Town of Caswell Beach

2009 CAMA Land Use Plan Update

as approved by the Coastal Resources Commission at their May 19th, 2010 meeting

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The Town of Caswell Beach 2009 Land Use Plan Update

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Natural Hazard Areas: Goal: Conserve/maintain barrier dunes, beaches, flood plains, & other coastal features for natural storm functions & their natural resources w/recognition to public health, safety, and welfare issues.

- Objective: minimize threats to life, property, & natural resources from development located in/adjacent to hazard areas.
- Requirements: density/intensity criteria for new/existing development & redevelopment including public facilities and infrastructure to better avoid or w/stand natural hazards; Correlate existing and planned development with existing and planned evacuation infrastructure.

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Water Quality: Goal: Maintain/protect where possible enhance WQ in all coastal wetlands, rivers, streams & estuaries.

- Objective: help ensure that WQ is maintained if not impaired & improved if impaired.
- Requirements: Policies that help prevent or control nonpoint source discharges; policies & land use categories aimed at protecting open shellfishing waters/restoring closed or conditionally closed.

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Local Areas of Concern: Goal: Integrate local concerns with the overall goals of CAMA.

- Requirements: Evaluate local concerns and issues for the development of goals, policies and implementation strategies.

Future land use map. Depicts policies application for growth and development, desired future patterns of land use/development with consideration given to natural system constraints & infrastructure policies. Shall include at a minimum:

- 14-digit hydrological units encompassed by the planning area;
- areas/locations planned for conservation/open space w/description of compatible uses
- areas/locations planned for future growth/development w/descriptions of:
  - predominant & supporting land uses that are encouraged in each area;
  - overall density/development intensity planned for each area;
- areas for infill, preservation, and redevelopment;
- existing/planned infrastructure, including major roads, water, and sewer.

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Tools for Managing Development. (initial five-year action plan for implementation)

- Guide for land use decision-making
- Existing development program. This description of community's approach to coordinating these codes and rules to implement the LUP.

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Policy Impact Analysis

- Contain description of type/extent of analysis to determine the impact of Plan policies on management topics; both positive & negative; description of policies/methods/programs & processes to mitigate negative impacts on applicable management topics.
- If local policies exceed the State and Federal requirements, such policies must be identified & to what extent. If the local body intends to rely on Federal/State laws & regulations it shall reference in the plan.
- ❖ If development patterns/uses are not consistent w/natural systems analysis, or the LSA then includes description of steps local government will take to mitigate the impacts.
- ❖ Include estimate/cost of any facilities or services that shall be extended or developed.
- ❖ Amount of land allocated to various uses shall be calculated and compared to the projection of land needs. The amount of land area thus allocated to various uses may not exceed projected needs; except for slow growth communities.

Appendix III

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Phase I of the CAMA Land Use Plan:

Section 1. Executive Summary, Introduction to CAMA, and Public Involvement

1.1 Executive Summary

The purpose of the executive summary is to provide a brief overview of the main facts, figures, policies, and recommendations found within the Town of Caswell Beach Land Use Plan. See Sections 10.1 through 10.2.

Background on the Land Use Plan Process

The Town began the update of their Land Use Plan in August of 2006 under the guidance of the Town Planning Board, Town Administrator and planning consultant. The Plan was conducted through funding provided by the National Oceanic and Atmospheric Administration, Division of Coastal Management and the Town of Caswell Beach. The Plan follows and adheres to the local government planning guidelines as required under the North Carolina Coastal Area Management Act (CAMA).

The first step in creating the Land Use Plan was to evaluate the growth in land use and development over the past ten years. The evaluation included the identification of any impacts to the quality of life, property values, public safety, environment, and infrastructure of the community. The impacts identified included both those from past development as well as any potential impacts anticipated from future development. The second step in creating the Land Use Plan was to determine the mechanisms needed to best manage or resolve those impacts. Those mechanisms make up the Town's development management program, which includes:

1. Ordinances and regulations establishing the standards and practices required of development (e.g. zoning ordinance, stormwater ordinance, state and federal laws, etc).
2. Official Town plans that evaluate a problem or issue and establish a recommended set of actions to resolve the issue (e.g. Strategic Plan, Beach Preservation Plan, Land Use Plan, etc.).
3. Town programs or services that are intended to aid in mitigating or managing the impacts of development (e.g. utilities provision and maintenance, and capital improvement programs to set budgeting priorities for needed infrastructure).
4. Official Town policy statements that are to provide overall guidance in the decision making process when making revisions, updates and/or additions to the Town's development management program.

Evaluation of Growth in Land Use and Development

Caswell Beach was incorporated in 1975. The first Census for the Town was in 1980, and showed the population to be 110. More recently, Caswell Beach has increased notably from its 1990 population level in terms of relative percent growth and given the limited developable area of the Town (a gross of approximately 360 acres). Caswell Beach has seen the same increased growth and development as many, if not all, of the municipalities with a beach in southeastern North Carolina. This growth is due to many factors, including relatively new road networks such as I-40 making the area more accessible, the retiring baby boom population seeking warmer climates and lower priced housing, and a general increase in economic and disposable income levels which has allowed for

more tourism and the construction of second or vacation homes. The population has grown from 175 in 1990 to an estimated 461 in 2005, which is 163%. The growth rate between the years 2000 and 2005 was 25%, which ranked 3rd highest when compared with all 20 municipalities with a beach strand in North Carolina for the same time period. However, as the Town has reached near build-out and intends to prohibit redevelopment at higher densities, the Town population is expected to remain steady over the next ten years.

Much of the inland portion of Caswell Beach was developed between 1990 and today, which accounted for most of the population growth in Town. The majority of the "inland" development is occupied by permanent year-round residences in a mix of single-family, duplex and multi-family structures. The total housing stock in Town is a near equal share among multi-family to single-family dwellings (46% to 44%), and the remaining 10% is duplex. The average residential density varies in the different areas of Town, but is typically 2.2 to 5.4 dwelling units per acre for the single-family areas, up to 6 units per acre to a high of 19 units per acre (Oak Island Beach Villas) in multi-family areas.

Many beachfront single-family dwellings, as well as some beachfront and inland multifamily dwellings, continue to be primarily used as housing for the seasonal population, which is estimated to boost the Town population to 1,600 to 2,200 in the summer. Land use in Caswell Beach is nearly entirely residential-oriented, with the exception of approximately 25% of the developable jurisdiction being used as a golf course commercial-recreation use. The existing golf course area is a highly valued asset to the Town's residential character and quality of life, and the Town strongly desires the golf course be continued to be used in its existing state. There are no traditional commercial-type businesses located in the Town of Caswell Beach.

The geography of Caswell Beach is essentially a low-lying coastal landmass (sea level to 20-25 feet) on the eastern tip of a barrier island known as "Oak Island". The Town is bounded by coastal wetlands and estuarine waters to the north and east, the Atlantic Ocean to the south, and the jurisdiction of the Town Oak Island to the west. Much of the Town's approximately 2,600 acre jurisdiction consists of undevelopable and environmentally sensitive coastal wetlands (1,425 acres) and estuarine waters, spoil islands and unvegetated beach (815 acres). The remaining 360 acres of "land area" in the jurisdiction is above the mean high water line and generally developable. However, given the Town's low elevation, location on a barrier island, and proximity to the ocean and other tidal waters, there are significant limitations to the scale and location of development due to an increased risk from erosion, storm surge and flooding.

Erosion is a well-documented issue in Caswell Beach, annual reports and updates to the Town's Beach Preservation Plan keep measurements on berm width to monitor erosion. The official Town erosion rate maps regulating building setbacks shows the erosion rate along the beach strand varies from 2 feet a year along the eastern stretch of beach to 5.5 feet in the western portion. According to storm surge modeling, the entire Town is expected to be inundated during a Category 4 or 5 Hurricane. 83% of the total "land area" in the planning jurisdiction is likely to be inundated during a Category 1 or 2 hurricane and 98% in a Category 3 hurricane. According to the 2006 NC Floodplain Mapping Program data, 82% of the Town "land area" is within either the VE or AE 100-year flood zone. The VE zone accounts for a little over 21% of that total. The AE zone encompasses 218 acres or 61% of the 360 acres of "land area" in the jurisdiction.

Past and continued impacts to local surface waters also presents a limiting factor in the types and scales of development that are appropriate in Caswell Beach without increased standards for containing and treating stormwater runoff from both new and existing development. Within the planning jurisdiction of Caswell Beach, all estuarine waters are classified closed to shellfishing. According to the 2005 Cape Fear River Basin Water Quality Plan, several creeks and waterbodies within or intersecting the Town of Caswell Beach planning jurisdiction are impaired (i.e. closed) to shellfish harvesting and will be placed on the state's 303 (d) list of impaired waters. Those creeks and waterbodies include Dutchman Creek, Elizabeth River, Molasses Creek, Coward Creek, Dennis Creek, and Piney Point Creek.

Due to the relatively small population, geographic size and location of Caswell Beach, community infrastructure needs and demands are on a smaller scale as compared with other jurisdictions. The Town owns and operates a potable water distribution system, but purchases all of its water supply from Brunswick County and its water treatment and storage plants. The peak demand for water supply over the last seven years has averaged approximately .240 million gallons per day, while the low off-season demand has averaged .059 million gallons per day. Water use data has shown that water consumption has fluctuated up and down over the last seven years, and has not necessarily followed a steady or fast increasing pattern. However, growth and development has caused water pressure deficiencies in many areas of the Town, and there is a need to resolve such issues to preserve fire fighting capabilities and residential quality of life.

Nearly two-thirds of the current residential wastewater generated in Caswell Beach comes from the mix of single-family, multi-family and duplex residential developments occupying the interior or inland portion of Caswell Beach. Those developments include Caswell Dunes, the Arboretum and Ocean Greens. Wastewater from those developments is currently treated at two separate privately owned and operated package treatment plants. Wastewater generated by developments along Caswell Beach Road and the oceanfront is treated on-site by private individual septic systems. The Oak Island Beach Villa development is served by the Town of Oak Island wastewater treatment system. The Town of Caswell Beach has been awarded a grant from the Clean Water Management Trust Fund to decommission the existing private wastewater treatment systems and to construct a sewer system. The sewer system will serve all existing and future developments within the Town jurisdiction, and will send wastewater to treatment and discharge sites outside the Town jurisdiction. The sewer system (including lines and pumps) will be designed by Caswell Beach to be at the minimum size needed to handle current wastewater levels and to allow build-out of remaining platted properties. The limited design size of the sewer system will be a management measure to ensure that redevelopment to higher densities would not be feasible or allowable without substantial system upgrades. The Town plans to have the sewer system designed and built well within the five to ten year planning period of the Land Use Plan.

As part of protecting and improving surface water quality and mitigating flood potential, the need for increasing stormwater management has also been identified as an emerging issue in Caswell Beach. The Town is currently conducting a stormwater master plan with the intended purpose of developing recommendations and funding scenarios for upgrading and improving the Town stormwater drainage and management system. The stormwater master plan will also recommend needed additions and amendments to the Town stormwater ordinance to incorporate NPDES Phase II rules, permeable pavement provisions, and the potential for utilizing decommissioned septic systems as stormwater retention/detention devices.

Mechanisms to Manage Impacts from Growth in Land Use and Development

The Town's evaluation of growth in land use and development trends, and its identification of issues and impacts associated with such development, provided the basis for the establishment of:

1. A community vision statement;
2. A set of development-related policy statements;
3. A growth map and development standards table for future land use, development and redevelopment; and
4. A schedule of recommended actions to make the Town's existing development management program consistent with the vision statement, the policy statements and the future land use and development standards established under the Land Use Plan.

1. The vision statement was established during the beginning of the Land Use Plan process and provided the overall tone and direction for the Land Use Plan. The vision statement follows:

> "The vision of the Town of Caswell Beach is one of a viable residential community having the foresight, resources and will to meet new challenges and opportunities in accomplishing its mission. The Town is proud of its unique residential character, its natural assets and quality of life, and these will continue to be of paramount importance. Caswell Beach will provide cost-effective and timely services. Caswell Beach will endeavor to be a friendly, cohesive, community-spirited town in which the residents work together. Caswell Beach will continue to practice mutually beneficial relationships with local, state and federal governing bodies. These in combination will achieve the desired quality of life".

2. Policy statements were established under the Land Use Plan to respond to the existing and potential impacts identified during the evaluation of growth in land use and development. The policy statements are designed to address specific issues, and provide overall guidance for official Town decisions and actions so that those decisions and actions further the management or resolution of impacts associated with land use and development. All Town policies in the Land Use Plan are consistent with the minimum standards of the Coastal Area Management Act (CAMA). Town policies # 2 and #7 exceed CAMA minimum standards. The following policies are numbered according to their order in Section 8 of the Land Use Plan. Some of the key policy statements for the Town include:

1. Areas of Environmental Concern in General

Policy (a): The Town supports the protection of Areas of Environmental Concern (AECs) designated under the Coastal Area Management Act (CAMA) in 15A NCAC Subchapter 7H. The Town shall seek the full enforcement of state, federal and local regulations regarding AECs.

Policy (b): Areas of Environmental Concern are designated as "Conservation" on the Town's Future Land Use Map and are subject to stricter development review and regulation as outlined in the Town's Conservation Zoning District and in the standards for floodway and shoreline protection in the Town's Stormwater Ordinance.

2. **Development of Sound and Estuarine Islands**

Policy: Caswell Beach opposes any construction on sound or estuarine islands.

7. **Bulkhead Construction Policy:** Caswell Beach supports the CRC/CAMA provisions regarding construction of bulkheads.

11. **Density of New Development and Redevelopment**

Policy (a): Town policy is to strictly limit the density of new development and redevelopment to preserve the overall existing ratio of single-family, attached single-family and multi-family.

Policy (b): Redevelopment of existing structures to higher densities (more dwelling units per individual structure) will be discouraged in areas permitting multi-family and attached single-family structures, and will be prohibited in areas where single-family is the only allowable use.

12. **Commercial and Industrial Development**

Policy: The Town opposes any new commercial or industrial related development activity in its planning jurisdiction. However, the existing commercial activity associated with the existing golf course (including clubhouse restaurant, driving-range and recreational 18-hole golf-course) is desired to be continued in its full present use.

13. **Preservation of Existing 18-Hole Golf Course**

Policy (a): The Town opposes the redevelopment of the existing 18-hole golf course to any other use. The Town will work with the Town of Oak Island on the preservation of the golf course.

Policy (b): The Town shall seek methods to preserve the long-term continuation of the 18-hole golf course.

15. **Annexation and Planning Authority Extension**

Policy (a): Caswell Beach will be receptive to annexations and establishment of extraterritorial planning jurisdictions, which are considered beneficial to the Town.

Policy (b): The Town will establish ETJ authority and/or annex the "Baptist Assembly Area" property if ownership or exclusive use of said property is transferred from the North Carolina Baptist State Convention in accordance with Session Law HB 1277.

Policy (c): The Town will establish ETJ authority and/or annex the U.S. Coast Guard Station property if ownership is transferred from the federal government. The Town supports acquisition of the U.S. Coast Guard Station property for conservation and recreational purposes.

17. State Port and Energy Facilities Siting and Development

Policy (a): **Not withstanding the apparent positive benefits to the State of North Carolina and the region, the Town of Caswell Beach actively opposes the building of the state port because the Town can see no positive impacts on our quality of life. Those impacts include, but are not limited to:**

a. Traffic congestion from increased intensive use of the existing inadequate transportation infrastructure;
b. Water quality degradation from increased intensive use of the water;
c. Stormwater runoff from the large impervious area of the port facility;
d. Air quality degradation from increased truck, ship and other facility machine operation on an around the clock basis;
e. Increased demand on area potable water supply;
f. Increased demand on area wastewater treatment infrastructure;
g. Noise pollution generated from trucks, ships and rail;
h. Light pollution generated from the port and ships;
i. Solid waste discarded from ships offshore;
j. Lack of adequate housing and services to support the scope of the port;
k. Danger to recreational boaters from increased shipping traffic;
l. Increased likelihood of man-made disasters or terrorist threat by placing an international port, nuclear facility and munitions facility within such close proximity.

19. Building Height of New Development and Redevelopment

Policy (a): The Town shall regulate building height to preserve the existing low profile character of the community. Building height shall be measured using the vertical distance from the mean elevation of the finished grade along the front of the building to the highest point of a flat roof, or to the deck line of the mansard roof, or to the mean height level (roof midline) between eaves and ridge for gable, hip and gambrel roofs. Under any circumstance, the vertical distance shall not exceed the higher of:

- 26' feet above the Regulatory Flood Protection Elevation; or
- 35 feet above the mean finished grade elevation.

Policy (b): No structure shall be allowed more than 2 stories, under any configuration, above the Regulatory Flood Protection Elevation. .

23. Land Use and Development Decisions Consistent with Strategic Plan and Land Use Plan

Policy: Any official Town land use and development related actions (e.g. re-zonings, text amendments, stormwater rules, etc.) shall remain consistent with the policies adopted in the Strategic Plan, the Land Use Plan and any other applicable plan. Any Town actions which are inconsistent with those plans or other related plans shall require a statement from the Town body approving such decisions as to why those decisions are necessary and how any negative impacts will be mitigated.

25. Septic Decommissioning

Policy (a): When central sewer service becomes available, the Town prefers the re-use of septic systems as "stormwater cisterns" as an innovative method to help capture and retain

stormwater on-site. This practice is intended to help minimize the volume of stormwater and pollutants entering local surface waters, streets and ditches.

Policy (b): The Town shall provide owners of septic systems with information on how to retrofit and re-use septic systems as stormwater cisterns.

Policy (c): If a stormwater utility is established, the Town may "credit" those property owners who re-used their septic system as a stormwater cistern.

36. Public Access Facilities and Parking

Policy: The Town will meet state and federal public parking and access requirements for beach nourishment and other related projects.

38. Local Watershed Planning

Policy: The Town of Caswell Beach intends to establish a local watershed planning group of area stakeholders for its 14 digit HUC (i.e. local watershed) to identify, prioritize and implement practical measures to maintain and improve local water quality.

40. Low Impact Development (LID)

Policy (a): The Town supports the concept and goals of Low Impact Development.

Policy (b): The Town shall evaluate the results of Low Impact Development practices implemented in adjacent watersheds (e.g. Lockwood's Folly) and other similar coastal watersheds, including but not limited to requiring the use of permeable pavements and reducing the amount of impervious coverage allowed, to determine its practicality for use in the Caswell Beach planning jurisdiction and local 14 digit HUC watershed.

41. Use of Permeable/Pervious Materials and Total Lot Coverage Standards

Policy (a): The Town may require permeable/pervious materials to be used for items such as driveways, patios and other structures not immediately part of and necessary to the structural integrity of the primary structure.

Policy (b): The Town may establish total lot coverage standards for both pervious and impervious man-made structures and surfaces to maximize as much as possible an "uncovered state" of the existing or installed natural vegetation, and/or the existing sand or soil on the lot.

42. Preservation of 404 Wetlands (non-coastal wetlands)

Policy: The Town opposes the filling or grading of 404 classified wetlands for any development purpose without mitigation efforts such as replacing the destroyed wetlands on or off-site, or paying a fee in lieu of replacement to be used by the Town to create wetlands as part of its overall stormwater and flood protection management system.

43. Comprehensive Stormwater Program

Policy (a): The Town shall establish a stormwater program to comprehensively manage both the volume of stormwater and volume of pollutants entering the stormwater drainage system and ultimately local receiving waters.

Policy (b): The Town stormwater program shall include ordinances that, at a minimum, enforce NPDES Phase II standards. The stormwater program may include the creation of a dedicated stormwater utility and capital improvements program to fund periodic construction and maintenance of stormwater infrastructure servicing existing and future developments.

50. Beach and Shoreline Erosion

Policy (a): The Town of Caswell Beach shall seek to protect the beach by instituting a program for a major beach nourishment project to include seeking substantial Federal, State and County funding for cost sharing purposes, and supporting near term research and experimentation associated with a major beach nourishment project.

Policy (b): To prepare for and secure participation in a major beach nourishment project, the Town shall continue to update its beach preservation planning and research activities, which includes public involvement and education, lobbying efforts, dune maintenance and protection, as well as enhancement of public access and parking facilities.

Policy (c): The Town supports CAMA regulations regarding ocean hazard areas and associated setback requirements as a means to reduce the potential threat to life and property in high erosion areas. The Town shall continue to enforce its existing zoning standards which limit building density and intensity in ocean hazard areas.

A complete listing of all the Town policies established in the Land Use Plan can be found in Section 8.

3. The growth map and development standards table for future land use, development and redevelopment can be found in Section 9 of the Land Use Plan. The growth map, which is officially called the *Future Land Use Classification Map (FLUCM)*, is meant to visually depict the major land use and development goals and policies to be followed and implemented by the Town. The Map is intended to show the community's planned future growth patterns in distinct areas within the Town's planning jurisdiction. The Map also shows the planned future boundaries of those

respective areas to ensure that incompatible uses or types of development do not encroach. The development standards table, which is officially called the *Future Land Use Classification Area Development Standards Table (or FLU Table)* is to be used in conjunction with the *Future Land Use Classification Map.* The table lists the desired predominant land uses and development characteristics for each respective area, as well as the intensity and density goals and standards for each area. Those areas include four distinct residential land use areas that range in density from a low density of 2.2 units per acre to a high density of 5.7 units per acre. A commercial-recreation area is also depicted in the *FLUCM* and *FLU Table*, it is comprised of the existing golf course and its associated uses. The map and table show that no future residential uses shall be allowed in the commercial-recreation area. Finally, the *FLUCM* and *FLU Table* show a conservation area, which only allows accessory uses and structures of a water dependent nature. No residential or commercial primary uses are allowed in the conservation area.

4. A schedule of recommended actions to make the Town's existing development management program consistent with the vision statement, the policy statements, and the future land use and development standards within the Land Use Plan, include the following:

Ordinances/Regulations	To be Done in Fiscal Year	Department Responsibility
Zoning Ordinance Amendments*		
1. Text Amendment/Re-zone "Business" Zone to match current "R-20 MF" Zone standards	FY 07-08	Administration
2. Text Amendment to apply § 153.029 minimum lot size/density standards for multi-family developments to the base "R-20 MF" Zone	FY 07-08	
3. Text Amendment to revise and clarify the definition of "Building Height" in § 153.002 and § 153.084	FY 07-08	
4. Text Amendment to clarify definition of a "Story" as found in § 153.002	FY 07-08	
5. Text Amendment to eliminate the "3 stories" allowance in § 153.084 for zoning districts that are required to elevate the first floor above the regulatory flood protection height	FY 07-08	
6. Text Amendment of § 153.033 to identify "bulkheads" as a prohibited use/activity in the "Conservation" Zone	FY 07-08	
Stormwater Management Ordinance Amendments	FY 07-08 or 08-09	Administration
7. Incorporate Phase II NPDES coastal rules		
8. Consider requiring use of permeable surfaces for driveways, Parking spaces and other related structures		
9. Consider Stormwater Utility		
10. Consider using decommissioned septic systems as stormwater/rain retention cisterns		
11. Sewer Use Ordinance	FY 07-08 or 08-09	Administration
12. Subdivision Ordinance	FY 07-08	Administration
Official Plans		
13. Stormwater Master Plan	FY 07-08	Administration
14. Beach Preservation Plan	Ongoing Updates	Administration /Beach Adv. Board

15. Sewer System Plan (need to address costs and capacity in the design, construction, and O&M of the system)	FY 07-08	Administration
16. Water System Plan (need to address inadequate pressure)		Administration
17. Strategic Plan (need to update to ensure consistency with the LUP and other new programs and documents)	FY 07-08	Administration
Capital Improvements Program		
Scheduled Fiscal Year and Ongoing 18. Capital Improvement Plan (CIP)*	Begin CIP process in FY 07-08 to take effect in FY 08-09	Administration
a. Sewer System Construction	FY 07-08 or 08-09	
b. Beach Preservation Program Activities	Ongoing	
c. Stormwater System Improvements	FY 07-08 or 08-09	
d. Water system Improvements	FY 07-08 or 08-09	

Additional recommended and scheduled actions include:

Action	Management Topic Goal	Responsible Entity	2007-2008	2008-2009	2010-2011	2011-2012	2012-2013
1. Continue Expanding Public Participation in Land Use Planning.		Administration					
2. Revise portions of the Zoning Ordinance to address internal consistency and to implement LUP goals and policies. See Table 28 for detailed list of recommended amendments.	Land Use Compatibility	Administration					
3. Construct sewer system to serve platted/developable areas (eliminate septic system and package treatment use).	Water Quality/ Infrastructure Carrying Capacity	Administration					
4. Revise stormwater management regulations to incorporate Phase II rules, permeable surface provisions, and other management recommendations of the Stormwater Master Plan.	Water Quality	Administration					
5. Establish a Local Watershed Planning Group. Coordinate with adjacent jurisdictions and state agencies.	Water Quality	Administration					
6. Develop and integrate a Capital Improvements Program (CIP) to prioritize funding for projects such as stormwater system improvements, public access, sewer, etc.	Public Access/ Land Use Compatibility/Infrastructure Carrying Capacity	Administration	Under Development	Ongoing →	Ongoing	Ongoing	Ongoing
7. Pursue mechanisms to preserve the existing 18-hole golf course, such as not approving any future requests to rezone or add text amendments which would allow residential uses in the CR-1 Zone. Coordinate activities with Town of Oak Island.	Land Use Compatibility	Administration	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
8. Pursue stricter enforcement of nuisance problems (i.e. noise and light) and parking problems.	Land Use Compatibility	Administration	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
9. Implement public parking and public access enhancements as required by beach nourishment funding.	Public Access/ Land Use Compatibility	Administration	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
10. Implement annexation or extraterritorial jurisdiction over the "Baptist Assembly" and/or U.S.C.G. property if those properties have a change of ownership (if applicable).	Land Use Compatibility	Administration	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing

Conclusion

The Land Use Plan (LUP) contains the adopted goals and policies for the Town of Caswell Beach. Those goals and policies are to be implemented and followed over the next five to ten year planning period, and beyond if an update is not conducted within 10 years. The intent of the policies and actions detailed in this plan are to be carried out in good faith by current and future elected officials and Town staff. Any public decisions by Town officials regarding growth and development (e.g. re-zonings, land use related ordinance revisions, conditional use permits, capital improvement projects, public grants, etc.) are to remain consistent with the policies, goals and objectives in this plan. To allow flexibility if circumstances or community preferences change, the Land Use Plan can be updated or amended. Current Land Use Plan updates are conducted through a grant from the Division of Coastal Management and are on a seven to ten year cycle, which is primarily determined by funding availability. The Town may undertake an amendment of the Land Use Plan at any time, but must follow the regulations found in North Carolina Administrative Code Title 15A, Chapter 7, Subchapter 7B, Section .0900-.0901.

1.2 Introduction to the CAMA Land Use Plan Process

The Town of Caswell Beach, like most coastal communities in Brunswick County and southeast North Carolina, has seen steadily increasing growth and development in its jurisdiction over the last fifteen years. Caswell Beach has grown, but due to its geography and growth management, has not grown to the same level in terms of population, housing and commercial activity as have many other "municipalities with a beach" in the area. This increase in development pressure over the last two decades has been primarily attributed to increases in coastal tourism and increases in the nation-wide retirement age population relocating to coastal areas. Other contributing factors include the development of roads, highways and bridges that make the coast more accessible to the entire population. The desire to live in and visit coastal areas has inevitably led to certain types of development and land uses that stress and degrade some of the very characteristics that make the coast a desirable place to be. The Land Use Plan is intended to establish Town goals and policies, in which the Town believes will best allow for growth while preserving the community's quality of life standards.

Land use planning should be an integral part in avoiding or mitigating some of the negative side effects of rapid development by anticipating potential problems and trying to establish courses of action and management programs to handle those problems in advance. Caswell Beach has managed, and desires to continue to manage the growth and development pressure facing their relatively small family/resort, residential-style community. This type of community is characterized by a predominance of single-family homes, lower building heights, multi-family homes primarily used for the tourist peak season, no or very limited commercial activity, and a functioning golf-course and public beach.

Land use planning in coastal areas like Caswell Beach began when the U.S. Congress initiated the first structured form of coastal land use planning in the country with the passage of the Coastal Zone Management Act (CZMA) in 1972. CZMA encouraged coastal states to preserve their coasts by establishing programs to manage and protect coastal resources. North Carolina passed its **Coastal Area Management Act**, known as **CAMA**, in 1974. CAMA established the Coastal Resources Commission (CRC) to oversee the regulation of the coast. CAMA also provided a program framework for regulating development activity in coastal areas and required local land use planning in the 20 coastal counties. The required Land Use Plan consists of policies, maps and relevant technical data that serve as a community's blueprint for growth. Land Use Plans can provide guidance for both individual development projects and a broad range of policy issues at the local level. Such policy issues could include creating Town regulatory ordinances and prioritizing public investment programs.

CAMA also established the Division of Coastal Management (DCM), which is the official government agency responsible for administering CAMA regulations and programs. DCM uses a jurisdiction's Land Use Plan in making decisions on whether to grant CAMA permits for proposed development projects that are in that jurisdiction. Proposed projects and activities must be consistent with the enforceable policies of the jurisdiction's land-use plan, or DCM cannot permit a project to go forward.

More specifically, Land Use Plans include policies that address growth issues such as the Town's desired types of economic and residential development. An important aspect of the planning

process is that the policies included in a Town's plan are those formulated and agreed upon by the local government, and are not policies dictated by the state. In addition to overseeing the land use planning process for the entire coast of North Carolina, DCM awards grants for local planning and management projects, such as funding public access sites. DCM also has four technical assistance planners throughout its four NC coastal districts to assist local governments with coastal planning and management issues.

1.3 The Town's Strategic Plan and The Function and Utility of the Land Use Plan

The Town of Caswell Beach adopted a Strategic Plan in 2002, which can be found at: (http://www.caswellbeach.org/DocumentCenterii.asp). The Strategic Plan is intended to be the overall Town management document which guides the creation and direction of other Town plans, regulations and programs. The plans and regulations that are under the realm of and should remain consistent with the Strategic Plan include:

- The CAMA Land Use Plan
- Beach Preservation Plans
- Stormwater Feasibility Studies and Management Plans
- Wastewater Feasibility Studies and Management Plans
- The Hazard Mitigation Plan
- The Town Zoning Ordinance
- The Town Subdivision Ordinance
- The Town Flood Prevention Ordinance
- The Town Stormwater Ordinance
- The Town Building Code
- Wildlife Preservation Ordinance
- Vegetation and Tree Preservation Ordinance
- Other Town Ordinances found in the Code of Ordinances

While the Land Use Plan is under the Strategic Plan, it will serve as a way to elaborate and make more specific certain land use related principles found in the Strategic Plan. More generally, there are five key functions of the land use planning process and the Land Use Plan.

1. A Land Use Plan provides a source of information for decision-makers when formulating public policy and making future governmental decisions. The planning process helps provide a knowledge and understanding of the local area's population, demographics, economy, natural environment, community capacity for growth, and overall development trends.

2. A plan's policies provide guidance for future local officials when faced with decisions on public and capital investment, as well as zoning and other development regulations.

3. State legislation requires that changes to land use related ordinances (i.e. zoning) be compared to the policies and intent of the Land Use Plan to determine whether those changes are consistent or inconsistent. Changes which are inconsistent may be allowed, but they must be justified by the Town as why they diverge from the Land Use Plan and why they are in the community's best interest. Also, the Land Use Plan may help defend against

any legal challenges to a local government's actions, by demonstrating that the actions were planned and are consistent with the community's overall goals and policies.

4. It provides a preview or predictor of future government action. The public, local government staff and developers are better informed and able to understand and predict how a government will make decisions if a plan and its policies are in place and followed.

5. It provides the general public, the Planning Board, staff, and elected officials the opportunity to address and discuss issues important to the local area and to shape policies and regulations to best meet the goals of the community.

NOTE: An additional important day-to-day function of a Land Use Plan is basing approval of CAMA development permits for projects in the local community on whether the impacts and purpose of the proposed project are consistent with the policies set forth in the plan. While local communities can issue CAMA minor permits, Caswell Beach currently does not. CAMA minor permits and major permits are issued out of DCM's Wilmington office. Minor permits are generally for any smaller-scale development (i.e. structures under 5,000ft^2) along Caswell Beach's oceanfront or other estuarine waterfront. CAMA major permits in Caswell Beach are very few in number given the lack of undivided land over an acre, no commercial activity, and the Town limitations on the size of structures along waterfront areas. Types of development projects that require CAMA permits are discussed later.

The following section provides background information on CAMA permitting for development and the role the Land Use Plan plays in determining whether development permits will be issued.

1.4 The CAMA Permit Process

The Coastal Area Management Act (CAMA) requires permits for any development in specially designated areas called **Areas of Environmental Concern (AEC)**. In Caswell Beach, **AECs** are generally those areas that are in close proximity to water (ocean, Intracoastal Waterway, tidal creeks, etc.) or marsh (coastal wetlands) [Also See Map 1: Areas of Environmental Concern Map]. A CAMA permit must be acquired if a development project meets all of the following conditions:

- The project is located within one of the 20 coastal counties of North Carolina;
- The project is considered "development" under CAMA;
- The project is within, or affects, an Area of Environmental Concern established by the Coastal Resources Commission; and
- The project does not qualify for an exemption.

What Qualifies as a CAMA Regulated Development Project?

Besides construction of residential and commercial buildings in an **AEC**, "development" also generally includes activities such as dredging or filling coastal wetlands or waters, and construction of marinas, piers, docks, bulkheads, oceanfront structures and roads. The Coastal Area Management Act {NCGS 113A-103(5)(a)} defines a development project 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;

bulkheading; 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".

What is an Area of Environmental Concern?

According to DCM's *CAMA Handbook for Development in Coastal North Carolina*, protecting and managing Areas of Environmental Concern is the basis for the CAMA permitting program. An AEC is generally an area of natural significance, which requires special management because it may be easily destroyed by erosion, flooding, or human activity; or it may have environmental, social, economic or aesthetic values that make it a valuable resource. The CRC designates particular areas as AECs to protect them from unmanaged development, which may cause irreversible damage to property, public health or the environment. AECs cover almost all 'navigable' coastal waters and about 3 percent of the land in the 20 coastal counties. As mentioned earlier, in Caswell Beach the **AECs** are generally those areas that are in close proximity to water (ocean, ICWW, creeks, etc.) or marsh (wetlands) [Also See Map 1: Areas of Environmental Concern Map].

The CRC has established the following four categories of AECs:

- The Estuarine and Ocean System (coastal wetlands, public trust and estuary waters, and estuarine shoreline);
- The Ocean Hazard System (ocean erodible setback area, un-vegetated beach area, inlet hazard area, and high hazard flood area);
- Public Water Supplies (small surface water supply watershed and public water supply well-fields);
- Natural and Cultural Resource Areas (coastal complex natural areas, coastal areas that sustain remnant species, unique coastal geologic formations, significant coastal archaeological resources and significant coastal historical archeological resources).

A development project is likely located in an AEC if it 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 (e.g. within 60'-120');
- within an ocean high hazard flood area (VE Zones on official flood maps);
- near an inlet;
- within 30 feet of the normal high water level of areas designated as inland fishing waters by the N.C. Marine Fisheries Commission and the N.C. Wildlife Resources Commission;
- near a public water supply;
- within 575 feet of Outstanding Resource Waters defined by the Environmental Management Commission.

For more information on the *CAMA Handbook for Development in Coastal North Carolina* and for mitigating steps required during development, see the following web-page;
http://www.nccoastalmanagement.net/Handbook/contents.htm

What Are the Types of CAMA Permits?

There are currently three types of development permits: major permits, general permits and minor permits. The Division of Coastal Management makes permit decisions after considering agency and public comments, and after determining whether a proposed project meets CRC rules and is consistent with the policies of the local government's Land Use Plan.

The CAMA permit system is divided into major and minor permits, based on the potential impacts and size of a development project.

Major permits are necessary for activities that **require other state or federal permits** (such as stormwater and sedimentation control), for projects that cover more than 20 acres or for construction covering more than 60,000 square feet. Applications for major permits are reviewed by 10 state and 4 federal agencies before a decision is made.

Minor permits are required for projects, such as single-family houses, that do not require major permits or general permits. Permits are reviewed, issued and administered to CRC standards by local governments under contract with the Division of Coastal Management.

The Town of Caswell Beach does not issue CAMA minor permits as of 2007, but intends to become a local permitting authority in the near future.

General permits are used for routine projects that usually have little or no threat to the environment.

For detailed information on permit categories refer to *Section 5: Applying for a CAMA Permit*, located at this web address http://www.nccoastalmanagement.net/Handbook/contents.htm.

Some development may be authorized by exemption certificate. Section 103(5)(b) of the Coastal Area Management Act exempts the following activities from permitting 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 N.C. Utilities Commission rules;
- agricultural or forestry production that doesn't involve the excavation or filling of estuarine or navigable waters or coastal marshland (Note: these activities are not exempt from permitting requirements under the state's Dredge and Fill Law);
- agricultural or forestry ditches less than 6 feet wide and 4 feet deep;
- emergency maintenance and repairs when life and property are in danger;
- the construction of an accessory building usually found with an existing structure, if no filling of estuarine or navigable waters or coastal marshland is involved.

1.5 Public Involvement

In addition to the day-to-day permitting functions mentioned above, the Land Use Plan is intended to provide an open and fairly lengthy (up to a year and a half) process for citizen involvement. Formulating policies based on community consensus covering a wide range of issues relies on

adequate public involvement. In addition to providing the public an opportunity to provide their concerns on growth and development, the Land Use Plan is intended to inform the public on the importance of planning, the role their town government plays in managing development, the possible impacts of un-managed development, and the utility of preserving natural resources.

The 2006 Caswell Beach Land Use Plan Update established a Citizen Participation Plan (See Appendix I) which provides the public with the Land Use Plan meeting schedule and the methods by which the Town will distribute Land Use Plan materials to the public. Those methods include: newspaper advertisements, Town website: www.caswellbeach.org, email list serve, and a hardcopy of materials available at Town Hall located at 1100 Caswell Beach Road.

1.5.1 Citizen Participation Plan

The Town Council adopted the Citizen Participation Plan for Phase I of the Land Use Plan on October 12, 2006 (See Appendix I).

Section 2. Caswell Beach Community Issues and Vision

2.1 Growth Related Concerns and Goals

The identification of community concerns and goals by the public and local leaders helps to identify the most problematic or significant issues facing the community and what the community wants to accomplish. The key issues facing the community are usually the result of growth related conditions that are beginning to directly impact the quality of life of residents and property owners (e.g. multi-family is encroaching on single-family, stormwater is increasing due to increases in impervious surfaces, etc.). After key issues are identified and prioritized for action, a community 'vision' and local policies are established to guide growth in accordance with the Town's desired direction. In 2002, the Town of Caswell Beach adopted a Strategic Plan which had established an overall community vision statement. Given the Land Use Plan is to remain consistent with the Strategic Plan, the vision statement of the Strategic Plan will be incorporated into the Land Use Plan.

2.2 Key Planning Issues Impacting Caswell Beach

The list of dominant issues facing the Town were established from public meetings, staff input, Planning Board and Town Council guidance, and from applicable issues from the 1997 Land Use Plan.

Given the potential number and complexity of issues, and the Town's limited capacity to address them all, the Town will likely only fully address or attempt to resolve a handful of community issues. Therefore, a priority list of issues will be established. The prioritized issues are generally those key issues that have recently emerged and those which the Town can proactively address. The priority issues will be thoroughly addressed under the policy statements in this Land Use Plan *(to be established in Phase II)*. Furthermore, a set of objectives will be established to adequately and feasibly address the top issues. The objectives to accomplish will make-up the Town's Implementation Schedule *(to be established in Phase II)*. The Implementation Schedule is a list of items to be carried out by the Town over a five-year period. The purpose of the Schedule is to ensure that policies are actually implemented and town goals are being actively pursued.

Clarification Between Goals, Objectives and Policies

A **Goal** is a desired outcome. *Ex. Improve surface water quality.*

An **Objective** is a specific step or action taken to reach a goal. *Ex. Implement specific stormwater management measures to reduce runoff to surface water.*

A **Policy** is an official course of action or guiding principle that is followed to ensure actions taken are consistent with goals. *Ex. The Town shall take steps to pursue the improvement of surface water quality in its jurisdiction.*

2.2.1 General Issues Identified

The following list is the complete list of growth related issues identified by the Town and through public input. The list is not in any particular order.

- Stormwater Management
- Wastewater Management
- Maintain the Existing 18-hole Golf Course Recreation Facility
- Beach Nourishment and Protection of the Beach, Oceanfront Property, and Public Infrastructure from Erosion
- Continue to Proactively Manage Intensity (building height and lot coverage) and Density (units per acre) of all new Development
- What Housing Types Should be Allowed? (e.g. "Mega-structures", Single-Family, Multi-Family)
- Future ETJ Authority over Current Baptist Assembly Area if Sold (What would the Town zone this area?)
- Future Use and Management of the Lighthouse and Coast Guard Properties
- Is Commercial Growth Still Undesired?
- Regional Growth (Port, Airport, Transportation Systems, Potable Water, Sewer, and Environment)

2.2.2 Priority Issues and Goals

The top issues identified by the Town needing priority attention included:

- Beach Nourishment and Protection of the Beach, Oceanfront Property, and Public Infrastructure from Erosion
- Maintaining the Existing 18-hole Oak Island Golf Course
- Maintaining Proactive Management of Intensity (building height and lot coverage) and Density (units per acre) of all new Development and Redevelopment
- Implementing Improved Wastewater and Stormwater Management Measures
- Improving water pressure in Town Water Distribution System

2.2.3 Key Goals of CAMA To Be Integrated With Town Goals

In addition to the Town's list of priority issues and associated goals, the Coastal Resource Commission (CRC) and the Division of Coastal Management (DCM) have integrated a set of goals to assist the Town in meeting the planning requirements of the Coastal Area Management Act (CAMA). These goals are related to six development-related "Management Topics" established by the CRC. **The Management Topic areas include: 1) Public Access; 2) Land Use Compatibility; 3) Infrastructure Carrying Capacity; 4) Natural Hazards; 5) Surface Water Quality; and 6) Local Area Concerns.** Consistency with the goals of the CAMA Management Topics is felt to be essential for the proper use, development, and protection of coastal resources.

Many of the issues and goals identified and prioritized by the Town already address the broad CAMA goals and will be integrated and combined where applicable. However, where Town

identified goals may lack, the Town is required to integrate and attempt to meet all the goals under the Management Topics.
The additional goals under the CAMA Management Topics that are to be integrated with Town goals include:

- Maximize public access to the beaches and the public trust waters of the jurisdiction.
- Ensure that development and use of resources or preservation of land minimizes direct and secondary environmental impacts, avoids risks to public health, safety and welfare and is consistent with the capability of the land based on considerations of interactions of natural and manmade features.
- Ensure that public infrastructure systems are appropriately sized, located and managed so the quality and productivity of areas of environmental concern and other fragile areas are protected or restored.
- Conserve and maintain barrier dunes, beaches, flood plains, and other coastal features for their natural storm protection functions and their natural resources giving recognition to public health, safety, and welfare issues.
- Maintain, protect and where possible enhance water quality in all coastal wetlands, rivers, streams and estuaries.
- Integrate local concerns with the overall goals of CAMA in the context of land use planning.

2.3 Vision Statement

The Vision Statement of Caswell Beach is intended to be a general and brief statement about the Town's main preferences for future growth. The Vision Statement should be based on a consensus of the views of community citizens and community representatives. Goals and policies established in this Land Use Plan shall remain consistent with the intent of the Vision Statement. As mentioned earlier, Caswell Beach's Vision Statement was established and adopted under the Town's Strategic Plan.

Caswell Beach Vision Statement

> "The vision of the Town of Caswell Beach is one of a viable residential community having the foresight, resources and will to meet new challenges and opportunities in accomplishing its mission. The Town is proud of its unique residential character, its natural assets and quality of life, and these will continue to be of paramount importance. Caswell Beach will provide cost-effective and timely services. Caswell Beach will endeavor to be a friendly, cohesive, community-spirited town in which the residents work together. Caswell Beach will continue to practice mutually beneficial relationships with local, state and federal governing bodies. These in combination will achieve the desired quality of life".

Further Sections in this Land Use Plan will elaborate on what the "unique residential character" and "natural assets" of the Town are and how the Town intends to preserve them. The "services the Town will provide" will also be discussed in later Sections and policies of this Plan.

To define the overall "quality of life" that Town residents and visitors enjoy, the Town's Strategic Plan states the Town's quality of life includes the following characteristics which are to be maintained:

- A unique physical setting (barrier island surrounded by quality beach, marsh and water)
- A safe, friendly environment (e.g. small population, close-knit community, limited traffic)
- A low crime rate
- A quiet, peaceful residential community (limited dense and intense development, limited commercial activity)
- Limited noise and light pollution (limited commercial activity, limited traffic and limited dense development)
- Minimal commercialization
- Continued easy access to medical and professional services nearby
- Assurance that investment in property will be protected

As mentioned earlier, the Town's Vision Statement and concept of quality of life provides the foundation for which the goals, policies and objectives in this Land Use Plan are to be based upon. Even if the Town has reached build-out and/or has established development regulations that it is generally satisfied with, the Land Use Plan at the very least should reiterate that the conditions in place now represent what the Town wants to maintain and where the Town wants to be in 5 to 10 years from now. In other words, the overall policy theme in the Land Use Plan would stress that the Town does not desire any substantial changes in its Zoning or other related regulations or programs which would result in a deviation from the current state.

The following Sections (3-7) consist of the Land Use Plan's Phase I report on existing conditions in the Town. These conditions include descriptions on the population, housing, natural environment, existing land use patterns, and infrastructure characteristics currently found within the Town. The information found in the Phase I report is intended to provide a knowledge base for the Planning Board, Town Council, Town Staff and citizens to use when deciding on what direction the policies in this Land Use Plan should take (i.e. is there too much growth, too little, etc.). Since Caswell Beach is relatively small in geographic size, a close-knit community and essentially built-out, much of the information in Phase I may not be new to many in Town. However, it must be remembered that this Land Use Plan will be reviewed by citizens, state and federal agencies, advocacy groups, and potentially outside developers which may be unfamiliar with the characteristics of the Town.

Section 3. Analysis of Trends and Emerging Conditions

The analysis of trends and emerging conditions section provides information on the population, housing and economic characteristics of Caswell Beach. Such information is intended to allow Town officials to make growth management decisions based on an understanding and knowledge of where the Town has come from, where it is and where it may be heading.
The sources of data used include the 1990 and 2000 U.S. Census, U.S. Census 2005 municipal estimates, and the North Carolina State Demographer 2005 estimates and 2010 –2030 projections.

Population, Housing and Economy

The current population size, both permanent and seasonal, and the level to which it will change during the planning period determines the amount of land that should be allocated for future uses and the related pressure that may be expected on coastal resources. Also, demands placed on community infrastructure (roads, water, wastewater, stormwater, etc.) are directly related to growth in population and development. Population characteristics such as age and income help predict requirements for different types of housing and land uses. (NC DCM, *Technical Manual for Coastal Planning*)

Information on the existing housing stock and related household information in the Caswell Beach community provides a base for planning for future housing needs. Household size, the types of housing units, and the number of owners and renters, can all be considerations when formulating development policies.

3.1 Population Characteristics and Trends in Caswell Beach

Table 1: Population Change from 1990 to 2004

(Source: U.S. Census 1990 and 2000, US. Census Estimates 2005, and NC State Demographer Certified 2005 Estimates)

Municipality	1990 Pop.	1990 Density*	2000 Pop.	2000 Pop. Density*	% Growth (1990-2000)	2005 Pop.	2005 Pop. Density*	% Growth (1990-2005)	% Growth (2000-2005)
Caswell Beach	175	.48 people per acre	370	1.02 people per acre	111%	461	1.28 people per acre	163%	25%

*Population Density is based upon the population divided by the actual land area of 360 acres. Also see text on top of next page.

Caswell Beach was incorporated in the 1970s and the first Census for the Town was in 1980, which showed the population to be 110. **Table 1** shows that the population of Caswell Beach has increased considerably from its 1990 level when just considering percent growth. Much of the inland portion of Caswell Beach was developed between 1990 and today, with much of this as permanent year-round residences, which accounts for most of the population growth in Town. Beachfront and multi-family units continue to be primarily utilized as seasonal housing for the seasonal population.

Analysis using Geographic Information Systems (GIS) processing by the Cape Fear Council of Governments shows that there is currently approximately 2,592 acres of total area in the Town Limits. This total area not only includes land, but water, marsh, dunes and unvegetated beach as well. The amount of land area* in the corporate limits is approximately 360 acres or .56 square miles. As shown in Table 1, the population density has increased by two and a half times over the last 15 years.

*Land area refers to land that is above the mean high water line and shoreward of the dune vegetation line.

Table 2: Population Growth Comparison for NC "Municipalities with a Beach" 1990-2005

(Source: U.S. Census 1990 and 2000, U.S. Census Estimates 2005, NC State Demographer)

Municipality	1990 Pop.	2000 Pop.	% Growth Rate (1990-2000)	2005 Pop.	% Growth Rate (2000-2005)
Atlantic Beach	1,938	1,781	-1%	1,801	1%
Bald Head Island	78	173	121%	229	40%
Carolina Beach	3,630	4,778	32%	5,640	18%
Caswell Beach	**175**	**370**	**111%**	**461**	**25%**
Emerald Isle	2,434	3,486	43%	3,803	9%
Holden Beach	626	792	26%	889	12%
Indian Beach	153	95	-30%	91	-4%
Kill Devil Hills	4,238	5,897	39%	6,760	15%
Kitty Hawk	1,937	2,991	54%	3,474	16%
Kure Beach	619	1,512	144%	1,964	30%
Nags Head	N/A	2,700	N/A	3,125	16%
N. Topsail Beach	N/A	843	N/A	855	1%
Oak Island	4,550	6,627	45%	7,711	16%
Ocean Isle Beach	534	430	-19%	481	12%
Pine Knoll Shores	1,360	1,524	12%	1,601	5%
Southern Shores	1,447	2,201	52%	2,612	19%
Sunset Beach	311	1,852	495%	2,211	19%
Surf City	970	1,413	46%	1,619	15%
Topsail Beach	362	473	31%	535	13%
Wrightsville Beach	2,937	2,593	-11%	2,648	2%
Brunswick County	50,985	73,143	43%	89,463	22%
Caswell Beach Rank*	**3rd Lowest**	**3rd Lowest**	**4th Highest**	**3rd Lowest**	**3rd Highest**

*Ranking includes municipalities only. There are 20 municipalities in the ranking.

Table 2 shows that Caswell Beach had one of the highest growth rates among "municipalities with a beach" both between 1990 and 2000, and between 2000 and 2005. However, the actual Town population has consistently been third lowest among the same comparison communities since 1990. This means that Caswell Beach has grown considerably compared to its own original population, but not when compared to the populations of other "North Carolina municipalities with a beach". As Caswell Beach has reached near build-out, less than 100 vacant lots and no tracts left to subdivide

(except for the golf course area), the Town's growth rate and population increase will likely slow considerably. With a population of 461 in 2005, the only scenarios whereby the Town's population will reach past the 525 to 600 range over the next 10 years will be due to the subdivision of the golf course into residential lots, occupation of the seasonal units in Town by permanent residents, and/or allowing redevelopment at higher densities.

Table 3: Population Demographics Comparison of All North Carolina "Municipalities with Beaches" from Census 2000

(Source: U.S. Census 2000 Population and Housing and U.S. Census 2000 Employment and Income)

Municipality	Median Age	% in Labor Force – 16 & Over	Median Household Income	Median Family Income	Per Capita Income
Atlantic Beach	48.7	63.3%	$38,312	$52,411	$31,339
Bald Head Island	56.3	56.7%	$62,083	$56,964	$45,585
Carolina Beach	43.6	68.0%	$37,662	$44,882	$24,128
Caswell Beach	**59.9**	**39.9%**	**$57,083**	**$63,750**	**$41,731**
Emerald Isle	50.1	54.3%	$53,274	$60,257	$31,316
Holden Beach	55.4	48.8%	$59,583	$70,000	$36,113
Indian Beach	58.8	52.7%	$47,250	$45,250	$25,826
Kill Devil Hills	36.7	76.6%	$39,712	$44,681	$20,679
Kitty Hawk	40.6	69.9%	$42,813	$48,656	$22,960
Kure Beach	50.5	60.8%	$47,143	$55,875	$26,759
Nags Head	42.7	67.0%	$53,095	$61,302	$30,157
North Topsail Beach	45.1	64.4%	$45,982	$53,125	$33,972
Oak Island	49.2	56.1%	$40,496	$48,775	$23,964
Ocean Isle Beach	53.4	49.6%	$67,639	$65,625	$42,605
Pine Knoll Shores	61.8	36.8%	$53,800	$60,662	$34,618
Southern Shores	51.4	51.3%	$61,676	$68,250	$35,933
Sunset Beach	60.2	37.8%	$47,356	$57,019	$36,181
Surf City	48.1	61.7%	$40,521	$48,654	$25,242
Topsail Beach	55.6	53.7%	$55,750	$64,167	$35,838
Wrightsville Beach	37.1	65.6%	$55,903	$71,641	$36,575
Brunswick County	42.2	57.7%	$35,888	$42,037	$19,857
North Carolina	35.3	65.7%	$39,184	$46,335	$20,307
NC Beach Municipal Average	50.26	56.7%	$50,356	$57,065	$32,118
Caswell Beach Rank Among North Carolina Communities with a Beach*	**3rd Highest**	**3rd Lowest**	**5th Highest**	**6th Highest**	**3rd Highest**

*Ranking includes municipalities only. There are 20 municipalities in the ranking.

Table 3 shows that according to Census 2000 information, the Caswell Beach population is on average nine years older than the populations of the other North Carolina beach communities. The Town also has a lower percentage of its population working in the labor force than all but two other

NC "communities with a beach". According to the Census 2000 data, Caswell Beach is in the top 25% among all North Carolina "communities with a beach" in household, family and per capita income (total income divided by total population). As housing and land costs have substantially increased since 2000, it is likely that median income levels have also been increasing as the new residents coming in generally must have higher income levels to afford the rising prices in housing and land.

Table 4: Median Age in Caswell Beach and Nearby Municipalities 1990-2000

(Source: U.S. Census 1990 and 2000)

Municipality	1990 Median Age	2000 Median Age
Calabash	63.6	57.9
Carolina Beach	37.6	43.6
Caswell Beach	**44.5**	**59.9**
Holden Beach	53.3	55.4
Kure Beach	44.9	50.5
Oak Island	44.3 (Long Beach)	49.2
Ocean Isle Beach	50.3	53.4
Shallotte	50.2	51.6
Southport	43.1	49.0
Sunset Beach	49.9	60.2
Caswell Beach Rank	**5th Lowest**	**2nd Highest**

Table 4 shows that the median age (half above and half below) in Caswell Beach has increased by about 15.5 years between 1990 and 2000. Even if population growth were static, the increase in median age would only increase by 10 years due to natural aging between the ten-year census. Due to a relatively large increase in the Town's population between 1990 and 2000, and the increase in median age of 15.5 years and not just 10 years, we can assume that it is the age of the residents moving into Caswell Beach which has become older. The data in the table above and the table below show that the people who have recently moved into the Town and those making up the majority of the Town's population are retirees or of retirement age.

Table 5: Population by Age in Caswell Beach 1990-2000

(Source: U.S. Census 1990 and 2000)

Age Group	1990 Pop. In Age Group	2000 Pop. In Age Group
0-4	3	6
5-17	11	23
18-24	17	6
25-44	48	42
45-64	**55**	**161***
65+	19	132

* The 55-64 Age Group accounts for 108 people of this total.

Table 5, previously, showed that the 45-64 age group has traditionally been the most populated age group in Town since 1990. This age group, and the 65 and older age group increased significantly in population from 1990 to 2000. The 45-64 age group increased by three times, while the 65 and older age group increased nearly seven times. The asterisk in Table 5 shows that over one hundred people were in the 55-64 age group in the year 2000, meaning that as of 2006 the actual number of people in the 65 and older age group could exceed all other age groups in Town. NOTE: There is no data on the age of the approximately 90 new residents added to the population since 2000. It can only be assumed that they are at minimum in the 45-64 range, but probably not any younger.

3.1.B Seasonal and Peak Population Estimates

When planning for infrastructure (e.g. sewer), housing, commerce and recreation needs that may occur as a result of permanent population growth, it is also necessary in a beach and tourist/resort community like Caswell Beach to consider the impact vacationers, visitors and temporary residents present to the planning area on a seasonal basis.

Persons who reside in the planning area for the majority of the year, or refer to it as their primary residence, make up the **permanent population**. Persons who temporarily vacation or visit for at least one night in the planning area during the peak season comprise the **seasonal population**. The permanent population plus the seasonal population make up the **peak population**. While there is no standard method for tabulating seasonal population for a given jurisdiction, there are a few methods that can be used to estimate the population. A frequently used way to estimate seasonal populations is to use the number of housing units and occupancy rates to determine how many people per housing unit occupy different types of housing units. A problem with using housing units and occupancy rates to estimate population is that it is difficult to know the true number of housing units being used and how many people are staying in each unit. There is a wide variance in assuming three people per unit versus six people per unit in estimates, but such wide variance exists from unit to unit.

Peak and Seasonal Population Estimate by Housing Units

According to Census 2000 data there were approximately 333 vacant units categorized as "seasonal use" in the year 2000. Census 2000 also shows that around 60% of the total housing in Town has been used for seasonal use. Since Census 2000, there have been 96 total housing units built. If we assume that the 60% ratio for seasonal housing continues, we can assume 60% of the 96 new housing units will be used for seasonal use. 60% of 96 is 58. The 333 already existing seasonal units plus 58 new units equals approximately 391 units for seasonal use today. To try and account for variation in the number of persons per unit, it will be assumed that 50% of the seasonal units have 3 persons and 50% has 6 persons. In addition, a low seasonal estimate will be derived by assuming occupancy of only 75% of the seasonal units. A high seasonal estimate will be derived by assuming 100% occupancy of the seasonal units. NOTE: The permanent population has been estimated to be 461 for 2005; this will be added to the seasonal estimate to establish a peak population estimate.

High Estimate (100% Occupancy)

[195.5 units x 3 persons = 586.5] + [195.5 units x 6 persons = 1,173] = 1,759.5 seasonal pop.

1,759.5 seasonal + 461 permanent = **2,220.5 peak pop.**

Low Estimate (75% Occupancy)

[(195.5 x .75) x 3 persons = 440] +[195.5 x .75 x 6 persons = 880] = 1,320 seasonal pop.

1,320 seasonal pop. + 461 permanent = **1,781 peak pop.**

Peak and Seasonal Population Estimate by Water Consumption

Another technique to estimate seasonal population is to compare the metered water consumption rates in the off-season to the metered water consumption in the high season. Water consumption totals during the off-season gives a base number that can be assumed to be an amount consumed by permanent residents only. If it is known how much water the permanent population alone uses in the off-season, it can be compared with how much water is being used in the high season. For example, if there was a known permanent population of 1,000 people using 1 million gallons per day in the off-season month of February, we could assume that a 2 million gallon per day usage in July could infer that twice as many people were using water, and therefore there could be 2,000 people in the Town. Using water consumption comparisons is problematic if there is a large presence of private water wells in Town, which would not show in the water use data. However, the Town of Caswell Beach estimates that near 100% of residences are connected to water service.

It is important to note that there are variables that could skew this simplified comparison approach, and it is reiterated that seasonal and peak population figures are best-guess estimates.
The Water Consumption Peak and Seasonal Estimate Table is on the following page.

Table 6: Water Usage in Peak Season Versus Usage in Off-Season
(Source: Town of Caswell Beach Finance Department)

	Peak Month		Low Month
Year	July		February
2006 Water Use	7,442,800		1,620,330 (.057 MGD) 1,793,936 (adjusted for 31 days)
% Increase over February	349%		
Estimated Population for the Month	**1,609***		461 (permanent residents)

*Numbers are the peak population, they already include both seasonal and permanent pops.

The months used for comparison were the low month of February and the peak season month of July. February was used because it has the least water usage of any month, meaning this likely isolates the water consumption level for only the permanent or year-round population. July was used as the peak season month as it has the highest total monthly use.

Since February only has 28 days, an additional 3 days of water usage was added to the February total to give a 31 day use period for comparison with the 31 days of July. It is therefore inferred that the permanent population of 461 people uses 1,793,936 gallons of water in 31 days. The next step was to compare this monthly total consumption to the consumption level in the peak month. As shown in **Table 6** above, there is an increase in water use during the peak season over the low season of 349%. The "estimated population for the month" numbers in the bottom row in the above table reflect increasing the population of 461 by the respective percent increase in water use for the peak season month. For example, a population of 461 increased by 349% is 1,609. [461 x 3.49 (or 349%) = 1,609]

> **Using water consumption data, the peak seasonal over-night population estimate falls around the 1,600 range.**

Summary of Peak and Seasonal Population Estimates

Two methods of estimating seasonal and peak populations have been used showing a wide range of possible peak populations. Since there are several variables that could alter any of the estimates, it may be best to use the entire range (1,600 – 2,200) or a mid-point (2,000) when considering the Town's peak over-night population.

Day-trip Visitors

Another consideration when gauging seasonal population impact on community infrastructure is the effect of 'day-trippers'. Unlike estimates of overnight visitors above, 'day-trippers' travel for brief stays in the community, typically for recreation activities like going to the beach or playing golf. 'Day-trippers' would primarily have an impact on traffic congestion and parking availability. Again, there is no standard method for calculating 'day-trippers'. One of the best indictors for the number of day-trip visitors is the number of parking spaces available. There is one regional public access site

on Caswell Beach with 80 spaces available. Again, a high and low estimate will be used to establish a range of beach day-trip visitors.

Low Estimate

> [2 shifts of parking during the day (morning and afternoon) x 80 parking spaces] x 2 persons per vehicle = **320 day-trip visitors to the beach per day**

High Estimate

> [2 shifts of parking during the day (morning and afternoon) x 80 parking spaces] x 4 persons per vehicle = **640 day-trip visitors to the beach per day**

Again, many variables including fewer shift changes and more persons per car, and even illegal parking could make the day-trip visitor total vary widely.

The Oak Island Golf Club estimates 30,000 golfers per year play the course. Most of that total occurs in the peak season of June through September. Dividing 30,000 by the 122 days in those four months gives an average day use number of 246 people.

When adding possible beach day-trip visitors to possible golf day-trip visitors there is likely a peak season range of approximately 550 to 850 day-trip visitors. In addition, the Oak Island Lighthouse and Baptist Assembly can also receive day trip visitors which can have an impact on Town infrastructure. This range reflects ideal peak conditions when facilities would be used to their highest extent, an average day-trip visitation rate below 500 could also be possible.

Peak Population and Day-Trip Visitors

Considering the peak over-night population estimates plus the day-trip visitor estimate, the Town of Caswell Beach could have between 1,920 to 2,840 people in its jurisdiction on a peak day. It is unlikely that these peak levels are sustained constantly over the summer months, and are probably only reached during weekends with good weather or holidays such as the 4th of July.

3.1.C Population Projections

Much like seasonal and peak population estimates, population projections can vary widely due to intervening factors such as the strength of the economy, availability of jobs, housing prices, and the quality of life in the area. As Caswell Beach does not have a local economy and is primarily a retiree-family community, availability of jobs in Town is not a factor in population growth. Caswell Beach is essentially built-out, with no options for annexation of adjacent lands (except for the relatively small Baptist Assembly area upon transfer of ownership). There is also no desire to allow increased density through redevelopment of older housing. It is therefore likely that population growth has reached or is very near reaching its peak in Caswell Beach. Construction of a new 40-unit site called Caswell Landing, redevelopment of the golf course to a residential use, infill of existing lots and/or permanent occupation of units that had been previously used as seasonal units are the key variables that may affect Caswell Beach's future permanent population. Many of these variables, and how the Town will manage them, are items that will be addressed throughout this planning process. These issues are key land use decisions affecting the Town's near future and should have policies formulated to provide guidance to current and future decision-makers.

Despite Caswell Beach's peak and plateau in population, the Town sits in one of the fastest growing Counties in the Nation and is near the proposed State Port, which will bring in thousands of new jobs (and associated family populations). Population projections for the total population in the County are provided by the North Carolina State Demographer. Municipal population projections are not done by the State Demographer because of the difficulty in predicting things such as annexations and zoning changes allowing redevelopment at higher densities. The State Demographer's population growth for Brunswick County shows that **the growth in population will occur solely from migration into the county**, while natural growth from births will be offset by the natural population decline from deaths. **Chart 1** below shows the State Demographer's projected population growth for Brunswick County.

Chart 1: County Permanent Population Projections to 2010, 2020 and 2030

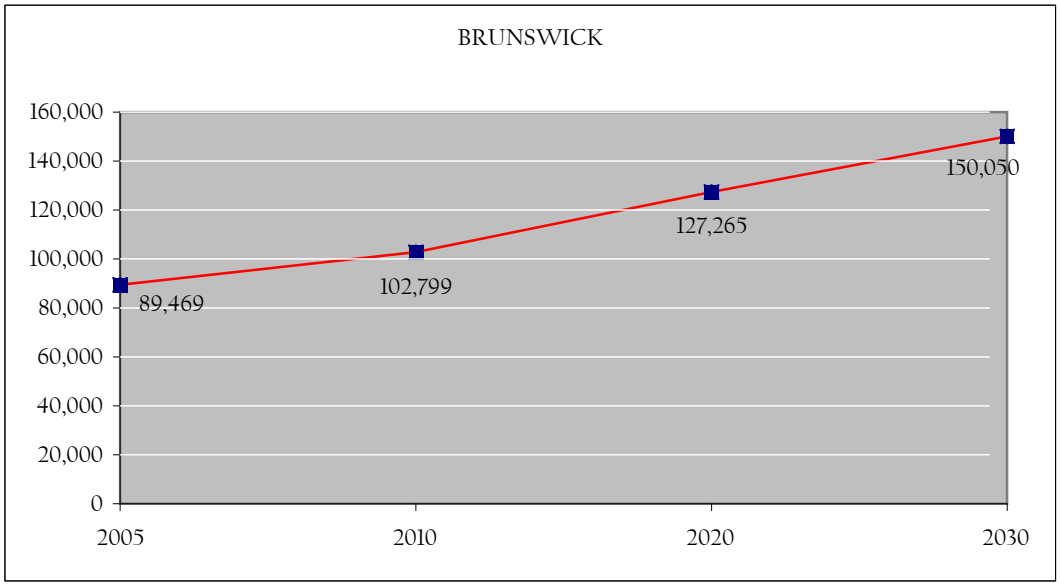
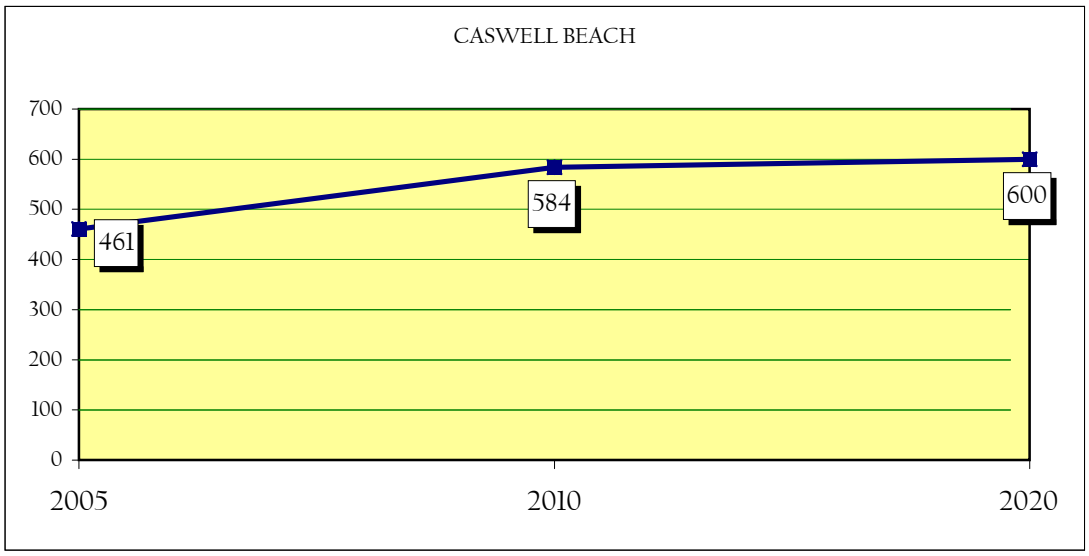


Chart 2 shows a projection of population growth in Caswell Beach from 2005 to 2020. As mentioned before, the Town is essentially built-out with no option for annexation of additional lands. Therefore, the population projection is based on the build-out of approximately 100 vacant lots with single-family and the construction of 40 units as part of the Caswell Landing development. It is expected that construction of housing on the infill lots and Caswell Landing will occur over the next five to ten years. It is also assumed that the seasonal to permanent occupation status of these new homes will remain constant to the current rate of around 60% seasonal to 40% permanent. Therefore, if 140 new units are built with 40% permanently occupied by the Town's average family size of 2.2 people, there could be an approximate increase of 123 people [(140 units x 40% = 56 permanent occupied units) x 2.2 people = 123 people].

Chart 2: Caswell Beach Permanent Population Projections

(Source: Cape Fear Council of Governments)



Based on the estimates in Chart 2, the 2010 projection is a 57% increase from the Census 2000 Caswell Beach population of 370. Any variation in the population increase will likely be caused by re-zonings allowing more or less dense development or redevelopment of the golf course land.

3.2 Housing Characteristics and Trends in Caswell Beach

Analyzing the type of existing housing stock enables the community, elected officials and Town staff to get an overall picture of the range of housing opportunities available or needed in the jurisdiction. Other housing attributes such as the building year of the structure, owner versus renter occupation, and value, act as indicators to the nature and characteristic of the existing housing stock.

Table 7: Type of Housing Unit Comparison For All North Carolina "Municipalities with a Beach"

(Source: U.S. Census 2000 Population and Housing)

Municipality	Total Number of Housing Units	Number of Units as Single-Family	% Single Family out of Total Housing Units	Number of Units in Multi-Family Dvlpmnts.	% Multi-Family out of Total Housing Units	% Duplex/ Townhome out of Total Housing Units	% Manufactured Housing out of Total Housing Units
Atlantic Beach	4,728	1,460	30.8%	1,002	21.1%	20.2%	27.9%
Bald Head Island	599	518	87.5%	27	4.6%	7.8%	0.0%
Calabash	508	293		146	28.1%	1.5%	13.9%
Carolina Beach	4,086	1,743	42.8%	1,754	43.1%	11.6%	2.5%
Carolina Shores	838	817		20	2.4%	0.6%	0.2%
Caswell Beach	**571**	**251**	**43.7%**	**266**	**46.3%**	**9.7%**	**0.3%**
Emerald Isle	6,017	3,505	58.7%	764	12.8%	11.6%	16.7%
Holden Beach	2,062	1,731	84.7%	53	2.6%	12.7%	0.0%
Indian Beach	1,218	34	2.7%	366	29.4%	0.2%	66.9%
Kill Devil Hills	5,302	4,383	82.9%	569	10.8%	4.1%	2.2%
Kitty Hawk	2,618	1,778	67.8%	264	10.1%	9.2%	12.7%
Kure Beach	1,560	961	61.2%	323	20.6%	13.6%	4.5%
Nags Head	4,149	3,459	83.3%	284	6.8%	7.5%	1.6%
North Topsail Beach	2,085	533	25.7%	1,030	49.6%	19.0%	5.6%
Oak Island	6,651	5,562	83.5%	132	2.0%	2.5%	11.5%
Ocean Isle Beach	2,507	1,743	69.3%	664	26.4%	4.2%	0.1%
Pine Knoll Shores	2,049	981	47.7%	758	36.8%	15.4%	0.1%
Southern Shores	1,921	1,882	97.4%	3	0.2%	2.2%	0.2%
Sunset Beach	2,983	1,591	51.8%	652	21.2%	6.7%	20.3%
Surf City	2,578	1,437	55.6%	245	9.5%	6.4%	28.5%
Topsail Beach	1,149	920	81.1%	79	7.0%	11.7%	0.3%
Wrightsville Beach	3,050	968	31.3%	1,077	34.8%	33.4%	0.5%
Brunswick Co.			55.6%				
North Carolina			64.4%				
NC Beach Municipal Average	2,692	1,661	59.4%	476	19.3%	9.6%	9.8%
Caswell Beach Rank Among Comparison Communities*	**Lowest ****	**2nd Lowest**	**6th Lowest**	**10th Lowest**	**2nd Highest**	**10th Highest**	**Tied for 7th Lowest**

*Ranking includes municipalities only. There are 22 municipalities in the ranking.

**Calabash technically had fewer in 2000, but has since approved several thousand-unit developments. Caswell Beach is lowest among the "municipalities with a beach" in terms of total housing units.

NOTE: Calabash and Carolina Shores do not have a "beach strand" within their jurisdiction, but were added for comparison because of their location in Brunswick County.

Table 7 above shows that Caswell Beach has the fewest total number of housing units compared among all the "North Carolina municipalities with a beach". However, the Town has the sixth lowest percentage of single-family housing units compared to its overall housing stock according to Census 2000. The Town, as of 2000, actually had slightly more multi-family units as compared to single-family units, 266 to 251 respectively.

Table 8: Housing Occupancy Comparison For All North Carolina Municipalities with "Beach Strand"

(Source: U.S. Census 2000 Population and Housing)

Municipality	Total Number of Housing Units	% Housing Units Occupied All Year	% Housing Units Owner Occupied	Number of Vacant Units	% of Vacant Units Designated as Seasonal, Recreational or Occasional Use
Atlantic Beach	4,728	20.5%	64.7%	3,757	92.0%
Bald Head Island	599	14.7%	87.5%	511	64.8%
Calabash	508	74.2%	74.8%	131	67.2%
Carolina Beach	4,086	56.2%	65.7%	1,790	69.1%
Carolina Shores	838	91.4%	97.5%	72	61.1%
Caswell Beach	**571**	**32.7%**	**89.8%**	**384**	**86.7%**
Emerald Isle	6,017	27.3%	80.2%	4,373	94.7%
Holden Beach	2,062	18.4%	87.3%	1,683	64.8%
Indian Beach	1,218	4.1%	82.0%	1,168	98.0%
Kill Devil Hills	5,302	48.8%	67.4%	2,717	96.1%
Kitty Hawk	2,618	48.3%	74.7%	1,353	94.8%
Kure Beach	1,560	46.3%	76.1%	837	42.0%
Nags Head	4,149	27.4%	73.6%	3,011	98.0%
North Topsail Beach	2,085	21.6%	61.4%	1,634	85.9%
Oak Island	6,651	46.2%	78.9%	3,575	91.2%
Ocean Isle Beach	2,507	8.3%	86.1%	2,298	64.0%
Pine Knoll Shores	2,049	37.9%	90.6%	1,273	98.7%
Southern Shores	1,921	49.2%	93.7%	975	98.3%
Sunset Beach	2,983	30.5%	90.3%	2,074	87.9%
Surf City	2,578	26.7%	74.7%	1,889	92.8%
Topsail Beach	1,149	21.9%	78.2%	897	83.1%
Wrightsville Beach	3,050	41.8%	55.0%	1,775	62.0%
Brunswick County		*59.2%*			
NC Beach Municipal Average	2,692	31.4%	78.6%	1,735	81.5%
Caswell Beach Rank Among North Carolina Communities with a Beach*	**Lowest****	**11th Highest**	**5th Highest**	**3rd Lowest**	**12th Highest**

*Ranking includes municipalities only. There are 22 municipalities in the ranking.
**Calabash technically had fewer in 2000, but has since approved several thousand-unit developments. Caswell Beach is lowest among the "municipalities with a beach" in terms of total housing units.
NOTE: Calabash and Carolina Shores do not have a "beach strand" within their jurisdiction, but were added for comparison because of their location in "coastal" Brunswick County.

Table 8 shows that Caswell Beach is around the median (half above and half below) for all North Carolina municipalities with beaches in the ratio of occupied to vacant housing. Implying that Caswell Beach is typical as far as its proportion of housing dedicated for seasonal visitors. The Town is also among the highest in the amount of owner occupied units, meaning that of those units

occupied year round in Town, almost all are occupied by the owner of the unit rather than by a long-term renter. Caswell Beach is also around the median of all North Carolina "municipalities with a beach" for the percentage of its housing stock used for seasonal or recreational rentals, again implying that Caswell Beach sits in the middle as a seasonal tourism focused community. Meaning that about half the other beach communities draw or want to draw more seasonal visitors, and half of the other North Carolina beach communities have a smaller portion of its housing available for seasonal visitors.

Table 9: Median Year Built, Tenure, Number of Rooms, and Value Comparison of All North Carolina Municipalities with "Beach Strand"

(Source: U.S. Census 2000 Population and Housing)

Municipality	Median Year Units Built	Median Year Householder Moved Into Unit (Owner Occupied)	Median Number of Rooms in Units	Median Value of Owner Occupied Housing
Atlantic Beach	1979	1993	4.4	$207,800
Bald Head Island	1992	1996	5.3	$525,000
Calabash	1987	1994	4.9	$107,400
Carolina Beach	1983	1994	4.4	$156,000
Carolina Shores	1988	1993	6.1	$153,000
Caswell Beach	**1986**	**1995**	**5.3**	**$242,300**
Emerald Isle	1986	1994	5.2	$200,000
Holden Beach	1985	1994	5.7	$247,300
Indian Beach	1985	1992	4.1	$625,000
Kill Devil Hills	1983	1994	4.9	$104,500
Kitty Hawk	1985	1995	5.3	$144,600
Kure Beach	1983	1996	4.9	$188,300
Nags Head	1985	1995	5.5	$143,900
North Topsail Beach	1986	1996	4.4	$137,500
Oak Island	1983	1995	5.1	$119,400
Ocean Isle Beach	1987	1996	5.9	$340,700
Pine Knoll Shores	1989	1993	5.8	$220,500
Southern Shores	1991	1994	6.6	$221,500
Sunset Beach	1988	1995	5.3	$219,600
Surf City	1985	1996	4.7	$177,100
Topsail Beach	1982	1993	5.3	$281,300
Wrightsville Beach	1978	1992	5.3	$480,600
Brunswick County				*$95,200*
North Carolina				$108,300
NC Beach Municipal Average	1985	1994	5.2	$249,145
Caswell Beach Rank Among NC Communities with a Beach*	**Tied for 5th In Newest Units**	**Tied for 2nd in Most Recent Move-ins**	**Tied for 7th Highest in Number of Rooms per unit**	**7th Highest**

*Ranking includes municipalities only. There are 22 municipalities in the ranking.
NOTE: Calabash and Carolina Shores do not have a "beach strand" within their jurisdiction, but were added for comparison because of their proximity to Caswell Beach.

Table 9 above suggests that compared to the other beach communities, Caswell Beach is among those with the newest housing stock. This may play a factor in the amount, or lack thereof, of

redevelopment activity that may occur in the near future. The trend coast wide is actually for beach community housing stock to become newer, as older and smaller beach-box houses are either demolished and the lot redeveloped, or are damaged over time by storms and are eventually replaced with structures built to stricter standards. The Town is also tied for 2nd for having some of the most recent move-ins, meaning those occupying the housing in Caswell Beach have typically only lived in the Town for a short time. The Town is in the top third for number of rooms per unit, suggesting that the average structure in Caswell Beach is generally slightly larger than the average structure in two-thirds of the other beach communities. According to Census 2000 data, Caswell Beach also sits among the top third of the beach communities for median housing value of occupied units.

Table 10: Caswell Beach Building Permit Data from 2000-September 2006

(Source: Town of Caswell Beach Administration/ Inspections Department)

Year	Residential Building Permits
2000	32
2001	12
2002	13
2003	9
2004	15
2005	11
Through September 2006	4
TOTAL	96

The 1997 CAMA Land Use Plan shows that there was an annual average of 17 building permits for new housing units between 1990 and 1997, it also shows that the majority of the Town's existing housing stock was developed between 1980 and 1990 (63% of the total housing stock that exists today). However, looking at the building permit over the last seven years shows that other than the year 2000, the annual rate of new home construction has been below the 1997 Land Use Plan's annual average. The information in the table also shows that the 2005 and 2006 to date new construction totals are well below the average. With the exception of the recently approved 40-unit Caswell Landing development, annual new construction is expected to continue to decrease in Town as it nears complete build-out.

3.3 Local Economy

Like any smaller community with a beach strand, the traditional local economy is predominantly driven by seasonal tourism and recreation. However, in Caswell Beach this is limited to seasonal housing rentals and golf course use. The Town of Caswell Beach has no traditional commercial activity, except for concessions and a small restaurant within the golf course facilities. It has been the desire since the 1997 Land Use Plan to have extremely limited or no traditional activity as this would be in conflict with retirement/family resort residential characteristic the Town prefers. Traffic congestion, lighting, noise, and increased impervious surfaces have been cited by the Town as reasons for discouraging commercial activity. Town residents do have available commercial and professional services (including medical) located nearby in Oak Island (less than 1 mile) and Southport (less than 5 miles), which are both growing in terms of their range of economic activities. Other quickly growing areas with substantial commercial activities near Caswell Beach include Shallotte, which is about twenty miles away, and Wilmington, which is about thirty miles away. Caswell Beach has chosen to remain an overwhelmingly residential community because of a large supply of nearby commercial activity. Caswell Beach's Land Use Plan policies should reaffirm the Town's position on these near future commercial development decisions.

The Town assesses a 6% accommodation tax on rental unit activity (of which 5% goes to the Town and 1% to the County). For comparison, the accommodation/occupancy tax rates of other Brunswick County municipalities are listed below.

Brunswick 1%
Bald Head Island 5%
Caswell Beach 5%
Holden Beach 5%
Oak Island 5%
Ocean Isle Beach 3%
Shallotte 3%
Southport 3%
Sunset Beach 5%

Brunswick County Economy

While a traditional local economy is non-existent and not desired in Caswell Beach, tourism is the leading economic industry in the County generating $313.65 million in 2004 (latest reporting year) and providing 4,750 jobs. Brunswick County ranked tenth out of North Carolina's counties in tourism revenue (see table 12). Brunswick County was also ranked in the 100 fastest growing counties in the United States by the U.S. Census Bureau in its latest population estimates (2004). Business and commercial development in the County is expected to increase as the increasing population requires additional retail, entertainment and professional services. Continued and sustainable growth in the County and its municipalities relies on the ability to provide adequate water, sewer and stormwater infrastructure. The County has placed water and sewer expansion as one of its top priorities in its Vision 2020 Plan. The Town of Caswell Beach will need to continue to work with The County on the provision of County infrastructure within the Town's jurisdiction. The Town's growth and quality of life will be dependent on the ability of County infrastructure to keep pace.

Table 11: Brunswick County Tourism Revenue (1990-2004)

(Source: North Carolina Department of Commerce, Tourism Research)

Year	Dollars in 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

Table 12: Top 10 Tourism Revenue Generating Counties in 2004

(Source: North Carolina Department of Commerce, Tourism Research)

County	Revenues ($millions)	Payroll ($millions)	Employment (thousands)	State Tax Receipts ($millions)	Local Tax Receipts ($millions)
Mecklenburg	2,701.42	1,088.62	38.69	134.22	74.03
Wake	1,136.58	422.19	17.07	57.38	33.35
Guilford	894.35	259.00	12.85	48.43	22.20
Dare	619.14	152.08	10.91	31.85	30.26
Buncombe	538.61	141.19	8.48	29.05	17.70
Forsyth	486.46	98.11	5.76	29.52	9.82
Durham	442.24	107.16	7.19	25.04	13.81
New Hanover	327.98	86.36	5.21	17.02	13.18
Cumberland	316.73	72.64	4.10	17.78	7.16
Brunswick	313.65	70.28	4.75	15.62	20.91

Section 4. Natural Systems Analysis

The Natural Systems Analysis section of the Land Use Plan is intended to define, describe and analyze the natural features and environmental conditions found in the Caswell Beach planning jurisdiction (Town limits). There are a total of **15 natural features and environmental conditions** identified in this Land Use Plan that contribute to quality of life and property values for residents, and could impact development suitability for certain types of new development and redevelopment in Caswell Beach. A general assessment of the capabilities and limitations for certain types of development, based on the presence or lack thereof of natural features and environmental conditions, is depicted in the Town's Environmental Composite Map [Map 8].

This Section also contains a series of natural features maps and inventories used to visually display the condition, location and extent of the natural environment in Town. The inventory (Section 4.2) in this section calculates an approximate acreage (from the best available data) of natural features and environmental conditions in the planning jurisdiction. This information can be used as a benchmark to track changes in these features in future studies and land use plans. The maps associated with this section can be used by the Town in situations such as deciding on what densities or land uses would be most compatible within particular areas of its jurisdiction based on the natural environment. NOTE: The accuracy of the maps in this section is not to a scale, nor continuously updated enough, to provide a site-specific determination for any one natural feature depicted on the map. Instead, the maps provide general information that allows the Town to decide whether a closer examination of a particular area may be necessary based on the likelihood of fragile and quality natural features being present.

The overall purpose of this section is to provide the Town and its decision-making officials with insight on the presence and function of environmental characteristics that exist in the jurisdiction. This information should be considered during Town land use decisions which could increase density, impervious coverage, and/or stormwater runoff in environmentally sensitive areas.

A **primary goal** of the Town of Caswell Beach found in their existing Land Use Plan and as a part of this Land Use Plan update is to preserve, conserve, and/or otherwise protect valuable and beneficial natural resources. Those natural resources primarily being the "Areas of Environmental Concern" (AECs), which include coastal wetlands, the vegetated dune system, the unvegetated beach areas, and estuarine shorelines.

The Town also intends to **preserve and improve surface water quality** through the;

1) the enforcement of its recently implemented stormwater management ordinance,
2) on-going improvements in design and proper maintenance of its existing stormwater management infrastructure (i.e. vegetated buffers, swales, ditches, outfall systems), and
3) through the elimination of septic systems in the planning jurisdiction. The elimination of septic systems is a goal of the Town and will be done through the provision of a centralized sewer system throughout the Town limits. The sewer system will remove the potential for wastewater seepage and discharge associated with failing or improperly used septic systems away from coastal waters, to a Wastewater Treatment Plant in Brunswick County.

4.1 Defining Natural Features and Areas of Environmental Concern

As stated in the introduction to CAMA and the permit process, the Division of Coastal Management places emphasis on protecting Areas of Environmental Concern (AECs). Definitions for AECs can be found in the *CAMA Guide to Development in Coastal North Carolina* http://dcm2.enr.state.nc.us/Handbook/contents.htm

Features 1 – 7 following are all considered and regulated as Areas of Environmental Concern.

1) **Coastal Wetland AEC** - Coastal Wetlands are any marsh (salt, brackish, or freshwater) in the 20 coastal counties that regularly or occasionally floods by lunar or wind tides, and that includes one or more of 10 plant species: Salt Marsh (Smooth) Cord Grass, Black Needlerush, Glasswort, Salt (or Spike) Grass, Sea Lavender, Bulrush, Saw Grass, Cattail, Salt Meadow Grass, Salt Reed or Giant Cord Grass.

> **Coastal Wetlands in Caswell Beach**
> The type of coastal wetlands found in the Caswell Beach planning jurisdiction is Salt/Brackish Marsh primarily in the extensive tidal marsh and creek system surrounding the island and running along the Intracoastal Waterway. There are approximately 1,426 acres of coastal wetlands in the planning jurisdiction. See the Areas of Environmental Concern Map [Map 1] and natural features inventory table for additional information.
>
> Policies found in the current CAMA Land Use Plan reiterate that the Town of Caswell Beach supports the preservation of coastal wetlands for their aesthetic qualities, flood and erosion prevention benefit, and for their water cleansing ability. This includes opposing any construction on sound or estuarine islands, and opposition to marinas and mooring fields. The Town supports state regulations {15A NCAC 7H .0205 - .0208} which limit the use and disturbance of coastal wetlands.

2) **Inlet Hazard Area AEC** - These areas cover the lands next to ocean inlets. Inlet shorelines are especially vulnerable to erosion and flooding and can move over relatively short time periods. For each inlet along the coast, the Division of Coastal Management prepares a hazard area map. Each area is mapped based on a statistical analysis of inlet migration, previous inlet locations, narrow or low lands near the inlet, and the influence of man-made features, such as jetties and channelization projects.

> **Inlet Hazards in Caswell Beach**
> There is one inlet hazard area in the vicinity of Caswell Beach, but this area is in the Baptist Assembly area and not part of the Town's jurisdiction. If the Baptist Assembly property is sold, the Town will have extraterritorial jurisdiction over the area. This inlet area is also at the mouth of the Cape Fear River, and likely has a high priority for remaining intact or at least not impeding to river traffic. See the Areas of Environmental Concern Map [Map 1] for visual depiction.

If the Town does assume planning jurisdiction over the Baptist Assembly area in the future, because of the dynamic and constant movement associated with inlet hazard areas, dense or large-scale development (such as multi-family or buildings in excess of 5,000 total square feet) should be

discouraged or not allowed by the Town in an inlet hazard area. Examples of dangers from moving inlets to development can be seen in communities such as Ocean Isle Beach, Wrightsville Beach and North Topsail Beach.

3) **Estuary Waters and Estuarine Shoreline AEC** - Estuarine Waters are oceans, sounds, and tidal rivers and creeks (including the ICWW), which link to the other parts of the estuarine system: public trust areas, coastal wetlands and coastal shorelines. Estuarine waters are public trust areas and may be used by the public if the waters are "navigable" (can float a canoe at high tide).

Estuarine Shorelines include all lands within 75 feet of the normal high water level of estuarine waters. Development in this 75 foot "zone" must not cover more than 30% of the area with impervious surface. Along Outstanding Resource Waters (ORW), this definition includes lands within 575 feet of the normal high water level. There are no ORW waters in the Town's planning jurisdiction.

Estuarine Shoreline in Caswell Beach

The estuarine shoreline AEC in Caswell Beach extends 75 feet landward from the mean high water line of all the shoreline of the Intracoastal Waterway, and all the navigable creeks in the coastal wetlands surrounding the Caswell Beach island (See the Areas of Environmental Concern Map [Map 1] for the location of estuarine waters in the planning jurisdiction). Any development in this 75-foot "zone" must not cover more than 30% of the area with impervious surface, and development within 30' of the high-water line must be water dependent (i.e. dock, pier, etc.). A minimum vegetated buffer of 30 feet must also be maintained. Caswell Beach also enforces a "line of sight" ordinance which prohibits structures from being built closer to waterfront than the adjacent properties. In certain cases this may exceed the states setbacks from estuarine waters, at minimum it will meet the state requirements. Along the estuarine water tidal creeks associated with the Intracoastal Waterway, existing zoning allows single-family homes (R-20 SF) along Piney Point Creek on the north side of the island, and the marsh and spoil system between the island and the ICWW is zoned Conservation. Existing zoning along the Progress Energy canal, which is not classified as an estuarine waterbody, is multi-family zoned R-20 MF . There are areas along Caswell Beach Road that are "marshfront" and are not within 75 feet of estuarine waters, these areas must follow coastal wetland development regulations. These marshfront areas are zoned for single-family (R-8 SF). Oceanfront lots follow Ocean Erodible Setback regulations and not estuarine shoreline setbacks (See following).

Town Policy in the existing Land Use Plan states that the Town opposes the construction of bulkheads in all conservation areas including ocean hazard areas and estuarine shorelines which would prohibit migrating shorelines, this includes bulkhead construction behind coastal wetlands.

4) Ocean Erodible Area Setbacks AEC – This area covers beaches and any other oceanfront lands that are subject to long-term erosion and significant shoreline changes. The landward limit of this AEC required setback is measured from the first line of stable natural vegetation. The first line of stable natural vegetation is the area on the oceanfront beach where natural dune-stabilizing plants are present. Such plants include sea oats and American beachgrass.

The Ocean Erodible Area Setback AEC is determined by adding:

- a distance equal to 30 feet (for small structures)* or 60 feet (for large structures)* times the long-term average annual erosion rate for that stretch of shoreline.

*Small structures include single-family homes and other units under 5,000 square feet of total area. Large structures generally include multi-family and commercial uses which are 5,000 square feet or more in total area.

Ocean Erodible Setback Area in Caswell Beach

Caswell Beach has a widely varying erosion rate along its three miles of beach strand. The erosion rate was last determined in 1998, and requires a time-lapse study to be performed before it is updated. Shoreline and beach preservation is a top priority of The Town of Caswell Beach. The Town's Mayor is President of the American Shore and Beach Preservation Association, and the Town has been implementing a Beach Preservation Plan since 2003 and annually measures the berm width (dry beach between high water mark and dune) of seven key erosion spots along the beach strand. The Town received beach nourishment as part of the Wilmington Harbor Project in 2001, which may have some effect on the erosion rate update process.

The seven measured locations are [See Map 1: Areas of Environmental Concern Map for site location and 1998 Erosion Rate Factor]:

- Bill Boyd Way (end of 100 block)
- Middle of 400 Block (did not receive nourishment from 2001 Wilm. Harbor Project)
- Middle of 600 block
- Public Beach (700 block)
- Tom Hess Way (800 block)
- Joe O'Brien Way (900 block)
- Beach Villas (100 Bldg)

The 2005 Annual State of the Beach Report shows that overall, except for an increase in 2003, the berm width of all the sites has been steadily decreasing, most notably since 2004. The Report also states that the actual berm width is also decreasing because the vegetated dune system is expanding seaward. In 2001, the berm width for the measured locations (except for the 400 Block area) generally ranged between 135 to 170 feet, by 2005 these measurements decreased to a range between 110 to 85 feet (for more information see the 2005 Annual State of the Beach Report at http://www.caswellbeach.org/DocumentCenterii.asp).

Existing zoning for the measured erosion sites is single-family (R-12), except for the Beach Villas site which is an existing multi-family complex and is currently zoned Business.

According to Brunswick County Tax Records, the 2006 assessed value for oceanfront structures, not including the "Beach Villa" multi-family structures, is $22,331,520. The total assessed value (land and structure) of these same properties is $100,008,660. This includes approximately 100 structures and around 3 vacant lots.

According to Brunswick County Tax Records, the 2006 assessed value for the 174 units in the "Beach Villa" multi-family complex located at 1000 Caswell Beach Road was $26,143,390 (does not include land value).

5) **Un-vegetated Beach Area AEC** – This area is the un-vegetated (sandy beach) portion of the main beach strand from the low tide level up to the fist line of stable vegetation.

6) **High Hazard Flood Area AEC-** (Combination of storm surge and flooding) – covers lands subject to flooding, high waves and heavy water currents during a major storm. These are the lands identified as coastal flood with velocity hazard, or "VE" zones," on the Town's official flood insurance rate maps (FIRMs). The high hazard flood AEC often overlaps with the ocean erodible and inlet hazard AECs.

High Hazard Flood Areas in Caswell Beach

Caswell Beach's high hazard flood area (VE Zone) encompasses roughly 75 acres or 21% of the "land area" in the planning jurisdiction (See Special Flood Hazards Area Map [Map 4]). This total includes essentially all the areas on the seaward side of Caswell Beach Road, with more inland encroachment over Caswell Beach Road in the eastern end of the island down by the Coast Guard Station and Baptist Assembly Area. As stated earlier, zoning in these areas are primarily single-family (R-12) (roughly 3.5 units per acre). The "Beach Villa" multi-family complex currently zoned for "Business", and some portions of land zoned for single-family (R-8) (roughly 5.4 units per acre) on the eastern end of the island are also within the VE zone. See table below for approximation of total home value in the planning jurisdiction within a VE zone.

Table 13: Number of Lots and Structure Value in VE Flood Zone

Source: Brunswick County Tax Data and Cape Fear Council of Governments GIS

Total Number of Lots	Total Value of Structure (does not include land)
142	$50.3 Million*

*Includes the total value of all the units in the "Beach Villas".

Caswell Beach is a participating community in the National Flood Insurance Program (NFIP) and enforces a Flood Damage Prevention Ordinance through its Administration/Building Inspections Department. The Flood Prevention Ordinance was adopted in the Spring of 2006 after completion of the North Carolina Floodplain Mapping Project for the Cape Fear River Basin.

7) **Public Trust Areas AEC** – These areas include the coastal waters and submerged lands (land underwater up to high water line) that belong to the "public" to use for activities such as boating, swimming or fishing. These areas often overlap and include estuarine waters. The following lands and waters are considered public trust areas:

- all waters of the Atlantic Ocean and the lands underneath, from the normal high water mark on shore to the state's official boundary three miles offshore;
- all navigable natural water bodies and the lands underneath, to the normal high watermark on shore (a body of water is considered navigable if you can float a canoe in it). 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.
- The unvegetated beach strand

Public Trust Areas in Caswell Beach
The public trust waters within or adjacent the Caswell Beach planning jurisdiction include the Atlantic Ocean, the Intracoastal Waterway, all the navigable creeks surrounding the Caswell Beach island, and coastal wetlands (if "navigable" at high tide).

4.1.1 Additional Natural Features and Environmental Conditions

Other natural features and environmental conditions in the Caswell Beach planning jurisdiction in addition to AECs are described below.

8) **Water Quality Classifications** - Definitions for Water Quality Classifications come from the NC Division of Water Quality (http://h2o.enr.state.nc.us/csu/swc.html). All surface waters in North Carolina are assigned a primary classification by the NC Division of Water Quality (DWQ). The tidal/salt water classifications that are applicable to the Caswell Beach planning jurisdiction are SA and SC.

SC - Surface waters that are used for primary recreation, including swimming, boating or fishing. Stormwater controls are required under CAMA and there are no categorical restrictions on discharges.

SA - Surface waters that can be used for shellfishing, and all SC uses. All SA waters are also HQW by definition. Stormwater controls are required under CAMA. No domestic discharges are permitted in these waters. Additional stormwater controls are effective July 1, 2007 under NPDES Phase II for lands that are within one-half mile of and drain to SA waters.

Regulations over SA waters
The North Carolina Sediment and Erosion Control Act has established additional design standards for "sensitive watersheds" which can be found in 15A NCAC 4B .0124 (http://www.dlr.enr.state.nc.us/images/sedimentrules.doc).

The Act applies to development activities that disturb one acre or more of land, and is generally intended to protect water quality during the construction stage. If a Sedimentation and Erosion Permit is required, a Stormwater Control Permit is also required. The Stormwater Permit is intended to protect water quality after the construction stage and through the life of the development. Stormwater permits allow either a low or high-density development option. In a low-density development, the amount of impervious surface is limited and vegetated buffers are required along shorelines. In a high-density development, impervious surfaces can be increased but engineered stormwater control systems (i.e. retention ponds) must be included to control runoff. The current Stormwater Permit rules can be found at 15A NCAC 2H .1000. As mentioned above, additional stormwater controls are effective July 1, 2007 under NPDES Phase II for lands that are within one-half mile of and drain to SA waters.

Caswell Beach Stormwater Quality Management and Discharge Control
The Town adopted a stormwater ordinance in 2005, which states in Section 154.06 that the preservation of water quality and protection against flooding are central environmental goals of the Town. To reach these goals, the Town adopted the ordinance to:

(A) Regulate new development, redevelopment, and other construction activities within the jurisdiction of the Town, consistent with federal, state and local requirements, and the town's environmental goals.

(B) Provide the structure for which the authority of the Town can administer and enforce stormwater quantity and quality regulations.

The ordinance applies to all single-family and duplex development and redevelopment, in addition to multi-family development. The ordinance requires Stormwater Management Plans and includes stormwater management practices such as:

- sediment and erosion control (regardless of lot size).
- vegetated buffer preservation and/or creation along all water bodies including wetlands.
- provide stormwater management practices which can provide adequate retention and infiltration of the first one and one half inches of rainfall.

Water Quality in Caswell Beach
Caswell Beach water quality classifications are primarily SA for the Intracoastal Waterway and all other waters surrounding the island, except for some tidal creeks classified SC (See Water Quality Characteristics Map [Map 2]). However, all of the SA waters are closed to shellfishing.

According to the 2005 Cape Fear River Basin Water Quality Plan, the following Creeks located in sub-basin 03-06-17 and intersecting the Town of Caswell Beach planning jurisdiction are impaired (i.e. closed) to shellfish harvesting and will be placed on the state's 303 (d) list of impaired waters. Waters on the 303 (d) list are supposed to have Total Maximum Daily Load (TMDL) limits on the pollutants that are causing the impairment. The 2005 Cape Fear Basin Plan states that TMDL requirements will take 8 to 12 years to develop (from 2005). Those creeks which are on the 303 (d) list and found wholly or partly within the jurisdiction of Caswell Beach include:

Dutchman Creek, Dutchman Creek Outlet Channel and Dutchman Creek Shellfish Area

Dutchman Creek, the Outlet Channel and Shellfish Area around the ICWW (192 acres) are Impaired for shellfish harvesting because these segments are classified by the Department of Environmental Heath, Shellfish Sanitation Branch as exceeding standards for fecal coliform (bacteria found in the waste of warm blooded animals, sources include septics, wastewater plants, and pets).

Elizabeth River, Elizabeth River Shellfishing Area and Molasses Creek Shellfish Area

Elizabeth River, Shellfish Area and Molasses Creek south of the ICWW (290.1 acres) are Impaired for shellfish harvesting because these segments are exceeding standards for fecal coliform.

Dennis Creek and Piney Point Creek

Dennis Creek and Piney Point Creek south of the ICWW (45.7 acres) are Impaired for shellfish Harvesting because these segments are exceeding standards for fecal coliform.

Coward Creek

Coward Creek from source to the Cape Fear River (5.9 acres) is Impaired for shellfish harvesting because this segment is exceeding standards for fecal coliform.

Policy in the Town's existing CAMA Land Use Plan states that the Town supports the preservation of water quality in its estuarine and public trust waters. Town policy is also to work with the North Carolina Division of Water Quality to identify and reduce or eliminate the sources of pollution to area surface waters. The Town of Caswell Beach has begun or will undertake certain activities that should reduce or stabilize the contributing factors to the surface water quality problems in the jurisdiction. Those activities include:

- replacing septic systems with centralized sewer.
- requiring stormwater runoff controls and vegetative buffer and/or BMP standards for new developments and substantial redevelopments.
- Providing education and outreach to homeowners on the effects of stormwater runoff and how to prevent/minimize discharging pollutants on their property (i.e. resource guides on the Town website, and public workshops).

9) **Special Flood Hazard Areas (SFHA or 100-yr flood zones)** - The SFHA is defined as an area of land that would be inundated by a flood having a 1% chance of occurring in any given year (previously referred to as the base flood or 100-year flood).

The Special Flood Hazard Areas in the Caswell Beach jurisdiction include the following two flood zones:

AE - Zone AE is the flood insurance rate zone that correspond to the 100-year floodplains that are determined in a Flood Insurance Study by FEMA.

VE - Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with wave action caused by storm events.

Flood Zones in Caswell Beach

According to the 2006 NC Floodplain Mapping Program information, the 100-yr flood zones in the Caswell Beach planning jurisdiction are AE and VE. 82% of the Town "land area" is within either the VE or AE zone. The VE zone accounts for a little over 21% of that total. The AE zone encompasses 218 acres or 61% of the 360 acres of "land area" in the planning jurisdiction (See Special Flood Hazards Area Map [Map 4]). See table below for information on the number of lots and home value intersecting the Special Flood Hazard Areas (AE and VE).

Table 14: Number of Lots in SFHA Flood Zones

Source: Brunswick County Tax Data and Cape Fear Council of Governments GIS

Flood Zone	Total Number of Lots (Approximately)	Total Value of Homes (does not include land)
VE	142	$50.3 Million*
AE	295	$34.5 Million

*Includes the total value of all the units in the "Beach Villas".

Caswell Beach is a participating community in the National Flood Insurance Program (NFIP) and enforces a Flood Damage Prevention Ordinance through its Administration/Building Inspections Department. The Flood Prevention Ordinance was adopted in the Spring of 2006 after completion of the North Carolina Floodplain Mapping Program for the Cape Fear River Basin. According to historical NFIP claims data from 1978 to 2006, Caswell Beach has one of the lowest damage claim and damage payout levels for all "North Carolina communities with a beach strand" (see the table following for comparison). See policy 44 on page 112 pertaining to mitigation strategies regarding flood zones in Caswell Beach identified in the town's Hazard Mitigation Plan.

Table 15: NFIP Claims and Payments Among North Carolina Municipalities with a Beach

Municipality	Total Claims* (1978-2006)	Total Payments (1978-2006)
Atlantic Beach	623	$ 3,174,239.90
Bald Head Island	293	$ 2,001,376.87
Brunswick County (Unincorporated Areas)	346	$ 3,751,602.87
Carolina Beach	2,338	$ 30,399,551.88
Caswell Beach	**129**	**$ 634,111.94**
Emerald Isle	1,330	$ 7,577,616.07
Holden Beach	2,023	$ 11,405,465.37
Indian Beach	24	$ 69,021.26
Kill Devil Hills	1,259	$ 10,237,411.04
Kitty Hawk	947	$ 9,828,751.89
Kure Beach	472	$ 14,984,255.11
Nags Head	2,226	$ 21,671,368.28
North Topsail Beach	1,149	$ 12,088,871.35
Oak Island	2,168	$ 18,844,246.53
Ocean Isle Beach	1,534	$ 7,252,406.86
Pine Knoll Shores	231	$ 866,974.44
Sunset Beach	212	$ 292,587.00
Surf City	1,732	$ 15,238,558.78
Topsail Beach	2,134	$ 21,090,817.22
Wrightsville Beach	3,112	$ 45,468,942.76
Caswell Beach Rank	**2nd Lowest**	**3rd Lowest**

* Loss claims are for damages in excess of 25-50% of the property value

10) **Hurricane Storm Surge Innundation Area (Fast Moving Storm)** –
The National Hurricane Center, in cooperation with the North Carolina Center for Geographic Information and Analysis, developed the GIS data set, "Hurricane Storm Surge Inundation Areas (1993)", to reevaluate the extent of the areas affected by hurricane inundation along the North Carolina coast. The data shows the extent of hurricane storm surge inundation based on the SLOSH (Sea, Lake, and Overland Surges from Hurricanes) models, for the North Carolina coast. The FAST model, used for Caswell Beach Maps and statistics, depicts hurricanes with forward velocities greater than 15mph (See Storm Surge Inundation Map [Map 5]).

Storm surge is water that is pushed toward the shore by the force of the winds swirling around the storm. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level 15 feet or more. In addition, wind driven waves are superimposed on the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with the normal high tides. The storm surge inundation area data used for the planning jurisdiction is based on the SLOSH Model developed by NOAA's National Weather Service.

Storm Surge Inundation in Caswell Beach
In Caswell Beach, which has a peak elevation of 20 to 25 feet, the entire Town is expected to be inundated during a Category 4 or 5 Hurricane. Eighty-three percent of the total "land area" in the planning jurisdiction is likely to be innundated during a Category 1 or 2 hurricane and 98% in a Category 3 hurricane. (See Storm Surge Inundation Map [Map 5]).

11) Non-coastal wetlands/propable 404 wetlands (NC-CREWS) –
Section 404 of the Federal Water Pollution Control Act ("the Clean Water Act") defines wetlands as "areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted to life in saturated soil conditions."

"Any person, firm, or agency (including Federal, state, and local government agencies) planning to work in navigable waters of the United States, or discharge (dump, place, deposit) dredged or fill material in waters of the United States, including wetlands, must first obtain a permit from the Army Corps of Engineers (ACOE)". If an activity requires an ACOE '404' permit, the state of North Carolina requires that a '401' water quality certification be obtained as well. The '401' certification is basically a verification by the state that a given project will not degrade waters of the State or otherwise violate water quality standards.

The North Carolina Coastal Region Evaluation of Wetland Significance, or NC-CREWS, is a watershed-based wetlands assessment model that assesses the level of water quality, wildlife habitat, and hydrologic functions of individual wetlands. The primary objective of the NC-CREWS wetland functional assessment is to provide local government planners with information about the relative ecological importance of wetlands for use in land use planning and the overall management of wetlands. NC-CREWS produces 3 possible overall wetland rating scores: Exceptional Significance, Substantial Significance, or Beneficial Significance. NC-CREWS also evaluates the potential risk to watershed integrity if identified wetlands were "lost" due to filling or draining.

Non-Coastal Wetlands identified as NC –CREWS in CaswellBeach
The types of non-coastal wetlands located in the Caswell Beach planning jurisdiction are:

- Estuarine Shrub Scrub (9 acres)
- Depressional Swamp Forest (8 acres)
- Managed Pineland (4 acres)

The bulk of the above wetlands are located along the inland water bodies and fringes of the Oak Island Golf Course. The Estuarine Shrub Scrub wetlands are found along the fringes of the coastal wetlands near the Coast Guard Station. (See The North Carolina Coastal Resource Evaluation of Wetland Systems NC-CREWS Map [Map 6]).

While most of these types of wetlands will be regulated by the Army Corps of Engineers 404 Permitting Unit and the State's 401 Water Quality Certification Program, the Town of Caswell Beach can help protect these areas by not allowing future re-zonings to a more dense use in areas where theses wetlands may be present.

A description of the types of wetlands found in the planning jurisdiction are below.

Estuarine shrub scrub - Any shrub/scrub vegetation dominated habitat subject to occasional flooding by tides, including wind tides (whether or not the tidewaters reach the marshland areas through natural or artificial watercourses).

Managed Pinelands - Seasonally saturated, managed pine forests occurring on hydric soils. This wetland category may also contain non-managed pine forests occurring on hydric soils. Generally these are areas that were not shown on National Wetland Inventory maps. These areas may or may not be jurisdictional wetlands.

Depressional Swamp Forest – Non-riverine forested or shrub/scrub habitat that are temporarily flooded.

For more information on wetland types go to:
http://www.nccoastalmanagement.net/Wetlands/WTYPEMAPDOC.pdf

12) **Fish Nursery Areas** - Salt marshes and estuaries (salt and freshwater mix) along our coast serve as nursery grounds for 90 percent of our fisheries.

Primary Nursery Areas are located in the upper portions of creeks and bays. These areas are usually shallow with soft muddy bottoms and surrounded by marshes and wetlands. Lower salinity and the abundance of food in these areas are ideal for young fish and shellfish. To protect juveniles, many commercial fishing activities are prohibited in these waters; including the use of trawl nets, seine nets, dredges or any mechanical methods used for taking clams or oysters. Marina activities that will require new dredging activities are not allowed in Primary Nursery Areas.

Existing Town Policy found in the current CAMA Land Use Plan states that the Town opposes marina and mooring field development. As mentioned above, these two uses may negatively impact fish nursery areas.

Fish Nursery Areas in Caswell Beach
There are 80,144 acres designated as Primary Nursery Areas in North Carolina, the Caswell Beach planning jurisdiction contains 1,022 acres or about 1.3% of the state's total. See the Primary Nursery Areas and Significant Natural Heritage Areas Map [Map 7] for fish nursery area locations.

The Division of Marine Fisheries prohibits **new** dredging in waters classified as Primary Fish Nursery areas. Areas where dredging has occurred in the past is grandfathered and allowable with conditions. The new dredging prohibition includes any activity including piers, docks and marinas. As with 404 wetlands, a final site survey is necessary for verification of the area's environmental condition (e.g. whether the exact site is a functional Primary Nursery or not).

13) **Environmentally Fragile Areas (Significant Natural Heritage Areas)** - Significant Natural Heritage Areas (SNHA) are areas identifying sites (land or water) that have special environmental significance. A site's significance may be due to the presence of rare species, rare or high quality natural habitat, or other important ecological features.

Significant Natural Heritage Areas (SNHA) in Caswell Beach

Fort Caswell Dune and Marsh System

Fort Caswell Dune and Marsh System (1,096 acs. in Town jurisdiction) is located on the eastern side of the island and is considered a Significant Natural Heritage Area by the North Carolina Natural Heritage Program. The area consists of several rows of dunes at Fort Caswell, plus extensive salt marshes at the backside of Caswell Beach. The lawns and developed areas at the fort are excluded. Many rare plants grow on the dunes. Loggerhead sea turtles and rare green turtles use the beaches for nesting. Part of the site is protected as part of a conservation easement with the North Carolina Coastal Land Trust, the remainder is privately owned. See the Primary Nursery Areas and Significant Natural Heritage Areas Map [Map 7]

Lower Cape Fear Aquatic Habitat

Lower Cape Fear Aquatic Habitat (544 acs. in Town jurisdiction) is located in the marsh and estuary waters towards the Intracoastal Waterway and Cape Fear River in the easternmost portion of the Town limits. Habitat includes the open, estuarine, tidal waters of the lower Cape Fear River and its tributaries. These waters support the Federal and State Endangered manatee and shortnose sturgeon, as well as the State Threatened American alligator. Four estuarine fish species that are considered Significantly Rare also occur in this area. The site is owned by the State as public waters. See the Primary Nursery Areas and Significant Natural Heritage Areas Map [Map 7].

14) **Closed Shellfishing Areas** –Closed shellfish areas are areas where shellfish harvesting is prohibited by law due to unsafe levels of pollutants caused by conditions such as wastewater discharge and non-point source stormwater run-off containing fecal coliform bacteria.

Closed Shellfishing Areas in Caswell Beach

Within the planning jurisdiction of Caswell Beach, all waters are classified closed to shellfishing (See #8 "Water Quality" in this Section for more description on water quality in the planning jurisdiction). Also See the Water Quality Characteristics Map [Map 2]. The Shellfish Growing Areas Map [Map 13] displays shellfishing growing areas surrounding Caswell Beach.

15) **Soils** – Soils are a natural feature that can impact the environment and quality of life in the jurisdiction due to their suitability or lack thereof for septic systems or other ground infusion of wastewater. Currently, the main wastewater treatment method in Town is privately owned package treatment plants and individual septic systems. Both of these wastewater treatment methods utilize infusion of treated waste into the soil. As shown in the Soils with Septic Limitations Map [Map 3], the entire "land area" in Town consists of soils, which have severe limitations to septic or other infusion system use. The Town is in the process of implementing a centralized sewer system and decommissioning septics and package treatment plants. See Section 6: Community Facilities Analysis for more information on the wastewater treatment systems in Town.

4.2 Natural Features and Environmental Conditions Inventory

The information on natural features and environmental conditions in the table below was gathered by the Cape Fear Council of Governments through geo-processing and summarization of geographic data using geographic information systems (GIS). The majority of spatial (geographic) data used in this Land Use Plan was provided by the North Carolina Center for Geographic Information and Analysis and the Division of Coastal Management.

The table below has similar information to what was just discussed in Section 4.1 and 4.1.1, it is just presented in table format for quicker viewing.

NOTE: These acreage calculations are derived from generalized data and are for general planning and informational purposes only.

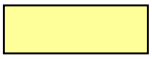
Table 16: Natural Features Inventory

	Acres in Corporate Limits	Comments
Total Area in Planning Jurisdiction	Approx. 2,591	Source: County GIS Corporate Limits Data and Town of Caswell Beach Jurisdiction Data
"Land above MHW" "Water/Wet Marsh/Spoils"	360 (or 14%) 2,231 (or 86%)	Totals are approximations using Aerial Photography and Soils Data to establish "dry land" versus "wet" areas.
Natural Features and Environmental Conditions	**Planning Jurisdiction (Town Limits and ETJ)**	**Comments**
Areas of Environmental Concern (AECs)		
Coastal wetlands	1,426	99.9% of wetland types are Salt/Brackish Marsh. (See Map 1)
Estuarine waters	510 SA; 86 SC;	SA = Surface waters that are used for shellfishing or marketing purposes, and all SC uses. SC = All tidal salt waters protected for secondary recreation such as fishing, boating and other activities involving minimal skin contact.
State, Federal or Institutional Protected Areas (land and marsh areas)	1,495	The State of North Carolina (533 acs.), the Corps of Engineers (413 acs), The Town of Caswell Beach (19 acs), and North Carolina Coastal Land Trust (530 acs) own portions of the extensive marsh system surrounding the Town.
High hazard flood area	See comment and flood and storm surge acreage	SFHA/100 Yr wave Velocity (VE) Flood areas and storm surge areas are considered High Hazard Flood Areas
Inlet hazard area (IHA)	N/A	IHA affects the Baptist Assembly, but no areas in the Town Limits.
Historic/Archaeological Area		
Land inside HD	N/A	Fort Caswell (Baptist Assembly area) has archaeological significance, but this is not within the Town's Jurisdiction.
Land w/in 500' of historic area	N/A	
Soils		
Severe Septic Limitations	Entire 360 acre "land area" in Jurisdiction	The entire "land area" jurisdiction has severe septic limitations due to soils (i.e. ponding, poor filter, wetness).

Natural Features and Environmental Conditions	Planning Jurisdiction (Town Limits and ETJ)	Comments
Non-coastal wetlands (CREWS)		Wetlands not classified as "coastal wetlands", but have hydric soils and/or land cover conducive to wetlands.
Exceptional significance, high potential risk to watershed quality if lost	N/A	
Exceptional significance, not high potential risk to watershed if lost	9 acs. Estuarine Shrub Scrub; 7 acs. Depressional Swamp Forest; 1 ac.	
Substantial significance, high potential risk to watershed quality if lost	N/A	
Substantial significance, not high potential risk to watershed if lost	1 ac. Depressional Swamp Forest; 4 acs. Managed pineland	
Beneficial, high potential risk	N/A	
Beneficial, not high potential risk	N/A	
Natural Hazards		
Within 100-yr flood	218 acs. or 61% of the land area in Town is in the (AE) zone; 75 acs. or 21% of the planning jurisdiction is in the (VE) zone.	AE and VE zones are considered to be Special Flood Hazard Areas (SFHA). See Map 4.
Inundated by Hurricane Storm Surge	**297** acres or 83% of the "land area" in Town are inundated in a Category 1 & 2 hurricane. In addition to the 297 acs. from the Cat. 1 &2, another **54** acres of the planning jurisdiction would be inundated during a Category 3 hurricane. For a total of 351 acres or 98% of the "land area". In addition to the 351 from the Cat. 3, another **9** acres or 100% of the "land area" in Town are modeled to be inundated during a Category 4 & 5 hurricane.	Fast Moving Hurricane Model used to calculate inundation acreage. See Map 5 for inundation areas.
Hazardous Substance Disposal Site	N/A	
NPDES	N/A	
Water Quality		
HQW/ORW watershed (drainage basin)	See Comment	The entire planning jurisdiction (except for westernmost portion) drains to SA waters.
Water supply protection watersheds	N/A	
Significant Natural Heritage Area	1,640	1,096 acs of "Fort Caswell Dunes and Marshes", some of this privately owned but much is state or federally owned. 544 acres of "Lower Cape Fear Aquatic Habitat", publicly owned as public trust waters.
Fish Nursery Areas	1,022 (out of approx. 2,230 acres of marsh/water in jurisdiction)	All fish nursery areas in the planning jurisdiction are PRIMARY fish nursery areas.
Closed Shellfishing Areas	1,111 (essentially all waters within the jurisdiction)	See Map 2.

4.3 The Environmental Composite Map

The environmental composite refers to the geographic extent and overlap of the natural features and environmental conditions described previously in this section. The Environmental Composite Map categorizes the area of the planning jurisdiction into three classes of land based on the land's suitability for various types of development. The "Class" a particular area of the jurisdiction is in is based on the extent and the characteristics of natural features and conditions present in that particular area. For example, land in the flood zone will be in a "Class" that has limited or restricted development suitability. Table 1 below shows the three general but distinct classes of land established for the composite map. The table also identifies the natural features and environmental conditions that determine which "Class" the area will be placed. See Map 8: Environmental Composite Map.

Environmental Class	Mapping Symbol (Graduated Color Scale)	Natural Features and Hazards Constraints
Class I – Land containing only minimal hazards and having only slight limitations that may be addressed by sound land planning and development practices		-Non-wetland area or wetland rated beneficial and not high potential risk (NC-CREWS) -Land located outside 100 year flood hazard area -Land located outside storm surge area
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 provision of public services		-Estuarine shoreline -High hazard flood area -Soils with moderate to severe septic limitations -Soils with moderate to severe erosion hazards - Non-coastal wetland area rated beneficial and high potential risk or substantial significance (NC-CREWS) -Land located within a 100 year flood hazard area -Land located within storm surge area
Class III – Land containing serious hazards for development or lands where the impacts of development would cause serious damage to the values of natural systems		-Coastal Wetland -Estuarine Waters -Public Trust/Protected lands -Unvegetated beach area -Non-coastal wetlands rated as substantial significance with high potential risk or exceptional significance with or without high potential risk (NC-CREWS) -Significant Natural Heritage Area -Inlet Hazard area

4.4 Land Suitability Analysis

The land suitability analysis is a CAMA required process for estimating the supply of land in the planning area that is suitable for development. The supply of land and its suitability rating is depicted in the Land Suitability Analysis Map (See Map 10). The overall purpose of the analysis is to provide the local planning team with information on the apparent best and least suited areas for development in order to guide the formulation of policies. The supply of land in the analysis primarily refers to actual undeveloped land which may experience future development, but all land in the planning jurisdiction was evaluated whether developed or undeveloped. Therefore, for the purposes of describing the suitability process, we will from now on primarily refer to the evaluation of land, as the evaluation of undeveloped land. As a result of the overall analysis process, the undeveloped land was rated based on the degree to which it was suitable for future development. The rating system for the analysis is based on the Division of Coastal Management's recommended weights for each factor (See the Table following). The suitability ratings for undeveloped fall into one of four categories ranging from Least Suitable for Development, Low Suitability, Medium Suitability, and Highly Suited for Development

The suitability rating is based on several 'factors' that may exist on or near the undeveloped land which would affect its overall suitability. For example, consider an acre of undeveloped land which has access to water and sewer infrastructure (a positive 'factor' for development suitability), but also has a wetland area present (a negative 'factor' for development suitability), therefore the overall rating of this land would probably be medium suitability. This example was a simplification however, and each acre of undeveloped land was evaluated based on a number of 'factors' in addition to the 'factors' of access to water and sewer, or presence of a wetland.

It is important to note that the coastal wetland, exceptional and substantial wetland, estuarine water, protected lands, and state and federal land factors were automatically categorized as least suited for development and were excluded from Town ranking. Also note that for the purposes of measuring suitability across different areas or pieces of land, the land of the planning jurisdiction was divided into one-acre grid cells. Each one-acre grid cell was measured for suitability based on the totality of 'factors' affecting it.

Some of the 'factors' used to evaluate undeveloped land are generalized below:

- The presence or lack thereof of all the natural features characteristics that were included in the *Environmental Composite Map*
- Proximity to existing development and man-made features (whether services are near and other development has occurred in proximity)
- Compatibility with nearby existing land uses (proximity or presence of negative uses such as NPDES site or WWTP, etc. to the undeveloped land)
- Potential impact of development on historically, culturally significant, or scenic Sites (proximity or presence of such features to the undeveloped land)
- Availability and capacity of community facilities (proximity of the undeveloped land to existing water and sewer, roads, and other adequately supporting infrastructure)
- Regulatory restrictions on land development (whether the undeveloped land is owned or restricted from development by local, state, or federal governments)

The following table shows the natural feature "factors" found in the planning jurisdiction and its ranked importance for being suitable for development.

Factor Name		Least Suitable	Low Suitability	Medium Suitability	High Suitability	Assigned Weight (1, 2 or 3)
Coastal Wetlands	Exclusion	An Area Inside		An Area Outside		Not Ranked
Exceptional and Substantial Noncoastal Wetlands	Exclusion	An Area Inside		An Area Outside		Not Ranked
Estuarine Waters	Exclusion	An Area Inside		An Area Outside		Not Ranked
Protected Lands	Exclusion	An Area Inside		An Area Outside		Not Ranked
Federal Lands		An Area Inside		An Area Outside		Not Ranked
State Lands		An Area Inside		An Area Outside		Not Ranked
Beneficial Noncoastal Wetlands	Weighted		An Area Inside		An Area Outside	1
High Quality Waters			An Area Inside		An Area Outside	1
Storm Surge Areas	Weighted		An Area Inside		An Area Outside	2
100 Yr Flood Zones	Weighted		An Area Inside		An Area Outside	2
Significant Natural Heritage Areas	Weighted		Area < 500' from		Area > 500' from	2
Hazardous Substance Disposal Sites (N/A)	Weighted		Area < 500' from		Area > 500' from	1
NPDES Sites (N/A)	Weighted		Area < 500' from		Area > 500' from	1
Wastewater Treatment Plants	Weighted		Area < 500' from		Area > 500' from	1
Developed Land	Weighted		Area > 1 mi from	.5 - 1 mi	< .5 mi	1
Primary Roads	Weighted		Area > 1 mi from	.5 - 1 mi	< .5 mi	2
Water Pipes	Weighted		Area > .5 mi from	.25 - .5 mi	< .25 mi	3
Sewer Pipes (N/A)	Weighted		Area > .5 mi from	.25 - .5 mi	< .25 mi	3
Assigned Weight: 1 = Important 2 = Very important 3 = Highest importance for development						

Section 5. Existing Land Use Analysis

Introduction

This section provides the local elected officials, appointed boards, citizens and local planning staff with an overall 'picture' of the existing land use patterns in the planning jurisdiction. An assessment of these patterns, and the identification of available areas for development and/or redevelopment, helps in forecasting where, what type and how much development will and can occur. Part of the planning and policy forming process in this Land Use Plan will be to determine whether the forecasted types and quantities of development are consistent with the Town's desired vision for growth.

While the platted lots in the Town of Caswell Beach have almost all been developed, there do remain land and structures which have the potential for redevelopment. In particular, the portion of the Oak Island Golf Course residing in the Town's planning jurisdiction has the potential for future redevelopment to a different use. The Town has stated its desire to maintain the functioning of the golf course in its existing state. The golf course area is a top issue in the Town because the acreage of the golf course makes up approximately 1/4th of the total contiguous land area in Caswell Beach. Furthermore, the presence of the golf course and its recreational and open space amenities contributes significantly to the quality of life and existing property values for residents and property owners. Other forms of redevelopment that may occur in Town include the demolition or removal of homes approaching 30 or more years in age being replaced with homes more likely to be built to the maximum allowable dimensions under the Town's development ordinances (i.e. zoning). Typically, this is more common along the beachfront properties where the smaller and older "beach box" homes may be replaced with homes that have additional bedrooms and square footage to accommodate more seasonal occupants. There can be both positives (i.e. improved building standards and tax base) and negatives (i.e. visual barriers and infrastructure demand) with this form of redevelopment. It will be up to the Town of Caswell Beach to establish policy in this Land Use Plan as to how such redevelopment should be managed, and to what extent it should be encouraged or discouraged.

Other information in this Section includes identifying current and potential land use conflicts, such as residential uses in close proximity to environmentally sensitive areas (i.e. eroding beaches or coastal wetlands). This section will also identify areas in transition where new development is expected, and areas where in-fill or redevelopment are feasible and/or desirable. As previously mentioned, new development is limited in Town due to near build-out of the platted land. However, information and maps are still provided to show the location and extent of the vacant lots where new development is expected. Most importantly, the information in this Section is intended to assist in establishing the Town's Future Land Use Map, which will visually depict the types, densities and locations of desired future land-uses in Town. In other words, the Future Land Use Map will resemble a zoning map for the near future. However, it is important to note that the Future Land Use Map will not have the regulatory authority of a zoning map, rather, it is intended to be a planning and guidance tool to use when making adjustments to the Official Zoning Map and Ordinance over the next 5 to 10 years.

More specifically, information found in this Section includes:

- An explanation of land use related terms, and an explanation of the creation of the existing land use analysis and maps;
- Tables listing existing land use statistics throughout the planning jurisdiction and in key adjacent areas;

- Graphics and maps showing the existing land use and the "vacant" land areas by Zoning District;
- Identification of significant land use compatibility problems;
- Identification of areas experiencing or likely to experience changes in the existing predominant land uses;
- Identification of areas expected to develop or redevelop in the next 5 to 10 years; and
- Identification of significant land use effects on surface water quality.

Definitions of Land Use Related Terms

The following are definitions of terms used to describe the types of structures and land-uses discussed in this Section. Where available, definitions were taken from Section 153.002 of the Caswell Beach Zoning Ordinance in order to remain consistent with Town standards. The Town defined terms are labeled with asterisks*. Other common terms used in this Section, that are not defined in the Town's Zoning Ordinance, come from common use of the terms in planning and real estate.

Dwelling – a building or portion thereof designed, arranged or used for permanent living quarters for one or more families. Dwellings do not include motel/hotels.

Single Family Dwelling * - A detached permanent building designed for or occupied exclusively by one family.

Single-Family Attached (Townhouse)- a single-family unit constructed in a series or group of attached units with property lines separating the units and each unit having its own parcel.

Duplex - a building, designed for two single-family dwelling units, divided horizontally or vertically sharing a single parcel.

Multi-Family- a building with three or more separate dwelling units which may share means of egress and ingress, other facilities and located on a single parcel.

Condominium (common land ownership) - A real estate project with a type of ownership that enables a person to own an apartment or house in a project of similar units. The owner has his/her own deed and, most likely, his/her own mortgage on the unit. Each unit owner has title to their unit, an undivided interest in the common areas of the project, and sometimes the exclusive use of certain limited common areas. Ownership of a unit may cover single-family houses, including row houses and townhouses, as well as multi-family apartments.

Common Area – an area which is mutually owned and for the private use of residents within a development. Usually found as open land around a multi-family development which individual residents can use in lieu of having a private yard.

Common Open Space* - A parcel/parcels of land or an area of water or a combination of both land and water within the site designated for a planned development, a cluster development, or a one-family attached dwelling development, designed and intended for the use of residents of the proposed development. Common Open space shall be substantially free of structures but may include some improvements if approved.

Parcel – a single tract or lot with an official boundary established, usually for the purpose of designating ownership.

Tract –a single piece of land that has not been subdivided, but is typically large enough to be subdivided.

Lot* - A parcel of land occupied by one main building or use, with its accessories and including the open spaces accessory to it.

Plat* – A map showing the property boundaries of land subdivided into plots/lots, blocks and streets from a larger tract.

Building Height*- The vertical distance from the mean elevation of the finished grade along the front of the building to the highest point of a flat roof, or to the deck line of the mansard roof, or to the mean height level between eaves and ridge for gable, hip and gambrel roofs. The vertical distance shall not exceed the higher of:

a) 26 feet above the Regulatory Flood Protection Elevation; or
b) 35 feet above the mean elevation

Gable - The upper portion of a sidewall that comes to a triangular point at the ridge of a sloping roof.

Gable roof - A type of roof containing sloping planes of the same pitch on each side of the ridge. Contains a gable at each end.

Gambrel roof -A type of roof containing two sloping planes of different pitch on each side of the ridge. The lower plane has a steeper slope than the upper. Contains a gable at each end.

Hip roof -A type of roof containing sloping planes of the same pitch on each of four sides. Contains no gables.

Mansard roof - A type of roof containing two sloping planes of different pitch on each of four sides. The lower plane has a much steeper pitch than the upper, often approaching vertical. Contains no gables.

Source of Existing Land Use Analysis and Map

The Existing Land Use Map and associated analysis and tables were created by the Cape Fear Council of Governments using Brunswick County Tax Records updated on July 2006, Brunswick County on-line property records search updated November 2006, full-color orthophotos (map quality aerial photos) taken in the winter of 2004, and a windshield survey conducted on November 2nd, 2006.

Creation of the Existing Land Use Map

The Existing Land Use Map shows the primary land use identified on each parcel in the planning jurisdiction. For example, there are two parcels used for the Oak Island Golf Course, these parcels are

therefore classified as having an existing "golf course use". Parcels that are undeveloped and are likely to be developed are classified as having a "vacant" existing use. Parcels classified with a "Residential" land-use were further broken-down by their existing residential housing type, and are shown on the Map by the type of housing found on each parcel, such as single-family. Parcels classified as "Likely Undevelopable" are designated as such due to their location along the erodible beachfront and under the setback requirements from the vegetated dune line. Parcels classified as "Vacant/Common Area" are parcels that are currently undeveloped and are more or less suited for development, but are currently in common ownership and may have deed restrictions or open space requirements precluding any future development.

5.1 Existing Land Use in the Planning Jurisdiction

Table 17 below re-caps the land, water and size characteristics of the planning jurisdiction, which was previously discussed in Section 4. Table 17 shows there are 2,591 acres in the entire planning jurisdiction (Town Limits), and approximately 360 acres of that total are "above the mean high water (MHW) line", meaning it is generally dry land and not inundated during high tide.

- Using the 360 acre total shows that approximately 14% of the planning jurisdiction is land [360 dry land acres divided by 2,591 total jurisdiction acres].

While there may be acreage of land above the MHW in the spoil and marsh islands between the mainland and the island, these areas were not included in the total because of their characterization as highly unsuitable for development due to low elevation, isolation from infrastructure and presence of coastal wetlands. Of the approximately 25 individual parcels in the "Water/Marsh/Spoil" category in Table 17, all but one were owned by either a state or federal agency, or a not-for-profit conservation group. More information on these parcels can be found in Section 4: Table 16, under "State, Federal or Institutionally Protected Areas".

The parcel count totals in Table 17 are for all parcels found within the planning jurisdiction. Some parcels and acreage included in the total are of road rights-of-way. These parcels were included because the intent is to calculate the gross total of land in the jurisdiction. Calculating the net total of "developable" land is a lengthy and difficult process, and could not be achieved unless each parcel was evaluated and factored for characteristics such as regulated wetlands, zoning setbacks, parking requirements, open space requirements, easements (private or public), planned rights-of way, and other variables that would factor into producing a net total of acres for developable land.

Table 17: Planning Jurisdiction Characteristics for Geography, Hydrography and Parcels
(Source: Cape Fear Council of Governments GIS, Brunswick County Tax Records)

Area	Parcels	Acreage (Approximations)
Total Area in Planning Jurisdiction	**550**	**2,591 (100%)**
"**Land (contiguous)** Above Mean High Water"	525*	**360** (or 14%)
"Water/Marsh/Spoil"	25**	2,231 (or 86%)

* This number includes all of the parcels with a portion of land within the parcel above MHW, a portion of the parcel still may also be Water/Marsh/Spoil.

** This number includes all of the parcels which are more or less completely marsh or spoil islands, or otherwise unattached to other adjacent dry land.

Land Uses Identified in the Planning Jurisdiction

The existing land uses in the planning jurisdiction include:

- **Residential**
    1. Single-Family Detached
    2. Single-Family Detached under common land ownership
    3. Single-Family Attached (Townhouse)
    4. Multi-Family
- **Commercial Recreation**
    1. Golf Course
    2. Golf Course Clubhouse with Food Service
- **Common Area/Recreation** (common area with an existing recreational structure or facility)
- **Vacant/Common Area** (undeveloped land, likely suitable for development but under common ownership with deed or open space restrictions)
- **Golf Course** (privately owned golf course, not part of a residential development and not under open space or deed restrictions)
- **Vacant** (undeveloped land, likely suitable for development)
- **Homeowners Association (HOA) Beach Access** (parcels under common ownership used as a beach accessway)
- **Town Owned** (used for public administration, public park, public access, or other public use)
- **Progress Energy Utility** (parcel owned by Progress Energy and used in conjunction with the nuclear powerplant in Southport)
- **Regional Public Access Site** (parcel used for beach public access with public parking and other facilities)
- **Wastewater Utilities** (private wastewater management facilities for the Ocean Greens development and Caswell Dunes development)
- **Drainage Easement** (parcels used for conveying water from adjacent roads and properties to area surface water bodies and retention ponds)
- **Likely Undevelopable** (parcels unlikely to be developed due to their location along the erodible beachfront and under the setback requirements from the vegetated dune line).
- **Road Rights-of-way**

The *Existing Land Use Table (*Table 18 following) shows the breakdown of the planning jurisdiction based on the identified land uses listed above. The three columns on the right of the table show a total number for either **parcels** (Column 2), **acres** (Column 3) or **percent of total parcels and acres** (Column 4) for each **land-use** (Column 1). For example, "Single-Family" in Row 1 shows that there are 312 total parcels in the entire jurisdiction being used for single-family detached residential housing, and the area within those parcels equals 95 acres.

Column 4 compares the number of parcels and acreage for each land-use to the total parcels and total acres in the jurisdiction to calculate the "percent of the total" [(e.g. 312 parcels of single-family detached divided by 512 total parcels = 61%) and (95 acres of single-family detached divided by 360 total land acres = 26.3%)].

Table 18: Existing Land-Use in the Planning Jurisdiction
(Source: Cape Fear Council of Governments GIS, Brunswick County Tax Records)

Land-Use *Column 1*	Parcels *Column 2*	Acres *Column 3*	Percent of Total "Land Area" Parcels/Acres *Column 4*
Single-Family (SF) Detached	312	95	61% / 26.3%
Single-Family Detached w/ common land ownership	5	6	1% / 2%
Townhome (SF Attached)	38	2.4	7% / 0.7%
Multi-Family (MF)*	27*	28.5	5% / 8%
Common/Area Recreation Facility	5	5	1% / 1%
Common Area/Vacant	14	22	3% / 6%
Golf Course	2	91	0.3% / 25.3%
Town Owned	7	12	1% / 3%
Progress Energy Utility	1	6**	0.2% / 2%
Regional Public Access Site	1	3	0.2% / 1%
HOA Beach Access	4	8	0.7% / 2.2%
Wastewater Utility	3	5	0.5% / 1%
Drainage Easement	6	1.4	1% / 0.4%
Vacant	89	32	17% / 9%
SUB-TOTAL	**514**		**100% / 88%**
Road Rights-of-Way		+/- 31	- / 9%
TOTAL	**514**	**360** (incl. Caswell Landing)	**97%** **(plus 3% below equals 100%)**
"Caswell Landing" Planned MF and SF Development	8+ (future)	12	- / 3%

* Only counts the number of parcels with a multi-family use, not the number of units in the multi-family structure.
**Progress Energy total property area is 82 acres. Only approximately 6 acres is contiguous "land".

Table 18 above shows that the largest single land use for the entire planning jurisdiction is for **"single-family detached"** housing occupying 26.3% of the total land area in the jurisdiction. **"Golf course"** related use is the second largest land use, occupying 25.3% of the land in the jurisdiction. **"Vacant"** land and road **"rights-of-way"** are tied for the third largest land use, occupying 9% of the total land area respectively, and accounting for 18% of the total land area combined. **"Multi-family"** residential housing is the fourth largest land use, representing 8% of the total land area. These five uses account for 77% of the total land use in the planning jurisdiction. There are no commercial uses in the planning jurisdiction other than the golf course and its associated clubhouse with restaurant and food service. There is a Zoning District designated as "Business" but it is already built-out with multi-family units, and no commercial uses are expected. Town Hall is also located in the "Business" Zoning District. There are no industrial uses in the planning jurisdiction. See Map 9, *Existing Land Use Map*, for a visual depiction of the locations of the land-uses listed in the table above.

Existing Land Use in Key Areas Adjacent to the Planning Jurisdiction

Areas also under consideration in this Land Use Plan, regarding existing and future land-use, are the Baptist Assembly at Fort Caswell, the Oak Island Lighthouse and property, the Oak Island Lighthouse Park, and the Coast Guard Station area. The Town of Caswell Beach has acquired the Lighthouse and Lighthouse Park properties, but the Baptist Assembly and the Coast Guard Station are not within the planning jurisdiction of the Town of Caswell Beach. The Baptist Assembly and the Coast Guard Station do have the potential to be included in the Town's planning jurisdiction within the 5 to 10 year planning period of this Land Use Plan, therefore they will be considered in this Land Use Plan. Furthermore, the existing and future land-use of these properties has an impact on the Town given the only land access to these properties is through the Town Limits.

The North Carolina General Assembly under Chapter 743, House Bill 1277 authorized the Town of Caswell Beach to enact extraterritorial jurisdiction over the 264 acre Baptist Assembly site if ownership or operation is transferred from the North Carolina Baptist State Convention for use of the site other than as the existing "Baptist Assembly". The Baptist Assembly is used as a religious retreat and has seasonal accommodations, recreation, and other guest services. The Baptist Assembly Site has 24 structures for accommodating visitors, which can hold a range of 500 to 1,200 people. The Baptist Assembly's wastewater system permit lists the capacity of the entire facility as 1,232 people.

5.2 "Vacant" and "Wastewater Utility" Use Lots by Zoning District

Vacant Parcels

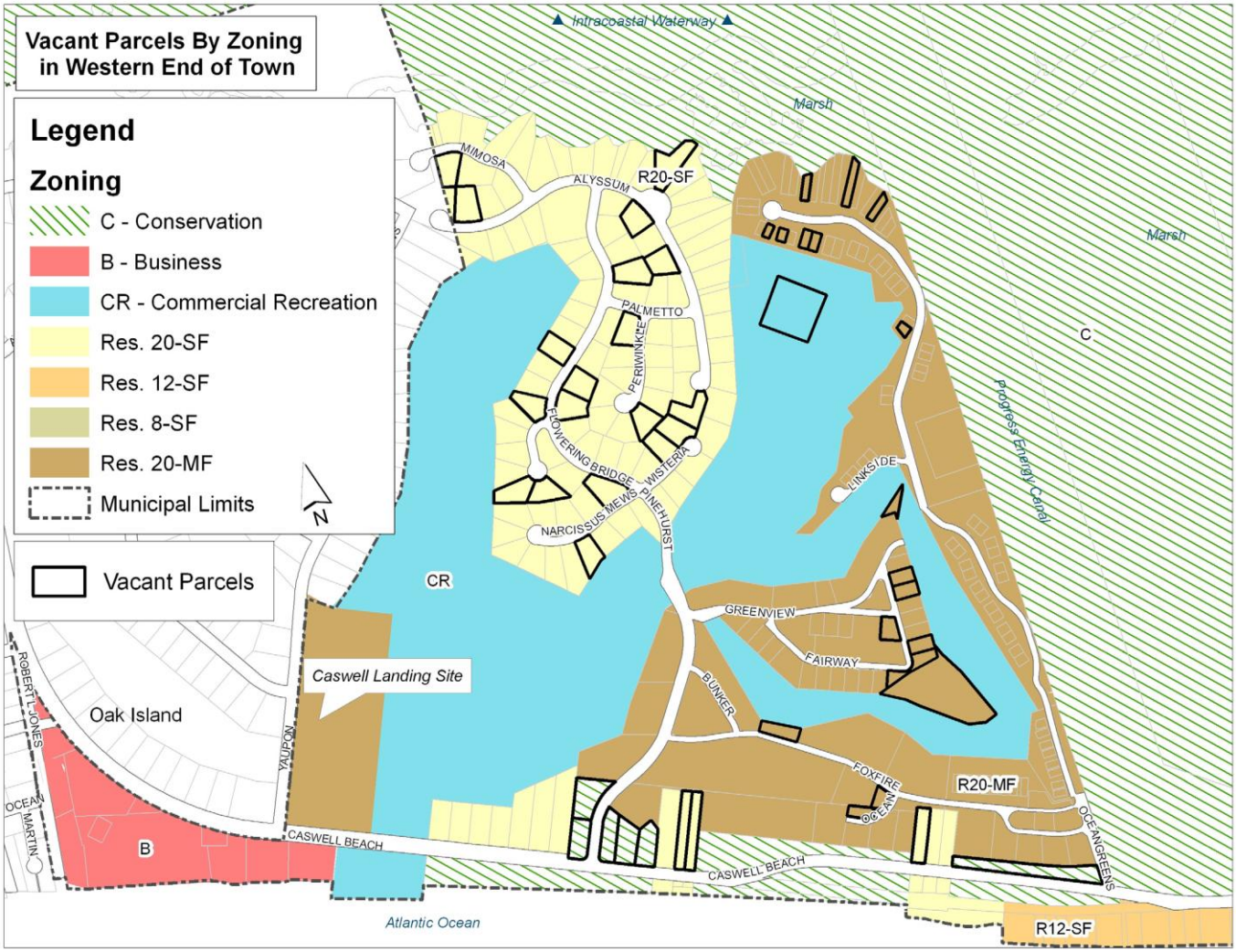
To provide more information on the extent of potential new development and/or redevelopment pressure, the "vacant" and "wastewater utility" parcels were identified and categorized based on their existing zoning designation. The "wastewater utility" parcels are currently used to treat wastewater from individual developments, but will be decommissioned when the Town sewer system comes on-line, giving them the potential for redevelopment. The "vacant" lots are platted, have suitability for development, and will more than likely be developed under the allowable zoning regulations. Tables 19 and 20 following, show the number and acreage of parcels for each category under its existing zoning.

Table 19: "Vacant" Lots by Zoning District

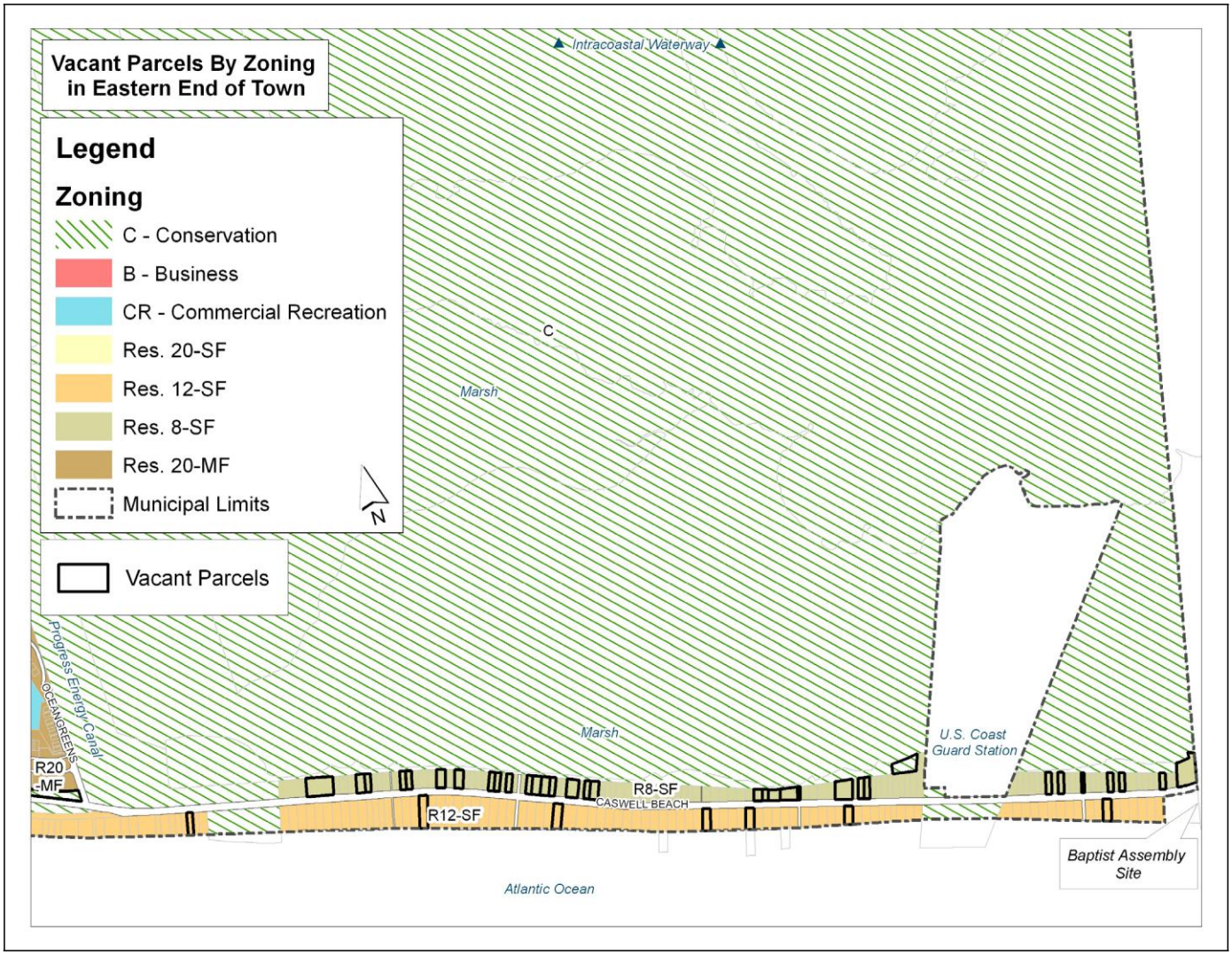
Zoning District	Vacant Parcels	Vacant Acres
CR-Commercial Recreation	1	1.5
R-20-SF- Single-Family 20,000ft^2 lot	22	9
R-12-SF- Single-Family 12,000ft^2 lot	7	2.5
R-8-SF- Single-Family 8,000ft^2 lot	32	8.5
R-20-MF- Multi-Family, Duplex and Single-Family 20,000ft^2 lot	19	5
SUB-TOTAL	**81**	**26.5**
Conservation District	8 (open space common area of Caswell Plantation)	5.5
TOTAL	**89**	**32**

Based on the existing allowable zoning, Table 19 above shows that there are 80 vacant lots in zoning districts that allow a single-family residential structure (R-SF- 20, 12 and 8 and R-MF 20). It can be assumed that there will be 80 single-family units developed on these vacant lots. These lots are mostly split between a zoning district in the interior of the Town which requires 20,000ft^2 lots, and a district along the second row of beachfront housing (north of Caswell Beach Road) which allows 8,000ft^2 lots. The building height limit for these units will not exceed either 35 feet, or, 26 feet above the regulatory flood protection height, where applicable. There are 5 acres of vacant parcels in areas zoned R-20 - Multi-family. A multi-family structure requires a minimum of a 20,000ft^2 lot for the first unit and an additional 5,000ft^2 for each additional unit. There is only one platted vacant lot that can meet the minimum requirement for multi-family use. The other 9 vacant lots in the R-20-MF district could likely be developed with single-family, as this is an allowable use. The *Caswell Landing* approved development is currently "vacant", but will be developed with 42 total units (7 single-family and 35 multi-family).

The map graphic below shows the vacant parcels in the western end of the Town jurisdiction in their respective Zoning Districts. The vacant parcels are shown with a black outline.



The map graphic below shows the vacant parcels in the eastern end of the Town jurisdiction in their respective Zoning Districts. The vacant parcels are shown with a black outline.



Wastewater Utility Parcels

Table 20 following and Map 9: *Existing Land Use Map* in the map appendix show the three parcels currently used as wastewater treatment facilities and related uses. As mentioned earlier, these sites will go off-line when the sewer system is constructed and will have the potential for redevelopment. It must be noted that prior to redevelopment, applicable laws regarding the residential development of former wastewater treatment sites (i.e. surfacing of former drain fields) will need to be followed. All three "utility" parcels are currently zoned R-20 MF. This zoning district allows single-family, duplex and multi-family structures. There is a 20,000 square foot minimum lot required for the first dwelling unit, with an additional 5,000 square feet of lot area for each additional unit. That density allowance roughly permits up to 5 dwelling units per acre if developed as multi-family or duplex, and 2 units per acre if developed as single-family.

There is one "utility" parcel that is approximately 2.6 acres and could be developed as a unified Planned Development under the Town's zoning ordinance § 153.068 (E). This Planned Development option is the only likely scenario in which the parcel will be subdivided. As a Planned Development, the parcel may allow up to five single-family units based on gross acreage (i.e. 2 units with 20,000 square foot lots per acre, on 2.6 acres equals five units). The 2.6-acre parcel could also be left intact for duplex or multi-family development to allow approximately 13 units (i.e. 20,000 sq. ft. for 1st dwelling and 5,000 sq. ft for each additional). Development of this parcel as multi-family may be the most likely scenario as the parcel is already part of the larger Caswell Dunes multi-family development.

The remaining two "utility" parcels are 1.6 acres and .75 acres each. Both parcels could only allow one single-family or one duplex structure per parcel, as they are too small to be developed as a Planned Development (which requires 2 acres minimum). It is likely that the 1.6-acre parcel would be developed as a duplex as it is located adjacent to already existing duplex structures.

Table 20: "Wastewater Utility" Lots by Zoning District

Zoning District	Utility Parcels	Acres
R-20-MF- Multi-Family, Duplex and Single-Family 20,000ft^2 lot	**3** (acreage for each parcel is indicating in column to the right)	**5** (2.6 ac*, 1.6 ac and .75 ac.)
TOTAL	**3**	**5**

*Large enough to be subdivided under Town Zoning Regulations § 153.068 (E). The parcel is currently landlocked, but part of the overall Caswell Dunes development.

Existing Zoning for Parcels Classified as "Likely Undevelopable" on Existing Land Use Map

The zoning designation for those parcels classified vacant but "Likely Undevelopable" includes 3 parcels totaling .37 acres zoned R-20-SF. These parcels are too small individually, or combined, to meet the minimum lot size for the zoning district. The parcels are currently used as beach access by the owner of the parcels, and are expected to remain in that use due to their size.

There are 17 parcels totaling 6 acres classified vacant but "Likely Undevelopable" in the R-12-SF Zoning District. These parcels are well under the Ocean Erodible Area CAMA setback (See Section 4) and are currently highly unsuited for residential or commercial-type use development. These parcels are individually owned, including one owned by the Town of Caswell Beach that is used as a public accessway. It is unlikely that any of these parcels will be used other than as a beach accessway.

Existing Zoning Designation of the Portion of the Oak Island Golf Course in the Town of Oak Island Planning Jurisdiction

The portion of the Oak Island Golf Course in the Town of Oak Island Planning Jurisdiction is zoned "R-20", which may allow single-family homes. The portion of the golf course in the Town of Oak Island is an individual parcel, and is currently used only for a golf course use. There are no residential structures on the golf course land in the Town of Oak Island. The Oak Island Zoning Ordinance § 18-102 states that land in an R-20 zone is intended to have a low-density residential use. The Oak Island Zoning Ordinance states that the R-20 district is established to provide areas for the "preservation and

development of quiet residential neighborhoods and for lower density residential development". The predominant use of the land in this R-20 district is for low-density, single-family dwellings and their customary accessory uses, with a minimum lot size of 20,000ft^2 and maximum building height of 35 feet, or, 26 feet above the regulatory flood protection elevation height, where applicable. The Town of Oak Island Ordinance states that the specific intent of this District is as follows:

(1) To encourage the construction of and the continued use of the land for low-density residences;
(2) To prohibit uses of the land that are incompatible with low density residences;
(3) To encourage the discontinuation of existing uses that would not be permitted as new uses under the provisions of this subsection; and
(4) To discourage any use that would generate traffic volumes on minor streets that would adversely impact residences on those streets.

The zoning designation of the portion of the golf course in the Town of Oak Island to allow a residential use is significant to the Town of Caswell Beach. It means that based on current allowable zoning, the owner of the golf course may have an expectation of a future residential use for the golf course land (at least in the Oak Island jurisdiction). The transitioning of the portion of the golf course in the Town of Oak Island to a residential use would make the course non-functioning as an 18-hole golf course. Discussion with the Town of Oak Island, the Oak Island Golf Course owners and the Town of Caswell Beach will likely be needed to ensure the future use of the golf course land is as a functioning 18-hole golf course. Any special assessment, purchase of deed restriction or outright purchase of the golf course by the Town of Caswell Beach will require the cooperation of the Town of Oak Island and/or its citizens and property owners along the golf course.

5.3 Identification of Significant Existing Land Use Effects on Surface Water Quality

Pollutants caused by everyday land use and development activities in the Town's local watershed (See Map 2) can have a negative effect on surface water quality. As shown in Table 18 previously, land use and development in Caswell Beach is approximately 55% residential related, 25% golf course recreational use, 10% roadway, and 10% vacant. There are no land uses in the Town planning jurisdiction which are permitted under the NPDES program and contribute significant point-source pollution, such as wastewater treatment plants or industrial- type sources with piped discharges to surface waters. However, in Southport and areas immediately north, which are in the local watershed, there are industrial discharge points, marinas, urban waterfronts, and wastewater treatment plant discharge points. In Caswell Beach, there are 2 private wastewater treatment plants. One for the Ocean Greens and Arboretum developments with a .075 MGD treatment capacity, and one for the Caswell Dunes development with .05 MGD treatment capacity. These plants are permitted to allow all of their treated wastewater to infiltrate underground, and are classified by the state as a "non-discharge" facility (See Section 6.2 for more information). Due to high water tables and poor soil suitability, the infiltration methods used by these plants have not been effective during periods of heavier rainfall when the ground is already saturated. The Brunswick County Health Department and North Carolina Division of Water Quality have documented cases of untreated wastewater ponding around manholes and pump stations after heavy storm events. The Town is in the process of decommissioning the private wastewater treatment plants and implementing a central sewer system with treatment handled at a facility in the mainland part of the Town of Oak Island (See Section 6.2).

Additional possible types and sources of water quality degradation from land-based pollutants in Caswell Beach include: residential septic systems (pathogens such as fecal coliform and e-coli), phosphorus and nitrogen (from septics, and lawn and golf course fertilizers), and exposed soil (caused by land clearing activities). These pollutants can enter streams and creeks and degrade the surface water's ability to support aquatic life and human recreational use. The sources of these pollutants are generally called non-point sources of pollution, due to the way they diffusely occur on land and enter local surface waters. The term "stormwater runoff" is typically used to describe the mechanism in which these non-point sources of pollution make their way to surface water bodies. It is important to note that it is generally not the rainwater in "stormwater" that is polluted. Rather, it is the stormwater traveling by the force of gravity along the impervious surfaces or disturbed areas of land and picking-up various pollutants on its way to a lower elevation in the local land area. The lowest elevation is usually a surface water body. Non-point pollution of surface water is therefore both a quantity and quality problem. To address the problem, the quantity of stormwater allowed to travel along impervious surfaces can be controlled by some engineered method (i.e. ponds or infiltration), or the amount of pollutants waiting to be picked-up by the stormwater can be reduced (i.e. properly maintaining septic systems and minimizing the use of fertilizers and other possible pollutants).

Regulations over new development such as sedimentation and soil erosion control during construction, and stormwater runoff for post-construction, attempt to address the potential water quality effects caused by land use and development. However, these rules usually do not cover all types of development and do not address existing development. As most of the areas in Caswell Beach next to surface waters have been essentially built-out, much of the problem causing water quality degradation is due to already existing 1) land-uses, 2) impervious surfaces and 3) improper stormwater drainage systems. The town-wide network of streets, roof tops, parking lots, curbs, gutters, ditches and swales all allow stormwater and picked-up pollutants to reach local surface waters if not properly retained. In Caswell Beach, the existing stormwater drainage system was evaluated in 2000 by the engineering firm W.K. Dickson. As a result, a stormwater management plan and ordinance were adopted by the Town in 2005. The Plan calls for the Town to implement education and management programs, and to carryout certain retrofits to reduce the quantity of stormwater entering the Town drainage system. Additional measures such as using decommissioned septic systems as rain cisterns to remove stormwater quantity from the drainage system could also be implemented as the Town becomes sewered. The Town's stormwater program and infrastructure are discussed more in Section 6: Analysis of Community Facilities.

5.4 Identification of Land Use Conflicts with Class III Areas on the Environmental Composite Map and Areas Described in the Natural Systems Analysis Section

This subsection identifies current and future land uses that may conflict with environmentally sensitive areas. Identifying potential conflict with sensitive areas is done by comparing the existing land uses identified in this Section with the natural features discussed in Section 4. Most of the comparison is done by utilizing the Environmental Composite Map [Map 8], The Areas of Environmental Concern (AEC) Map [Map 1], and the North Carolina Coastal Resource Evaluation of Wetland Systems Map [Map 6], which were discussed in Section 4. It must be noted that the accuracy of the information on the maps may not be adequate for a parcel level comparison, and it is intended for general planning purposes only.

The Environmental Composite Map shows areas classified as Class III, which imply that those areas contain natural features that should be protected from intense development. The main Class III natural features found in the Caswell Beach Planning Jurisdiction that may conflict with development are non-coastal wetlands, coastal wetlands, estuarine waters and oceanfront dune setback areas.

As shown on the Environmental Composite Map [Map 8], the Class III areas are primarily the marsh and estuary areas surrounding the planning jurisdiction. These Class III areas are zoned as "Conservation" by the Town, but more importantly, these areas are largely owned by state and federal agencies, and development of these areas is highly unlikely (refer to Section 4). The Class III areas in the interior portion of the Town are due to dune setbacks and erosion, as well as a few isolated non-coastal wetlands. The oceanfront lots are essentially built-out, and any redevelopment will be according to zoning standards, CAMA AEC setback regulations and floodplain elevation requirements. The non-coastal wetland Class III areas in the planning jurisdiction are located mostly on and along the golf course. It is the Town's desire that the golf course use remain intact, and that these areas are not developed for residential or other uses.

5.5 Projection of Future Land Needs

The CAMA planning guidelines [15A NCAC 07B .072 (c)(3)(D)] require an estimate of the land needed to accommodate residential development for the expected growth in population over the next 5 to 15 year period. In Caswell Beach, the projected population growth is essentially flat due to the near build-out of the planning area, desire to keep existing density levels intact, and no opportunity for Town jurisdiction expansion. The variables that may skew estimated population growth include a residential infill of the golf course and potential for annexation or ETJ authority of the Baptist Assembly if sold. The Town is aware of both of these issues and is establishing policy and management measures in this Land Use Plan Update to prevent residential infill of the golf course, and ensure potential redevelopment of the Baptist Assembly area does not increase from its existing density level.

The Town's expected population growth of slightly less than 150 people by 2020 (See Chart 2 in Section 3) is based upon the infill of the less than 100 vacant lots remaining, and the development of the Caswell Landing development. See Section 3.1.C for more description on the expected population growth.

Based on expected and desired population growth, the Town has adequate vacant land to meet population growth over the next 5 to 15 years, and will continue to enforce density management to ensure dramatic unexpected population cannot occur from redevelopment.

Section 6. Analysis of Community Infrastructure Facilities

The Coastal Area Management Act (CAMA) planning guidelines state that the purpose of the analysis of community facilities is to evaluate the capacity, location and adequacy of the key pieces of infrastructure that will serve the community's existing and future populations. The adequacy of certain infrastructure contributes to the protection of important environmental features such as water quality, and maintains a higher quality of life for citizens.

The key infrastructure facilities typically found in coastal communities affecting quality of life and environmental protection include:

(1) water supply systems;
(2) wastewater treatment systems;
(3) stormwater systems;
(4) transportation systems; and
(5) public access facilities and public beach.

These community facilities are considered key in land use planning because they can have a significant impact on a local government's ability to allow for growth, while making sure it is done in a managed and orderly way that protects property values, quality of life and the environment.

In accordance with this understanding, Caswell Beach established a **Strategic Plan** in 2002 that included a set of goals and objectives meant to improve the quality of community facilities over a multi-year period. In addition, other Town plans were completed subsequent to the Strategic Plan that also addressed improving key community facilities. Those plans included the Beach Preservation Plan (2003) and the Stormwater Management Plan (2005). Those plans were created to remain consistent with the goals of the Strategic Plan.

This Land Use Plan Section provides a brief and updated report on the status of the key community facilities and infrastructure in Caswell Beach. The purpose of this Section is to provide information to local officials so that they can be more informed during the policy making process. Like other Town plans, this Land Use Plan will remain consistent with goals of the Town's Strategic Plan. Some of the Strategic Plan goals and objectives that are particularly applicable to this Section of the Land Use Plan are paraphrased below. Those goals include:

- **Preserving, protecting and maintaining the natural environment through pro-active Town management (Goal E1)**
- **Protecting the environment from the effects of uncontrolled stormwater runoff (Goal E2)**
- **Protecting the environment from the effects of improperly treated wastewater (Goal E3)**
- **Creating a citizen awareness program on environmental issues and management (Goal E7)**
- **Maintaining sound fiscal policies and effective use of taxpayer money to achieve the Town's Vision by using efficient multi-year planning, e.g. cost/benefit analysis and capital improvements planning (Goal G4)**
- **Recognizing land acquisition opportunities to benefit the Town (Goal G5)**
- **Ensuring a safe and sufficient supply of water for both potable and firefighting uses (Goal H5)**

As of the first quarter of 2007, the Town of Caswell Beach is in significant transition on several of its key community facilities. In November 2006, the Town received $2.5 million from the Clean Water Management Trust Fund (CWMTF) to decommission 2 private package wastewater plants and construct a centralized sewer system to serve the entire Town. Also, the Town is working with the NC Department of Transportation and Brunswick County in preparing a Comprehensive Transportation Plan to prioritize future funding for needed transportation improvements in the immediate area and region. The Town also recently adopted a Stormwater Ordinance and Management Plan (2005) to supplement and enhance the expected water quality benefits from the planned central sewer system. The Town will also expand this existing stormwater management program to meet the requirements of the 2006 Stormwater Management Act (Senate Bill 1566), which enacts the federal NPDES Phase II Stormwater Rules. Finally, the Town's potable water supplier, Brunswick County, adopted in 2006 a Water Supply System Master Plan to increase capacity and upgrade its existing distribution between 2007 and 2015.

6.1 Water Supply System Status and Trends

Caswell Beach is a wholesale water customer of the Brunswick County Water Supply System. Wholesale customer means the Town currently purchases water from the County and distributes it through a County owned main line and Town-owned lines to Town customers within Town Limits (including the Baptist Assembly). Since 1980, Caswell Beach has been in contract with the County to provide a supply of water to the Town. The contract does not specify an actual quantity, but states that the County will provide water "in such quantity as may be required by the purchaser [Town]". The contract secures a source of water supply until the year 2020, at which time the contract may be renewed.

Connection to the Town water system infrastructure is required of all residential dwellings in the Town Limits (Water Ordinance § 50.01). The Baptist Assembly, U.S. Coast Guard Station and Progress Energy are optional subscribers to the Town water service (Water Ordinance § 50.01). There are no water wells in use by the Town, all water is conveyed in from the Brunswick County water system. Water purchased from the County is tested by the Town, but not treated by the Town. Brunswick County supplies its water customers (incl. Caswell Beach) with potable water from two sources: 1) groundwater from the Castle Hayne Aquifer and, 2) surface water from the Northeast Cape Fear River. Each source of water has an associated water treatment facility to purify and disinfect the raw water before final distribution to wholesale and retail customers. The two County water treatment plants are the Northwest Water Treatment Plant (WTP), located near the Town of Northwest, and the 211 WTP located near the Town of St. James. Water supplied to the Northwest WTP is purchased from the Lower Cape Fear Water Authority, which pumps surface water from the King's Bluff Reservoir located on the Northeast Cape Fear River. The 211 WTP, which is the primary supply for the Town of Caswell Beach, obtains raw groundwater from 15 wells that tap into the Castle Hayne Aquifer. The 211 WTP has a permitted water treatment capacity of 6 million gallons per day (MGD).

Caswell Beach Water Use Statistics

With a relatively small permanent population of around 500, and seasonal population of 1,600 to 2,500, Caswell Beach is a smaller wholesale water customer in the County. The Town growth rate is also expected to remain flat over the next 10 years as the Town is nearly built-out, and zoning and land-use policy prohibits redevelopment that would substantially increase density.

Wholesale water system customers (including Caswell Beach) had a total annual average day demand of nearly 4.7 MGD in 2005, of which, Caswell Beach accounted for 0.148 MGD. It is expected that the Town's average day consumption will remain flat due to limited population growth. The Town is planning to construct a water reuse system to use treated wastewater for irrigation and other secondary uses. Some estimates on future average day water demand for the Town were provided in the County's Water System Master Plan and are summarized in Table 23 following. These future demand estimates are based on a very generous allocation of water supply needed for 60 new dwelling units per year over the next 10 years in the Town jurisdiction. With less than 90 remaining lots (primarily single-family), and only one 42-unit planned development expected, it is unlikely that the 60-unit per year estimate will be realized over the next ten years.

To review recent trends in the Town's water demand, Tables 21 and 22 below show the Town's monthly water demand since the year 2000. **Table 21** shows water use over a six-month period during the "high-season" for each year. The "high-season" is the time of year when water use is expected to be at its highest, and therefore the levels of supply and demand are most critical. For comparison, Table 22 shows water use over the six-month period of each year during the "low-season". The six-month period used in the "low-season" table includes the October through December months of a given year and carries over to January through March of the next calendar year (i.e. a six-month low-season is October 2002-March 2003). Also shown in both tables are the average Million Gallons per Day (MGD) use amounts for the high water demand month of July and the low demand month of February.

Table 21: Water Consumption in the "High-Season"
(Source: Town of Caswell Beach Finance Department)

	April	May	June	July	Aug.	Sep.	
YEAR	Gallons Purchased from County						TOTAL For Six Months
2000	2,739,800	4,373,900	7,020,500	6,360,900 *(0.205 MGD)*	5,032,900	3,246,000	*28,744,000*
2001	3,386,200	5,407,300	7,044,400	7,231,700 *(0.233 MGD)*	5,709,800	3,975,600	*32,755,00*
2002	3,781,300	4,717,400	5,600,000	7,881,500 *(0.254 MGD)*	6,342,300	4,339,800	*32,662,300*
2003	3,119,400	4,093,600	6,388,800	6,949,400 *(0.224 MGD)*	5,476,800	4,240,900	*30,268,900*
2004	3,685,000	3,911,000	7,513,800	8,186,200 *(0.264 MGD)*	9,555,500	7,886,400	*40,737,900*
2005	2,719,400	4,502,900	6,300,100	7,442,800 *(0.240 MGD)*	6,564,200	3,822,100	*31,351,500*
2006	3,455,050	4,801,000	6,801,200	8,131,200 *(0.262 MGD)*	7,117,500	3,926,400	*34,232,350*
Monthly Average Since 2000	**3,269,450**	**4,543,871**	**6,666,971**	**7,454,841** (highest-use month)	**6,542,714**	**4,491,028**	-

Table 22: Water Consumption in the "Low-Season"
(Source: Town of Caswell Beach Finance Department)

	Oct.	Nov.	Dec.	Jan.	Feb.	March	
YEAR	Gallons Purchased from County						TOTAL For Six Month Period
1999/2000	N/A	N/A	N/A	1,959,000	1,642,700 *(0.058 MGD)*	2,985,700	-
2000/2001	2,811,400	2,512,300	2,287,300	2,203,200	1,738,500 *(0.062 MGD)*	2,475,500	*14,028,200*
2001/2002	3,959,200	3,275,400	2,448,200	1,752,800	N/A	5,284,000	-
2002/2003	3,548,800	2,795,100	1,905,000	2,515,900	2,121,800 *(0.075 MGD)*	2,733,200	*15,619,800*
2003/2004	3,562,600	2,384,600	2,528,200	2,077,900	1,600,000 *(0.057 MGD)*	2,748,400	*14,901,700*
2004/2005	5,969,100	2,987,100	2,211,000	2,124,200	1,661,600 *(0.059 MGD)*	2,515,400	*17,468,400*
2005/2006	3,269,600	2,819,600	1,877,700	1,897,400	1,620,300 *(0.057 MGD)*	2,300,600	*13,785,200*
2006/2007	3,843,100	2,496,000	N/A	N/A	N/A	N/A	-
Monthly Average Since 2000	**3,851,971**	**2,752,871**	**2,209,567**	**2,075,771**	**1,730,816** (lowest-use month)	**3,006,114**	-

As shown in **Table 21** and as expected, July has been the peak season month with the highest demand. This is obviously due to the temporary influx of tourists and visitors. Since 2000, the average day water use amount for July has been .240 MGD. The highest average day amount for July over the last seven years was in 2004 with an average day use of 0.264 MGD. The second highest average day demand was in 2006, with a use of .262 MGD. It is hard to determine a distinct trend in water demand by analyzing just seven years (only data available), but it does show the expected trend of an overall increase in water demand level during the peak season. This has primarily been due to the continuance of development activity in Town over the last seven years as it approaches build-out. However, the seven-year demand data does not necessarily show a steady or stable increase, or a dramatic increase. Demand has actually gone up and down from year to year (e.g. 2002 to 2003 and 2004 to 2005). Furthermore, water usage is expected to peak in the very near future when build-out occurs, and remain steady (with water system improvements and with use of the water reuse system) over the next 10 years. In addition, zoning and land-use policy prohibits major redevelopments which would substantially increase density, and prohibits any commercial hotel and motel construction.

Table 23 below shows the County's 2006 Water System Master Plan estimate for the year 2010 and 2015 average day demand for Caswell Beach and other wholesale water customers. Estimates were based on remaining dwelling units expected before build-out and the Town's allowance of increased densities from redevelopment.

NOTE: The MGD estimates are annual averages, and include both high season and low season use. Also, Caswell Beach is 100% supplied by Brunswick County with water. It is not known if the other municipalities in the table below have municipal wells as part of their water supply systems, such as Boiling Spring Lakes, which is 7 times more populous than Caswell Beach but uses less County supplied water according to the data in the Water System Master Plan.

Table 23: Annual Average Day Water Use Estimates

(Source: 2006 Brunswick County Water System Master Plan, Hazen & Sawyer, P.C.)

Municipality	2005 Certified Population	2005 Annual Average Day Water Use (MGD)	2010 Annual Average Day Water Use (MGD)	2015 Annual Average Day Water Use (MGD)
Bald Head Island	229	0.190	*0.215*	*0.240*
Boiling Spring Lakes	3,767	0.144	*0.359*	*0.500*
Caswell Beach	**461**	**0.148**	**0.164**	**0.187**
Holden Beach	889	0.117	*0.130*	*0.145*
Oak Island	7,711	0.990	*2.903*	*3.103*
Ocean Isle Beach	481	0.567	*0.090*	*0.180*
Shallotte	1,768	0.269	*1.188*	*1.387*
Southport	2,677	0.443	*0.579*	*0.592*
Sunset Beach	2,211	0.565	*0.295*	*0.310*

County Water System Evaluation

As mentioned previously, Caswell Beach is supplied with all of its potable water by Brunswick County, and is therefore reliant on the County's water system to have adequate capacity and distribution. Brunswick County's combined water treatment capacity is 30 MGD as of 2006, which includes 24 MGD from the Northwest WTP and 6 MGD from the 211 WTP. In July 2006, Brunswick County completed and adopted a **Water System Master Plan** prepared by the engineering firm Hazen and Sawyer, P.C. As a result, the County is in the process of upgrading both treatment plants to meet projected growth demands by 2015, which includes a treatment capacity increase of 8 MGD at the Northwest WTP to begin in 2008.

The Water System Master Plan ("Master Plan") divided the County distribution system into three service areas based on the existing trunk mains, tanks, and booster pump stations (BPS). The Town of Caswell Beach is included in the "Southeast Service Area". The Southeast Service Area extends from the Bell Swamp BPS (Hwy. 17 and 87 intersection) south to Boiling Spring Lakes, the Town of St. James, Southport, Oak Island, Caswell Beach and Bald Head Island. Also included in

the Southeast Service Area are the large industrial users Cogentrix, Archer Daniels Midland (ADM), and the Sunny Point Military Ocean Terminal.

The Southeast Service Area is supplied from both the 211 Water Treatment Plant and the Bell Swamp BPS and water storage tank. The 211 Water Treatment Plant (WTP) supplies water in the Southeast Service Area to those locations south of Booster Pump Station 10 (located near Dosher Cut Off). The Bell Swamp BPS supplies water in the Southeast Service Area to areas north of Booster Pump Station 10 up to the Highway 17/87 intersection. The Bell Swamp BPS and storage tank also act to supplement the demand required by the areas south of BPS 10 and served by the 211 WTP.

According to the Master Plan, the Brunswick County Department of Public Utilities indicated that… "aside from a new port planned in the Southport area, little or no growth in large industrial demand is expected. This port is expected to generate additional commercial and residential demand. At this stage, quantifying the water needed for this project is difficult. Therefore, for the purposes of this study, a conservative projection is that the port will increase industrial demand by 50 percent in the next 10 years" (Hazen and Sawyer. *Water System Master Plan*. July 2006. p.23). As the plans for the Port are still in the very early stages, it is unclear whether the Port facility will include the construction of on-site water treatment and storage to serve the Port facility needs.

Scheduled County Water System Improvements and Expansion

Overall, the Water System Master Plan estimated current and future demands for the service area, examined the existing infrastructure's ability to meet growing demands, and identified and ranked required system improvements through 2015. The Master Plan showed that the County water treatment plants current combined rated capacity of 30 MGD has about an 8 MGD of excess capacity on the "Maximum Day" as of 2006 demand. The "Maximum Day" means the highest daily demand in a year. The Maximum Day rate is the critical requirement for pumping and production capacity. As the County grows, the Maximum Day rate will grow. According to demand projections in the Master Plan, that current 8 MGD excess capacity will quickly diminish. The system's plants are expected to reach 80 percent capacity by 2008, and 100 percent capacity by 2011. If no increases in capacity are made, by 2015, the projected Maximum Day demand will have a supply shortfall of 8 MGD. As a result, the County has planned to increase its treatment capacity by 8 MGD by 2015.

The Master Plan established a "Program of Construction" Table (See Appendix II) to address the immediate and near future needs of the County water system. The County Commissioners adopted the Program of Construction (as well as the entire Master Plan) in July 2006. The recommended improvements in the Program of Construction are divided into three phases. Phase I consists of immediate needs, such as ensuring adequate flow to fight fires, and are recommended to be constructed in 2007-2008. Phase II improvements are to be completed before 2015 to meet projected water demands. Phase II projects are divided into Phase IIA, which addresses pipeline needs, and Phase IIB, which addresses pumping station needs. Finally, Phase III improvements address the requirement to increase the overall treatment capacity and supply of the Northwest WTP and upgrade the 211 WTP facilities to meet the projected needs for the year 2015.

In addition to overall capacity expansion, a specific project affecting Caswell Beach is item I-7 on the Program of Construction. I-7 is scheduled to begin in 2007/2008. Item I-7 is necessitated because of poor water pressures occurring during the higher demand days of summer at the end of Caswell Beach (Baptist Assembly) and on Bald Head Island. The poor water pressure is due to undersized pipes and flow meters identified by the Brunswick County Public Utilities Department. Fire flow tests at the Caswell Baptist Assembly confirmed this condition. The Master Plan recommends that … "Brunswick County install newer turbine flow meters with lower head loss at the vault downstream of BPS No. 1 and at the vault with the wholesale meter for Bald Head Island and correct the 90-degree piping bends in the vicinity". The project location is at the entrance to Oak Island on the island side of the bridge causeway.

6.2 Wastewater System

Status of Existing Wastewater Infrastructure

Nearly two-thirds of the current residential wastewater generated in Caswell Beach comes from the mix of single-family, multi-family and duplex residential developments surrounding the Oak Island Golf Course. Those developments include Caswell Dunes, the Arboretum and Ocean Greens. Wastewater from those developments is treated at two separate privately owned and operated package treatment plants. The two private plants are the Caswell Dunes plant and the Caswell Sewer Services plant, which serves the Ocean Greens and Arboretum developments. The Caswell Dunes plant is permitted to treat .05 MGD and is a tertiary treatment system with nitrification drain fields. The Caswell Sewer Services plant is permitted to treat .075 MGD and is a high-rate infiltration system that uses rotary distributors for effluent disposal. Both plants are permitted by the state as "non-discharge" facilities, meaning they do not directly discharge treated effluents to surface waters.

The Oak Island Beach Villas, which is the only other multi-family development in the jurisdiction, is already connected to the Town of Oak Island's central sewer system. The remaining single-family homes located along Caswell Beach Road adjacent to the oceanfront utilize individual septic systems. It is estimated that there are nearly 210 residential septic systems in use in the Town.

As shown on Map 3 [*Soil Septic Suitability Map*], the land within the planning jurisdiction has severe limitations to septic systems and other ground infiltration systems. Much of the land and soils have a high groundwater table, which makes them easily saturated and unable to absorb large amounts of effluent during prolonged or heavy rain events. There have been state and County violation notices issued for the package treatment plants in recent years. In addition, after the hurricanes and tropical storms of 2005, the County Health Department did a site-survey of the ponding and overflow of the wastewater systems caused by the heavier rain events. Pathogens (i.e. fecal coliform) were detected in the standing water after the heavier rainstorm events in 2005, and it was recommended that the wastewater be collected and removed from the Town and treated at a more suitable location. In consideration of the high groundwater table and the soils' inability to effectively absorb treated wastewater during heavier rain events, Caswell Beach is pursuing the creation of a central sewer system to pump wastewater from the Town (island) to a treatment facility on the mainland.

Planned Town-wide Central Sewer

The Town of Caswell Beach, in agreement with the Town of Oak Island, is in the pre-construction stages of implementing a central sewer collection system. In late 2006, the Town received $2.5 million from the Clean Water Management Trust Fund to decommission the 2 privately owned and operated wastewater package treatment plants, and to construct a central sewer system to serve all developable areas in Town. The planned sewer service area only includes the contiguous platted and developable parcels in Town (and the Baptist Assembly), and does not include coastal wetlands or spoil islands. The provision of the sewer system will further the Town's Strategic Plan goals of environmental improvement (Goals E1 and E3) and commitment to quality Town services (Goal G4).

The Town will require all residences in Town to hook-up to the central sewer system when it is completed. Currently, the private package treatment plants service most of the residences within the Town Limits, with the exception of approximately 210 residences that use individual on-site septic systems. The septic systems are used on the individual properties on either side of Caswell Beach Road, which runs parallel and adjacent to the oceanfront. In addition, wastewater from the Baptist Assembly, which is outside the planning jurisdiction, is also to be collected through the Town's central sewer system. The Baptist Assembly facility currently uses septic tanks and nitrification fields to treat up to .04 MGD of wastewater.

The Town's planned central sewer is designed to be a vacuum interceptor system. This system is planned to collect and pump wastewater from Caswell Beach and the Baptist Assembly to the East Oak Island Water Reclamation Facility, where the wastewater will be treated and 'reclaimed' for other uses. The East Oak Island Facility is located on Fish Factory Road, which is on the mainland portion of the Town of Oak Island. The East Oak Island Facility has a design flow of .4 MGD, but currently utilizes a capacity of .18 MGD. The East Oak Island Facility is a tertiary treatment and "non-discharge" reclamation facility. The sewer service plans provide that to ensure capacity for Caswell Beach's wastewater at the East Oak Island Reclamation Facility, the Town of Oak Island could re-direct some of its wastewater from that area to the West Brunswick Reclamation Facility which can handle the higher capacities needed by Oak Island. The option of treating wastewater from Caswell Beach at the West Brunswick Water Reclamation Facility near Bolivia will also be available if necessary.

Caswell Beach's central sewer system is preliminarily designed to transfer up to a maximum of .280 MGD of wastewater to the water reclamation facility on the mainland. The sewer system (including lines and pumps) was designed by Caswell Beach to be the most minimum size needed to handle current wastewater levels and to allow build-out of remaining platted properties and the Caswell Landing development. The designed size of the system was a control measure to ensure that redevelopment to higher density residential structure would not be easily possible.

The time estimated to construct the central sewer collection system is 11 months from start of construction to finish. Construction began Febuary 1st, 2010 and is scheduled to be completed January 31st, 2011.

The specific sewer system project components are listed below:

- Central pump station (approx. 490 gallons per minute)
- 17,000 linear feet of collection mains
- 19,700 linear feet of force main
- Tie-in to existing sewer line at Town boundary with Oak Island
- 15,000 linear feet of treated wastewater reuse force mains
- Decommissioning of 2 package plants
- Required decommission of individual septic systems by owner
- Required hook-up to Town sewer system

Reuse of Treated Wastewater
Included in the Town's central sewer system planning is the expected reuse of treated wastewater. It is expected that the effective use of reclaimed (or "reuse") water will replace or at least significantly lessen the current and/or potential use of potable water for irrigation. The Town will develop a plan to reuse treated waste water that includes amending relevant Town codes and creating a reasonable distribution program with designated purple hydrants.

6.3 Stormwater System

The Town's stormwater system is the interconnected drainage network of curbs, gutters, ditches, pipes, swales, retention ponds and natural topography that carry stormwater collected from impervious surfaces to the local surface waters. Stormwater management and improvements to stormwater systems has been a growing issue in coastal Towns as they continue to develop more densely. Lack of management over the effects of stormwater runoff and pollution has the potential to negatively impact quality of life, environmental quality and property values. In accordance with the goals of the Strategic Plan and as part of the central sewer system planning, the Town developed and adopted both a Stormwater Management Plan and a Stormwater Ordinance in 2005. In addition, the Town is in the process (1st quarter 2007) of conducting a Stormwater Master Plan which will model the hydrology and drainage of the Town, and establish engineered solutions to address ponding and flooding associated with stormwater volume.

Stormwater Management Plan

The Stormwater Management Plan (SMP) identified and prioritized seven specific activities to implement over a five-year period. The purpose of the Plan is to help manage the existing stormwater system by taking steps to reduce ponding, improve drainage and reduce pollutant load. The SMP's planned implementation activities were partly based on recommendations outlined in a Stormwater Drainage Study conducted for the Town by the engineering firm W.K. Dickson in 2000.

W.K. Dickson's Stormwater Drainage Study identified the following areas as having drainage and ponding problems:

- Ocean Greens development
    - The area of the Sixth Hole green
    - Properties 95 to 100 along Ocean Greens Lane

- Caswell Dunes development
    - Caswell Dunes clubhouse area
    - Arboretum entrance road
    - Fairway Drive between properties 23 to 28
    - Ends of Green View and Fairway Drives
- Caswell Beach Road
    - Between the entrance to the Baptist Assembly to address number 122 Caswell Beach Road
    - West of Coast Guard Station between addresses 313 and 305
    - Between the addresses of 432 and 422
    - Between the addresses of 611 and 605
    - West entrance of the Oak Island Golf Club
    - East entrance of the Oak Island Beach Villas
- Central Drainage Canal
    - The canal drains 200 acres and runs 4,600 feet from Augusta Drive through the Oak Island Golf Course and eventually through the easternmost edge of Arboretum development all the way to its discharge point along the marsh of Piney Point Creek

Based on some of the recommendations in the Drainage Study and an overall need for a stormwater management program over new development, the Town identified and prioritized seven planned activities as part of its Stormwater Management Plan (SMP). The activities are to be implemented between Fiscal Years 2006/07 and 2010/11, and include:

1) Establishing and Maintaining Stormwater Regulatory Controls
2) Establishing and Improving the Management Structure
3) Establishing a Stormwater Utility
4) Conducting Water Testing
5) Integrating Geographic Information Systems Improvements
6) Creating Public Awareness and Education
7) Conducting Stormwater Abatement Projects

The first planned activity in the SMP to be implemented, **Establishing and Maintaining Regulatory Controls,** includes:

- Adopting a Stormwater Ordinance (completed in 2005)
- Integrating the NPDES Phase II requirements into the Ordinance (to be completed by July 2007)
- Incorporating provisions for a Stormwater Utility into the Ordinance (to be completed in 2007)
- Establishing a Stormwater Best Management Practices Manual to include in the Ordinance (to be completed in 2007)

The second planned activity in the SMP to be implemented, **Establishing and Improving the Management Structure,** includes:

- Designating a Stormwater Administrator (Town Administrator designated as SA)

- Identifying development activities that fall under the Stormwater Ordinance and Plan
- Conducting and Coordinating Public Outreach and Education on Stormwater Issues
- Detecting and eliminating illicit discharges into the stormwater system
- Establishing an operations and maintenance program for stormwater drainage projects

The third planned activity in the SMP to be implemented, **Establishing a Stormwater Utility,** includes:

- Creating a Town utility program per authority granted by the state in GS 160A to provide a steady and dedicated source of funds to carry out on-going stormwater drainage projects (to be created in 2007)
- Stormwater drainage projects will be those that are external to individual neighborhoods or which affect two or more neighborhoods. In other words, before the Town takes significant action, the benefits must be wider-spread than just one individual neighborhood.

The fourth planned activity in the SMP to be implemented, **Conducting Water Tests,** includes:

- Retaining the services of the University of North Carolina at Wilmington (UNCW) Marine Services to conduct water testing at the Town's pre-existing stormwater drainage discharge point which empties into the marsh along Piney Point Creek (to begin in 2007)
- Testing to be done periodically to establish pollutant loads and provide a basis for illicit discharge detection and stormwater system design

The fifth planned activity is **Improving Geographic Information Systems** and it includes:

- Updating and maintaining accurate geographic data on such features as topography to assist in stormwater project planning and management

The sixth planned activity is **Creating Public Awareness** and includes:

- Distributing brochures on the causes and effects of stormwater runoff in water bills, posting information on the Town website and holding public workshops

The seventh planned activity outlined in the Stormwater Management Plan is **Conducting Stormwater Abatement Projects,** this activity includes:

- Three construction projects -
  1) Improve drainage on the "Sixth Hole Area". The Project would involve diverting excess runoff caused from the 25-year storm event to a drainage ditch adjacent to the Progress Energy canal
  2) Improved and continued maintenance of the "Central Drainage Canal", which is the main floodway in the Town and runs through the center of the golf course

3) Increase drainage of the Caswell Beach Road low-spots. Due to elevation constraints, the most appropriate engineering alternative is expensive and involves installing infiltration trenches

Stormwater Ordinance

In accordance with the recommendations of the Stormwater Management Plan, the Town subsequently adopted a Stormwater Ordinance in late 2005. The Stormwater Ordinance was adopted to mitigate stormwater problems associated with new development and redevelopment. The Town's Stormwater Ordinance exceeds the state's current minimum stormwater requirements by requiring all development, regardless of lot size, to have stormwater management practices. Such practices must "ensure that, after development or redevelopment, runoff from the site approximates the rate of flow, volume and timing of runoff that would have occurred following the same rainfall under existing conditions and to the extent practicable, the predevelopment conditions, unless runoff is discharged into an off-site drainage facility" [Stormwater Ord. § 154.10 (1)]. As part of this requirement, every application for a development permit is required to have a stormwater management plan which must show how the development project will meet 33 specific performance and design standards outlined in § 154.10 of the Stormwater Ordinance.

In support of the Stormwater Ordinance, the Town also has an Illicit Discharge Ordinance which prohibits the discharge of any type of non-stormwater runoff into the stormwater drainage system. Non-stormwater runoff (or illicit discharge) can be anything from septic tank discharges from non-compliant systems, direct washing machine discharges and illegal dumping of chemicals or other volatile liquids/solids into stormwater drains.

NPDES Phase II Coastal Stormwater Rules

The NPDES Phase II Rules ("2006 Stormwater Act" or "Senate Bill 1566") are recently adopted state stormwater standards that require regulated communities to enforce post construction stormwater requirements upon certain types of development. The Phase II Rules also require communities to conduct additional stormwater programs such as public outreach and education, and illicit discharge detection. Caswell Beach currently administers both programs. Also important to consider is that Caswell Beach's population is below the automatic Phase II community designation threshold of 1,000. However, the Town may still be required to enforce the post construction stormwater management standards as it is adjacent to shellfish resource waters. The post construction stormwater standards apply to developments disturbing a total of one or more acres. There are also additional standards based upon the development projects final built-upon or impervious area, based on whether the total project site has less than or more than 12% impervious coverage. In Caswell Beach, given that essentially all the developable land has been platted into lots under one acre, the only expected development which could trigger Phase II requirements is the *Caswell Landing* project, and the eventual development of a 2.2 acre parcel off Fairway Drive and the 6th Hole. However, the *Caswell Landing* project has a site-specific development plan that has been approved by the Town and has vested rights, and is not subject to the Phase II requirements which will not become effective until July 1, 2007. There are currently (as of 1st quarter 2007) no sketch or preliminary plans for the development of the 2.2 acre parcel. The only other one plus acre parcels in the planning jurisdiction that have development potential

are the 2 private wastewater utility parcels discussed previously in Section 5 of this Plan, and the Oak Island Golf Course parcel. As mentioned before, the Town policy will be to retain the Golf Course in its existing 18-Hole capacity and prohibit residential development on it.

Optional Universal Stormwater Management Program (USMP)

Effective January 1, 2007, the state Division of Water Quality (DWQ) is offering a voluntary stormwater management program for local governments called the Universal Stormwater Management Program (USMP). The USMP is an attempt to provide local governments a one-stop comprehensive stormwater management program, instead of having to refer to several different post construction stormwater related laws that apply in coastal areas. Also, the USMP standards for best management practices and structural devices reflects the latest research regarding the most effective control and treatment of stormwater pollution. The USMP program is voluntary because it exceeds currently legislated minimum requirements, such as the amount of land that can be disturbed before triggering required BMPs.

The USMP is available to local governments that adopt an ordinance that complies with the rule and receives approval from the Environmental Management Commission. For those governments that adopt the program, the rule outlines requirements that apply to development and redevelopment activities that meet defined thresholds. In the 20 coastal counties, the threshold is projects that disturb 10,000 square feet or more, or disturb less than 10,000 square feet but are part of a larger common plan of development or sale.

The USMP option is available to the Town of Caswell Beach and would supercede the new Phase II post construction requirements as mentioned previously, and may eliminate the need to obtain a Phase II Stormwater community permit altogether. The USMP may be administered in part for the Town by the state DWQ, or managed completely in-house. The USMP also allows the Town to always be in compliance with state rule changes, and would forego the need to amend local stormwater ordinances.

6.4 Transportation System

Existing Road Infrastructure

The Town of Caswell Beach has a geographically small land area (360 acres) and is only accessed by land from one main road. There are only 6.5 miles of total roadway in the Town, and the large majority of roadway is either maintained by the NC Department of Transportation (DOT) or privately maintained by homeowners associations. The Town only owns and maintains 897 feet

(.17 miles) of roadway. All roads are two-lane and are on average no wider than 18 feet, with the exception of Caswell Beach Road which is around 25 feet wide on average.

Road System Inventory

Road System	Miles
DOT Secondary Road 1) Caswell Beach Road (SR 1100)	2.6
Privately Maintained Roads (16 Named Streets) o Caswell Dunes Development roads o Arboretum Development roads o Ocean Greens Development roads	3.7
Town Maintained Roads 1) Jack B. Cook Rd. 2) Robert L. Jones Rd.	.17
TOTAL	6.5

Traffic Counts

Traffic congestion within the actual Town limits was not identified as an issue in this Land Use Plan Update. There are no intense commercial activities which generate continuous traffic volume. The Golf Course Club House is the only "commercial" structure that would generate commercial traffic in Town. However, with only one land-based entryway into the Town via Country Club Road, traffic volume can become congested during the heavier peak season days of the summer. The actual traffic volume is not known during the peak season because the DOT does not have a seasonal traffic count point station within the jurisdiction of Caswell Beach. Earlier estimates in this Land Use Plan established that the peak season population could rise up to 1,600 to 2,300 people, and there could be between 320 to 640 day visitors.

While there is no seasonal traffic count location, there is an Annual Average Day Traffic (AADT) count point near the entryway to Caswell Beach. This AADT site is located on Country Club Road near Live Oak Road, right before the Caswell Beach limits [See the map graphic on the following page]. The latest (2005) AADT traffic count for this point location was 2,700 vehicles (includes traffic passing in both directions).

2005 Annual Average Day Traffic (AADT) Count Location

The AADT count means that the lowest traffic volume days counted during the year were calculated with the highest volume days of the year to generate an average day traffic volume of 2,700 vehicles per day for this location. The DOT does not currently prioritize road system improvements solely based on the volume of traffic experienced during one part of the year, the need for improvements are based on an annual average traffic volume (the AADT). A need for road improvements (i.e. widening or adding turn lanes) is determined by comparing the AADT to the road segment's "Level of Service" design capacity. The Level of Service design capacity is a standard traffic volume number used by the DOT that is based on the road's features (i.e. width, number of lanes, etc.). The Level of Service design capacity is the maximum number of vehicles a given road segment can handle before being considered deficient. If the AADT is higher than the capacity, the road is considered deficient and likely to be prioritized for improvements.

The road segment for the 2005 AADT count location in the map graphic above is a 2-lane road with 12 foot or greater individual lane widths. The Level of Service design capacity for this type of road is 11,000 vehicle passes per day. The design capacity of 11,000 for this location is 4 times greater than the 2005 AADT. Meaning that according to current DOT standards, traffic volume would have to increase 4 times over current levels to necessitate prioritized funding. Previous available AADT counts for this same location are 3,100 in the year 2003, and 3,100 in the year 2001. Both counts in previous years are also well below the design capacity of the road.

Traffic Counts in Areas Surrounding Caswell Beach

Despite no year round capacity problems at the immediate entryway to the Town of Caswell Beach, every main regional road accessing the Island on which Caswell Beach is located, has reached capacity or is over capacity [See table and map graphic below]. All of the road sections in the table below are considered primary or secondary roads and are under the jurisdiction of the NC Department of Transportation (DOT). The County does not currently have the authority to build roads or make substantial improvements to DOT roads. The road sections below will have to be placed on DOT's Transportation Improvement Plan (TIP) funding schedule to be funded and improved. Items on the current 2007-2013 TIP to improve traffic flow on the road sections below will be discussed later in this Section.

Table 24: Road Sections Considered At or Over Capacity Based on 2005 AADTs

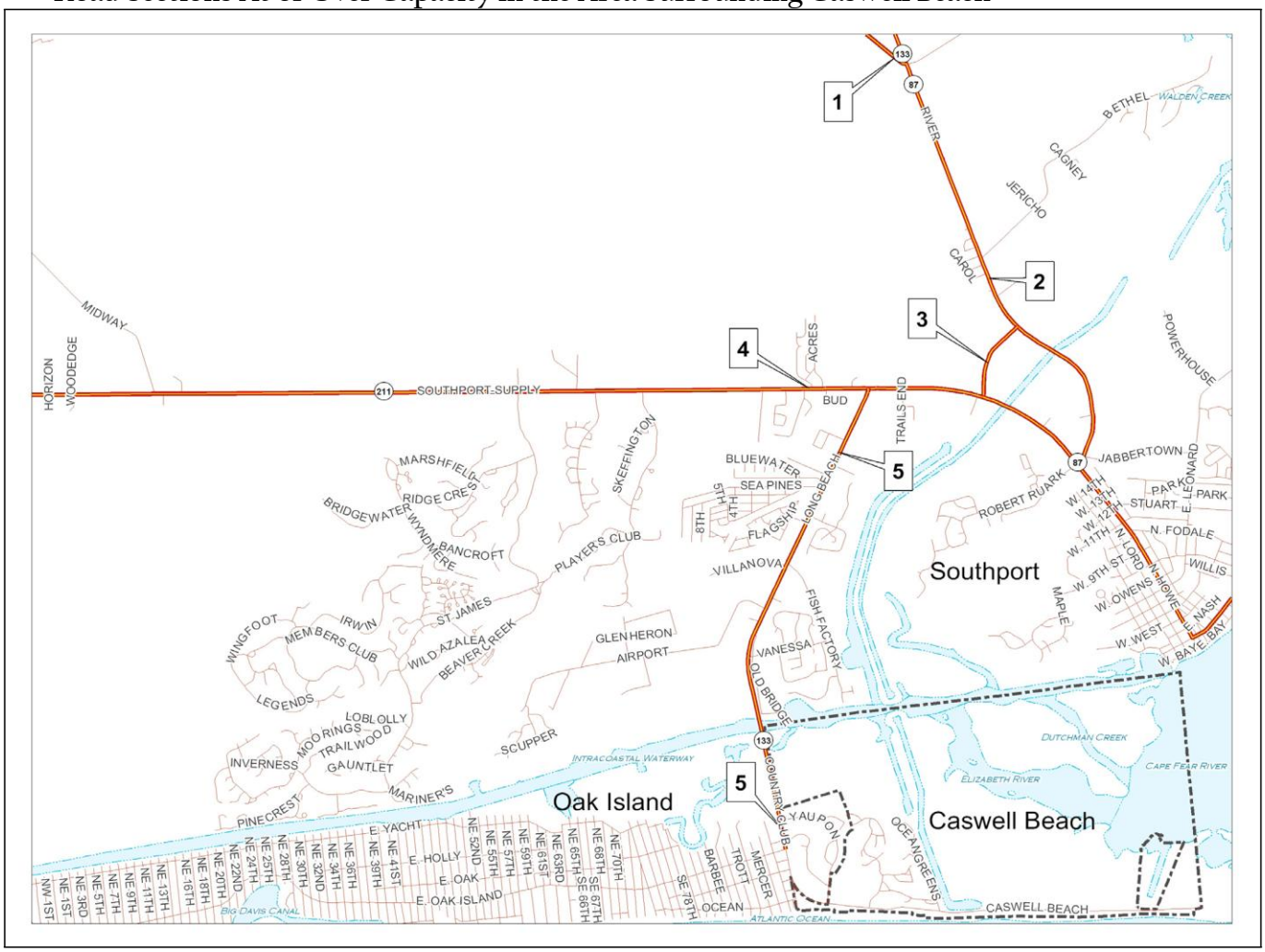
(Source: NC Department of Transportation, Traffic Survey Unit)

Road	2005 AADT	Design Capacity
1) **NC 87** from US 17 to NC 133	14,000	11,000
2) **NC 87/133** from NC 87 to Dosher Cutoff Rd. (NC 133)	17,000	15,000
3) **Dosher Cutoff Rd.** from NC 87/133 to Southport Supply Road (NC 211)	10,000	10,000
4) **Southport Supply Road (NC 211)** from Midway Road to Fodale Avenue	18,000	15,000
5) **NC 133** from Southport Supply Road (NC 211) to East Oak Island Drive		
Two Locations Counted on this Segment of Road		
o Mainland Segment	22,000	15,000
o Island Segment	16,000	15,000

The road section listed as # 5 in the table above is the main entryway to Oak Island (which is the island Caswell Beach is located). The latest AADT counts for this road section shows that on an average day during the year, there can be a vehicle volume of 16,000 to 22,000. If this traffic volume crosses over to Oak Island, over 80% of it travels into the Town of Oak Island via East Oak Island Drive and does not enter the Town of Caswell Beach.

The map graphic on the following page shows the locations of the road sections listed in the table above.

Road Sections At or Over Capacity in the Area Surrounding Caswell Beach



Planned or Needed Road Improvements in Town Jurisdiction

As mentioned earlier, the Town only owns and maintains 897 feet of roadway. These roads are not heavily trafficked and are in relatively good shape. There are no plans to improve these roads. The Town does plan to work with DOT to improve Caswell Beach Road by adding a pedestrian sidewalk and/or a bike path. Funding has not been set aside for these improvements, but it is likely they will be incorporated during or after the excavation for the sewer system piping along Caswell Beach Road.

Planned or Needed Road Improvements in Areas Surrounding Town

The road sections currently over capacity listed in Table 24 are priority areas for Brunswick County's Comprehensive Transportation Plan (CTP). A new updated CTP was initiated in conjunction with DOT in 2006 due to the increased growth of the County and approved siting of the State Port. The Town of Caswell Beach is on the advisory committee to the County CTP. The County CTP will be a year to two-year process in which major road systems in the county will be evaluated for current and projected design deficiencies, and will be subsequently identified for

inclusion on DOT's Transportation Improvement Plan (TIP). The TIP is the funding mechanism used by DOT to identify, prioritize and set-aside funding for specific road improvement projects across the state. The TIP is usually on a seven-year cycle. While improvement projects on the current 2007-2013 TIP will be implemented over the coming years, new needed improvements will be identified and prioritized to be included on the next TIP.

There are two specific improvement projects on the current TIP which are expected to improve the traffic flow on some of the main roads surrounding Caswell Beach which were identified in Table 24. Those projects are TIP project #s R-3324 and R-2245.

TIP Project	Project Description	Expected Construction Start
R-3324	New Route from NC 211 to NC 87 which will parallel and provide an alternative to Dosher Cutoff Road.	2009
R-2245	New Route from North Carolina 211 around Midway Road to a Planned Bridge to access the western end of Oak Island	2007 (to begin route from 211, but multi-year process for entire project)

Project R-2445 is the most beneficial to Caswell Beach as it will provide another access point to Oak Island, and divert traffic away from the current single bridge accessing the island on the western end near Caswell Beach.

6.5 Public Access Facilities and Public Beach

Status of Public Access

Caswell Beach has a small geographic area and a relatively small permanent and seasonal population. There are a total of 10 public access sites along Caswell Beach's 2.75 miles of public beach strand, which is approximately one site every 1,600 feet or 1/3 mile. Of the 10 public access sites, one site is classified as a "Neighborhood Site" with approximately 80 free public parking spaces. The neighborhood site also has portable restrooms, bike racks, and trash disposal. The other sites are classified as "Local Sites" and provide dune walkover but no on-site parking. There is also public access and potential public parking at the Oak Island Light House Park off Caswell Beach Road. On-street parking along Caswell Beach Road is prohibited by ordinance, but the Town intends to reevaluate that policy if needed to meet state and federal beach nourishment funding requirements.

The public access sites to the beach strand are primarily used by seasonal occupants renting housing units during the peak season, and by Caswell Beach residents and their guests. There are no hotels or motels in Caswell Beach serving large populations of seasonal visitors, and day trip beach visitors are limited to the parking at the neighborhood access site off Caswell Beach Road.

Status of Public Beach Strand

The preservation of the public beach strand in Caswell Beach is a top priority of the Town. Beach preservation planning supports the goals and objectives of the Town's Strategic Plan to preserve, protect and maintain the natural environment. As shown in Map 1 [*Areas of Environmental Concern*], there are several relatively high erosion spots along the Town's beach strand ranging from an estimated 4 to 5.5 feet per year. The erosion rate is based on a 50-year historical review of the change in the location of the shoreline. The erosion rate has been adopted by the NC Coastal Resources Commission as the basis for setting its oceanfront dune setback regulations, which affect the location of development along the oceanfront. In 2001, the Town also began measuring and monitoring the width of the berm (dune to high water mark) in seven high erosion areas for the purposes of beach preservation planning. [See Section 4.1 (4) of this Land Use Plan for more information on erosion and see the erosion rate map at http://dcm2.enr.state.nc.us/Maps/ER_1998/Color_PDF/page_7.pdf].

In response to the threat of erosion, the Town has been proactive in beach preservation planning since the late 1990s. Caswell Beach has established a Beach Advisory Board, a Beach Preservation Trust Fund, retained a lobbyist, adopted a Beach Preservation Plan, and issues annual beach reports. [See the Town's website at http://www.caswellbeach.org/index.asp?NID=41 for information on the above documents].

In 2003, the Town adopted its **Five Year Beach Preservation Plan**. The Town's stated purpose of its beach preservation planning is to establish a comprehensive and prioritized five-year program to guide all beach preservation activities including nourishment, preservation, erosion control, restoration, maintenance, and public access. There are nineteen activities recommended for implementation in the **Five Year Beach Preservation Plan**. Those 19 activities are categorized under three areas based on whether the activity is related to nourishment projects, maintenance projects or needed ancillary projects which have broad public benefit. Those activities include:

(Source: Town of Caswell Beach Five Year Beach Preservation Plan)

Beach Nourishment	Beach Maintenance	Ancillary Activities
1. Conduct Erosion Education and Awareness	10. Sand Fences	18. Improve Beach Access Walkways
2. Obtain Feedback from the Public	11. Dune Vegetation	19. Expand Public Parking
3. **"Fifty (50) Year Project"*** Property Acquisition	12. Dune Protection	
4. ID and Obtain Federal/State/County Funding	13. Beach Research	
5. Establish Local Project Funding	14. Hot Spot Tracking/GeoTube Installation	
6. Retain Beach Lobbyists	15. Beach Restoration	
7. Fifty (50) Year Project Easements	16. Debris Removal	
8. Implement 50 Year Project	17. Cooperative Erosion Control Ventures	
9. Organizational Involvement		

***** Federal/State/Local funded beach nourishment project with periodic re-nourishment over 50-year life span. The 50-year project is conducted in part by the Army Corps of Engineers and is reliant on Congressional approval and funding.

Planned 50-Year Beach Nourishment Project

One of the primary goals of the Town's beach preservation planning efforts is to conduct long-term periodic re-nourishment of the beach strand. As part of this plan, the Town has requested the U.S. Army Corps of Engineers (ACOE) to undertake a General Revaluation Report to determine if portions of beach strand in the Towns of Caswell Beach and Oak Island are feasible for a 50-year nourishment project. The project consists of a shared federal, state and locally funded project that includes initial build-up of the beach berm and periodic re-nourishment over a fifty-year period. If the revaluation report approves feasibility and the project moves forward, the ACOE will be required to conduct environmental impact statements and obtain approvals from various Federal and state agencies before beginning any project construction. If approved, a nourishment project would not be expected to start any earlier than the Fall of 2010, according to project managers at the Corps of Engineers. The Corps of Engineers states that the nourishment project is likely feasible based on their preliminary reports and studies, but whether actual construction is begun by 2010 is highly contingent on whether adequate funding from the federal government will be available.

Section 7: Review of the 1997 CAMA Land Use Plan

Introduction: Assessment of the 1997 Land Use Plan Policy Effectiveness and Implementation

This Section contains a brief assessment of the implementation of the 1997 CAMA Land Use Plan. The assessment is to help determine whether the intent of that Plan's policies, and any associated objectives and goals, have been followed by the Town. While some variation from the Plan is expected due to unexpected circumstances, the overall "intent and tone" of the 1997 Plan is expected to be followed. The "intent and tone" can be found in items like the 1997 Vision Statement and in the 1997 policies themselves. It is important to note that the policies adopted in the 1997 Plan are considered the Town's 'current' policies, and will continue to be so until the adoption of the 2007 Plan update.

The assessment can also be useful in helping to identify any strengths and/or problems in the Town's existing "development management program". The "program" is the mechanism in which the Town implements the policies and goals of the 1997 Plan. The "development management program" is basically the Town's land-use related ordinances, capital/infrastructure improvement programs, and any other community enhancement spending programs.

The purpose in assessing the outcomes of the 1997 Plan is for the Town to evaluate how effective it has been in implementing the policies adopted in that Plan, and to evaluate whether any changes to Town ordinances or spending programs are needed to account for any new issues that have emerged. In other words, two questions should be asked in assessing the effectiveness of the 1997 Plan:

1. Has the Town implemented a "development management program" today to deal with the growth and development issues that were expected in the 1997 Plan?
2. Has the pattern of growth and development in Town over the last 10 years been consistent with what was desired in the 1997 Plan?

Generally, the future growth pattern that was desired under the 1997 Plan can be found in the three following locations:

- **The 1997 Policies** (Section IV in '97 Plan, page IV-1),
- **The 1997 "Vision Statement"** (Section IV in '97 Plan, page IV-3), and
- **The 1997 "Future Land Classification System"** (Section III in '97 Plan, page III-1).

The above items can be found in Sections III and IV of the 1997 Land Use Plan, but are also briefly summarized throughout this Section.

Finally, in preparation for establishing policies under the 2007 Land Use Plan update, the assessment of the 1997 Plan also helps identify what policies are effective and can be retained. In particular, it can identify where any adjustments to existing policies are necessary, or where the creation of completely new policy may be needed.

The 1997 Policies

The assessment of the policies in the current adopted Town Land Use Plan (1997) shall consider the following factors:

(A) Consistency of current land use and development ordinances with the existing CAMA Land Use Plan (1997) policies;

(B) Implementation of the land use plan's polices by the Town; and

(C) Effectiveness of the policies in creating desired land use patterns and protecting natural systems (i.e. water quality).

Key Issues in the 1997 Land Use Plan That Were to be Addressed by Policy

The 1997 Plan (Section I, page I-18) and the Plan's Executive Summary (Section II, page 6) showed that the major planning issues identified during that planning process that needed to be addressed included:

- Preservation of the Town as a low-density residential community.
- Address and mitigate ponding and flooding in needed areas.
- Address and mitigate oceanfront beach erosion.
- Provide for a central sewer system.
- Ensure Town capacity could handle a growth in seasonal population.
- Control commercialization.
- Control multi-family development.
- Protect Areas of Environmental Concern.

Action or in-action taken by Town government since 1997 to address the above issues through its policies, ordinances and programs are the primary benchmarks for assessing the 1997 Plan's effectiveness. However, it is important to realize that with any plan, evolving conditions always emerge that may delay, prohibit, or require the altering of intended goals or actions called for in certain policies.

While the Plan is intended to anticipate and prepare for ever-changing conditions, it is difficult to gauge the extent to which those conditions will occur. Overall, the Town of Caswell Beach has been successful in meeting the primary goals established in the 1997 Plan to address the above issues. The Town has retained an overwhelmingly low-density residential community and continues to exceed state standards regarding development activity in Areas of Environmental Concern. However, there are some important conditions and factors that have emerged and have complicated complete policy implementation. Such conditions and factors should be considered while evaluating the 1997 Plan policies. Those conditions include:

1. Growth in surrounding Brunswick County has continued to increase; between 1997 and 2005 the county grew by 43%. Growth in surrounding areas has led to infrastructure capacity concerns regarding sewer, water and transportation networks.

2. As population has increased, land values have increased, causing development trends to favor higher-density developments (i.e. development pressure has sharply increased for increased building heights and multiple unit structures).
3. While a centralized sewer system was planned and discussed in the 1997 Plan, funding availability has led to delays in implementation.

Table 25 below lists all the existing Town policies as adopted in the 1997 CAMA Land Use Plan. The polices are evaluated on: 1) whether the Town development ordinances/programs have remained consistent with the policy; 2) whether the policy has been implemented by the Town (if it calls for action to be taken); and 3) whether the policy has been effective in reaching its intended goal. The policies are not listed in the order they are found in the 1997 Plan, but have instead been categorized under the six **Management Topics** which are required under the new CAMA planning guidelines governing the creation of this Land Use Plan Update (See Section 2.2.3 in this Plan for more info). Categorizing the existing policies under the Management Topics will help in creating and organizing the policy section of this 2006/2007 Plan Update. Existing policies that are adequate can be retained, policies that need adjustments can be updated, and areas where new policy is needed can be inserted under its applicable Management Topic category.

Table 25: Consistency, Implementation and Effectiveness of the 1997 Land Use Plan Policies

1997/Existing Policy (Organized Under Management Topics)	Have Town Development Ordinances/Programs remained consistent with policy?	Has the policy been implemented by the Town?	Has the policy been effective in reaching a Town goal?
1)"Public Access" Management Topic			
Policy Name: Recreation Resources	Yes. Beach preservation planning has included provisions for the need to increase public access and facilities to secure beach nourishment funding.	Yes. Town has enhanced existing public access sites (i.e. parking and dune walkover structures).	Yes. Given the Town's location, size and lack of commercial activity, the number of beach "visitors" experienced by the Town has generally not exceeded the Town's capacity.
2) "Land Use Compatibility" Management Topic			
Policy Name: Soils	Yes. Town limits density through its development ordinances. Also, Town relies on state and County regulations regarding septics.	Yes. Town limits density through its development ordinances to control wastewater capacity.	Generally Yes. However, soil limitations for existing development and private package plants has continued to present ground absorption problems.
Policy Name: Industrial Impacts on Fragile Areas	Yes. Zoning prohibits industrial and heavy commercial uses.	Yes.	Yes. No industrial or heavy commercial sites have been developed.
Policy Name: Types and Locations of Desired Industry and Urban Growth Patterns	Yes. Town policy opposes industrial development in the planning jurisdiction. Industrial uses have been prohibited through zoning ordinance.	Yes.	Yes.

1997/Existing Policy (Organized Under Management Topics)	Have Town Development Ordinances/Programs remained consistent with policy?	Has the policy been implemented by the Town?	Has the policy been effective in reaching a Town goal?
"Land Use Compatibility" Management Topic Cont'd			
Policy Name: Development of Sound and Estuarine Islands	Yes. Town exceeds CAMA regulations and does not allow any commercial or residential use as a permitted use in its zoning ordinance. Town zoning of estuarine island areas as "Conservation", only allows those accessory recreational and utility uses which are allowed under CAMA law.	Yes.	Yes. No residential dwelling or commercial structures have been developed on estuarine islands in the planning jurisdiction.
Policy Name: Bulkhead Construction	Town opposes bulkhead construction along estuarine shorelines and ocean hazard areas. Town has not prohibited bulkhead construction by local ordinance and relies on CAMA regulations in 15 NCAC 7H to manage bulkhead construction.	Town continues to support the opposition of bulkhead construction.	Yes. Bulkhead construction along estuarine shorelines is limited in Town.
Policy Name: Manmade Hazards	Yes. Town has maintained zoning which prohibits intense commercial, including gas stations and other uses which may store hazardous materials on-site.	Yes.	Yes. No development of uses or structures which store hazardous materials on-site. Package treatment plants which store wastewater, are in the process of being decommissioned. Wastewater will be removed from the planning jurisdiction and not treated on-site in the jurisdiction.
Policy Name: Residential, Commercial and Industrial Development Impacts on Resources	Yes. Town follows CAMA regulations in 15 NCAC 7H regarding allowable residential and accessory residential uses in AECs. Town zoning limits density of such residential uses to 35 feet* maximum height single-family units in properties which front estuarine shoreline, estuarine water and public trust areas.	Yes. Town has allowed residential uses in accordance with CAMA regulations. Town has maintained limited residential densities, and has prohibited commercial or industrial development.	Yes. Development impacts have been managed to protect natural resources such as coastal wetlands and estuarine islands. Development has also been managed to retain the existing low residential density along waterfront areas.

*May allow additional height to structures in designated flood zones with a regulatory flood protection height requirement. Not to exceed 26 feet above the regulatory flood protection height.

1997/Existing Policy (Organized Under Management Topics)	Have Town Development Ordinances/Programs remained consistent with policy?	Has the policy been implemented by the Town?	Has the policy been effective in reaching a Town goal?
"Land Use Compatibility" Management Topic Cont'd			
Policy Name: Redevelopment of Developed Areas	Yes. Town ordinances allow redevelopment of older or threatened structures to redevelop in accordance with existing development standards.	Yes.	Yes. Redevelopment activities have occurred according to and within existing development regulations.
Policy Name: Annexation/Planning Jurisdiction	Yes. Policy establishes Town interest in considering annexation of properties adjacent to Town limits.	Yes. The Town has annexed the Oak Island Light House and park properties. Town is in favor of exercising ETJ and annexation over the "Baptist Assembly" property if it is sold or ownership is transferred. "Assembly" area, and Town authority over it, is governed via a Local Bill in the state legislature.	Yes. Oak Island Light House and park have been annexed. Town is planning for potential annexation of Baptist Assembly area (if sale or transfer of ownership).
Policy Name: Energy Facility and Siting	Yes. Town policy is to prohibit energy generating facilities (other than individual solar panels) in the planning jurisdiction.	Yes.	Yes. No facilities have been developed.
1997/Existing Policy (Organized Under Management Topics)	**Have Town Development Ordinances/Programs remained consistent with policy?**	**Has the policy been implemented by the Town?**	**Has the policy been effective in reaching a Town goal?**
3) "Infrastructure Carrying Capacity" Management Topic			
Policy Name: Groundwater/Protection of Potable Water Supply	N/A. Town has no local water wells in use.	N/A. Town has no local water wells in use. However, Town does not allow commercial or industrial uses which could contaminant underground water supplies. Town is seeking sewer to eliminate groundwater contamination from septic systems and package plants.	N/A. Town has no local water wells in use.

1997/Existing Policy (Organized Under Management Topics)	Have Town Development Ordinances/Programs remained consistent with policy?	Has the policy been implemented by the Town?	Has the policy been effective in reaching a Town goal?
"Infrastructure Carrying Capacity" Management Topic Cont'd			
Policy Name: Package Treatment Plant Use	Yes. Zoning allows package treatment, consistent with 1997 Plan. Town will require decommissioning of Package Treatment and require hook-up to sewer system when it becomes operational. County Health Department rules are enforced.	Yes.	Yes. Town has received a CWMTF grant to decommission all existing package treatment plants and replace wastewater treatment with central sewer and mainland treatment plant.
Policy Name: Water Supply	Yes. Town policy is to purchase water from the County and distribute via a Town distribution system. Developers of subdivided property are required to pay for water line construction to serve newly created lots and/or structures. All development is required to connect to Town water distribution system. Town residential density and commercial activity has been limited in part to control water use demand.	Yes.	Generally yes. Although water pressure can be an issue during peak season. The Town receives its water from the County, which also supplies retail customers as well as other municipalities. Increased water treatment capacity has been identified as a need of the overall County water system. Upgrades are planned by the County to increase both water treatment capacity and distribution efficiency over the next five to seven years.
Policy Name: Sewer System	Yes. Town has applied for and secured a Clean Water Management Trust Fund Grant for the decommission of 2 private package treatment plants and for the construction of a central sewer collection system. Town funds are also necessary to complete the project.	Yes. Planning and funding for sewer is 50% complete as of 1st Quarter 2007.	Generally Yes. Project is ongoing.
Policy Name: Stormwater	Yes. Town policy includes establishing land use controls to better manage and/or eliminate stormwater drainage problems. Stormwater Drainage Study, Stormwater Management Plan and Stormwater Ordinance have been completed and adopted by Town.	Yes. Town Stormwater Ordinance is intended to reduce/eliminate stormwater volume entering the local drainage system.	Indeterminate and on-going. Ponding remains an issue in certain areas in Town. Stormwater Ordinance addresses new development, but existing development is large cause of stormwater runoff entering local drainage system.

1997/Existing Policy (Organized Under Management Topics)	Have Town Development Ordinances/Programs remained consistent with policy?	Has the policy been implemented by the Town?	Has the policy been effective in reaching a Town goal?
"Infrastructure Carrying Capacity" Management Topic Cont'd			
Policy Name: Transportation	Yes. The Town has supported the DOT's Transportation Improvement Program, and has an advisory role in Brunswick County's current (2006/2007) Comprehensive Transportation Plans.	Yes.	Ongoing. Traffic counts (i.e. congestion) on and off Oak Island has continued to increase. Second Bridge to Oak Island is scheduled and expected to alleviate congestion affecting Town.
4) "Natural Hazards" Management Topic			
Policy Name: Flood Hazard Areas	Yes. The NC Floodplain mapping project studies have updated Base Flood Elevations. Town is NFIP member and has adopted new Flood Prevention Ordinance to include the new Base Flood Elevations. The Town requires a 2-foot freeboard above BFE. Vast majority of zoning in VE flood zone limits density of structures to single-family detached with 35-foot* height limit on 12,000 to 8,000 sq. ft. lots. Only exception is Oak Island Villa Condos, which are in the VE zone and pre-date the new regulations.	Yes. Town has implemented new Flood Prevention Ordinance. Town has also retained its prohibition of higher density structures in high hazard flood areas. Town has implemented Stormwater Ordinance and Management Plan to control water runoff and ponding.	Town does have a comparatively low loss and claim statistic (See Table 15) within the NFIP program, but low elevation has continued to cause ponding and even overwash in certain areas (i.e. 700 Block of Caswell Beach Road and near intersection with Ocean Greens Lane) during stronger storm events.
Policy Name: Sea Level Rise	Yes. Town participates in Floodplain management and actively monitors beach migration. Town is seeking 50-Year Nourishment Project from the Army Corps of Engineers.	Yes. Town has not allowed increased density development in high hazard flood areas.	Generally yes, although long-term effects of both sea rise and beach migration may have serious effects on oceanfront and near ocean/sound properties in Town.
Policy Name: Ocean Hazard Areas	Yes. Zoning has limited density and scale of development in ocean erodible areas. Town has also actively sought beach nourishment assistance and beach preservation planning.	Yes. Beach Preservation committee, plan and fund have been established. Town has not increased density allowances in ocean hazard areas.	Generally yes regarding managing development in ocean hazard areas. However, beach erosion has continued to be an issue that the Town will have to continuously address.
Policy Name: High Winds	Yes. The Town supports and enforces the North Carolina state building code regarding wind resistant construction.	Yes. Town continues to support and enforce updates to state building code.	Yes.

*May allow additional height to structures in designated flood zones with a regulatory flood protection height requirement. Not to exceed 26 feet above the regulatory flood protection height.

1997/Existing Policy (Organized Under Management Topics)	Have Town Development Ordinances/Programs remained consistent with policy?	Has the policy been implemented by the Town?	Has the policy been effective in reaching a Town goal?
"Natural Hazards" Management Topic Cont'd			
Policy Name: Flooding	Yes. Town continues participation in the national flood insurance program (NFIP) and enforces a flood damage prevention ordinance, and a stormwater management ordinance.	Yes. In addition to continuation of flood damage prevention ordinance, the Town has implemented a stormwater management ordinance. The Town has also conducted drainage studies to determine needed drainage system improvements.	Indeterminate. Steps have been taken by Town to mitigate flooding problems; however, flooding remains an issue in certain areas of Town (identified in Drainage Study).
Policy Name: Redevelopment of Hazard Areas After a Storm	Yes. Town continues to enforce policy that buildings damaged in excess of 50% of its value must conform to existing regulations when redeveloped.	Yes. Redevelopment in Hazard Areas will also be subject to new stormwater management regulations and the updated Flood Damage Prevention Ordinance.	Yes. In addition to increasing management and regulation of redevelopment and development in Hazard Areas, the Town has maintained low density building in high hazard areas.
Policy Name: Evacuation Plans	Yes. The Town utilizes an Emergency Response Plan to outline duties and management steps to implement during emergency situations.	Yes.	Generally Yes. Coordination and efficiency of action have been increased during emergency situations by having plan outlining emergency procedures. However, growth of neighboring jurisdictions and currently only one access way on and off Oak Island continues to present evacuation problems.
5) "Water Quality" Management Topic			
Policy Name: Stormwater Runoff	Yes. Town has adopted a Stormwater Ordinance that exceeds state standards regarding new development. Town will adopt new Phase II NPDES post-construction rules by July 1, 2007. Town follows CAMA regulations in 15 NCAC 7H regarding development in AECs.	Yes. On-going. Stormwater Ordinance, Drainage Study and Management Plan have all been conducted. Improvements to drainage system are being prioritized and are likely to be funded.	No. Shellfishing closures have increased/remained. Since water-adjacent areas are essentially built-out, pollutants in Stormwater runoff from existing development and drainage systems are contributing to water quality problem. Drainage system retrofits and implementation of sewer system could alleviate some of the problem.

1997/Existing Policy (Organized Under Management Topics)	Have Town Development Ordinances/Programs remained consistent with policy?	Has the policy been implemented by the Town?	Has the policy been effective in reaching a Town goal?
"Water Quality" Management Topic Cont'd			
Policy Name: Marina and Floating Home Development	Yes. Town opposes such development. Marinas (10+ boat slips), dry stack boat storage and floating homes are not a permitted use in the zoning ordinance.	Yes. No marinas, moorings or dry stack storage have been developed in the planning jurisdiction.	Yes.
Policy Name: Water Quality Management	Yes. The Town has reviewed its development regulations and has implemented a stormwater ordinance which encourages limited impervious surfaces, requires preservation of vegetative buffers, and could require the use of stormwater detention/retention practices depending on the development.	Yes.	Indeterminate. Stormwater from existing development, development in other jurisdictions, and issues with malfunctioning septic systems and package treatment plants have not allowed for the preservation or improvement in water quality in the local watershed.
Policy Name: Estuarine Waters and Public Trust Areas	Yes. The Town supports preservation of water quality by opposing marinas, floating homes, mooring fields, estuarine island development, and bulkheads. Such uses are opposed by Town policy and should not be permitted through the CAMA permitting process.	Yes.	Yes. Marina, mooring field, and estuarine island development has not occurred. However, overall water quality in the local watershed has decreased or at least closed to shellfishing as urban type development has increased over the years. Retrofits to retain and treat stormwater drainage of existing development, and elimination of septic systems and package plants may be necessary to improve local water quality.
Policy Name: Coastal Wetlands	Yes. Town has relied on 15 NCAC 7H to regulate development in coastal wetland areas. Town opposition to development of estuarine islands, marinas and mooring fields has contributed to preservation and 'low disturbance' of coastal wetlands.	Yes. Town has limited private pier lengths through ordinance to within a common "line of sight" to retain similar distances among all piers.	Yes. No development other than limited riparian access (i.e. private piers) have been allowed in coastal wetland areas.

1997/Existing Policy (Organized Under Management Topics)	Have Town Development Ordinances/Programs remained consistent with policy?	Has the policy been implemented by the Town?	Has the policy been effective in reaching a Town goal?
"Water Quality" Management Topic Cont'd			
Policy Name: Estuarine Shorelines	Yes. Town supports 15 NCAC 7H regulations, and has retained single-family zoning along estuarine shoreline areas.	Yes. The Town adopted in 2005 a Stormwater Ordinance to further protect estuarine shorelines with requirements for the creation and/or preservation of vegetated buffers of watercourses, waterbodies and wetlands.	Generally yes. Density of development along estuarine shorelines has not been allowed to increase. Town is continuing activities to improve its stormwater drainage, which may include increasing vegetated buffers of shorelines.
Policy Name: Marine Resource Areas	Yes. Town supports CAMA regulations 15 NCAC 7H regarding use standards in estuarine and public trust waters. Town opposes uses such as marinas and mooring fields which would be incompatible with maintaining integrity of such natural resources.	Yes. Town policy has been to oppose incompatible uses in estuarine and public trust waters. Town has continued such policy.	Yes. No development of incompatible uses with estuarine and public trust waters have been allowed in the planning jurisdiction.
Policy Name: Aquaculture Activities	Yes.	Yes. The Town has not allowed aquaculture activities.	Yes. No such activity has occurred.
6) "Local Concerns" Management Topic			
Policy Name: Solid Waste	Yes.	Yes.	Yes. No identified waste disposal issues.
Policy Name: Cultural/Historical Resources	Yes.	Yes. Policy does not call for specific activity.	Yes. Policy does not call for specific activity.
Policy Name: Off-Shore Drilling	Yes. Town opposes off-shore drilling through policy, and would not allow on-shore facilities which would support such off-shore drilling.	Yes. Policy does not call for specific activity.	Yes.
Policy Name: Off-Road Vehicles	Yes. Zoning prohibits such activity.	Yes.	Yes.
Policy Name: Commitment to State and Federal Programs	Yes. Town relies in part on state regulation and permitting in CAMA AECs and federal regulation of 404 wetlands.	Yes. Policy is statement of support for state and federal programs. Policy does not call for specific activity.	Yes. No issues identified as problems resulting from support of state and federal programs.
Policy Name: Assistance in Channel Maintenance	Yes. Town policy continues to support channel maintenance of public trust waters. However, the Town discourages dredging of certain areas which could increase erosion.	Yes. Policy does not call for specific activity.	Ongoing. No specific problems/issues identified, other than federal funding for dredging.

1997/Existing Policy (Organized Under Management Topics)	Have Town Development Ordinances/Programs remained consistent with policy?	Has the policy been implemented by the Town?	Has the policy been effective in reaching a Town goal?
"Local Concerns" Management Topic Cont'd			
Policy Name: Assistance in Interstate Waterways	Yes. Town officials have become involved in advocacy organizations supporting the adequate maintenance of the intracoastal waterway for the economic and public recreational benefits it provides.	Yes.	Ongoing. No specific problems/issues identified, other than federal funding for dredging.
Policy Name: Tourism	Yes. Town generally supports tourism industry in region.	Policy does not call for specific activity.	Ongoing.

According to the general assessment in the table previously, the Town has largely been successful in remaining consistent with and implementing a majority of the policies it adopted under the 1997 Land Use Plan.

1997 Vision Statement

After assessing the individual policies, the Vision Statement should also be reviewed as it is intended to provide the overall direction, intent and tone of the 1997 Land Use Plan. Generally, the individual policies and the Vision Statement are to be consistent and complimentary. The Vision Statement adopted in 1997, which was intended to state the desired character of the Town 10-years in the future, which is now present day (2007), is as follows:

> **"Caswell Beach is a family-oriented residential community. Its population is composed of a healthy blend of diverse backgrounds and interests. The community will continue to protect its residential character and its natural assets including consideration of the latest technology. The Town is proud of the quality of life, which it provides its residents and visitors. Preservation of this quality of life will be a primary concern of the Town."**

The direction and intent of the Vision Statement outlines that the preferred growth and development pattern for the Town between 1997 and 2007 was to remain a smaller-scale residential and retirement-type community with limited growth in residential density and very limited, if any, commercial growth. The Vision Statement also stresses protection of natural resources and features, which the Town has tried to accomplish by opposing those uses which would be incompatible (i.e. marinas, mooring fields, estuarine island development and disturbance of coastal wetlands).

1997 Future Land Classification System

The Future Land Classification System and Map in the 1997 Plan are also useful in evaluating whether desired land-use patterns were maintained and are today consistent with what was intended. Because of the small geographic size of the Town's planning jurisdiction, the Land Classification System only identified two general categories of future land-use in Town. Those categories included: 1) Conservation, and 2) Developed. While the Land Classification System did not set criteria for density or scale of development in various areas of the Town, it did outline the boundary between areas that were essentially built-out and will develop along an urban-type pattern ("Developed" category) and areas that are to be protected from intense development ("Conservation" category).

The Town has been successful in implementing the desired growth pattern outlined in the 1997 Land Classification System for the areas classified in the "Conservation" category. It has done this by protecting them from intense development through the implementation of the Town's single-family-only zoning districts (R-20 SF, R-12 SF and R-8 SF) which abut the areas in the "Conservation" category, and through its Conservation (C) zoning district which strictly limits development activity to only low-impact and only accessory-type uses. No primary residential or commercial structures are allowed in the Conservation (C) zoning district.

The areas classified as "Developed" in the 1997 Land Classification System are currently zoned to allow a mix of residential scales and types. Including some multi-family and duplex in the interior of Town, transitioning to single-family near public trust waters and other Areas of Environmental Concern. Commercial activity is very limited in the "Developed" category, and this area also includes an 18-hole golf course that is considered 'recreation' and desired to remain as such. These types of zoning and development characteristics are consistent with the intent of the 1997 Land Classification System.

Summary of Town Implementation and Consistency With 1997 Land Use Plan Policies

In general, the Town has implemented and remained consistent with the main policies regarding the desired future growth patterns and overall character of the Town. The main policies that were implemented and followed include:

1. Maintaining the predominantly residential character of the Town.
2. Maintaining a lower-density development pattern (including maintaining predominantly 35' building height limits).
3. Maintaining the Town-wide ratio of single-family to multi-family structures.
4. Allowing only single-family structures on developable lots near ocean hazard areas, estuarine shorelines and public trust waters.
5. Implementing a beach preservation program.
6. Prohibiting marinas, mooring fields and development of estuarine islands.
7. Implementing a stormwater plan for the jurisdiction and a stormwater ordinance for new development.
8. Securing a CWMTF grant for a centralized sewer system.

While a Town goal of the 1997 Plan was to preserve and/or improve surface water quality, water testing by the North Carolina Shellfish Sanitation Branch, North Carolina Division of Water Quality and the University of North Carolina at Wilmington indicate that the water quality has been declining and/or not supporting of its designated use (shellfishing) in the local area watershed. The Town has been proactive in regulating stormwater by adopting a stormwater ordinance, which exceeds the state required standards regarding new development. However, the existing drainage system and existing development have not yet been fully addressed. Implementation of a sewer system may address some of the pollution sources found in existing development (i.e. failing or overloaded private package treatment plants and septic systems), but retrofitting the existing Town-wide stormwater drainage system may be needed. One available option to address stormwater from existing development would be to utilize the septic systems on individual properties as "underground rain cisterns". These rain cisterns would catch stormwater from rooftops via a simple gutter system and prevent the stormwater from carrying pollutants through the Town-wide drainage system and into area waters. This may be an option to consider in Caswell Beach due to the fact that a sewer system will eventually be built, and the existing septic systems will be taken off-line. If the septic systems could be used as rain cisterns, the cost of removing them after the sewer system is constructed could be avoided in addition to their functioning to remove stormwater loading into the Town drainage system. The North Carolina State Biological and Agricultural Engineering extension service could advise on the rain cistern option and other options for retrofitting the existing drainage system.

Many of the issues and associated policies in the 1997 Land Use Plan continue to be applicable to the Town today. It is likely that many of the policy statements which reaffirm the Town desired growth pattern will be retained or updated. New policy areas for this Land Use Plan update may focus on addressing water quality problems caused not just from new development but also from stormwater coming from existing development and the existing stormwater drainage system. Other new policy areas may be needed on the issues of recreation areas, transportation systems and public access facilities, as they will be stressed from increasing populations.

Phase II of the CAMA Land Use Plan:

Section 8: Plan For The Future- Goals and Policy Statements for the Town of Caswell Beach

8.1 Land Use and Development related Goals of the Town

Throughout the planning process, the Town identified several existing and emerging issues facing Caswell Beach. From the needs and issues expressed by the community, staff, and officials, the Town developed a core set of goals to seek to achieve during the next five years and beyond. Some of the Town goals are paraphrased below (refer to Sections 2.1 through 2.2.1 for an overview and comprehensive listing):

- Retain the traditional character, intensity and density of the residential areas, particularly the existing single-family neighborhoods and areas.
- Implement a sewer system designed for the primary purpose of protecting environmental and human health, and minimizing the potential for "induced development" (i.e. increased building densities and intensities).
- Reduce the negative effects of stormwater runoff and flooding.
- Preserve the existing "commercial recreational" use of the golf course and prevent future residential infill development on the golf course.
- Reduce the negative effects of nuisances such as noise, lighting and illegal parking.
- Enhance and increase public parking and public access facilities.

In addition to the Town's set of core goals, the Coastal Resource Commission (CRC) and the Division of Coastal Management (DCM) have integrated a set of goals to assist the Town in meeting the requirements of the Coastal Area Management Act (CAMA). These goals are related to six development-related Management Topics established by the CRC (discussed in Section 2.2.3 of this Plan). Consistency with the Management Topics was determined to be essential for the proper use, development, and protection of natural and manmade resources in coastal areas. The Town's goals under the Management Topics are as follows:

- Ensure that development and use of resources or preservation of land minimizes direct and secondary environmental impacts, avoids risks to public health, safety and welfare and is consistent with the capability of the land based on considerations of interactions of natural and manmade features.
- Ensure that public infrastructure systems are appropriately sized, located and managed so the quality and productivity of areas of environmental concern and other fragile areas are protected or restored.
- Maximize public access to the beaches and the public trust waters of the jurisdiction.
- Maintain, protect and where possible enhance water quality in all coastal wetlands, rivers, streams and estuaries.
- Conserve and maintain barrier dunes, beaches, flood plains, and other coastal features for their natural storm protection functions and their natural resources giving recognition to public health, safety, and welfare issues.

8.2 Definitions of Action and Descriptive Words Used in Policies

The following is a list of definitions for the 'action-words' used in the Town's policy statements. This list is used to help in clarifying a policy's meaning and intent.

Shall: An obligation to carry out a course of action.

Should: An officially adopted course or method of action intended to be followed to implement the community Goals. Though not as mandatory as "shall", it is still an obligatory course of action unless clear reasons can be identified that an exception is warranted.

May: Implies permission to pursue a course of action or implies that a course of action is probable and likely. While "may" leaves room for flexibility for a range of choices, it does not imply a "may" or "may not" status as used in policy statements.

Create: Bring about the desired goal, usually with Town staff and Planning Board involved at all levels from planning to implementation. This could include financial support by the Town.

Continue: Follow past and present procedures to maintain desired goal, usually with Town staff involved at all levels from planning to implementation.

Encourage: Foster the desired goal through Town regulation, staff recommendation and decisions.

Discourage: Inhibit an undesired course or action through Town regulation, staff recommendation and decisions.

Enhance: Improve current regulations and decisions towards a desired state through the use of policies and Town staff at all levels of planning. This could include financial support by the Town.

Identify: Catalog and confirm resource or desired item(s) through the use of Town staff and actions.

Implement: Actions to guide the accomplishment of the Plan recommendations.

Maintain: Keep in good condition the desired state of affairs through the use of Town regulations and practices by staff. Financial support by the Town should be provided if needed,

Prevent: Stop described event through the use of appropriate Town regulations, staff actions, Planning Board actions, and Town finances, if needed.

Promote: Advance the desired state through the use of Town policies and codes and Planning Board and staff activity at all levels of planning. This could include financial support by the Town.

Protect: Guard against a deterioration of the desired state through the use of Town policies and regulations, staff, and, if needed, financial support by the Town.

Provide: Take the lead role in supplying the needed financial and staff support to achieve the desired goal. The Town is typically involved in all aspects from planning to implementation to maintenance.

Support: Supply the needed staff support, policies, and financial assistance at all levels to achieve the desired goal.

Sustain: Uphold the current state through Town policies, decisions, financial resources, and staff action.

Work: Cooperate and act in a manner through the use of Town staff actions, and policies to create the desired goal.

8.3 Policy Section Introduction and the Town of Caswell Beach Policy Statements

Within this Plan, the Town has established a set of land use and development related policies to act as guidelines to be followed during any official decision making process of the Town, which can include but is not limited to zoning ordinance decisions, grant application decisions, capital improvement budget decisions, and any other Town ordinance or program decisions that impact community development. The Town policies also provide citizens, property owners and developers with a predictability of official actions. Town policies in this Plan were established based on the Town's Vision Statement, goals set from the identification of needs and issues facing the community, and the analysis of trends in local demographics, environmental conditions, existing land uses, and availability of community facilities.

For simplification in the organization and presentation of Town policies, all policies have been separated by their subject matter into five general Management Topic area categories that relate to each policy's respective subject matter. The five Management Topic area categories used in this Plan include; 1) Land Use Compatibility, 2) Infrastructure Carrying Capacity, 3) Public Access, 4) Water Quality, and 5) Natural Hazards Mitigation.

As stated above, each of the Town policies have been separated and categorized under one of the five Management Topics. To avoid repetition, policy statements that may be applicable to multiple Management Topics are only stated once under the Management Topic they apply to the most, but are referred to under any subsequent Management Topics they may also apply.

The format used for listing policies consists of first identifying the **Management Topic,** and then stating the **Management Topic's Goal** as established under CAMA. Also included in the format may be a description of specific **Town Goals** that relate to the Management Topic, as well as a brief **Objectives and Background Discussion** that provides a general introduction and context for the policy statements. Sub-headings, or **Policy Titles**, (e.g. Areas of Environmental Concern) are numbered and underlined, and were used under each respective Management Topic (e.g. Land Use Compatibility) to further separate policy statements into more distinct subject topic areas. Policy statements under the sub-headings directly relate to the sub-heading, and then more generally to the Management Topic. In addition, **Policy Notes** may follow certain policy statements. The Policy Notes are intended to provide the context and intent for which the policy statement was created, or to help clarify terms used in the statement itself.

IMPORTANT NOTE: Any official land use or development related decisions made by the Town after the adoption of this Land Use Plan are expected to be consistent with both the policy statements in Section 8 and the *Future Land Use Classification Map* and *Future Land Use Classification Area Development Standards Table* in Section 9. Any official Town decisions that are inconsistent with the policy statements, *Future Land Use Classification Map* and *Future Land Use Classification Area Development Standards Table* must follow Policy # 23(see below), and if substantially inconsistent, may require a Land Use Plan amendment process with a public hearing, as well as a certification review by the Coastal Resources Commission. See sections 10 through 10.2 (Tools for Managing Development); these guidelines must be adhered to when development decisions are being considered. Policies number 2 and 7 on page 97-98 (Section 8) exceed state minimum standards.

23. Land Use and Development Decisions Consistent with Strategic Plan and Land Use Plan

Policy: Any official Town land use and development related actions (e.g. re-zonings, text amendments, stormwater rules, etc.) shall remain consistent with the policies adopted in the Strategic Plan, the Land Use Plan and any other applicable plan. Any Town actions which are inconsistent with those plans or other related plans shall require a statement from the Town body approving such decisions as to why those decisions are necessary and how any negative impacts will be mitigated.

I. Management Topic: Land Use Compatibility

CAMA Land Use Compatibility Goal:

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

Town Land Use Compatibility Goals:

- Maintain and enhance quality of life (i.e. Town's environmental health, aesthetics, amenities, and property values).
- Maintain and enhance proactive management of all new development and redevelopment regarding intensity (i.e. building height, lot coverage and bulk) and density (i.e. units per acre).
- Retain the traditional character, intensity and density of the Town's residential areas.
- Develop (and redevelop) as a primarily residential community, with strict limitations on commercial growth.
- Maintain the existing "Commercial Recreational –CR" zoning designation for the 18-hole Oak Island Golf Course.
- Increase Town participation and contribution in Regional Growth Management (e.g. State Port, Airport, County Transportation Systems, Potable Water, Sewer, and Environment).
- Prepare to assume planning authority over areas that may be annexed or included in the Town's extraterritorial jurisdiction (ETJ).

Objectives and Background Discussion

The Town's policies listed below represent the Town's growth and development management strategy. The policies provide guidance on setting criteria for development density, types of appropriate land uses and structures, and the management of the CAMA Areas of Environmental Concern (AECs). The Town of Caswell Beach has stated in its Vision Statement, goals and other sections of this Land Use Plan that its intent is to be proactive in managing growth and development in order to maintain its high quality of life and Town character as a small and low-key residential/resort community. As detailed in Section 5, the Town has limited vacant and buildable land available to develop, and any future redevelopment in a manner inconsistent with the existing Town character is opposed.

Cross-Reference Note to Land Use Compatibility Policy Statements: Section 9, following, will detail the Town's standards for future development and redevelopment in the various distinct areas of the planning jurisdiction. Those standards include density, intensity and land use type. Section 9 is to be used in conjunction with the Land Use Compatibility Policy Statements following below.

Land Use Compatibility Policy Statements

1. <u>Areas of Environmental Concern in General</u>

   Policy (a): The Town supports the protection of Areas of Environmental Concern (AECs) designated under the Coastal Area Management Act (CAMA) in 15A NCAC

Subchapter 7H. The Town shall seek the full enforcement of state, federal and local regulations regarding AECs.

Policy (b): Areas of Environmental Concern are designated as "Conservation" on the Town's Future Land Use Map and are subject to stricter development review and regulation as outlined in the Town's Conservation Zoning District and in the standards for floodway and shoreline protection in the Town's Stormwater Ordinance.

2. **Development of Sound and Estuarine Islands**

Policy: Caswell Beach opposes any construction on sound or estuarine islands.

3. **Ocean Hazard Areas**

Policy (a): It is Caswell Beach's policy to preserve its ocean hazard areas.

Policy (b): The Town of Caswell Beach supports beach nourishment as the preferred erosion control measures for ocean hazard areas. The Town will also evaluate and consider any other environmentally sound erosion control options that may be developed in the future.

Policy Notes: The Town of Caswell Beach actively engages in beach preservation planning which includes an adopted Beach Preservation Plan, periodic monitoring and measuring of beach conditions, public education, a dedicated fund for beach preservation activities, participation in beach preservation consortiums and associations, and pursuit of long-term nourishment projects.

4. **Estuarine Waters and Public Trust Areas**

Policy (a): Caswell Beach supports the preservation of water quality in its estuarine and public trust waters.

Policy (b): The Town shall seek to establish a local watershed planning group for its 14 Digit HUC watershed.

Policy Notes: The 14 digit Hydrologic Unit Code (HUC) is a local watershed area that represents the smallest level subdivision of the larger river basin (i.e. Cape Fear River Basin). The 14 digit HUC area is determined by the federal Natural Resources Conservation Service (NRCS). The 14 Digit HUC in which Caswell Beach is in is relatively large encompassing approximately 75,000 acres, of which the entire planning jurisdiction of Caswell Beach comprises 3.5%. See the Map Graphic in Section 4.1.1 (8) for the extent of the 14 digit HUC. The 14 digit HUC encompassing Caswell Beach is a targeted watershed for improvement by the North Carolina Ecosystem Enhancement Program (EEP) which works in conjunction with the North Carolina DENR and the North Carolina DOT to restore local watersheds. For information on EEP's Watershed Planning efforts, contact Michele Droszcz at (919) 715-6817 or visit http://www.nceep.net/

5. **Coastal Wetlands**

Policy (a): Caswell Beach supports preservation of its coastal wetland areas.

Policy (b): The only allowable permanent and developed encroachment into coastal wetlands and estuarine waters shall be for riparian access for individual riparian property owners or for public access. Development of such riparian access is required to meet the standards of the Town's regulations (including but not limited to visual barrier ordinance, nuisance ordinances, zoning ordinance, etc.) and CAMA regulations in 15A NCAC Subchapter 7H. When regulation standards conflict, the more restrictive shall apply.

6. **Estuarine Shorelines**

Policy: Caswell Beach supports protection of its estuarine shoreline areas and preservation of its scenic views of the coastal wetland areas adjacent to its jurisdiction.

7. **Bulkhead Construction**

Policy: Caswell Beach supports the CRC/CAMA provisions regarding construction of bulkheads.

8. **Soils (See Also Policy #40 and # 41)**

Policy: Until the central sewer system, Caswell Beach supports actions to mitigate septic tank problems and other restrictions on development resulting from soil limitations.

9. **Protection of Identified "Class III" and "Least Suitable" Areas**

Policy: The Town shall protect the identified "Class III" and "Least Suitable" areas by enforcement of its stormwater, zoning and flood prevention regulations which regulate the use, filling, grading, or substantial alteration of non-coastal wetlands, shorelines and floodways.

10. **Residential, Commercial and Industrial Development Impacts on Resources**

Policy (a): Residential development and accessory residential uses which meet 15A NCAC 7H use standards will be allowed in estuarine shoreline, estuarine water, and public trust areas. All bulkhead construction shall be prohibited. All commercial and industrial development will be discouraged within the Town of Caswell Beach.

Policy (b): Except for public regulatory signs, Caswell Beach opposes the construction of any signs in estuarine and public trust waters and coastal wetlands conservation areas.

11. Density of New Development and Redevelopment

Policy (a): Town policy is to strictly limit the density of new development and redevelopment to preserve the overall existing ratio of single-family, attached single-family and multi-family.

Policy (b): Redevelopment of existing structures to higher densities (more dwelling units per individual structure) will be discouraged in areas permitting multi-family and attached single-family structures, and will be prohibited in areas where single-family is the only allowable use.

Policy Notes: For the purposes of Policy 11 (a) and (b), Density is defined as a ratio of the square footage of the lot to the number of dwelling units on the lot (e.g. 12 units per acre, or 12 units per 43,560 ft^2). Section 9 in this Land Use Plan, entitled Future Land Use Classification Map and Standards, provides more detail on density and intensity standards in various areas of the jurisdiction.

12. Commercial and Industrial Development

Policy: The Town opposes any new commercial or industrial related development activity in its planning jurisdiction. However, the existing commercial activity associated with the existing golf course (including clubhouse restaurant, driving-range and recreational 18-hole golf-course) is desired to be continued in its full present use.

Policy Notes: Section 9 in this Land Use Plan, entitled Future Land Use Classification Map and Standards, provides more detail on the delineated area of the "golf course and its associated use areas".

13. Preservation of Existing 18-Hole Golf Course

Policy (a): The Town opposes the redevelopment of the existing 18-hole golf course to any other use. The Town will work with the Town of Oak Island on the preservation of the golf course.

Policy (b): The Town shall seek methods to preserve the long-term continuation of the 18-hole golf course.

Policy Notes: Section 9 in this Land Use Plan, entitled Future Land Use Classification Map and Standards, provides more detail on the delineated area of the "golf course and its associated use areas".

14. Redevelopment of Developed Areas

Policy (a): The Town of Caswell Beach will support all reconstruction which complies with state and local permitting requirements.

Policy (b): The Town will support efforts to move any threatened structures in the Ocean Hazard AEC and the VE flood zone to safer locations.

Policy (c): The Town intends the sewer system to be solely for environmental improvement as opposed to inducing higher density development or redevelopment.

15. Annexation and Planning Authority Extension

Policy (a): Caswell Beach will be receptive to annexations and establishment of extraterritorial planning jurisdictions, which are considered beneficial to the Town.

Policy (b): The Town will establish ETJ authority and/or annex the "Baptist Assembly Area" property if ownership or exclusive use of said property is transferred from the North Carolina Baptist State Convention in accordance with Session Law HB 1277.

Policy (c): The Town will establish ETJ authority and/or annex the U.S. Coast Guard Station property if ownership is transferred from the federal government. The Town supports acquisition of the U.S. Coast Guard Station property for conservation and recreational purposes.

Policy Notes: See the end of Section 5.1 in this Land Use Plan for more detail on the local legislation passed by the NCGA in 1983 (House Bill 1277) which grants the Town planning authority over the "Assembly Area" if the "Area" is transferred out of ownership of the North Carolina Baptist State Convention.

16. Industrial Impacts on Fragile Areas

Policy: The Town of Caswell Beach opposes any industrial and commercial development within the Town.

17. State Port and Energy Facilities Siting and Development

Policy (a): Notwithstanding the apparent positive benefits to the State of North Carolina and the region, the Town of Caswell Beach actively opposes the building of the State Port because the Town sees no positive impacts on our quality of life. Those impacts include, but are not limited to:

a. Traffic congestion from increased intensive use of the existing inadequate transportation infrastructure;
b. Water quality degradation from increased intensive use of the water;
c. Stormwater runoff from the large impervious area of the port facility;
d. Air quality degradation from increased truck, ship and other facility machine operation on an around the clock basis;
e. Increased demand on area potable water supply;
f. Increased demand on area wastewater treatment infrastructure;
g. Noise pollution generated from trucks, ships and rail;
h. Light pollution generated from the port and ships;
i. Solid waste discarded from ships offshore;
j. Lack of adequate housing and services to support the scope of the port;
k. Danger to recreational boaters from increased shipping traffic;

l. Increased likelihood of man-made disasters or terrorist threat by placing an international port, nuclear facility and munitions facility within such close proximity.

Policy (b): The Town of Caswell Beach requests full disclosure of any plans to expand the Progress Energy Brunswick Nuclear Generating Plant located near Southport, as well as written notification if the plant is to be retired.

Policy (c) Energy generating facilities shall not be permitted in Caswell Beach. This shall not apply to individual privately owned facilities such as solar panels, which serve individual properties, or public energy distribution facilities.

18. Manmade Hazards

Policy (a): Caswell Beach supports the careful regulation and control of the location and development of manmade hazards.

Policy (b): Caswell Beach is opposed to the establishment of toxic waste dumpsites within Brunswick County.

Policy (c): With the exception of bulk fuel storage tanks used for individual heating, Caswell Beach opposes the bulk storage of manmade hazardous materials within its jurisdiction.

19. Building Height of New Development and Redevelopment

Policy (a): The Town shall regulate building height to preserve the existing low profile character of the community. Building height shall be measured using the vertical distance from the mean elevation of the finished grade along the front of the building to the highest point of a flat roof, or to the deck line of the mansard roof, or to the mean height level (roof midline) between eaves and ridge for gable, hip and gambrel roofs. Under any circumstance, the vertical distance shall not exceed the higher of:

- 26 feet above the Regulatory Flood Protection Elevation; or
- 35 feet above the mean finished grade elevation.

Policy (b): No structure shall be allowed more than 2 stories, under any configuration, above the Regulatory Flood Protection Elevation. .

20. Maximum Number of Bedrooms Policy: To limit impacts to Town infrastructure, environment and quality of life, the Town shall ensure strict enforcement of waste water discharge regulations and develop a sewer allocation formula that reasonable mitigates the potential impacts caused by higher density structures.

Policy Notes: This policy is in reference to both managing the bulk size of structures and protecting against the misuse of septic systems designed not to exceed a limited capacity. The design of the planned sewer service also has built-in limited capacity,

which is also intended to control the bulk size, density and sewage flow of structures to ensure a manageable and sustainable level.

21. Regulation of Private "Clubhouse" and "Community Center" Structures

Policy: The Town opposes any zoning text amendment or map amendment that would specifically allow the use and development of private clubhouses or private community centers in areas that are both zoned for residential use and abut Caswell Beach Road. This policy is intended to prohibit future uses (i.e. "clubhouses") that are more intensive and may increase nuisance and parking related problems in areas that are traditionally single-family.

22. Noise and Light Nuisance

Policy: The Town shall develop and enforce regulations designed to minimize the deleterious effects of noise and light nuisances on residential and environmentally sensitive areas (e.g. turtle and bird nesting areas).

23. Land Use and Development Decisions Consistent with Strategic Plan and Land Use Plan

Policy: Any official Town land use and development related actions (e.g. re-zonings, text amendments, stormwater rules, etc.) shall remain consistent with the policies adopted in the Strategic Plan, the Land Use Plan and any other applicable plan. Any Town actions which are inconsistent with those plans or other related plans shall require a statement from the Town body approving such decisions as to why those decisions are necessary and how any negative impacts will be mitigated.

II. Management Topic: Infrastructure

CAMA Infrastructure Goal:

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

Town Infrastructure Goals:

- Maintain and enhance quality of life (i.e. Town's environmental health, aesthetics, amenities, and property values).
- Implement a sewer system for the purpose of mitigating the environmental and human health risks to the jurisdiction from outdated, failing or over capacity on-site wastewater treatment system
- Establish and maintain an adequate and effective stormwater management system and program.
- Ensure a safe and sufficient supply of water for both potable and firefighting uses.
- Increase Town participation and contribution in Regional Growth Management (e.g. State Port, Airport, County Transportation Systems, Potable Water, Sewer, and Environment).
- Maintain sound fiscal policies and effective use of taxpayer money to achieve the Town's Vision by using efficient multi-year planning, e.g. cost/benefit analysis and capital improvements planning.

Objectives and Background Discussion

As discussed in the report and analysis sections of this Plan, the Town's planning jurisdiction includes only a relatively small amount of developable land (approx. 360 acres). Caswell Beach can be characterized as a residential/resort community, with essentially no commercial activity other than a golf course and its associated uses (i.e. clubhouse and restaurant) which fall under the Town's zoning classification of "Commercial Recreation". The Town's overall growth management policy is to maintain its existing mix of residential types, densities and intensity, and to strictly limit any future commercial development or residential redevelopment above existing densities (Also see Future Land Use Map and Section 9 in this Plan for more detail). The Town prefers this type of growth management approach to avoid the need to continually provide substantial funding to expand capacity for infrastructure, such as transportation systems (i.e. roads), wastewater collection (i.e. sewer), and stormwater collection. As detailed in Section 6.2, the Town has budgeted grant and local funding for the construction of sewer lines to service all existing properties within the jurisdiction. The sewer lines will be tied-into the County and/or the Town of Oak Island sewer system, and it is the intent of the Town and of the grant funding agency that no wastewater treatment systems will be located in, owned or operated by Caswell Beach. The design of the sewer line capacity in the Caswell Beach jurisdiction was conducted under the supervision of the Town to minimize or eliminate the potential for "induced development" with associated increased density and intensity. The Town's infrastructure-related policies listed below are consistent with their approach to overall growth management and preservation of quality of life.

Infrastructure Policy Statements

24. Sewer System

Policy (a): The Town of Caswell Beach supports the implementation of a sewer system to serve all applicable structures and/or properties in the Town's jurisdiction, as well as the Baptist Assembly and Coast Guard Station.

Policy (b): All applicable structures and/or properties in the Town's jurisdiction will be required to connect to the sewer system when it is operational.

Policy (c): The Town of Caswell Beach supports further improvements to a regional sewer service operated by the County and adjacent jurisdictions to treat sewer collected in the Town's jurisdiction.

Policy (d): The Town of Caswell Beach supports the spraying of treated effluent from other municipalities or other public or private entities on that portion of the Oak Island Golf Course located in Caswell Beach.

25. Septic Decommissioning

Policy (a): When central sewer service becomes available, the Town prefers the re-use of septic systems as "stormwater cisterns" as an innovative method to help capture and retain stormwater on-site. This practice is intended to help minimize the volume of stormwater and pollutants entering local surface waters, streets and ditches.

Policy (c): The Town shall provide owners of septic systems with information on how to retrofit and re-use septic systems as stormwater cisterns.

Policy (d): When a stormwater utility is established, the Town may "credit" those property owners who re-used their septic system as a stormwater cistern.

26. Stormwater Management Systems (Also See Policy #40 and #41)

Policy (a): The Town of Caswell Beach will support projects and local land use development controls to eliminate stormwater drainage problems throughout its planning jurisdiction.

Policy (b): The Town will support mitigation of negative impacts of stormwater runoff on all conservation classified areas on the Town's Future Land Use Map.

Policy (c): The Town supports the policy that all North Carolina State Ports and Department of Transportation projects should be designed to limit to the extent practical stormwater runoff into estuarine/public trust waters.

27. Groundwater/Protection of Potable Water Supplies

Policy: Caswell Beach will strive to conserve its surficial groundwater resources and prevent the potential of sinkholes by discouraging individual shallow wells.

28. Water Supply

Policy (a): The Town supports the regional concept of water distribution in Brunswick County. The Town shall continue to purchase its water supply from the County water supply system.

Policy (b): The Town shall support protection of the local water supply and upgrade of its water distribution system.

Policy (c): The Town shall continue to own the water distribution system within its jurisdiction.

Policy Notes: Based on user projections and scheduled capital upgrades and expansion included in the County's 2006 Water Supply Master Plan, there are no significant constraints to development or land development issues relating to the Town's potable water supply based on the Town's planned growth and development strategy. The county's water system should continue to provide adequate water supply to the Town throughout the planning period. However, due to sizable continued growth throughout the County, the Town of Caswell Beach should maintain a proactive role in the monitoring, planning and support of capital improvements needed for the County water system.

29. Solid Waste

Policy (a): The Town of Caswell Beach supports a regional multi-county approach to solid waste disposal.

Policy (b): The Town of Caswell Beach supports efforts to recycle and reduce waste.

III. Management Topic: Public Access

CAMA Public Access Goal:

Maximize public access to the beaches and the public trust waters of the jurisdiction.

Town Public Access Goals:

- Recognize and prepare for land acquisition opportunities to enhance or expand the Town's public access facilities.
- Conduct on-going beach preservation planning activities to secure beach nourishment funding and to meet public access site provision requirements for funding.

Objectives and Background Discussion

As discussed in the report and analysis sections of this Plan (Sections 4 and 6.5), the Town's planning jurisdiction includes only a relatively small amount of developable land (approx. 360 acres), but a comparatively large amount of public trust waters and marsh area (approx. 2,231 acres). The Town intends to proactively manage/regulate activities and impacts in the public trust waters within its planning jurisdiction. The policy statements below represent the Town's guiding principles in its future management of the public trust waters within its planning jurisdiction. In addition to public trust waters, the Town has 2.75 miles of public beach strand with a total of 9 public access sites, which is approximately one site every 1,600 feet or 1/3 mile. Given the limited size of the jurisdiction and the beach strand, and lack of available of vacant/developable land, the Town's "neighborhood" classified access site, with approximately 80 free parking spaces, will likely be the largest public access site and facility in the jurisdiction. The remainder of the public access sites are classified as "local". The Town plans to retain this ratio of access sites, with enhancements and expansion of access site facilities possible as funding and/or beach nourishment projects (and their associated access requirements) become available.

Public Access Policy Statements

30. Public Access and Recreation Resources

Policy: Caswell Beach supports the state's shoreline access policies as set forth in Chapter 15A, Subchapter 1M of the North Carolina Administrative Code. The Town will conform to CAMA and other state and federal environmental regulations affecting the development of estuarine access areas. The Town shall assess the feasibility of increasing handicapped accessibility in the design of new public access sites or during expansion of existing sites.

31. Use of Marine Resource Areas

Policy (a): Caswell Beach supports establishing regulations to prohibit the use of floating structures for commercial advertising.

Policy (b): Caswell Beach supports regulation of the operation of jet-skis in its estuarine and public trust waters (including the Atlantic Ocean), as well as the continued enforcement of the County regulations regarding the use of jet-skis and other motorized watercraft.

Policy (c): Caswell Beach opposes aquaculture activities within its planning jurisdiction.

32. Marina and Floating Home Development

Policy (a): Caswell Beach opposes the construction of both upland and open water marinas within its planning jurisdiction. However, should the Progress Energy Pumping Station property become available, the Town may consider the development of a municipal-owned public marina with access to the Intracoastal Waterway.

Policy (b): Caswell Beach opposes the construction of dry stack storage facilities for boats associated either with or independent of marinas.

Policy (c): Caswell Beach opposes the location of floating structures in all public trust areas and estuarine waters. Floating structures are defined as any structure or vessel used, designed, and occupied as a permanent dwelling unit, business, office, or source of any occupation or any private or social club, which floating structure or vessel is primarily immobile and out of navigation or which functions substantially as a land structure while moored or docked on waters within county jurisdiction. Floating structures shall not be used commercially or inhabited in one place for more than 15 days.

33. Mooring Fields

Policy: The Town of Caswell Beach opposes the establishment of mooring fields within its planning jurisdiction.

34. Assistance in Channel Maintenance

Policy: Caswell Beach will support efforts of the U.S. Army Corps of Engineers and state officials to provide proper channel maintenance. However, the Town opposes the establishment of any dredge spoil sites within its jurisdiction. The Town supports requirements to use acceptable spoil material for beach nourishment. However, the Town opposes any dredging of Jay Bird Shoals or any other area which would encourage beach erosion without first conducting extensive engineering support studies prior to project initiation to ensure that no permanent adverse effects on Oak Island Beaches would result.

35. Assistance in Interstate Waterways

Policy: Caswell Beach supports continued maintenance and protection of the interstate waterway (Atlantic Intracoastal Waterway System). The Town considers the interstate waterway to be a valuable public recreation and economic asset.

36. Public Access Facilities and Parking

Policy: The Town will meet state and federal public parking and access requirements for beach nourishment and other related projects.

IV. Management Topic: Surface Water Quality

CAMA Surface Water Quality Goal:

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

Town Surface Water Quality Goals:

- Maintain and enhance quality of life (i.e. Town's environmental health, aesthetics, amenities, and property values).
- Preserve, conserve, and/or otherwise protect valuable and beneficial natural resources (in particular surface water and wetlands).
- Implement a sewer system for the purpose of mitigating the environmental and human health risks to the jurisdiction from out dated, failing or over capacity on-site wastewater treatment systems.
- Establish and maintain an adequate and effective stormwater management system and program.
- Create a citizen awareness program on environmental issues and management.

Objectives and Background Discussion

As discussed in the report and analysis sections of this Plan (Section 4 and Subsection 4.1.1), a primary goal of the Town of Caswell Beach found in their existing Land Use Plan and as a part of this Land Use Plan update is to preserve, conserve, and/or otherwise protect valuable and beneficial natural resources. Policy in the Town's existing CAMA Land Use Plan states that the Town supports the preservation of water quality in it estuarine and public trust waters. Town policy is also to work with the North Carolina Division of Water Quality to identify and reduce or eliminate the sources of pollution to area surface waters. The Town of Caswell Beach has begun or will undertake certain activities that should reduce or stabilize the contributing factors to the surface water quality problems in the jurisdiction. Those activities include:

- Replacing septic systems and private package treatment plants with centralized sewer.
- Requiring stormwater runoff controls and vegetative buffer and/or BMP standards for new developments and redevelopments.
- Providing education and outreach to homeowners on the effects of stormwater runoff and how to prevent/minimize discharging pollutants on their property (i.e. resource guides on the Town website, and public workshops).

Surface Water Quality Policy Statements

37. Water Quality Management

Policy: The Town of Caswell Beach supports the North Carolina Division of Water Quality and its goals for surface water quality management including:

- Protecting waters that are high quality and/or support unique biological communities;

- Managing the amount of harmful pollutants entering the local watershed; and
- Restoring impaired waters.

38. Local Watershed Planning [Also See Policy # 4 (b)]

Policy: The Town of Caswell Beach intends to establish a local watershed planning group of area stakeholders for its 14 digit HUC (i.e. local watershed) to identify, prioritize and implement practical measures to maintain and improve local water quality.

Policy Notes: The 14 digit Hydrologic Unit Code (HUC) is a local watershed area that represents a small level subdivision of the larger river basin (i.e. Cape Fear River Basin). The 14 digit HUC encompassing Caswell Beach is a targeted watershed for improvement by the North Carolina Ecosystem Enhancement Program (EEP) which works in conjunction with the North Carolina DENR and the North Carolina DOT to restore local watersheds. For information on EEP's Watershed Planning efforts, contact Michele Droszcz at (919) 715-6817 or visit http://www.nceep.net/.

39. Support for Total Maximum Daily Load (TMDL) Standards

Policy: The Town supports state and federal efforts to establish a comprehensive and feasible Total Maximum Daily Load standard for identified harmful pollutants in the local watershed and its waterbodies on the 303 (d) list of impaired waters.

Policy Notes: Section 303(d) of the Clean Water Act (CWA) requires North Carolina to develop a list of waters not meeting water quality standards or which have impaired uses. Listed waters must be prioritized, and a management strategy or total maximum daily load (TMDL) must subsequently be developed for all listed waters. See the end of Section 4.1.1. (8) in this Land Use Plan for more info on the 303 (d) listed waters in the Caswell Beach planning jurisdiction.

40. Low Impact Development (LID) [Also See Policy # 4 (b), and Policy # 38]

Policy (a): The Town supports the concept and goals of Low Impact Development.

Policy (b): The Town shall evaluate the results of Low Impact Development practices implemented in adjacent watersheds (e.g. Lockwood's Folly) and other similar coastal watersheds, including but not limited to requiring the use of permeable pavements and reducing the amount of impervious coverage allowed, to determine its practicality for use in the Caswell Beach planning jurisdiction and local 14 digit HUC watershed.

41. Use of Permeable/Pervious Materials and Total Lot Coverage Standards

Policy (a): The Town may require permeable/pervious materials to be used for items such as driveways, patios and other structures not immediately part of and necessary to the structural integrity of the primary structure.

Policy (b): The Town may establish total lot coverage standards for both pervious and impervious man-made structures and surfaces to maximize as much as possible an "uncovered state" of the existing or installed natural vegetation, and/or the existing sand or soil on the lot.

42. Preservation of 404 Wetlands (non-coastal wetlands)

Policy: The Town opposes the filling or grading of 404 classified wetlands for any development purpose without mitigation efforts such as replacing the destroyed wetlands on or off-site, or paying a fee in lieu of replacement to be used by the Town to create wetlands as part of its overall stormwater and flood protection management system.

Policy Notes: The Town highly values its remaining coastal and non-coastal (404) wetlands for the aesthetic, flood protection, erosion control, wildlife habitat and runoff cleansing values offered by functioning wetlands. The intent of this policy is to provide a framework for the extra protection of wetland areas (of all sizes) that may not be fully protected under the Army Corps of Engineers' rules under Section 404 of the Clean Water Act.

43. Comprehensive Stormwater Program

Policy (a): The Town shall establish a stormwater program to comprehensively manage both the volume of stormwater and volume of pollutants entering the stormwater drainage system and ultimately local receiving waters.

Policy (b): The Town stormwater program shall include ordinances that, at a minimum, enforce NPDES Phase II standards. The stormwater program may include the creation of a dedicated stormwater utility and capital improvements program to fund periodic construction and maintenance of stormwater infrastructure servicing existing and future developments.

Additional Surface Water Quality related policies listed in previous Management Topic Sections include:

- **"Coastal Wetlands" policy # 5.**
- **"Sewer System" policy # 24.**
- **"Septic Decommissioning" policy # 25.**
- **"Stormwater Management Systems" policy # 26.**

V. Management Topic: Natural Hazards Mitigation

CAMA Natural Hazards Mitigation Goal:

Conserve and maintain barrier dunes, beaches, flood plains, coastal wetlands and other coastal features for their natural storm protection functions and their natural resources giving recognition to public health, safety, and welfare issues.

Town Natural Hazards Mitigation Goals:

- Continue to implement beach preservation planning and activities, in addition to seeking long-term funding for beach nourishment and protection of the public beach and oceanfront properties from erosion.
- Reduce flooding and water quality impacts associated with uncontrolled stormwater runoff.

Objectives and Background Discussion

The jurisdiction of Caswell Beach is located on the eastern tip of a barrier island ("Oak Island") surrounded by the Atlantic Ocean to the south, the Cape Fear River to the east, the intracoastal waterway to the north, and the Town of Oak Island to the west. The Town has a low coastal topography with a maximum height elevation of 20-25 feet. According to floodplain data from FEMA and the NC floodplain mapping program, nearly 82% of the developed land in the planning jurisdiction is within a Special Flood Hazard Area zone (AE or VE). As detailed in Section 4, storm surge from a strong category 2 hurricane or above is expected to inundate a sizable portion if not the entire jurisdiction. As a result of the threat from storm surge and erosion, the Town has become very involved in beach preservation planning over the last decade and has begun to implement both short-term and long-term activities intended to protect public health and property. The policy statements below represent the Town's guiding principles in its future management and pursuit of mitigating the impacts of natural hazards.

Natural Hazards Mitigation Policy Statements

44. Consistency with the Town's Hazard Mitigation Plan

Policy: The Town shall continue to follow the mitigation strategies and implementation measures located in the Town's adopted 2004 Community-Based Hazard Mitigation Plan. Those strategies and measures include:

- Improving public awareness of hazards (i.e. notification of risks of building in flood zones, publicizing evacuation routes and procedure).
- Minimizing the impacts of hazards (i.e. enforcing building codes, ocean area setbacks, flood zone regulations).
- Improving the Town's technical capability in preparing for and responding to hazards (i.e. emergency preparedness).

45. Emergency Preparedness

Policy (a): The Town shall ensure emergency preparedness during hurricanes, oil spills, fish kills, and other emergency situations by implementing the following:

- Updating and maintaining the Town's Emergency Preparedness Plan.
- Establishing an Emergency Preparedness Planning Committee or other means to ensure that planning is complete, current and available to residents.
- Developing a list of approved contractors to use in preparation for, during and after emergencies. Specialty skills, e.g. doctors and nurses to assist in emergencies should be identified and inventoried.
- Maintaining an updated list of Damage Assessment Team members.
- Providing public education and distribution of information, e.g. with information packets available Town Hall.

Policy (b): The Town shall ensure seamless, effective emergency communications with and between Town citizens and pertinent parties, i.e. police, EMS, U.S. Coast Guard by implementing the following:

- Assessing current capabilities, identify shortfalls and formulate an Emergency Communications Plan to provide needed capability, including assured communications, time and user-friendliness among the criteria.
- Approving, implementing and publicizing the plan, including telephone numbers and frequencies.

46. Evacuation Plans

Policy: The Town will continue to coordinate evacuation planning with Brunswick County, and adjacent municipalities. Caswell Beach will encourage multi-family developments (five or more dwelling units) and rental agencies to post evacuation instructions that identify routes and the locations of available public shelters.

47. Enforcing Building Codes to Resist Wind Damage

Policy: Caswell Beach supports enforcement of the NC State Building Code. The Town will continue to require construction design standards to meet the minimum required wind loads.

48. Flood Hazard Areas

Policy (a): The Town will continue to regulate development within flood hazard areas ("flood zones") to minimize the potential for loss of life and property.

Policy (b): The Town of Caswell Beach shall continue to be an active participant in the National Flood Insurance program, and will periodically evaluate the feasibility of improving its Community Rating System score to lower flood insurance costs.

Policy (c): The Town supports continued enforcement of the CAMA and 404 Wetlands development permit processes in areas potentially susceptible to flooding. When reviewing development proposals, the Town will work to reduce density in areas susceptible to flooding.

49. Redevelopment in Flood Hazard Areas After a Storm

Policy: Reconstruction of damaged properties after a storm will be subject to the following:

- The North Carolina Building Code requires any building damaged in excess of 50 percent of its value to conform with code requirements for new buildings when repaired.
- The Flood Damage Prevention Ordinance requires that all existing structures must comply with requirements related to elevation above the 100-year floodplain elevation ("Regulatory Flood Protection Elevation") and floodproofing if they are substantially improved. A substantial improvement is defined as "any repair, reconstruction, or improvement of a building, the cost of which equals or exceeds 50 percent of the market value of the building either before the improvement or repair is started, or before damage occurred if the building has been damaged. "
- No increases in density (e.g. number of dwelling units in the structure) are allowed.

50. Beach and Shoreline Erosion (Also See Policy # 3)

Policy (a): The Town of Caswell Beach shall seek to protect the beach by instituting a program for a major beach nourishment project to include seeking substantial Federal, State and County funding for cost sharing purposes, and supporting near term research and experimentation associated with a major beach nourishment project.

Policy (b): To prepare for and secure participation in a major beach nourishment project, the Town shall continue to update its beach preservation planning and research activities, which includes public involvement and education, lobbying efforts, dune maintenance and protection, as well as enhancement of public access facilities.

Policy (c): The Town supports CAMA regulations regarding ocean hazard areas and associated setback requirements as a means to reduce the potential threat to life and property in high erosion areas. The Town shall continue to enforce its existing zoning standards which limit building density and intensity in ocean hazard areas.

51. Acquisition of Property in Hazardous Areas

Policy (a): The Town supports the potential acquisition of land that is unsuitable for development due to flooding, erosion or other natural hazards in cases where such acquisition serves a needed public purpose such as increasing access to the beach or public trust waters, or providing public parking. The acquisition of "unsuitable land" by federal and state agencies is also supported by the Town.

Policy (b): The Town shall investigate outside funding sources for the potential acquisition of land deemed not suitable for development, and shall also encourage the gift and donation of such land for state tax credits.

End of Policy Statements

Section 9: Future Land Use Classification Map and Standards for the Town of Caswell Beach

The Future Land Use Classification Map is meant to visually depict the major land use and development goals and policies to be implemented by the Town. The Map is intended to show the community's planned future growth patterns in distinct areas (i.e. the "future land classification areas") within the Town's planning jurisdiction. The Map also shows the planned future boundaries of those respective areas to ensure that incompatible uses or types of development do not encroach.

To be used in conjunction with the *Future Land Use Classification Map (FLUCM)* is the *Future Land Use Classification Area Development Standards Table (or FLU Table)*. The table lists the desired predominant land uses and development characteristics for each respective area, as well as the intensity and density goals and standards for each area. While the *Future Land Use Classification Map* and *FLU Table* establish goals and policy direction for various areas in the Town's planning jurisdiction, it shall be the Town's Official Zoning Map and Zoning Ordinance, and other supporting ordinances, that codify the actual development regulations within the various areas of the planning jurisdiction.

IMPORTANT NOTE: The *FLUCM* and *FLU Table* act as official Town policy statements just like those found in Section 8. Any official land use or development related decisions made by the Town after the adoption of this Land Use Plan are expected to be consistent with both the policy statements in Section 8 and the development standards outlined in the *FLUCM* and *FLU Table* (Table 26) in Section 9. Any official Town decisions that are inconsistent with the *Future Land Use Classification Map* and *Future Land Use Classification Area Development Standards Table* must follow Policy # 23, and if substantially inconsistent, may require a Land Use Plan amendment process with public hearing and certification review by the Coastal Resources Commission.

Map 12: Future Land Use Classification Map

See Map Appendix: Map Number 12

9.1 Future Land Use Classification Area Development Standards Table

Table 26, following, outlines the key desired development standards for each individual future land use classification area depicted on the *Future Land Use Classification Map*. In the *FLUCM* and *FLU Table*, the Town has identified its standards for future growth, development and redevelopment. Those standards include:

1. The predominant and planned land uses (i.e. residential, conservation, recreation, etc.) for each classification area.
2. The planned density (i.e. dwelling units per acre) and intensity (i.e. height, setback, and overall bulk) for development in each classification area.
3. The establishment of "conservation" areas and the compatible uses within those areas.

Table 26: Future Land Use Classification Area Development Standards Table

Classification Area	Total Acres In Classification Area	Percent of Total Planning Jurisdiction / Percent of Jurisdiction Above MHW	Permitted/ Cond. Uses Allowed	Min Lot Size / Units per acre	Residential Structure Types Allowed	Maximum Structure Height	Percent of Lot Footprint Within Setback Area (i.e. Unbuildable Portion of Lot)
"Residential Low Density" (R-20-SF)	54 ac	2% of total jurisdiction; 15% of jurisdiction above estimated MHW line	Residential	20,000 ft^2 / **2.2 du/ac**	Single-family	35 feet*	25% (5,120 ft^2 of lot is within setback area)
"Residential Medium Density" (R-12-SF)	40 ac	1.5% of total jurisdiction; 11% of jurisdiction above estimated MHW line	Residential	12,000 ft^2 / **3.6 du/ac**	Single-family	35 feet*	42% (5,120 ft^2 of lot is within setback area)
"Residential Medium-High Density" (R-8-SF)	27 ac	1% of total jurisdiction; 7.5% of jurisdiction above estimated MHW line	Residential	8,000 ft^2 / **5.4 du/ac**	Single-family	35 feet*	64% (5,120 ft^2 of lot is within setback area)
"Residential High Density" (R-20-MF)	89 ac	4% of total jurisdiction; 24.5% of jurisdiction above estimated MHW line	Residential	An equivalent of 20,000 ft^2 for the first dwelling unit in the structure, with an additional 5,000 ft^2 of lot area required for each additional unit in the structure **5.7 du/ac**	Single-family; Duplex; Multi-family	35 feet*	
TOTAL for Residential Land Use	**210 ac**	**8.5% of total jurisdiction; 58% of jurisdiction above estimated MHW line**					

*Exceptions to 35 height maximum height may be allowed in areas required to elevate the first story to the "regulatory flood protection elevation". See Policy 19.

NOTES:
- Total Area in Planning Jurisdiction = 2,591 acres.
- Total Area of Planning Jurisdiction Estimated to Be Above Mean High Water (MHW) Line ["Dry/Buildable Land"] = 360 acres.
- Du/ac means the gross number of dwelling units possible/allowed per acre.

Classification Area	Total Acres In Classification Area	Percent of Total Planning Jurisdiction / Percent of Jurisdiction Above MHW	Permitted/ Cond. Uses Allowed	Min Lot Size / Units per acre	Residential Structure Types Allowed	Maximum Structure Height	Percent of Lot Footprint Within Setback Area (i.e. Unbuildable Portion of Lot)
Commercial Recreation	97 ac	4% of total juris. ; 27% of jurisdiction above estimated MHW line	Golf course, golf clubhouse, golf maintenance facilities, swimming pool, tennis court	N/A	No Residential Uses Allowed	35 feet	N/A
TOTAL for Commerce/ Recreation-related Land Use	**97 ac**	4% of total jurisdiction; **27% of jurisdiction above estimated MHW line**					
Conservation	2,246 ac in total jurisdiction; 21.5 ac in juris. above estimated MHW line (includes Progress Energy Station Site)	86% of total jurisdiction; 6% of jurisdiction above estimated MHW line	Accessory uses and structures of a water dependent nature. Bulkheads are prohibited.	N/A	No Residential Uses Allowed	N/A	N/A
TOTAL for Conservation Land Use	2,246 **(22 ac)**	86% of total jurisdiction; **6% of jurisdiction above estimated MHW line**					
Rights-of Way (e.g. streets)	**31 ac**	1% of total juris. ; **9% of jurisdiction above estimated MHW line**	N/A	N/A	No Residential Uses Allowed	N/A	N/A
TOTAL for All Non-Residential Land Use	**150 ac**	91.5% of total juris. ; **42% of jurisdiction above estimated MHW line**					

Breakdown of the percent of land in the jurisdiction allocated to the various land uses identified in the *Future Land Use Classification Area Development Standards Table*:

Classification Area by General Land Use	Percent of Land Use in Area of Jurisdiction Above MHW
Residential	58%
Commerce/Recreation-Related	27%
Conservation	6%
Rights-of-Way	9%
TOTAL	**100%**

9.2 Description of Existing and Future Development Characteristics in the Classification Areas

The Description of Existing and Future Development Characteristics subsection provides information on the general existing growth patterns in each of the future land classification areas, compared with the Town's desired future growth patterns for each of the respective areas. It is important to note that most, if not all, of the areas are primarily built-out, and therefore desired future characteristics may not be substantially different from existing characteristics. The classification areas include:

1. "Residential Low Density"
2. "Residential Medium Density"
3. "Residential Medium-High Density"
4. "Residential High Density"
5. "Commercial-Recreation"
6. "Conservation"

1. "Residential Low Density"

The Residential Low Density area encompasses approximately 54 acres of the planning jurisdiction. The area primarily consists of the "Arboretum" development on the northwestern side of the golf course. The existing development pattern is exclusively single-family detached residences on a minimum of 20,000 ft^2 lots. As shown on Map 9: *Existing Land Use Map*, there are only 12-17 remaining vacant lots in this classification area. According to the *FLUCM* and *FLU Table*, the Town plans to allow these lots to develop in the same pattern as the surrounding existing development. Any redevelopment of existing structures will also be to the same standards as outlined in the *FLU Table*.

"Residential Low Density" Infrastructure Capacity

As mentioned in Section 6 of this Plan, the area encompassing the "Residential Low Density" classification is primarily served by a private package treatment plant for wastewater disposal and by the Town water system for potable water supply. As part of the Town's grant award for sewer system construction from the Clean Water Management Trust Fund, all package treatment plants in the planning jurisdiction are to be decommissioned. The Town will require existing and future

development in the "Residential Low Density" area to connect to the sewer system when completed. A cost estimate of the sewer system costs can be found in Section 6.

The Town water system will continue to be the classification area's potable water supply, and no expansion of water lines is needed in the "Residential Low Density" area. However, the Town is exploring the need to establish a Water Systems Plan to evaluate the costs and possible alternatives for water system improvements designed to increase water pressure in certain areas of Town.

"Residential Low Density" Land Development Suitability

As shown on Map 8: *Environmental Composite Map* and Map 10: *Land Suitability Analysis Map*, there are isolated 'spots' of land classified as having "less suitability" for dense and intense-type development. Those 'spots' are due to the data used in preparing the analysis showing site characteristics (such as soil type, vegetative ground cover, elevation, and hydrology) which would indicate the likely presence of non-coastal or "404" wetlands. The Town understands the value of preserving functioning wetland systems for their help in erosion control, flood abatement, stormwater cleansing, wildlife habitat and aesthetics. The Town intends to protect the remaining functioning wetlands within its jurisdiction (see policy #42).

Other less suitable or environmentally sensitive areas in the Residential Low Density area include the estuarine shorelines and coastal wetlands on the waterfront side of the classification area. As shown in the *FLUCM* and *FLU Table*, the Town has classified the majority of these areas as "Conservation" and strictly manages the types of uses and structures that are allowed. Other development constraints in the Residential Low Density area include the AE flood zone. The Town enforces an NFIP approved flood damage prevention ordinance, with a two-foot freeboard for construction in special flood hazard areas with an established base flood elevation.

2. "Residential Medium Density"

The Residential Medium Density area encompasses approximately 40 acres of the planning jurisdiction. The area primarily consists of the oceanfront properties east of the intersection of Oceangreens Lane and Caswell Beach Road. The existing development pattern is exclusively single- family detached residences on a minimum of 12,000 ft^2 lots. As shown on Map 9: *Existing Land Use Map*, there are less than 12 remaining vacant lots in this classification area. According to the *FLUCM* and *FLU Table*, the Town plans to allow these lots to develop in the same pattern as the surrounding existing development. Any redevelopment of existing structures will also be to the same standards as outlined in the *FLU Table.*

"Residential Medium Density" Infrastructure Capacity

As mentioned in Section 6 of this Plan, the area encompassing the "Residential Medium Density" classification is served by individual private septic systems for wastewater disposal and by the Town water system for potable water supply. As part of the Town's grant award for sewer system construction from the Clean Water Management Trust Fund, all septic systems in the planning jurisdiction are to be decommissioned. The Town will require existing and future development in the

"Residential Medium Density" area to connect to the sewer system when completed. A cost estimate of the sewer system costs can be found in Section 6.

The Town water system will continue to be the classification area's potable water supply, and no expansion of water lines is needed in the "Residential Medium Density" area. However, the Town is exploring the need to establish a Water Systems Plan to evaluate the costs and possible alternatives for water system improvements designed to increase water pressure in certain areas of Town.

"Residential Medium Density" Land Development Suitability

As shown on Map 8: *Environmental Composite Map* and Map 10: *Land Suitability Analysis Map,* the Residential Medium Density area is bordered and encroached by areas classified as having "less suitability" for dense and intense-type development. Those areas are classified as "less suitable" due to the data used in preparing the analysis showing site characteristics such as low elevation, flood zone, dune presence, ocean erodible area which would indicate the increased likelihood of flooding, erosion and storm surge damage to property and structures in the classification area. The Town understands the benefits of erosion control, dune protection, beach nourishment, and flood and storm surge protection, and intends to pursue measures that will increase the protection of life, property and the environment within its jurisdiction (see policies # 1, 3, 25, 26 and 47-51). As shown in the *FLU Table*, the Town intends to restrict dense and intense type uses and structures within areas threatened by the combination of erosion, storm surge and flooding.

3. "Residential Medium-High Density"

The Residential Medium-High Density area encompasses approximately 27 acres of the planning jurisdiction. The area consists of the estuarine shorefront properties on the north side of Caswell Beach Road east of the CAMA Local Access Site and Progress Energy facility. The existing development pattern is exclusively single-family detached residences on a minimum of 8,000 ft^2 lots. As shown on Map 9: *Existing Land Use Map*, there are approximately 24-29 remaining vacant lots in this classification area. According to the *FLUCM* and *FLU Table*, the Town plans to allow these lots to develop in the same pattern as the surrounding existing development. Any redevelopment of existing structures will also be to the same standards as outlined in the *FLU Table.*

"Residential Medium-High Density" Infrastructure Capacity

As mentioned in Section 6 of this Plan, the area encompassing the "Residential Medium-High Density" classification is served by individual private septic systems for wastewater disposal and by the Town water system for potable water supply. As part of the Town's grant award for sewer system construction from the Clean Water Management Trust Fund, all septic systems in the planning jurisdiction are to be decommissioned. The Town will require existing and future development in the "Residential Medium-High Density" area to connect to the sewer system when completed. A cost estimate of the sewer system costs can be found in Section 6.

The Town water system will continue to be the classification area's potable water supply, and no expansion of water lines is needed in the "Residential Medium-High Density" area. However, the

Town is exploring the need to establish a Water Systems Plan to evaluate the costs and possible alternatives for water system improvements designed to increase water pressure in certain areas of Town.

"Residential Medium-High Density" Land Development Suitability

As shown on Map 8: *Environmental Composite Map* and Map 10: *Land Suitability Analysis Map*, the Residential Medium-High Density area is bordered and encroached by areas classified as having "less suitability" for dense and intense-type development. Those areas are classified as "less suitable" due to the data used in preparing the analysis showing the presence of site characteristics such as low elevation, flood zones, estuarine shoreline, and coastal wetlands which would indicate the increased likelihood of flooding, erosion, storm surge damage, and environmentally sensitive areas. The Town understands the benefits of preserving coastal wetlands, estuarine water quality, and implementing flood and storm surge protection, and intends to pursue measures that will increase the protection of life, property and the environment within its jurisdiction (see policies # 1, 3, 4 (b), 5, 25, 26, 38-41, 43 and 47-51). As shown in the *FLU Table*, the Town intends to restrict dense and intense type uses and structures within areas threatened by the combination of erosion, storm surge and flooding.

4. "Residential High Density"

The Residential High Density area encompasses approximately 89 acres of the planning jurisdiction. The area is bordered by an estuarine shorefront (Progress Energy canal) to the east and the golf course to the west. There are also some existing multi-family areas classified as Residential High Density along the oceanfront, in the southwest corner of Town bordering the Town of Oak Island. The existing development and land use pattern is primarily multi-family, with some duplex, single-family attached, single-family detached, and passive and active open space. The lot sizes vary as the different residence types were built as subdivisions and/or planned developments. Common ownership of a single parcel with multi-family and two-family dwellings is also common (i.e. condominium). As shown on Map 9: *Existing Land Use Map*, there is very limited vacant land, which is not dedicated open space, available to develop in this classification area. According to the *FLUCM* and *FLU Table*, the Town plans to allow these lots to develop in the same pattern as the surrounding existing development. Any redevelopment of existing structures will also be to the same standards as outlined in the *FLU Table* for the Residential High Density classification area.

"Residential High Density" Infrastructure Capacity

As mentioned in Section 6 of this Plan, the area encompassing the "Residential High Density" classification is primarily served by a private package treatment plant for wastewater disposal and by the Town water system for potable water supply. The Residential High Density area located long the oceanfront is currently connected to and served by the Town of Oak Island sewer system. As part of the Town's grant award for sewer system construction from the Clean Water Management Trust Fund, all package treatment plants in the planning jurisdiction are to be decommissioned. The Town will require existing and future development in the "Residential High Density" area to connect to the sewer system when completed. A cost estimate of the sewer system costs can be found in Section 6.

The Town water system will continue to be the classification area's potable water supply, and no expansion of water lines is needed in the "Residential High Density" area. However, the Town is exploring the need to establish a Water Systems Plan to evaluate the costs and possible alternatives for water system improvements designed to increase water pressure in certain areas of Town.

"Residential High Density" Land Development Suitability

As shown on Map 8: *Environmental Composite Map* and Map 10: *Land Suitability Analysis Map*, the Residential High Density consists mostly of land classified as medium to medium-high suitability for development. The areas along the shorefront are bordered and encroached by areas classified as having "less suitability" for dense and intense-type development. Those areas are classified as "less suitable" due to the data used in preparing the analysis showing the presence of site characteristics such as low elevation, flood zones, estuarine shoreline, and coastal wetlands which would indicate the increased likelihood of flooding, erosion, storm surge damage, and the presence of environmentally sensitive areas. The Town understands the benefits of preserving coastal wetlands, estuarine water quality, and implementing flood and storm surge protection, and intends to pursue measures that will increase the protection of life, property and the environment within its jurisdiction (see policies # 1, 3, 4 (b), 5, 25, 26, 38-41, 43 and 47-51).

5. "Commercial-Recreation"

The Commercial-Recreation area encompasses approximately 97 acres of the planning jurisdiction. The area is bordered by the Residential Low Density and Residential High Density classification areas, and by the Town of Oak Island jurisdiction. The existing land use within the Commercial-Recreation area is recreation associated with the 18-hole golf course and its clubhouse and restaurant. It is the Town's policy to preserve the existing uses within the Commercial-Recreation and prohibit future residential uses or more intense commercial uses. See policy # 13.

"Commercial-Recreation" Infrastructure Capacity

There is no infrastructure-intensive residential or commercial development in the Commercial-Recreation area. The existing clubhouse and restaurant will be connected to the sewer system upon its completion. It is also planned that the golf course will use approved treated wastewater for irrigation purposes. The irrigation system for the golf course is part of the proposed sewer system construction project. The Town's sewer system has been designed not to include any additional capacity or line distribution for any potential development within the existing golf course land area.

"Commercial-Recreation" Land Development Suitability

As shown on Map 8: *Environmental Composite Map* and Map 10: *Land Suitability Analysis Map*, there are isolated 'spots' of land classified as having "less suitability" for dense and intense-type development within the Commercial-Recreation area. As the Commercial-Recreation area is planned to continue as an active recreation/open space land use, no incompatibility with land development constraints is expected or applicable.

6. "Conservation"

The Conservation area encompasses approximately 2,246 acres of the planning jurisdiction. The area contains the Town's estuarine waters, coastal wetlands and other public trust and areas of environmental concern (AECs). Only water dependent accessory uses and structures (including but not limited to piers and docks) are allowed in the Conservation area. No residential or commercial uses are allowed in Conservation areas.

"Conservation" Infrastructure Capacity

Infrastructure such as water and sewer will not be extended into the conservation areas. Sewer and water may be extended to public access sites classified as Conservation if public restroom facilities are necessitated at those sites.

"Conservation" Land Development Suitability

Due to the overwhelming presence of estuarine water, coastal wetlands, public trust areas, unvegetated beach, dunes and other erodible areas, the entirety of the Conservation area is not suitable for dense or intense development, which includes any form of residential or commercial use.

Section 10: Tools for Managing Development

The Tools for Managing Development Section provides: 1) a description of the role the policies and goals of the Land Use Plan shall play in determining the approval, rejection and/or scale of development projects; 2) a description of the Town's existing development management and regulation program; 3) a description of additional tools used to implement the polices of the Land Use Plan; and 4) an Action Schedule for setting an implementation timeframe for the Town's priority goals and policies.

10.1 Role and Status of the Plan

The Town Land Use Plan is a guiding tool that establishes the desired direction for land use and development in the community. Although the statements and policies in the Land Use Plan do not have the authority of an ordinance or regulation, many state and federal decisions on permitting local actions/projects rest on a determination of consistency with the Town's Land Use Plan. Such state permitting decisions include CAMA major permits (see Section 1.4) issued by the Division of Coastal Management. The Town's securing of state or federal grant/loan funding may also be contingent upon review of consistency with the Town's Land Use Plan, and to whether the Town's policies are adequate enough to meet state and federal standards regarding funded projects (e.g. beach nourishment and public access).

In addition, any future Town zoning ordinance and/or map amendments to accommodate development projects must also be evaluated for their consistency with this Land Use Plan. Those Town decisions to amend zoning regulations must be evaluated even if they do not relate to a land use, dimensional standard, or area that is not under the purview of state or federal permitting. Section 7 of Session Law 2005-426, which amended North Carolina General Statute 160A-383, requires that planning board review of zoning amendments include a written statement on the consistency of the proposed amendment with the Land Use Plan and any other relevant plans (such as a small area plan, transportation plan, stormwater master plan, etc.) that have been adopted by the Town's governing board. The statute does include provisions that allow the Town's governing board to proceed and adopt proposed zoning amendments in which the planning board may determine to be inconsistent with adopted plans, if the Town governing board can provide a statement as to why the action taken is reasonable, necessary and in the public interest. The Town's governing board is required to adopt such a statement on plan consistency or inconsistency before adopting or rejecting any zoning amendment.

10.1.1 Intended Uses of the Plan

In addition to the above in **10.1**, when adopted by the Town governing board and certified by the Coastal Resources Commission, the Land Use Plan shall also be used for the following:

- The approval of routine and major developments (including redevelopments) shall be consistent with the policy direction and goals of the Land Use Plan.
- Amendments to development related ordinances (e.g. rezoning petitions), conditional use permit review and approval and creation of new ordinances shall be consistent with the policy direction and goals of the Land Use Plan.

- The approval of capital improvements (e.g. water, sewer, and stormwater systems, etc.), and related projects, shall be consistent with and prioritized based on the policy direction and goals of the Land Use Plan.

- Town Administration/Planning Staff shall consult the Plan and use it as a basis for making recommendations to the planning board and the Town governing board in such actions as development approval and ordinance amendments. If the proposed development or amendment is in conflict with the policy direction or goals of the Land Use Plan, staff shall notify the planning board and the Town governing board of the possible inconsistency. [See also the discussion of Session Law 2005-426 previously].

In reference to carrying out the above, the policy statements and goals of the Land Use Plan can be found in **Sections 8.0 - 8.3**. *Also refer to* **Section 9 and Map 12: The Future Land Use Classification Map** *for policy guidance. In addition, a more general statement of policy direction can be found in* **Section 2.3: Town's Vision Statement**.

In addition to the Town planning board and governing board, the Land Use Plan may also be used by:

- **The Public** - The Land Use Plan shall be available to any interested member of the public. The Plan can inform the public of the direction and future of their community and give them a sense of knowing and understanding what is going on. Public knowledge of the goals and policies of the Land Use Plan will also assist the public in forming support or opposition for actions in their community, to act as caretakers of their community.

- **Landowners and Developers** - The Land Use Plan provides developers and landowners with guidance and expectations on the types of land uses and development that are desired by the community. Knowledge of expectations and possible requirements of development will aid developers and land owners in preparing sound proposals and plans which will be more likely to be approved by Town officials in a more time-efficient manner. The Land Use Plan and its mapping and analysis can also provide landowners and developers with general information that could make them aware of possible capabilities and limitations of their property.

- **Town Staff** - Town staff, beyond the Administration/Planning Department, can use the plan as a tool for evaluating project proposals (such as new parks or bike paths) and for preparing plans for public facilities and infrastructure (such as water/sewer upgrades). Town Staff could also use the plan and its policies and goals when preparing its budget requests and recommendations, and make reference to the plan when preparing applications for grants and other assistance.

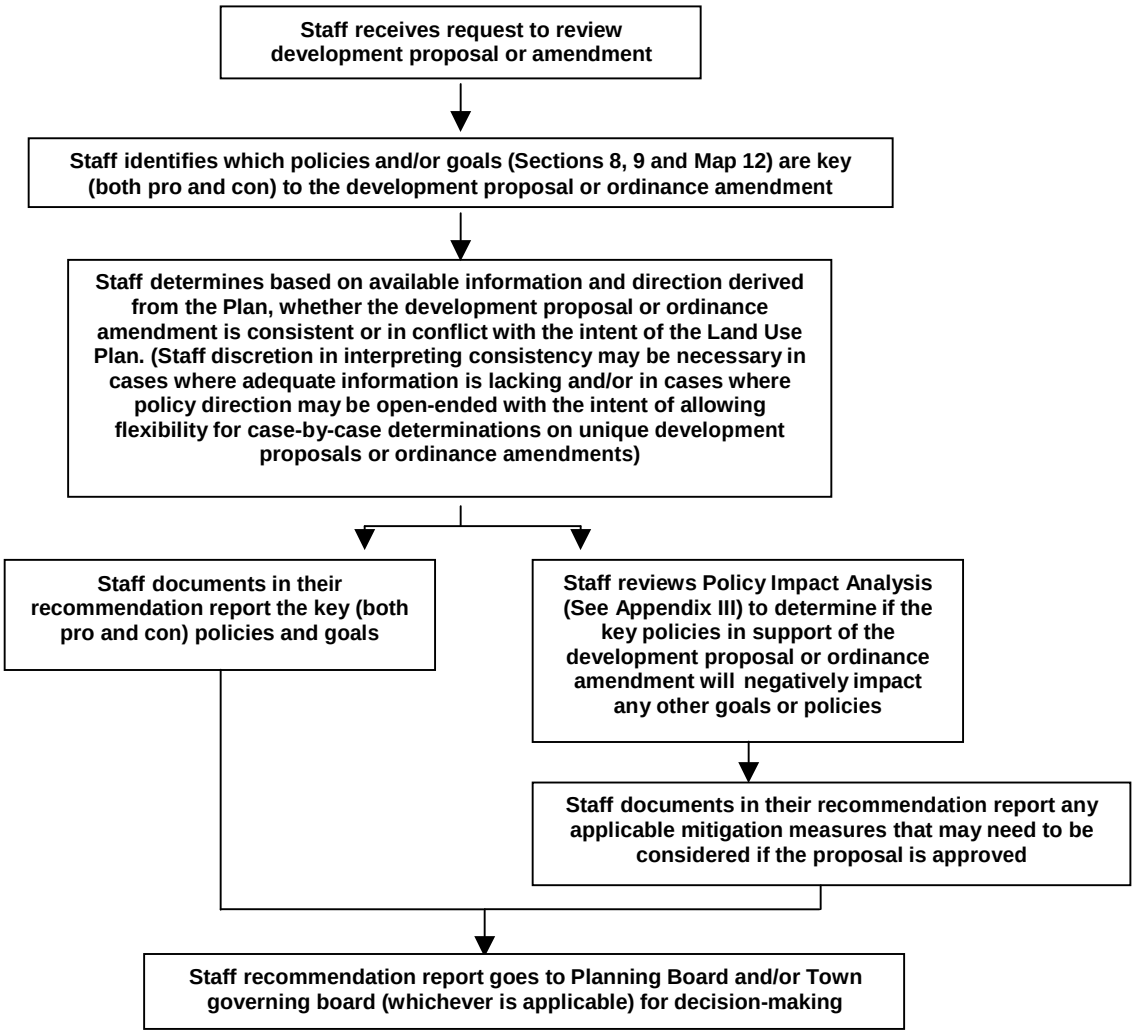
- **Area Jurisdictions** – Local jurisdictions that may be affected, either positively or negatively, by actions of Caswell Beach can use the plan to understand and predict the intents and purposes behind such actions. Area jurisdictions may also want to coordinate with the Town on achieving certain common goals, or in implementing similar policies. Such common goals could be the improvement of surface water quality in the local watershed which includes multiple jurisdictions.

10.1.2 Amendment of the Land Use Plan

In addition to amending Town zoning regulations, the Town's Land Use Plan may be amended if situations arise where the Land Use Plan becomes in conflict with new local, state or federal policy needs **(consult NCAC 7B Section .0900 for Amendment Rules,** which can also be found at http://dcm2.enr.state.nc.us/Rules/Text/t15a-07b.0900.pdf **)**. The scope of the amendment procedure is commensurate with the scope of the amendment. In other words, minor updates or minor changes in policy require minor amendment procedures, whereas substantial amendments to Town policy will require substantial amendment procedures such as public hearings, review by the Division of Coastal Management and other agencies and jurisdictions, and recertification by the Coastal Resources Commission.

10.2 Staff Flow Chart for Determining Consistency of Development Proposals and Ordinance Amendments

The following flow chart is an example of the process by which Town Staff may determine consistency of local development and regulatory decisions with the policy direction and goals of the Land Use Plan.



10.3 Existing Development Program

The Town Code of Ordinances contains all the local ordinances and many of the regulations used by the Town to manage growth and development. Some of the primary ordinances, regulations and plans regarding land use management are listed in Table 27 below. The Town also intends to include a Capital Improvements Plan (as shown in Table 28) as a tool for managing development given its use as a mechanism for planning for the expenditure of large funds on projects that may have direct impacts on growth and development.

Table 27: Existing Development Program

Ordinances/Regulations	Responsible Department
Zoning Ordinance	Administration/Planning*
Subdivision Ordinance	Administration/Planning*
Flood Damage Prevention Ordinance	Administration/Planning*
CAMA Local Permitting Officer Authority	N/A as of 2007
Building Code (State Building Code) • Exterior Lighting Restrictions • Visual Barrier Restrictions • Landscape/Tree Removal Restrictions • Filling, Grading and Excavating • Abandoned Structures/Demolition	Administration/Planning*
Water Use Ordinance	Administration
Stormwater Regulations • Stormwater Management • Illicit Discharge	Administration/Planning*
Beaches and Waterways Regulations • Dune Protection • Personal Watercraft Safety • Sea Turtle Sanctuary	Administration
Parking Regulations	Administration
Nuisance Ordinance • Noise and Weeds, Grass and Refuse	Administration
Adopted Plans	
CAMA Land Use Plan	Administration/Planning*
Strategic Plan	Administration/Planning*
Beach Preservation Plan	Administration/Planning* /Beach Advisory Board
Hazard Mitigation Plan	Administration /Contains Implementation Measures for All Departments
Emergency Operations Plan	Administration /Contains Implementation Measures for All Departments

*The Town of Caswell Beach currently does not have a formal Planning Department. The planning duties (including development plan review, zoning administration, code enforcement, and building inspections, etc.) are carried out by the Town Administrator, Town administration staff and the Building Inspector.

10.4 Existing Development Program in Implementing the Policies and Goals of the Land Use Plan

See Appendix IV for a table describing how the existing ordinances and plans will assist in implementing the policies and goals of CAMA and the Land Use Plan.

10.5 Additional Tools for Managing Development

In addition to the existing development management program described in subsection 10.3, the Town may seek to establish additional programs or plans, or amend existing ordinances, to address currently unmet and/or future needs. Acquisition programs for the purchase of land for public uses or for infrastructure improvements may also be used as an additional tool for managing development. Some of those additional tools, their estimated implementation date and the responsible department for overseeing the development of those tools are listed in Table 28 below.

Table 28: Schedule for Implementing Additional Management Tools

Ordinances/Regulations	To be Done in Fiscal Year	Department Responsibility
Zoning Ordinance Amendments*		
1. Text Amendment/Re-zone "Business" Zone to match current "R-20 MF" Zone standards	FY 07-08	Administration
2. Text Amendment to apply § 153.029 minimum lot size/density standards for multi-family developments to the base "R-20 MF" Zone	FY 07-08	
3. Text Amendment to revise and clarify the definition of "Building Height" in § 153.002 and § 153.084	FY 07-08	
4. Text Amendment to clarify definition of a "Story" as found in § 153.002	FY 07-08	
5. Text Amendment to eliminate the "3 stories" allowance in § 153.084 for zoning districts that are required to elevate the first floor above the regulatory flood protection height	FY 07-08	
6. Text Amendment of § 153.033 to identify "bulkheads" as a prohibited use/activity in the "Conservation" Zone	FY 07-08	
Stormwater Management Ordinance Amendments	FY 07-08 or 08-09	Administration
7. Incorporate Phase II NPDES coastal rules		
8. Consider requiring use of permeable surfaces for driveways, Parking spaces and other related structures		
9. Consider Stormwater Utility		
10. Consider using decommissioned septic systems as stormwater/rain retention cisterns		
11. Sewer Use Ordinance	FY 07-08 or 08-09	Administration
12. Subdivision Ordinance	FY 07-08	Administration

*See Appendix V for a background discussion on each of the numbered recommended amendments.

Table 28 cont'd

Official Plans		
13. Stormwater Master Plan	FY 07-08	Administration
14. Beach Preservation Plan	Ongoing Updates	Administration /Beach Advisory Board
15. Sewer System Plan (need to address costs and capacity in the design, construction, and O&M of the system)	FY 07-08	Administration
16. Water System Plan (need to address inadequate pressure)		Administration
17. Strategic Plan (need to update to ensure consistency with the LUP and other new programs and documents)	FY 07-08	Administration
Capital Improvements Program		
Scheduled Fiscal Year and Ongoing 18. Capital Improvement Plan (CIP)*	Begin CIP process in FY 07-08 to take effect in FY 08-09	Administration
e. Sewer System Construction	FY 07-08 or 08-09	
f. Beach Preservation Program Activities	Ongoing	
g. Stormwater System Improvements	FY 07-08 or 08-09	
h. Water system Improvements	FY 07-08 or 08-09	

* A Capital Improvements Program (CIP) is a long term and continually updated plan that identifies major capital projects and acquisitions that are to be considered for funding over a period of time, usually five or six years. It allows governing bodies to prioritize and plan for capital projects and acquisitions to ensure that they are meeting the goals of the Town. In addition to identifying the cost of major capital projects and acquisitions, the CIP also identifies proposed funding sources (i.e. general fund, installment purchasing contracts, special assessments, grants) and the expected impact of the project or item on the operating budget (i.e. increase operating cost, decrease operating costs, etc). The Town of Caswell Beach currently does not have a formal CIP. The Town intends to create a formal CIP process to apply for the FY 08-09 budget cycle. CIP related projects listed above and scheduled to be implemented prior to the creation of a formal CIP program are projects that may be budgeted as needed from the current operating budget.

10.6 Action Schedule

The Action Schedule is a listing of the priority actions the Town has set to accomplish in the planning period of this Land Use Plan (typically 5-6 years). The 'actions' to implement are derived from the goals and policy statements of the Land Use Plan. Actions may be added to the list in the future if situations change or new needs arise. The Action Schedule should be referenced with **subsection 10.5:** *Additional Tools for Managing Development* and **Table 28**: *Scheduled Additional Management Tools* which show the expected plans to be created and expected ordinance amendments intended to assist in reaching the goals and policies found in the Action Schedule and the Land Use Plan in general. Finally, the Action Schedule will be used as the benchmark to prepare a CAMA required implementation status report every two years for the life of the plan, beginning upon the Coastal Resources Commission's certification of the Town's Land Use Plan (see North Carolina Administrative Code 15A 7L .0511).

Table 29: Action Schedule

Action	Management Topic Goal	Responsible Entity	2007-2008	2008-2009	2010-2011	2011-2012	2012-2013
1. Continue Expanding Public Participation in Land Use Planning.		Administration					
2. Revise portions of the Zoning Ordinance to address internal consistency and to implement LUP goals and policies. See Table 28 for detailed list of recommended amendments.	Land Use Compatibility	Administration					
3. Construct sewer system to serve platted/developable areas (eliminate septic system and package treatment use).	Water Quality/ Infrastructure Carrying Capacity	Administration					
4. Revise stormwater management regulations to incorporate Phase II rules, permeable surface provisions, and other management recommendations of the Stormwater Master Plan.	Water Quality	Administration					
5. Establish a Local Watershed Planning Group. Coordinate with adjacent jurisdictions and state agencies.	Water Quality	Administration					
6. Develop and integrate a Capital Improvements Program (CIP) to prioritize funding for projects such as stormwater system improvements, public access, sewer, etc.	Public Access/ Land Use Compatibility/ Infrastructure Carrying Capacity	Administration	Under Development	Ongoing →	Ongoing →	Ongoing →	Ongoing →
7. Pursue mechanisms to preserve the existing 18-hole golf course, such as not approving any future requests to rezone or add text amendments which would allow residential uses in the CR-1 Zone. Coordinate activities with Town of Oak Island.	Land Use Compatibility	Administration	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
8. Pursue stricter enforcement of nuisance problems (i.e. noise and light) and parking problems.	Land Use Compatibility	Administration	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
9. Implement public parking and public access enhancements as required by beach nourishment funding.	Public Access/ Land Use Compatibility	Administration	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
10. Implement annexation or extraterritorial jurisdiction over the "Baptist Assembly" and/or U.S.C.G. property if those properties have a change of ownership (if applicable).	Land Use Compatibility	Administration	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing

Two (2) Year Implementation Status Report"

The Town shall submit a land use plane implementation status report to the Coastal Resources Commission (CRC) two years following the date of certification of the plan by the CRC.

Section 11: Conclusion

This Land Use Plan (LUP) contains the adopted goals and policies for the Town of Caswell Beach which are to be implemented and followed over the next five to ten year planning period (from the date of LUP certification by the CRC), and beyond if an update is not conducted within 10 years. The intent of the policies and actions detailed in this plan are to be carried out in good faith by current and future elected officials and Town staff. Any public decisions by Town officials regarding growth and development (e.g. re-zonings, land use related ordinance revisions, conditional use permits, capital improvement projects, public grants, etc.) are to remain consistent with the policies, goals and objectives in this plan. To allow flexibility if circumstances or community preferences change, the Land Use Plan can be updated or amended. Current Land Use Plan updates are conducted through a grant from the Division of Coastal Management and are on a seven to ten year cycle, which is primarily determined by funding availability. The Town may undertake an amendment of the Land Use Plan at any time, but must follow the regulations found in North Carolina Administrative Code Title 15A, Chapter 7, Subchapter 7B, Section .0900-.0901.

Town of Caswell Beach CAMA Land Use Plan
Appendix

Appendix I: Citizen Participation Plan
Appendix II: County Water System Master Plan - Program of Construction Table
Appendix III: Policy Impact Analysis Table
Appendix IV: Existing Development Program in Implementing the Policies and Goals of the Land Use Plan

Appendix I: Citizen Participation Plan

CITIZEN PARTICIPATION PLAN
TOWN OF CASWELL BEACH
CAMA CORE LAND USE PLAN
PHASE I and PHASE II

I. Introduction

The Town of Caswell Beach is beginning the development of a Core Land Use Plan (LUP) under the North Carolina Coastal Area Management Act (CAMA). Land use planning provides one of the best opportunities for public involvement in the NC Coastal Management Program, and the CAMA planning program emphasizes public participation in the planning process. Interested citizens and nonresident property owners will have an opportunity to help shape the policies that will impact the growth of the Town in the future and guide CAMA permit decisions in the community.

Coordination and discussion with other municipalities and County officials on policy matters will be a part of this process. All socio-economic, ethnic, and cultural viewpoints will be considered through the plan review and revision process. To the fullest extent possible, persons representing diverse viewpoints will be identified and specifically notified and asked for their input.

II. Purpose of Citizen Participation Plan

This Citizen Participation Plan (CPP) has been prepared to describe a process by which the public will be encouraged to participate in the planning process leading to the revision of the Town of Caswell Beach CAMA Core LUP. This Citizen Participation Plan has been designed to meet the requirements for public participation as outlined in 15A NCAC 7L.0506. It is the intent of the process described herein that the public would have ample opportunity to become a meaningful part of the planning process. This plan addresses the following objectives.

1. To share information about the CAMA planning process and its requirements;
2. To increase the community's understanding of the impact that land use and development issues have on quality of life;
3. To provide opportunities for the residents and property owners to participate in the identification of land use and development policies and to assess the impact of the policies on the community; and
4. To provide a forum where all economic, social, ethnic and cultural viewpoints will be considered throughout the land use process.

Views gathered as a part of this process will be informative and instructional for citizens of the Town of Caswell Beach, interested parties, and the Town's elected and appointed Boards. Interested citizens shall have an opportunity to participate in the development of the CAMA Core LUP through oral and written comments as provided for in the Citizen Participation Plan. Copies of informational CAMA Core LUP materials shall be provided at all meetings, available at a designated area of Town Hall, on the Town website, or via an email list serve or upon request by members of the public. The Citizen Participation Plan shall be available to the public throughout the planning process. The CPP is a working document, and may be amended on an as needed basis.

III. Designation of Lead Planning Group and Points of Contact

By designation of the Town Council (Mayor and Board of Commissioners), the principle local board responsible for supervision of the planning process will be the Town of Caswell Beach Planning Board. The principal points of contact for land use plan preparation shall be Bob Wyatt, Chairman of the Planning Board; Scott Logel, Planner in Charge; and David Hewett, Town Administrator. The names and contact information for the Planning Board and Town Council are listed in Attachment A, attached hereto and made a part of by reference.

The Planning Board is responsible for providing overall leadership and guidance for preparation of the land use plan. The members of the Planning Board have the following specific duties and responsibilities:

1. Faithfully attend Planning Board meetings and provide overall direction for development of the draft land use plan;
2. Serve as a public contact to make it easier for citizens to get information and to make comments on the plan;
3. Review technical planning materials provided by staff to help ensure that they accurately represent the current situation and recent trends in Caswell Beach;
4. Assist the Town's planning advisors (Administrator, Public Works, etc.) with preparation of major plan elements, which includes identifying concerns and key planning issues, developing community vision, developing goals, and preparing draft policies and the future land use map;
5. Assist with organization, management, and facilitation of public participation events;
6. Help publicize public participation events in the community and recruit residents and property owners to attend; and
7. Recommend and present a complete land use plan to the Town Council at the end of the planning process.

IV. Public Information and Public Input

Planning Board Meetings

The Planning Board meets regularly on the third Wednesday of each month at 5:00 P.M. in the Council Chambers of Town Hall. Workshops on the Land Use Plan will be held during the regular Planning Board on the third Wednesday of each month in the Council Chambers of Town Hall. Special meetings may be called as necessary. In order to comply with the NCGS 143-318.9 to 143-318.18, a schedule of the Planning Board's meetings is available from the Town Administrative Department. This schedule is also provided to the Town Clerk for posting and distribution of the required notices. The Planning Board Chairman will notify Town staff of any changes to the schedule and of any special meetings so that proper notice may be given.

All Planning Board agendas will allocate time to hear comments on the land use plan from the public. The Town may keep a record in the minutes of all residents, property owners, and others who speak at any of the Planning Board meetings or other events and will retain any land use plan comments that it receives. The names of speakers and written comments will be kept in a file maintained by the planner

in charge and will be provided to the NC Division of Coastal Management District Planner during draft plan review.

Attachment B provides a general outline of the meeting schedule and gives a purpose for each meeting.

Initial Public Information Meeting

The initial public information meeting (Community Meeting), which is a required portion of the CAMA planning process, will be held on November 9, 2006, 5:00p.m. at the Caswell Beach Town Hall (1100 Caswell Beach Road). The Town will conduct a second public information meeting (Open House) in the winter of 2006/2007, or at a later date to allow for more public attendance during the peak season. The Town must give two public notices of the initial public information meeting. The first notice must appear not less than 30 days before the meeting and the second must appear not less than 10 days before the meeting. Affidavits of publication will be kept as evidence that this requirement has been met. In addition to the public notices, the CAMA grant requires the Town to notify the Coastal Resources Advisory Council area representative(s) and the NC Division of Coastal Management District Planner of the date, time, and place of the public information meeting.

The planning team (Town staff, Planning Board members and planner in charge) will periodically issue press releases and make efforts to notify the local media of available information on the Town's land use planning program.

The purpose of the initial public meeting will be to inform citizens about the purpose of the CAMA land use plan, to solicit public input in the identification of key growth and development issues facing the Town, and to solicit public input in the creation of a Town Vision Statement.

V. Participation Methods

The Town will use two methods of public participation in the preparation of the land use plan. The first method will be to hold a Community Meeting that will allow residents and property owners to express concerns about land use and development and to set priorities for development of the land use plan. The second method will be to hold a community Open House where the community can review and comment on the completed first and second phase (Phase I and II) draft of the land use plan.

Community Meeting

The Planning Board will conduct a facilitated Community Meeting to assist in identifying a broad range of land use issues, concerns, and opportunities within the community. The Community Meeting will be held on November 9, 2006. At this meeting, residents and property owners will create a single list of issues and opportunities about which there is a high level of agreement among those attending. The Community Meeting will be conducted in two parts. The first part will include a brief introduction to the CAMA planning process and background planning materials. The second part may involve small group brain storming sessions, depending on number of citizens in attendance, on land use planning concerns, issues, and opportunities. After the small group sessions, the entire group will generate a single list of the most important issues and opportunities within the community. After the top issues have been identified, the participants of the Community Meeting will review a draft Vision

Statement. The Vision Statement is intended to briefly describe the desired characteristics and growth patterns the Town wishes to pursue in the near future (5-10 years).

The Planning Board Chairman will chair the meeting. Town staff and the planner in charge will provide background information and will facilitate the overall group exercise. Planning Board members may assist as facilitators for the small group exercises.

The Community Meeting will be publicized through the local media, informational flyers, posting on the Town's web page (if applicable), and through "recruiting" and "word of mouth" by members of the Planning Board and other interested citizens.

The intended audience for this public participation opportunity may include residents, and nonresident property owners, business owners and operators, real estate professionals, members of Town committees and associations and other parties with a stake in the Town's land use plan.

Community Open House

The Town of Caswell Beach will hold a community Open House at the end of both phases (Phase I and II) of the land use planning process. The Open House will be held in the winter of 2006/2007, or at a later date to allow for more public attendance during the peak season. The Open House may be held on a Saturday to allow nonresident property owners a convenient opportunity to attend.

The Open House will provide residents with an easy opportunity to review all the information (tables, summaries, maps, policies, and implementation activities) prepared during the land use planning process. By review of the material presented, residents will be able to assess trends, find out about their community, and to express support or recommend adjustments to policies. At the Open House, the attendees will be able to interact informally with members of the planning team. A Joint Meeting with Town Council may be held immediately after the Open House, where Council is presented with a draft plan (Phase I and Phase II) and may wish to formally comment on the direction and content of the Plan.

VI. Citizen Participation Plan Evaluation

The Planning Board will conduct an on going evaluation of the Citizen Participation Plan and will make amendments to this plan as it becomes necessary. It is expected that Phase II of the LUP will begin near the beginning of calendar year 2007. A major review of the process and a reevaluation will be conducted at that time. Any amendments will be reviewed by the Planning Board and recommended to the Town Council for adoption.

This Citizen Participation Plan is hereby **amended and** adopted this the ____day of _____, 2007 by the Town of Caswell Beach, North Carolina.

By_____
Harry Q. Simmons, Jr., Mayor
Town of Caswell Beach

ATTEST:

By_____ **By**_____
Linda C. Bethune, CMC, Town Clerk **James E. Carter, Town Administrator**

Attachment A

Caswell Beach Town Council

Members	Term Expires
Harry Q. Simmons, Jr., Mayor P.O. Box 747 Caswell Beach, NC 28465-9820 910-278-5471 (W) Email: mayor@caswellbeach.org	December 2007
Deborah G. Ahlers, Mayor Pro-Tem 303 Wisteria Way Caswell Beach, NC 28465-8025 910-278-6578 (H) Email: dahlers@caswellbeach.org	December 2007
George F. Kassler 436 Caswell Beach Road Caswell Beach, NC 28465-8445 910-278-3548 (H) Email: gkassler@caswellbeach.org	December 2009
Ann Marie Zalewski 904 Caswell Beach Road Caswell Beach, NC 28465-8433 910-278-5714 (H) Email: azalewski@caswellbeach.org	December 2007
Francis A. "Frank" Bausch 734 Alyssum Avenue Caswell Beach, NC 28465-8426 910-278-5306 (H) Email: fbausch@caswellbeach.org	December 2009
John L. Rose, Jr. 105 Flowering Bridge Path Caswell Beach, NC 28465-8413 910-201-4128 (H) Email: jrose@caswellbeach.org	Resigned July 1, 2007

Caswell Beach Planning Board

Members	Term Expires
Russell Barlowe 736 Alyssum Ave. Caswell Beach, NC 28465 910-278-3123 (H) Email: h-rbarlowe@juno.com	March 2008
Martha "Marti" Hardy 740 Alyssum Avenue Caswell Beach, NC 28465 910-278-7432 (H) martihardy@gmail.com	March 2008
James F. Hinkhouse 716 Alyssum Avenue Caswell Beach, NC 28465 910-278-1695 (H) Email: elsieandjim@ec.rr.com	March 2009
Chairman: Robert R. Wyatt, Chairman 144 Ocean Greens Lane Caswell Beach, NC 28465 910-201-4429 (H/F) Email: rwyatt@ec.rr.com	March 2008
Tom Kitchings 318 Caswell Beach Road Caswell Beach, NC 28465 910-278-4653 (H) Email: kitch@ec.rr.com	August 2007
(Alternate #1) Jerry Johnson 301 Wisteria Way Caswell Beach, NC 28465 910 – 201 -1608 jerryalbert1240@aol.com	June 2008
(Alternate #2) David Weigel 435 Caswell Beach Rd Caswell Beach, NC 28465 910-278-4483 dlwei@aol.com	July 2009

TOWN OF CASWELL BEACH - CONTACT LIST

(Effective 12/10/09)

Mayor Harry Q. Simmons, Jr.
PO Box 747 (Residence: 13 Fairway Drive)
Caswell Beach, NC 28465
(910) 200-7867 (C#) /
1-800-967-0816 (FAX)
E-mail: mayor@caswellbeach.org

Commissioner Deborah G. Ahlers (Mayor Pro Tem)
303 Wisteria Way
Caswell Beach, NC 28465
(910) 278-6578 (H#) & (F#) /
(910) 471-6578 (C#)
E-mail: dahlers@caswellbeach.org

Commissioner Martha (Marti) J. Hardy
740 Alyssum Avenue
Caswell Beach, NC 28465
(910) 278-7432 (H#)
E-mail: mhardy@caswellbeach.org

Comissioner James (Jim) D. Griffin
100 OceanGreens Lane
Caswell Beach, NC 28465
(910) 278-6994 (H#)
E-mail: jgriffin@caswellbeach.org

Commissioner George F. Kassler
436 Caswell Beach Road
Caswell Beach, NC 28465
(910) 278-3548 (H#)
E-mail: gkassler@caswellbeach.org

Commissioner Robert (Butch) L. Shirkey
130 Caswell Beach Road
Caswell Beach, N.C. 28465
(910) 278-6419 (H#)
E-mail: rshirkey@caswellbeach.org

TOWN OF CASWELL BEACH –PLANNING BOARD (Revised Mar., 2010)
Regular Monthly Meeting – 3rd Wed., 5 P.M.
Caswell Beach Town Hall (1100 Caswell Beach Rd)

NAME AND ADDRESS	TELEPHONE	ORIGINAL TERM BEGAN	CURRENT TERM ENDS
James (Jim) F. Hinkhouse 716 Alyssum Avenue Caswell Beach, NC 28465 E-mail: elsieandjim@ec.rr.com	278-1695 (H)	02/13/97 Two Year	03/2011
Jerry A. Johnson 301 Wisteria Way Caswell Beach, NC 28465 E-mail: lindet@aol.com	201-1608 (H)	06/14/07 Alt. 02/11/10 Reg. (Filled Seat Vacated by Hardy) Two Year	03/2012
J. Thomas (Tom) Kitchings, III 318 Caswell Beach Road Caswell Beach, NC 28465 E-mail: kitch@ec.rr.com	278-4653 (H)	08/10/06 Alt. 03/08/07 Reg. Two Year	03/2011
David L. Weigel 435 Caswell Beach Road. Caswell Beach, NC 28465 E-mail: dlwei@aol.com	278-4483 (H)	07/12/07 Alt. 05/14/09 Reg. (Filled Seat Vacated by Barlowe) Two Year	03/2012
Chairman: Robert (Bob) R. Wyatt 144 Ocean Greens Lane Caswell Beach, NC 28465 E-mail: bwyattnc@gmail.com	201-4429(H/F)	02/10/00 Two Year	03/2012
Alternate #1: William (Bill) F. Tiernan 8 Fairway Drive Caswell Beach, NC 28465 E-mail: wtiernan@att.net	201-4615 (H)	05/14/09 One Year	07/2010
Alternate #2: John W. Bartholomew 430 Caswell Beach Road Caswell Beach, NC 28465 E-mail: jbartholomew@ec.rr.com	279-4127(C)	02/11/10 Alt. (Filled Alt. Seat Vacated by Johnson)	07/2010

Attachment B

ITEMS COVERED IN MEETING (SUBJECT TO CHANGE)

Meeting	Items Covered
August 2006 meeting	Hold Orientation session with Planning Board. Presentation of Citizen's Participation Plan (adoption by Council at April meeting). Discussion of CAMA regulations, planning process, & key growth issues & planning issues. Begin to create vision statement.
September 2006	No Land Use Plan Meeting Held
October 2006 meeting	Discussion of Population, Housing and Economy. Discussion of Natural Systems Analysis. Discussion of Land Use & Development (including existing land use map)
November 2006 meeting	(Community Meeting) Initial public information meeting. Discussion of existing & emerging conditions, and Vision Statement
December 2006 meeting	Discussion of Community Facilities. Environmental Composite Map and Land Suitability Analysis (LSA).
January 2007	Phase I completed and current (1997) Land Use Plan policies reviewed.
February 2007	Phase II (policy creation) begins. Policy Topic Discussion: "Land Use Compatibility".
March 2007	Policy Topic Discussion: "Land Use Compatibility" cont'd and "Public Access".
April 2007	Policy Topic Discussion: "Land Use Compatibility" cont'd, "Public Access" and "Infrastructure".
May 2007	No meeting held.
June 2007	Policy Topic Discussion: "Water Quality" and "Natural Hazard Mitigation". Policy Discussion wrap-up. Begin Future Land Use Map.

July 2007	Policy Discussion wrap-up and establishment of LUP implementation activities. Create Future Land Use Map.
August 2007	Finalize Future Land Use Map. Planning Board completes and recommends final draft of Land Use Plan to Council for adoption. After Planning Board completes and recommends final draft, hold advertised Public Open House to display final draft policies and Future Land Use Map.
August/September 2007	Prior to Council adoption of LUP, Town submits final draft LUP to state agencies, local CRAC members and adjacent local jurisdictions for comments.
September/October 2007	Planning Board meets to revise LUP based on comments received (IF NECESSARY).
September/October/November 2007	Town holds public hearing and adopts the LUP by formal resolution. Adopted LUP is submitted to the Coastal Resources Commission for certification.

Appendix II: County Water System Master Plan - Program of Construction Table

Program of Construction

Map Ref. No.	Location	Size(in) or No. Items	Length feet	Estimated Cost	Totals	Reason for Improvement
Phase 1 - Immediate Needs						
I-1	Bethel Road Loop pipeline	12	10,000	$475,000		Poor Fire Flow
I-2	Beach Road parallel line in Calabash	12	8,300	$395,000		Poor Fire Flow
I-3	Shallotte Interconnection	16	6,600	$495,000		Poor Fire Flow
I-4	Dutchman's Acre Tie-In	12	100	$5,000		Poor Fire Flow
I-5	River Road/Southport Connection	24	425	$61,000		12-inch bottleneck
I-6	Sandpiper Bay Loop Tie-In	12	1,300	$62,000		Poor Fire Flow
I-7	Caswell Meter/Piping Modifications			$25,000		High head loss through pipe/meters
Phase 1 - Subtotal					$1,518,000	
Phase 2A - Pipeline Improvements Needed By 2015						
IIA-1	Northwest Loop Pipeline from Leland Tank to Highway 17 along US 74/76, Malmo Loop, Colin-Mintz Rd and Maco Road (NC 87)	36	45,700	$13,500,000		Low Pressures in 2015
IIA-2	Northwest Loop Pipeline to tie-in with 36-inch pipeline following NC 74/76 and Maco Road (NC 87)	12	31,400	$1,500,000		Low Pressures in 2015
IIA-3	Parallel 30-inch line from NC 17 and NC 87/17 Intersection to Bell Swamp Pumping Station	30	20,000	$4,250,000		Low Pressures in 2015
IIA-4	Hwy 211/17 area to Stone Chimney Line	16	2,500	$188,000		
IIA-5	Bell Swamp BPS parallel line to Hwy 211/17 Intersection following Highway 17 Bypass	30	70,000	$17,875,000		Low Pressures in 2015
IIA-6	Parallel Line from Boiling Spring Lakes Tank to Boiling Spring Lakes meter vaults	24	12,100	$1,750,000		Low Pressures in 2015
Phase 2A - Subtotal					$39,063,000	
Phase 2B - Pumping Station/Storage Improvements Needed By 2015						
IIB-1	Additional NW WTP Finished Water Pumps	2		$150,000		Need increased capacity 2015
IIB-2	Replace BPS10 pumps with higher capacity and higher head pumps	2		$150,000		Need increased capacity 2015
IIB-3	Additional Bell Swamp Southwest Booster Pumps	2		$150,000		Need increased capacity 2015
IIB-4	Replace 2 pumps with higher capacity and higher head pumps at BPS6	2		$150,000		Need increased capacity 2015
IIB-5	New 1MG Elevated Storage Tank southwest of BPS6	1		$1,750,000		Need increased capacity 2015
Phase 2B - Subtotal					$2,350,000	
Phase 3 - WTP Improvements Needed by 2008						
III-1	Upgrade Existing Northwest WTP by adding 8 MGD to firm capacity of 24 MGD including conversion to Superpulsators, additional dewatering building, filters and clearwell storage, yard piping, electrical, I/C, chemical, and contingency	1		$20,000,000		Need increased capacity 2015
III-2	Upgrade Existing 211 WTP	1		$6,000,000		Regulatory/Upgrades
Phase 3 - Subtotal					$26,000,000	
Grand Total (2006 US Dollars)					**$68,931,000**	

Source: Brunswick County, North Carolina: Water System Master Plan. July 2006. Prepared by Hazen & Sawyer, P.C.

Appendix III: Policy Impact Analysis Table

The policy impact analysis is intended to identify any potential **negative, neutral, or positive** impacts to CAMA Management Topic goals by the implementation of the Town policies. The Town of Caswell Beach drafted their policy statements specifically to remain consistent with and further the goals of the Coastal Area Management Act (CAMA). There were no negative or neutral-negative impacts to CAMA management Topic goals identified from the policies established in this Land Use Plan. The following list defines the impact designations that may be used in the analysis:

Negative - Implementation of the policy will more than likely have an immediate or long-range negative impact on the Management Topic goals. The policy could conflict with the attainment of other goals.

Neutral - Implementation of the policy will more than likely not have any impact on the Management Topic goals. The policy will probably not effect the attainment of other goals.

Positive - Implementation of the policy will more than likely have an immediate or long-range positive impact on the Management Topic goals. The policy could foster the attainment of other goals.

Neutral-Negative - Implementation of the policy could range from no impact to an immediate or long- range negative impact on the Management Topic goals. The policy may not effect the attainment of other goals if carried-out with other polices or goals in mind, or the policy could conflict with the attainment of other goals if carried-out without mitigation or management activities.

Neutral-Positive - Implementation of the policy could range from no impact to an immediate or long- range positive impact on the Management Topic goals. The policy may have no effect on the attainment of other goals or the policy could foster the attainment of other goals if actions are coordinated or expanded.

For simplification, a cross-referenced table (matrix) was used to list the potential impact of each policy in boxes under each Management Topic. If a policy has the potential to have a negative impact on a goal or goals of any of the Management Topics, a course of action or policy must be established to mitigate the negative impacts.

Management Topics	Land Use Compatibility	Infrastructure	Public Access	Water Quality	Natural Hazards
	Reduction in Habitat Loss and Fragmentation Related to Impacts of Land Use and Development *Reduction of Water Resource and Water Quality Degradation*	*Water, Sewer and Other Key Community Facilities and Services Being Available in Required Locations at Adequate Capacities to Support Planned Community Growth and Development Patterns*	*More Planned Access Locations* *Upgrades to Existing Access Locations*	*Land Use and Development Criteria and Measures That Abate Impacts That Degrade Water Quality*	*Land Uses and Development Patterns That Reduce Vulnerability to Natural Hazards* *Land Uses and Development Patterns That Take Into Account the Existing and Planned Capacity of Evacuation Infrastructure*
LUP Policies: Land Use Compatibility					
Policy 1 Areas of Environmental Concern in General	Positive	Neutral	Neutral-Positive	Positive	Positive
Policy 2 Development of Sound and Estuarine Islands	Positive	Neutral-Positive	Neutral-Positive	Positive	Positive
Policy 3 Ocean Hazard Areas	Positive	Neutral	Neutral-Positive	Positive	Positive
Policy 4 Estuarine Waters and Public Trust Areas	Positive	Neutral	Neutral-Positive	Positive	Neutral-Positive
Policy 5 Coastal Wetlands	Positive	Neutral	Neutral-Positive	Positive	Positive
Policy 6 Estuarine Shorelines	Positive	Neutral	Neutral-Positive	Positive	Positive
Policy 7 Bulkhead Construction	Positive	Neutral	Neutral	Neutral-Positive	Neutral
Policy 8 Soils	Positive	Neutral	Neutral	Neutral-Positive	Positive
Policy 9 Protection of Identified "Class III" and "Least Suitable" Areas	Positive	Positive	Neutral-Positive	Positive	Neutral-Positive
Policy 10 Residential, Commercial and Industrial Development Impacts on Resources	Positive	Positive	Neutral	Positive	Neutral-Positive
Policy 11 Density of New Development and Redevelopment	Positive	Positive	Neutral	Positive	Positive

Management Topics	Land Use Compatibility	Infrastructure	Public Access	Water Quality	Natural Hazards
	Reduction in Habitat Loss and Fragmentation Related to Impacts of Land Use and Development *Reduction of Water Resource and Water Quality Degradation*	*Water, Sewer and Other Key Community Facilities and Services Being Available in Required Locations at Adequate Capacities to Support Planned Community Growth and Development Patterns*	*More Planned Access Locations* *Upgrades to Existing Access Locations*	*Land Use and Development Criteria and Measures That Abate Impacts That Degrade Water Quality*	*Land Uses and Development Patterns That Reduce Vulnerability to Natural Hazards.* *Land Uses and Development Patterns That Take Into Account the Existing and Planned Capacity of Evacuation Infrastructure*
LUP Policies: Land Use Compatibility					
Policy 12 Commercial and Industrial Development	Positive	Positive	Neutral	Positive	Positive
Policy 13 Preservation of Existing 18-Hole Golf Course	Positive	Neutral-Positive	Neutral	Positive	Positive
Policy 14 Redevelopment of Developed Areas	Positive	Positive	Neutral	Positive	Neutral-Positive
Policy 15 Annexation and Planning Authority Extension	Neutral-Positive	Positive	Neutral	Positive	Neutral-Positive
Policy 16 Industrial Impacts on Fragile Areas	Positive	Positive	Neutral	Positive	Positive
Policy 17 Energy Facility Siting and Development	Positive	Neutral	Neutral	Positive	Neutral
Policy 18 Manmade Hazards	Positive	Neutral	Neutral	Positive	Neutral
Policy 19 Building Height of New Development and Redevelopment	Positive	Neutral	Neutral	Neutral	Positive
Policy 20 Maximum Number of Bedrooms	Positive	Positive	Neutral	Positive	Neutral-Positive
Policy 21 Regulation of Private "Clubhouse" Structures	Neutral-Positive	Positive	Neutral	Neutral	Neutral-Positive
Policy 22 Noise and Light Nuisance	Neutral-Positive	Neutral	Neutral	Neutral	Neutral
Policy 23 Land Use and Development Decisions Consistent with Strategic Plan and Land Use Plan	Positive	Neutral-Positive	Neutral	Neutral	Neutral-Positive

Management Topics	Land Use Compatibility	Infrastructure	Public Access	Water Quality	Natural Hazards
	Reduction in Habitat Loss and Fragmentation Related to Impacts of Land Use and Development *Reduction of Water Resource and Water Quality Degradation*	*Water, Sewer and Other Key Community Facilities and Services Being Available in Required Locations at Adequate Capacities to Support Planned Community Growth and Development Patterns*	*More Planned Access Locations* *Upgrades to Existing Access Locations*	*Land Use and Development Criteria and Measures That Abate Impacts That Degrade Water Quality*	*Land Uses and Development Patterns That Reduce Vulnerability to Natural Hazards* *Land Uses and Development Patterns That Take Into Account the Existing and Planned Capacity of Evacuation Infrastructure*
LUP Policies: Infrastructure					
Policy 24 Sewer System	Positive	Positive	Neutral	Positive	Neutral
Policy 25 Septic Decommissioning	Positive	Neutral	Neutral	Positive	Neutral
Policy 26 Stormwater Management Systems	Positive	Positive	Neutral	Positive	Neutral-Positive
Policy 27 Groundwater/ Protection of Potable Water Supplies	Neutral-Positive	Positive	Neutral	Positive	Neutral-Positive
Policy 28 Water Supply	Neutral	Positive	Neutral	Neutral	Neutral
Policy 29 Solid Waste	Neutral	Neutral	Neutral	Neutral	Neutral

Management Topics	Land Use Compatibility	Infrastructure	Public Access	Water Quality	Natural Hazards
	Reduction in Habitat Loss and Fragmentation Related to Impacts of Land Use and Development *Reduction of Water Resource and Water Quality Degradation*	*Water, Sewer and Other Key Community Facilities and Services Being Available in Required Locations at Adequate Capacities to Support Planned Community Growth and Development Patterns*	*More Planned Access Locations* *Upgrades to Existing Access Locations*	*Land Use and Development Criteria and Measures That Abate Impacts That Degrade Water Quality*	*Land Uses and Development Patterns That Reduce Vulnerability to Natural Hazards* *Land Uses and Development Patterns That Take Into Account the Existing and Planned Capacity of Evacuation Infrastructure*
LUP Policies: Public Access					
Policy 30 Public Access and Recreation Resources	Neutral	Neutral	Positive	Neutral	Neutral
Policy 31 Use of Marine Resource Areas	Neutral	Neutral	Positive	Neutral	Neutral-Positive
Policy 32 Marina and Floating Home Development	Positive	Neutral	Positive	Positive	Neutral-Positive
Policy 33 Mooring Fields	Neutral	Neutral	Positive	Positive	Neutral-Positive
Policy 34 Assistance in Channel Maintenance	Neutral	Neutral	Positive	Neutral	Neutral-Positive
Policy 35 Assistance in Interstate Waterways	Neutral	Neutral	Positive	Neutral	Neutral
Policy 36 Public Access Facilities and Parking	Neutral	Neutral	Positive	Neutral	Neutral

Management Topics	Land Use Compatibility	Infrastructure	Public Access	Water Quality	Natural Hazards
	Reduction in Habitat Loss and Fragmentation Related to Impacts of Land Use and Development *Reduction of Water Resource and Water Quality Degradation*	*Water, Sewer and Other Key Community Facilities and Services Being Available in Required Locations at Adequate Capacities to Support Planned Community Growth and Development Patterns*	*More Planned Access Locations* *Upgrades to Existing Access Locations*	*Land Use and Development Criteria and Measures That Abate Impacts That Degrade Water Quality*	*Land Uses and Development Patterns That Reduce Vulnerability to Natural Hazards* *Land Uses and Development Patterns That Take Into Account the Existing and Planned Capacity of Evacuation Infrastructure*
LUP Policies: Surface Water Quality					
Policy 37 Water Quality Management	Positive	Neutral	Neutral	Positive	Neutral
Policy 38 Local Watershed Planning	Positive	Neutral	Neutral	Positive	Positive
Policy 39 Support for Total Maximum Daily Load (TMDL) Standards	Positive	Neutral	Neutral	Positive	Neutral
Policy 40 Low Impact Development (LID)	Positive	Neutral	Neutral	Positive	Neutral-Positive
Policy 41 Use of Permeable/Pervious Materials and Total Lot Coverage Standards	Positive	Neutral	Neutral	Positive	Neutral-Positive
Policy 42 Preservation of 404 Wetlands (non-coastal wetlands)	Positive	Neutral	Neutral	Positive	Neutral-Positive
Policy 43 Comprehensive Stormwater Program	Positive	Neutral-Positive	Positive	Positive	Positive

Management Topics	Land Use Compatibility	Infrastructure	Public Access	Water Quality	Natural Hazards
	Reduction in Habitat Loss and Fragmentation Related to Impacts of Land Use and Development *Reduction of Water Resource and Water Quality Degradation*	*Water, Sewer and Other Key Community Facilities and Services Being Available in Required Locations at Adequate Capacities to Support Planned Community Growth and Development Patterns*	*More Planned Access Locations* *Upgrades to Existing Access Locations*	*Land Use and Development Criteria and Measures That Abate Impacts That Degrade Water Quality*	*Land Uses and Development Patterns That Reduce Vulnerability to Natural Hazards* *Land Uses and Development Patterns That Take Into Account the Existing and Planned Capacity of Evacuation Infrastructure*
LUP Policies: Natural Hazards Mitigation					
Policy 44 Consistency with the Town's Hazard Mitigation Plan	Neutral	Neutral	Neutral	Neutral	Positive
Policy 45 Emergency Preparedness	Neutral	Neutral	Neutral	Neutral	Positive
Policy 46 Evacuation Plans	Neutral	Neutral	Neutral	Neutral	Positive
Policy 47 Enforcing Building Codes to Resist Wind Damage	Neutral	Neutral	Neutral	Neutral	Positive
Policy 48 Flood Hazard Areas	Neutral-Positive	Neutral	Neutral	Neutral-Positive	Positive
Policy 49 Redevelopment in Flood Hazard Areas After a Storm	Neutral-Positive	Neutral	Neutral	Neutral-Positive	Neutral-Positive
Policy 50 Beach and Shoreline Erosion	Positive	Neutral	Positive	Neutral-Positive	Positive
Policy 51 Acquisition of Property in Hazardous Areas	Neutral-Positive	Neutral	Positive	Positive	Positive

Appendix IV: Existing Development Program in Implementing the Policies and Goals of the Land Use Plan (As Referenced in Section 10.4)

Existing Management Program	Land Use Compatibility	Infrastructure	Public Access	Water Quality	Natural Hazards
	Reduction in Habitat Loss and Fragmentation Related to Impacts of Land Use and Development *Reduction of Water Resource and Water Quality Degradation*	*Water, Sewer and Other Key Community Facilities and Services Being Available in Required Locations at Adequate Capacities to Support Planned Community Growth and Development Patterns*	*More Planned Access Locations* *Upgrades to Existing Access Locations*	*Land Use and Development Criteria and Measures That Abate Impacts That Degrade Water Quality*	*Land Uses and Development Patterns That Reduce Vulnerability to Natural Hazards* *Land Uses and Development Patterns That Take Into Account the Existing and Planned Capacity of Evacuation Infrastructure*
Ordinances/Regulations					
Zoning Ordinance	Management of density and intensity standards in traditional residential areas provide less impact on habitat. Zoning environmentally sensitive land as "Conservation" also aids in protecting habitat and protecting water quality.	Density and intensity standards provide greater anticipation of capacity needs and ensures infrastructure improvements can better keep up with growth.	Density and intensity standards prohibit "walling-off" public trust areas with mega structures.	Management of density and intensity standards in traditional residential areas provide less impact on habitat. Zoning environmentally sensitive land as Conservation also aids in protecting habitat and protecting water quality.	Zoning in coordination with the Flood Prevention Ordinance require structural elevations or flood-proofing and other development standards in floodways. Density and intensity standards minimize the size of structures and population exposed to erosion, storm surge and flooding.
Subdivision Ordinance	Same as above. Planned Development (PD) projects can be clustered/designed to avoid sensitive areas while still reaching the allowable development density.	Same as above. Developer pays for additional infrastructure needed to serve subdivision.	Subdivisions may have conditions that new public access be provided in proportion to the density of the subdivision.	Same as above. Planned Development (PD) projects can be clustered/designed to avoid sensitive areas while still reaching the allowable development density. Any future subdivisions would likely be subject to stricter regulations regarding sedimentation and erosion control, and stormwater management which are intended to protect/restore shellfish waters.	Same as above (base zoning and flood ordinance will apply). Planned Development (PD) projects can be clustered/designed to avoid flood prone areas while still reaching the allowable development density.
Flood Damage Prevention Ordinance	Prohibits substantially altering natural drainage and floodways.	N/A	Properties that may be unbuildable or repetitively damaged may be identified for acquisition by the Town for use as public access, parking or other related use.	Prohibits substantially altering natural drainage and floodways, and limits the placing of structures/materials in floodways which could add pollutants to surface water if flooded.	Zoning in coordination with the Flood Prevention Ordinance require structural elevations or flood-proofing and other development standards in floodways. Density and intensity standards minimize the size of structures and population exposed to erosion, storm surge and flooding.
CAMA Local Permitting Officer Authority	N/A as of 2007.	N/A as of 2007.	N/A as of 2007.	N/A as of 2007.	N/A as of 2007.

Existing Management Program	Land Use Compatibility	Infrastructure	Public Access	Water Quality	Natural Hazards
2006/2007 Town of Caswell Beach CAMA Land Use Plan	*Reduction in Habitat Loss and Fragmentation Related to Impacts of Land Use and Development* *Reduction of Water Resource and Water Quality Degradation*	*Water, Sewer and Other Key Community Facilities Being Available in Required Locations at Adequate Capacities to Support Planned Growth and Development*	*More Planned Access Locations* *Upgrades to Existing Access Locations*	*Land Use and Development Criteria and Measures That Abate Impacts That Degrade Water Quality*	*Land Uses and Development Patterns That Reduce Vulnerability to Natural Hazards and Take Into Account the Existing and Planned Capacity of Evacuation Infrastructure*
Ordinances/Regulations Cont'd					
Building Code (State Building Code) • Exterior Lighting Restrictions • Visual Barrier Restrictions • Landscape/Tree Removal Restrictions • Filling, Grading and Excavating • Abandoned Structures/Demolition	Regulates the placement and intensity of exterior lighting to minimize negative impacts on adjacent properties and environmentally sensitive habitat. Regulates and manages the placement of structures and accessory structures so as to preserve scenic views. Regulates the removal of trees/vegetation during development to minimize impacts to wildlife habitat, Town aesthetics, and to lessen erosion and sedimentation of soil associated with stormwater runoff.	N/A	N/A	Regulates the removal of trees/vegetation during development to minimize impacts to wildlife habitat and Town aesthetics, and to lessen erosion and sedimentation of soil associated with stormwater runoff.	In conjunction with Flood Ordnance, requires structures to be built to the state minimum standards regarding wind and flood resistance. Includes provisions to condemn and remove abandoned or dangerous structures which may cause damage to adjacent properties during storm events.
Water Use Ordinance	Zoning and other development ordinances, in conjunction with the water use ordinance, limit the locations where water infrastructure can be installed and provided.	Regulates and manages the uses and standards for utilizing the Town's water distribution system.	N/A	N/A	N/A
Stormwater Regulations • Stormwater Management • Illicit Discharge	Seeks to provide for the proper management of stormwater on-site or through a stormwater system that can retain/detain, treat and discharge/recharge in a controlled manner to avoid flooding and water quality degradation.	N/A	N/A	Seeks to provide for the C:\Documents and Settings\Administrator\Desktop\CAMA LAND USE PLANS MOST UP TO DATE DOCUMENTS\CASWELL BEACH FINAL LUP DOCUMENTS_9_12_07\LUP After August 15_2007\Caswell Beach LUP_PRE FINAL DRAFT_w markups from 8_15_07.edits from council 9-14-07.docsproper mgt. of stormwater on-site or through a stormwater system that can retain/detain, treat and discharge /recharge in a controlled manner to avoid flooding and water quality degradation.	Requiring development to increase its control of stormwater volume and velocity of discharge can minimize flooding and erosion risks during storm events.
Beaches and Waterways Regulations • Dune Protection • Personal Watercraft Safety • Sea Turtle Sanctuary	Seeks to provide for the proper management of environmentally sensitive and public trust areas so as to avoid user conflicts and disturbance of critical habitat.	N/A	Seeks to provide for the proper management of environmentally sensitive and public trust areas so as to avoid user conflicts and disturbance of critical habitat. Intends to Protect the Integrity and viability of the dune system and public beach strand from erosion by protecting stabilizing	N/A	Protection of the dune system provides better protection from erosion and storm surge.

Existing Management Program	Land Use Compatibility	Infrastructure	Public Access	Water Quality	Natural Hazards
	Reduction in Habitat Loss and Fragmentation Related to Impacts of Land Use and Development *Reduction of Water Resource and Water Quality Degradation*	*Water, Sewer and Other Key Community Facilities and Services Being Available in Required Locations at Adequate Capacities to Support Planned Community Growth and Development Patterns*	*More Planned Access Locations* *Upgrades to Existing Access Locations*	*Land Use and Development Criteria and Measures That Abate Impacts That Degrade Water Quality*	*Land Uses and Development Patterns That Reduce Vulnerability to Natural Hazards* *Land Uses and Development Patterns That Take Into Account the Existing and Planned Capacity of Evacuation Infrastructure*
Ordinances/Regulations Cont'd					
Parking Regulations	Seeks to ensure that intense land uses that require large amounts of parking are located away from less intense and residential areas.	Seeks to manage traffic flow impacts to the road systems by regulating the location and quantity of parking.	Will seek to provide standards for parking needs associated with public accessibility to public trust areas (beach strand and/or estuarine waters).	N/A	N/A
Nuisance Ordinance • Noise and Weeds, Grass and Refuse	Seeks to minimize impacts from incompatible land uses or nuisances on adjacent properties.	N/A	N/A	Seeks to minimize avoidable contamination of surface water from illicit discharge or improper storage of refuse and waste.	Seeks to minimize avoidable damage to adjacent property from the improper storage of refuse and waste.

Existing Management Program	Land Use Compatibility	Infrastructure	Public Access	Water Quality	Natural Hazards
	Reduction in Habitat Loss and Fragmentation Related to Impacts of Land Use and Development *Reduction of Water Resource and Water Quality Degradation*	*Water, Sewer and Other Key Community Facilities and Services Being Available in Required Locations at Adequate Capacities to Support Planned Community Growth and Development Patterns*	*More Planned Access Locations* *Upgrades to Existing Access Locations*	*Land Use and Development Criteria and Measures That Abate Impacts That Degrade Water Quality*	*Land Uses and Development Patterns That Reduce Vulnerability to Natural Hazards* *Land Uses and Development Patterns That Take Into Account the Existing and Planned Capacity of Evacuation Infrastructure*
Official Plans					
CAMA Land Use Plan	Policies and goals set desired development patterns that seek to avoid sensitive areas, retain open space and provide anticipation and predictability of growth and development (i.e. no unwanted surprises).	Policies and goals set direction for the design, capacity, and management of Town infrastructure such as water and sewer.	Policies and goals further the expansion of public access by actions such as identification of land with public access site potential.	Policies and goals seek to protect wetlands and address stormwater runoff issues related to new and existing development.	Policies and goals establish development density and intensity standards that avoid placing large structures in hazardous areas. Policies also identify the need for addressing increased development impacts on evacuation and other safety-related issues (i.e. traffic and bridge).
Strategic Plan	Establishes goals, policies and objectives to preserve and protect the environment, natural beauty and aesthetic quality of the Town.	Identifies the need to establish dedicated mechanisms (i.e. funding and administration programs) to provide for the efficient, cost-effective and long-term viability of Town services.	In conjunction with the Beach Preservation Plan, the Strategic Plan calls for the establishment of a dedicated mechanism (i.e. funding and administration programs) to continue beach nourishment and preservation activities to protect the long-term use of the beach by the public and Town citizens.	Establishes goals, policies and objectives to preserve and protect the environment, natural beauty and aesthetic quality of the Town. Includes better management of stormwater.	Establishes goals, policies and objectives for the provision of adequate human services, and to maintain a safe and secure living environment for the community.
Beach Preservation Plan	Provides for the management and protection of the dune system.	Seeks to provide protection to Town infrastructure that is threatened by erosion.	Seeks to provide and enhance public access opportunities as associated with beach nourishment projects.	N/A	Identifies and establishes activities and courses of action intended to preserve the beach strand, dune system and vulnerable properties in both the near-term and long-term.

Existing Management Program	Land Use Compatibility	Infrastructure	Public Access	Water Quality	Natural Hazards
	Reduction in Habitat Loss and Fragmentation Related to Impacts of Land Use and Development *Reduction of Water Resource and Water Quality Degradation*	*Water, Sewer and Other Key Community Facilities and Services Being Available in Required Locations at Adequate Capacities to Support Planned Community Growth and Development Patterns*	*More Planned Access Locations* *Upgrades to Existing Access Locations*	*Land Use and Development Criteria and Measures That Abate Impacts That Degrade Water Quality*	*Land Uses and Development Patterns That Reduce Vulnerability to Natural Hazards* *Land Uses and Development Patterns That Take Into Account the Existing and Planned Capacity of Evacuation Infrastructure*
Official Plans Cont'd					
Hazard Mitigation Plan	In conjunction with the Land Use Plan, Strategic Plan and other related plans, identifies the need to protect and avoid development in environmentally sensitive and hazardous areas such as wetlands and flood zones.	Provides recommendations on the placement and design of Town infrastructure and buildings that will lessen their vulnerability to hazards.	N/A	References Land Use Plan, Stormwater Plan and other related plans which are intended to provide guidance for development which seek to minimize damage to environmentally sensitive areas and surface water.	Policies identify the need for addressing increased development impacts on evacuation and other safety-related issues (i.e. traffic and bridge).

Appendix V: Discussion of Recommended Zoning Ordinance/Map Amendments (As Referenced in Section 10.5 and Table 28)

Recommended Action 1:

1. Text Amendment/Re-zone "Business" Zone to match current "R-20 MF" Zone standards.

   Background Discussion on Recommended Action

   This action is recommended to make the Zoning Ordinance and Map consistent with policy 12 which opposes any new commercial development in the planning jurisdiction due to concerns over traffic congestion, parking, aesthetics, incompatibility with residential character of the Town, increased stormwater, and lighting and noise nuisances. The "Business" Zone in the Zoning Ordinance currently allows by right several commercial-type activities that the Town feels are incompatible with its desired community character and growth pattern. It is recommended that the "Business" Zone be re-zoned to "R-20 MF", which is consistent with the existing residential development in the "Business" Zone, the predominant community character, and the desired future development and/or redevelopment pattern.

Recommended Action 2:

2. Text Amendment to apply § 153.029 minimum lot size/density standards for multi-family developments to the base "R-20 MF" Zone.

   Background Discussion on Recommended Action

   This action is recommended to make the Zoning Ordinance consistent with the *Future Land Use Classification Map (FLUCM)*, *Future Land Use Classification Area Development Standards Table* (Table 26), and policy 11 which seek to retain the existing ratio of housing structure types, as well as to manage the overall density of future multifamily development and/or redevelopment. The "R-20 MF" Zone in the Zoning Ordinance is currently lacking in providing detailed minimum lot sizes and additional lot area standards for multi-family dwellings. The recommended action calls for a text amendment to the "R-20 MF" Zone to apply the standards of § 153.029, which detail density and other dimensional standards for multi-family projects in areas that are part of a request to re-zone a non- "R-20 MF" area to "R-20 MF". In other words, the detailed multi-family development standards currently only apply within areas being re-zoned to "R-20 MF", and do not necessarily actually apply within the traditional "R-20 MF" and any future redevelopments which might take place there within.

Recommended Action 3:

3. Text Amendment to revise and clarify the definition of "Building Height" in § 153.002 and § 153.084.

Background Discussion on Recommended Action

This action is recommended to make the Zoning Ordinance consistent with the *Future Land Use Classification Map (FLUCM)*, *Future Land Use Classification Area Development Standards Table* (Table 26), and policy 19. Required updates to the Flood Damage Prevention Ordinance and Regulatory Flood Protection Elevation have necessitated a revision of the Town's building height standards.

Recommended Action 4:

4. Text Amendment to clarify definition of a "Story" as found in § 153.002.

Background Discussion on Recommended Action

This action is recommended to make the Zoning Ordinance consistent with the *Future Land Use Classification Map (FLUCM)*, *Future Land Use Classification Area Development Standards Table* (Table 26), and policy 19. Required updates to the Flood Damage Prevention Ordinance and Regulatory Flood Protection Elevation have necessitated a revision of the Town's building height standards. It is recommended the definition of "story" be clarified so that it refers to a maximum of 2 habitable stories be allowed in the designated zones.

Recommended Action 5:

5. Text Amendment to eliminate the "3 stories" allowance in § 153.084 for zoning districts that are required to elevate the first floor above the regulatory flood protection height.

Background Discussion on Recommended Action

This action is recommended to make the Zoning Ordinance consistent with the *Future Land Use Classification Map (FLUCM)*, *Future Land Use Classification Area Development Standards Table* (Table 26), and policy 19. Required updates to the Flood Damage Prevention Ordinance and Regulatory Flood Protection Elevation have necessitated a revision of the Town's building height

standards. It is recommended § 153.084 of the Zoning Ordinance be amended so that it refers to a maximum of 2 habitable stories be allowed in the designated zones.

Recommended Action 6:

6. Text Amendment of § 153.033 to identify "bulkheads" as a prohibited use/activity in the "Conservation" Zone.

Background Discussion on Recommended Action

This action is recommended to make the Zoning Ordinance consistent with the *Future Land Use Classification Map (FLUCM)*, *Future Land Use Classification Area Development Standards Table* (Table 26), and policies 7 and 10. It is recommended § 153.033 to identify "bulkheads" as a prohibited use/activity in the "Conservation" Zone.

Town of Caswell Beach CAMA Land Use Plan
Map Appendix

Map 1: Areas of Environmental Concern Map
Map 2: Water Quality Map
Map 3: Soils with Septic Systems Limitations Map
Map 4: Special Flood Hazard Areas Map
Map 5: Storm Surge Inundation Map
Map 6: North Carolina CREWS Wetland Areas Map
Map 7: Fish Nursery and Natural Heritage Areas Map
Map 8: Environmental Composite Map
Map 9: Existing Land Use Map
Map 10: Land Suitability Analysis Map
Map 11: Community Facilities Map
Map 12: Future Land Use Classification Map
Map 13: Shellfish Growing Areas Map

End of Document