil conditions associated with wetlands provide abundant food and cover for animal populations and support a number of endangered species and other rare plants and animals
- ***Recreation and Education***: the rich array of plants and animals supported by wetlands provide significant consumptive and non-consumptive use values such as hunting, fishing, bird watching, kayaking, etc.

CAMA defines coastal wetlands as any salt marsh or other marsh subject to regular or occasional flooding by tides and contains some, but not necessarily all of the following marsh plant species: Cord Grass, Black Needlebrush, Glasswort, Salt Grass, Sea Lavender, Bulrush, Saw Grass, Cat-tail, Salt Meadow Grass, and Salt Reed Grass. This definition does

not include flooding by tides associated with hurricanes, tropical storms, or severe weather events (15A NCAC 07H.0206).

According to mapping developed by the DCM, Ocean Isle Beach has coastal wetlands of the brackish saltwater variety. There are 938 acres of wetlands within Town limits, of which 352 acres are coastal wetlands or salt water marsh. There are also 321 acres of coastal wetlands in the ETJ [See NC CREWS Exceptional and Substantial Wetlands Map in Appendix A]. Coastal wetlands are considered to be unsuitable for all development activities and other land uses that alter their natural functions.

4.1.A.4 ***Public Trust Areas***: Public trust areas include coastal waters and the submerged tidal lands below the MHWL. The water and submerged tidal lands are held in trust for the public to use through such activities as fishing, swimming, and boating. These areas will often overlap with estuarine waters, but they also include many inland fishing waters. As general guidance, the following lands and waters are considered to be public trust areas:

- All waters of the Atlantic Ocean and the lands underneath, from the MHWL seaward to the state's official boundary three miles offshore;
- All tidally influenced waters below and associated submerged lands below the MHWL;
- All navigable natural water bodies and the lands underneath from the normal high water line seaward (Navigable waters include anything you can float a canoe in). This does not include 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 (CAMA Handbook for development in coastal North Carolina).

Accordingly, the Town of Ocean Isle Beach's public trust waters include all estuarine waters, their tributaries, and the Atlantic Ocean.

Since the submerged tidal waters are held in trust for the public, the state's policy is to ensure that the public is able to maintain access to these waters. Accordingly, development, structures, and land uses that interfere with the public's right to the access and use of these waters is inconsistent with state policy. Conversely, navigation channels, piers, marinas, and bulkheads to control erosion are examples of uses that are frequently considered to enhance the public's use of these public trust areas.

An issue of growing concern in Ocean Isle Beach is the growth in user conflicts associated with impacts of recreational use on marine habitat. Ocean Isle Beach is inhabited by endangered sea turtles, as well as threatened shore birds. The impacts of recreational users such as beachgoers, fishermen, and swimmers may disrupt the activities of these marine animals. The town is concerned with the delicate balance between protecting animals and allowing the public beach accesses.

4.1.B *Ocean Hazard System*

Ocean Hazard AECs are areas where potential erosion and the adverse impact of sand, wind, and water make uncontrolled or incompatible development unreasonable and hazardous to life and property. The Ocean Hazard category at Ocean Isle Beach includes four areas:

- Ocean erodible area
- High hazard flood area
- Inlet hazard area
- Unvegetated beach area

Development and land use in each area require a major CAMA development permit.

4.1.B.1 ***Ocean Erodible Area***: Ocean erodible areas are located along the beach strand where there is significant risk of excessive beach erosion and significant shoreline fluctuation due to natural processes such as hurricanes and tropical storms (15 NCAC 07H.0304). The seaward boundary of this area is the mean low water line (MLWL). The landward boundary is described as follows:

- A distance landward of the recession line described in (1) above to the recession line that would be generated by a storm having a one percent chance of being equaled or exceeded in any given year (i.e., 100-year storm event).

The ocean erodible area is defined on a lot-by-lot basis due to the significant variation in the first line of stable vegetation and the most restrictive method for determining the setback distance; the recession line is always used (15 NCAC 7H.0304).

4.1.B.2 ***High Hazard Flood Area***: The ocean hazard system AEC also covers lands subject to flooding, high waves, and heavy water currents during a major storm. The *high hazard flood area* is defined as the area subject to high velocity waters including, but not limited to, hurricane washover in a storm having a one percent chance of being equaled or exceeded in any given year. This area is identified as coastal flood with velocity hazard or "V zones" on Federal Flood Insurance Rate Maps. "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 area is land expected to experience washover and high velocity waters during a 100-year storm event. This AEC often overlaps with the ocean erodible and inlet hazard AECs. "A zones" are subject to flooding and washover, but not wave action during a 100-year storm event. The entire Town of Ocean Isle Beach lies within the 100-year flood zone [See the Special Flood Hazard Areas Map in Appendix A]. Development in A and V zones is subject to the same setbacks described in the ocean erodible areas.

4.1.B.3 ***Inlet Hazard Area***: The inlet hazard area AEC covers the land at the eastern and western ends of the island. The *Inlet Hazard Area* extends inland a sufficient distance to encompass the area where the state reasonably expects the inlet to migrate in the future (15

NCAC 7H .0304). Development within the inlet hazard area must comply with three key use standards: (1) it must comply with setbacks for the ocean hazard area found in the preceding section; (2) the density for commercial and residential structures is limited to no more than three units per acre; and, (3) only residential structures of four units or less, or commercial structures less than 5,000 square feet or less, are allowed.

4.1.B.4 ***Unvegetated Beach Area***: The final ocean hazard system AEC is the unvegetated beach area. This is defined as land within the ocean hazard system where no stable natural vegetation is present. This area is subject to rapid and unpredictable landform change from wind and wave action.

4.2 Soil Characteristics

Soils found on Ocean Isle Beach have limited development potential for onsite sewage disposal systems (OSDS) due to poor filtration or being wet with poor filter. However, these soil conditions are of limited importance because Ocean Isle Beach is served by a central sewer system. Soils found on the Island include Newhan Fine Sand, consisting of gently slopping, excessively drained sands located mostly along the oceanfront. Newhan fine sand and dredged soils are present along the northern portion of the Island. These soils are excessively drained, dredge spoil, and are often found along the edges of the mainland; in the case of Ocean Isle Beach, these soils are present in areas where the canals were dredged to create the current Island configuration. Corolla fine sands are present in small areas in the central portion of the Island; these soils are typically nearly level, and are somewhat poorly drained. Corolla soil is mostly in native vegetation adapted to alternate wet and dry periods. The important vegetation consists of live oak, evening primrose, marshhay cordgrass, wild olive, bitter panicum, waxmyrtle, and yaupon. Tidal marsh soils are Bohicket silty clay loam, are nearly level, and are very poorly drained. Generally, tidal marsh areas have limited suitability for development.

4.3 Water Quality

Surface waters should contain a balanced amount of nutrients and have normal fluctuations in salinity and temperature. They should also have plenty of oxygen and little suspended sediment so that marine life can breathe and receive enough sunlight to grow. Monitoring changes in North Carolina's water quality is important. Data collected helps scientists evaluate changing water quality conditions. Factors affecting water quality include:

- ***Nutrients***: While essential for plants and animals, they can be harmful if there is an overabundance;
- ***Sediments***: Can cloud the water and hamper the growth or even kill aquatic plants;
- ***Water temperature***: Changes in normal water temperatures can affects when animal and plants feed, reproduce, and migrate;
- ***Salinity***: Changes in salinity can adversely affect a wide range of marine life

- ***Dissolved oxygen***: Is essential for animals living within the estuary. Reduced levels of dissolved oxygen (e.g., due to an algae bloom or eutrophic conditions) can adversely affect marine life
- ***Contaminants and other pollutants***: There are a variety of other contaminants and pollutants that can adversely affect the growth, survival, and reproduction of marine and benthic organisms.

As a strategy for the management of North Carolina's waters, DENR's Division of Water Quality (DWQ) assigns classifications to water bodies. The primary classifications are:

- ***SC*** : unacceptable quality.
- ***SB***: suitable for marine fish, shellfish, and wildlife habitat. Not suitable for commercial shellfish harvesting. Suitable for swimming, fishing, recreation and all other legitimate uses including navigation.
- ***SA***: suitable for marine fish, shellfish and wildlife habitat, shell fish harvesting for direct human consumption, recreation and all other legitimate uses including navigation.

Additional water quality classifications include:

- ***High Quality Waters (HQW)***: Waters are ranked as high quality based on biological, chemical or physical characteristics through division monitoring or special studies.
- ***Outstanding Resource Waters (ORW)***: Unique and special surface waters of the state that are of exceptional state or national ecological or recreational significance that require special protection to retain existing uses.
- ***Swamp Waters (SW)***: Waters that are located so as to generally have low velocities.
- ***Nutrient Sensitive Waters (NSW)***: Waters that experience or are subject to excessive bloom of microscopic or macroscopic vegetation.

These designations highlight important characteristics of water bodies that should be protected through local land use plans.

The water quality within the planning jurisdiction of the Town of Ocean Isle Beach is generally good, but needs improvement. With the exception of the Eastern Channel, none of the shellfish waters are supporting their intended uses based upon information obtained from the most recent Lumber River Basinwide Water Quality Plan. Stormwater runoff associated with increased impervious surfaces in the vicinity of the surface waters has likely contributed to this problem. There are no areas within the jurisdiction of Ocean Isle Beach known to have chronic waste treatment malfunctions. This is due to the centralized sewage treatment system. The system has no chronic malfunctions and operates within its NPDES permit conditions. [See Estuarine Waters and Closed Shellfish Areas Map in Appendix A]. DWQ will begin the preparation of a new Lumber River Basinwide Water Quality Plan in 2007 based upon more recent surface water sampling data.

Table 4.1 Receiving Streams Adjacent to Ocean Isle Beach

Receiving Stream Name	Stream Segment	Water Quality Classification	Use Support Rating	Water Quality Issues
Shallotte River	From source to NC Highway 130	C, SW, HQW	Supporting	Supporting Aquatic Life due to a Good-Fair benthic rating. These are not classified as shellfish waters.
Shallotte River	From NC Highway 130 US Highway 17	SC	No data	
Shallotte River	From US Highway 17 to the mouth of the Mill Pond	SC, HQW	No data	
Shallotte River	From the mouth of the Mill Pond to the Intracoastal Waterway	SA, HQW	Impaired for shellfish harvesting	Waters are classified as SA, but are impaired for shellfish harvesting due to Division of Environmental Health shellfish ratings.
Intracoastal Waterway	From the Cape Fear River Basin Buoy to the North Carolina-South Carolina State line	SA, HQW	Impaired for shellfish harvesting	Waters are classified as SA, but are impaired for shellfish harvesting due to Division of Environmental Health shellfish ratings.
Eastern Channel	From source to Intracoastal Waterway including tributaries	SA, HQW	Fully Supported	Waters are classified as SA but are subject to closure for shell-fishing based on Division of Marine Fisheries classification. Bacterial pollution from stormwater runoff is the primary water quality problem.
Spring Creek	From Source to Lockwoods Folly River	SA, HWQ	Impaired for shellfish harvesting	Waters are classified as SA, but are impaired for shellfish harvesting due to Division of Environmental Health shellfish ratings.

Source: 2003 Lumber River Basinwide Water Quality Plan, DWQ

4.4 Shellfishing & Primary Nursery Areas

Salt marshes and estuaries along the North Carolina coast serve as nursery grounds for 90 percent of fish species. North Carolina was the first state to protect these fragile ecosystems. The nursery system in North Carolina contains three categories:

- Primary nursery areas;
- Secondary nursery areas; and,
- Special secondary nursery areas.

One category, *primary nursery areas*, is found within the Town of Ocean Isle Beach [See Significant Natural Heritage and Fish Nursery Areas Map in Appendix A]. Primary nursery areas are generally located in the upper portions of creeks and bays. These areas are usually shallow with soft muddy bottoms and are surrounded by marshes and wetlands. Low salinity levels and abundance of food make these areas ideal for young fish and shellfish. To protect juveniles, many commercial fishing activities are prohibited in primary nursery areas including the use of trawl nets, seine nets, dredges, or any mechanical devices used to harvest clams and oysters. Violators face substantial penalties. There are approximately 504 acres of primary fish nursery areas within Ocean Isle Beach's corporate limits, and 300 acres within the ETJ.

Secondary nursery areas are located in the lower portions of creek and bays. Young fish and shellfish (primarily blue crabs and shrimp) move into these waters as they grow and develop. Trawling is not allowed in secondary nursery areas. *Special secondary nursery areas* are located adjacent to secondary nursery areas but are closer to open waters of sounds and the ocean. When juvenile species are abundant, these waters are closed to trawling for a majority of the year.

4.5 Hazards

The Town of Ocean Isle Beach is located along the southern coast of Brunswick County. It is a barrier island bordered by the Atlantic Ocean and the ICWW. Due to its geographic location, the town is susceptible to a variety of natural and manmade hazards such as flooding, hurricanes, nor'easters, severe thunderstorms, tornadoes, tsunamis, and urban fires.

4.5.A *Flood Hazard Areas*

The 100-year flood plain is the accepted benchmark for defining flood hazard areas. All of Ocean Isle Beach lies within the 100-year flood plain [See Special Flood Hazard Areas Map in Appendix A]. The flood plain in Ocean Isle Beach is mapped including:

- ***AE zones***: Special flood hazard areas inundated by the 100-year flood (one percent chance of a hundred year flood event); base flood elevations are determined;

Table 4.2: Parcels Located in the Flood Zone

Zone	Parcels (lots) that Intersect Flood Zone	Parcels (lots) with Structures (%)
AE	300	8
VE	3,075	86

Source: Cape Fear Council of Governments GIS

- ***VE zones***: Special flood hazard areas inundated by the 100-year flood (one percent chance of a hundred year flood event); coastal floods with velocity hazards (wave action); base flood elevations are determined.

The majority of Ocean Isle Beach is located in the VE zone. The central portion of the island surrounding West Third Street is classified as AE. The eastern tip at the end of the island is comprised of primarily AE zones. The total number of parcels within Ocean Isle Beach includes 3,579, in which 3,075 parcels are VE zones which make up 86 percent of the island. The island has 300 parcels that are considered AE zones, these parcels total 8 percent of the island. In the ETJ there are 1,502 parcels, 20 in the VE zones which equal one percent, and 107 parcels in the AE zones totaling 7 percent. Development in these areas is subject to the same setbacks described in the ocean erodible area. However, the setback is doubled for multi-family residential and non-residential structures of more than 5,000 square feet. "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. Generally, development is discouraged in these areas because the land is subject to flooding, high waves and heavy water currents during a major storm.

4.5.A.1 ***FEMA Flood Insurance***: According to the Federal Emergency Management Agency (FEMA) there are 4,406,664 flood insurance policies in force. Flood insurance is available in 19,859 participating communities nationwide including Ocean Isle Beach, where 2,906 policies are in force valued at $587,109,000. Since 1978, there have been over 1,534 documented losses with payments exceeding $7,417,721.

One way to help minimize these losses and lower flood insurance premiums is to participate in the National Flood Insurance Program's (NFIP) Community Rating System (CRS). The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premiums are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance. For CRS participating communities, flood insurance premiums are discounted in increments of five percent. A class 1 community receives a 45 percent premium discount, while a Class 9 community gets a five percent discount (a Class 10 is not participating in the CRS and receives no discount). The CRS classifications for local communities are based on 18 creditable activities, organized under four categories: (i) public information; (ii) mapping and regulations; (iii) flood damage reduction; and, (iv) flood preparedness. There are 994

Table 4.3: Flood Insurance Policies

	Number of Policies	Insurance in Force
Ocean Isle Beach	2,906	$587,109,000
North Carolina	117,904	$22,627,525,500

http://www.fema.gov/business/nfip/statistics/pcstat.shtm

Table 4.4: Loss Statistics for Ocean Isle Beach and Brunswick County, North Carolina (1978 - 2006)

	Total Losses	Total Payment
Ocean Isle Beach	1,534	$7,417,721.67
Wilmington	218	$2,876,473.44
Brunswick County	347	$3,666,015.06
North Carolina	59,482	$721,200,311.85

http://bsa.nfipstat.com/reports/1040_200602.htm

communities receiving flood insurance premium discounts based on their implementation of local mitigation, outreach, and educational activities that go beyond minimum NFIP requirements. While premium discounts are one benefit of participating in the CRS, the real benefit is that these activities help save lives and reduce property damage. Ocean Isle Beach participates in the CRS; the Town is a Class 7, which allows property owners to receive a 15 percent savings on their flood insurance policy.

4.5.B *Hurricanes*

One of the main flooding threats is from hurricanes. A hurricane is a cyclonic storm that originates in tropical ocean waters. As a hurricane develops, barometric pressure at its center falls while its winds increase. Winds at or exceeding 39 miles per hour result in a named tropical storm that is closely monitored by the National Oceanic and Atmospheric Administration's (NOAA's) National Hurricane Center [Table 4.5]. When winds exceed 74 miles per hour, it becomes a hurricane.

Hurricanes are judged by their power according to the Saffir-Simpson Scale. This measure of the power of a hurricane classifies hurricanes according to a sliding scale from 1 to 5 (with category 5 storms as the most severe) [Table 4.5]. Since hurricanes derive their strength from warm ocean waters, they generally deteriorate in intensity when they make landfall. The forward momentum at the time of landfall can range from just a few miles per hour to upwards of 40 miles per hour. The forward motion, combined with the counterclockwise surface flow make the front right quadrant of the hurricane the most dangerous in terms of damaging winds and storm surge.

Table 4.5: Hurricanes and the Saffir-Simpson Scale

Category	Wind Speed (Mph)	Wind Damage	Storm Surge
1	74 – 96	Damage to shrubs, trees, foliage, and unanchored mobile homes. Some damage to poorly constructed signs	Storm surge three to five ft above normal. Low lying roads inundated. Minor pier damage.
2	97 – 111	Considerable damage to shrubs, trees, and foliage. Some trees blown down. Major damage to exposed mobile homes. Excessive damage to poorly constructed signs. Some roof and building damage	Storm surge six to eight ft above normal. Low lying roads inundated. Low lying escape routes cut by rising water two to four hours before storm's arrival. Considerable pier damage. Marinas flooded. Evacuation of some shoreline and low lying areas required.
3	112 – 131	Foliage torn from trees. Large trees blown down. All constructed signs blown down. Some damage to roofing materials and buildings. Some window and door damage. Some structural damage to small buildings	Storm surge five to 12 ft above normal. Serious flooding at coast and many smaller structures near the coast destroyed. Larger structures near the coast damaged by battering waves and floating debris.
4	132 – 155	Shrubs and trees blown down. All signs down. Extensive damage to roofs, windows, and doors. Complete failure of roofs on many small structures. Complete destruction of mobile homes	Storm surge 13 to 18 ft above normal. Major damage to lower floors of structures near the shore due to flooding and battering by waves and floating debris. Major beach erosion.
5	155+	Considerable damage to roofs of buildings. Severe and extensive damage to windows and doors. Complete failure of roofs on many structures. Extensive shattering of glass in windows and doors. Some complete building failure. Small buildings overturned or blown away	Storm surge possibly greater than 18 ft above normal. Major damage to lower levels of all structures less than 15 ft above mean sea level

4.5.B.1 ***Storm Surge Areas***: Since Ocean Isle Beach is located entirely within the 100-year floodplain, it is particularly vulnerable to storm surges and corresponding erosion, wave action, flooding, high winds, and beach washover associated with hurricanes. Storm surge is water pushed toward the shore by the force of winds swirling around the hurricane or low-pressure meteorological system. The advancing surge combines with the normal tides to create the hurricane storm tide otherwise known as the storm surge. As a result, the MHWL can rise by 15 feet or more. The rise in water level causes severe flooding in coastal areas, particularly when a storm surge coincides with high tide. Wind and wave action is then superimposed on this storm surge water level.

Table 4.6: Approximate Impact of Various Storm Levels (Acres Impacted)

Storm Level	Island Additional Land Impacted (Acres)	Island Total Land Impacted (Acres)
1-2	1361 acres	1361
3	71 acres	1432
4-5	80 acres	1441

Storm Level	ETJ Additional Land Impacted (Acres)	ETJ Total Land Impacted (Acres)
1-2	355 acres	355
3	159 acres	514
4-5	547 acres	1061

Source: Cape Fear Council of Governments GIS

Wind is a major determinant in the classification of a hurricane. Any tropical storm with sustained winds of 74 mph is classified as a hurricane. Hurricanes are judged by their power according to the Saffir-Simpson scale. This measure of the power of a hurricane classifies hurricanes according to a sliding scale from 1 to 5 (with category 5 storms as the most severe). The speed and strength of the storm is important in determining the impact of the storm surge. Waves and currents associated with the storm surge may cause extensive damage. Water weighs approximately 1,700 pounds per cubic yard; periods of prolonged wave action can demolish any structure not specifically designed to withstand such forces. Table 4.6 shows the acreage of land impacted by storm surge for a fast moving hurricane at various storm levels. The areas subject to storm surges are depicted graphically on the Map of Storm Surge Inundation From a Fast Moving Hurricane in Appendix A.

4.5.C *Nor'Easters*

Another type of storm event with the potential for damage and severe beach erosion is what is known as a nor'easter. Unlike hurricanes, these storms are extra-tropical, deriving their strength from horizontal gradients in temperature. Although nor'easters are more diffuse and less intense than hurricanes, they occur more frequently, cover much larger stretches of shoreline, and can last much longer. As a result, they can occur more frequently than hurricanes and while their damage is less, they can cause coastal flooding, wind damage, and severe beach erosion. A number of nor'easters have impacted North Carolina in recent decades, including the nor'easter in March 1983 that brought widespread flooding and beach erosion. Another severe nor'easter hit the Outer Banks on Halloween 1991 and caused substantial beach erosion.

Table 4.7: Fujita-Pearson Tornado Scale

F-Scale	Damage	Winds (Mph)	Path Length (mi)	Mean Width (mi)
F 0	Light	40 – 72	<1	<0.01
F 1	Moderate	73 – 112	1 – 3.1	0.01 – 0.03
F 2	Considerable	113 – 157	3.2 – 9.9	0.04 – 0.09
F 3	Severe	158 – 206	10 – 31	0.1 – 0.31
F 4	Devastating	207 – 260	32 – 99	0.32 – 0.99
F 5	Incredible	261 – 318	>100	>1
EF-Scale	**Damage**	**Winds (Mph)**		
EF0	Light	65-85		
EF1	Moderate	86-110		
EF2	Considerable	111-135		
EF3	Severe	136-165		
EF4	Devastating	166-200		
EF5	Incredible	>200		

4.5.D *Severe Thunderstorms*

Thunderstorms are common throughout North Carolina and can occur in all months. Thunderstorms are the result of atmospheric instability and convection due to temperature differentials. Severe thunderstorms can contain tremendous amounts of energy and can bring lightening, damaging wind gusts, hail, and wind shears. Severe thunderstorms can damage trees and cause extensive property damage and power outages. They can also be associated with tornadoes.

4.5.E *Tornadoes*

The national weather service defines a tornado as a violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. The Fujita-Pearson Tornado Scale rates tornadoes based on path, length, width, and intensity [Table 4.7]. .Historical tornado activity on Ocean Isle Beach is slightly below the North Carolina state average; it is 27 percent smaller than the overall U.S. average. On August 17, 1965, a category F 3 tornado landed approximately 16.5 miles from Ocean Isle Beach city center, and injured 46 people, causing between $50,000 and $500,000 in property damages. On October 9, 1950, a category F 3 tornado landed approximately 22 miles from Ocean Isle Beach city center, and injured 3 people, causing between $50,000 and $500,000 in property damages. Although tornadoes can occur throughout the year, most occur during the spring months of March (13 percent), April (11 percent), May (22 percent), and June (14 percent).

The Enhanced Fujita Scale, or EF Scale has been implemented in place of the now-obselete Fujita scale, it is used starting February 1, 2007. The scale has been revised to reflect better examinations of tornado damage surveys, so as to align wind speeds more closely with

associated storm damage. The new scale takes into account how most structures are designed. New "EF" categories associated with the Enhanced Fujita Scale are listed in Table 4.7.

4.5.F *Urban Fires*

Urban fires are a manmade hazard. They occur in populated areas and usually involve buildings, structures, or outside areas. The potential for the spread of urban fires depends upon surface and fuel characteristics, recent climatic conditions, and current meteorological conditions, particularly wind. The likelihood of an urban fire in Ocean Isle Beach is not much different than other towns. However, the likelihood of an urban fire spreading rapidly is high given the limited set backs and the large number of structures with wooden patio style sundecks, which can act as fuel to spread urban fires. Other combustible materials such as landscaping materials, stairs, lattices, AC mounting structures, fences, and cars located in setbacks can further increase the likelihood of a fire spreading to adjacent structures. Moreover, if a fire starts to spread, the fact that many houses are located on dead end streets that are not easily accessible can hinder or delay rescue and firefighting efforts.

4.6 Non-coastal Wetlands

Within the planning jurisdiction of the Town of Ocean Isle Beach there are also 437 acres of non-coastal wetlands located in the corporate limits, and 352 acres in its ETJ. Out of the total non-coastal wetlands within corporate limits six acres are classified beneficial not high risk, 316 acres are substantial significance not high risk, 70 acres are exceptional significance not high risk and 45 acres are classified as exceptional significance high potential risk. Out of the total acres in the ETJ seven are classified as beneficial not high risk, 15 are beneficial with high risk potential, 265 are substantial significance high risk potential, 19 acres are exceptional significance not high potential risk and finally, 46 acres are exceptional significance high potential risk [See NC CREWS Exceptional and Substantial Wetlands Map in Appendix A].

4.7 Water Supply and Wellhead Protection Areas

There are no surface water supply waters or watersheds in the vicinity of Ocean Isle Beach. Drinking water is provided by Brunswick County. See Section VII for a discussion of the water supply.

4.8 Environmentally Fragile Areas

Fragile areas are defined as sensitive areas that are easily destroyed by inappropriate or poorly planned development. Fragile areas include: AECs; coastal wetlands; non-coastal wetlands; sand dunes; ocean beaches and shorelines; estuarine waters; estuarine shorelines;

public trust waters; complex natural areas; prime wildlife habitats; areas that sustain remnant species; areas with unique geologic formations; natural areas identified by the North Carolina Natural Heritage Program; and archeological and historical resources as well as other sensitive areas not currently protected under existing rules. Given its location, almost all of Ocean Isle Beach is located within or adjacent to fragile areas. Many of these areas have previously been discussed. This section describes natural heritage areas and the areas containing endangered species.

4.8.A *Natural Heritage Areas*

The North Carolina Natural Heritage Program inventories, catalogues, and facilitates protection of the rarest and most outstanding elements of the natural diversity of our state. This includes plants and animals that are rare, or natural communities that merit special consideration as land use decisions are made. The information generated by this program supports informed evaluations of the trade-offs between biological diversity and development projects before plans are finalized. The information also facilitates the establishment of priorities for protecting North Carolina's most significant natural areas.

There are no significant natural heritage areas identified within the planning jurisdiction of Ocean Isle Beach. However, Brantley Island located east of 904 is a Natural Heritage Area [See the Significant Natural Heritage and Fish Nursery Areas Map in Appendix A].

4.8.B *Areas Containing Endangered Species*

Endangered species describe plant or animal species in danger of extinction within the foreseeable future throughout a significant portion of its range. The term "threatened species" is used when a plant or animal is deemed likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Areas that contain, or are likely to contain, endangered species in the Town of Ocean Isle Beach include the dry sand areas of the oceanfront beach, dunes, and the marshes along the estuarine shoreline. Endangered animals identified on Ocean Isle Beach include various types of birds including the piping plover, a variety of sea turtles, and other transitory wildlife. In order to help preserve endangered wildlife, turtle nesting areas are marked each year in order to protect the nests. It is important to keep in close contact with state and local agencies charged with protecting endangered species and sightings of rare and endangered plants and animals should be reported.

4.9 Composite Map of Environmental Conditions

The Environmental Composite Map contained in Appendix C shows the extent and overlap of the environmental and natural features described in this section. Using the limitations and opportunities that features have to guide development decisions, the map shows the location of the following three categories of land:

- ***Class I***: Land containing only minimal hazards and limitations that may be addressed by commonly accepted land planning and development practices
- ***Class II***: Land containing development hazards and limitations that may be addressed by methods such as restrictions on types of land uses; special site planning; or the provision of public services
- ***Class III***: Land containing serious hazards for development or lands where the impact of development may cause serious damage to functions of natural systems.

As illustrated on the Environmental Composite Map, the majority of the land within the municipal boundary of Ocean Isle Beach is listed as Class II land, moderately suitable for development. Portions of the oceanfront, as well as the northwest portion of the island and the far east and far west ends of the island adjacent to the inlets, are listed as Class III land, least suitable for development. The satellite portion of the Town, located north of NC 179, contains Class I, Class II, and Class III land types.

Within the Ocean Isle Beach ETA, the majority of the land is listed as Class II land, moderately suitable for development. A portion of land along the Intracoastal Waterway, a large portion northwest of the intersection of NC 179 and Ocean Isle Beach Road, and several scattered portions throughout the ETA are listed as Class III, least suitable for development.

Section V

Land Use and Development

5.0 Introduction

The Town of Ocean Isle Beach developed in a manner similar to that of other North Carolina barrier beach communities of comparable size. There is an accessible commercial area in the center of Town, and the remainder of the community is stretched out to the east and the west in a linear grid with residential development occurring on relatively small lots. A unique feature of the Ocean Isle Beach landscape are the man-made "finger" canals on the eastern portion of the island, that run from the Intracoastal Waterway, perpendicular to the Atlantic Ocean. There are mostly commercial and municipal uses on the mainland portion of Ocean Isle Beach. Within the ETA (located on the mainland), there are a mix of residential and commercial uses distributed along frontage roads, and within planned residential developments. Ocean Isle Beach remains a relatively small community with a large influx of summer visitors. Accordingly, land use conflicts are limited primarily to issues related to the influx of tourists (e.g., traffic, litter, lighting and noise). The amount of commercial activity in the Town remains limited and there are no industrial or manufacturing uses.

The Town of Ocean Isle Beach has experienced relatively steady development in recent years and several large tracts of land on the island and multiple large tracts of land on the mainland and within the ETA are still undeveloped. Between January 1, 2000, and December 31, 2005, 496 permits for new construction were issued within Ocean Isle Beach; 145 permits for new construction were issued within Ocean Isle Beach ETA. It is expected that several of the large tracts of vacant land on the mainland will be developed within the next five years.

Accordingly, there is a need for the Town Council, Planning Board, and citizens to develop a consensus about the direction that future growth and redevelopment should take. This section of the report describes the current land use in the Town of Ocean Isle Beach and the regulations and permit process used to regulate land development. This information provides the foundation used to develop policies and recommendations for the land use plan update.

Table 5.1: Land Usage in Ocean Isle Beach (2006)

	Acres*	Lots*	Percent Total (Acreage)	Acres per person**
Airport	45	3	2.92	0.093
Cemetery	-	-	-	-
Church	0.5	1	0.03	0.001
Civic Club, Lodge, Hall	1	2	0.06	0.002
Commercial	28.5	76	1.86	0.059
Golf Course	-	-	-	-
Municipal	1.25	5	0.08	0.003
Municipal Public Works	597	2	38.80	1.236
Residential	403	2,406	26.19	0.834
Utilities	0.25	2	0.02	0.001
Mostly Vacant with some recreational facilities	5	1	0.32	0.010
Vacant Land	457	696	29.70	0.946
Total "Usable" Land	**1,538.5**	**3,194**	**99.98**	**3.185**
Un-buildable (due to location on eroded or un-vegetated beach)	70	316		
Wetlands/spoil		19		
Grand Total		3,529		

Source: Scott Logel, Cape Fear Council of Governments

* Land Use Acres and Lots were calculated using GIS to sum parcel areas based on land use codes.

**Acres per person calculated using the 2004 population estimate of 483 residents, as predicted by the U.S. Census Bureau; "un-buildable" acres were not included in the calculation.

5.1 Existing Land Use

The total land area within the Town of Ocean Isle Beach municipal boundary is 1,608.5 acres; of these acres, 70 are considered "un-buildable" due to their location on an eroded or un-vegetated beach. Thus, there is 1,538.5 acres of "usable" land within the Town of Ocean Isle Beach municipal boundary. Within the Town of Ocean Isle Beach there are 3,529 separate parcels of land (i.e., lots); due to erosion and the existence of wetlands or "spoil" areas, there are 3,194 "usable" parcels of land. The number of total parcels in any type of land use is 2,498. The number of acres in the parcels being used is 1,081.5. There are approximately 696 vacant lots within the Town.

Table 5.1 shows various categories of existing land use within the Town of Ocean Isle Beach. This information is displayed graphically on the Existing Land Use Map located in Appendix A. The largest categories of developed land are Municipal Public Works (38.80 percent), vacant (29.70 percent), and residential (26.19 percent); these uses make up over 94 percent of the total land use within the Town of Ocean Isle Beach.

Table 5.2: Land Usage in Ocean Isle Beach ETA (2006)

	Acres*	Lots*	Percent Total (Acreage)
Airport	-	-	-
Cemetery	1	1	0.08
Church	-	-	-
Civic Club, Lodge, Hall	1	1	0.08
Commercial	30.5	52	2.32
Golf Course	109	1	8.31
Municipal	-	-	-
Municipal Public Works	-	-	-
Residential	373	842	28.43
Utilities	1.5	2	0.11
Mostly Vacant with some recreational facilities	-	-	-
Vacant Land	796	563	60.67
Total "Usable" Land	**1,312**	**1,462**	**100**
Un-buildable (due to location on eroded or un-vegetated beach)			
Wetlands/spoil		9	
Grand Total		1,471	

Source: Scott Logel, Cape Fear Council of Governments
* Land Use Acres and Lots were calculated using GIS to sum parcel areas based on land use codes.
**Acres per person cannot be calculated; no current population estimate exists for the ETA area.

5.1.A *Existing Land Use in Ocean Isle Beach ETA*

The total land area within the Town of Ocean Isle Beach ETA boundary is 1,312 acres. Within the Town of Ocean Isle Beach ETA there are 1,462 separate parcels of land (i.e., lots). The number of total parcels in any type of land use is 899. The number of acres in the parcels being used is 516. There are approximately 563 vacant lots within the ETA area.

Table 5.2 shows various categories of existing land use within the Town of Ocean Isle Beach ETA. This information is displayed graphically on the Existing Land Use Map located in Appendix A. The largest categories of developed land are vacant (60.67 percent), residential (28.43 percent), and the golf course (8.31 percent); these land uses make up over 97 percent of the total land use within the Town of Ocean Isle Beach ETA area.

5.1.B *Current Zoning Regulations*

Zoning regulations allow the local government to segregate land uses that are thought to be incompatible. Only buildings or structures determined to be in conformity with the existing zoning regulations for their district are permitted to be constructed. The following sections describe the current zoning regulations for the Town of Ocean Isle Beach and the Town of Ocean Isle Beach ETA area. An estimate of the vacant land remaining within each zoning district is also provided. A map of the Current Zoning Districts is included in Appendix A.

5.1.B.1 ***R-1 Single-family Residential District***: The R-1 district is intended primarily for single-family dwellings. Certain nonresidential uses are permitted. The majority of the island east of the Odell Williamson Bridge and a portion of the island west of the Odell Williamson Bridge comprises the R-1 zoning district. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the R-1 zoning district, there are approximately 231 acres of vacant land; the density limitation within this district is six units per acre.

Regulations for this district are designed to maintain a suitable environment for family living. Two-family dwellings were deleted as a permitted use in R-1 zoned areas effective February 9, 1999. Any two-family dwelling constructed prior to this date, whose structure is damaged or destroyed by any act such as hurricane, flood, fire or other act of God, may be reconstructed provided such reconstruction does not increase the size of servitude or the size of the structure, previously in existence prior to the destructive act. Some of the specific zoning requirements for the R-1 district include:

- ***Permitted uses***: Single-family for short-term or long-term occupancy, accessory use structures, municipal or public utility stations and substations are permitted.
- ***Special uses***: The following uses shall be permitted if approved as a special use: golf courses and country clubs, recreational facilities such as camps for children, tennis courts, parks or playgrounds, churches, public or private schools, publicly owned museums and fire stations.
- ***Lots***: Minimum lot area, width and yard requirements are summarized in Table 5.3.
- ***Height limits***: The maximum height of structures for other than utility purposes shall be measured such as to allow for the construction of two floors, limited to 31 feet measured from the bottom of the lowest horizontal structural member to the highest point of the structure. The respective flood zone shall determine the lower flood joist height of the structure that must remain within three feet of the base flood elevation line with a maximum piling height allowed of nine feet unless a greater height is required by the FEMA base flood elevation.

Table 5.3: Dimensional Table of Conforming Uses for Zoning District R-1

Use	Lot (ft2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)	Maximum Building Height (ft)
Commercial Accommodations	10,000	100	25	7	25	31
Multifamily	10,000	100	25	7	25	31
Single-Family	5,000	50	25	7	25	31
Two-Family	7,500	75	25	7	25	31

Table 5.4: Dimensional Table of Conforming Uses for Zoning District R-1M

Use	Lot (ft^2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)	Maximum Building Height (ft)
Commercial Accommodations	10,000	100	25	7	25	36
Multifamily	10,000	100	25	7	25	36
Single-Family	5,000	50	25	7	25	36
Two-Family	7,500	75	25	7	25	36

5.1.B.2 ***R-1M Single-family and Two-family Residential District Mainland***: The R-1M district's criteria for development are the same as those provided for in R-1. The southwest portion of the ETA, adjacent to the Intracoastal Waterway comprises the R-1M zoning district. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the R-1M zoning district, there are approximately 135 acres of vacant land; the density limitation within this district is six units per acre.

This district is intended primarily for single- and two-family dwellings. Certain nonresidential uses are permitted. Regulations for this district are designed to maintain a suitable environment for family living. Densities of developments are related by minimum lot size, width and yard requirements. Some of the specific zoning requirements include:

- ***Permitted uses***: Single-family and two-family dwellings for short-term or long-term occupancy, accessory use structures, and municipal or public utility stations and substations are permitted.

Table 5.5: Dimensional Table of Conforming Uses for Zoning District R-2

Use	Lot (ft^2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)	Maximum Building Height (ft)
Commercial Accommodations	10,000	100	25	7	25	31
Multifamily	10,000	100	25	7	25	31
Single-Family	5,000	50	25	7	25	31
Two-Family	7,500	75	25	7	25	31

- ***Special uses***: The following uses shall be permitted if approved as a special use: golf courses and country clubs, recreational facilities such as camps for children, tennis courts, parks or playgrounds, churches, public or private schools, publicly owned museums, bed and breakfast establishments and fire stations.
- ***Lots***: Minimum lot area, width and yard requirements are contained in Table 5.4.
- ***Height limits***: The maximum height of structures for other than utility purposes shall be measured such as to allow for the construction of two floors, limited to 36 feet measured from grade.

5.1.B.3 ***R-2 Multi-family Residential District***: The R-2 district is intended primarily for single-family, two-family and multifamily dwellings. Certain nonresidential uses are permitted. A small portion of the oceanfront property just southeast of the intersection of Causeway Drive and First Street comprises the R-2 zoning district. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the R-2 zoning district, no vacant land exists; the density limitation within this district is six units per acre. Some of the specific zoning requirements include:

- ***Permitted uses***: Residential, two-family dwelling and multifamily dwelling groups housing three or more families, to include condominiums, apartment structures offering permanent occupancy, and accessory use structures, as well as all uses permitted in the R-1 district, are permitted.
- ***Lots***: Minimum lot area, width and yard requirements are contained in Table 5.5.
- ***Height Limits***: The maximum height of structures for other than utility purposes shall be measured such as to allow for the construction of two floors, limited to 31 feet measured from the bottom of the lowest horizontal structural member to the highest point of the structure. The respective flood zone shall determine the lower floor joist height of the structure that must remain within two feet of the base flood elevation line with a maximum piling height allowed of nine feet unless a greater height is required by the FEMA base flood elevation.

Table 5.6: Dimensional Table of Conforming Uses for Zoning District C-1G

Lot (ft^2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)
10,000	100 ft.	25 ft.	10 ft.	10 ft.

Table 5.7: Dimensional Table of Conforming Uses for Zoning District R-2M

Use	Lot (ft^2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)	Maximum Building Height (ft)
Multifamily	10,000	100	25	7	25	36
Single-Family	5,000	50	25	7	25	36
Two-Family	7,500	75	25	7	25	36

5.1.B.4 ***C-1G Commercial Golf Resort District***: The C-1G district is established primarily for those uses associated with golf resort areas and any uses that are distinctly accessory to the primary functions of these accommodations. Two large parcels of property both north and south of Old Georgetown Road on the mainland, within the Town of Ocean Isle Beach municipal boundary are zoned C-1G. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the C-1G zoning district, there are 93 acres of vacant land. Some of the zoning requirements for this district include:

- ***Permitted uses***: Two-family, and multifamily dwellings, including townhouses and condominiums, apartment structures, planned unit developments, and residential accessory use structures are permitted. Development within this district is intended to promote and facilitate use of the golf course and its amenities.
- ***Lots***: Minimum lot area, width, and yard requirements are contained in Table 5.6.

5.1.B.5 ***R-2M Multi-family Residential District Mainland***: The R-2M district's criteria for development are the same as provided for in R-2. This district is intended primarily for single-family, two-family and multifamily dwellings. Certain nonresidential uses are permitted. Several tracts of land to the east and west of Ocean Isle Beach Road within the ETA are zoned R-2M. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the R-2M zoning district, 162 acres of vacant land exists; the density limitation within this district is six units per acre. Specific zoning requirements for this district include:

- ***Permitted uses***: Residential dwelling and multifamily dwelling groups housing three or more families, to include condominiums, apartment structures offering permanent occupancy, and accessory use structures, as well as all uses permitted in the R-1 district, are permitted.

Table 5.8: Dimensional Table of Conforming Uses for Zoning District R-3

Use	Lot (ft^2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)	Maximum Building Height (ft)
Multifamily	10,000	100	25	7	25	36
Single-Family	5,000	50	25	7	25	36
Mobile Home	5,000	50	25	7	10	36
Two-Family	7,500	75	25	7	25	36

Table 5.9: Dimensional Table of Conforming Uses for Zoning District C-1

Use	Lot (ft^2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)	Maximum Building Height (ft)
Commercial Accommodations	10,000	100	25	7	25	31
Multifamily	10,000	100	25	7	25	31
Single-Family	5,000	50	25	7	25	31
Two-Family	7,500	75	25	7	25	31

- ***Lots***: Minimum lot area, width and yard requirements are contained in Table 5.7.
- ***Height Limits***: The maximum building height shall be 36 feet from grade.

5.1.B.6 ***R-3 General Residential District***: The R-3 district is intended primarily for single-family, two-family and mobile homes. Certain nonresidential uses are permitted. Several tracts of land to the east and west of Ocean Isle Beach Road within the ETA are zoned R-3. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the R-3 zoning district, 231 acres of vacant land exists; the density limitation within this district is six units per acre. Specific zoning requirements include:

- ***Permitted uses***: Mobile homes and accessory use structures, as well as all uses permitted in the R-1M and R-2M districts, are permitted.
- ***Lots***: Minimum lot area, width and yard requirements are contained in Table 5.8.
- ***Height Limits***: The maximum building height shall be 36 feet from grade.

Table 5.10: Dimensional Table of Conforming Uses for Zoning District R-2G

Use	Lot (ft^2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)	Maximum Building Height (ft)
Two-family	10,000	100 ft.	25 ft.	10 ft.	10 ft.	44 ft.
Multifamily	15,000	100 ft.	25 ft.	10 ft.	15 ft.	44 ft.

5.1.B.7 ***C-1 Commercial Accommodations District***: The C-1 district is designed primarily for hotels and motels and for any uses that are distinctly accessory to the primary functions of these accommodations. Single-family, two-family and multifamily dwellings and apartments are also permitted. The western third of the Ocean Isle Beach island area is zoned C-1. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the C-1 zoning district, 62 acres of vacant land exists; the density limitation within this district is six units per acre. The C-1 district will regulate the area that comprises Ocean Point Condominium and adjacent lands. Specific zoning requirements include:

- ***Permitted uses***: Hotels and motels and apartment accommodations for short-term or long-term occupancy, planned developments and all uses permitted in the R-1 and R-2 district are permitted.
- ***Lots***: Minimum lot area, width and yard requirements are contained in Table 5.9. Every 2,000 square feet of commercial space located in C-1 areas shall be considered as a unit.
- ***Height Limits***: The maximum height of structures for other than utility purposes shall be measured such as to allow for the construction of two floors, limited to 31 feet measured from the bottom of the lowest horizontal structural member to the highest point of structure. The respective flood zone shall determine the lower floor joist height of the structure that must remain within two feet of the base flood elevation line with a maximum piling height allowed of nine feet unless a greater height is required by the FEMA base flood elevation.

5.1.B.8 ***R-2G Residential Golf Resort District***: The R-2G district is established primarily for those residential uses associated with golf resort areas. A small tract south of Old Georgetown Road on the mainland, within the Town of Ocean Isle Beach municipal boundary is zoned R-2G. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the R-2G zoning district, no vacant land exists; the calculation of density allowed in this district shall be a maximum of 8.2 units per acre. Specific zoning requirements for this district include:

- ***Permitted uses***: Two-family, and multifamily dwellings including townhouses and condominiums, apartment structures, planned unit developments, and residential accessory use structures are permitted. Development within this district is intended to promote and facilitate use of the golf course and its amenities.

Table 5.11: Dimensional Table of Conforming Uses for Zoning District C-2

Use	Lot (ft^2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)	Maximum Building Height (ft)
Commercial Business	5,000	50	0	7	0	31
Commercial Accommodations	10,000	100	0	7	0	31
Multifamily	10,000	100	25	7	25	31
Single-Family	5,000	50	25	7	25	31
Two-Family	7,500	75	25	7	25	31

- ***Lots***: Minimum lot area, width, and yard requirements are contained in Table 5.10. Every 2,000 square feet of heated residential area located in the R-2G district shall be considered as a unit.
- ***Height Limits***: Maximum building heights in this district are limited to 44 feet.

5.1.B.9 ***C-2 Commercial Business District***: The C-2 district is intended primarily to serve as a business center for provision for retailing and office service usually associated with a beach resort community. The standards established for this district are designed to promote sound, permanent business development and to protect abutting or surrounding residential areas from commercial development. Parcels east and west of Causeway Drive, as well as some oceanfront parcels on the island, are zoned C-2. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the C-2 zoning district, 18 acres of vacant land exists; the density limitation within this district is six units per acre. Specific zoning requirements for this district include:

- ***Permitted uses***: Retail business providing low bulk commodities such as groceries, drugs, apparel, variety and convenience merchandise, and gifts; offices, service stations, amusements, restaurants, marinas, fishing piers; all uses permitted in R-1, R-2, and C-1 districts; planned unit developments; and churches are permitted uses.
- ***Special uses***: The following uses shall be permitted if approved by the board of adjustment as a special use for special entertainment uses: adult and sexually oriented businesses.
- ***Lots***: Minimum lot area, width and yard requirements are contained in Table 5.11. Every 2,000 square feet of commercial space located in the C-2 areas shall be considered as a unit.

Table 5.12: Dimensional Table of Conforming Uses for Zoning District C-2M

Use	Lot (ft^2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)	Maximum Building Height (ft.)
Commercial Business	5,000	50	0	7	0	55*
Commercial Accommodations	10,000	100	0	7	0	55*
Multifamily	10,000	100	25	7	25	55*
Single-Family	5,000	50	25	7	25	55*
Two-Family	7,500	75	25	7	25	55*

- ***Height Limits***: The maximum height of structures for other than utility purposes shall be measured such as to allow for the construction of two floors, limited to 31 feet measured from the bottom of the lowest horizontal structural member to the highest point of structure. The respective flood zone shall determine the lower floor joist height of the structure which must be three feet above the base flood elevation line with a maximum piling height allowed of nine feet unless a greater height is required by the FEMA base flood elevation.

5.1.B.10 ***C-2M Commercial Causeway Mainland***: The C-2M designation regulates the area inside the town limits, the northern side of the Intracoastal Waterway, and is contiguous to the causeway. This area permits commercial development, and the calculation of density allowed in this district is limited to 8.2 units per acre. Density is limited to 8.2 units per acre. Parcels east and west of Causeway Drive on the mainland portion of Ocean Isle Beach comprise zoning district C-2M. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the C-2M zoning district, nine acres of vacant land exists.

- ***Permitted uses***: Retail businesses providing low bulk commodities such as groceries, drugs, apparel, variety and convenience merchandise and gifts. Office, service stations, amusements, restaurants, marinas, fishing piers, churches and all uses in R-1, R-2, and C-1 are also permitted.
- ***Lots***: Minimum lot area, width and yard requirements are contained in Table 5.12.
- ***Height Limits***: This area has an overall height limit of 55 feet from grade. *Airport Zoning restrictions may apply.

Table 5.13: Dimensional Table of Conforming Uses for Zoning District C-3

Use	Lot (ft^2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)	Maximum Building Height (ft.)
Commercial Highway	5,000	50	25	20	10	55*
Commercial Business	5,000	50	25	20	10	55*
Commercial Accommodations	10,000	100	25	20	10	55*
Multifamily	10,000	100	25	10	10	36
Single-Family	5,000	50	25	10	10	36
Two-Family	7,500	75	25	10	10	36

5.1.B.11 ***C-3 Commercial Highway District***: The C-3 district is intended to serve the general commercial needs of the community. Additionally, all residential uses permitted in other districts are allowed. Parcels north and south of Beach Road on the mainland within the Ocean Isle Beach ETA comprise zoning district C-3. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the C-3 zoning district, 273 acres of vacant land exists. The density limitation within this district is 8.2 units per acre. Specific zoning requirements for this district include:

- ***Permitted uses***: Commercial enterprises involving retail, wholesale, service, trades and offices, as well as all uses permitted in R-1, R-2, C-1, and C-3 districts, including planned unit developments. No uses of land or buildings involving manufacturing shall be permitted; provided that light manufacturing or fabrication may be permitted only upon approval of the Board of Adjustment as a special use. Storage facilities shall be permitted, provided they comply with the conditions set forth hereinafter, specifically including the fencing and screening requirements.
- ***Lots***: Minimum lot area, width and yard requirements are contained in Table 5.13.
- ***Height Limits***: Maximum height of structures for other than residential and utility purposes shall be limited to 55 feet in overall height. The number of habitable floors shall be limited to three floors with the addition of a loft area on the uppermost floor no greater than one-third the area of the floor immediately below. Residential structures shall be limited to 36 feet in overall height. *Airport Zoning restrictions may apply.

Table 5.14: Dimensional Table of Conforming Uses for Zoning District C-3A

Use	Lot (ft^2)	Lot Width (ft)	Front Yard (ft)	Side Yard (ft)	Rear Yard (ft)	Maximum Building Height (ft.)
Commercial Accommodations	10,000	100	25	7	25	36
Multifamily	10,000	100	25	7	25	36
Single-Family	5,000	50	25	7	25	36
Two-Family	7,500	75	25	7	25	36

5.1.B.12 ***C-3A District***: This district is intended to serve specific commercial needs of the community and allows the following uses within its boundaries: commercial enterprises involving retail, wholesale, service, trades, or offices; hotels and motels; apartment accommodations for short term and long-term occupancy; and, all uses permitted in R-1 and R-2. No uses of land or buildings involving manufacturing shall be permitted, provided that light manufacturing or fabrication may be permitted only upon approval of the Board of Adjustment as a special use. Parcels south of Beach Road on the mainland within the Ocean Isle Beach municipal boundary comprise zoning district C-3A. The boundaries of this zoning district are located on the zoning map in Appendix A. Within the C-3A zoning district, 39 acres of vacant land exists.

- ***Permitted uses***: Commercial enterprises involving retail, wholesale, service, trades, or offices; hotels and motels; apartment accommodations for short term and long-term occupancy; and, all uses permitted in R-1 and R-2.
- ***Lots***: Minimum lot area, width and yard requirements are contained in Table 5.14.
- ***Height Limits***: Maximum building height shall be 36 feet above grade.

5.1.C *Access to Public Trust Waters*

Ocean Isle Beach recognizes that the public has certain established rights to certain land and water areas. In Ocean Isle Beach, the Intracoastal Waterway, Tubbs Inlet, Shallotte Inlet, ocean beaches, and the Atlantic Ocean adjacent to the beaches are all Public Trust Areas. These areas support recreational uses such as swimming, boating, water skiing, sports fishing, and commercial fishing. These public areas also support valuable commercial and recreational fisheries, tourism, and are of significant aesthetic value. Appropriate uses include those which protect public rights for navigation and recreation.

Maintaining public access to public trust waters is a high priority for the Town of Ocean Isle Beach, and CAMA public beach accesses have been established along the shoreline of the Atlantic Ocean. The locations of these public access points are shown on the Transportation Systems and Public Access Facilities Map in Appendix A. A regional public boat launch

facility has been installed by the Wildlife Resources Commission on the Intracoastal Waterway, just southeast of the Odell Williamson Bridge.

5.1.D *Land Use Conflicts*

The land use conflicts that exist in the Town of Ocean Isle Beach are similar to those in other coastal communities. Land use conflicts are limited primarily to issues related to the influx of tourists (e.g., traffic, litter, lighting and noise) and issues related to the proper density, size, and height of residential construction and the location of commercial development. Conflicts also exist where residential development has occurred in flood hazard areas, although current zoning regulations have been established to reduce the impacts of flooding on residential areas. *(There has been some discussion regarding development in flood hazard areas as a "conflict"; however, the DCM Technical Guidance does refer to this situation as an example of a land use conflict.)*

5.2 Projection of Future Land Needs

When preparing a land use plan, it is often useful to consider how much land is likely to be needed to accommodate future development. Approximately 44 percent of the land within the Town of Ocean Isle Beach's jurisdiction (municipal area and ETA area) remains vacant at this time. Additionally, unincorporated areas beyond the limit of the ETA, within Brunswick County allow for further expansion of the Town. Given the small percentage of permanently occupied housing within the Town of Ocean Isle Beach, the "need" for additional development at this time is minimal. However, as the population of Brunswick County continues to increase, it is likely that the population of Ocean Isle Beach will also continue to increase, and additional development is likely to occur as land values increase. The relatively low percentage of commercially developed acreage within the Town of Ocean Isle Beach and the ETA area (1.86 percent of total acreage and 2.32 percent of total acreage) should be considered as the community continues to grow. Additional commercial infrastructure is likely to be required as the residential uses of the Town increase. It should be noted that current size and density restrictions will serve to limit the extent of development efforts.

5.3 Regulation of Land Development

All land development activities in the Town of Ocean Isle Beach are subject to a wide range of state and local permits. The following sections summarize Ocean Isle Beach's regulatory requirements as well as those that apply pursuant to CAMA.

5.3.A *Ocean Isle Beach's Land Development Regulations*

The Town of Ocean Isle Beach, like other municipalities in the state, has been granted general statutory authority by the North Carolina General Statutes to enact necessary ordinances designed to protect and promote the health, safety and the general welfare of its citizens. Local plans and policies are enforced through ordinances adopted by the Town Council.

5.3.A.1 ***Ocean Isle Beach Zoning Code***: The zoning ordinance is the most prominent land development regulatory tool used by the Town of Ocean Isle Beach. The ordinance was originally adopted in 1972. The ordinance regulates location and height of buildings, establishes minimum building lot sizes, and establishes districts in which uses related to residential, commercial, and institutional uses are either allowed or prohibited. A discussion of the existing zoning districts has been provided in the preceding portion of this section.

Currently the town has eight zoning districts within the municipal boundary:

- C-1 – Commercial accommodations district;
- C-1G – Commercial golf resort district;
- C-2 – Commercial business district;
- C-2M – Commercial causeway mainland;
- C-3A – Commercial district;
- R-1 – Single-family residential district;
- R-2 – Multi-family residential district; and,
- R-2G – Residential golf resort district.

Currently the town has four zoning districts within the ETA boundary:

- C-3 – Commercial highway district;
- R-1M – Single-family and two-family residential district mainland;
- R-2M – Multi-family residential district mainland; and,
- R-3 – General residential district.

In addition to the uses allowed within each district, certain conditional uses are permitted on a case-by-case review process. Further information on setbacks and minimum lot size within each district is summarized in Tables 5.2 through 5.11 and is displayed graphically in the Zoning Map contained in Appendix A.

5.3.A.2 ***Subdivision Regulations***: Since 1975, the Town of Ocean Isle Beach has enforced subdivision regulations which guide the general design of newly developing areas within the Town's jurisdiction. A subdivision is the division of any parcel or tract of land into two or more lots for the purpose of development. The purpose of the subdivision regulations is to establish procedures and standards for the development and subdivision of land within the territorial jurisdiction of the Town of Ocean Isle Beach.

5.3.A.3 ***Flood Plain and Damage Prevention Ordinance***: In 1974, Ocean Isle Beach adopted a Flood Damage Prevention Ordinance and began participating in the Federal Flood Insurance Program. First floor building elevation requirements vary in the Town, ranging from 13 to 17 feet in the "AE" zone and from 15 to 23 feet in the "VE" zone. The Flood Ordinance is enforced by the Building Inspector as part of the Town's building permit program.

5.3.A.4 ***Building Code***: The Town of Ocean Isle Beach has an active building inspections program and enforces the NC State Building Code, including the codes concerning general construction, plumbing, heating, electrical, fire, and gas, as well as the NC Uniform Residential Building Code. The Town Building Inspectors issue building permits and inspect construction to ensure strict compliance with all code enforcement.

5.3.A.5 ***Septic Tank Regulations***: The Town has in operation a wastewater system which serves the entire incorporated Town. Septic systems are still used in the ETA mainland. These ground absorption waste disposal systems are permitted by the Brunswick County Health Department. Any system generating more than 3,000 gallons of waste per day is designed by engineers and submitted to the North Carolina Department of Human Resources for approval. Building permits are not issued until a septic tank permit or an approved site plan is presented. A final inspection is not given or a certificate of occupancy completed until an inspection slip from the Health Department is in the Town file indicating that the waste disposal system was installed as permitted.

5.3.A.6 ***Extraterritorial Area Ordinance***: In February 1991, the Town adopted an ordinance enabling the enforcement of codes and ordinances within the extraterritorial area (ETA) which extends up to one mile form the Town's corporate limits.

5.3.A.7 ***Airport Height Zoning Ordinance***: This ordinance was adopted to protect the airport interests and to aid public safety by restricting height of objects and buildings near the Ocean Isle Airport.

5.3.A.8 ***Dune Protection***: Ocean Isle Beach protects its dunes by enforcing its CAMA permitting and the Building Code provisions and by forbidding vehicular traffic on the beach as regulated by the Traffic Code. Moreover, walkways are provided at each beach access and fences line these walkways which guide pedestrian traffic from disturbing the dunes.

5.3.A.9 ***Sign Ordinance***: Sign restrictions are included in the Zoning and General Ordinances.

5.3.A.10 ***Soil Erosion and Sedimentation Ordinance***: Ocean Isle Beach has a soil erosion and sedimentation ordinance which regulates land disturbing activities to control accelerated erosion and sedimentation in order to prevent the pollution of waterway systems and to prevent damage to public and private property.

5.3.A.11 ***Jet Ski Ordinance***: In 1997, the Town of Ocean Isle Beach adopted a jet ski ordinance which regulates the areas of operation for jet skis, the speed of jet ski operation, the age and training requirements for jet ski operators, and the safety equipment required for jet ski users.

5.3.B *CAMA Requirements*

The Coastal Area Management Act (CAMA) requires permits for development in Areas of Environmental Concern (AEC). *Major permits* are necessary for activities that require other state or federal permits, for projects that cover more than 20 acres, or for construction covering more than 60,000 square feet. Ten state and four federal agencies review applications for major permits before a decision is made. *General permits* are used for routine projects that usually pose little or no threat to the environment. *Minor permits* are required for projects, such as single-family houses, that don't require major permits or general permits. The local permit officer (LPO) has the power to issue minor CAMA permits, and approve permit exemptions. Under CAMA regulations, a minor permit is to be issued within 25 days once a complete application is in hand. If the project is simple, the review process often is much shorter.

You must obtain a CAMA permit for your project if it meets *all* of the following conditions:

- It is in one of the 20 counties covered by CAMA.
- It is considered “development” under CAMA.
- It is in, or it affects, an AEC established by the CRC.
- It doesn't qualify for an exemption.

CAMA defines *development* as: “any activity in a duly designated area of environmental concern . . . involving, requiring or consisting of the construction or enlargement of a structure; excavation; dredging; filling; dumping; removal of clay, silt, sand, gravel or minerals; bulk heading; driving of pilings; clearing or alteration of land as an adjunct of construction; alteration or removal of sand dunes; alteration of the shore, bank or bottom of the Atlantic Ocean or any sound, bay, river, creek, stream, lake or canal (NCGS 113A-103(5)(a)).”

As general guidance, you are probably in an AEC if your project is:

- In, or on the shore of, navigable waters within the 20 CAMA counties;
- On a marsh or wetland;
- Within 75 feet of the normal high water line along an estuarine shoreline;
- Near the ocean beach;

- Within an ocean high hazard flood area;
- Near an inlet;
- Within 30 feet of the normal high water level of areas designated as inland fishing waters by the NC Marine Fisheries Commission and the NC Wildlife Resources Commission;
- Near a public water supply;
- Within 575 feet of an ORW defined by the Environmental Management Commission.

However, Section 103(5)(b) of CAMA exempts the following activities from permit requirements:

- Road maintenance within a public right-of-way;
- Utility maintenance on projects that already have CAMA permits;
- Energy facilities covered by other laws or NC Utilities Commission rules;
- Agricultural or forestry production that doesn't involve the excavation or filling of estuarine or navigable waters or coastal wetlands (Note: these activities are not exempt from permitting requirements under the state's Dredge and Fill Law.);
- Emergency maintenance and repairs when life and property are in danger; and,
- The construction of an accessory building usually found with an existing structure, if no filling of estuarine or navigable waters or coastal wetlands is involved.

In addition, the CRC defines certain types of minor maintenance and improvement work that do not require a CAMA permit. However, you must receive an exemption certificate before you perform this work (15A NCAC 7K). The following categories of work may qualify for an exemption:

- Additions and modifications to simple structures;
- Shoreline stabilization;
- Maintenance and expansion of existing projects;
- Emergency maintenance and repairs;
- Single-family residences;
- Accessory uses;
- Structural maintenance and repair.

From July 1999 through July 2006, it is estimated that Ocean Isle Beach's LPO issued 701 minor permits, 455 exemptions, and identified nine CAMA violations. CAMA general permits are issued by the Division of Coastal Management, and between 2000 and 2005, DCM issued 338 general permits.

5.3.C *Permitting Process*

If construction will result in a significant modification of a structure, increase the size of the structure, or if new development occurs, the following permits may be required:

- ***Zoning Permit***: Site plan and description of work to be done shall accompany a Zoning Compliance Application;
- ***CAMA Permit***: If the property is located within the 420' Ocean Hazard AEC or the 75' Estuarine AEC then a CAMA permit shall be required; and,
- ***Building Permit***: For all construction activities.

If there is no expansion in the size of an existing structure due to development, all which is required is a building permit. Construction of fences, driveways, signs and businesses require zoning permits. They also require a CAMA permit if located in an AEC.

After an individual applies for the requisite permits, the development code administrator determines whether the project is permitted by the zoning ordinance and complies with existing regulations pertaining to such things as setbacks, FAR, height, parking, flood zone regulations, and other applicable requirements. When a proposed project is located within an AEC, the LPO reviews the project to assure that it is consistent with CAMA regulations and the land use plan's policies. Of particular concern are CAMA's requirements for buffer zones and erosion setbacks for small and large structures.

After the CAMA review, the building code enforcement officer reviews plans for compliance with building code and floodplain regulations for residential structures. If a commercial project is reviewed, building plan review includes building, flood plain, electrical, plumbing, HVAC and accessibility review to assure that all NC Building Code Regulations are met. A permit is issued only if it meets the aforementioned requirements. A majority of the time, there are meetings with the contractor, owners and architects before a permit is issued. Different fees are charged for building, plumbing, zoning, impact fees, pilings, water, and sewer. The building permit fee is based on cost of work material and labor. The other fees are a set amount.

The zoning code administrator/LPO performs a series of inspections prior to work commencing and after completion of exterior work or work taking place in or near AEC. The inspections performed by zoning code administrator/LPO include:

- Zoning for driveways, fences, buildings, and violations. Inspections are performed prior to work and after completion.
- CAMA inspections are performed before and after applications are submitted and again at the completion of the project.
- Assists the building inspector on various inspections.

The building code administrator also performs a series of inspections. After a building permit is issued, the first inspection is the foundation or piling inspection. At this inspection,

piling length and height of the first finished floor are reviewed during this inspection to assure that flood requirements and setbacks are met. A survey is needed at this inspection. The second inspection is a sheeting inspection, which is followed by a framing inspection. The latter is done when the other trades (plumbing, electrical, etc) have passed their inspections. The next inspection is the insulation inspection. The last inspection is the final inspection. When the all trades have successfully passed inspection and final inspection has been performed to assure that all building regulations have been met, a certificate of occupancy is issued. There can be other types of inspections as well (e.g., rafter tie, decks, steps).

Many zoning and CAMA violations are identified via citizen complaints. Others are identified by staff. Once a violation is reported, a site visit is performed to locate the violation and take pictures. A letter is then sent informing the property owner of the violation and the means of correcting the violation. When building code violation is identified, a stop work order is posted until a permit is issued. If a violation is found during construction, corrective actions must be taken for work to proceed.

Section VI

Community Facilities & Town Services

6.0 Introduction

The Town of Ocean Isle Beach has a Council-Administrator form of government. The Board of Commissioners or Town Council consists of a Mayor and five commissioners elected at large every four years with staggered terms. The Mayor is elected for a two-year term. The Board of Commissioners is the governing body of the Town with the Mayor as the presiding officer. The Mayor serves as a voting member on the Board of Commissioners only in the event of a tie among the other Commissioners. The Town Administrator is appointed by the Board of Commissioners and administers the daily operations of the Town, as well as being responsible for implementing and explaining the policies of the Board of Commissioners.

The Town provides a full range of services. These services include fire protection, police protection, sanitation, construction and maintenance of streets and infrastructure, beach rescue, first responder/defibrillator medical service, and parks and recreation. The Town also provides water and wastewater services. The existing structure of government at Ocean Isle Beach is performing the necessary functions well, and there are no anticipated changes in the size or scope of the local government. The following sections analyze community facilities and town services in order to identify potential issues warranting consideration in the land use plan update.

6.1 General Administration

The General Administration Department is located in Town Hall and is responsible for a variety of services including preparation of agendas, correspondence and reports for the Mayor and Board of Commissioners; preparation and oversight of the annual budget; preparation of financial reports; investment of Town funds; preparation and processing of utility bills and payments; and processing of accounts payable. This department is also responsible for maintaining financial and historical records for the Town, and personnel records for Town employees.

The town also recently purchased land on the mainland which will be used for a new Town Hall. This will allow the Town to have a center for emergency operations in the event that the Island has to be evacuated or the bridge is closed.

6.2 Fire Protection & Emergency Medical Services

The Town of Ocean Isle Beach enters into a yearly agreement with the Ocean Isle Beach Volunteer Fire Department for fire protection services. The Town provides some funding, and the Volunteer Fire Department serves the Ocean Isle Beach area. The Ocean Isle Beach Volunteer Fire Department is located at 105 Causeway Drive. The department has 10 full time employees along with 17 volunteers. The department serves both the Town and the ETA. The fire insurance rating for Ocean Isle Beach is currently a class 4. The fire department responds to about 700 calls per year.

The Fire department has its own pump testing facility and access to the Shallotte Regional Fire Training Center, which allows for the complete training of firefighters.

Once dispatched by the County's 911 center, the Fire Department's response time within Town limits is normally three to four minutes. During summer months, however, responses may be delayed due to heavy traffic conditions.

The Shallotte and Calabash Volunteer Rescue Squads along with the Brunswick County Emergency Medical Service also provide services to Ocean Isle Beach.

The Fire Department's resources are adequate to meet present needs. This is due to the recent replacement of two of its pumpers, one in 2003 and the other in 2005. However, replacement of its 11 year old aerial and expansion of its current facilities will need to be considered during the next five years. Moreover, even though the current paid staff and volunteers are adequate to meet current service demands, the trend towards construction of larger residential structures and planned unit developments may eventually strain available manpower along with current water supplies. In order to maintain and even improve its Class 4 rating, the Town must continually evaluation the adequacy of its firefighting resources relative to ongoing development in the community.

6.3 Police Department

The Ocean Isle Beach Police Department is located at 2 West 3rd St. Ocean Isle Beach. The department is made up of 12 full-time officers year round, and three part-time officers during the peak summer season. The police officers utilize police cars, ATV's, a motorcycle, foot patrols, and a boat to deliver community police services for all areas of the corporate limits. In addition, the police department has developed a Detectives Division with crime scene capabilities. The Ocean Isle Beach Police Department currently has mutual aid agreements in place with the Brunswick County Sheriff's Office, Shallotte Police Department, and Sunset Beach Police Department.

The Ocean Isle Beach Police Department's calls for services, arrests, investigations, and community service functions, continues to increase from year to year. In fact, there are five separate subdivisions and one commercial strip mall development either being built within

the city limits, or within one mile of the city limits, with a proposed build out date for 2008. These five separate subdivisions will have approximately 4,800 additional homes. Only one of these subdivisions, consisting of 1,860 homes, has completed their traffic study. This subdivision is estimated to bring an additional 16,918 vehicle trips into the Ocean Isle Beach area on Saturdays leading to approximately 58 percent more traffic.

Based on the growth that has already been seen in the last five years, and the projected growth for Ocean Isle Beach and the surrounding areas, the need for additional personnel and equipment will become an absolute must in facing the expected challenges.

6.4 Planning and Inspections Department

The Town of Ocean Isle Beach Planning and Inspections Department is located at 3 West Third Street in Ocean Isle Beach. The department is comprised of five full-time employees. The purpose of the Planning Department is to ensure desirable growth within the Town's jurisdiction, enforce the Code of Ordinances, review and permit zoning applications and issue zoning violations. The purpose of the Building Department is to ensure compliance with the North Carolina Building Codes and provide minimum standards to help provide safety for the general public and owners and occupants of residential and commercial structures. The Planning and Inspections Department handles the Town's zoning, planning, building inspection, code enforcement, and CAMA responsibilities.

Accomplishments of the Planning Department include updating the Town's Subdivision Ordinance, updating and implementing a new Flood Damage Prevention Ordinance, and the Town is currently updating the Town's Zoning Ordinance. One employee has recently received a Zoning Official Certification. The Town's GIS database has been updated to comprise all current data, including wastewater, water and stormwater.

Past accomplishments of the Building Department include computerized building permits and inspection records, and continuing education to receive higher building inspections classifications. Two employees have received their probationary certificates in diverse fields.

Future issues for the Planning and Inspections Department are concerns associated with the potential expansion of the Town's City and Extraterritorial Limits. This growth will cause the need for additional personnel and equipment. Additional employees will create the need for additional office space. Continued residential and commercial growth within the Town of Ocean Isle Beach will further the need for up-to-date ordinances to ensure desirable growth continues. With the available vacant lots on the island diminishing, the issue of redevelopment will arise as older homes are demolished or moved and new homes are constructed in their place.

Table 6.1: School Capacity and Enrollment

School	Fall 2006 Enrollment	Capacity	Percent Occupied
Union Elementary (K-5)	638	726	87.9
Waccamaw School (K-8)	606	662	91.5
Jesse Mae Monroe Elementary (PK-5)	450	543	82.9
Shallotte Middle School (6-8)	947	924	102.5
West Brunswick High School (9-12)	1,423	1,270	112.0

Source: Brunswick County Department of Education – Enrollment for Fall 2006
Capacity information obtained from Draft Brunswick County CAMA Core Land Use Plan – 5/23/06

6.5 Public Utilities Department

Ocean Isle Beach provides both water and sewer services to its residents. In 1998, the Town added a second water tower, with a capacity of 250,000 gallons to accommodate residents on the western portion of the island. The Town has also expanded its wastewater treatment facility to accommodate a one million-gallon-per-day flow.

Recently, the Town completed the installation of additional water and sewer lines under the Intracoastal Waterway. These additional lines will help to ensure the ability to operate in the event of an emergency.

Future demands for water and wastewater services are discussed in Section VII, where a more in-depth discussion of the public utilities is provided.

6.6 Schools

Relatively few school-age children in Ocean Isle Beach attend schools in the Shallotte area. According to the 2000 U.S. Census, there were 34 children in Ocean Isle Beach who were ages five through 17. This comprises eight percent of the 2000 year-round population. By and large, Ocean Isle Beach residents consist of middle-age adults and retirees, and this trend is likely to continue. Growth in Ocean Isle Beach should have little impact upon the Brunswick County School System. Table 6.1 shows the 2005-2006 school membership and the design capacity for the schools that Ocean Isle Beach residents attend. While growth in Ocean Isle Beach itself has probably had little direct impact upon the school system, the growth of Shallotte Township as a whole has impacted the schools. The schools in the area are close to, or over, their intended design capacity. The Brunswick County School System is currently researching areas for land acquisition to accommodate the construction of two elementary schools and one middle school.

Section VII

Infrastructure Carrying Capacity

7.0 Introduction

Another important consideration in developing a land use plan for any barrier beach community is ensuring that the infrastructure's carrying capacity is adequate to serve the population and the influx of seasonal residents and visitors frequenting the Island. The Town of Ocean Isle Beach has approximately one-third of its land remaining available for development. It should be noted that expansion to existing infrastructure will be required to meet anticipated future development. The following sections review important aspects of Ocean Isle Beach's infrastructure and some of the services provided by its Public Works Department.

7.1 Public and Private Water Supply Systems

The Town of Ocean Isle Beach's water system primarily serves customers located with the Town's municipal boundary. An additional 107 customers are served from outside the municipal boundary, but within the ETJ. The Town also wholesales water to a subdivision outside of the ETJ.

The Town purchases all of the water used in the Town from the Brunswick County water system. The water is being treated at a surface water plant in Leland, N.C. The source water for this water plant is the N.E. Cape Fear River. The Town no longer uses wells as a source of water. The Town has no private water systems in its municipal boundary and has had no water quality issues that were a threat to public health.

The Town of Ocean Isle Beach purchases water from Brunswick County to meet the needs of the population. There are multiple communities that rely on Brunswick County for their water supply; wholesale users of the Brunswick County water system are listed in Table 7.1. As growth in Brunswick County continues, the County has developed a water system master plan in an effort to ensure that the existing water supply will meet future demand needs. Brunswick County has anticipated that Ocean Isle Beach will require additional water in the future, at the rate sufficient to provide services for an additional 400 homes in the next five years. Based upon Brunswick County calculations [Table 7.1], Ocean Isle Beach will require 0.579 MGD on an average day in 2010, and 0.592 MGD on an average day in 2015. The current average daily demand of 0.567 MGD is in line with the 2004 daily average usage.

Table 7.1: Summary of Brunswick County Wholesale User Demand

Wholesale User	Anticipated Development Housing Units	Total Current Avg. Day Demand (MGD)	Year 2010 Avg. Day Demand (MGD)	Year 2015 Avg. Day Demand (MGD)
Bald Head Island	50/year	0.190	0.215	0.240
Boiling Spring Lakes	5-8% /year	0.144	0.359	0.500
Caswell Beach	60 units	0.148	0.164	0.187
Holden Beach	50/year	0.117	0.130	.0145
North Brunswick SD	1000/year	1.203	2.903	3.103
Northwest City	Sandy Cr + 330 homes	0.058	0.090	0.180
Oak Island	4% growth/year	0.990	1.188	1.387
Ocean Isle Beach	**400 homes next 5 years**	**0.567**	**0.579**	**0.592**
Shallotte	Some growth anticipated	0.269	0.295	0.310
Southport	8 subdivisions 226,000 gpd	0.443	0.556	0.670
Sunset Beach	605 units	0.565	0.900	1.400
Totals		**4.692**	**7.379**	**8.714**

Source: Brunswick County Water System Master Plan

Table 7.2: Water Connections in Ocean Isle Beach

Type of Connection	Number of connections
Residential	2,310
Commercial	45
Industrial	0
Institutional	0

Source: Town of Ocean Isle Beach Public Works
Note: Due to the ETJ, the number of connections does not match the number of housing units noted in previous tables

Additional wholesale users of the Brunswick County water supply system will increase from 4.692 MGD at present, to 7.379 MGD in 2010, and 8.714 MGD in 2015.

In Ocean Isle Beach, the system has 2,410 residential connections, 45 commercial connections and no industrial or institutional connections [See Table 7.2]. The storage capacity of the Town's water system is 450,000 gallons. This is accomplished by the use of two above ground water tanks. The distribution system consists of approximately 30 miles of pipe, ranging in size from two inches to twelve inches in diameter. There are three main interconnections between the Brunswick County system to the Town of Ocean Isle Beach; two interconnections run along the bridge, in an eight-inch and 12-inch line; one 12-inch subaqueous waterline connection beneath the ICWW brings the water supply from the

Table 7.3: Average Daily Water Flows (1998 – 2005)

Year	Total Flow (Gallons)	Average Daily Flow
1998	145,166,000	397,715
1999	155,635,000	426,397
2000	157,996,000	431,683
2001	173,188,000	474,488
2002	174,542,000	478,197
2003	174,694,000	478,614
2004	207,128,000	567,474
2005	207,856,000	569,468

Source: Town of Ocean Isle Beach Public Works

Table 7.4: Average and Maximum Daily Water Use By Month (2005)

Month	Average Daily Use (Million Gallons)	Maximum Daily Use (Million Gallons)
January	0.258	0.398
February	0.225	0.294
March	0.322	0.700
April	0.379	0.514
May	0.608	1.363
June	0.994	1.279
July	1.395	1.716
August	1.003	1.542
September	0.607	1.190
October	0.432	0.670
November	0.358	0.526
December	0.221	0.449

Source: Town of Ocean Isle Beach Public Works
2005 Report of Operation – Water Usage Report Records
DENR Form 3395

Table 7.5: Projected Service Area Demand for Water

Year	Total Demand	Average Daily Demand
2002	174,470,000	478,000
2010	183,230,000	502,000
2020	194,180,000	532,000
2030	206,225,000	565,000
2040	218,270,000	598,000
2050	230,680,000	632,000

Source: 2003 Town of Ocean Isle Beach Local Water Supply Plan

Brunswick County system to the Town of Ocean Isle Beach. Waterlines are displayed graphically on the Community Facilities (Water System) Map located in Appendix A. Units of government that provide public water, either individually or together with other units of local government, are required to prepare a local water supply plan and submit the plan to the DENR's Division of Water Resources (DWR).

Water supply plans are useful because they analyze water use and project future demand. The last local water supply plan prepared for the Town of Ocean Isle Beach was submitted to DENR on June 25, 2003. This plan reports on municipal water services for 2002. The total water use reported for 2002 was 174.542 million gallons (MG). The average daily water use in 2002 was 478 MG [Table 7.3].

More recent water use records from 2005 have also been analyzed. For 2005, the largest average daily use and maximum daily use in Ocean Isle Beach were in July at 1.395 million gallons per day (MGD) and 1.716 MGD, respectively [Table 7.4]. In a resort community such as Ocean Isle Beach, the system flows are subject to unusual peaks that occur seasonally. Therefore, while it is not necessary or practical to meet the State criteria on peak days, the system must be able to handle those flows for short periods without running out of water. It should be noted that the storage capacity for the Town (450,000 gallons) is less than one third of the average daily usage for July 2005 (1,395,000 gallons). This indicates that the Town is entirely reliant on the Brunswick County water system during times of peak seasonal water demand.

The information contained in Table 7.5 has been taken from the 2002 Local Water Supply Plan prepared by the Town of Ocean Isle Beach. This plan attempts to provide projections of future water supply needs based upon the population projections. Based upon more recent water usage records, it appears that the projections from the 2002 Local Water Supply Plan have been underestimated; the average daily demand for 2005 has already exceeded the projection for average daily demand in 2030. Based upon information obtained from the Town of Ocean Isle Beach Public Works director, a revised projection for water usage in 2015 is an average daily demand of 625,000 gallons per day. If Brunswick County continues to provide water to the Town, the water supply system should be more than capable of meeting projected service area demand based on current population projections. The biggest long-term issue is whether the population growth in Brunswick County could ultimately impact Ocean Isle Beach's water supply; this is a factor which Ocean Isle Beach has little control over.

7.2 Public and Private Wastewater Systems

There are no private wastewater systems operating within the Town of Ocean Isle Beach. The Town of Ocean Isle Beach began operating its wastewater treatment system in 1987. Connection to the public sewer system is required for all residents and businesses within the Town.

Table 7.6: Average Daily Wastewater Discharges (2005)

Month	Average Daily Discharge
January	0.135
February	0.125
March	0.217
April	0.235
May	0.313
June	0.564
July	0.796
August	0.601
September	0.344
October	0.353
November	0.204
December	0.141

Source: Ocean Isle Beach Public Works

Table 7.7: Average Daily Wastewater Flow (1997 – 2005)

Year	Total Flow (Gallons)	Average Daily Flow (Gallons)
1997	109,740,000	300,657
1998	109,380,000	299,671
1999	98,670,000	270,329
2000	96,960,000	265,644
2001	97,700,000	267,671
2002	98,060,000	268,658
2003	101,250,000	277,397
2004	110,960,000	304,000
2005	123,160,000	337,425

Source: Ocean Isle Beach Public Works

The collection system is a gravity sewer system with 28 miles of collection lines and 36 sewer lift stations. The main pump station consists of four pumps and a back-up generator. In the past ten years, approximately two miles of collection lines and two pump stations have been added as upgrades. The collection system serves only areas within the municipal boundary, no public sewer system is available in the ETJ area.

The wastewater treatment facility is a Sequencing Batch Reactor (SBR) treatment system, with three SBR tanks in service. Each tank holds 422,500 gallons of working volume for the equalization/pre-reaction, aeration, clarification/decanting, and post-clarification equalization of wastewater. Wastewater effluent that meets reclaimed water quality standards is applied

to 200 acres of sprayfields. The existing permit for the wastewater treatment facility allows for the treatment of 1,050,000 gallons of effluent per day.

Given that the remaining developable land within the Town of Ocean Isle Beach, there are plans for future growth of both the collection system and the wastewater treatment system. The Town is in the preliminary stages of expansion for the wastewater treatment plant that would allow the Town to utilize a fourth treatment basin for additional treatment capacity. The expansion would increase the Town's treatment capacity to 1,690,000 gallons of effluent per day. The Town's sewer system is displayed graphically on the Community Facilities (Sewer System) Map located in Appendix A. Table 7.6 displays the average daily wastewater discharge in 2005. Table 7.7 displays the average daily wastewater flow from 1997 until 2005. These records indicate a decline in wastewater flow between 1997 and 2000, with a steady increase in flows since that time. These records may be indicative of the population trends during that same time period.

7.3 Stormwater System

Three types of stormwater systems exist within the Town of Ocean Isle Beach; the Town owned systems, systems owned and operated by the Department of Transportation (DOT), and private systems. Private owners are required to have engineered stormwater systems designed to capture the first 1.5 inches of rainfall. The Town-owned stormwater system is a combination of catch basins piped to outfalls, swales, ditches and catch basins tied to an underdrain system. The DOT also has some catch basins into french drains, and along the Causeway the DOT uses a curb and gutter system. New developments within the Town are required to install a stormwater system by use of swales or catch basins into an underdrain system.

The Town inspects and cleans the Town-owned catch basins and lines twice a year; this is accomplished by the Town's Street Department staff and the use of the Town's vac truck. Maintenance activities are limited to Town Systems and routine non-construction maintenance on DOT systems. Routine non-construction maintenance includes street sweeping, leaf collection, video inspection, high-pressure water cleaning, and vacuum debris removal. In addition, Town systems also benefit from construction maintenance activities such as line repair, replacement, and catch basin repairs. Private systems are required to have their own maintenance agreement.

The Town's stormwater management ordinance became effective November 14, 2000. This ordinance calls for more stormwater control when new structures are built within the Town's municipal boundary. The ordinance also requires new developments to sign a maintenance agreement for their stormwater systems, prior to receiving a Certificate of Occupancy for the site.

The Town has recently completed a Phase I stormwater project on East and West First Street (2004). This project was funded through a Water Resources Grant. The Town is currently contracted with an engineering firm to implement a Phase II stormwater project along five of

the natural canal streets. This project is also being funded through a Water Resources Grant. The Town will apply for future stormwater grants as they become available.

7.4 Solid Waste Disposal and Recycling

The Town of Ocean Isle Beach contracts with Waste Industries for solid waste disposal. The Town also contracts with Waste Industries for additional curb side pick-ups, beach strand pick-ups and recycling.

Curb side pick-up occurs on Saturday, Monday & Thursday during June, July, and August; Monday & Thursday during May and September; and on Mondays only, October through April. This modified collection schedule seeks to serve the peak seasonal population. Trash pick-up for the ETJ is handled through Brunswick County's contract with Waste Industries.

All Construction and Demolition (C&D) materials and yard debris is taken to Brunswick County Landfill, near Supply, N.C., for disposal. The solid waste debris is taken to a landfill in Sampson County for disposal. County facilities are adequate to meet current and future needs under the current waste disposal scenario. It should be noted that sufficient solid waste disposal facilities are not available within the County limits; however, this is a factor which Ocean Isle Beach has little control over.

7.5 Parking Facilities

With increasing numbers of visitors, there is a high demand for public parking spaces during summer months. As illustrated by Table 7.8, the Town of Ocean Isle Beach has constructed additional parking spaces to accommodate the increasing tourist population. The Town of Ocean Isle Beach has received a grant from CAMA to build two additional parking lots on the island; this will provide 30 more non-metered parking spaces, for a total of 502 spaces. Plans are to begin construction on these lots in the next several months.

7.6 Transportation System

The Odell Williamson Bridge across the ICWW is the only means of ingress or egress to the Town of Ocean Isle Beach from the Mainland. The two-lanes connect into a three-lane road (NC 904) that intersects with First Street. First Street is the major thoroughfare that runs from the west end to the east end of the beach. The road system is displayed graphically on the Transportation Systems and Public Access Facilities Map located in Appendix A.

The Odell Williamson Bridge on NC 904 is operated and maintained by the NCDOT; this bridge serves as the one point of entry and exit for the island. Based upon information provided by the DOT Bridge Maintenance Unit, the Odell Williamson Bridge was constructed of prestressed concrete in 1984. The Odell Williamson Bridge was designed for seven percent of traffic to be trucks, and for 50-mph speeds. The 1985 average daily traffic

Table 7.8: Marked Parking Spaces

Location	1995	2000	2005
Non-metered parking spaces	280	315	272
Metered parking spaces	-	-	200
Total Marked Parking	280	315	472

Source: Ocean Isle Beach Public Works Department

Table 7.9: Level of Service Capacity (2005)

	2005 AADT	Level of Service "D"	Percent Usage
NC 904 between NC 179 & the ICWW	9,300	12,500	74.4
NC 904 between ICWW & SR 1144 (First St.)	8,400	12,500	67.2
SR 1144 (W. First St) between NC 904 & west end of island	2,600	11,500	22.6
SR 1144 (E. First St) between NC 904 & east end of island	1,600	11,500	13.9
SR 1888 (E. Second St.) between NC ()$ & east end of island	4,600	10,500	43.8

Source : NC DOT Traffic Survey Unit

(AADT) for the Odell Williamson Bridge was 2,500 vehicles. The design year AADT (which was set at 2005) was estimated in 1985 at 5,000 vehicles. Based upon the AADT that was measured just a few miles north of the bridge (at PTC Station 900016), the 2004 AADT was 16,000. It seems that the bridge designer had underestimated the amount of traffic that the Odell Williamson Bridge would receive. Although the design year AADT is set at a point 20 years from the date when the bridge was constructed, the design life for the bridge project is typically 50 years or more, depending upon budget constraints.

The DOT Bridge Maintenance Unit inspects the bridge every two years; the most recent inspection of the bridge was conducted on May 18, 2005. Currently there are no scheduled bridge repairs or improvements.

During periods of severe weather, when sustained winds of 55-mph or greater, the bridge is closed to traffic and entry or exit to the Island is prohibited. The Town is currently in the process of working on a new emergency response plan for severe weather, and bridge closure is a component of the plan.

7.6.A *Traffic Counts and Roadway Design Capacity*

Like other facilities, roads are in highest demand during the summer months. Table 7.9 shows the 2005 average daily traffic (AADT) as compared to the Level of Service "D", which the DOT considers the threshold for congestion. According to DOT, the Level of Service "D" borders on unstable flow. Density at Level "D" begins to deteriorate somewhat more quickly with increasing flow. Small increases in flow at this Level can cause substantial deterioration in service. Freedom to maneuver is severely limited, and minor incidents can cause substantial queuing. At the limit of Level of Service "D", vehicles are spaced at about 165 ft., or nine car lengths.

As indicated in Table 7.9, the AADT numbers for 2005 are substantially lower than the Level of Service "D" for the measured roads on Ocean Isle Beach, and none of the island roads are currently experiencing capacity deficiencies when compared to average annual traffic. If the land use in these areas doesn't change dramatically to accommodate large multi-dwelling unit buildings, i.e. high rise condominiums, then we should not predict major capacity deficiencies in the near future. It should be noted that the AADT reflects an *average* traffic count for the measured point; this traffic count could be substantially higher during the summer months. It also should be noted that as the population of Brunswick County continues to grow, additional capacity deficiencies may occur in the future. Traffic congestion during certain peak periods will most likely continue to occur, particularly during the summer months. The periodic congestion is likely to remain a fact of life for residents and visitors because there are no easy or inexpensive solutions to the problem given inherent limitations associated with the bridge. Nevertheless, further study of roadway, traffic, and parking issues is warranted.

Section VIII

Land Suitability Analysis

8.0 Introduction

One of the DCM requirements (NCAC 15A 7B. 0702 (5)) and its newly promulgated *Technical Manual for Land Use Planning* is to perform a land suitability analysis (LSA) using data disseminated by state agencies, Brunswick County, and information from Ocean Isle Beach's GIS. The overall purpose of the analysis is to provide the Land Use Plan Steering Committee (LUPSC) with information on the best and least suited areas for development in order to guide the formation of policies and recommendations for managing future growth and development. The analysis is intended to apply to undeveloped land that may experience future development or land that has the potential for redevelopment.

8.1 Land Suitability Analysis

The LSA uses GIS applications and data from state and local sources to classify undeveloped land with a rating based on its suitability for development. The computer model divides the planning jurisdiction into one-acre grid cells. Each grid cell is measured for suitability based on the totality of factors affecting the cell. Many factors on or adjacent to undeveloped land affect the degree to which it is suitable for development. For example, whether the site has access to water and sewer infrastructure (positive factor) or has coastal wetland located on the parcel (negative factor). Final ratings fall into one of four categories: least suitable for development; low suitability; medium suitability, and highly suited for development.

The first step of the analysis was to complete the mapping of the factors used in the LSA to display their extent and applicability within the jurisdiction. These factors are identified on various maps located in Appendix A. The next step is mandated by the state. The CRC and the DCM defined criteria in which the presence or proximity of a prescribed set of factors are determined to impact the suitability of land for development and automatically assigned a suitability ranking to factors based on the following criteria. Areas within:

- ***Beneficial Non-Coastal Wetlands*** have low suitability;
- ***Storm Surge Areas*** have low suitability;
- ***100-year Flood Zones*** have low suitability;
- ***HQW/ORW Watersheds*** have low suitability;
- 500 feet of a ***Significant Natural Heritage Areas*** have low suitability;

- A half-mile of ***Primary Roads*** have high suitability, within a half-mile to a mile have medium suitability, and areas greater than a mile outside of primary roads have low suitability;
- A half mile of ***Developed Land*** have high suitability, areas within a half-mile to a mile have medium suitability, and areas greater than one mile away from developed land have low suitability;
- A quarter-mile of ***Water Pipes*** have high suitability, areas within a quarter mile to half-mile of water pipes have medium suitability, and areas greater than a half-mile from water pipes have low suitability;
- A quarter-mile of ***Sewer Pipes*** have high suitability, areas within a quarter-mile to a half-mile have medium suitability, areas greater than a half-mile from water pipes have low suitability;
- ***Coastal Wetlands*** are *least* suitable;
- ***Exceptional and Substantial Non-Coastal Wetlands*** are *least* suitable;
- **Protected Lands** are *least* suitable; and,
- ***Estuaries Waters*** are *least* suitable.

For example, one criteria states that land within 500 feet of a wastewater treatment plant should receive a 'low' suitability ranking while land within a half mile or less of water infrastructure is 'highly' suited for development. The overall suitability rating score for each acre of undeveloped land will be the composite of the suitability ratings for each factor. In a sense, it is an *average* of all of the individual ratings.

The Town of Ocean Isle Beach and its LUPSC also have an opportunity to provide input to the land suitability analysis by providing an importance weighting or ranking for each factor. Although the CRC and DCM decided on criteria that establish the suitability levels for each factor, the Town is allowed to decide on the relative importance of each factor in the overall analysis. This is done by ranking the factors as follows: 1 for important (lowest); 2 for very important; and 3 for highest importance (highest). The LUPSC followed the State's recommended guidelines with respect to the rankings.

8.2 Implications of the Land Suitability Analysis

The results of the Land Suitability Analysis are displayed graphically in Appendix C. Unfortunately, the results of the land suitability analysis have little practical affect for the Town and the LUPSC as it formulates policies and recommendations for future development. The results of the land suitability analysis are best used for evaluating sizable tracts of undeveloped land in larger municipalities or at the county level. The LSA also has problems when applied to long, thin barrier beach municipalities such as Ocean Isle Beach due to the scale and dynamic nature of the data used. Although the Town of Ocean Isle Beach may still undergo significant development, as approximately 22 percent of the island lots remain vacant, the results of the analysis will most likely have limited applicability with respect to guiding future development decisions. Nevertheless, the Land Suitability Map found in Appendix C is a useful planning tool that provides some indication of the areas within town limits that are best suited for land development.

Section IX

Policy Analysis

9.0 Introduction

This final section of the report analyzes the progress made in implementing the 1997 CAMA Land Use Plan Update. The steering committee analyzed each policy to determine the extent to which it had been implemented. In many cases the polices were implemented or some comparable course of action was taken. In a few instances, local officials determined that the recommended policy or action warranted no further action. The analysis concluded that considerable progress was made in implementing the 1997 CAMA Land Use Plan Update. The following sections summarize some of the major findings from the policy analysis. The detailed analysis is contained in Appendix B.

9.1 Land Use and Development

Many of the policies contained in the 1997 CAMA Land Use Plan Update focused on issues related to land use and development. Significant progress was made in implementing these policies and as indicated in the analysis contained in Appendix B, most of the land use policies and recommendations are implemented through local zoning ordinances as well as the Town's rules and regulations. The Town's zoning ordinances limit density and height in each of the zoning districts. The zoning districts also direct growth in ways that ensure that residential development consists of a mix of single-family, duplex, and multi-family structures. The zoning ordinance also directs the location of commercial development and promotes tourism related businesses in the commercial districts on the island.

In the future, one of the big challenges appears to be preserving the integrity of the R 1 zoning on the Island as well as the mainland within the ETJ. Commercial development, particularly along the road corridors that provide access to the bridge, and the increased residential development on the mainland in close proximity to the Island will also create the potential for increased traffic problems as well as additional demand for public access on the Island.

9.2 Infrastructure Carrying Capacity

A number of the policies in the 1997 CAMA Land Use Plan Update focused on ensuring that the Town had sufficient infrastructure to meet the demand resulting from increased development and a growing seasonal population. Much progress was made in implementing many of these recommended improvements. The Town continues to support its police and fire services, having added both full time staff and purchased new equipment since the last land use plan. The Town added a second water tower and two additional connection lines for its water system to the mainland to help improve water pressure during periods of peak demand. The Town also improved the capacity of its sewage treatment plant to ensure that there was adequate capacity to serve the projected seasonal population on the Island. The plant was also upgraded to tertiary treatment to help minimize its impact on the environment.

During the next five to ten years the Town will have adequate capacity in the sewage treatment system to serve the population on the Island and Brunswick County's water supply plan should provide adequate water. One big issue is likely to be ensuring that the growing population in the ETJ, and in the County areas adjacent to the ETJ, is served by adequate water and sewer service. The County's water supply plan should ensure adequate supply of drinking water to the region. In terms of sewage treatment, the Town is currently under contract with an engineering firm to do preliminary plans for further upgrades to its sewage treatment plan. Simultaneously, the Town is in discussions with the County to investigate options for providing additional sewage treatment to those living outside town boundaries. Another problem is the growing stress on the transportation infrastructure, particularly at the bridge and along the road corridors leading to the bridge. The town continues to work with the NCDOT to implement the approved thorough fare study.

9.3 Public Access and Recreation

The 1997 CAMA Land Use Plan Update had several policies and recommendations pertaining to improvements in public access and other recreational facilities. Significant progress was made in several areas. The community, using some CAMA grant funds, acquired property and established a community center on the beach front. A state wildlife boat ramp was built to improving boating access. Improvements were made to several CAMA public access sites. The traffic pattern on several streets was changed to one-way streets to create additional public parking for public access. The Town has begun planning a new access point to the ICWW with a small park was created at the North end of Shallotte Boulevard. Fifty-five acres of town-owned property on the North side of Old Georgetown Road was donated to the County for a new park.

The Town ultimately decided against pursuing the recommendations in the plan pertaining to constructing a golf course in conjunction with the spray fields used to upgrade the sewage treatment plant. It has decided against establishing a beach fee parking system and is no longer looking into operating a beach shuttle system but may be open to proposals from private parties.

In the future, the increased demand from a growing year round population in the County on the mainland and the seasonal population will continue to increase demand for public access facilities and parking. Accordingly, in the next five to ten years a variety of improvements to existing oceanfront access sites may be needed. Additional access to the ICWW is also needed. Since additional land for parking will be expensive, increased pedestrian access and bike paths will be needed. This should also help to alleviate traffic congestion.

9.4 Water Quality and Natural Environment

The 1997 CAMA Land Use Plan Update contains a variety of policies designed to protect water quality and protect the natural environment. Many of these policies are implemented through the CAMA permit program as well as the application of current zoning ordinances that require development to be located in ways that minimize impacts on the natural environment. Limits on density and height also help to minimize impacts on the environment. The Town also undertook several other actions that had a noticeable improvement on environmental conditions. The Town's sewage treatment facility was upgraded to tertiary treatment to minimize its impact on surface and groundwater quality. The Town also developed a stormwater management plan. Implementation of Phase I of the plan resulted in improvements on 1st street. The Town is currently working on implementing Phase 2 of the stormwater management plan, which focuses on improvements to the natural canals and Craven Street. The Town also adopted a new stormwater management ordinance. It requires all new development to treat stormwater onsite, requires applicants to have engineered plans demonstrating that this will occur in a manner consistent with the requirements in the ordinance, and also requires that the homeowners enter into maintenance agreements that are recorded with the title. The Town also adopted a grease trap ordinance for restaurants that is monitored by business owners and town officials.

9.5 Hazard Mitigation

Given the geographic location of Ocean Isle Beach, it should not be surprising that 1997 CAMA Land Use Plan Update contains a variety of policies and recommendations pertaining to hazard mitigation. Many of these policies are implemented through its land use zoning ordinance and its Flood Damage Prevention Ordinance. The Town is also an active participant in the National Flood Insurance Program (NFIP) and has a Class 7 rating from the community rating system. The Town also continues to work with the Corps of Engineers (COE) on a 50-year plan of work to stabilize shoreline and inlet areas through periodic beach renourishment. The Town also continues to implement its Hazard Mitigation Plan and makes annual adjustments as necessary to ensure it is prepared for Hurricane season. More recently, the Town has acquired property on the mainland to construct a new Town Hall so that it will have a base for emergency operations in the event that the Island has to be evacuated during storm events.

Appendix A

Supporting GIS Maps

- Coastal Wetland Areas and Protected Lands Map
- Estuarine Waters and Closed Shellfish Areas Map
- Significant Natural Heritage and Fish Nursery Map
- Special Flood Hazard Areas Map
- Map of Storm Surge Inundation from a Fast Moving Hurricane
- NC CREWS Exceptional and Substantial Wetlands Map
- Existing Land Use Map
- Community Facilities (Water System) Map
- Community Facilities (Sewer System) Map
- Transportation Systems and Public Access Facilities Map

Appendix B

Detailed Policy Analysis

Current Policies: Land Use & Development	Accomplishments, Constraints, & Implementing Ordinances
Types of Development to be Encouraged: Residential development in Ocean Isle Beach is a mix of single-family, duplex or multi-family structures. In accordance with the Town's Zoning Ordinance, and policies aimed at protecting natural resource and fragile areas, more dense residential development such as townhouses, cluster homes, and condominiums are permitted. Ocean Isle Beach believes that development densities should not be allowed to exceed those contained in the current zoning ordinance. All zoning ordinance amendments requesting increased densities shall be scrutinized very carefully by both the Planning Board and the Town Board of Commissioners. The capacity of the spray fields at the wastewater treatment facility may be increased during the early part of the planning period in order to accommodate anticipated development. The Town of Ocean Isle Beach will study the feasibility of upgrading its wastewater system to tertiary treatment and developing a golf course in conjunction with its spray effluent fields. A community center may also be built at the new golfing complex. The community center would also be designed to serve as an emergency town center during hurricane evacuations. Higher levels of "day visitors" may necessitate the provision of additional parking facilities and the initiation of a beach parking fee system to compensate the Town for the cost of providing services to day visitors. Some public services may need expansion to serve newly developing areas. As far as location of various types of development is concerned, Ocean Isle Beach desires as much as practicable that all development be designed and placed so as to be compatible with the residential character of the Town. All new development will adhere to the Town's building and development regulations and to the density requirements set forth in the Zoning Ordinance. Also, due to concerns about the "approach" to the Town from across the Waterway, Ocean Isle Beach extended its regulatory jurisdiction into the extraterritorial area. The Town of Ocean Isle Beach may institute annexation proceedings and the extension of the extraterritorial limits in a timely manner in order to guide growth in the surrounding areas.	▪ Capacity of the spray fields was increased to serve projected future seasonal population ▪ Sewage treatment system was upgraded to tertiary treatment ▪ The golf course proposal was abandoned ▪ A community center was built on the Island instead but it will not serve as an emergency center ▪ The town recently purchased land on the mainland for a new Town Hall that will be used for an emergency town center during hurricane evacuations ▪ No beach parking fee system is contemplated at the current time. ▪ Town has reconfigured some roads as one way streets to create additional parking ▪ No municipally owned off island parking area is planned, although the Town is open to a privately operated system ▪ 55 acres of town property donated to the county on the North side of Old Georgetown Rd. will be used for a new county park to provide services to year round residents and a growing seasonal population ▪ Town has begun making plans to improve the North end of Shallotte Blvd to improve public access to the ICWW and provide a small park ▪ The Town has annexed the airport property and may consider future annexations on the mainland

Types, Density, and Location of Anticipated Residential Development: Residential development in Ocean Isle Beach is a mix of single-family, duplex or multi-family structures. In accordance with the Town's Zoning Ordinance, and policies aimed at protecting natural resource and fragile areas, more dense residential development such as townhouses, cluster homes, and condominiums are permitted. Ocean Isle Beach believes that development densities should not be allowed to exceed those contained in the current zoning ordinance. All zoning ordinance amendments requesting increased densities, shall be scrutinized very carefully by both the Planning Board and the Town Board of Commissioners.	▪ Implemented through current zoning ordinances. ▪ No changes to increase the density of the current zoning are anticipated
Types of Urban Growth Patterns Desired: As stated in the Vision Statement, the Town of Ocean Isle Beach shall preserve and enhance its image as a family resort and retirement community. Intense commercial development, beyond that necessary to serve tourists and residents will not be encouraged. Commercial accommodations, and basic retailing and services are uses that are encouraged. Continued residential development is regarded as desirable for the Town, as long as no major or irreversible damage threatens an environmentally sensitive area. The single-family detached dwelling is the predominant residential type in the Town, although multi-family units and planned unit developments are increasing trends. Development with higher density levels than one and two-family uses are not viewed as desirable in the finger-canal areas. Within the extraterritorial area, a higher degree of commercialization, particularly along NC Highway 179, is acceptable, as long as conformity with the zoning ordinance is maintained. Manufactured homes are acceptable dwelling types in portions of extraterritorial area, as are larger consumers of land such as golf course developments.	▪ The policy is implemented through current zoning ordinances. ▪ Zoning ordinance was changed to eliminate 2 family homes from the area adjacent to the finger canals ▪ Duplex structures have be restricted from all R-1 zones on the Island ▪ Planned unit developments are now allowed on the mainland ▪ No golf course community is currently planned
Types and Location of Desired Industries: Heavy industry is not a permitted use of land within the planning area. Some light industry such as wood working shops may be permitted on a case-by-case basis, particularly on the mainland near the Ocean Isle Airport.	▪ The policy is implemented through current zoning ordinances. ▪ There have been no proposals for heavy industry
Industrial Impacts on Fragile Areas: Certain light industries, such as wood working shops, may be permitted.	▪ The policy is implemented through current zoning ordinances.
Productive Agricultural Lands, Commercial Forest Lands, Existing and Potential Mineral Production Areas: Mineral production and extraction activities of any kind shall not be permitted within the Ocean Isle Beach Planning Area.	▪ The policy is implemented through current zoning ordinances.
Energy Facility Siting and Development: The Ocean Isle Beach planning area is not a suitable location for electric generating plants. Outer Continental Shelf exploration for petroleum products may be acceptable to the Town only if appropriate environmental impact studies are conducted prior to the beginning of any exploratory activities.	▪ There have been no proposals for energy facility sitting

Residential, Commercial, and Industrial Land Development Impacts on Any Resources: To allow residential and related commercial development to occur as long as resource degradation does not occur.	▪ The policy is implemented through current zoning ordinances.
Significant Archaeological and Historic Resources: It is Town policy to support and promote the Museum of Coastal Carolina. There are some undisturbed archeological sites within the Ocean Isle Beach Planning Area. All development plans in areas identified as having an archeological site will be carefully reviewed, the applicant will be informed, and the North Carolina Division of Archives and History will be contacted prior to the approval of the requested permits. The State Division of Archives and History will be contacted if any additional archeological sites previously not recorded are discovered.	▪ The Town has provided the museum with some modest financial support in the budget ▪ No archeological sites have been discovered
Tourism: Ocean Isle Beach will continue to support and promote tourism as its main economic base. The development of non-intensive recreational and commercial land uses will be encouraged in order to enhance services for the public. The Town is studying the feasibility of developing a golf course in conjunction with the expansion of its wastewater spray fields on the mainland. This combination golf course and wastewater spray fields would provide a recreational asset to the Town which promotes tourism and provides additional revenues.	▪ The Town studied the feasibility of developing a golf course and rejected the proposal. ▪ 55 acres of town property donated to the county on the North side of Old Georgetown Rd. will be used for a new county park to provide services to year round residents and a growing seasonal population ▪ Town has begun making plans to improve the North end of Shallotte Blvd to improve public access to the ICWW and provide a small park ▪ Restaurants and retail shops are encouraged in commercial zones on the Island
Continuing Public Participation Policies: It is the policy of the Town to assure that all segments of the Ocean Isle Beach planning area have a full and adequate opportunity to be informed and have the opportunity to participate in the planning decision making process. The Town will use public participation methods in order to: ▪ Obtain knowledge of Town issues and problems. ▪ Develop alternative for problem solving, policy formulation and implementation strategies. ▪ select alternatives ▪ Establish monitoring program.	▪ Implemented through standing committees and boards (e.g., planning board and board of adjustment) as well as the Town's website and cable access channel ▪ No monitoring program was established
Commitment to State and Federal Programs: It is a policy of the Town to support State and federal programs such as CAMA, beach renourishment, erosion control, public access, highway improvements, dredging, etc. provided the Town finds these programs to be appropriate and consistent with Town policies.	▪ Town remains committed to supporting these federal and state programs
Other Areas Where Policies and Recommended Actions Are Needed:	
▪ Preserving the integrity of the R 1 zoning on the mainland ▪ Amount and location of commercial development off the Island, particularly along the main road corridors that provide access to the bridge.	

Current Policies: Infrastructure Carrying Capacity	**Accomplishments, Constraints, & Implementing Ordinances**
Local Commitment to Providing Services to Development: As areas develop, it is the policy of the Town that developers/owners share in the financial responsibility of providing basic utility services such as water and sewer. The Town will expand the capacity of the wastewater treatment and collection system as necessary in order to serve the incorporated area. The Town is studying the feasibility of developing a golf course in conjunction with the expansion of its wastewater spray fields on the mainland. This combination golf course and wastewater spray fields would provide a recreational asset to the Town which promotes tourism and provides additional revenues. The Town may also build a community center at golf complex. The community center would be designed to serve as an emergency town center during hurricane evacuations. The Town of Ocean Isle Beach is improving its water distribution system by installing an additional water tower and providing a second connection line to the mainland. Also, the Town will make incremental improvements to the police and fire protection services in order to keep pace with the demands of the permanent and seasonal population. In order to alleviate traffic congestion, the Town requests for the NCDOT to conduct a Traffic Study. The Town supports the extension of West Third Street in order to provide an alternate connector on the West End.	▪ The golf course proposal was studied and rejected ▪ The Town expanded the capacity of the sewer plant and upgraded it to tertiary level of treatment ▪ The Town has a contract with an engineering firm to begin preliminary plans for further upgrades to the facility ▪ The Town added a second water tower and connection line to the mainland. A third line was also added to improve flows during peak summer periods ▪ The community center was constructed on the Island but does not serve as an emergency center ▪ The town recently purchased land on the mainland for a new Town Hall that will be used for an emergency town center during hurricane evacuations ▪ The Town provides support to police and fire services as needed to keep pace with the demands of the growing seasonal population ▪ The traffic study was requested and completed ▪ The Town extended West Third Street ▪ The Town has begun updating its backflow cross-connect program
Soils and Septic Tank Suitability: Growth and development will not be permitted in the extraterritorial areas where septic tanks will not function. All septic tanks must be in compliance with State Heath Regulations as administered by the Brunswick County Health Department. It is the Town's policy to provide wastewater treatment services only to incorporated areas.	▪ Providing sewage treatment to inland areas including the ETJ is a County responsibility
Use of Package Treatment Plants and Alternate Septic Systems for Sewage Treatment Disposal: Future development within the Town will be required to connect to the municipal wastewater system. Use of package treatment plants or alternate septic systems in the extraterritorial area will be allowed.	▪ The County in conjunction with town officials is investigating how to provide additional sewage treatment to people living outside town boundaries ▪ The Town has a contract with an engineering firm to begin preliminary plans for further upgrades to its sewage treatment facility

Other Areas Where Policies and Recommended Actions Are Needed:

- Long-term there is the need for additional bridge access to the mainland to help alleviate traffic congestion association with a growing seasonal population
- Continue to work with NCDOT to implement the approved thorough fare study.
- Town officials will continue to work with NCDOT to help improve traffic conditions both on the island and in surrounding areas as a result of a growing seasonal population and growing population on the mainland in areas near Ocean Isle Beach
- Expand joint partnership with the county to provide adequate sewage treatment to inland areas including those in the ETJ
- Work with Brunswick County to ensure that it maintains an adequate supply of water to serve the growing County population
- Complete the update to the backflow cross-connect program.
- Be diligent in working with developers to include transportation improvements as part of planned development projects

Current Policies: Public Access & Recreation	**Accomplishments, Constraints, & Implementing Ordinances**
Coastal and Estuarine Beach Access and Parking: Ocean Isle Beach will continue to support public access to the ocean front and other waterways by seeking State and or Federal financial assistance to develop beach walkovers. The Town will study the feasibility of obtaining a CAMA grant to create a shuttle service between an off-site regional parking facility and the beach. Higher levels of "day visitors" may necessitate the provision of additional parking facilities and the initiation of a beach parking fee system to compensate the Town for the cost of providing services to day visitors. The Town is considering ways to improve services and to establish more control over the type of services provided. The Town supports a regional public boating access site being developed within the mainland/ETA area in order to minimize impacts to Areas of Environmental Concern, lower land acquisition costs, and provide better parking and traffic access.	▪ Town considered and rejected the idea of instituting a beach parking fee system. There are no plans to initiate a system at this time ▪ The town is no longer considering operating a beach shuttle system but is open to one operated by a private entity ▪ The state wildlife boating ramp was developed ▪ Town has begun making plans to improve the North end of Shallotte Blvd to improve public access to the ICWW and provide a small park
Marina and Floating Home Development, Dry Stack Storage Facilities for Boats: The development of marinas, and private boat slips in Ocean Isle Beach is generally allowed. The development of marinas, private boat slips, and dry stack storage facilities is generally allowed within the extraterritorial area. In recent years, Ocean Isle Beach and other coastal communities have become increasingly concerned over the issue of "floating homes," i.e., waterborne vessels used not only as "boats" but as permanent domiciles. In Ocean Isle Beach, the issue of floating homes has not been a significant problem. However, the Town prohibits living aboard boats and floating homes, is supportive of the State's policies on floating structures, and believes that floating homes should not be allowed within the Town's Public Trust Areas.	▪ The town implements this policy through its zoning ordinances
Upland Excavation for Marina Basins: The Town of Ocean Isle Beach supports upland excavation for marina basins.	▪ Implemented primarily by CAMA
Other Areas Where Policies and Recommended Actions Are Needed:	

- Increased need for greater pedestrian access along the Island to help alleviate traffic problems and improve public access. The Town should pursue grant opportunities to help construct such improvements as sidewalks, walkways, and bike lanes
- Town should work to create additional access to the ICWW
- Town should work to improve existing public access sites
- Town should work to provide additional handicapped access
- Town should work to expand the parking near public access points to the maximum extent practicable

Current Policies: Water Quality & Natural Environment	**Accomplishments, Constraints, & Implementing Ordinances**
Estuarine System: Protection of environmentally sensitive as well as vitally important public resources is a strong ongoing concern of the Town of Ocean Isle Beach. Ocean Isle Beach shall continue to give priority to those uses which are compatible with appropriate management of the Estuarine System. It is the intent of the Town to safeguard and perpetuate the system's biological, social, economic and aesthetic values and to ensure that any development occurring with the system is compatible so as to minimize the likelihood of significant loss of private property and public resources.	▪ The policy is implemented through current land use zoning ordinances. ▪ The policy is also implemented through the provision of sewage treatment and the implementation of its stormwater zoning ordinance
Surface Water Quality Problems: The Town of Ocean Isle Beach shall continue to seek improved marina management, stormwater runoff, and other development standards which will protect and enhance the water quality of the estuarine system. The Town will continue to provide wastewater treatment within its incorporated area as a means to preserve its water quality.	▪ The town does provide wastewater treatment to residents in its incorporated area ▪ Strong enforcement of the town's stormwater management ordinance also implements this recommendation ▪ Implemented a grease trap ordinance for restaurants monitored by business and town
Shellfishing Waters: The Town supports and promotes the activities of the State's Shellfish Management Program. The Town promotes estuarine water quality through its soil erosion and sedimentation provisions in the Town subdivision ordinance and by supporting the CAMA major permitting regulations requiring stormwater management in AECs.	▪ The town's wastewater treatment allows the removal of septic systems that can degrade shellfish waters ▪ Strong enforcement of the town's stormwater management ordinance which includes maintenance agreements also implements this policy
Stormwater Runoff: The Town recognizes the value of water quality maintenance both in terms of protecting commercial and recreational fishing resources and providing clean water for other recreational purposes.	▪ Town adopted a stormwater management plan. ▪ Adopted a strong stormwater management ordinance with requirements for engineered plans, stormwater controls, and maintenance agreements for all new development. ▪ It implemented the recommendations in phase 1 of the stormwater plan that focused on 1st street. ▪ It is currently working on phase 2 which focuses on the natural canals and Craven Street

Personal Watercraft and Public Trust Resources: The Town shall seek to ensure the responsible use of jet skis and other watercraft within the Public Trust Areas of Ocean Isle Beach in order to protect the marshes and other shallow water estuaries where damage to the resource is likely.	
Development of Sound and Estuarine System Islands: These islands are classified as "Conservation" or "Conservation Spoil," disallowing development. It is a firm policy of the Town to prohibit development of these islands; however, the Town believes that existing structures in the original 1,000 foot spoil easement area (generally now known as Laurinburg, Monroe, Fairmont, Wilmington, Craven, and Concord Street area) would be recognized and protected.	▪ The policy is implemented through current land use zoning ordinances.
Commercial and Residential Fisheries: To protect estuarine and Public Trust Areas from degradation. The Town supports federal and state projects which increase the productivity of coastal and estuarine waters. Projects such as dredging to increase flushing along tidal waters, oyster reseeding programs, and properly constructed artificial reef construction will be supported in the future. The Town supports the "Big Sweep" beach cleanup program through the local "Trash Bash" program and all similar efforts to enhance the cleanliness of the natural environment.	▪ The Town continues to support the federal and state programs as well as local efforts to enhance the cleanliness of the beach and natural environment
Trawling Activities in Estuarine Waters: The Town of Ocean Isle Beach is concerned about the environmental impact and depletion of fishing resources caused by trawling and gill net fishing. The Town of Ocean Isle Beach urges the State of North Carolina to prohibit trawling and purse seine fishing including fishing for menhaden within one nautical mile of the Ocean Isle Beach coastline and to ban gill net fishing throughout the year.	▪ Responsibility of state agencies
Off-Road Vehicles: In accordance with its Dune Protected Ordinance, the Town of Ocean Isle Beach does not allow off-road vehicles on the dunes or on the shoreline area, with the exception of public service or emergency vehicles. These provisions shall continue to be enforced.	▪ The policy is implemented through the Town's rules and regulations.
Areas that Sustain Remnant Species: All development plans for areas that contain remnant species will be carefully reviewed prior to the issuance of development permits in order to insure compliance will be all applicable laws and regulations.	▪ The policy is implemented through the CAMA permitting program.
Prime Wildlife Habitats: The prime wildlife habitats in the Ocean Isle Beach Planning are currently classified as Areas of Environmental Concern. The Town will continue to protect its prime wildlife habitats by enforcing the CAMA major and minor permitting program.	▪ The policy is implemented through the CAMA permitting program.

Protection of Wetlands of Highest Functional Significance: It is Town policy to protect freshwater wetlands, marshes and 404 wetlands within its planning jurisdiction in accordance with applicable laws and regulations.	▪ The policy is implemented through the CAMA permitting program and zoning ordinances. ▪ DENR implements portions of the policies through its program as well
Marsh Damage from Bulkhead Installation: Damage to existing marshes or beaches by bulkhead installation, groins, or seawalls will be minimized. Maintenance and replacement of existing bulkheads are appropriate.	▪ The policy is implemented through the CAMA permitting program. ▪ The Town also has an ordinance requiring repair and maintenance of bulkhead areas
Maritime Forests: Development near the Coastal Fringe Evergreen Forest along Duck Haven Road will be designed to protect the natural values at this site in accordance with applicable laws and regulations.	
Protection of Potable Water Supplies: Sources of potable surface and groundwater for the Ocean Isle Beach Planning Area will be protected to the maximum extent possible.	
Other Areas Where Policies and Recommended Actions Are Needed:	
▪ None identified	

Current Policies: Hazard Mitigation	Accomplishments, Constraints, & Implementing Ordinances
Discouragement of Hazardous Development: The Town shall use a variety of methods, including CAMA setback requirements and the Flood Damage Prevention Ordinance, to discourage the development of property that can be reasonably be foreseen as potentially hazardous.	▪ The policy is implemented through the CAMA permitting program, local zoning ordinances, and the Town's hazard mitigation plan. ▪ Policy is implemented in a manner that is careful to protect private property rights
Flood Prone Areas: All uses allowed in the Town's Zoning Ordinance shall be permissible in the 100-year flood zones, provided that all new construction and substantial improvements comply strictly to the Town's Flood Damage Prevention Ordinance, which has been adopted in conjunction with Ocean Isle Beach's participation in the National Flood Insurance Program.	▪ The policy is implemented through local zoning ordinances and the Town's hazard mitigation plan. ▪ Enforcement of building codes
Flooding: Ocean Isle Beach is an active participant in the National Flood Insurance Program and is supportive of hazard mitigation elements. Ocean Isle Beach is participating in the regular phase of the insurance program and enforces a Flood Damage Prevention Ordinance. The base flood elevation, as set out in the ordinance, ranges from the bottom of the first supporting member of a structure in the "V" zones, to the first floor elevation in the "A" zones. The elevations shown on the flood maps include the calculated "wave surge" height.	▪ The Town continues to be an active participant in the NFIP and implements zoning ordinances and a hazard mitigation plan to mitigate hazards
Wave Action and Shoreline Erosion: Ocean Isle Beach will continue compliance with the CAMA development permit process for estuarine shoreline areas and the requisite development standards which may encourage both shoreline stabilization and facilitation of proper drainage. During the next planning period, and erosion recovery policy will be formulated pursuant to an economic evaluation currently being conducted by the Corps of Engineers.	▪ The policy is implemented through the CAMA permitting program, local zoning ordinances, and the Town's hazard mitigation plan. ▪ The Town continues to work with the COE on a 50 year plan of work to stabilize shoreline and inlet areas through techniques such as periodic beach renourishment of eroded shoreline areas
Redevelopment of Developed Areas, Including the Relocation of Threatened Structures: It is the policy of the Town to allow redevelopment of previously developed areas including the relocation of endangered structures. It is the Town's policy that density allowances for redevelopment areas conform to existing Town building and zoning regulations.	▪ The policy is implemented through the CAMA permitting program, local zoning ordinances, and the Town's hazard mitigation plan.

Public Acquisition of Hazardous Areas: (1) The Town supports advanced planning for the acquisition of properties that are not suitable for development provided such acquisition serves as a useful public purpose. Such public purpose may include public access to the beach or sound where such access is needed. The Town will consider the benefits of acquiring such property against its acquisition cost and the threat of erosion. (2) The Town shall investigate outside funding sources for land acquisition and shall encourage gifts and donations for tax credits, as a mitigative measure for future storm events. To provide a proactive approach, priority areas for acquisition shall be identified in advance of storm events. (3) Public acquisition of appropriate properties is also encouraged at the State and Federal level.	▪ Efforts continue to identify suitable property for public acquisition
High Winds: Ocean Isle Beach supports enforcement of the NC State Building Code. The Town will continue to enforce the State Building Code on wind resistant construction with design standards of from 120 to 150 mph wind loads.	▪ The Town continues to enforce the state building code and requires design standards to meet 130 mph wind loads
Manmade Hazards: The Town of Ocean Isle Beach strives to reduce the hazards of the airport through implementation of its airport zoning ordinance which restricts land uses and building heights in the surrounding vicinity.	▪ The Town continues to enforce its airport zoning ordinance
Assistance to Channel Maintenance and Beach Renourishment: The Town of Ocean Isle Beach supports all beach renourishment programs. Beach renourishment activities must be done in an environmentally sensitive fashion and with respect to impacts on surrounding properties. The practice of bulldozing on the beach shall be discouraged in non-emergency situations. Proper maintenance of channels, particularly the Atlantic Intracoastal Waterway, is very important to Ocean Isle Beach because of the impact of commercial and recreational fisheries and general boating. Ocean Isle Beach will continue to provide direct assistance to the Corps by helping obtain or provide spoil sites. Ocean Isle Beach is generally supportive of keeping new development out of designated spoil sites; however, the Town believes that existing structures in the original 1,000-foot easement area should be recognized and protected.	▪ The Town continues to support all beach renourishment programs ▪ The Town continues to support the proper maintenance of channels in the Shallotte Inlet and the ICWW to improve boating safety and to minimize impacts to the commercial and recreational fishing industry ▪ Town continues to lobby appropriate federal, state and local officials to implement the recommendations
There are also numerous policies on evacuation policies and post disaster policies, but they are not listed as an actual "policy statement" so they are not included in the analysis nor are the polices from the hazard mitigation plan. Many of these policies and recommended actions will be incorporated into the land use plan update.	
Other Areas Where Policies and Recommended Actions Are Needed:	
▪ The Town supports the investigation of alternative methods for stabilizing the Shallotte Inlet	

Appendix C

Maps for the Land Suitability Analysis (LSA) & Environmental Composite