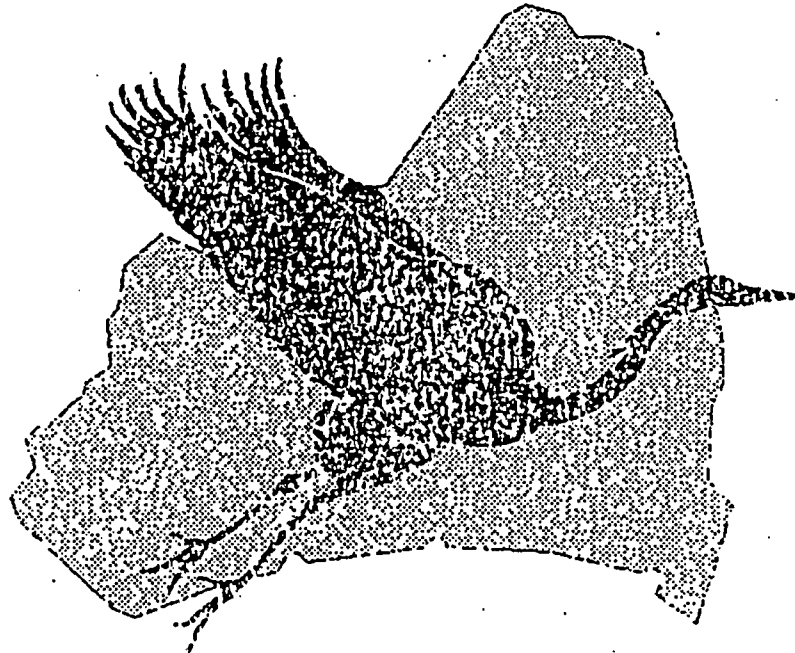


RECEIVED

DEC 22 1998

D. ...
COASTAL MANAGEMENT



Brunswick County Land Use Plan

1997 Update

Submitted for State Review
November, 1997

Recommended by the Brunswick County Planning Board
May 18, 1998

Adopted by the Brunswick County Board of Commissioners
October 5, 1998

Adopted as Revised, December 7, 1998

Certified by the North Carolina Coastal Resources Commission
November 20, 1998

BER-0126



**Brunswick County Land Use Plan
1997 Update**

BOARD OF COUNTY COMMISSIONERS

Jo Ann B. Simmons, Chairman,
William M. Sue, Vice Chairman
Leslie Z. Collier
David Sandifer
Donald E. Warren

Jimmy Varner, County Manager
Robert Hyatt, Assistant County Manager
Joyce C. Johnson, Clerk to the Board

COUNTY PLANNING BOARD

Ricky Tompkins, Chairman
Alan Lewis, Vice Chairman
Boyd Evans
Sharon Marshall
Jo Ann B. Simmons
Stuart Smith
John Thompson, Past Chair
Beverly Brown, Past Member

BRUNSWICK COUNTY PLANNING DEPARTMENT

Jeff Coutu, AICP, Planning Director
Don Eggert, AICP, Planner II
Brian Huneycutt, Land Planner
Connie Marlowe, Administrative Assistant

GLENN HARBECK ASSOCIATES

Glenn R. Harbeck, AICP
Planning and Public Involvement
5607 Keswick Court
Wilmington, NC 28409

STATE REPRESENTATIVES

Zoe Bruner, District Planner
Rosetta Short, CRAC Representative

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

Contents

1.	EXECUTIVE SUMMARY.....	1-1
1.1	Summary of Local Land Use Issues.....	1-1
1.2	Policy Statements.....	1-2
1.3	The Land Classification System.....	1-14
2.	INTRODUCTION.....	2-1
2.1	Why prepare a CAMA Land Use Plan?	2-1
2.2	Functions of the Land Use Plan	2-1
3.	COMMUNITY VISION AND OBJECTIVES.....	3-1
3.1	Community Vision.....	3-1
3.2	Objectives	3-1
4.	SUMMARY OF DATA COLLECTION AND ANALYSIS	4-1
4.1	Establishment of Information Base.....	4-1
4.2	Some Findings from the Technical Studies.....	4-1
4.3	For Further Information.....	4-2
5.	PRESENT CONDITIONS.....	5-1
5.1	Present Population and Economy.....	5-1
5.1.1	Population and Housing.....	5-1
5.1.2	Local Economy.....	5-15
5.1.3	Impact of Seasonal Population.....	5-24
5.2	Existing Land Use and Water Quality Analysis.....	5-26
5.2.1	Existing Land Uses Mapped	5-26
5.2.2	Analysis by Geographic Areas of General Recognition.....	5-26
5.2.3	Land Use Analysis by Watershed Areas.....	5-29
5.3	Current Plans, Policies and Regulations.....	5-31
6.	CONSTRAINTS	6-1
6.1	Land Suitability.....	6-1
6.1.1	Physical Limitations for Development	6-1
	A. Major Hazard Areas.....	6-1
	B. Areas with Soil Limitations.....	6-2
	C. Potable Water Supply.....	6-3
	D. Areas with Slopes Exceeding 12%.....	6-3
	E. Shoreline Areas with High Erosion Potential	6-3
	F. Small Watersheds Draining Into Special Waters	6-4
6.1.2	Fragile Areas	6-4
6.1.3	Areas with Resource Potential	6-6
6.2	Community Facilities and Services.....	6-9
6.2.1	Potable Water System.....	6-9
6.2.2	Sewer	6-10
6.2.3	Stormwater Management.....	6-12
6.2.4	Transportation	6-12
6.2.5	Law Enforcement.....	6-16
6.2.6	Fire and Rescue	6-16
6.2.7	Schools.....	6-18
6.2.8	Library System.....	6-19
6.2.9	Parks, Recreation, and Waterfront Access	6-19
6.2.10	Solid Waste Management	6-20
6.2.11	Public Administrative Capability.....	6-20

7.	ANTICIPATED DEMAND.....	7-1
7.1	Permanent and Seasonal Populations.....	7-1
7.2	Future Land Use Needs.....	7-4
7.3	Community Facility and Service Demands.....	7-4
8.	POLICY STATEMENTS.....	8-1
	Introduction to the Policies.....	8-1
	Policy Format.....	8-2
8.0	General Vision Policy for Next Ten Years.....	8-2
8.1	Resource Protection Policies.....	8-2
8.1.0	Basic Policy Statement Regarding Resource Protection.....	8-2
8.1.1	Constraints Caused by Soil Limitations and Flood Prone Areas.....	8-2
8.1.2	Areas of Environmental Concern.....	8-3
	A. Coastal Wetlands.....	8-4
	B. Estuarine Waters.....	8-4
	C. Public Trust Waters.....	8-5
	D. Estuarine Shorelines.....	8-5
	E. Ocean Hazard Areas.....	8-6
	F. Public Water Supply AEC's.....	8-7
	G. Natural and Cultural Resource AEC's.....	8-8
	H. Wildlife Protection.....	8-8
8.1.3	Wetlands of Highest Functional Significance.....	8-8
8.1.4	A. Freshwater Wetlands.....	8-10
	B. Maritime Forests.....	8-10
	C. Outstanding Resource Waters.....	8-11
	D. Shellfishing Waters.....	8-11
	E. Water Supply Areas and Other Waters with Special Values.....	8-12
	F. Cultural and Historic Resources.....	8-12
	G. Man-Made Hazards.....	8-12
	H. Hazardous Materials and Events.....	8-13
8.1.5	Protection of Potable Water Supply.....	8-13
8.1.6	Package Sewage Treatment Plants.....	8-16
8.1.7	Storm Water Runoff.....	8-17
8.1.8	A. Marinas.....	8-18
	B. Floating Home Development.....	8-18
	C. Moorings and Mooring Fields.....	8-18
	D. Dry Stack Storage.....	8-19
	E. Commercial Fishing Operations.....	8-19
8.1.9	Industrial Impacts On Fragile Areas.....	8-19
8.1.10	Development of Sound and Estuarine System Islands.....	8-20
8.1.11	Development Near Sea Level.....	8-21
8.1.12	Upland Excavation for Marina Basins.....	8-21
8.1.13	Marsh Damage From Bulkhead Installation.....	8-22
8.1.14	Water Quality Problems and Management Measures.....	8-22
8.1.15	Air Quality.....	8-22
8.2	Resource Production and Management Policies.....	8-24
8.2.0	Basic Policy Statement Regarding Resource Production and Management.....	8-24
8.2.1	Productive Agricultural Lands.....	8-24
8.2.2	Commercial Forest Lands.....	8-25
8.2.3	Mineral Production Areas—Existing and Potential.....	8-25
8.2.4	Fisheries Resources.....	8-25
8.2.5	Off Road Vehicles.....	8-26
8.2.6	Development Impacts.....	8-26
8.2.7	Peat or Phosphate Mining Impacts.....	8-27
8.2.8	Gamelands/Hunting Clubs.....	8-27
8.3	Economic and Community Development Policies.....	8-28
8.3.0	Basic Policy Statement Regarding Economic & Community Development.....	8-28
8.3.1	Types and Locations of Industries Desired.....	8-28

8.3.2	Provision of Services to Development.....	8-29
8.3.3	Urban Growth Pattern Desired.....	8-30
8.3.4	Types of Residential Development Desired.....	8-30
8.3.5	Types of Commercial Development Desired.....	8-31
8.3.6	Redevelopment, Including Relocation of Threatened Structures.....	8-33
8.3.7	Commitment to State and Federal Programs.....	8-33
8.3.8	Channel Maintenance and Beach Renourishment.....	8-34
8.3.9	Energy Facility Siting and Development.....	8-35
8.3.10	Tourism.....	8-35
8.3.11	Beach Waterfront and Boating Access.....	8-36
8.3.12	Beautification.....	8-38
8.3.13	Airports.....	8-39
8.3.14	Education.....	8-39
8.3.15	Solid Waste Management.....	8-40
8.3.16	Growth and Development Controls.....	8-41
8.3.17	Tree Cover, Landscaping and Buffering.....	8-41
8.3.18	Transportation.....	8-42
8.3.19	Sunny Point Military Ocean Terminal.....	8-42
8.3.20	Capital Improvement Planning.....	8-43
8.3.21	Parks and Recreation.....	8-43
8.3.22	Long Range Planning.....	8-44
8.4.	Public Participation Policies.....	8-45
8.4.0	Basic Policy Statement Regarding Continuing Public Participation.....	8-45
8.5	Storm Hazard Mitigation, Post-Disaster Recovery & Evacuation Plans	8-47
8.5.0	Description of Storm Hazard Risk and Basic Policy Statement.....	8-47
	A. Storm Effects.....	8-47
	B. Hazard Areas Mapped.....	8-48
	C. Existing Development At Risk.....	8-48
8.5.1	Storm Hazard Mitigation Policies.....	8-49
	A. Storm Effect Mitigation.....	8-49
	B. Discouragement of Hazardous Development.....	8-51
	C. Public Land Acquisition.....	8-52
	D. Evacuation.....	8-52
8.5.2	Post Disaster Reconstruction Policies.....	8-52
	A. Emergency Management Plan.....	8-53
	B. Local Reconstruction Policies.....	8-53
	C. Recovery Task Force.....	8-53
	D. Staging Schedule for Reconstruction and Repair.....	8-54
	E. Public Infrastructure Repairs and Replacement.....	8-55
8.6	Bald Head Island Policies.....	8-58
8.6.1	Resource Protection Policies.....	8-56
8.6.2	Resource Production and Management Policies.....	8-56
8.6.3	Economic and Community Development Policies.....	8-57
8.6.4	Public Participation Policies.....	8-58
8.6.5	Storm Hazard Mitigation, Post-Disaster Recovery & Evacuation Plans.....	8-58
9.	LAND CLASSIFICATION.....	9-1
9.1	Purpose of Land Classification and Relationship to Policies.....	9-1
9.2	Land Classification System.....	9-1
9.3	Land Classification Map.....	9-1
9.4	Land Classification Areas Described.....	9-1
10.	INTERGOVERNMENTAL COORDINATION.....	10-1
10.1	Uses of the Land Use Plan.....	10-1
10.2	Coordination with Other Governmental Jurisdictions.....	10-1
10.3	Municipal Land Use Plans.....	10-2

11.	PUBLIC PARTICIPATION PLAN AND PROCESS	11-1
11.1	Public Participation Plan	11-1
11.2	Public Involvement Process	11-1
12.	APPENDICES.....	12-1
12.1	Evaluation of Effectiveness of Previous Land Use Plan.....	12-1
12.2	Sources and Locations of More Detailed Information.....	12-2
12.3	Action Agenda For the Land use Plan.....	12-2

List of Tables and Charts

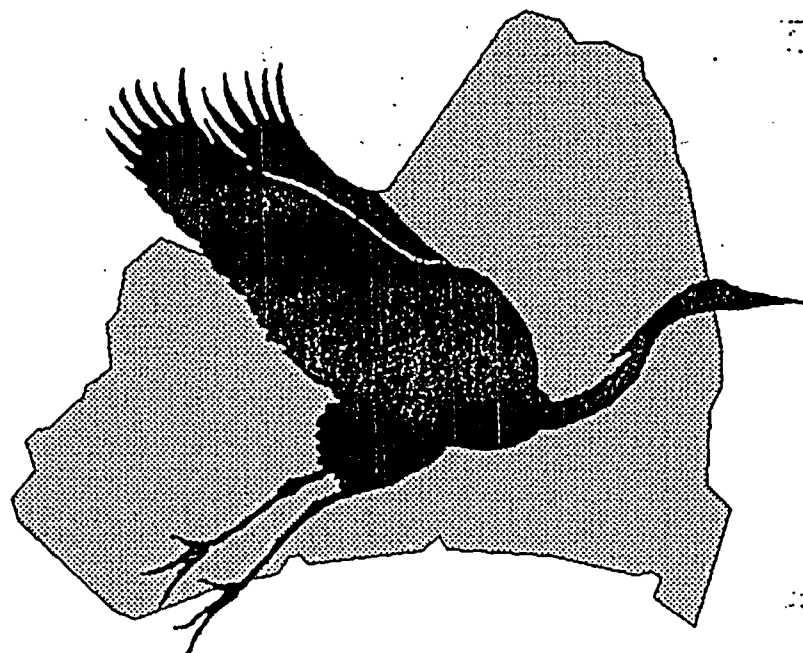
Table 5.1.1 (a)	Population Growth Comparison, County, State	5-1
Chart 5.1.1 (a)	Population Growth Curves, County, State	5-2
Table 5.1.1 (b)	Population Growth Dynamics	5-3
Chart 5.1.1 (b)	Natural Increase and Net Migration	5-3
Table 5.1.1 (c)	Population Growth by Township, 1980-1990	5-4
Chart 5.1.1 (c)	Population Growth by Township, 1980-1990	5-4
Table 5.1.1 (d)	Municipal Population Growth, 1980-1990	5-5
Chart 5.1.1 (d)	Municipal Population Growth, 1980-1990	5-6
Table 5.1.1 (e)	Population in Incorporated Versus Unincorporated Areas, 1980-1990	5-7
Chart 5.1.1 (e)	Population in Incorporated Versus Unincorporated Areas, 1980-1990	5-7
Table 5.1.1 (f)	Housing Growth by Township, 1980-1990	5-8
Chart 5.1.1 (f)	Housing Units by Township, 1980-1990	5-8
Table 5.1.1 (g)	Housing Characteristics, 1990, County, Selected Counties	5-9
Chart 5.1.1 (g)(1)	% of Housing Tied to Public Sewers, 1990, County, Selected Counties	5-9
Chart 5.1.1 (g)(2)	% of Total Housing in Mobile Homes, 1990, County, Selected Counties	5-10
Table 5.1.1 (h)(1)	Percent of Residential Permits Issued For Mobile Homes by Brunswick County	5-10
Table 5.1.1 (h)(2)	Percent of Residential Permits Issued For Mobile Homes by Municipalities	5-10a
Table 5.1.1 (i)(1)	Age Groups in Brunswick County as a % of Total Population, 1940-90	5-11
Chart 5.1.1 (i)(1)	Population Age Composition, 1940 to 1990	5-11
Table 5.1.1 (i)(2)	Percent of County Population 65 Years & Over, County, State, 1970-1990	5-12
Chart 5.1.1 (i)(2)	Percent of County Population 65 Years & Over, County, State, 1970-1990	5-12
Table 5.1.1 (j)	Racial Composition of Brunswick County, 1950-95	5-13
Chart 5.1.1 (j)	Racial Composition of Brunswick County, 1950-95	5-13
Table 5.1.1 (k)(1)	% of Adults (Aged 25+) With a High School Diploma, 1990	5-14
Table 5.1.1 (k)(2)	Ave. Drop-Out Rate, Selected Counties, Region O, 1982, 1988, 1994	5-14
Table 5.1.2 (a)(1)	Manufacturing Vs Non-Manufacturing Employment, Selected Years 1970-95	5-15
Table 5.1.2 (a)(2)	Employment by Sector, County and State, 1994	5-15
Chart 5.1.2 (a)(2)	Percent of Employment by Sector, County and State, 1994	5-16
Table 5.1.2 (b)	Ave Weekly Wage by Major Employment Category, 1979, 1984, 1989, 1994	5-17
Chart 5.1.2 (b)	Ave Weekly Wage by Major Employment Category, 1979, 1984, 1989, 1994	5-17
Table 5.1.2 (c)	Insured Employment by Major Category, County, State, 1983, 1990, and 1994	5-18
Chart 5.1.2 (c)	Employment Trends by Major Sector, 1983-1994, Brunswick County	5-19
Table 5.1.2 (d)	Unemployment Rates, Brunswick, New Hanover County, State, 1987-1997	5-20
Chart 5.1.2 (d)	Unemployment Rates, Brunswick, New Hanover County, State, 1987-1997	5-20
Table 5.1.2 (e)	Per Capita Income, County, State, 1970, 1980, 1989 and 1994	5-20
Chart 5.1.2 (e)	Per Capita Income, County, State, 1970, 1980, 1989 and 1994	5-21
Table 5.1.2 (f)	Agricultural Income and Harvested Cropland, Brunswick County, 1980-1994	5-21
Chart 5.1.2 (f)	Cropland and Farm Income, Brunswick County, 1980-1994	5-22
Chart 5.1.2 (g)	Number and Size of Farms, Brunswick County, 1982-1992	5-22
Table 5.1.2 (h)	Seafood Landings, Poundage and Value, Brunswick County, 1986-1996	5-23
Chart 5.1.2 (h)	Seafood Landings, Poundage and Value, Brunswick County, 1986-1996	5-23
Table 5.1.3 (a)	Year Round and Seasonal Population Growth, Brunswick County, 1980-1995	5-24
Table 5.1.3 (b)	Year Round and Seasonal Housing Growth, Brunswick County, 1980-1990	5-24
Table 5.1.3 (c)	Gross Retail Sales by Month, 1990	5-25
Chart 5.1.3 (c)	Gross Retail Sales by Month, 1990	5-25
Table 6.1.1 (f)	Small Watersheds Draining Into Special Waters	6-4

List of Tables and Charts, Continued

Table 6.2.7	Brunswick County Schools, Capacity and Utilization, 1997-98	6-18
Table 6.2.9	Brunswick County Area Parks—Current Amenities, 1997	6-19
Table 7.1.1	Projected Population, 2000, 2010, 2020	7-1
Chart 7.1.1	Population Projections, 2000, 2010, 2020	7-1
Table 7.1.2	Estimated Peak Day Total Population, 2000, 2010, 2020	7-3
Table 7.2	Population Projections by Incorporated Vs. Unincorporated Areas	7-4

List of Maps

Map 1	Fragile Areas Map	Back of Plan
Map 2	Aquifer Sensitivity Map	Back of Plan
Map 3	Watersheds and Drainage Patterns Map	Back of Plan
Map 4	Existing Land Use and Water Use Map	Back of Plan
Map 5	Community Facilities Map	Back of Plan
Map 6	Hazardous Areas Map	Back of Plan
Map 7	Land Classification Map	Back of Plan



1. Executive Summary

1. Executive Summary

This executive summary consists of three parts:

1.1 Summary of Local Land Use Issues

A summary of some of the salient issues being faced by Brunswick County at the present time and anticipated to be an on-going concern over the coming months or years.

1.2 Policy Statements

The County's officially adopted positions and statements of principle concerning growth and development issues in Brunswick County.

1.3 The Land Classification System

A method for translating the County's growth and development policies to specific parts of the county, recognizing that not all parts of the county are alike.

For a more complete discussion of the issues as well as the rationale for the various policy statements, the reader is directed to the full body of the Land Use Plan, beginning with Section 2. Each element of the Executive Summary will now be presented in turn.

1.1 Summary of Local Land Use Issues

As Brunswick County approaches the year 2000, the County is beginning to feel the effects of nearly three decades of rapid growth. This Land Use Plan addresses several of these development issues in the County. Among the most critical are:

Scattered and sprawling, large lot subdivision activity.

Brunswick County continues to witness the addition of numerous, large lot, scattered subdivisions and planned unit developments over significant portions of the area's rural landscape. Rather than promoting a distinct town and country pattern, this form of sprawling development breaks up rural open spaces and tends to create a homogenous look across the landscape. Such scattered subdivision activity also disperses the population and makes the provision of services expensive and inconvenient, whether by the public or by the private sector. As a result, all trips for services must be by individual automobile, to the exclusion of walking, biking, or other alternative transportation modes. Ultimately, this form of development overloads the county's road systems, especially during peak season summer months.

Unplanned commercial strip development.

Commercial development which has been stripped along the County's major roads foretells of the kind of commercialism that could consume much of the road frontage in the county in the near future. This was identified as a major concern by residents at the public workshops for the 1992 Land Use Plan and again for the 1997 Plan. In addition to a poor image, such development results in multiple, uncoordinated driveway cuts, reducing the traffic carrying capacity and safety of the very roads most in demand for efficient traffic movement during peak summer periods. While this is something that can be addressed to some degree by the County's new zoning ordinance, it requires considerable public resolve and determination to limit strip commercial development to crossroads locations and other selected, appropriate areas.

Sewage problems/sewage solutions.

The county is wrestling with what many local leaders see as the number one constraint to development—that of sewage treatment and disposal. The county's relatively sparse development patterns make the provision of a single, centralized sewage treatment system unworkable. Areas where there are concentrations of smaller lots or higher density development (such as near the beach communities) offer some possibilities, however. As a result, there are several local area initiatives underway which would seek to address this problem.

Concern About Storm Water Runoff and Drainage.

Stormwater management continues to grow as one of the most pressing growth issues of the 1990's. Brunswick County is fundamentally low and flat, and is bounded by highly sensitive, environmentally productive coastal waters. As development continues to occur, stormwater runoff from roads, parking lots, driveways, rooftops and even grassed lawn areas is increased substantially. While drainage and flooding problems are not unique to Brunswick County, they are certainly a major problem for many residents of the community, and are of long term concern to the natural productivity of the estuarine system.

These emerging trends are not intended, by any means, to represent the full range of issues confronting Brunswick County. They are indicative, however, of an area undergoing tremendous growth and development pressures without adequate systems of infrastructure to support and direct such growth. A successful future for Brunswick County will be dependent in large measure on the degree to which the County and its numerous local governments can effectively manage growth in concert with critical infrastructure improvements. The policies which follow are intended to help guide the decisions necessary to make the effort work.

1.2 Policy Statements

8.0 General Vision Policy for the Next Ten Years

We, the residents, businesses, and property owners of Brunswick County shall seek to preserve and enhance our natural and human resources, and will plan for and accommodate future growth while simultaneously maintaining and improving the quality of life for current and future residents.

8.1 RESOURCE PROTECTION POLICIES

8.1.0 Basic Policy Statement Regarding Resource Protection

The natural and scenic resources of Brunswick County enable many business owners and employees to earn a livelihood, residents to have a high quality of life, and visitors to enjoy the many attractive features of the area. Brunswick County, through its policies and actions, shall not support or approve any action which would significantly jeopardize the long term viability of our natural and scenic resources.

8.1.1 Constraints To Development: Soils, Septic Tank Suitability, Flooding

Policy 8.1.1(a)

Development is encouraged to locate in areas without soil suitability problems and where infrastructure is available. In areas where suitability problems exist, engineering solutions are supported to the extent that the natural environment is not compromised.

Policy 8.1.1(b)

In the absence of sewer facilities, the County shall work cooperatively with property owners to evaluate site suitability for septic tank use. When soil conditions are such that, in the opinion of County sanitarians, health or environmental standards would be compromised, full explanation of the reasons for denial shall be given, and alternatives for possible solutions provided.

Policy 8.1.1(c)

Brunswick County supports the administration and enforcement of applicable flood plain management regulations and the national flood insurance program.

8.1.2 Areas of Environmental Concern

Brunswick County will support and enforce, through its local CAMA permitting capacity, the State policies and permitted uses in the Areas of Environmental Concern (AEC's). Such uses shall be in accord with the general use standards for coastal wetlands, estuarine waters, public trust areas and ocean hazard areas as stated in 15A NCAC Subchapter 7H.

8.1.2(a) Coastal Wetland AEC's

Policy 8.1.2(a)

Due to the critical role that wetlands play in protecting the quality of estuarine waters and in providing habitat for fish and wildlife, Brunswick County strongly supports the efforts of

State and Federal agencies to properly designate and preserve coastal wetlands. Such preservation shall be balanced with the economic and community values of piers, docks, and marinas which serve the public, whether they be publicly or privately owned.

8.1.2(b) Estuarine Water AEC's

Policy 8.1.2(b)

Developments and mitigation activities which support and enhance the natural function, cleanliness, salinity, and circulation of estuarine water resources shall be supported.

8.1.2(c) Public Trust Waters AEC's

Policy 8.1.2(c)

The community's need for piers and docks, whether publicly or privately owned, shall be tempered by the rights of the public for the free and open use of public trust waters for navigation, shell fishing, and other uses. Efforts of State and Federal agencies to limit the length of docks and piers as they project into estuarine waters are especially supported.

8.1.2(d) Estuarine Shoreline AEC's

Policy 8.1.2 (d)

Brunswick County supports the protection and preservation of its estuarine shorelines, as enforced through the application of CAMA use standards.

8.1.2(e) Ocean Hazard Area AEC's

Policy 8.1.2 (e)

Brunswick County supports state and federal standards for the management of development in the ocean hazard AECs under the County's planning jurisdiction: the Baptist assembly grounds and part of Bird Island.

8.1.2(f) Public Water Supply AEC's

Policy 8.1.2(f)

Brunswick County supports the designation of Public Water Supply AEC's when such designation meets State prerequisites and when such action is deemed necessary to ensure the long term viability of the County's public water supplies.

8.1.2(g) Natural and Cultural Resource AEC's

Policy 8.1.2(g)

Brunswick County supports the selective designation of appropriate areas as natural and cultural resource AEC's (Coastal Complex Natural Areas, Coastal Areas that Sustain Remnant Species, Unique Geologic Formations, Significant Coastal Archaeological Resources and Significant Coastal Historical Architectural Resources).

8.1.2(h) Wildlife Protection

Policy 8.1.2(h)

The abundance and diversity of wildlife in Brunswick County shall be preserved and enhanced through protection of the unique coastal ecosystems, including marshes, woodlands, open fields and other areas upon which they depend.

8.1.3 Wetlands of Highest Functional Significance

(Awaiting for development of mapped information by the State as applicable to Brunswick County)

8.1.4 Other Hazardous or Fragile Land Areas

8.1.4 (a) Freshwater Swamps, Marshes, Pocosins, and 404 Wetlands

Policy 8.1.4 (a)

Brunswick County will continue to support the efforts of the CAMA program and the U.S. Army Corps of Engineers 404 permitting program to preserve and protect sensitive fresh water swamp and marsh areas.

8.1.4(b) Maritime Forests

Policy 8.1.4 (b)

Maritime forests in Brunswick County shall receive a high level of environmental protection when considering public and private sector uses. When development is considered, preferred usage shall be for low intensity or clustered development forms, which preserve the majority of forest cover. (See also Policy 8.3.18 Tree cover and Landscaping)

8.1.4.(c) Outstanding Resource Waters (ORW)

Policy 8.1.4 (c)

Brunswick County supports State and local efforts to restore the water quality of the Lockwood Folly River, as well as other estuarine waters in the county, to a water quality level deserving of ORW designation.

8.1.4(d) Shellfishing Waters

Policy 8.1.4(d)

The County supports and encourages the activities of the State's Shellfish Management Program. The County shall continue to promote estuarine water quality through its stormwater management planning and stormwater runoff policies. (See Section 8.1.7)

8.1.4(e) Water Supply Areas/Other Waters With Special Values

Policy 8.1.4(e)

The county's ground water resources, including but not limited to the Castle Hayne aquifer, shall be recognized as an invaluable source of public and private potable water and shall receive the highest level of protection when considering County policies, standards and actions, including the possible creation of a special overlay district.

8.1.4(f) Cultural and Historic Resources

Policy 8.1.4(f)

Brunswick County encourages efforts to protect cultural and historic resources to preserve their cultural, educational and aesthetic values and qualities.

8.1.4(g) Manmade Hazards

Policy 8.1.3 (g)

Brunswick County will seek to minimize potential land use conflicts and hazards related to development in areas near existing, potentially hazardous facilities.

8.1.4(h) Hazardous Materials and Events

Policy 8.1.4(h)

Plans for the safe transportation of hazardous materials, for the prevention and clean-up of spills of toxic materials, and for the evacuation of area residents in response to hazardous events, shall be supported.

Hurricane and Flood Evacuation (Covered under Section 8.5)

8.1.5 Protection of Potable Water Supply

Policy 8.1.5(a)

Brunswick County supports federal, state and local efforts to protect the quantity and quality of water in the Cape Fear River, whether such protection involves controls over point source discharges, surface runoff, inter basin water transfers, or other appropriate means, including upstream activities.

Policy 8.1.5(b)

Brunswick County supports federal, state and local efforts to protect the quantity and quality of water in the region's groundwater system, whether such protection involves controls over the location and management of activities involving hazardous substances, restrictions on groundwater drawdowns, or any other activity which would jeopardize the short and long term viability of groundwater resources.

Policy 8.1.5(c)

Brunswick County will continue improvements to and expansion of the County's potable, piped water supply system, with emphasis on the development of a self supporting operation, where costs are assigned in relative proportion to the benefits conveyed.

Policy 8.1.5(d)

So as to facilitate the orderly development of the County water system, Brunswick County shall establish and maintain utility extension and tap-on policies designed to address the timing, location, priorities and sequence, etc. of system expansion.

8.1.6 Package Sewage Treatment Plants

Policy 8.1.6

Brunswick County advocates the development and use of regional sewage treatment plants

over smaller, privately operated package sewage treatment plants. When package treatment plants are employed, they should be designed to allow for future connections to a larger regional system.

8.1.7 Stormwater Runoff

Policy 8.1.7(a)

Brunswick County shall take a proactive role in the development of storm water management and design standards intended to protect the quality of the county's streams, rivers, marshes and estuarine systems.

Policy 8.1.7(b)

Brunswick County shall support a program of vegetated buffers adjacent to all streams, rivers, marshes and estuarine waters in the county, with the intent of reducing the flow of nutrients and other contaminants into area surface waters.

Policy 8.1.7 (c)

Brunswick County shall advocate a policy of stormwater runoff management in which post-development runoff has a rate of flow and volume which approximates, as closely as practical, pre-development conditions.

8.1.8(a) Marinas

Policy 8.1.8(a)

As a means of providing public access to area surface waters, Brunswick County encourages environmentally responsible marina development in accordance with State CAMA standards for AEC's. Marina facilities also shall be evaluated for site specific compatibility with surrounding land uses, as well as for aesthetic concerns, parking, access, and available services.

8.1.8(b) Floating Home Development

Policy 8.1.8(b)

Brunswick County discourages floating home development anywhere in the waterways, public trust waters, and along the shorelines of the county, so as to prevent the unwanted "consumption" of the county's limited estuarine surface waters.

8.1.8(c) Moorings and Mooring Fields

Policy 8.1.8(c)

The desirability of freestanding moorings and mooring fields shall be evaluated on a case by case basis in accordance with CAMA development policies and standards. The unimpeded use of and navigation within public trust surface waters by the boating public shall be of concern.

8.1.8(d) Dry Stack Storage

Policy 8.1.8(d)

To minimize "consumption" of valuable public trust surface waters, dry stack storage marinas generally shall be preferred over wet slip marinas. Dry stack storage facilities shall be evaluated for site specific compatibility with surrounding land uses, as well as for aesthetic concerns, parking, access, and available services.

8.1.8(e) Commercial Fishing Operations

Policy 8.1.8(e)

Due to the important role of commercial and recreational fishing to the economy and cultural heritage of Brunswick County, the County shall encourage and support commercial fishing operations and sports fishing operations, provided that such operations meet all applicable development standards and are otherwise consistent with the policies of area local governments.

8.1.9 Industrial Impacts on Fragile Areas

Policy 8.1.9

Industries shall be encouraged to locate in suitable, non-fragile areas. Environmental impacts on air, land and water resources, as well as compatibility with surrounding land uses and the availability of required services, shall be factors employed in evaluating the merits of any particular industrial development proposal.

8.1.10 Development of Sound and Estuarine System Islands

Policy 8.1.10

Development of sound and estuarine system islands, while not encouraged, is permitted, provided that impacts on the natural environment are properly mitigated. If such islands must be developed, low intensity uses such as open space, recreation, and very low density residential shall be the preferred uses. When such islands are deemed to have greater than local significance, the County encourages the State or Federal government to purchase these environmentally sensitive areas for the benefit of all residents of the State.

8.1.11 Development Within Areas That Might be Susceptible to Sea Level Rise or Shoreline Erosion

Policy 8.1.11

Development within areas susceptible to sea level rise, shoreline erosion, and/or wetland loss, should take into consideration such conditions upon initial development. In the event such development is later threatened by shoreline loss, the County shall support the AEC use standards governing shoreline protection and management. The County will not permit efforts to harden the shoreline in an attempt to counteract such conditions; however, this policy shall not preclude the use of innovative shoreline preservation techniques as approved by the Coastal Resources Commission.

8.1.12 Upland Excavation for Marina Basins

Policy 8.1.12

Brunswick County supports the development of marina basins in upland sites in accordance with CAMA standards. Marina basins also shall be evaluated for site specific compatibility with surrounding land uses, as well as for aesthetic concerns, parking, access, and available services.

8.1.13 Marsh Damage from Bulkhead Installation

Policy 8.1.13

Brunswick County supports state and federal standards which seek to prevent or minimize marsh damage from bulkhead or rip rap installation. The County recognizes, however, that some limited marsh damage may be necessary to provide for otherwise environmentally sound development.

8.1.14 Water Quality Problems and Management Measures

Policy 8.1.14

Brunswick County shall encourage and support State and Federal standards which seek to prevent or minimize adverse water quality impacts. The County shall work proactively with the State on measures to reduce stormwater runoff rates, soil erosion and sedimentation, and point source discharges into area waters.

8.1.15 Air Quality

Policy 8.1.15

Brunswick County shall encourage and support State and Federal standards which seek to prevent or minimize adverse air quality impacts. The County shall work constructively with State and Federal Agencies and local industries on measures to reduce or eliminate air quality problems, including odor problems that may not fall under prescribed environmental standards.

8.2. RESOURCE PRODUCTION AND MANAGEMENT POLICIES

8.2.0 Basic Policy Statement Regarding Resource Production and Management

Brunswick County is one of the most biologically diverse areas in the State of North Carolina. The County shall take no action nor approve of any action which would seriously or irreparably harm the long term bio-diversity and productivity of the area.

8.2.1 Productive Agricultural Lands

Policy 8.2.1(a)

The continued agricultural use of the Brunswick County's remaining farmlands shall be encouraged through proactive planning for agricultural and open space preservation as well as through growth management policies which favor distinct, "town and country" style development patterns.

Policy 8.2.1(b)

Brunswick County encourages the planning, installation and on-going maintenance of

community-based "cooperative gardens". Such gardens may be planned as a part of new community designs, or may be established in existing neighborhoods through the cooperative efforts of homeowners.

8.2.2 Commercial Forest Lands

Policy 8.2.2

Commercial forestry activities shall be supported in Brunswick County, provided significant adverse impacts on natural resource systems are fully mitigated. Such activities should be conducted in accordance with the standards and recommendations of the U.S. Forest Service. The County also advocates the voluntary participation of commercial forestry interests in the State of North Carolina's best management practice program for forest management.

8.2.3 Mineral Production Areas

Policy 8.2.3

Mineral production and mining activities will be considered on a case by case review of economic benefits and environmental and land use impacts. Mining activities which would jeopardize the short or long term viability of valuable natural resources or create hazardous conditions in the County shall not be permitted.

8.2.4 Commercial and Recreational Fisheries

Policy 8.2.4

Brunswick County supports efforts to maintain and enhance the fisheries resource of its waters, including water quality protection measures, nursery and habitat preservation, proper fisheries management and enforcement, and aquaculture development, and artificial reef activities.

8.2.5 Off Road Vehicles

Policy 8.2.5

Brunswick County discourages the use of off-road vehicles in all fragile areas because of potential adverse environmental impacts.

8.2.6 Development Impacts

Policy 8.2.6

New development and redevelopment activities shall not be permitted which would significantly degrade the quality of natural and scenic resources in Brunswick County, prematurely diminish the predominantly rural character of the area, or create incompatibilities of scale, design, or land use.

8.2.7 Peat or Phosphate Mining Impacts (See the general mining policy set forth previously under section 8.2.3)

8.2.8 Gamelands/Hunting Clubs

Policy 8.2.8

Brunswick County supports efforts to maintain and enhance public and private gamelands, including habitat protection and management, and the proper management of hunting clubs and hunting activities.

8.3 Economic and Community Development Policies

8.3.0 Basic Policy Statement Regarding Economic & Community Development

Brunswick County shall work to maintain a diversified local economy while at the same time protecting the natural and man-made environment and improving the area as a more attractive community in which to work, live and play. Economic and community development initiatives which capitalize upon and enhance a distinct "town and country" character shall be especially supported.

8.3.1 Industries Desired and Local Assets Desirable to Such Industries

Policy 8.3.1

Brunswick County encourages the development of clean industry in locations where appropriate services can be provided, where transportation facilities are adequate, where environmental impacts can be fully mitigated, and where surrounding land uses are compatible in nature. Brunswick County shall advocate the recruitment of new industries which are compatible with area resources and economic conditions, and to the extent possible, promote the upward mobility of low and moderate income persons.

8.3.2- Provision of Services to Development

Policy 8.3.2

Brunswick County will strive, to the extent that area resources, prudent budgeting, and priority setting allows, to facilitate the expansion of public services and facilities to meet the needs of existing and future commercial, industrial, and residential development. The location and size of such services shall be coordinated with land use policies and the County zoning ordinance.

8.3.3 Urban Growth Pattern Desired

Policy 8.3.3

Brunswick County shall encourage developments which contribute to a distinct "town and country" or "village and country" growth pattern. The intent of this policy is to allow for the preservation of open space and productive farm and timber land, to minimize costs of extending infrastructure and services, to avoid higher taxes, and minimize traffic congestion associated with modern day suburban sprawl.

8.3.4 Types of Residential Development Desired

Policy 8.3.4(a)

Brunswick County shall encourage a wide range of residential development forms and products, with emphasis on convenience to town or village based services. Residential developments which would isolate residents from necessary services, thereby increasing transportation, infrastructure, and service delivery costs, shall not be encouraged.

Policy 8.3.4(b)

Multi-family development shall be located so as to have direct access to a state or higher level road. Access to higher density housing through existing lower density residential areas shall be strongly discouraged.

8.3.5 Types of Commercial Development Desired

Policy 8.3.5 (a)

Brunswick County shall encourage commercial development to locate in town or village centers convenient to surrounding residential neighborhoods, and of a scale and design compatible with their surroundings. Automobile-oriented commercial strip development along the County's roadways shall be strongly discouraged. If highway oriented commercial development must occur, then it should be located in a commercial "node", at the intersection of two or more state or higher level roadways.

Policy 8.3.5 (b)

Office and institutional development may be employed as a transitional land use between residences and more intensive forms of commercial development, provided that such transitional development is compatible in design and scale with nearby residences.

8.3.6 Redevelopment, including Relocation of Threatened Structures

Policy 8.3.6 (a)

Brunswick County supports and encourages the restoration and/or appropriate adaptive reuse of significant and architecturally important historic and cultural structures and sites.

Policy 8.3.6 (b)

Redevelopment and/or rehabilitation of substandard structures within the county shall be supported through public and private sector initiatives for the economic betterment of area residents.

Policy 8.3.6 (c)

Recognizing that most erodible areas are within the planning jurisdictions of the County's municipalities, the County nonetheless supports a policy of relocation and retreat, rather than shoreline hardening, when structures are threatened by shoreline erosion. (Also see Policy 8.3.8(a) regarding support for beach renourishment.)

8.3.7 Commitment to State and Federal Programs

Policy 8.3.7

Brunswick County supports applicable state and federal programs regarding economic and community development, especially those programs related to better jobs, water quality, fisheries, and water and land transportation system improvements.

8.3.8 Assistance to Channel Maintenance/Beach Renourishment

Policy 8.3.8 (a)

Brunswick County supports the continued maintenance of navigable channels and inlets and the renourishment of the county's beaches in a timely, coordinated fashion. The County will assist, in whatever non-monetary capacity it can, to see that proper spoil areas and other channel maintenance needs are made available in support of these efforts.

Policy 8.3.8 (b)

Brunswick County supports the existing cooperative planning and cost sharing program among the Federal, State and municipal beachfront communities as the most equitable and practical method for funding beach renourishment projects.

8.3.9 Energy Facility Siting and Development

Policy 8.3.9

Due to the inherent conflicts with the growing, substantial, tourist-based sector of Brunswick County's economy, the development of off-shore energy facilities and associated on-shore staging and service bases shall not be supported. Similarly, oil, natural gas and related refining operations shall not be supported in Brunswick County.

8.3.10. Tourism

Policy 8.3.10(a)

Brunswick County encourages the development of a high quality tourism trade as a primary element of the county's economic future. Investments in education and training, services, facilities, growth management, and community appearance shall be employed in furtherance of this objective.

Policy 8.3.10(b)

Brunswick County shall pursue a tourism development strategy which capitalizes upon the area's unique natural and scenic resources, specifically avoiding the congestion and garish visual blight often associated with more urban or entertainment-oriented tourist destinations.

8.3.11 Beach, Waterfront and Boating Access

Policy 8.3.11 (a)

Brunswick County encourages efforts to plan for and provide public access to the county's beaches, shores, rivers, streams, and waterfronts, in accordance with the County's shoreline access plan and commensurate with anticipated population increases.

Policy 8.3.11 (b)

The provision of boating access facilities by the County, State, towns and private interests shall be encouraged and supported as an important means of public access to area waters.

8.3.12 Beautification, Including Signs, Roadway Appearance and Litter

Policy 8.3.12(a)

Brunswick County shall employ a combination of incentives and controls to encourage beautification measures which preserve the natural amenities of the community, especially as seen from the county's highways and roadways.

Policy 8.3.12(b)

The County shall continually improve its signage standards so that as the area grows, additional signage will not visually overwhelm the county's roadways, thereby detracting from the beauty of the area and devaluing its attractiveness as a place in which to live or vacation.

Policy 8.3.12(c)

Brunswick County views junked cars, "permanent" yard sales, flashing signs, and other roadside clutter as eyesores in the community, a detriment to a high quality of life, and a deterrent to tourism and economic development efforts. Brunswick County shall, in cooperation with the County's municipalities, work to address these problems and eliminate them from our roadsides.

Policy 8.3.12(d)

Brunswick County shall not tolerate roadside litter and, in cooperation with the County's municipalities, shall enforce strict measures against littering.

8.3.13 Airports

Policy 8.3.13

Brunswick County supports the continued development of the Brunswick County Airport and will encourage land development patterns which allow for adequate airport expansion and improvements.

8.3.14 Education

Policy 8.3.14(a)

The attainment of a quality educational system shall be recognized as a critical factor in the future economic development and quality of life in Brunswick County. Actions taken by the County in support of education shall reflect the high priority given to this issue.

Policy 8.3.14(b)

Responsibility for improvements to the educational system shall not be placed solely with policy makers, professional educators and administrators. Programs and actions which emphasize (1) parental involvement and (2) assistance from the business community shall be strongly pursued.

Policy 8.3.14(c)

Appropriate educational and training programs shall be encouraged to help unemployed and underemployed local residents take advantage of business expansion and to stay abreast of new technologies.

8.3.15 Solid Waste Management

Policy 8.3.15(a)

Local area requirements for solid waste disposal facilities shall continue to be anticipated through advanced planning; facilities shall be located and designed so as not to adversely impact significant natural or manmade resources.

Policy 8.3.15(b)

Brunswick County recognizes the need for a regional solution to the solid waste issue and will support efforts toward that end.

Policy 8.3.15(c)

Research and development of recycling and resource recovery programs, whether public or private, shall be encouraged and supported.

8.3.16 Growth and Development Controls

Policy 8.3.16

Growth and development controls shall be employed to promote a "town and country" pattern of development, thereby conserving open space, and concentrating urban services cost-effectively within developing town and village centers.

8.3.17 Tree Cover, Landscaping and Buffering

Policy 8.3.17

The County shall encourage efforts to preserve and enhance tree cover in new development and redevelopment. The County also encourages the use of native landscape plants and materials in new and existing development to buffer incompatible uses, improve appearances, absorb stormwater runoff, and moderate air temperature swings.

8.3.18 Transportation

Policy 8.3.18(a)

Brunswick County shall be an active participant in plans and actions related to transportation improvements to and within the County. Transportation improvements shall be coordinated with land use planning, infrastructure improvements, and economic development efforts.

Policy 8.3.18(b)

Brunswick County supports regional intergovernmental planning and cooperation for transportation improvements to and within southeastern North Carolina and northeastern South Carolina.

Policy 8.3.18(c)

Continued use and planned development of the Cape Fear River, Atlantic Intracoastal

Waterway, and the Brunswick County Airport shall be encouraged.

8.3.19 Sunny Point Military Ocean Terminal

Policy 8.3.19

Due to the regional economic significance of the Sunny Point Military Ocean Terminal and its strategic role in our nation's defense system, Brunswick County supports its continued presence. The County also supports cooperative, long range planning for the future of the terminal property as its mission may evolve over time.

8.3.20 Capital Improvement Planning

Policy 8.3.20(a)

Brunswick County shall plan ahead for the timely and cost effective provision of major capital improvements and services on the basis of anticipated growth and demand.

Policy 8.3.20(b)

Coordination between the County, its municipalities, sewer districts, and major industries shall be encouraged in planning and providing for capital facilities and services.

8.3.21 Parks and Recreation

Policy 8.3.21

As the population of Brunswick County continues to grow, the County shall support a commensurate increase in the development, maintenance and enhancement of its parks, open space and recreational facilities, including sound and ocean access facilities. The County shall employ national and State recreation standards as the minimum for such facilities—for the benefit of both residents and visitors alike. The County shall explore alternative means of funding for parks facilities as necessary, including State and Federal grants, development impact fees, park user fees, general obligation bonds, and other sources of revenue.

8.3.22 Long Range Planning

Policy 8.3.22

Given the accelerated growth of the County and projections of continued rapid growth, Brunswick County shall continue to embrace a bias for long range, strategic planning, with near term priorities established annually in conjunction with the County's budget process.

8.4 PUBLIC PARTICIPATION AND COORDINATION POLICIES

8.4.0 Basic Policy Statement Regarding Public Participation

Brunswick County believes that an on-going, public information program, combined with meaningful opportunities for citizen involvement in County decision-making, is the foundation for effective public participation in county government.

8.4.1(a) Public Education on Planning Issues

Policy 8.4.1 (a)

Brunswick County shall continue to employ public participation techniques at public meetings which actively involve the public in identifying and discussing planning issues, thereby facilitating a form of "engaged" education. Media attention concerning such meetings is also strongly encouraged and thankfully acknowledged for the public service they provide.

8.4.1(b) Continuing Public Participation in Planning

Policy 8.4.1 (b)

Following plan adoption, Brunswick County shall employ frequent, constructive and open regular meetings of the Planning Board and County Commissioners as the primary vehicle for engaging public participation in on-going planning issues and development projects.

8.4.1(c) Public Input in Developing Policy Statements

Policy 8.4.1 (c)

Citizen input in the development of growth policies shall be supported through attention given to the issues and priorities which the public identified during early input meetings.

8.4.1(d) Intergovernmental Coordination in Local Government Planning

Policy 8.4.1 (d)

Effective public participation in County government planning shall also include coordination

with municipal governments and utility districts in the County. The County shall continue to act to facilitate improved communication and coordination on planning matters among local governments in the County. The Land Classification Map of the County land use plan shall be employed as a specific planning tool to identify and affirm County town and village growth centers.

8.5 STORM HAZARD MITIGATION/POST-DISASTER RECOVERY, & EVACUATION POLICIES AND PLANS

Policy 8.5.0

The County shall continually seek to establish procedures and take actions to reduce the potential for the loss of life and property damage prior to a storm event, and to provide a framework for orderly reconstruction in the aftermath of a hurricane or other significant damaging event.

Storm Hazard Mitigation Policies

8.5.1 A Storm Effect Mitigation

(1) High Winds: Brunswick County shall continue to enforce the North Carolina Building Code, particularly those provisions which require construction standards to meet resistive factors, i.e. design, wind velocity.

(2) Storm Surge: Recognizing that most parts of the County subject to storm surge are within the regulatory jurisdiction of municipalities, Brunswick County nonetheless supports the development standards of the State CAMA Ocean Hazard Area of Environmental Concern (AEC). These standards help ensure that structures particularly susceptible to storm surge (e.g. first row) are set back from the ocean a distance based on the average annual erosion rate at that location.

(3) Flooding: The County is an active participant in the National Flood Insurance Program and is supportive of its hazard mitigation elements. The County shall continue to seek improvements in development standards which would result in lower insurance premiums for County property owners. The County also supports proper enforcement of State and Federal wetlands development permit processes in areas potentially susceptible to flooding.

(4) Wave Action and Shoreline Erosion: The County is supportive of the CAMA development permit process for oceanfront and estuarine shoreline areas and the requisite development standards which encourage shoreline preservation, dune stabilization, wave action absorption, and other mitigation measures.

8.5.1 B Discouragement of Hazardous Development

(1) Brunswick County shall discourage high intensity uses and large structures from being constructed within the 100-year floodplain, erosion-prone areas, and other locations susceptible to hurricane and flooding hazards.

(2) Brunswick County, through its Emergency Management Office, shall encourage each of its communities to participate in hurricane preparedness, education and information sharing programs at least once per year. Such public outreach programs should educate the public as to storm resistant building design and construction standards, as well as local government policies on evacuation, reentry, restoration of services and reconstruction.

(3) The County will periodically conduct studies to analyze both the feasibility and benefits of revising local building and development standards to lessen the effects of storm damage. Included shall be an examination of the County's floodplain management, zoning, subdivision and building standards.

8.5.1 C Public Land Acquisition

Brunswick County shall not participate in the purchase of land parcels located in hazard areas or rendered unbuildable by storms or other events, for the purposes of shorefront access.

8.5.1 D Evacuation and Emergency Management

(1) Brunswick County, in cooperation with municipal and State officials, shall annually evaluate the impact of continued growth on existing transportation facilities with regard to evacuation routes and times. The intent shall be to identify and address needed

transportation improvements well in advance of a crisis.

(2) Brunswick County recognizes the critical role that area fire departments, rescue squads and other emergency personnel play in managing emergency situations. The County shall work cooperatively with such emergency personnel to plan for and respond to emergencies and shall facilitate cooperation among emergency personnel.

Post Disaster Reconstruction Policies

8.5.2 (a) Emergency Management Plan and Near Term Response

The County shall prepare and annually update an Emergency Management and Operations Plan, in concert with municipal and State emergency management officials. The plan shall encompass pre-storm and immediate post storm activities and policies of the County, including coordinated policies on evacuation and reentry to damaged areas. Important elements of the plan and its policies shall be publicized, particularly at the beginning of each hurricane season.

8.5.2 (b) Local Post-Disaster Reconstruction Policies

Redevelopment in the most hazardous areas may be discouraged or prohibited if post storm analysis indicates that rebuilding would be unsafe or unwise. Structures and sites destroyed by 50% or more of their value and which do not conform to the County's building regulations, zoning ordinances, and other storm hazard mitigation policies, shall be redeveloped according to current standards. In some instances, this may mean relocation of construction or no reconstruction at all. Structures and sites suffering damages at less than 50% of their value shall be allowed to be restored to their original condition prior to the storm.

8.5.2 (c) Recovery Task Force

The Board of County Commissioners of Brunswick County shall be ultimately responsible for supervising the implementation of policies and procedures contained in the disaster relief and assistance plan, and the post-disaster recovery policies of the land use plan. The Board of County Commissioners shall also have at their disposal a predetermined Recovery Task Force to carry out their directives regarding recovery activities following a major storm event. The composition and duties of the Recovery Task Force shall be specified in the County's Emergency Management and Operations Plan.

8.5.2 (e) Staging Schedule For Reconstruction and Repair

(1) To deal with the large number of requests for permits after a major storm, the County shall employ a "building permit triage" system for orderly issuance of building permits. Criteria for the order of issuance shall be developed in advance, with the need for modification acknowledged based upon the specific circumstances being faced.

(2) The Board of County Commissioners may declare a moratorium of up to 180 days on the permitting of any new construction, including new utility hookups, or redevelopment construction that would increase the intensity of the land uses existing before the hurricane.

(3) Immediately following a damaging storm event, the County shall work with all appropriate utility and service companies to implement a planned sequence for the restoration of public utilities and services, with allowance for adjustment to deal with circumstances at hand. Generally, priority shall be given to those repairs that will restore service to critical locations (e.g. hospital) first and secondarily, to those repairs that will restore service to as many persons as soon as possible.

8.5.2(f) Public Infrastructure Repairs/ Replacement

(1) The County encourages underground installation, replacement and storm proofing of public and private utilities and infrastructure.

(2) In the event of extensive hurricane damage to public utilities requiring replacement or relocation of these utilities, efforts shall be made to locate damaged utilities away from hurricane hazard areas or to strengthen their construction.

8.6 BALD HEAD ISLAND POLICIES

8.6.1 Resource Protection Policies

BHI Policy 8.6.1(a)

The Village of Bald Head Island supports the concept of a family oriented island developed in harmony with nature, promoting responsible development with respect for the environment.

BHI Policy 8.6.1(b)

Educational programs and other efforts targeted to property owners and visitors will be utilized in order to further Bald Head Island's goal of preserving the beauty of its beaches, creeks, maritime forest, and other natural resources which make it unique.

BHI Policy 8.6.1(c)

The Village of Bald Head Island supports state and federal laws designed to manage development in Ocean Hazard Areas of Environmental Concern as well as Estuarine Shoreline Areas of Environmental Concern.

BHI Policy 8.6.1(d)

The Village of Bald Head Island realizes the importance of its shoreline from an aesthetic and economic standpoint. The Village will establish a shoreline management plan to evaluate methods of beach and dune stabilization. The Village supports all State and Federal programs for beach stabilization and encourages the active funding of these programs.

8.6.2 Resource Production and Management Policies

BHI Policy 8.6.(a)

The Village of Bald Head Island supports efforts to maintain a high level of water quality in order to enhance fisheries resource and recreational value of its waters.

BHI Policy 8.6.(b)

Protection of sea turtle nesting areas will continue to be enforced through recognized ordinances.

BHI Policy 8.6.2(c)

The Village of Bald Head Island recognizes its natural resources as one of its greatest assets. To help preserve these resources the development of a maritime forest management plan and consistent open space plan have become a point of focus.

BHI Policy 8.6.2(d)

Bald Head Island restricts the use of vehicles powered by internal combustion engines, because of the fragile nature of its unique habitat, in order to prevent adverse environmental impacts. Bald Head Island will continue to enforce its Internal Combustion Engine Ordinance, which prohibits the use of internal combustion engines on the island with certain exceptions.

8.6.3 Economic and Community Development Policies

BHI Policy 8.6.3(a)

Bald Head Island advocates a strong local government that supports effective community planning and appropriate land use controls.

BHI Policy 8.6.3(b)

Bald Head Island will attempt to facilitate the expansion of public services and facilities to meet the needs of existing and future populations, as resources allow.

BHI Policy 8.6.3(c)

Bald Head Island supports innovative transportation programs related to improved road and water transportation system improvements, including an enhanced emergency transportation system.

BHI Policy 8.6.3(d)

Residential and commercial development in accordance with applicable Village ordinances is encouraged.

BHI Policy 8.6.3(e)

Bald Head Island supports and encourages the restoration and/or appropriate adaptive reuse of significant and architecturally important historic and cultural structures and sites.

BHI Policy 8.6.3(f)

Bald Head Island supports a completed and well-maintained infrastructure, including the development of a state of the art solid waste collection system.

BHI Policy 8.6.3(g)

Bald Head Island supports regional intergovernmental planning as it relates to transportation, emergency services, etc. Bald Head Island encourages improved regional cooperation covering all local government units including Brunswick County area municipalities, neighboring counties, and the State.

BHI Policy 8.6.3(h)

Measures to enhance public safety will be supported, such as regulation of golf cart safety, as well as enhanced emergency medical service programs. Bald Head Island encourages equitable application of county resources to all municipalities, specifically emergency services such as EMT-paramedic and fire protection.

8.6.4 Continuing Public Participation and Coordination Policies

BHI Policy 8.6.4(a)

The Village Of Bald Head Island supports continued public participation in Village government. Every effort will be made to improve channels of communication to property owners and residents to obtain input and ideas at the front-end of the decision making process.

BHI Policy 8.6.4(b)

The Village of Bald Head Island believes that the core of strong local government is active citizen involvement and open communication between Village representatives and their constituents. The Village will continue to support efforts to further this purpose, such as the establishment of Village committees, including but not limited to: Finance, Beach, Roads and Transportation, Public Safety, and Public Works.

8.6.5 Storm Hazard Mitigation & Post-Disaster Recovery Policies

BHI Policy 8.6.5(a)

The Village of Bald Head Island will continually pursue methods and procedures to minimize the loss of life and property during major storm events. This includes establishment of an Emergency Mitigation Plan to effectively plan for evacuation/security measures, as well as provide an orderly method of post-disaster clean up and recovery.

BHI Policy 8.6.5(b)

The Village of Bald Head Island shall continue to enforce the North Carolina Building code, which establishes design/construction standards to meet resistive factors such as high wind velocity. The Village will also continue to comply with CAMA regulations, whose standards dictate setbacks for structures particularly susceptible to storm surge.

BHI Policy 8.6.5(c)

Bald Head Island, in cooperation with County and State officials, continues to explore the safest, most expedient and efficient evacuation routes for citizens. Continued cooperation with appropriate officials to ensure proper implementation of emergency planning will be pursued.

1.3. The Land Classification System

1.3.1 Purpose of Land Classification and Relationship to Policies

The CAMA Land Use Planning Guidelines require that local governments in the coastal area classify various parts of their planning jurisdictions in accordance with the desired density and character of development for each area of their community. By delineating land classes on a map, the County can specify where various forms of development and redevelopment might best occur, and where natural and cultural resources should be conserved. For example, the *Developed* class is intended for areas that are already urban in nature. The *Urban Transition* class is intended for areas that are expected to become urban within the next decade. The *Rural* class is intended for areas that are not expected to become urban within the next decade—and so forth.

The land classification system is intended to be supported and complemented by zoning, subdivision and other local growth management tools; these local tools should be consistent with the classification system as much as possible. Although general areas are outlined on a land classification map, it must be remembered that land classification is merely a tool to help implement policies and is not, in the strict sense of the term, a regulatory mechanism.

1.3.2 Land Classification System of Brunswick County

The basic land classification system (as presented in the State guidelines for land use planning) includes seven classes: *Developed*, *Urban Transition*, *Limited Transition*, *Community*, *Rural*, *Rural with Services*, and *Conservation*. The guidelines allow local governments to subdivide these classes into more specific sub-classes if they choose. In keeping with this provision, Brunswick County has elected to create several sub-classes which are outlined in detail below.

1.3.3 Land Classification Map

The land classification map is provided at the back of this document.

1.3.4 Land Classification Areas Described

DEVELOPED—NOT IN PLANNING AREA

The purpose of the *Developed* class is to provide for continued intensive development and redevelopment of existing cities, towns and their urban environs. In the case of *unincorporated* Brunswick County, no *Developed* areas are designated on the map. Rather, these areas are more properly reserved to the more densely developed and serviced incorporated municipalities of the County. With two exceptions (Bald Head Island, Sandy Creek), all incorporated communities located in Brunswick County have their own land use plans, and therefore, make their own policy decisions regarding the use of this land class.

TRANSITION AREAS

The purpose of the *Transition* class is to provide for future development on lands that are suitable and that will be provided with the necessary urban services to support such development. Urban services normally include water, sewer, streets and roads, police and fire protection that will be made available at the time development occurs or soon thereafter. Areas meeting the intent of the *Transition* class are presently being developed or will be developed in the next five to ten years to accommodate anticipated growth. Most of these areas are in, or will be in a "transitional" state of development, going from lower intensity uses to higher intensity uses and, as such, will eventually require urban services. For the Brunswick County Land Use Plan, several sub-categories within the Transition Classification have been proposed as follows:

Area of Town and Village Clusters

The *Area of Town and Village Clusters* has been applied to those parts of the unincorporated area where: (1) authorization for regional sewer service is already in place or (2) where initiatives are underway which have a significant probability of establishing authority for regional sewer service within the next five years and where: (3) county water service is already in place or planned to be in place within the next five years. These areas include, principally, developable areas adjacent to the incorporated areas or extraterritorial jurisdictions of the Towns of Leland, Navassa, Belville, Southport, Long Beach, Holden Beach, Ocean Isle Beach, Sunset Beach, and Calabash.

It is important to note that the intent of this land classification is not to blanket the landscape with suburban sprawl style development, but rather to encourage new developments to occur in Town or Village like patterns, with certain retail services designed into the Town or Village cluster. The intent is to discourage unnecessary increases in traffic volumes on the County's few main roads by encouraging residents to shop for their basic needs closer to home, perhaps within walking or biking distance. At the same time, the compact nature of these clusters, typically involving smaller lots, is intended to allow for the allocation of permanent open space around and between such clusters. This development pattern is entirely consistent with the desires of County residents to preserve open space and the rural character of much of Brunswick County, while allowing growth to occur in a managed way.

Highway-Oriented Services

Areas designated for Highway-Oriented Services are intended to acknowledge the strong pressures for commercial development along some sections of the County's main roadways. While the County would prefer to see such commercial development locate in the incorporated municipalities where services can be provided, the County also recognizes that a certain amount of highway oriented commercial development is inevitable. However, rather than allowing "strip commercial development" to occur unabated along the County's roadways, the Highway-Oriented Services classification has been created to limit such areas to designated roadway sections. Finally, the County anticipates the need to enact special development standards for highway oriented commercial services, including signage standards, landscaping and tree preservation, limits on driveway cuts, possible frontage road or rear access roads, etc.

Industrial Areas

The purpose of the *Industrial* land class is to accommodate and encourage industrial development on appropriate sites within specially designated land areas. Lands designated for the *Industrial* sub-class include areas currently developed for large scale industrial type uses, and lands containing sites that are particularly appropriate for future industrial development.

The *Industrial* land classification has been applied, for the most part, to several relatively large land areas with convenient access to the shipping channels of the Cape Fear River and/or rail service. Existing industries located within these areas include, for example, Dupont, the Sunny Point Military Terminal, the Archer Daniels Midland Plant, the CP&L Nuclear Power Plant, and the Cogentrix Cogenerating Plant. Other land areas which have been included are largely adjacent to these existing industrial operations. It should be noted, however, that the County may seek to employ the *Industrial* class in the future as may be advantageous to recruit new industry to other appropriate locations within the broader *Rural* land area.

Military Reservation

The purpose of the *Military Reservation* land class is to accommodate the needs of the Sunny Point Military Ocean Terminal. As part of the Land Use Plan policies, the County suggests the

need for advanced planning for the on-going evolution of the mission of the terminal in the coming decades. This may involve contingency planning in cooperation with the Department of Defense.

COMMUNITY

The purpose of the *Community* class is to provide for clustered, mixed land uses at low densities to help meet the housing, shopping, employment and other needs in rural areas. Due to the small size of most communities so designated, they will appear as small circular areas on the County's land classification map. This is not to imply that future development shall conform to a circular shape. While future community level development may center on this location, it is recognized that soil limitations, floodprone areas, or other factors may influence the eventual development form of the community. Thus, areas meeting the intent of the *Community* class are usually associated with crossroads in counties. They may be developed at low densities which are suitable for private septic tank use. These areas are clustered residential and/or commercial land uses which provide both low intensity shopping and housing and provide a local social sense of a "community". Very limited municipal-type services, such as fire protection and community water, may be available, but municipal type sewer systems are not usually available.

The *Community* classification has been applied to those relatively small, predominately unincorporated communities in Brunswick County that exhibit many or all of the characteristics described above. Included in the classification are several small communities that, while they may or may not be incorporated, are commonly recognized as having some sense of identity and association with a particular part of the county. This class includes but is not limited to the communities of: Sandy Creek (incorporated), Maco, Clarendon, Bell Swamp/Winnabow, Mill Creek, Piney Grove, Kingtown, Ash/Waccamaw, Longwood, Grissetown, and Hickman's Crossroads.

RURAL

The *Rural* class is to provide for agriculture, forestry, and other allied uses traditionally associated with an agrarian region. Very low density dispersed residential uses on large lots with on-site water and sewer are consistent with the intent of the *Rural* class. Areas meeting the intent of this classification are appropriate for or presently used for agriculture, forestry, and other similar uses. Population densities are generally very low. The *Rural* class is the broadest of the several general land classes and thus constitutes the major land class on the Brunswick County Land Classification Map. The vast majority of all interior land areas, away from the ocean and intracoastal waterway, have been designated *Rural*.

CONSERVATION AND RESOURCE MANAGEMENT

The purpose of the *Conservation and Resource Management* class is to provide for the effective long-term management and protection of significant, limited, or irreplaceable areas. Management is needed due to the natural, cultural, recreational, scenic or natural productive values of both local and more than local concern. As such, the *Conservation* class should be applied to areas that should be either not developed at all (preserved), or if developed, done so in a very limited manner characterized by careful planning and cautious attention to the conservation of environmental features.

Urban services, public or private, should not be provided in these areas as a catalyst to stimulate intense development. In most cases, limited on-site services will adequately support any limited development within this class and will also protect the very features which justify the area's inclusion in the *Conservation* classification.

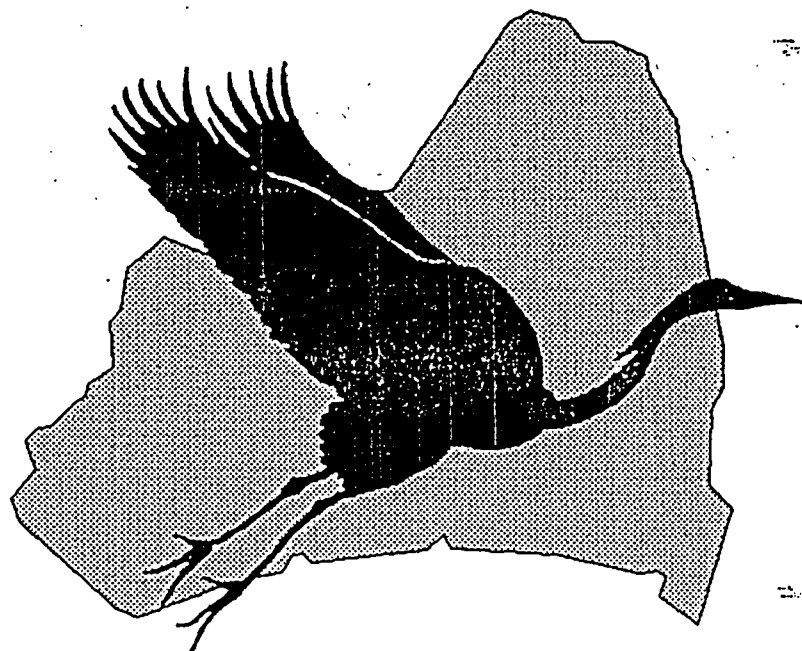
For Brunswick County, the *Conservation and Resource Management* class includes:

1. Areas of Environmental Concern, as defined in 15A NCAC 7H and as further summarized in Policy Section 8.1 of the Land Use Plan,

2. Wetland areas under the jurisdiction of the US Army Corps of Engineers' 404 wetlands Permit Program and as generally identified as a *freshwater woody wetland* by the National Wetlands Inventory of the U.S. Fish and Wildlife Service.
3. Certain critical wildlife habitat areas as may be designated by the State Natural Heritage Program and approved by the County Commissioners for inclusion in this class.
4. Other similar lands, environmentally significant because of their natural role in the integrity of the coastal region and which include, but are not limited to: bottom land hardwoods, pocosins, and swamp forests containing significant productive, natural, scenic, cultural or recreational resources, and as may be approved by the County Commissioners for inclusion in this class.

Mapping of AEC's, 404 wetlands, and critical habit areas in the *Conservation* class is accomplished with the understanding that these areas are more accurately defined in their respective management policies and plans. Oftentimes, the scattered, widespread nature of such areas (e.g. 404 wetlands) precludes their mapping except at a very generalized level of detail. In such instances, the standards of the *Conservation* class shall be applied in accordance with the site specific information made available during the land development process.

As part of the *Conservation* Class the County wishes to go on record that in no instances, shall the *Conservation* classification as shown on the land classification map be employed to automatically "trigger" special environmental reviews or wetlands inventories for proposed developments. Rather, the need for such reviews should be determined on a case by case basis depending on the nature of the site specific situation.



2. Introduction

2. Introduction

2.1 Why Prepare a CAMA Land Use Plan?

Purpose of Land Use Planning

Brunswick County's growth rate continues to outpace most areas of the country. The attractiveness of the county's natural features, combined with higher levels of disposable income in the nation as a whole, greater emphasis on the importance of leisure time, and growing elderly population, has created a tremendous boom in growth and development in the county.

As the county becomes more generally developed, however, new problems must be faced, including: land use conflicts, traffic congestion, ever-growing public expenditures for the services and facilities required by this new growth; and possible degradation of the very features that have been so instrumental in attracting large numbers of people to Brunswick County.

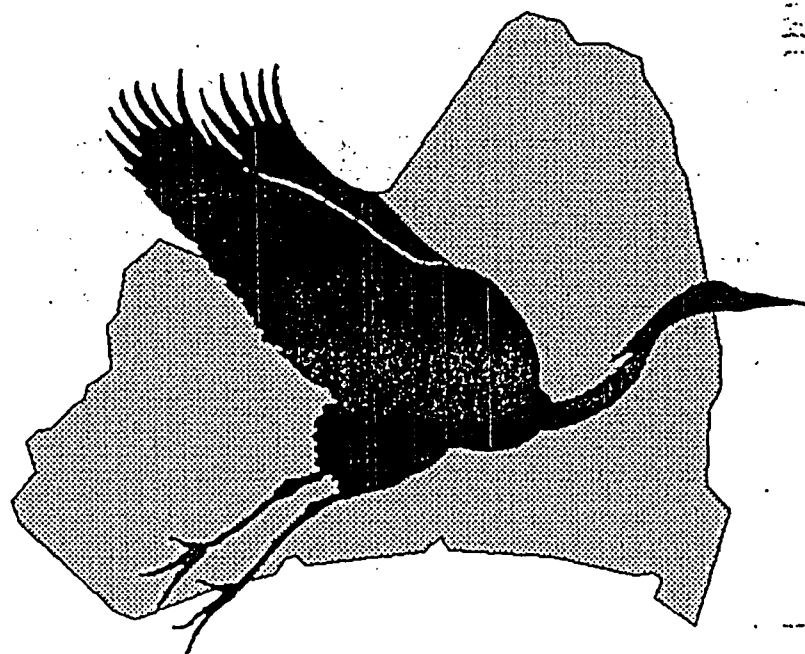
The intent of the Land Use Plan is to anticipate and plan for this growth. Such planning should work to protect and enhance the quality of life of area residents and should also wisely manage the natural resources with which the county has been blessed. At the same time, advanced planning and foresight can help minimize increases in the local tax burden, through sound public and private investment decisions. The North Carolina General Assembly recognized these issues when it passed the Coastal Area Management Act of 1974, which requires local governments in the coastal area to develop land use plans and update them every five years. The first Brunswick County Land Use Plan was adopted in 1976, with updates following in 1981, 1987, and 1992. This update refines the 1992 plan to address current conditions, issues and trends in the county. In turn, the analysis of current conditions, issues, and trends provide the factual basis and rationale for establishing new policies or revising existing policies.

2.2 Goals and Objectives of the Land Use Plan

The Land Use Plan is designed to accomplish several important objectives; these objectives are briefly described below:

- *Source of Information* - The plan's technical studies provide information on a number of topics, including the local economy, population, environmental features; land use trends and community facility needs.
- *Guidance for Government Decisions* - Once the governing body adopts the plan, it then has a foundation for guiding future decisions on budgets and ordinances, including zoning and subdivision regulations.
- *Preview of Government Action* - Decisions of the public in general, and developers in particular, are easier to make when the probable outcome of governmental decisions is understood; the adoption of a land use plan increases the predictability of government actions.
- *Public Participation in Managing Growth* - Public meetings and hearings held during the plan's preparation help to insure that the plan reflects, to the extent possible, the specific nature of the current growth issues facing the county.

The next section of the plan seeks to address several of the above functions very broadly by stating an overall community vision for Brunswick County.



3. Community Vision

3. Community Vision

3.1 Purpose

The CAMA Land Use Planning Guidelines state that "land use planning offers the best chance for developing a common vision and goals for the future that balance economic development and resource protection necessary for a healthy coast." (NCAC Subchapter 7B Land Use Planning Guidelines, Section .0100 - Introduction to Land Use Planning, .0101 Purpose).

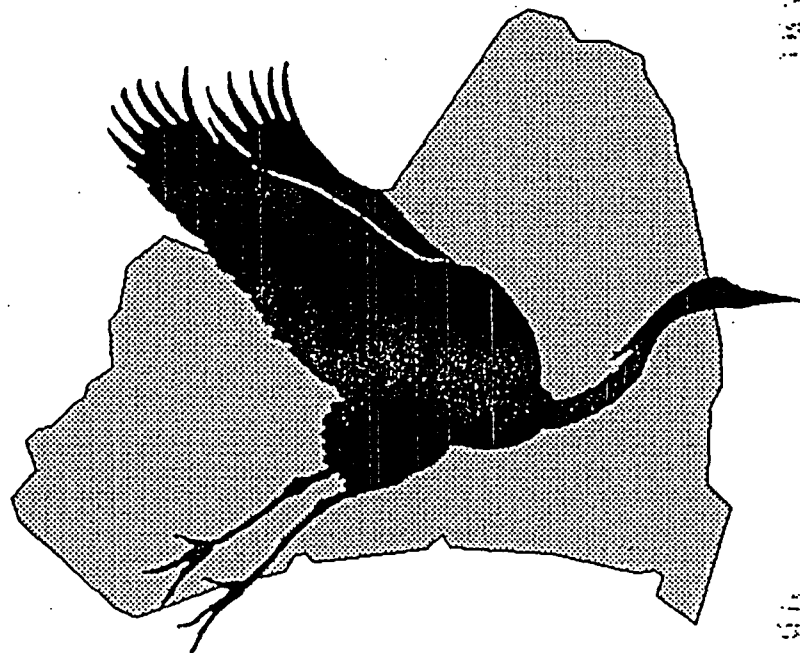
3.2 Vision Statement

For the Brunswick County Land Use Plan, the following overall vision for the community has been established:

General Vision Statement for Next Ten Years

We, the residents, businesses, and property owners of Brunswick County shall seek to preserve and enhance our natural and human resources, and will plan for and accommodate future growth while simultaneously maintaining and improving the quality of life for current and future residents.

While the above vision statement is not intended to be definitive in nature, it does provide the foundation for many of the specific policies of the County's Land Use Plan and ultimately, for guiding public expenditures for infrastructure and for changes in the County's development regulations.



4. Data Collection and Analysis

4. Data Collection and Analysis

4.1 Establishment of Information Base

Components of the Analysis

Coastal Area Management Act (CAMA) guidelines for preparing land use plans in the coastal area of North Carolina require that an analysis of existing conditions and future trends be performed as a foundation for policy development. The intent of this requirement is to insure that the policies as developed respond as closely as possible to current problems and issues facing the county. Key components of the analysis may be described in four categories:

- 1) **present conditions**— including population, economy, existing land use, and current plans and regulations;
- 2) **land suitability constraints**— including physical limitations for development, fragile areas, and areas with resource potential;
- 3) **community facility and service constraints**— including water, sewer, transportation, police, fire, schools, parks and recreation, and solid waste; and
- 4) **anticipated demand**— including population and economic projections, future land use needs, and community facility demands.

Collectively, these studies establish the information base necessary to make policy choices about future land use and development in the county. Chapters 5 (Present Conditions), 6 (Constraints), and 7 (Estimated Demand) of this Plan set forth the findings of this information base in greater detail. Section 4.2 below summarizes some of the salient findings from these chapters.

4.2 Some Findings from the Technical Studies

Population Increases

From 1950 to 1960, the population of Brunswick County hovered around 20,000 and growth was negligible. During the 60's, the county's population increased by about 20% to a little over 24,000. During the 1970's and 80's, however, the population exploded by 48% and 43% respectively. The 1990 Census counted over 50,000— up from 36,000 just a decade earlier. The most recent estimate from the State placed the County's population at 62,856 as of July of 1996. If this pace were to continue through the end of the decade, the County would have over 70,000 residents by the year 2000. (By way of comparison, at the time of the last land use plan update in 1992, the state was projecting a year 2000 population of only 66,000.)

Retirement Age Population

From 1940 until 1995, the number of people 65 years and over more than tripled from less than 5% to an estimated 17% of the total population. This is especially significant when compared with the same age group percentages for the state of North Carolina (12.5% in 1995). Brunswick County continues to draw a significant share of retirees as new residents to the area.

Economy

The economic analysis included the following trends for Brunswick County:

- A relative stagnation or decline in agriculturally-based employment and income.
- A relative decline in manufacturing employment as a percentage of total employment, compared to service and trade employment.
- A continued increase in the volume of travel and tourism related expenditures as a percentage of the total local economy.
- A continued increase in the so-called "mailbox" economy of the county's rapidly growing retirement population; i.e., transfer payments.
- A substantial, but largely undocumented "underground economy" within the county, attributable to untaxed earnings from, for example, lower paying construction jobs, food service and part-time fishing.

Housing Types

The U.S. Census reported that in 1990, some 36% of all residential units in Brunswick County (including all municipalities) consisted of mobile homes. In addition, County building inspections records reveal that, for at least the past decade, more than four out of five residential permits issued by the County were for mobile homes.

Water Supply

The County entered the water business on a fairly large scale in 1974, establishing a water treatment plant served by a well field, located about two miles west of the Southport-Oak Island area, on NC 211. Starting in 1981, a major expansion of the system began, funded by a \$37 million general obligation bond approved by the County's voters. Also at that time, the main source of water for the County system was changed from groundwater to the Cape Fear River. Since the establishment of the system, demand for water has increased steadily. At the end of the 1980's, the total median daily demand from all customers tied into the County system was at 3.7 million gallons. By 1993, median daily demand had more than doubled to 10 million gallons per day. At present (1997) median daily demand is estimated to be approaching 20 million gallons per day or 66% of the total system capacity of 30 million gallons.

Waste Water Disposal

The suitability of area soils for septic tanks continues to be one of the primary constraints on the future growth and development of the county. Despite the apparent need for centralized sewage treatment, the county's sparse development patterns make the provision of a single, central sewage treatment system unworkable. Areas where there are concentrations of small lots or higher density development (such as near the beach communities) offer some possibilities, however. As a result, there are several local area initiatives underway which would seek to address this need and Brunswick County government has taken on a leading partnership role in the development of such systems.

Transportation Facilities

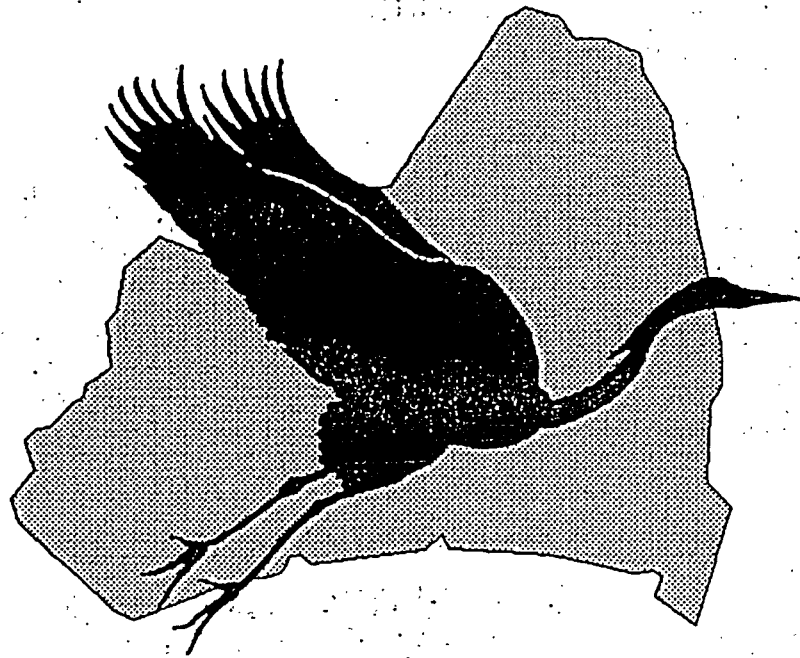
The four-laning of US 17 through the county has done much to alleviate congestion on this major traffic artery. In addition, the completion of by-passes around the Towns of Shallotte and Bolivia has further enhanced the flow of traffic through the county. Secondary roads and bridges leading to several of the county's ocean beaches continue to present a problem on peak summer weekends.

Solid Waste Management

In 1992, Brunswick County implemented a move to a privatized solid waste collection system. Since that time, private haulers assumed responsibilities for waste collection and hauling previously handled by the County. As of January 1, 1998, the County closed the county dump off U.S. 17 near Shallotte. (On that date, Federal law required that such dumps have a protective lining to help prevent groundwater contamination.) At the same time, the closed dump site will now fulfill a new role as a major transfer site for the off-loading of smaller truck loads and reloading onto larger haulers for out of the county disposal.

4.3 For Further Information

To find out more about various aspects of land use and development trends in Brunswick County, the interested citizen is also invited to visit the County Planning Department where a variety of studies, plans, maps, aerial photographs and booklets are maintained on file.



5. Present Conditions

5. Present Conditions

This section presents a variety of information about current human, economic and physical conditions in Brunswick County. Also included is a summary of local plans, policies, and regulations pertinent to the formulation of the land use plan.

5.1 Population and Economy*

5.1.1 Population and Housing

(a) Population Growth, 1930 to 2000.

From the time of the first US Census in 1790 until the 1960 Census, Brunswick County grew at a relatively slow rate. In fact, during this 170 year period, the population grew by a total of only about 17,000 people (3,000 to 20,000). Beginning in the 1960's, however, the county began a period of unprecedented growth. During the 1960's, for example, the County's growth rate was nearly twice that of the State of North Carolina. In the 1970's, the County grew at a rate three times faster than that of the State. And, during the 1980's, Brunswick County grew at more than triple the State's growth rate. While this tremendous rate of growth has moderated somewhat during the 1990's, the actual numbers of people moving into the County have never been greater. In fact, according to estimates calculated by the Office of State Budget and Management, Brunswick County will have doubled its population in the twenty year period between 1980 and the year 2000.

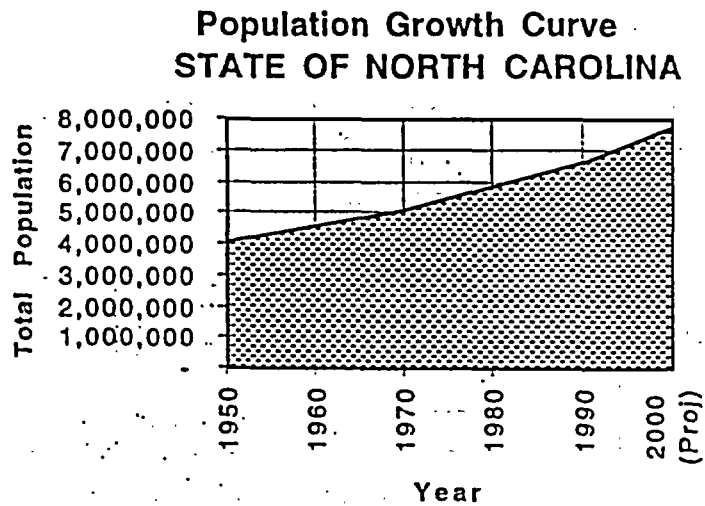
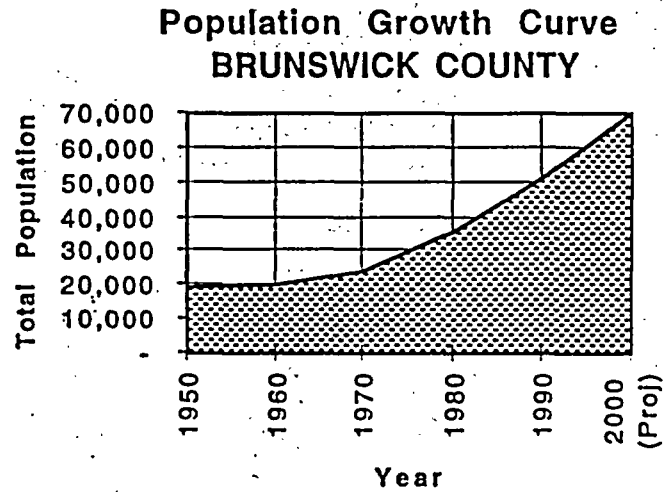
TABLE 5.1.1 (a) POPULATION GROWTH COMPARISON, COUNTY AND STATE

Year	Brunswick County		State of North Carolina	
	Population	% Increase	Population	% Increase
1930	15,815			
1940	17,125	8%		
1950	19,238	12%	4,052,795	
1960	20,278	5%	4,556,155	12%
1970	24,223	19%	5,084,411	12%
1980	35,777	48%	5,881,766	16%
1990	50,985	43%	6,628,637	13%
2000 (Proj)	69,653	37%	7,713,383	16%

Source: U.S. Census Bureau and Office of State Planning

*Unless otherwise noted, all population and economic figures refer to the entire County, including municipalities. for a discussion of the impact of seasonal population (both peak and shoulder) on population, housing and retail sales, see Section 5.1.3.

CHART 5.1.1 (a) POPULATION GROWTH CURVES, COUNTY AND STATE



(b) Sources of Population Growth: Births Over Deaths & People Moving In

Population levels change in three different ways: *natural increase* (births minus deaths), *in-migration* (people moving into the area), and *out-migration* (people moving out of the area). Before 1960, nearly all the county's population increase could be attributed to natural increase. In fact, the county experienced net out-migrations during the 30's, 40's and 50's.

From sometime in the 1960's to the present, the county has witnessed steady increases in the number of newcomers. During the 1960's, newcomers accounted for only about one third of the total population increase of the county. By the decade of the 80's, newcomers represented almost 85% of the total population increase. Further, State estimates of population growth during the 1990's indicate that almost all of the county's growth may now be attributed to in-migration. In other words, births and deaths during the present decade are just about canceling each other out.

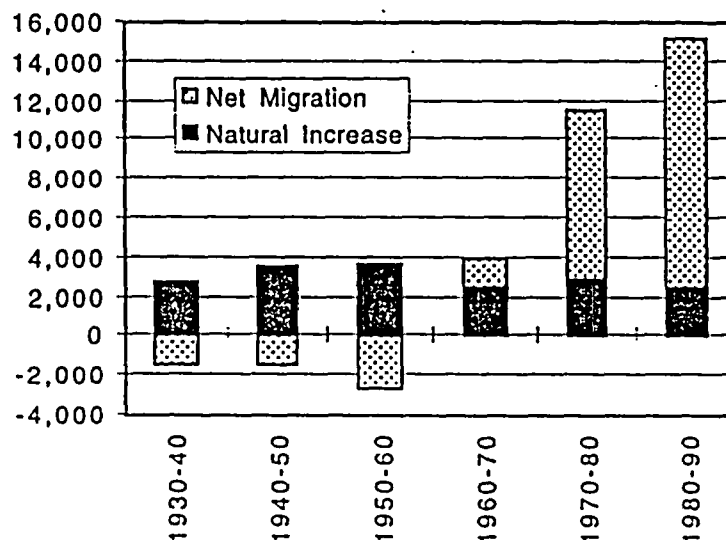
TABLE 5.1.1 (b) POPULATION GROWTH DYNAMICS

<i>Decade</i>	<i>+ or -</i>	<i>Natural Increase</i>	<i>Net migration</i>
1930-40	+1,310	2,709	-1,399
1940-50	+2,113	3,509	-1,396
1950-60	+1,040	3,752	-2,712
1960-70	+3,945	2,524	+1,421
1970-80	+11,554	2,897	+8,657
1980-90	+15,208	2,499	+12,709

Source: US Census and NC Dept. of Human Resources, Division of Vital Statistics

CHART 5.1.1 (b)

**Natural Increase and Net Migration
Population Growth in Brunswick County
1930 to 1990**



(c) Population Growth By Townships

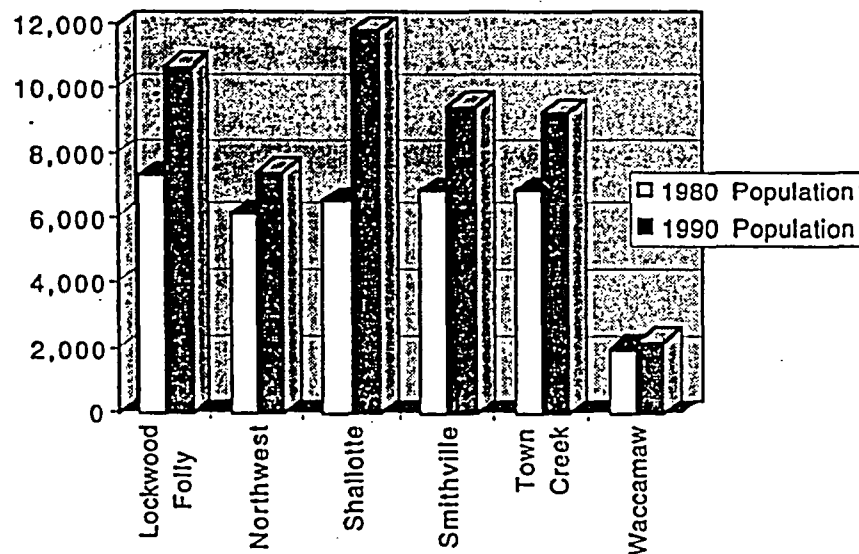
As the following table indicates, not all parts of Brunswick County have grown at an equal rate. During the 1980's, the Shallotte and Lockwood Folly townships in the south and central portions of the county, respectively, grew at rates which exceeded the county average. This continues a trend established during the 1960's and 70's—that of large numbers of people being drawn by the ocean and intracoastal-oriented areas of the county south and east of U.S. 17.

TABLE 5.1.1 (c) POPULATION GROWTH BY TOWNSHIP
1980-1990

Township	1980	1990	INCREASE	
			Number	Percent
Lockwood Folly	7,361	10,705	3,344	45%
Northwest	6,136	7,454	1,318	21
Shallotte	6,542	11,818	5,276	81
Smithville	6,838	9,488	2,650	39
Town Creek	6,878	9,269	2,362	35
Waccamaw	2,022	2,260	238	12
TOTAL	35,777	50,985	15,208	43

Source: US Censuses, 1980 and 1990

CHART 5.1.1 (c)
Population Growth By Township
1980 to 1990



(d) Population Growth By Municipalities

A review of population changes at the municipal level provides yet another perspective on where the county's population growth is headed. The beach communities, for the most part, have continued on a consistent, fast paced growth trend. Of the non-oceanfront communities, the Town of Calabash grew at an astounding 829% during the 1980's. Much of this growth can be attributed, however, to the reorganization of that town's government and area of jurisdiction during the 1980's. At the same time, Shallotte grew at a very respectable 44% during the decade, a reflection of the overall attractiveness of this part of the county to new development.

TABLE 5.1.1 (d) MUNICIPAL POPULATION GROWTH, 1980-1990

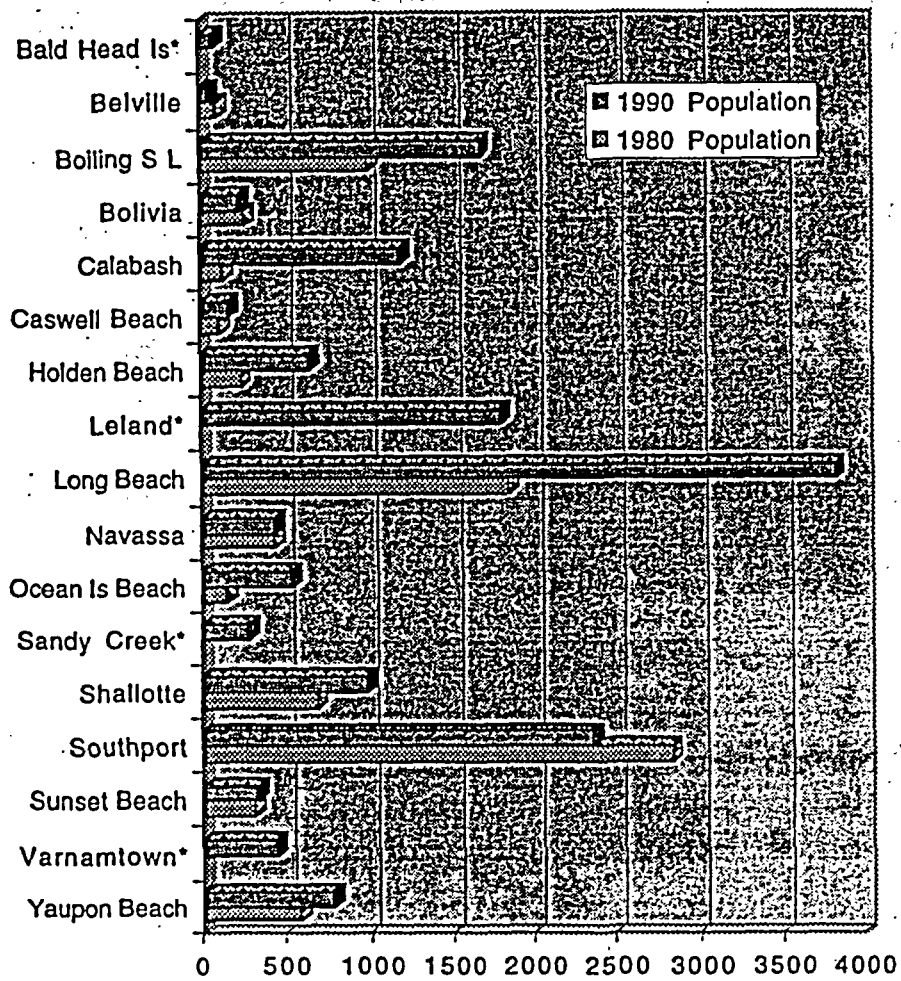
Municipality	1980	1990	CHANGE	
			Number	Percent
Bald Head Island*	N/A	78	N/A	N/A
Belville	102	46	(56)	(55)
Boiling Springs Lakes	998	1,672	674	68
Bolivia	252	226	(26)	(10)
Calabash**	128	1,189	1,061	829
Caswell Beach	110	155	45	41
Holden Beach	232	642	410	177
Leland*	N/A	1,785	N/A	N/A
Long Beach	1,844	3,816	1,972	107
Navassa	439	433	(6)	(1)
Ocean Isle Beach	143	534	391	273
Sandy Creek*	N/A	271	N/A	N/A
Shallotte	680	976	296	44
Southport	2,824	2,359	(465)	(16)
Sunset Beach	304	321	17	6
Varnamtown*	N/A	434	N/A	N/A
Yaupon Beach	569	764	195	34
TOTALS	8,625	15,701	7,076	82

*Incorporated between 1980 and 1990.

**During this period, the incorporated area of Calabash was significantly enlarged by a major restructuring of the town's municipal government including the town limits.

Source: US Censuses, 1980 and 1990

CHART 5.1.1 (d)
Municipal Population Growth
1980 to 1990



*Incorporated between 1980 and 1990.

(e) Population Growth by Incorporated Versus Unincorporated Areas

The municipal growth patterns noted above are also reflected in the overall percentages of total county population in incorporated versus unincorporated areas. In 1980, over 75% of the total county population was living in the unincorporated parts of the county. By 1990, this ratio dropped to about 70%. It remains to be seen how the introduction of centralized sewage treatment systems and the continued expansion of the County's water distribution system may effect this overall growth distribution pattern.

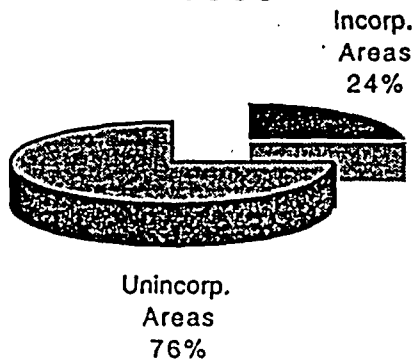
TABLE 5.1.1 (e)
POPULATION IN INCORPORATED VERSUS UNINCORPORATED AREAS
1980-1990

	<i>Numbers</i>		<i>% of County Population</i>	
	<i>1980</i>	<i>1990</i>	<i>1980</i>	<i>1990</i>
Incorporated Areas	8,615	15,644	24%	30%
Unincorporated Areas	27,109	35,341	76	70
TOTAL COUNTY	35,777	50,985	100	100

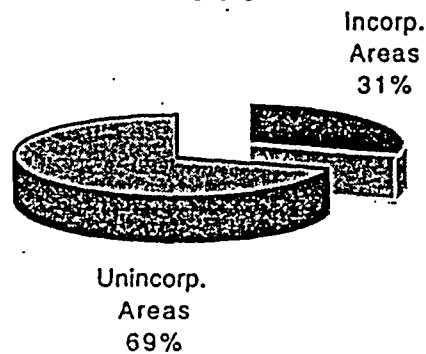
Source: US Censuses, 1980 and 1990

CHART 5.1.1 (e)

**Population in
Incorporated Versus
Unincorporated Areas
1980**



**Population in
Incorporated Versus
Unincorporated Areas
1990**



(f) Housing Growth by Township

Numbers of housing units in Brunswick County have increased at a faster rate than the overall population growth. This is to be expected, given the continued national declines in average household size during the 1980's and 90's and the relatively large numbers of seasonal housing units built in the county.

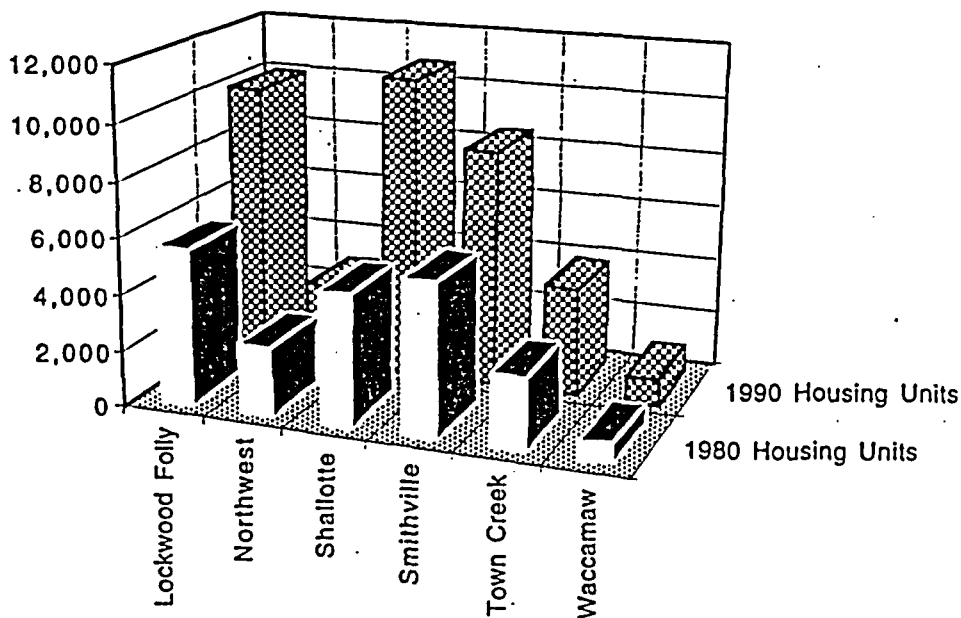
TABLE 5.1.1 (f) HOUSING GROWTH BY TOWNSHIP, 1980-1990

Township	HOUSING UNITS		INCREASE	
	1980	1990	Number	Percent
Lockwood Folly	5,636	10,084	4,448	79%
Northwest	2,451	2,917	466	19
Shallotte	4,701	10,826	6,125	130
Smithville	5,450	8,506	3,056	56
Town Creek	2,574	3,844	1,270	49
Waccamaw	747	937	190	25
TOTALS	21,559	37,114	15,555	72

Source: US Censuses, 1980 and 1990

CHART 5.1.1 (f)

**Housing Units By Township
1980 and 1990**



(g) Housing Characteristics Relative to Selected Counties

The table below compares housing units in Brunswick County with housing units in several counties selected from the northern, central, and southern parts of the coastal North Carolina. As can be seen, Brunswick County has, relatively speaking, a lower percentage of its housing units tied to public sewers, an average percentage of substandard units, and a higher than average percentage of its housing units in the form of mobile homes.

TABLE 5.1.1 (g) HOUSING CHARACTERISTICS, 1990
Brunswick County As Compared to Other Selected Counties

County	Total Housing Units, 1990	% of Total Housing Tied To Public Sewers	% of Total Housing In Substandard Units	% of Total Housing in Mobile homes
BEAUFORT COUNTY	19,598	29%	5%	24%
BRUNSWICK COUNTY	37,114	17	2	36
DARE COUNTY	21,567	19	1	11
NEW HANOVER COUNTY	57,076	71	2	9
ONSLOW COUNTY	47,526	56	4	26

CHART 5.1.1 (g)(1)

% of Total Housing Tied To Public Sewers, 1990
Selected Coastal Counties

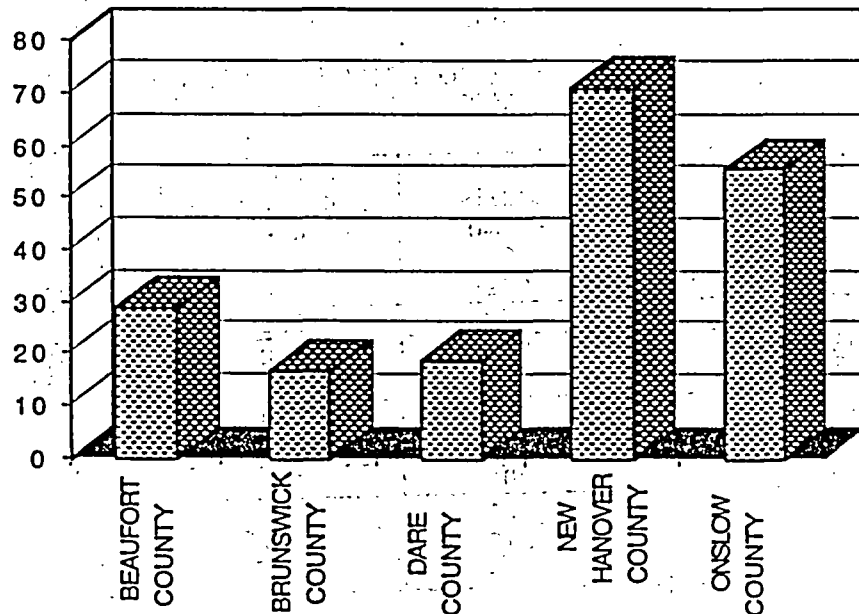
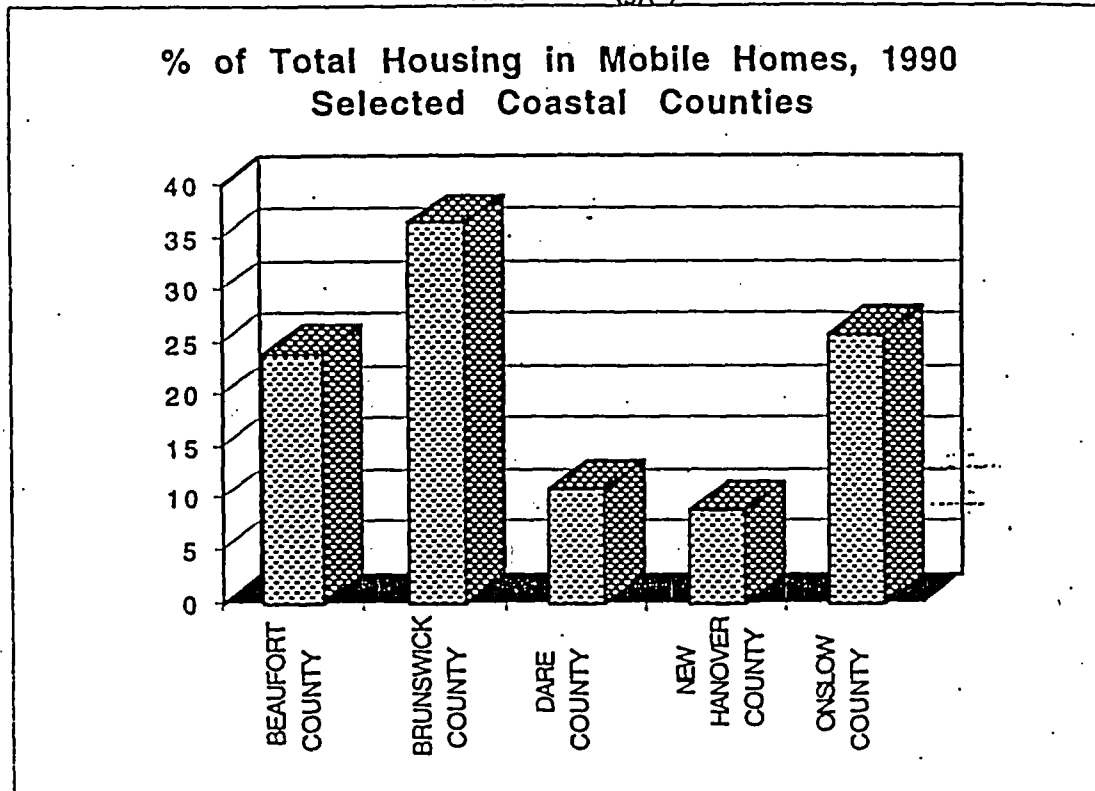


CHART 5.1.1 (g)(2)

**(h) Percent of Residential Development Attributed to Mobile homes**

The Brunswick County Planning Department has compiled statistics on permits issued for mobile homes versus site built, single family housing by year for the past ten years. The results are shown in the table below. Generally speaking, since at least the mid 1980's more than four out of five residential permits issued by the County were for mobile homes.

TABLE 5.1.1 (H)(1) PERCENT OF RESIDENTIAL PERMITS ISSUED BY BRUNSWICK COUNTY FOR MOBILE HOMES, 1986 to 1996

Year	Permits for Single Family Homes (site built)	Permits for Mobile Homes (factory built)	Percent of residential permits issued for mobile homes
1986	289	1370	83%
1987	359	1333	79%
1988	239	1022	81%
1989	184	903	83%
1990	181	1130	93%
1991	165	845	84%
1992	201	768	79%
1993	151	821	84%
1994	213	809	79%
1995	256	916	78%
1996	371	1000	73%

Figures shown are for unincorporated Brunswick County, and for those municipalities for which the County handles permitting responsibilities, namely the Towns of Leland, Navassa, Belville, Northwest, Varnumtown, Sandy Creek, and Bolivia.

In April and May of 1998, the Brunswick County Planning Department conducted a special survey of municipalities in the County for which the County did not have permit issuing responsibilities. The results of the survey are below. (Certain municipalities did not respond to the survey.) The survey showed that, on average, these municipalities issued far fewer permits for mobile homes (as a percentage of single family site built homes) than did the County during the 1990's.

TABLE 5.1.1 (H)(2) PERCENT OF RESIDENTIAL PERMITS ISSUED BY MUNICIPALITIES FOR MOBILE HOMES, 1992 to 1997

		# of Site Built Home Permits Issued	# of Permits Issued for Mobile Homes	% of Permits Issued for Mobile Homes
1992	Baldhead Island	31	0	0%
	Boiling Spring Lakes	63	13	17%
	Calabash	63	38	38%
	Holden Beach	50	NA	NA
	Long Beach	89	19	18%
	Ocean Isle Beach	51	4	7%
	Southport	19	NA	NA
	Sunset Beach	90	17	16%
	Yaupon Beach	6	0	0%
		462	91	16%
1993	Baldhead Island	15	0	0%
	Boiling Spring Lakes	49	11	18%
	Calabash	65	37	36%
	Holden Beach	62	NA	NA
	Long Beach	85	10	11%
	Ocean Isle Beach	71	8	10%
	Southport	22	NA	NA
	Sunset Beach	127	22	15%
	Yaupon Beach	9	0	0%
		505	88	15%
1994	Baldhead Island	61	0	0%
	Boiling Spring Lakes	41	13	24%
	Calabash	83	37	31%
	Holden Beach	53	NA	NA
	Long Beach	113	12	10%
	Ocean Isle Beach	71	4	5%
	Southport	18	0	0%
	Sunset Beach	99	22	18%
	Yaupon Beach	6	0	0%
		545	88	14%

5. Present Conditions

		# of Site Built Home Permits Issued	# of Permits Issued for Mobile Homes	% of Permits Issued for Mobile Homes
1995	Baldhead Island	110	0	0%
	Boiling Spring Lakes	35	22	39%
	Calabash	71	47	40%
	Holden Beach	61	NA	NA
	Long Beach	141	10	7%
	Ocean Isle Beach	87	8	8%
	Southport	21	2	9%
	Sunset Beach	61	15	20%
	Yaupon Beach	2	0	0%
		589	104	15%
1996	Baldhead Island	61	0	0%
	Boiling Spring Lakes	55	31	36%
	Calabash	59	59	50%
	Holden Beach	54	NA	NA
	Long Beach	147	12	8%
	Ocean Isle Beach	106	11	9%
	Southport	18	1	5%
	Sunset Beach	64	19	23%
	Yaupon Beach	6	0	0%
		570	133	19%
1997	Baldhead Island	52	0	0%
	Boiling Spring Lakes	68	27	28%
	Calabash	41	64	61%
	Holden Beach	58	NA	NA
	Long Beach	162	6	4%
	Ocean Isle Beach	89	12	12%
	Southport	23	5	18%
	Sunset Beach	71	14	16%
	Yaupon Beach	9	0	0%
		573	128	18%
	Totals 1992-1997	3244	632	19%

Source: Survey of municipalities conducted by Brunswick County Planning Department, April and May, 1998

(i) Age Composition of the Population

Age characteristics are important because they give an indication of likely future school enrollments, future housing needs, and the anticipated market for certain retail goods and various other community facilities. Overall, the tables and charts below indicate the following trends:

- From 1950 to 1990 there was a continued decline in the pre-school, early school, and teen years population sub groups of the county as a percent of the total.
- At the same time, the primary labor age group and the mature labor age group showed steady increases, reflecting the movement of the baby boom generation through the life cycle.
- Most significant, however, is the overall increase in the retirement population of the county. From 1940 until 1990, the percentage of the total population 65 years and over more than tripled. This is especially significant when compared with the same age group percentages for the state of North Carolina. Brunswick County continues to draw a significant share of elderly as new residents to the area.

TABLE 5.1.1 (i)(1)
AGE GROUPS IN BRUNSWICK COUNTY AS A % OF TOTAL POPULATION, 1940-90

Age Group	1940	1950	1960	1970	1980	1990
Under 5 (Preschool)	11.6	13.1	12.0	9.6	7.3	6.5
5 through 14 (Early School)	24.8	23.2	24.1	21.5	17.4	12.9
15 through 19 (Teen Years)	11.4	9.9	9.5	9.6	9.0	6.8
20 through 24 (College & New Labor)	9.0	7.3	5.5	7.6	7.6	6.0
25 through 44 (Primary Labor)	25.0	25.9	23.7	22.7	27.0	28.8
45 through 64 (Mature Labor)	13.7	14.7	18.0	20.6	21.0	24.4
65 and over (Retirees)	4.5	5.9	7.2	8.4	10.8	14.7
TOTAL POPULATION	100%	100%	100%	100%	100%	100%
	17,125	19,238	20,238	24,223	35,777	50,985

Source: US Censuses

CHART 5.1.1 (i)(1)

**Population Age Composition, 1940 to 1990
Brunswick County**

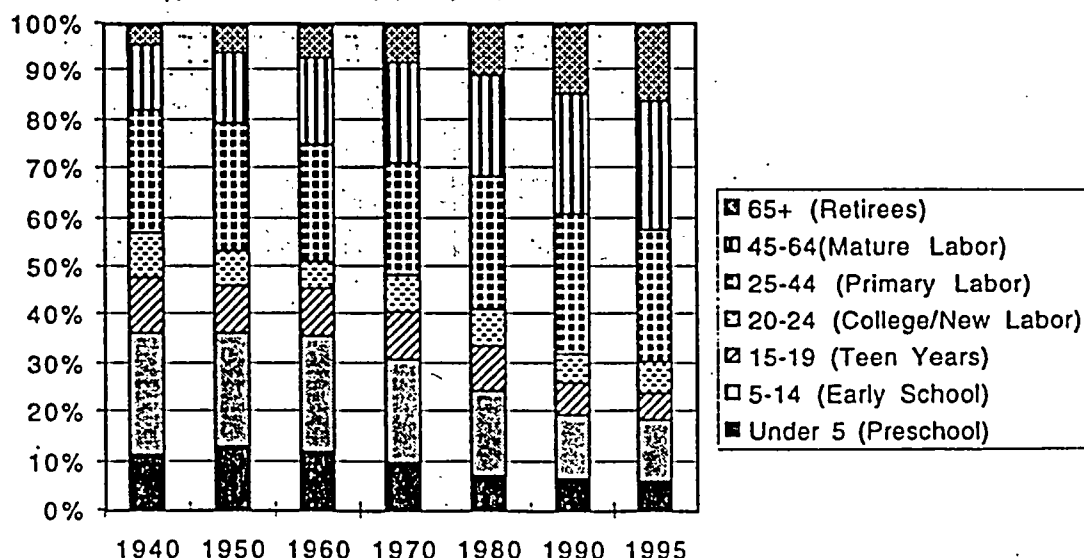
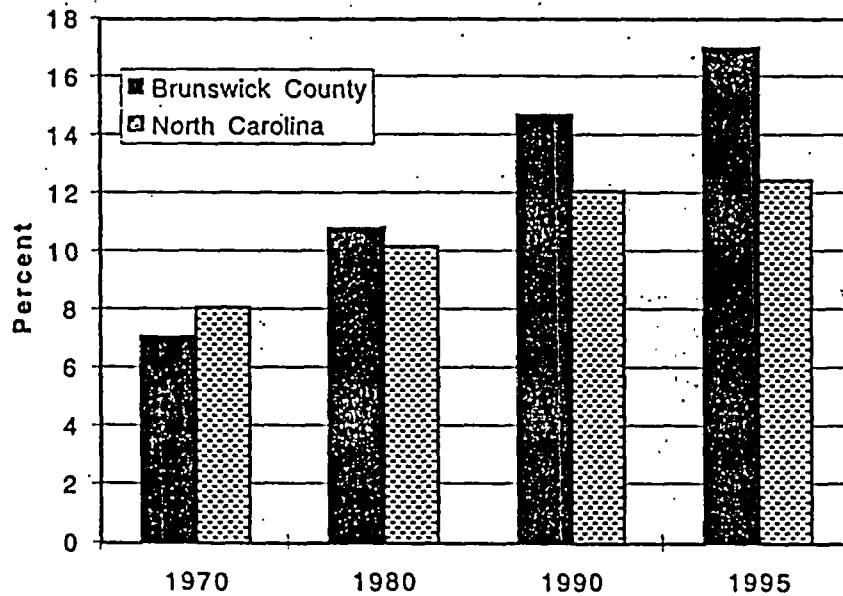


Table 5.1.1 (i)(2)
PERCENT OF COUNTY POPULATION 65 YEARS & OVER
 Brunswick County and the State of North Carolina
 1970, 1980, and 1990

Year	No. of Persons 65 years & over in Brunswick Co	% OF TOTAL POPULATION	
		Brunswick County %	North Carolina %
1970	1,728	7.1	8.1
1980	3,835	10.8	10.2
1990	7,494	14.7	12.1
1995	10,326	17.0	12.5

Source: US Censuses, 1970, 1980 and 1990

Chart 5.1.1 (i)(2)
Percentage of Persons 65+
Brunswick County Versus North Carolina



(j) Racial Composition of the Population

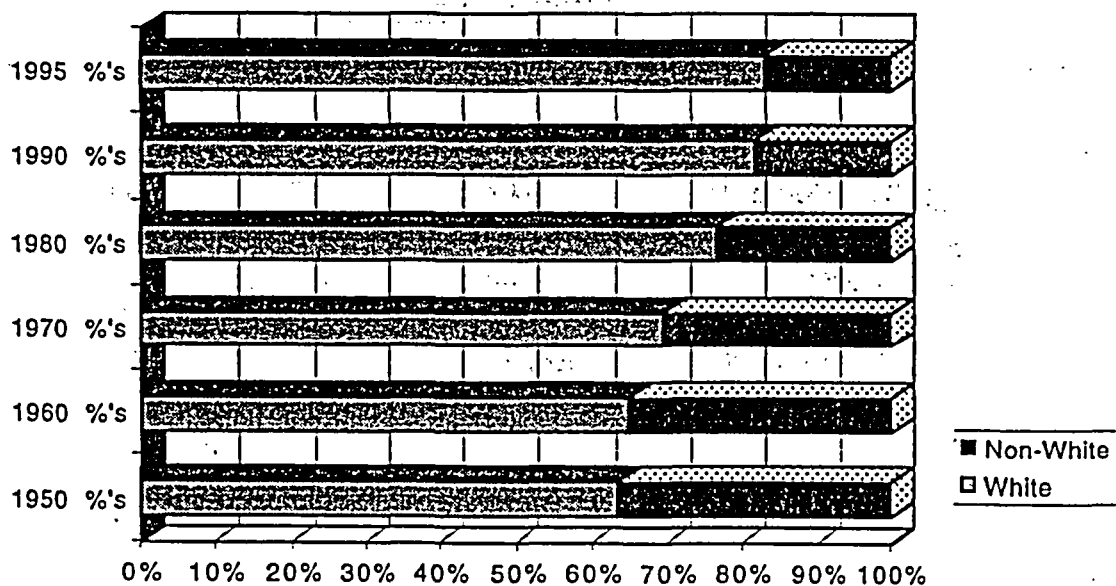
The continued rapid influx of primarily White residents, is reflected in the consistent decline of the Non-White population as a percentage of total county population from 1950 to 1995. While more than 1 in 3 residents were Non-White in 1950, at present there are fewer than 1 in 5 Non-Whites in the total county population.

Table 5.1.1 (j) RACIAL COMPOSITION OF BRUNSWICK COUNTY
AS A PERCENT OF TOTAL POPULATION
1950-95

	1950	1960	1970	1980	1990	1995
White	63.4%	64.6%	69.3%	76.3%	81.1%	82.7
Non-White	36.6%	35.4%	30.7%	23.7%	18.9%	17.3%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: US Censuses

Chart 5.1.1 (j)
**Racial Composition
Brunswick County
1950 to 1995**

**(k) Educational Measures**

The educational characteristics of Brunswick County residents are available statistically, but are not easy measures from which to draw conclusions. This is because the rapid in-migration of new residents obscures any baseline from which to gauge educational improvement.

For example, in the area of "Percent of adults (aged 25+) with a high school diploma, 1990", the statistics would seem to indicate that Brunswick County has improved somewhat in this category—from 29th among all 100 counties in 1980 to 24th in 1990. However, given the fact that nearly 100% of the county's population increase is now attributable to new residents moving in from outside the area, this figure may be misleading.

Further, improvements in drop-out rates often receive mixed reviews from some educators. While some educators argue that keeping students in school is a very important objective, others believe that keeping unmotivated students in school is disruptive and counterproductive to those students who really do want to learn.

TABLE 5.1.1 (K)(1)
PERCENT OF ADULTS (AGED 25+) WITH A HIGH SCHOOL DIPLOMA, 1990

	PERCENT OF ADULTS W DIPLOMA	RANK* 1980	RANK* 1990
Brunswick County	69.2%	29	24
County with highest percentage	85.4%		
County with lowest percentage	52.6%		
State Average	70.0%		

* Ranking is out of 100 counties in the State of North Carolina.

Source: Statistical Abstract of NC Counties, 1991 (Based on 1990 Census data).

TABLE 5.1.1 (K)(2)
AVERAGE DROP-OUT RATE
(% OF TOTAL ENROLLMENT)
Selected Counties, Region O
1982, 1988, 1994

	1982	1988	1994
Brunswick County	11.7	8.7	3.6
New Hanover County	8.7	6.8	
Columbus County	11.1	10.9	
Pender County	9.9	7.5	
State of NC	NA	NA	4.7

Source: NC Dept. of Public Instruction

5.1.2 LOCAL ECONOMY

(a) Economic Sectors and Employment

Consistent with trends across the nation, employment levels in the manufacturing sector of the local economy have stagnated compared to the rapid increases in non-manufacturing employment. Much of the manufacturing base of the United States has shifted to third world countries, where low labor rates, working conditions and environmental standards are less stringent. The impact of this shift in the economy of Brunswick County can be seen in the following tables:

TABLE 5.1.2 (A)(1) MANUFACTURING VERSUS NON-MANUFACTURING EMPLOYMENT
BRUNSWICK COUNTY
Selected Years 1970-95

Year	Total	Manufacturing	Non-manufacturing
1970	5,130	1,690	3,440
1975	8,830	3,320	5,510
1980	11,250	3,210	8,040
1985	13,960	2,770	11,190
1989	17,020	2,680	14,000
1995	NA	NA	NA

Source: NC Employment Security Commission

For 1989, the most current year for which figures were available, total employment was counted according to county of residence, while manufacturing employment was counted by place of work. As such, the estimates of non-manufacturing employment and manufacturing employment may not add to the total.

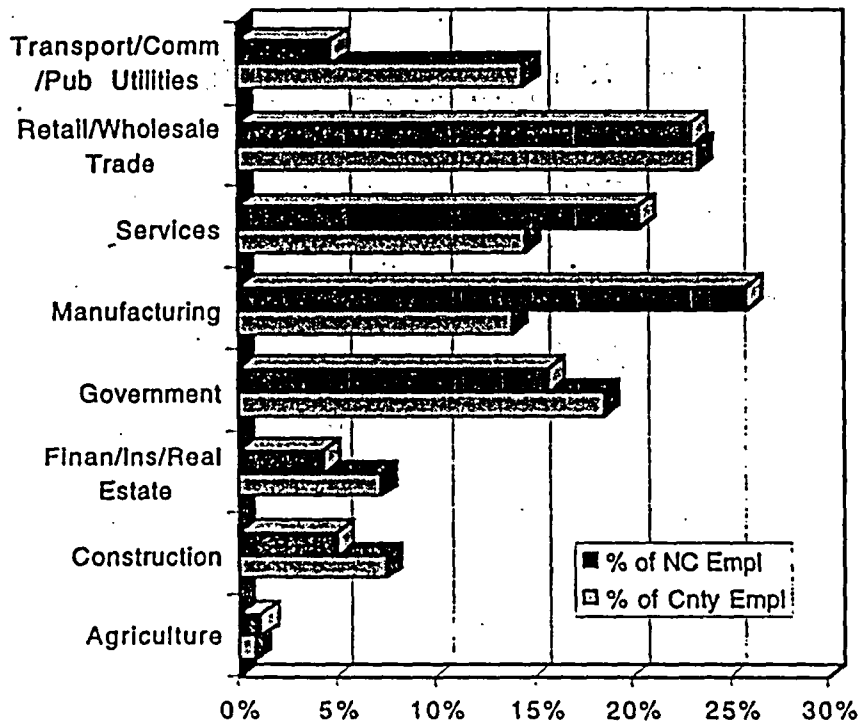
The above noted trend away from manufacturing and toward services is further refined in the tables below. While the percentage of employment in manufacturing has continued to decline, employment in trade continues to grow. At the same time, the continued rapid growth and development of the county has witnessed sizable increases in the percentage of the work force involved in construction.

TABLE 5.1.2 (A)(2) EMPLOYMENT BY SECTOR, COUNTY AND STATE, 1994

Employment Sector	1994 Employment	% of Cnty Emp	% of NC Empl	92-94 % ▲ Cnty Empl	92-94 % ▲ NC Empl	94 Ave Wage	% of NC Ave Wage
Agriculture	144	0.9%	1.2%	9.1%	15.9%	\$12,335	76.8%
Construction	1,235	7.4%	5.0%	30.4%	14.4%	\$17,554	76.8%
Finan/Ins/Real Est	1,195	7.1%	4.3%	29.0%	8.0%	\$15,627	51.0%
Government	3,095	18.5%	15.7%	4.4%	5.1%	\$22,430	89.3%
Manufacturing	2,312	13.8%	25.8%	-8.1%	3.2%	\$35,789	134.3%
Services	2,431	14.5%	20.3%	11.3%	13.2%	\$17,133	79.4%
Retail/Whl Trade	3,897	23.3%	23.0%	20.3%	7.0%	\$11,746	7.0%
Trans/Com/Pub Util	2,410	14.4%	4.8%	6.5%	5.8%	\$40,808	125.9%
Total	16,730	100.0%	100.0%	10.2%	7.3%	\$22,726	97.0%

Source: NC Employment Security Commission

CHART 5.1.2 (A)(2)
 % of Employment By Sector, 1994
 Brunswick County Versus North Carolina



(a.1) Commuting Patterns

The U.S. Census showed that in 1990 there were 7,470 Brunswick County residents who worked outside the County while roughly twice that number, 14,536, both lived and worked in Brunswick County. At the same time, the Census revealed that 4,347 workers commuted into Brunswick County for employment. Thus, while one might normally think of Brunswick County as a bedroom community for the more heavily urbanized New Hanover and Horry Counties, the commuting statistics reveal that many residents of other counties come to Brunswick County for work. The presence of large employers such as Dupont and the CP&L Nuclear Power Plant no doubt contribute substantially to this daily in-migration of workers.

It will be interesting to see how these numbers change with the year 2000 Census. Conceivably, as useable land area in New Hanover and Horry Counties becomes more scarce, and/or expensive, newcomers to southeastern North Carolina may indeed choose to reside in Brunswick County and commute to the urban centers of Wilmington and Myrtle Beach.

(b) Average Weekly Wages

It should be noted that the average weekly wage for manufacturing and transportation, communication, and utilities may appear high to some observers. Such high average weekly wages are not the norm for most industries in the county; rather, they are the result of several industries which employ a large number of workers at significantly higher than average wages for the region and state. (These industries include, but are not limited to: CP&L, Cogentrix and Dupont)

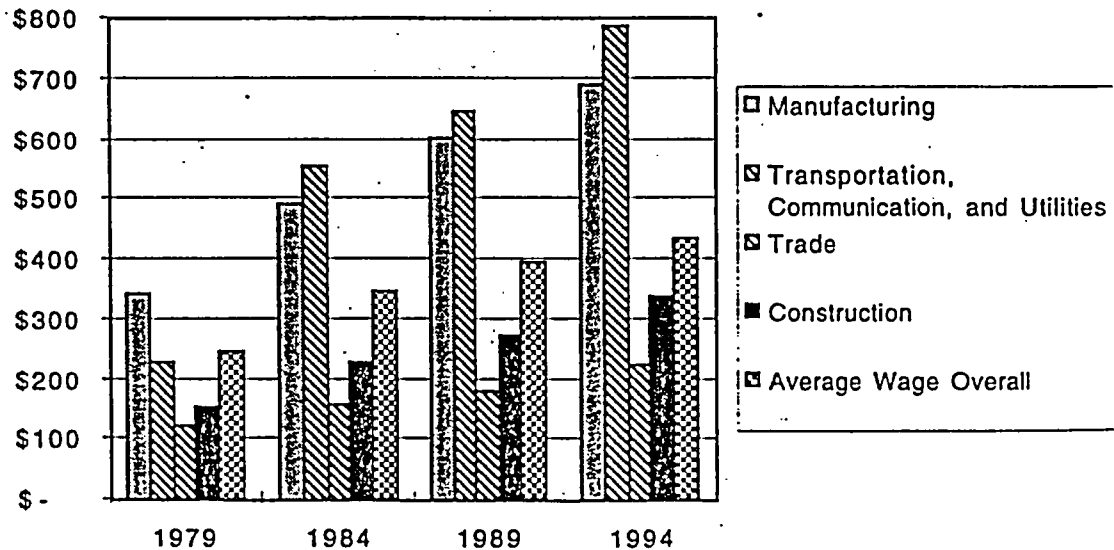
**TABLE 5.1.2 (B) AVERAGE WEEKLY WAGE BY MAJOR EMPLOYMENT CATEGORY
BRUNSWICK COUNTY
1979, 1984, 1989, 1994**

Year	Average Wage Overall	Manufacturing	Transportation, Communication, and Utilities	Trade	Construction
1979	244	341	227	121	154
1984	347	493	552	160	228
1989	394	601	644	179	272
1990	420	612	696	177	309
1994	437	688	785	226	338

Source: NC Employment Security Commission

CHART 5.1.2 (B)

**Average Wages by Major Employment Category
Brunswick County 1979 to 1994**



(c) State-Local Comparisons of Employment by Major Category

A comparison of Brunswick County's employment by major category with that of the state reveals several noteworthy points. First, the dominant influence of the Carolina Power and Light Company Nuclear Plant kept the county's percentage of employment in Transportation, Communication and Utilities quite high for many years. As the County has continued to grow and its employment base has diversified, however, these percentages have become more on a par with that of the state as a whole.

Secondly, the lower percentages of employment in wholesale and retail trade, and services compared to the state of North Carolina, reflects the leakage of purchasing dollars to commercial and service centers in Wilmington, Myrtle Beach and Whiteville. While continued commercial growth in Shallotte and Leland (and elsewhere) may act to reduce this leakage, it may take several years for the full impact to be realized.

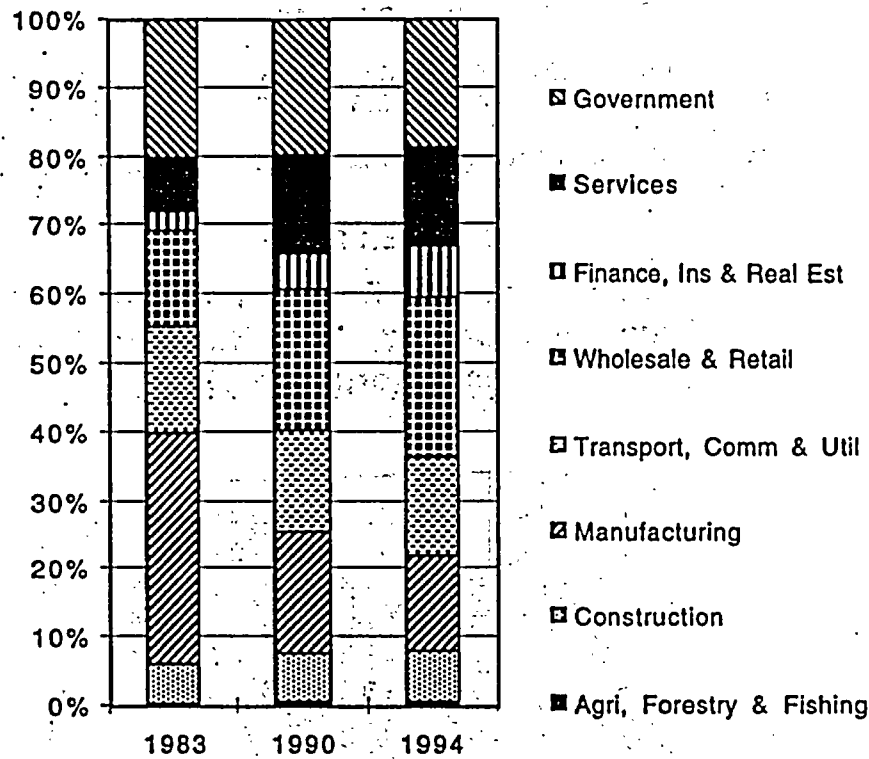
Regarding the elimination of the CP&L plant in particular, some would say that it is not a question of *if* but *when*, since the facility continues to age closer to its scheduled life span.

**TABLE 5.1.2 (C) INSURED EMPLOYMENT BY MAJOR CATEGORY
BRUNSWICK COUNTY AND NORTH CAROLINA
1983, 1990, AND 1994**

Category	1983		1990		1994	
	County 1983	State 1983	County 1990	State 1990	County 1994	State 1994
Agriculture, Forestry & Fishing	0.3	0.7	0.6	1.0	0.6	0.9
Construction	5.9	4.7	7.0	5.3	7.0	7.4
Manufacturing	33.7	33.7	18.0	28.3	18.0	13.8
Transportation, Communications and Utilities	15.5	4.8	14.8	4.9	14.8	14.4
Wholesale & Retail	14.1	21.6	20.3	23.0	20.3	23.3
Finance, Insurance and Real Estate	2.4	4.0	5.3	4.3	5.3	7.1
Services	7.8	13.9	14.1	17.4	14.1	14.5
Government	20.3	16.4	19.8	15.5	19.8	18.5
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: NC Employment Security Commission

CHART 5.1.2 (C)
Employment Trends by Major Sector
1983 to 1994, Brunswick County



(d) Unemployment Rates

Brunswick County has consistently exhibited a higher unemployment rate than both neighboring New Hanover County and the State of North Carolina. Reasons for this on-going difference may include:

- The presence of a disproportionately large "underground economy", (relative to other counties of similar size) which does not lend itself to traditional reporting by state/federal employment and taxing agencies.
- The influx of a large retirement population entering the labor force after arriving in the area.
- The county's fast rate of population growth outpacing the ability of the local economy to provide jobs.
- The apparent myth that because Brunswick County is growing so fast, there must be jobs for the taking. As a result, many people move in with the belief that they'll find a job once they get here.
- Employment opportunities for some segments of the population away from the area during the summer. These same segments then return to the area during the winter months to collect unemployment.

It should also be noted that a large number of jobs in the county are held by residents of New Hanover County. For example, there are a high number of workers at the CP&L Plant in Southport who commute daily from the Wilmington area.

* As used in this report, the term "underground economy" refers to a variety of business activities, both legal and illegal, which involve the exchange of money for goods and services for which no records of the transaction are kept for tax purposes. Activities may include, for example, part-time commercial fishing (legal, except for non-payment of taxes) and the importation and distribution of drugs (illegal).

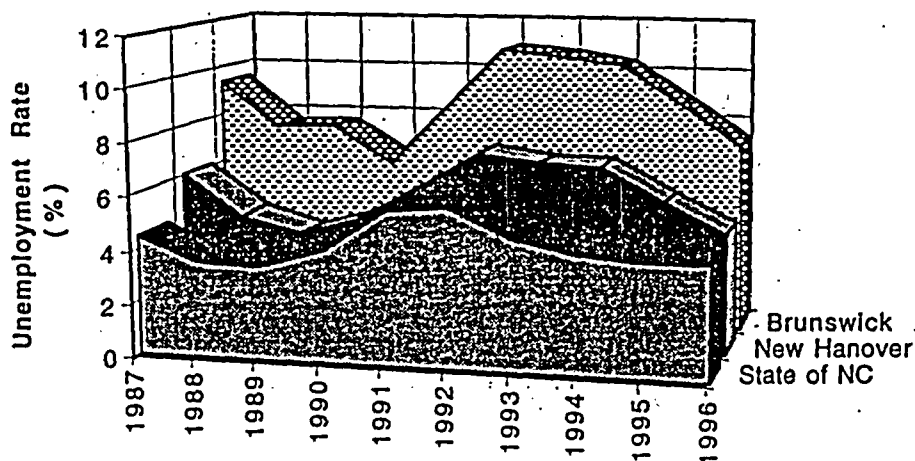
TABLE 5.1.2 (D) UNEMPLOYMENT RATES
Brunswick and New Hanover Counties, and State Averages
1987-1997

Area	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Brunswick	9.4	7.6	7.6	6.2	8.5	10.	10.	10.	8.9	7.3	8.9
New Hanover	6.2	4.6	4.0	4.6	6.0	7.3	7.0	6.9	5.7	4.6	5.7
State of NC	4.5	3.6	3.5	4.2	5.8	6.0	4.9	4.4	4.3	4.3	4.3

Source: NC Employment Security Commission and Glenn Harbeck Associates

CHART 5.1.2 (D)

Unemployment Rates, 1987 to 1996
Brunswick County, New Hanover County
and North Carolina



(e) Per Capita Income

Per capita incomes in Brunswick County have been well below state and national averages for the past several decades. Differences in per capita incomes also may be attributed to several of the factors mentioned above, including especially the underground economy.

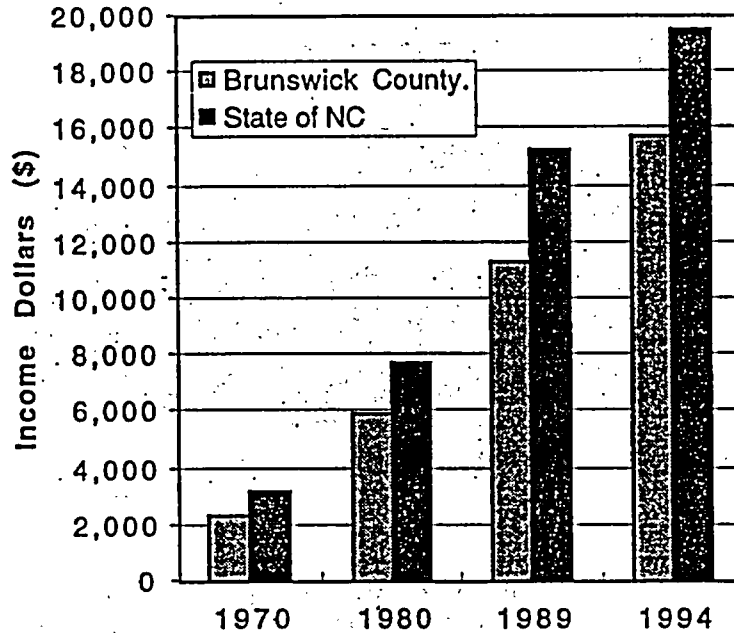
TABLE 5.1.2 (E) PER CAPITA INCOME
Brunswick County and North Carolina
1970, 1980, 1989 and 1994

	1970	1980	1989	1994
Brunswick County.	2,363	5,981	11,303	15,777
State of NC	3,220	7,780	15,287	19,567
County Income as a % of State Income	73.4%	76.9%	73.7%	80.6%

Source: US Dept. of Commerce, Bureau of Economic Analysis

CHART 5.1.2 (E)

**Per Capita Personal Income
Brunswick County and North Carolina
Selected Years, 1970 to 1994**



(f) Agricultural Income and Harvested Cropland

The table following illustrates the continuing decline of agriculture in Brunswick County's overall economy. While the amount of acreage in cropland has fluctuated somewhat from year to year, the overall trend toward declining acreage is quite clear. Even more dramatic is the decrease in total income derived from agriculture. This is especially significant given the increases in the price of agricultural products over the same period of time.

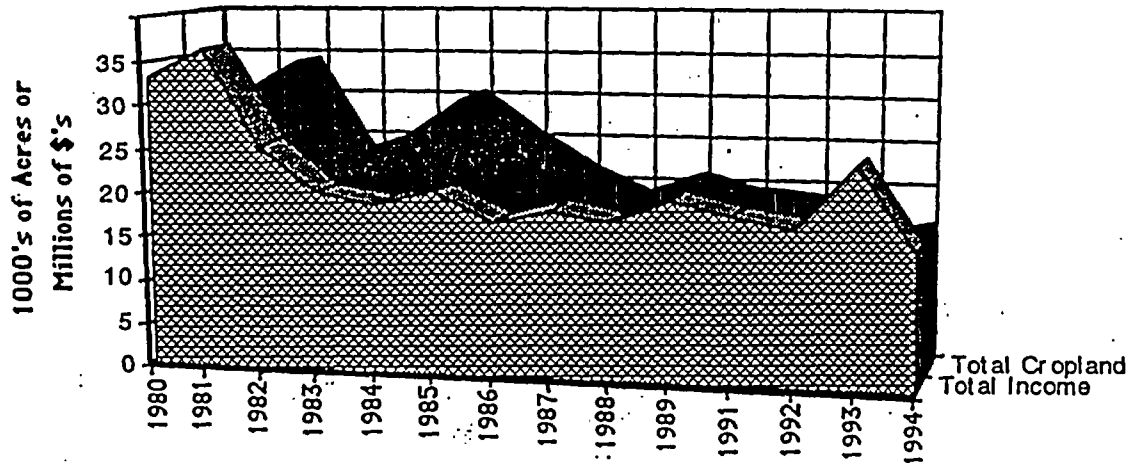
TABLE 5.1.2 (F) AGRICULTURAL INCOME AND HARVESTED CROPLAND
Brunswick County, 1980-1994

YEAR	TOTAL CROPLAND 1000's of Acres	TOTAL INCOME Millions of \$'s
1980	28.5	33.0
1981	30.3	36.3
1982	34.1	25.4
1983	23.4	20.3
1984	25.3	19.0
1985	30.1	20.8
1986	25.8	17.4
1987	21.7	19.0
1988	18.6	17.9
1989	21.1	20.2
1991	19.1	18.8
1992	18.4	17.8
1993	14.5	24.7
1994	16.0	15.3

Source: USDA and Brunswick County Extension Service

CHART 5.1.2 (f)

Cropland and Farm Income, 1980 to 1994 Brunswick County

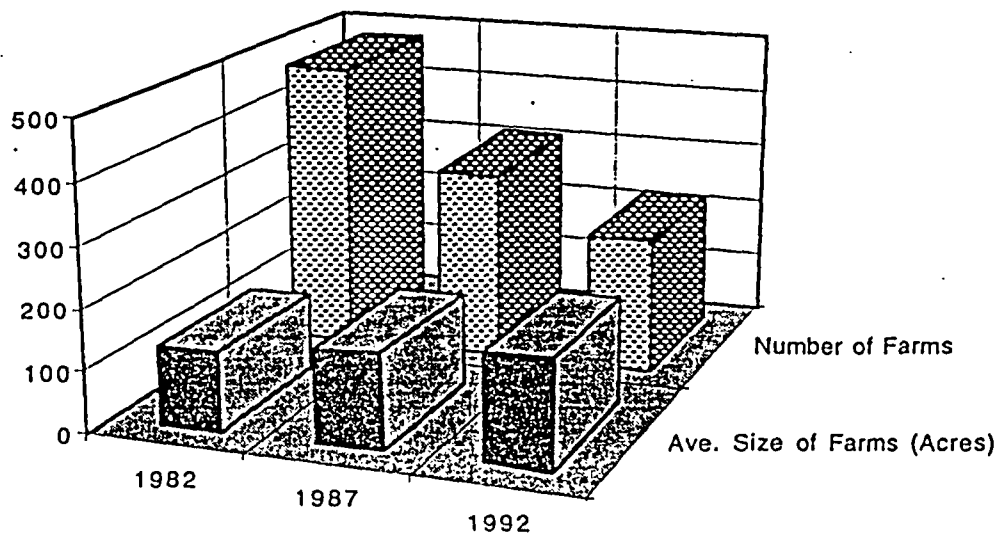


(g) Number and Size of Farms

An overall decrease in the number of farms in Brunswick County is consistent with national trends. This is due in some measure to the consolidation of smaller farms into larger farming operations. Also, in coastal-oriented Brunswick County, there continue to be conversions of former agricultural land into more profitable residential development. In addition, the United States is increasingly becoming an importer of foods and other farm products, such as fibers and wood.

CHART 5.1.2 (g)

Number and Size of Farms, 1982 to 1992 Brunswick County



(h) Seafood Landings— Poundage and Value

Another traditional, resource-based element of Brunswick County's economy is the seafood industry. The table below shows that, compared to agriculture, the seafood industry has generally been holding its own with regard to the total "harvest" and value of catch.

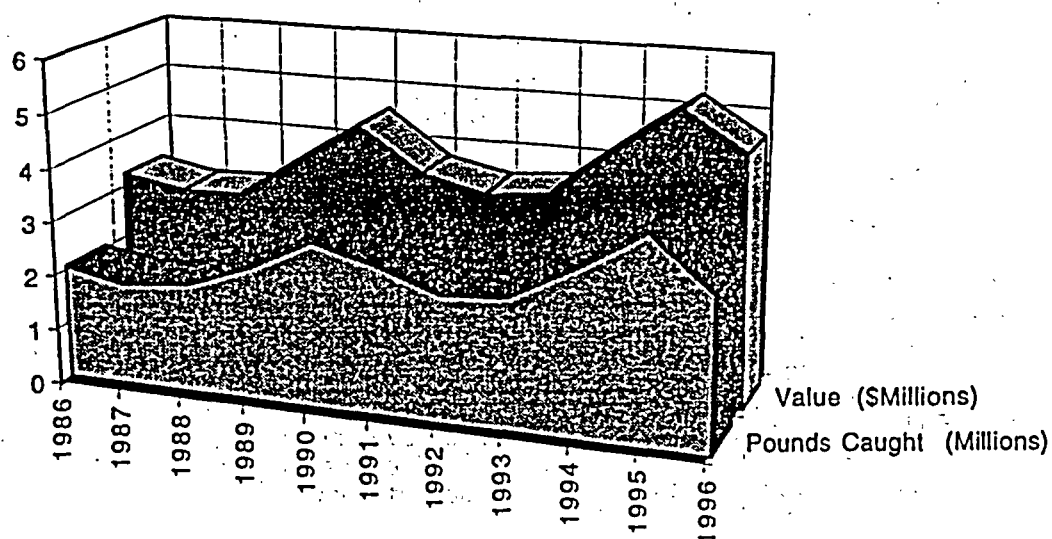
TABLE 5.1.2 (h) SEAFOOD LANDINGS, POUNDAGE AND VALUE
Brunswick County, 1986-1996

Year	Pounds Caught (Millions)	Value (\$Millions)
1996	2.8	4.6
1995	3.7	5.3
1994	3.0	4.5
1993	2.4	3.6
1992	2.3	3.5
1991	2.7	3.8
1990	3.0	4.6
1989	2.4	3.9
1988	2.0	3.1
1987	1.9	3.1
1986	2.1	3.3

Source: Sheryl Phillips, NC Division of Marine Fisheries, Morehead City, NC, September 1997

CHART 5.1.2 (h)

Seafood Landings
Poundage and Value
Brunswick County 1986-1996



5.1.3 Impact of Seasonal Population

Clearly, the impact of a large seasonal population has a profound impact on the county. Community facilities and services must be designed and operated to meet peak seasonal demand, in addition to the demand created by the permanent population. The information presented below is intended to give some indication of the proportion of permanent to seasonal residents over the past two decades.

(a) Population Impacts

The table immediately below compares Census counts of the county's permanent population with estimates of the county's peak seasonal population during the 1980's and 1990's.

TABLE 5.1.3 (A) YEAR ROUND AND SEASONAL POPULATION GROWTH
Brunswick County, 1980-1995

Year	Year Round Population	Peak Season Population (Estimate)	Ratio of Peak Season to Permanent Population
1980	35,777	107,000	3:1
1990	50,985	153,000	3:1
1995	60,500	178,120	3:1

Source: US Censuses, 1980 and 1990, Brunswick County Planning Department and Glenn Harbeck Associates

(b) Housing Impacts

The table below shows the relationship between year round and seasonal housing units during the 1980 to 1990 period. (No comparable information is available for the 1990 to 1995 timeframe) Most significant, perhaps, is that the number of seasonal housing units as a percentage of total housing units declined slightly during the 1980's. This may be a reflection of the number of retirees moving to the county on a permanent basis.

TABLE 5.1.3 (B) YEAR ROUND AND SEASONAL HOUSING GROWTH
Brunswick County, 1980-1990

Year	Total Housing Units	Year Round Housing Units	Seasonal Housing Units	Seasonal % of all housing units
1980	21,565	12,411	9,154	42%
1990	37,114	22,000	15,114	40%

Source: US Censuses, 1980 and 1990

(c) Impacts on Retail Sales

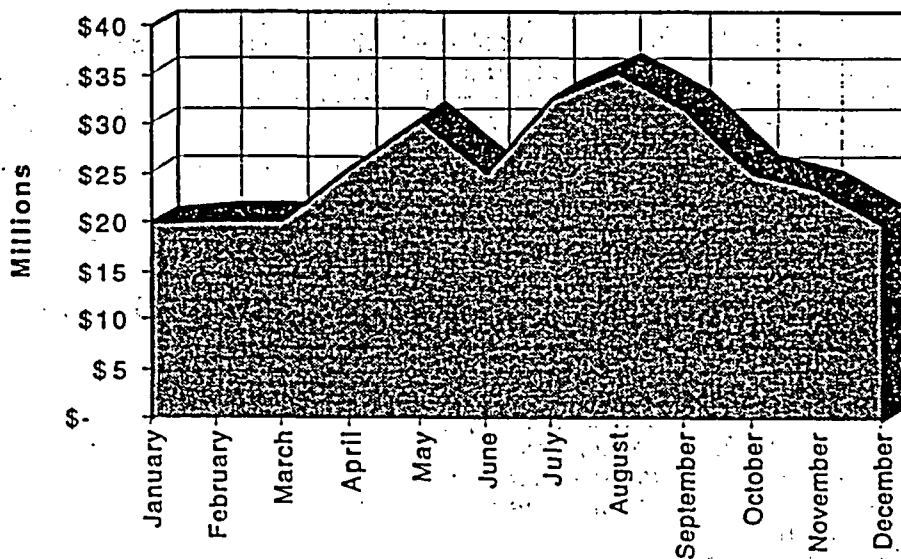
The table on the following page illustrates the highly seasonal nature of the retail economy of Brunswick County. From a seasonal low of approximately \$21 million during the months of December, January, February and March, the retail economy explodes to levels in excess of \$30 million during the peak summer season. Also note that the shoulder seasons have been showing a significant impact on retail sales. Observe that for the late Spring months of April and May, and for the Fall months of September, October, and November, retail sales exceeded 25 million dollars. This may be due to the influence of shoulder season golf packages to the ever growing number of golf courses in the County. It is expected that when future retail figures come out, this trend will be even more pronounced.

TABLE 5.1.3 (C) GROSS RETAIL SALES BY MONTH, 1990

Month	Sales in Millions of Dollars	Millions of \$ Above or Below Monthly Ave
January	\$22.0	\$(1.2)
February	20.5	(2.7)
March	20.5	(2.7)
April	25.9	2.7
May	30.6	7.4
June	25.2	2.0
July	32.7	9.5
August	35.6	12.4
September	31.7	7.5
October	25.3	2.1
November	23.6	.4
December	20.0	3.2
Diff. between Feb. and Aug.	15.1	—
Monthly Ave.	23.2	—

CHART 5.1.3 (C) GROSS RETAIL SALES BY MONTH, 1990

**Gross Retail Sales by Month
Brunswick County 1990**



5.2 Existing Land Use and Water Quality Analysis

5.2.1 Existing Land Uses Mapped

(a) Purpose

An existing land use survey and analysis serves a number of useful functions. The primary function is to provide a "snapshot" of development patterns, and a basis for determining growth trends over time. The survey, in map form, identifies where development has occurred, and what kind of development it is. When conducted at a high level of detail, the survey can also show the relationships between different kinds of land use and whether or not they are compatible.

Up to date information on existing land use is fundamental to the preparation of a land use plan. Not only is the survey helpful in preparing growth and development policies, but it is also useful in identifying, for example, where it may be cost effective to provide public services, such as water and sewer. Accurate information on existing land use can also be helpful in making changes to an existing zoning ordinance, or in providing new zoning where there was none before. Because Brunswick County is presently in the process of refining its first zoning ordinance for the unincorporated area, information on existing land use is particularly important at this time.

Data provided by the survey is also useful to both the public and private sectors in considering specific development proposals. For the public sector, the land use survey can assist in siting a school or a park, while in the private sector, the information might be helpful in locating sites for future shopping centers or residential developments.

(b) Methodology

Since 1985, the Brunswick County Planning Department has conducted a number of surveys of existing land use in Brunswick County. Periodically, information on existing land use in all of the municipalities in the County has also been collected. Municipal level land use information, however, is not included on the existing land use map found in the back of this plan. For such information, the reader is directed to the individual land use plans of each of these municipalities. The existing land use data that is presented in this report is based largely upon the working knowledge of the staff of the County's Planning Department, and upon subdivision plats and commercial site plans as submitted.

5.2.2 Analysis by Geographic Areas of General Recognition

Due to the relatively large size of Brunswick County (approximately 855 sq. miles) this land use analysis divides Brunswick County into seven geographic sub-areas:

Shallotte to the State Line
Shallotte River to Lockwood Folly
The Southport Oak Island Area
The Belville-Leland-Navassa Area
Town Creek/Winnabow/Mill Creek
Ash/Waccamaw
Supply/Sunset Harbor

These seven areas were selected due to their regional significance within the county, as well as their general level of name recognition by county residents.

Area 1 Shallotte to the State Line

This area is the fastest growing part of Brunswick County. The area has continued to experience the spillover effects from continued rapid growth in the Grand Strand/Myrtle Beach area of South

Carolina during the 1980's and 90's. Before the 1980's, most development in this part of the county was either at the beaches, or immediately adjacent to the Intracoastal Waterway opposite the beach areas. During the past decade, however, this area has witnessed the introduction of numerous large scale golf course communities, which have collectively consumed a great deal of land.* (A typical golf-course oriented development might range from 500 to 1250 acres, of which no less than about 150 acres is taken up by the golf course. The average gross density in such developments is usually quite low, on the order of 1.5 to 2 housing units per acre.) Accompanying this increase in large scale development has been a variety of convenience and specialty shopping as well as the introduction of mainstream commercial shopping and services. Examples of this include the Food Lion grocery store and Revco drug store at Seaside (within the Town of Sunset Beach), and the South Brunswick Branch of the Postal Service at Seaside.

In recent years, the Town of Shallotte has continued to strengthen its position as a regional sub-nuclei of economic activity for this end of the county. Commercial services and office developments have clustered in the Shallotte area. Demand for office developments stems from the growing employment ranks of realtors, medical personnel, attorneys, and insurance agents in the Shallotte area. This general resurgence in the Shallotte area has included developments such as Huddle House, Shallotte Business Park, Comfort Inn, Wendy's, and Naber Commercial Park, and has been supported in no small way by the expansion of the Town's sewer system. Finally, there has been a continuation of the long standing strip commercial development along NC 179 across from Ocean Isle Beach.

*Beyond the Shallotte/State Line area, several large scale PUD's have been approved in various parts of Brunswick County. In the last five years, these existing large scale PUD'S have included: Brick Landing, Brunswick Plantation, St. James Plantation, Lockwood Folly, Meadow Lands, Sandpiper Bay.

Area 2 Shallotte River to Lockwood Folly River

In recent years, this centrally located, coastal oriented area has been the second fastest growing section of Brunswick County. Similar to the Shallotte to State Line area, growth was initially concentrated, for the most part, at Holden Beach and along the Intracoastal Waterway immediately opposite the beach. Unlike Area 1, however, this area has historically been developed with very small (e.g. 50') lots and less expensive houses and manufactured homes. And, unlike the mixture of year round and seasonal homes of Area 1, this area has a heavy predominance of vacation and weekend homes. In recent years, Lockwood Folly Golf Links has absorbed a significant number of new housing units in this area.

Scattered commercial development can be found at various locations in the area. A significant concentration of commercial development is at Supply, an unincorporated village located at the intersection of US 17 and NC 211. There is also a strip of commercial development dispersed along NC 130 immediately across from Holden Beach. For more substantial shopping needs, commercial services and retail outlets in the Town of Shallotte also draw from this area.

Significant boat building operations can be found in the Varnamtown area along the west shore of the Lockwood Folly River.

Area 3 Southport/Oak Island

This area has perhaps the most diverse collection of land uses of anywhere in the county. The area includes several major industrial uses, including the Carolina Power and Light Nuclear Power Plant, Archer, Daniels, Midland, and the Cogentrix Cogenerating Facility. In addition, the Sunny Point Ocean Military Terminal consumes a large amount of acreage along the Cape Fear River.

Residential development ranges from permanent housing concentrated in the City of Southport and the Town of Long Beach, to more seasonal housing at Caswell Beach. To the interior of the area lies the sparsely developed City of Boiling Spring Lakes, with some 2,000 people living within this 17,000 acre planned community. Also, St. James Plantation, which opened in the fall of 1991, is reported to be one of the fastest growing planned unit developments in the nation.

In recent years, the amount of commercial services has increased significantly at Long Beach. In addition, a moderate amount of commercial development is located within the City of Southport and its extraterritorial jurisdiction (ETJ). Many of these are "mom and pop" type small businesses.

A planned sewer system by the Southeast Brunswick Sanitary District west of Southport and to the mainland side of Yaupon Beach will likely stimulate development in that area. The planned construction of an additional bridge to Oak Island toward the west central end of the beach is another infrastructure improvement which, if built, will radically alter development patterns in this part of the county. Prospects for the bridge currently look very favorable.

Finally, Long Beach Road (NC 133) from its intersection with NC 211 to the Oak Island bridge continues to present problems regarding commercial strip development and multiple driveway accesses onto this roadway. This problem is most pronounced during peak summer periods, when demand for travel to the beach is at its highest.

Area 4 The Belville-Leland-Navassa Area

The Belville-Leland-Navassa Area encompasses the three named municipalities as well as significant development and land outside these communities. In some respects, this area serves as a bedroom community for New Hanover County just across the river. In other respects, the presence of the Dupont manufacturing plant on the Brunswick County side of the river draws large numbers of employees from the Wilmington area.

Recent developments in this area include the approval of Magnolia Greens, a 1,200 lot residential-golf course development located between Lanvale Rd and the Lincoln Industrial Park (in Leland), as well as about 300 residential lots just north of Olde Towne Subdivision (in Belville). A new elementary school, Belville Elementary, has also recently been built on NC 133 in Belville. It appears that sewer will be expanded into many parts of the area in the next five years. If this happens urban growth will likely continue. The planned US 17 Wilmington Bypass will likely have an impact on the area beyond the five year planning period.

Other factors significantly affecting this area include the possibility of a sewer system serving the Leland Sanitary District and further progress on a sewage treatment plant for the Town of Belville. Area transportation planners also continue to consider the "outer loop" as part of the Greater Wilmington Area Transportation Plan. If constructed, this major new roadway would pass above (and thus bypass) this part of Brunswick County, accommodating significant traffic flows around Wilmington as a new US 17.

Area 5 Town Creek/Winnabow/Mill Creek

This is essentially an ex-urban, interior part of Brunswick County, split by US. 17. The area draws its development strength from its reasonable proximity to the employment base of New Hanover County. The area has the advantages of low taxes, open country and some beautiful, undulating terrain—atypical of the broad, flat, pine-covered coastal plain of southeastern North Carolina. Most development in this area appears to be springing up in the form of subdivisions either with direct access to US 17 or within a short distance of the US 17 corridor. A new nine-hole commercial golf course, Green Hill, recently opened in the Winnabow area. While there has traditionally been very little industrial, office or retail development in this part of the county, a new industrial building opened in the Fall of 1997 on U.S. 17 across from Town Creek Park. Residents who live in this area typically travel to New Hanover County, Shallotte, or Myrtle Beach for their shopping needs.

Area 6 Ash/Waccamaw Area

This rural part of Brunswick County has experienced the slowest growth rate of any area of the county for the past several decades. It is largely a resource-based area, meaning that it depends largely on farming and timber related activities for its economic sustenance. Population levels and development densities in this part of the county tend to be very low. As a result, relatively little

activity is seen in this area. New subdivisions established in this area tend to be quite small, and with few public or private improvements and little, if any, amenities.

Area 7 Supply/Sunset Harbor

This area, which includes the area surrounding the NC 211 and US 17 intersection and the eastern side of the Lockwood Folly River, has experienced significant growth in recent years and will likely continue to grow in the foreseeable future. As a result of the development of the large planned residential community (Winding River Plantation) and the approval of subdivisions along Sunset Harbor Road, this area is likely to see significant growth during the planning period.

In addition, there is considerable interest in commercial development near the US 17/NC 211 intersection. This area potentially could develop into a significant commercial/retail center in the next few years.

5.2.3 Land Use Analysis by Watershed Areas

In addition to analyzing land use by geographic areas of general recognition, this plan also examines land usage by significant watershed areas in the County. In this manner, the analysis may serve to increase awareness about the relationship between land use and water quality in Brunswick County.

In the analysis which follows, the following terminology is employed:

For freshwater bodies:

Fully Supporting— for any one pollutant, criteria exceeded in less than or equal to 10% of measurements taken

Partially Supporting— for any one pollutant, criteria exceeded in 11 to 25% of measurements taken

Non Supporting— for any one pollutant, criteria exceeded in less than or equal to 10% of measurements taken

For estuarine water bodies:

SA Waters—generally suitable for shellfish harvesting and primary recreation involving swimming on a frequent or organized basis.

SB Waters—suitable for primary recreation involving swimming on a frequent or organized basis, but not for shellfish harvesting.

SC Waters—suitable for aquatic life propagation and secondary recreation including recreational fishing, boating, and water related activities involving minimal skin contact.

Each major watershed will now be discussed in turn.

Waccamaw River Watershed

For the purposes of this analysis, this large watershed includes several smaller watersheds stretching across the entire length of the northwest side of the Brunswick County. Beginning in the southwest corner near Calabash and moving to the northeast, these smaller watersheds include Calabash Creek, Caw Caw Swamp, the Waccamaw River sub-watershed, Possum Branch, and Juniper Creek. Of the five smaller watersheds, only Calabash Creek and the Caw Caw has any appreciable urban level development— primarily related to the rapidly growing area around Calabash. The balance of the Waccamaw River watershed is largely rural in character, with farming and forestry the predominant land uses. Unincorporated localities within the watershed include Hickman's Crossroads, Thomasboro Crossroads, Longwood, the Waccamaw/Ash area, Freeland, and Exum.

Calabash Creek is the only sub watershed in the area which involves estuarine waters. While it is classified as an SA water, it is nonetheless closed to shellfishing. The remaining sub-watersheds area do not drain directly into any estuarine waters, so direct impacts on the estuary cannot be characterized. Mapped information provided by the NC Division of Coastal Management indicates that nearly all of the Waccamaw River along the length of the County is classified as a Partially Supporting Stream. While some sources of pollutants are clearly from locations north of Brunswick County, one stream in the Waccamaw/Ash area is designated as a Non-Supporting Stream.

Shallotte River Watershed

For the purposes of this analysis, this smaller watershed includes Saucepan Creek, the Shallotte River and the Intracoastal Waterway. The Town of Shallotte and its rapidly developing environs is the predominate urban feature located in the midst of the drainage basin. Like most creeks along the estuarine coast of the County, the Shallotte River is classified as an SA water but is closed to shellfishing in its upper reaches closest to Shallotte.

Lockwood Folly River Watershed

For the purposes of this analysis, this smaller watershed includes the Royal Oak Swamp, the Lockwood Folly River and the Intracoastal Waterway. While Varnumtown is the only incorporated municipality in the area, other localities within the watershed include Supply and Bolivia. As noted in the discussion of land use above, this area is seeing an influx of much new residential development as well as commercial development in the Supply area. Like the Shallotte River, the Lockwood Folly River is classified as an SA water but is closed to shellfishing over all but the lower reaches of the River closest to the intracoastal waterway.

Cape Fear River Watershed

For the purposes of this analysis, this large watershed includes several smaller watersheds stretching along the length of the Cape Fear on the east side of Brunswick County. Beginning to the north and proceeding south along the River, these smaller watersheds include Hood Creek, Barnards Creek, Town Creek, and the Cape Fear River sub-watershed. Of the four smaller watersheds, Hood Creek and Town Creek are largely of rural character but with significant pockets of residential development. The Hood Creek watershed includes the municipalities of Northwest and Sandy Creek, while the Town Creek basin includes the crossroads communities of Bishop and Winnabow.

The Barnards Creek watershed, on the other hand encompasses the highly urbanized, and in some cases, industrialized areas in and around Leland and Belville. Lastly, the Cape Fear River sub-watershed is easily the most highly urbanized and industrialized area of Brunswick County. In addition to the municipalities of Southport, Boiling Spring Lakes, and Bald Head Island, the area also includes the Carolina Power and Light Nuclear Power Plant, Archer, Daniels, Midland, the Cogentrix Cogenerating Facility, and the Sunny Point Ocean Military Terminal.

Regarding water quality, the Cape Fear River is classified primarily SA at the lower end where the tidal flushing action of the ocean is strongest, and SC for the balance of the river to a point north of Leland Belville. There is also a relatively small area of SC waters immediately adjacent to the Southport waterfront. Shellfishing is not permitted near the industrial area north of Southport, but is otherwise permitted in the river's lower reaches.

Note: For a summary of land use issues and trends facing the County, the reader is directed to Section 1.1 of the Executive Summary of this plan.

5.3 Current Plans, Policies And Regulations

As a means of coordinating the various planning activities of Federal, State and Local governments in Brunswick County, a summary of important plans, policies and regulations is included in this section. The capability of the County to enforce its various regulatory functions is described in the paragraphs immediately following.

Brunswick County Building Inspections Office (BIO)

The County Building Inspections Office is a full service inspections department with four certified building inspectors, two electrical inspectors and two clerical assistants.

Brunswick County's Central Permitting Office (CPO)

Several years ago, Brunswick County brought together many of its permitting functions into one central location. This was done to improve service and convenience to the public as well as to improve coordination among the various permitting functions of the County. As a result, the application and permit issuance process for several regulatory functions is handled in the CPO: general building permits, electrical permits, plumbing permits, mechanical permits, environmental health permits for septic tanks (from the Health Department), floodplain regulation verifications, and zoning permits.

Note: In addition to handling building inspections in the unincorporated area, the Inspections Office also has agreements with several towns in the county to provide inspections services. At the time of this writing, the County was handling inspections for the following municipalities: Leland, Navassa, Belville, Northwest, Varnumtown, Sandy Creek, and Bolivia. Agreements with other towns were pending. The reader is advised to check with the County Inspections Office for a current list of municipalities for which the County has responsibility.

Brunswick County Planning Department

The Planning Department serves as the administrative office for several regulatory functions including zoning, subdivision regulations, and CAMA Minor Permits. Zoning enforcement actions are generally initiated in one of two ways— either the zoning administrator observes a violation directly or a possible violation is brought to the administrator's attention through a citizen complaint. In either case, the possible violation is investigated and correspondence is sent to the property owner advising of the action needed to correct the problem. The Department also administers the County subdivision ordinance through the review of subdivision plats, and the zoning ordinance through zoning amendments and review of requested zoning changes. The local CAMA Permit Officer is also located in the Planning Department.

5.3.1 Selected Local Government Plans, Policies, and Regulations

1976 Brunswick County Land Use Plan

This was the first county-wide land use plan prepared under the guidelines of the Coastal Area Management Act (CAMA). The plan established the initial land classification system for the county, as well as a series of growth policies and implementation actions.

1981, 1987 and 1992 Brunswick County Land Use Plan Updates

These five-year updates to the original 1976 plan offered refinements to the growth policies and established a more systematic basis for decision making by both local government and the private sector. The 1992 Plan included a new, freestanding section on implementation actions, allowing County officials the ability to better track progress on intended programs and actions.

Brunswick County Thoroughfare Plan

In March of 1988, a Thoroughfare Plan for Brunswick County was adopted by the NC. Board of Transportation following local adoption by the County and its municipalities. This was a cooperative effort involving staff of the Thoroughfare Planning Unit, Planning and Research Branch, Division of Highways, NC Department of Transportation, and a County-wide Thoroughfare Plan Coordinating Committee, made up of representatives of numerous local

governments and Chambers of Commerce in Brunswick County. A new transportation plan is currently being developed, and is scheduled for completion before the end of 1998.

1990 Water System Distribution Master Plan

In September of 1990, work was completed on a new Water Distribution System Master Plan. Prepared for Brunswick County by the engineering firm of William G. Daniel and Associates, the report was based on the 1987 Land Use Plan and projections made jointly by the Planning Board and Utility Operations Board for a twenty year period. The report analyzed the current distribution system, projected future water consumption, and recommended improvements to the system for action by 1991, 1995 and 2010. Due to the continuing rapid growth of the County since 1990, the plan is now out of date in many respects.

Subdivision Regulations

Brunswick County has had a subdivision ordinance in place since 1974; it was subsequently updated in June of 1980. In 1992, a new subdivision ordinance became effective, after a long, protracted process of review and approval. The 1992 ordinance included several substantial improvements. For the first time, paved roads were required in major subdivisions—according to North Carolina Department of Transportation standards. The ordinance also called for more involvement by the County planning staff in the review process and an earlier examination of subdivisions at the sketch plan stage. Currently, the 1992 ordinance is undergoing a much needed update.

Zoning

Brunswick County had no zoning for the unincorporated area until fairly recently. In November of 1991, the zoning issue was put before the voters of Brunswick County in a non-binding referendum. The motion in favor of instituting zoning passed by a margin of 2-1 at the voting booth. As a result of this and other factors, the Brunswick County Commissioners gave a directive to the County's planning department to present a proposed zoning ordinance by June of 1992. The new ordinance and zoning maps were adopted in the fall of 1993 and went into effect on January 1, 1994. The ordinance categorized over 70,000 parcels of land into one of six zoning districts. It should be noted the need for planning and growth management, including zoning, was generally supported at the public workshops held during the early stages of the land use plan process.

Airport Zoning

There are two publicly owned general aviation airports in the county: the Brunswick County Airport and the Ocean Isle Beach Airport. To protect the utility of each airport and to ensure public safety concerning land uses around each facility, the County enacted an Airport Zoning Ordinance in the early 1980s. The ordinance is enforced through the joint actions of each airport's management and the County's Building Inspections Division.

State Building Code Enforcement

In 1985, County instituted a full program of administration and enforcement of all volumes of the state building code. This function was initially charged to the County Planning Department. In October 1987, a separate Building Inspections Department was created.

Federal Flood Insurance Program

Also in 1985, the County began administration of the Federal Flood Insurance Program regulations. Enforcement began the following year, following receipt of an acceptable set of Flood Insurance Rate Maps from the Federal Emergency Management Agency. Under the program, if the structure is located in a flood prone area, certification of the structure's ground floor elevation, along with appropriate flood protection measures are required.

Waste Water Treatment Regulation

The Environmental Health section of the County Health Department administers and enforces state law regarding septic tank systems with a treatment capacity of up to 3,000 gallons per day. Treatment systems with capacities in excess of 3,000 gallons per day are handled by the State. The Division of Water Quality in the North Carolina Department of Environment and Natural

Resources exercises authority over other waste water treatment disposal systems (i.e. spray irrigation, NPDES discharges).

5.3.2 Selected Federal and State Licenses and Permits

In addition to the local plans, policies, and regulations identified above, there are a number of other regulatory programs administered at the Federal and State level which also exercise control over certain types of development activities. The following is a selected list of a few of these regulatory programs and permits. For a more complete listing, and description of the specific activities controlled and permitting requirements, the reader is directed to the publication entitled *NC Environmental Permit Directory*, (most current edition) by the NC Department of Environment and Natural Resources.

For each item following, the regulatory program or permit is first identified by its official name, the responsible agency name is then given, followed by a brief description of the activities controlled.

CAMA MAJOR DEVELOPMENT PERMIT

NC Division of Coastal Management

The Coastal Area Management Act (CAMA) stipulates that State issued permits are required for all development or land disturbing activities within designated Areas of Environmental Concern (AEC's) throughout the 20-county coastal area. Areas of Environmental Concern include marshlands, tidelands, shoreline and waters of the estuarine system; beaches, dunes, and inlets of the ocean hazard area; public fresh water supply areas; and fragile natural and cultural resource areas. Development other than major, termed "minor development", requires a permit from the local government for work in an AEC.

COASTAL AREA MANAGEMENT ACT (CAMA) MINOR DEVELOPMENT PERMIT—

administered by Brunswick County under authority granted by the Coastal Area Management Act and standards adopted by the Coastal Resources Commission. Single family, oceanfront houses usually require a CAMA minor permit. Other examples of development requiring a minor CAMA permit would be single family houses along the shores of sounds and rivers, small private and commercial structures, and minor high ground grading or filling.

STATE DREDGE AND FILL PERMIT

Division of Coastal Management

Any project involving excavation and /or filling activities in estuarine waters, tidelands, marshlands, or state-owned lakes requires a permit.

WELL CONSTRUCTION PERMIT

Division of Environmental Management Ground Water Section

Required for any person constructing a well with a design capacity of 100,000 gallons per day or greater, or of any well added to an existing well system if the combined system is 100,000 gallons per day or greater. It should be noted that Brunswick County has no ordinance governing private wells.

MINING PERMIT

Division of Land Resources, Land Quality Section

A mining permit is required for any land disturbing activity that affects one or more acres of land and is conducted to accomplish one or more of the following: breaking surface soil to extract or remove minerals, ores, or other solid matter; any activity or process to remove or to extract, minerals, ores, soils, and other solid matter from its original location; or the preparation, washing, cleaning or other treatment of such materials so as to make them suitable for commercial, industrial, or construction use.)

SEDIMENTATION CONTROL PLAN

Division of Land Resources, Land Quality Section

An approved erosion and sedimentation control plan is required for any land disturbing activity which uncovers one or more contiguous acres of land. In Brunswick County, written approval of any such sedimentation control plan must be verified before any local building permit may be issued.

STORMWATER CERTIFICATION

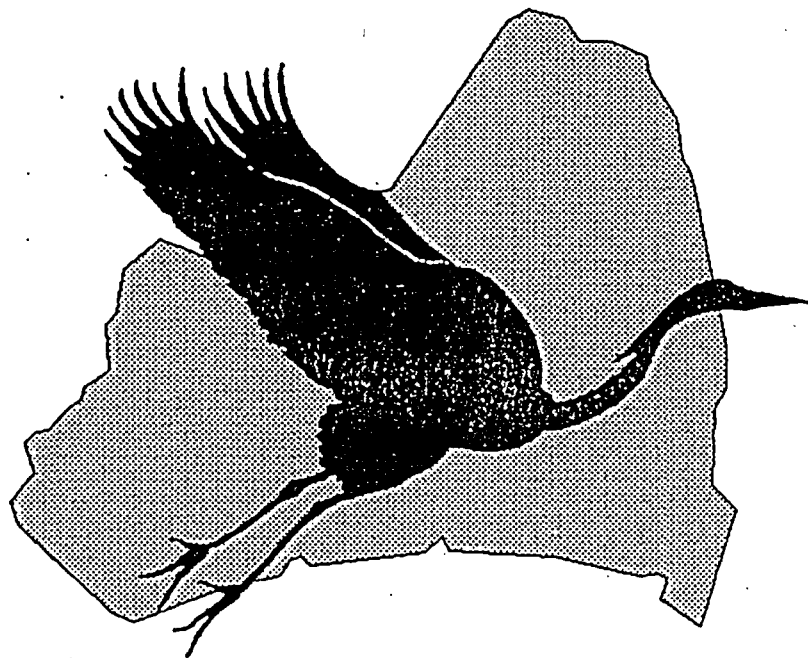
Division of Water Quality, Department of Environment and Natural Resources

Storm water certification is required for all development in the 20 coastal counties that involves land disturbing activities on more than one acre of land and requiring a CAMA major permit or a sedimentation/erosion control plan.

DREDGING AND FILLING ACTIVITY IN "404" WETLANDS

The Army Corps of Engineers

These are permits required under Section 404 of the Federal Water Pollution Control Act of 1972 with rules as promulgated by the U.S. Army Corps of Engineers. Projects typically involve some form of modification to existing wetland areas known as "404" wetlands, and may require mitigation. Mitigation of wetland losses may involve, for example, the creation or permanent preservation of new wetland areas as a trade off for existing wetland areas which are lost.



6. Constraints

6. Constraints

6.1 Land Suitability

The State CAMA guidelines require that three factors be considered in land use plans regarding land suitability constraints. The factors are: (1) physical limitations for development, (2) fragile areas, and (3) areas with resource potential. While much of the information contained in this section is unchanged from the 1992 Land Use Plan, it has been updated where appropriate. This is especially true in the area of mapping, where improved geographic data has been made available for floodprone areas and for wetland areas.

6.1.1 PHYSICAL LIMITATIONS FOR DEVELOPMENT

Physical limitations for development involve areas where development would be costly or cause undesirable consequences. Included are hazard areas, areas with soil limitations, water supply sources, and areas where the slope exceeds 12%.

(a) Major Hazard Areas

In Brunswick County, major hazard areas are of both natural and man-made origin.

Natural Hazard Areas

Natural hazard areas are generally areas of shallow flooding as well as areas which are subject to wave velocity. The Federal Emergency Management Agency (FEMA) has designated flood hazard areas in Brunswick County. Since the last Land Use Plan Update, this information has been entered into the County's Geographic Information System (GIS), with the result being a much improved depiction of the likely extent of flooding during a 100 year storm event. As such, the information is acceptable for general planning purposes. This information should not be relied upon, however, for detailed site planning. Rather, if a specific parcel of land is in doubt as to its location with regard to a flood hazard area, a ground elevation certification from a registered land surveyor shall supersede any information discernible from a general planning map.

Man-Made Hazard Areas

In the Southport-Oak Island area there are several manmade hazards including: the Carolina Power and Light nuclear facility, the Sunny Point Ocean Terminal and its associated railroad corridor, and the Archer Daniels Midland Chemical facility. In the northeast area of the county is the Dupont Chemical facility. The three general purpose airstrips within the County could also be potentially hazardous in the event of a crash.

Many of the above-described natural and manmade hazard areas are identified on the composite Hazardous Areas Map. Airstrip locations are also shown on the Community Facilities Map. These land uses are of significant economic benefit to Brunswick County and to all of southeastern North Carolina; even so, land uses locating near these facilities need to be sensitive to potential associated hazards.

Inadequate and unsafe road conditions generated considerable public comment in both the 1987 and 1992 Land Use Plans, as well as during the most recent round of public input meetings. As roads throughout the County are gradually corrected for their design and safety deficiencies, it is hoped that increases in traffic accidents due to increased population growth and traffic congestion can be minimized.

(b) Areas With Soil Limitations

Soil limitations are characterized by poor drainage, foundation hazards, and septic tank unsuitability. Distinctions can be made between areas which are characterized as generally unsuitable, but within which small pockets of favorable soils do exist, as well as areas where serious limitations are common to most of the soils present.

The U.S. Department of Agriculture and the Soil Conservation Service completed a detailed soil survey of Brunswick County several years ago. This soil survey is useful in providing easily accessible, relatively detailed information on soils in the county. Unlike development patterns, soil types are not subject to change, except over considerable periods of time.

Basic rating categories of soil associations found in Brunswick County are defined as follows:

- Slight:** Soil properties are generally favorable for the stated uses, or limitations are minor and can be easily overcome.
- Moderate:** Some soil properties are unfavorable for development but limitations can be overcome or modified by special planning, good design, and careful management.
- Severe:** Soil properties are unfavorable and resulting limitations are too difficult to correct or overcome. Soil will require major soil reclamation or special design for stated uses. This rating, however, does not imply that the soil cannot be used.

For more detailed descriptions of specific soil types in Brunswick County, including their suitability for septic tanks, roads, and building development, the reader is directed to the Brunswick County Soil Survey, available from the US Soil Conservation Service.

In recent years, the County has come under criticism from some property owners for the manner and speed with which decisions concerning site evaluations for septic tank suitability have been handled. Regardless of whether such criticism is deserved or owing to the tremendous growth in a county permeated with wet soils, the County has taken steps to increase its staffing capabilities in this important area. More on this subject is presented in the paragraphs following.

Causes of Septic Tank Failure

One of the most common causes of septic tank failures in Brunswick County is the installation of septic tank systems in soils which have seasonally high water tables.

Another cause of failure is from the presence of an impervious soil layer which can become saturated following rainfall and retard the vertical movement of water. These layers may be hardpans, clays, sandpans, or organic soil horizons. In Brunswick County, these impervious layers are scattered in haphazard fashion and it is difficult to predict their spatial arrangement. Organic soil horizons are a particularly difficult soil structure to pinpoint because of uneven organic decomposition. As soil types, sub-soil types, and such factors as ground water tables vary, different sized lots or different dimensions of lots are necessary to address particular situations.

A third cause of failures are those numerous instances where septic tanks and their filter fields have, over the years, been permitted for developments on inadequately sized lots (taking into consideration both total square footage and the outside dimensions of such lots). This situation may be compounded by poor maintenance (i.e. cleaning) of tanks and occupancy which exceeds septic system design (such as rental property, both residential and resort).

Prior to the NC Ground Absorption and Sewage Treatment Act of 1981 and resulting Administrative Law, many very small lots were platted in the county. That process changed materially following the 1981 law. The County's new zoning ordinance now specifies minimum lot acreages based on the availability of piped water and/or sewer service.

A septic tank suitability map, prepared under the auspices of the State Division of Coastal Management, is available for inspection at the Brunswick County Planning Department. The map indicates, on its face, that there are few areas sustainable for septic tank use in Brunswick County. Nonetheless, even the producers of the map agree that a regional analysis of soils for septic tank suitability must be very broad brush in nature; soils may be modified through site engineering, improved drainage, etc., thereby dramatically altering their suitability for use. Even so, such a map is instructive in helping to understand the extent of the septic tank problem in a low lying coastal county like Brunswick.

(c) Potable Water Supply

The County is a major provider of potable water, with an expanding piped water supply system serving both unincorporated and incorporated areas. Details of this piped water supply system are further outlined in Section 6.2.1 of this Plan. The piped water supply system is fed by a combination of treated surface and ground water.

Even so, the majority of Brunswick County residents continue to rely on non-regulated, individual groundwater wells as a major source of potable water. Among problems associated with wells in low lying coastal areas are salt water intrusion, brackish water in heavy use areas, reliance upon septic tanks on the same small lots with individual wells, and competition for such ground water among industrial, agricultural, and residential users.

Some engineering studies have predicted that as demand on groundwater resources continues to grow, salt water infiltration of groundwater is most likely in the area from the ocean to U.S. 17, and along the Cape Fear River north to the general area of the Dupont Plant. Since the time of the last land use plan update in 1992, Brunswick County officials have indicated their strong concerns about the potential impacts of a major mining operation proposed in the southeastern part of the County. Included among the impacts are concerns that the particular type of mining proposed would require significant draw downs of the water table, thereby jeopardizing the quantity and quality of groundwater for other users in the County.

(d) Areas Which Exceed 12% Slope

There are no known substantial areas in the unincorporated area of Brunswick County with slopes as extreme as 12%, excepting small ravines and banks associated with drainage courses.

(e) Shoreline Areas With High Erosion Potential

The only ocean erodible area under County jurisdiction is the area of the Baptist Assembly Grounds. That particular area has experienced historical and unusual accretion rather than erosion of ocean front lands. It should also be noted that there is a seawall at this location.

(f) Small Watersheds Draining Into Special Waters

An examination of Water Quality and Watershed Mapping provided by the State Division of Coastal Management for Brunswick County indicates the following about several of the County's better known watersheds draining into special waters:

Table 6.1.1 (f) Small Watersheds Draining Into Special Waters

Watershed	High Quality Stream?	Primary Nursery Area?	SA Waters?	Open to Shellfishing?
Shalotte River	Yes	Yes	Yes	Lower reaches
Saucepan Creek	Yes	Yes	Yes	No
Lockwood Folly River	Yes	Yes	Yes	Lower reaches
Creek, just west of Southport	Yes	Yes	Yes	Yes
Creek, 3 miles north of Southport	Yes	Yes	Yes	No
Town Creek	No	No	No	NA
Intracoastal Waterway, Near SC State Line	NA	Yes	Yes	No
General area of Bald Head Island	NA	Yes	Yes	Mostly open

The maps reveal that, for the most part, Brunswick County possesses several high quality streams which continue to generate an abundance of biological activity. At the same time, shellfish closings limit the ability of local area residents and fishermen to capitalize on this natural abundance. The Lockwood Folly River, in particular, has been a focus of study on water quality issues for many years. Among the many issues related to the Lockwood Folly, is the on-going debate about relocating the mouth of the river to enhance the natural flushing action of the tides, thereby increasing the water quality of the estuary. The environmental, as well as financial implications of such action are currently the chief subjects of the debate.

6.1.2 FRAGILE AREAS**(a) General**

Fragile areas are those areas which could be easily damaged or destroyed by inappropriate or poorly planned development. Included are coastal wetlands, sand dunes, ocean beaches and shorelines, estuarine waters and shorelines, outstanding resource waters, public trust waters, complex natural areas, areas sustaining remnant species, unique geologic formations, national landmarks, wooded swamps, prime wildlife habitats, scenic points, archaeological and historical sites, maritime forests, and "404" wetlands.

(b) Areas of Environmental Concern Described Elsewhere in this Plan

Some of the fragile areas have been specifically designated by the State of North Carolina as being critical resource areas; environmentally significant and vulnerable to damage and destruction by development. These "Areas of Environmental Concern" or "AEC's" are described in detail, along with applicable policies, under Section 8.1.2 of the Resource Protection Policies Section of this plan. Other fragile areas are more fully described below. Areas listed in this section include important natural or manmade sites which do not conveniently fit into state promulgated AEC categories, yet are still deemed to be development constraints because of their importance. The County regards these areas to be no less significant than those officially designated. Many of these sensitive areas are identified on the Fragile Areas Map, which is presented in the back of this plan.

(c) Significant Coastal Architectural Resources

The following inventory includes a description of the more significant historic sites found throughout Brunswick County (not including Southport, for which a separate inventory has been compiled).

HISTORIC SITES/FRAGILE AREAS

1. Williams House
2. Belvedere Plantation
3. Railroad Hotel
4. Winnabow Plantation
5. Clarendon Plantation
6. Olde Town Plantation
7. Pleasant Oaks Plantation
8. Orton Plantation
9. Brunswick Town (Fort Anderson, St. Phillips Church)
10. Battery Lamb and Saltworks
11. Price's Creek Lighthouse
12. "The Rock's" (structure gone)
13. Quarantine Station (structure gone)
14. Fort Caswell
15. Gause's Tomb
16. Hickory Hall
17. Bald Head Lighthouse
18. Cape Fear Lighthouse Complex
19. Goodman Family House
20. W. H. Walker House
21. Zion United Methodist Church Cemetery
22. Concord Methodist Church
23. Sunny Side School
24. Bethel United Methodist Church
25. USCG Station at Oak Island

Many of these structures no longer stand. Detailed descriptions of some of the more significant sites are available from the Brunswick County Planning Department.

(d) Freshwater Swamps and Marshes

Brunswick County has thousands of acres of private and public freshwater swamps and marshes. Most notable is the Green Swamp, which is the predominant land/water feature in the north central area of the county. Other important swamp and marsh areas which should be protected are the Big Cypress Bay and Ponds, Orton Pond, Spring Creek Pond, and numerous swamps and marshes associated with the Cape Fear, Town Creek, Lockwood Folly, Shallotte, Calabash and Waccamaw Rivers.

(e) Maritime Forest

While there are no traditional maritime forests located in that portion of the unincorporated area under Brunswick County's jurisdiction, some sections of land on the north side of the intracoastal waterway have elements of maritime forest, related perhaps, to the period of time before the intracoastal waterway separated these areas from their adjacent oceanfront land areas.

(f) Areas Identified Through the U.S. Fish and Wildlife National Wetlands Inventory

Brunswick County, like other coastal communities, has been included in the National Wetlands Inventory (NWI) Program. U.S. Fish and Wildlife has used the USGS 7.5' or 15' map series as a base. The USGS maps for Brunswick County delineate wetlands by stereoscopically interpreting high altitude aerial photography and then transferring the information with a zoom

transfer scope to the base map. With the advent of mapping provided by the NWI, the full extent of the wetland areas that permeate the county can now be better understood. By way of information, most of the "404" wetlands (as well as coastal wetlands) indicated on the NWI mapping have been designated as Conservation on the Land Classification Map. (See Section 9 for more detail.)

6.1.3 AREAS WITH RESOURCE POTENTIAL

Areas with resource potential include productive and unique agricultural land, valuable mineral sites, private sanctuaries, public recreation lands, and other non-intensive recreational uses.

(a) Productive and Unique Agricultural Land

The Governor's Executive Order 96, Conservation of Prime Agricultural and Forests, sets forth the State's policy providing for the conservation of soil to promote the efficient production and utilization of soil...and to conserve natural resources. The order directed each county's Soil and Water Conservation Commission to work closely with the respective county Soil and Water Conservation Districts to develop a map of prime agricultural and forest lands in their respective jurisdictions.

Soils that should be considered prime farmland, soils which are locally important, and soils that are unique to specific locations have been identified for Brunswick County; this information is available from the S & W Conservation District Soil Scientist in map form.

Prime farmland contains soils best suited for producing food, feed, fiber, forage and oilseed crops. They are economically productive for all major crops common to the county. They are not excessively erodible or saturated with water for long periods of time. Soils categorized as prime in Brunswick County are Foreston, Goldsboro, Johns, Norfolk, and Onslow.

Locally important farmland has characteristics which cannot meet the requirements of prime soil designation but may produce economically satisfactory results, depending on their setting and the management practices employed. These soils may be naturally wet and lack adequate internal drainage. Soils falling into this category are Baymeade, Blanton, Croatan, Grifton, Lynchburg, Pactolus, Pantego, Rains, Tomahawk, Torhunta, Wando, and Woodington.

In addition, certain soils have been designated as *unique*. This farmland is sometimes used for the production of a specific crop that may not be produced on a general basis in the area. Blueberries are a crop with special soil requirements that are unique to the county. The soils with these qualities are Leon Fine Sand and Murville Mucky Fine Sand.

AGRICULTURAL LANDS PRIME FARMLAND SOILS

Foreston	26,692 acres
Goldsboro	29,830 acres
Johns	3,116 acres
Onslow	3,439 acres
Norfolk	12,521 acres
TOTAL	75,598 acres

LOCALLY IMPORTANT FARMLAND SOILS

Baymeade	55,973 acres
Blanton	16,127 acres
Croatan	3,533 acres
Grifton	22,023 acres
Lynchburg	19,991 acres
Pactolus	47,771 acres
Pantego	8,305 acres
Rains	35,619 acres

Tomahawk	4,975 acres
Torhunta	3,994 acres
Wando	12,176 acres
Woodington	29,703 acres
TOTAL	260,190 acres

UNIQUE LAND SOILS

Leon Fine Sand	45,611 acres
Murville Mucky Fine Sand	39,490 acres

GRAND TOTAL 85,101 acres

It should be noted that these figures tend to exaggerate the amount of land actually available for farming in Brunswick County. Many of these soils are located in areas which are impractical to farm because of access, high water table levels, or other reasons.

(b) Valuable Mineral Sites

Historically, mineral production and mining interests in Brunswick County have involved primarily the extraction of sand and gravel for construction purposes. There are known deposits of sand and gravel and coquina scattered throughout the county. Such mining interests have ranged from relatively small borrow pits to more extensive mining operations involving as many as 100 acres of land. Examples of the operations involving the larger acreages may be found currently in the vicinity of Hickman's Crossroads between Shallotte and the South Carolina line.

Until recently, it was generally thought that there were few other marketable mineral deposits in Brunswick County. Then, in 1992, the Martin Marietta Company made known its interest in extracting large quantities of limestone from a site in the county north of Southport. Since that time, there has been considerable debate, including court action, regarding the desirability, safety, and environmental concerns regarding the nature of such a mining operation. It is not known at this time the extent to which similar deposits may be located elsewhere in the County.

(c) Private Sanctuaries

The Nature Conservancy owns 15,814 acres of land within the Green Swamp. The Conservancy is a private organization dedicated to the preservation of unique natural areas. It is the intent of the Conservancy that the area will remain free from development.

Various large private land holdings are 'de facto' gamelands by virtue of their isolation and general inaccessibility. (These areas are mainly owned by timber companies).

The Orton Plantation and Pond is another major private landholding in Brunswick County which contains natural areas uniquely suited for wildlife habitat.

While clearly not a private sanctuary, the community of Boiling Spring Lakes (17,000+ acres) has much of its territory taken up by land which is not suited for development.

The State has also designated a Game Land/Bear Sanctuary within Brunswick County. The Bear Sanctuary is one of 28 designated areas within the State designed to promote the preservation of the species. Bear hunting is prohibited inside the Sanctuary. Major private sanctuaries are identified on the Fragile Areas Map.

(d) Public Recreation Land

The area north of the municipal limits of Bald Head Island to the New Hanover County line is owned entirely by the State of North Carolina. This land form separates the Cape Fear River from the Atlantic Ocean. (The word "land" is somewhat misleading as the area consists mainly of marsh, water, and small islands).

Within this area are several different management and administrative jurisdictions. The area adjacent to the New Hanover County line is part of the National Estuarine Research Reserve System. This is a federal-state program (Section 315 of the Coastal Zone Management Act) which provides matching funds to participating states for the acquisition, development and management of areas "to serve as natural field laboratories in which to study and gather data on the natural and human processes in the coastal region and man's effect on them." The reserve is owned by the state and managed by the Division of Coastal Management in partnership with the National Ocean and Atmospheric Administration.

The Zeke's Island sanctuary is located in New Hanover and Brunswick Counties, encompassing approximately 1,165 acres of upland, intertidal, and shallow water areas. 178.8 upland acres of the site were donated to the State of North Carolina in 1981 as the initial component of the North Carolina National Research Reserve. This area is managed primarily as an educational and research site, though compatible recreational uses are allowed. For further information regarding the Zeke's Island site, contact the Reserve Coordinator, Division of Coastal Management at the UNCW/CMSR in Wilmington at (910) 256-3721 ext 243.

South of Zeke's Island Reserve lies Smith Island, which includes Bald Head, Middle, and Bluff Islands, plus associated beaches and coastal wetlands. Though most of Bald Head and Middle Islands are in private ownership, state ownership elsewhere within the complex includes about 10,000 acres of upland. The majority of this public land is administered by the NC Division of Parks and Recreation, while 174 acres of maritime forest comprise the Bald Head Island Coastal Reserve site managed by the Division of Coastal Management. The Wildlife Resources Commission, the Division of Marine Fisheries and the Division of Coastal Management have regulatory and enforcement jurisdiction throughout the area.

Battery Island and Striking Island have been leased by the State to the Audubon Society for fifty year periods.

The spit of land above New Inlet is located in Brunswick County and is part of the Fort Fisher State Historic Site. This area is administered by the Department of Cultural Resources and regulations are enforced by the Division of Parks and Recreation.

Eagle Island, a large, strategically located property opposite Wilmington's urban waterfront, has recently come into light as having potential for significant recreational development. The recent Cape Fear River Corridor Plan identified the island as a potential site for a multi-million dollar sports complex for this former and existing spoil area. While the specific feasibility of such a project is not included in this far-reaching, idea generating study, such prognostications about the future of the island are simply more evidence of the influence of the rapidly growing Wilmington urban area on the west side of the Cape Fear River.

(e) Other Non-Intensive Recreational Uses

All of the navigable waters in the county are publicly owned. (Hence, their designation as Public Trust Waters.) They are used for commercial and recreational fishing, swimming, and boating.

Also, all the beach below mean high tide is owned by the State, as is any land raised through beach nourishment projects.

In recent years, numerous semi-private and private golf courses have been developed in Brunswick County. Nearly all of these courses are being built in the area of the county between U.S. 17 and the intracoastal waterway. Most have been built in conjunction with single family residential developments. There are currently more than two dozen 18-hole or larger golf courses in Brunswick County, with more under construction.

6.2 Community Facilities and Services

As discussed in the preceding section, the suitability of land for development presents one set of constraints on the growth of the county. These mostly natural constraints are largely beyond the control of man, without considerable and often costly modification of the land. A second set of constraints, however, has to do with local governments' ability to provide and pay for community facilities and services in the face of continued growth. While such ability is linked to some degree to the natural systems upon which certain facilities (such as water) depend, the provision of such facilities and services is more a function of conscious decisions on the part of local governments as to whether and where such services are needed, who will pay for them, how and when.

6.2.1 POTABLE WATER SYSTEM

After years of study, the County entered the water business in 1974, establishing a water treatment plant served by a well field, located about 2 miles west of the Southport-Oak Island area, on NC 211. Trunk mains were provided to serve the Southport area, the rapidly developing unincorporated area related both to Southport and to Oak Island, and Caswell Beach, Long Beach and Yaupon Beach on Oak Island, and then via trunk main under the Lockwood Folly Inlet to Holden Beach (since abandoned). That system was upgraded in 1980 so that the "NC 211" groundwater plant is capable of producing 6 million gallons of potable water per day.

Starting in 1981, a major expansion of the system began, funded by a \$37 million general obligation bond approved by the County's voters. Initially trunk mains, with necessary booster pumping stations and water tanks, were extended northerly from Holden Beach via NC 130 through the heavily developed area between the Lockwood Folly and Shallotte Rivers to and through Shallotte. From Shallotte, the lines continued on via NC 179 through the rapidly developing southwestern sector of the County all the way through Calabash to a point just shy of the South Carolina state line. Today, the County system serves the Towns of Caswell Beach, Yaupon Beach, Long Beach, Holden Beach, Ocean Isle Beach, Sunset Beach, Shallotte, and the Leland Sanitary District, (including the Towns of Belville, Leland and Navassa). In addition, the communities of Northwest and Sandy Creek may soon be tied into the system.

It should be noted that the main source of water for the County system was changed in the early 1980s. The County made an up front loan of \$7,000,000 to the Lower Cape Fear Water and Sewer Authority to permit that agency to undertake a regional project. As a result, the principal source of water became the Cape Fear River, from an intake located above Lock No. 1 in Bladen County. From there, raw water is pumped through a 48" trunk main through Columbus County into Brunswick County, where it connects with the main water treatment plant in the northeast area of the County. This 24 million gallon per day water treatment plant opened at Hoods Creek in the mid-1980's with an extensive additional network of trunk mains.

Since the establishment of the system, demand for water has increased steadily. At the end of the 1980's, the total median daily demand from all customers tied into the County system was 3.7 million gallons. By 1993, median daily demand had more than doubled to 10 million gallons per day. At present (1997) median daily demand is estimated to be approaching 20 million gallons per day or 66% of the total system capacity of 30 million gallons.

Initial problems concerning low water pressure during peak season weekends at some beach communities have been addressed and are being addressed through improvements in the water distribution system. At the time of this writing (4/98) the following system improvements were in some stage of planning, implementation or completion:

- The Sunset Harbor interconnect will improve water flow and pressure to Oak Island.
- The Seashore Road/Boones Neck/Windy Point Road interconnect, in conjunction with the Town of Holden Beach intracoastal waterway crossing, will increase flow and pressure to the west end of Holden Beach, as well as the Boones Neck area.
- Ocean Isle is installing a second elevated storage tank at the west end of the island.
- Line extensions along Ocean Isle Beach Road and Old Georgetown Road have increased flow and pressure to the Ocean Isle, Sunset Beach and Calabash areas.

Plans for the Future

Currently, the County has contracted with an engineering firm to develop a computer model capable of analyzing the existing system. Work on the model is expected to be completed sometime in 1998. Once the model has been completed and calibrated to reflect actual conditions in the field, the County will be able to effectively "balance" the system. This means that County engineers and system operators will be able to determine the most efficient pumping rates, sizes of future distribution lines, and storage facilities. This, in turn, will save on pumping costs, and will allow the County to give clear directives to new developments coming on line.

Regardless of the modeling initiative, several other major new system components are already being explored as likely additions to the County system. For example, with the tremendous growth being experienced at the south end of the county, engineers have begun to look into the feasibility of establishing a third major raw water source in the area near the South Carolina line. This raw water could come from the Waccamaw River or perhaps the Pee Dee groundwater aquifer. In either case, it would provide the County with a third source of water. At the same time, the County is exploring interconnect possibilities with Little River, SC for emergency use only.

Regarding raw water storage, the County is operating with one-half days storage in reserve. The feasibility of building a new raw water reservoir at the Northwest Plant is being evaluated.

Telephone interview with Jeff Phillips, Co. Engineer & Lee Smith, Utilities Director, Brunswick Co., Sept. 25, 1997.

6.2.2 SEWER

Many local leaders in Brunswick County see sewage treatment as the number one constraint to development. The county's relatively spread out development patterns make the provision of a single, centralized sewage treatment system unworkable. Areas where there are concentrations of small lots or higher density development (such as near the beach communities) offer some possibilities, however. For this reason, the County has appointed a **Stormwater and Sewer Oversight Committee** to coordinate the development of various sewer utility systems in the County. The work of the Committee is proceeding in phases, with the Phase 1 effort focusing on an inventory of existing systems and system plans. Phase 2, if authorized by the County Commissioners, will involve a needs assessment to determine which parts of the County are most in need of sewer service. An engineering firm is assisting the Committee. Information on the status and plans for various sewage treatment systems in the County is summarized below.

The Towns of Calabash and Sunset Beach have come together with Brunswick County to form the **South Brunswick Water and Sewer Authority**. Efforts to follow through on the establishment of the sewer system has not been without controversy. For example, following completion of an Environmental Assessment in 1994, a Finding of No Significant Impact was contested in court by some area property owners. Subsequent to that, the Authority has undertaken the preparation of a full Environmental Impact Statement (EIS), intended to address sewer induced secondary impacts and stormwater management. At the time of this writing (Sept. 1997), a draft of the full EIS was about to be released. If implemented as planned, the regional sewer system would serve an approximate 55 square mile area of south Brunswick County, including the Towns of Sunset Beach, Calabash and portions of unincorporated Brunswick County. A planned phase one plant would treat up to 2 million gallons per day (GPD), with phased expansions of up to 3.0 million gallons per day within 5 years of startup. The Town of Shallotte is planning to expand its sewage treatment capacity from 208,000 gallons to 500,000 GPD. (The system is presently operating at about 65 % of capacity.)

The Town of Ocean Isle Beach operates a treatment system with a 1.25 million GPD peak capacity. While actual treatment is limited to 750,000 GPD, the Town gains an additional 500,000 gallons of "capacity" through temporary lagoon storage. Future plans include an upgrading of the plant to a tertiary level of treatment, thereby increasing the loading capacity of the Town's spray fields. At the same time, the Town is continuing to move toward the development of a municipal golf course on 380 acres of Town owned property adjacent to the treatment plant. Upon completion, the golf course would also be employed for spray application.

The Town of Long Beach has been serving as the lead agency on a regional wastewater study for southeastern Brunswick County and several communities that are located there. The final report is due out before the end of this year (1997). A draft of the study, now circulating, has addressed a number of alternatives for wastewater collection, treatment and disposal. The central issue of the study is the method by which treated effluent can best be disposed of. The general thrust of the recommendations may be that each locality be responsible for its own collection system, but that the various communities come together on sewage treatment and disposal.

At Yaupon Beach, a new plant went into operation in October 1993. In less than a year, however, problems were discovered with the system's infiltration basin, requiring a moratorium on new hook ups. Thus, while the system was originally approved for 400,000 GPD, it is currently limited to 180,000 GPD. To address the problem, the Town has commissioned a feasibility study to evaluate alternative solutions: (1) spray effluent on the golf course, five holes of which are in Yaupon Beach and the remaining 13 in Caswell Beach (2) send treated effluent to the discharge line of the City of Southport. Ultimately, the Town supports a regional solution to the sewage treatment needs of the area.

The City of Southport expanded its sewage treatment plant from 300,000 GPD to 800,000 GPD in 1987 and is today generally running at about 450,000 GPD or roughly 55% of capacity. In light of the surplus capacity, the City recently agreed to accept up to 100,000 GPD from the Southeastern Sanitary District under a long term contract. In the meantime, the District is proceeding with plans to bring its own plant on-line (See below). Southport officials estimate that the City-owned plant will reach maximum capacity in five to seven years.

Just west of Southport, the Southeastern Sanitary District is moving actively toward the construction of a 500 thousand GPD treatment plant. If construction proceeds as scheduled, the plant should be up and running by the Fall of 1998. Future plant capacity could be increased to as much as 2 million gallons per day. The District is currently awaiting a \$3.5 million grant from FmHA, which is expected on or about October 10, 1997. Established in 1989, the planned service area for the District extends from Beaverdam Creek on the east, to Highway 211 on the north, to the CP&L discharge canal on the east, to the intracoastal waterway on the south.

In the northeast part of the county, the County-owned sewage treatment plant at the Leland Industrial Park was completed and placed in service in 1987. The 250,000 GPD plant is a modular, package system capable of easy expansion. The plant is fed by a 4.5 mile 8" sewer main. It is currently (1997) operating at about 14% of capacity, up from 10% in 1992. Plans for the near future include the provision of service to customers within the Leland Sanitary District. To add residential users to the system, there are plans to expand plant capacity by 1 million gallons per day. Under the service agreement, the County-owned plant would receive and treat sewage effluent from a new force main serving the Sanitary District. The County would not, however, be responsible for smaller service lines or the "retail, customer end" of the operation; those responsibilities would be handled by the Sanitary District. The County is currently (September 1997) receiving bids on the construction of the necessary force main. Also in the northeast part of the county, the Town of Belville operates its own sewage treatment plant, with a capacity of 400,000 GPD. The Town has secured a permit to double the plant capacity to 800,000 GPD.

Each of the various sewer service areas, whether existing or proposed, is shown on the Community Facilities Map, found at the back of this plan.

Sources:

Telephone interview with Joe Tombro, South Brunswick Water and Sewer Authority, September 26, 1997.
Telephone interview with Druied Robinson, Building Inspector, Town of Ocean Isle Beach, September 26, 1997.
Telephone interview with Jerry Walters, Town Manager, Town of Long Beach, October 1, 1997.
Telephone interview with Nancy Wilson, Town Clerk, Town of Yaupon Beach, September 26, 1997.
Telephone interview with Robert Gandy, City Manager, City of Southport, September 26, 1997.
Telephone interview with James (Bubba) Smith, Chair, SE Brunswick Sanitary District, Sept. 26, 1997.
Telephone interview with Jeff Phillips, County Engineer and Lee Smith, Utilities Director, Brunswick County, September 25, 1997.

6.2.3 STORMWATER MANAGEMENT

Stormwater management continues to grow as one of the most pressing growth issues of the 1990's. Brunswick County is fundamentally low and flat, and is bounded by highly sensitive, environmentally productive coastal waters. As development continues to occur, stormwater runoff from roads, parking lots, driveways, rooftops and even grassed lawn areas is increased substantially. Traditional stormwater management solutions often call for collecting runoff and piping it to a receiving stream. This has several adverse impacts. First, it increases the volume of runoff reaching area streams, thereby causing downstream flooding. Second, this sudden surge of water following a rainfall event can cause dramatic swings in the salinity of estuarine waters, thereby affecting estuarine productivity. Third, piping and dumping runoff usually increases the amount of toxins which reach the receiving waters. Fourth, such systems are costly to build and may quickly become undersized as areas farther uphill develop.

A second, more natural approach, involves the retention of water as close to the source as possible, slowing its release and allowing for percolation of rainfall into the groundwater system. This approach can involve the use of grassed swales instead of curb and gutter, the strategic use of existing, low lying areas as natural retention basins, and the creation of naturally vegetated buffer strips adjacent to streams and ditches. The disadvantages of this approach are twofold. First, swales, retention basins and buffers require the use of land, a commodity that developers are reluctant to give up. Second, immediately following a rainfall event, areas that are normally dry will become temporarily full of rainwater, creating temporary mini-ponds or large puddled areas that most 20th century Americans have been trained to think are unsightly and therefore undesirable.

Currently, the County is approaching the problem on at least two fronts. First, the **Stormwater and Sewer Oversight Committee** has been charged by the County Commissioners with coordinating the development of various sewer utility systems in the County, including stormwater management solutions. The thinking is that since sanitary sewers are likely to increase the density of development, and since dense development can increase stormwater runoff, the two should be studied together. Second, the County Planning Board is in the process of revising and updating the County's subdivision regulations. In doing so, it is the intention of the Board to incorporate some "near source" requirements for retaining stormwater runoff on or as near the site of the development as possible.

While the County has from time to time, commissioned engineering studies related to stormwater management, no comprehensive storm water management master plan has been prepared for the entire County. While master plans are often viewed as the solution to any given problem, some have questioned whether, given the geography and hydrology of the County, such a county-wide plan would be feasible, practical, or worthwhile.

Telephone interview with Jeff Phillips, County Engineer, Brunswick County, October 1, 1997.

6.2.4 TRANSPORTATION

(a) Public Roads

Brunswick County had 686 miles of paved public roads in 1995 (the most recent year for which figures were available). For comparison, there were 620 miles of paved public roads in the County in 1992 and 587 paved miles in 1987. In addition, there are a considerable number of unpaved private subdivision roads that have yet to be upgraded and added to the state secondary road system.

During the public input meetings held for the land use plan, many residents voiced concerns regarding the condition of many of the roadways within the County. Specific concerns included poor drainage, lack of paving, high water and flooding, and some dangerous curves.

Brunswick County has a Thoroughfare Plan which is updated periodically. Preparation of the plan involves a cooperative effort of the Thoroughfare Planning Unit, Planning and Research Branch,

Division of Highways, NC Department of Transportation, and a County-wide Thoroughfare Plan Coordinating Committee, made up of representatives of numerous local governments and Chambers of Commerce in Brunswick County. The last Thoroughfare Plan was adopted by the County and its municipalities in October and November of 1987, just prior to certification of the 1987 Land Use Plan Update. A new Thoroughfare Plan is currently in development. It is hoped that the new Plan will be ready for adoption before the end of 1998.

In addition to the Thoroughfare Plan, Brunswick County also participates in the annual preparation of a Transportation Improvement Program (TIP), a cooperative effort between the State DOT and local governments in the area. The TIP sets forth those transportation projects which, based on a variety of criteria, are to receive priority for funding over the ensuing seven year period. The following is a list of transportation projects as requested by the County and all of its municipalities for inclusion in the most recent TIP. The general locations of these projects within the County are identified on the Community Facilities Map which accompanies this plan.

COUNTY-WIDE REQUESTS

to

N.C. Department of Transportation

Division Three

November 13, 1997

"It is the collective request of (Brunswick County), Municipalities and Commissions to expedite or place on next year's North Carolina Transportation Improvement Program the following (county-wide) projects:"

1. **Second Bridge to Oak Island: (R-2245)**
Expedite the planning and construction of a second bridge to Oak Island. This bridge would alleviate significant traffic congestion and provide a much needed second evacuation route in the event of a major storm or industrial incident.
2. **Wilmington Bypass (R-2633)**
This project has been identified as a Key Economic Development Highway concern in Governor Hunt's Transportation 2001 Plan. Continue to expedite this project to relieve congestion concerns in and around Wilmington as well to meet the traffic resulting from the population growth in the northern part of Brunswick County. The construction of this bypass should include all phases of the project from north of Wilmington to US 17 south of Wilmington. Included in this request is that an additional interchange with the bypass be included at Cedar Hill Rd. (SR 1430) to allow greater access to industrial sites in that area.
3. **Midway Rd (SR 1500)/Galloway Rd (SR 1401) (Temporary)**
Upgrade Midway Rd. and Galloway Rd from NC 211 to US 17 Bypass to accommodate increased traffic from the new Oak Island bridge. This includes specifically redesigning the Midway Rd./Galloway Rd. intersection on US 17 just west of Bolivia to alleviate probable congestion due to turns required.
4. **Dosher Cut-Off (R-2334): (NC 211 to NC 87):**
Expedite planning and construction of a new route to alleviate congestion in and near the existing Doshier Cut Off and traffic on NC 211, 133 & 87.
5. **Georgetown Rd. Extension (SR 1163)**
Expedite the construction of the section from Ocean Isle Rd (4 mile Rd) to NC 179 near its northern intersection with Hale Swamp Rd. This would significantly decrease summer season traffic congestion in the South Brunswick Islands area and greatly facilitate travel from Calabash to Shallotte.
6. **Mt. Pisgah Rd. (SR 1130)**
Upgrade from US 17 to Holden Beach Rd (NC 130) to provide an alternate route to Holden Beach and relieve traffic on NC 130 during the summer tourist season.

7. **Lanvale Rd (SR 1438)**
Lanvale Rd. from US 17 to US 74-76 is carrying an increasing amount of traffic due to population growth and industrial development in the Leland area. There are several alignment problems on the road that need addressing.
8. **Traffic Signals**
Review the following intersections for traffic signals and/or upgrade:
 - US 17 & County Club Dr.
 - US 17 & SR 1184
 - NC 87 & Cougar Dr (Bolling Spring Lakes)
 - NC 179 & County Club Dr.
 - Georgetown Rd & NC 904
9. **Four-laning of Village Rd.(SR 1472) from US 17 to Lanvale Rd.**
To accommodate increased traffic in the Leland area.
10. **Interchange at US 74-76 & Old Fayetteville Rd.**
To allow better access to the Middle & High School.
11. **General Upgrading of NC 133 from near Belville Town to near Brunswicktown**
Widening and general improvements in several areas particularly including curves near Old Town.
12. **Establish alternate routing to South Brunswick Island Beaches from NC**
Beach-bound traffic from Whiteville could use SR 1300 (Ash-Little River Rd.) or SR 1321 (Longwood Rd.) to the Calabash, Sunset Beach Ocean Isle Beach area and thus avoid congestion in the Shallotte area. Signage on NC 130 in the Ash area could accomplish this
13. **Widen and resurface NC 130 from the Waccamaw River to near Shallotte**
This highway carries an increasing amount of traffic (particularly on the weekends) and needs improvement.
14. **Southern High-Rise Bridge/Connector Rd. to US 17 Near Sunny Point Railroad**
The new bridge would significantly improve traffic flow to-from Brunswick County and southern New Hanover County as well as enhance economic development opportunities in the greater Leland area. The concept has been widely supported in the recently completed Cape Fear River Corridor Study that was a joint effort of Brunswick and New Hanover Counties and the City of Wilmington, and funded by the N.C. Division of Coastal Management.

(c) Special Issue: A Second Bridge To Oak Island

One transportation project warrants special mention. As noted in the list of requests above, planning continues regarding the need for a second bridge to Oak Island. The addition of this bridge, along with the approach road leading to the bridge on the mainland side of the intracoastal waterway, will no doubt have a significant impact on land use patterns within the vicinity of the new roadway. In this regard, a special land use study and plan has been commissioned in an effort to better manage the growth that may ensue. Since some portion of the approach road falls within the planning jurisdiction of the County, the County is directly involved in evaluating and approving the plan and its recommendations. As noted in Section 10: Intergovernmental Coordination and Municipal Land Use Plans, the Second Bridge to Oak Island, Corridor Land Use and Development Plan, shall be made a part of this land use plan and incorporated by reference upon its adoption.

(d) Air Transportation

There are two publicly owned general aviation airports in the county: the Brunswick County Airport and the Ocean Isle Beach Airport. One is known as the Brunswick County Airport. It is operated by the airport Commission, whose membership is named by the County Commissioners and several municipal Town Boards. This facility is situated on the mainland across from Oak Island.

During the early 1980's, a Master Plan for this airport was developed, and approved by the County, by the North Carolina Aeronautics Council, and by the US Federal Aviation Administration. Significant improvements have been accomplished over the years. Included has been a terminal building (formerly a bank building) which was relocated to the airport property and renovated. More recently, the airport has seen the addition of two large private hangers (1995) and twenty-one airport-owned hangers, completed in the past few months (1997). The airport has also installed two 12,000 gallon fuel tanks for jet and aviation fuel respectively. Taxiways to and around hanger areas have been increased. The airport is outfitted with global positioning system (GPS) navigational approach equipment.

Airport officials view certain additional improvements as being important to the on-going mission and service of the facility:

- The extension of the current 4,000 foot runway to 6,000 feet.
- The addition of an Automated Weather Observation System (AWOS)
- An expansion of the terminal building to accommodate meetings of public officials during emergency situations (Such meetings are already occurring at the terminal but without proper space)
- The addition of an office building on the property as a revenue generator.
- Eventually, a new terminal building.

In addition, the November 13, 1997 Transportation Improvement Program request from the County and the Airport Commission to the NC Department of Transportation includes the following items:

- Extend the runway safety areas for runways 05 and 23.
- Construction and paving of return taxiways from the ramp area to runways 05 and 23.
- New perimeter fence.
- Construct a fire equipment building with necessary paving.

The Ocean Isle Beach Airport, owned by that municipality, is located on the mainland across from that island. An updated Master Plan for that facility was completed in 1987 and 88. The Ocean Isle Beach Airport is a limited services airport in that it has no fuel availability and few other services.

Regarding both airports, the County enacted an Airport Zoning Ordinance in the early 1980s, which is enforced through the joint actions of each airport's management and the County's Building Inspections Division.

There are several privately owned airstrips in different locations around the County, the largest being the "Winnabow International Airport." At last report, it had less than ten home-based aircraft, and a large paved and lighted runway. Most other airstrips are grassed rather than paved facilities.

The County is an active supporter of the two publicly owned general aviation facilities in the County, both by financial participation and through the development of plans and ordinances. The locations of the three major airstrips within the County are shown on the Community Facilities Map.

Source of information for Brunswick County Airport: Telephone interview with Ken Scott, Assistant to the Airport Manager, September 24, 1997.

6.2.5 Law Enforcement

Law enforcement for Brunswick County is provided by the County's Sheriff's Department and local municipal police forces. As the County has grown, demand for law enforcement services has increased commensurately, as evidenced by a dramatic increase in the call load. A comparison of the size of the Sheriff's Department five years ago (1992) and today (1997) is revealing. In 1992, the Sheriff's Department had 49 personnel and 37 vehicles. In 1997, the Department has over 80 personnel in eight divisions, as follows: Drug Division, Uniformed Patrol Division, Detective Division, Civil Division, Warrants Division, Crime Prevention Division, D.A.R.E., and Jail Division.

Personnel within the Sheriff's Department may be broken down as follows

6	Drug Officers
24	Uniformed Patrol Officers
5	School Resource Officers
4	Court Bailiffs
4	Civil Deputies
3	Warrant Officers
10	Detectives
1	Domestic Violence Officer
1	Crime Prevention Officer
13	Jailers
1	Jail Transportation Officer
1	D.A.R.E. Officer

In addition, the Sheriff's office staff, including the Sheriff, Division heads, and support staff, includes 14 personnel. Finally the Sheriff's office has approximately 80 vehicles (compared to 37 five years ago.)

As the county's population continues to increase, it is anticipated that the resources of this Sheriff's Department will also need to increase.

Source: Telephone interview with Lt. Charles Miller, Uniformed Patrol Division Head, September 24, 1997.

6.2.6 Fire and Rescue

For many years, the County has been the major source of funds for operation and maintenance of the area's volunteer fire departments and rescue squads. At present, there are some 21 fire departments and 11 rescue squads, both in the unincorporated areas and also in municipalities.

(a) Volunteer Fire Departments

The County's 21 volunteer fire departments are as follows:

Bald Head Island Volunteer Fire Department
Boiling Springs Lakes Volunteer Fire Department
Bolivia Volunteer Fire Department
Calabash Volunteer Fire Department
Civitown Volunteer Fire Department
Grissettown-Longwood Volunteer Fire Department
Leland Volunteer Fire Department
Long Beach Volunteer Fire Department
Navassa Volunteer Fire Department
Northwest Volunteer Fire Department
Ocean Isle Beach Volunteer Fire Department
Shallotte Volunteer Fire Department
Shallotte Point Volunteer Fire Department
Southport Volunteer Fire Department

Sunset Beach Volunteer Fire Department
Sunset Harbor/Vine Hill Volunteer Fire Department
Supply Volunteer Fire Department
Tri-Beach Volunteer Fire Department
Yaupon Beach Volunteer Fire Department
Waccamaw Volunteer Fire Department
Winnabow Volunteer Fire Department

Over the years, funding levels to the county's volunteer fire departments have increased steadily. The current County funding arrangement budget provides for \$35,000 annually to each fire department for operational costs, paid in quarterly installments. (This amount is up from \$10,000 in 1987-88 and \$13,500 in 1992-93). In addition, each of the 21 fire departments is allotted annually a \$25,000 "contingency" fund, to be used primarily for equipment purchases.

(b) Volunteer Rescue Squads

The County's 11 volunteer rescue squads are as follows:

Bald Head Island Rescue Squad	Navassa Rescue Squad
Bolling Springs Lakes Rescue Squad	Shallotte Rescue Squad
Calabash Rescue Squad	Southport Rescue Squad
Coastline Rescue Squad	Town Creek Rescue Squad
Leland Rescue Squad	Waccamaw Rescue Squad
Long Beach Rescue Squad	

Funding levels for the County's rescue squads has also increased steadily over the years, particularly for those squads which consistently respond to emergency calls. During the most recent year, for example, 6 of the County's 11 rescue squads received a \$27,500 appropriation. The remaining 5 rescue squads, those which did not respond as well to calls, received \$17,500. In both instances, the funding was up from previous years (i.e. \$10,000 in 87-88 and \$13,500 in 1992-93). Further, each of the 11 rescue squads in the county is eligible to receive up to \$25,000 annually in contingency funds for the purchase of equipment.

The County continues to work with these various departments and squads toward continued improvements in service. Ten years ago (1987), service area distances officially acknowledged at the State level for fire departments ranged from 1.5 miles to 3.0 miles. With the County water system and new equipment in place, however, all of these service areas have been extended to serve a 5.0 mile radius, and consolidation of some of these departments is a long-range goal.

(c) Coordination of Emergency Services and Hurricane Evacuation

The County employs a full time Emergency Management Coordinator as well as an Assistant Emergency Management Coordinator. These individuals are responsible for coordinating rescue services, service areas, and operations. In addition, hurricane evacuation is a primary planning function of the Emergency Management Coordinator. Annual education programs and training exercises are a routine function of the County's emergency response and evacuation program. In 1994-95, the County placed in service a state of the art emergency communications system. During the 1990's, staffing levels for County emergency communications have increased from 2 persons in 1992 to 4 persons per shift in 1997, and a new computer system aids in finding the location of incoming calls. The on-going objective is to create a coordinated, unified network, which is related to and part of the communication/telephone system at the new County Emergency Operations Center. The Operations Center also houses an emergency "war room" and a training room for on-going education and personnel training.

6.2.7 Schools

As with the 1992 land use plan, concern over the quality of the County school system was identified in public input meetings for this update to the Plan. Given the rapid growth of the county, it is not surprising the school system continues to address the need for additional classroom facilities. During 1997-1998, the Brunswick County School System operated 13 schools plus the Brunswick Learning Center, up from 11 schools during 1990-91. The following table summarizes the capacity and percent utilization of the County's existing schools.

**Brunswick County Schools
Capacity and Utilization, 1997-98**

School	Grade	Number Classrooms	Capacity	Membership	Utilization
Belville	3-5	34	816	584	72%
Bolivia	K-5	18	432	644	149%
Brunswick Learning Center	7-12			86	NA
Leland	6-8	36	792	578	73%
Lincoln	K-2	31	744	633	85%
N Bruns High	9-12	38	760	613	81%
Shallotte	5-8	37	814	955	117%
S Bruns High	9-12	38	900	790	88%
S Bruns Middle	6-8	21	462	746	161%
Southport	PK-5	31	744	816	110%
Supply	PK-5	34	816	780	96%
Union	PK-4	33	792	789	100%
Waccamaw	K-8	20	480	481	100%
W Bruns High	9-12	49	980	1017	104%

Capacity calculations utilize State Board of Education recommendations

As noted in the table above, those schools most in need of relief from student crowding include Bolivia Elementary School at 149% of capacity and South Brunswick Middle School at 161% of capacity. To help relieve some of the overcrowding in the system, two new schools and two major classroom additions to existing schools are currently in development:

New Elementary School

This new 650 student elementary school will be located off Highway 211 and Zion Hill Road. It is scheduled to open for the 1999 school year.

New Middle School

This new middle school will also be located off Highway 211 and Zion Hill Road, most likely on the opposite side of the roadway from the new elementary school.

Bolivia Elementary Classroom Addition

This will be a 10 classroom addition to this currently overcrowded school. Completion is expected in time for the 1998 school year.

South Brunswick Middle School Classroom Addition

This will be an 11 classroom addition to this currently overcrowded school. Completion is expected in time for the 1998 school year.

As the County continues to grow, funding for new school construction will continue to be a priority concern.

Source: Telephone interview (and follow-up fax) with Clarence Willie, Assistant Superintendent for Operations, September 22, 1997.

6.2.8 Library System

Until the recent past, library facilities in the county were administered by a Library Commission made up of volunteers (appointees) from each of the small towns in the county. In 1992, however, the County established a library department within County government and the County Commissioners appointed a newly structured Board of Trustees specifically to take over several existing libraries. The following is a summary of the County's four branch libraries:

Southport Branch	Southport	Renovated and reopened 1995
Shallotte Branch	Shallotte	Renovated and reopened 1995
Leland Branch	Leland	New building opened 1994
G.V. Barbee, Sr. Branch	Yaupon Beach	New building opened 1994

Library use county-wide has increased markedly in recent years; circulation is reported to have roughly doubled in the past two years alone. The county system is currently in the process of automating its card catalog and check out system. It is anticipated that all four branches will have completed the conversion by early 1998.

Library staff levels have also increased somewhat from a total of 9 employees in 1992 to 14 employees in 1997.

Source: Telephone interview with Nancy Price, Southport Branch Manager, September 23, 1997

6.2.9 Parks, Recreation, and Waterfront Access

During the decade of the 1980s, the County built a series of area parks—one in the general Leland area, one in the Southport-Oak Island area, one in the Mill Creek-Winnabow-Town Creek area, one at Shallotte, one at Supply, and one in the Ash-Waccamaw area. Community centers have been built in two of these parks, and three other centers have been built as separate operations in the Cedar Grove-Holden Beach area, the Northwest Community-Sandy Creek area, and in the Town of Leland. Each of these County park facilities is shown on the Community Facilities Map, found at the back of this plan. Major amenities at each of the above-mentioned county parks are as follows:

Table 6.2.9 BRUNSWICK COUNTY AREA PARKS—CURRENT AMENITIES, 1997

	Supply <i>Lckwd Fly Township</i>	Shallotte <i>Shallotte Township</i>	Ash- Waccamaw <i>Waccamaw Township</i>	Southport- Oak Island <i>Smithville Township</i>	Mill Creek- Winnabow- Town Crk <i>Town Cr. Township</i>	Leland area <i>Northwest Township</i>
Concession Stand w/RR	1	1	1	1	1	1
Little League Fields	2	2	1		1	1
Tennis Courts	2	2	2	2	2	4
Picnic Shelters	2	3	1	2	1	4
Softball Field	1	1	1	2	2	2
Basketball Court	1	1		1		2
Multi-purpose Field	1	1	1	1		1
Community Building	1		1		1	
Playground Area	1	1	1	1	1	1

In addition, the County Parks and Recreation Department maintains and operates a number of other smaller park and recreation facilities, and has maintenance service agreements for certain facilities within the County school system.

Plans are being completed for the development of a twenty acre site off Long Beach Road. This site has water access potential. First phase development calls for a walking nature trail, picnic area, shelter, parking lot, restrooms and maintenance facility. Other short range plans include expansion of most district parks. As of this writing, (September 1997) property for a new District park is expected to be purchased within a few months.

Source: Telephone interview with Johnny Williams, Director of Recreation and Parks, September 21 and 22, 1997.

6.2.10 Solid Waste Management

In 1992, Brunswick County implemented a move to a privatized solid waste collection system. Since that time, private haulers assumed responsibilities for waste collection and hauling previously handled by the County.

Brunswick County has been working for several years toward additional changes in the way in which trash collection and disposal will be handled in the future. As of December 31, 1997, the County closed the county landfill off U.S. 17 near Shallotte. (On that date, Federal law required that sanitary landfills have a protective lining to help prevent groundwater contamination.) At the same time, the closed landfill site will fulfill a new role as a major transfer site for the off-loading of smaller truck loads and reloading onto larger haulers for out of the county disposal.

This past year, the County, in cooperation with the County's municipalities, entered into a six year contract with a private hauler to take the county's trash to one or more landfill sites outside the county. In the meantime, the County shall also be exploring potential sites for a new landfill within the County's borders. Also as of July 1, 1998 there are no more unmanned "greenboxes" in Brunswick County, an improvement that many hope will alleviate some of the County's roadside trash problem.

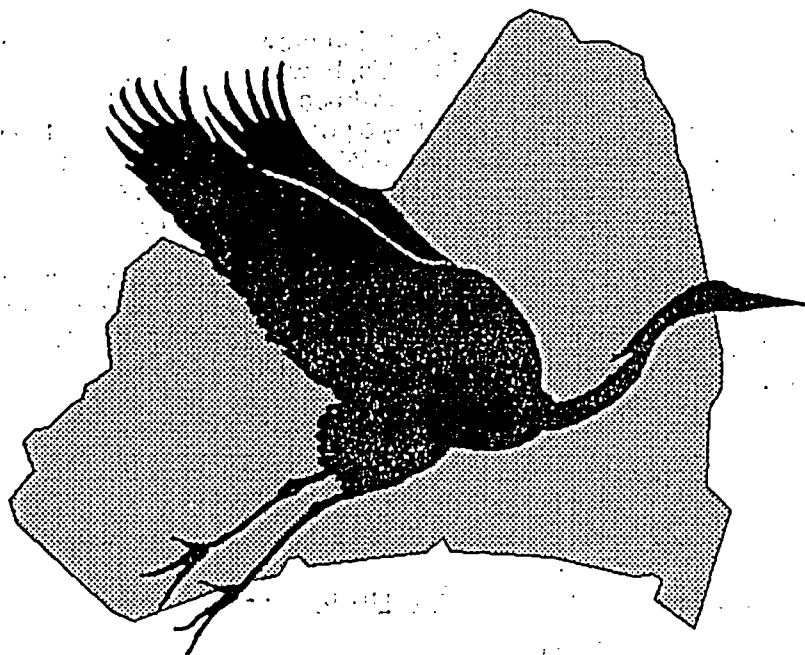
At the time of this writing, Brunswick County has no dumping fee, and also does not bill county residents for hauling. As the County moves toward a new arrangement on hauling and dumping, however, the County is also exploring some form of payment system to offset potentially higher garbage collection and disposal costs.

Source: Telephone interview with Steffaney Batson, Solid Waste Coordinator, Brunswick County Operations Services Department, September 22, 1997.

6.2.11 Public Administrative Capability

Brunswick County has a Board of County Commissioners, elected by districts, and a full time County Manager. The County Manager is appointed by the Board of Commissioners and administers the daily operations of the County as well as being responsible for implementing and explaining the policies of the Board.

The County provides a wide range of services. Services over which the County has direct control or works in very close cooperation with include: Animal Control, ASCS, Board of Elections, Building Inspections, Buildings Maintenance, Cafeteria Services, Central Permitting, Clerk of Superior Court, Computer Services, District Court Judge/Trial Court Administrator, District Attorney, Economic Development Commission, Emergency Communication Services, Emergency Management, Emergency Medical Services, Engineering, Finance, Geographic Information Services, Health Department, Housekeeping, Juvenile Services, Landfill/Solid Waste, Library, Magistrates Office, Mental Health Center, NC Adult Probation & Parole, NC Cooperative Extension, NC Dept. of Crime Control and Public Safety, Older Adults/Department of Aging, Operation Services, Parks and Recreation, Planning, Public Housing, register of Deeds, Service Center, Sheriffs Department, Social Services, Soil and Water Conservation, Tax Administrator, Tax Collector, Utilities, and Veteran Services.



7. Estimated Demand

7. Anticipated Demand

The purpose of this section is to anticipate how future population projections may impact upon the need for additional developable land and community facilities in Brunswick County. These projections can, in theory, have a bearing on the amount of land allotted, for example, to the Transition and Developed Classes of the Land Classification Map. This is more fully explained in the paragraphs that follow.

7.1 Permanent And Seasonal Populations

7.1.1 Projections of Permanent Population

As noted earlier under Section 5.1, the population growth of Brunswick County was fairly modest until about 1970. During the decade of the 70's, however, the County's population increased by almost 48 percent. During the 1980's, this growth pattern continued at only a slightly less rapid rate, adding another 43 percent to the County's population. As a result, the permanent population of Brunswick County more than doubled (from 24,223 to 50,985) in just two decades, 1970 to 1990. This rate of growth continues at a torrid pace, with the most recent population estimate for the county pegged at nearly 63,000 in July of 1996. (see below)

The Office of State Planning is charged with responsibility for making future population projections for all counties in North Carolina. The Coastal Area Management Act land use planning guidelines further require that these projections be accepted and employed in preparing land use plans, unless better evidence and information can be provided by the local government. The following compares the State's population projections as prepared in 1987 with those prepared in 1991 and 1997.

Population Projections

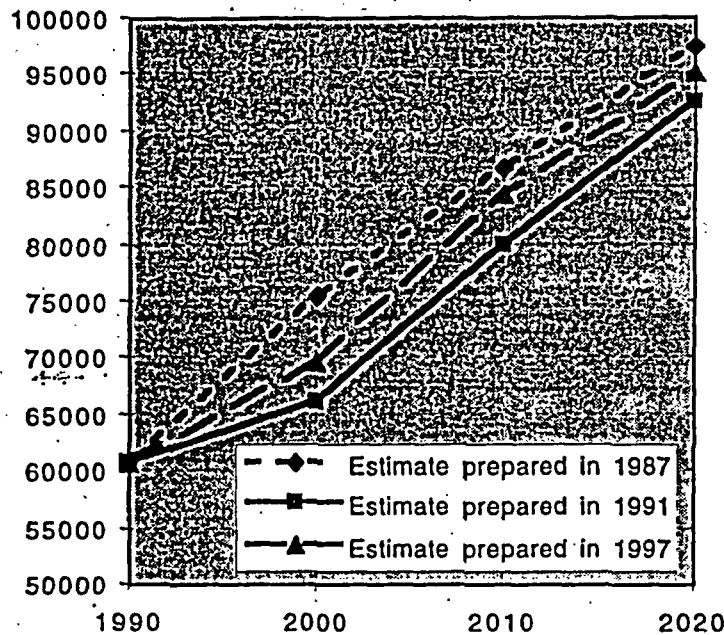
TABLE 7.1.1 PROJECTED POPULATION, 2000, 2010, 2020

<u>Year</u>	<u>Estimate prepared in 1987</u>	<u>Estimate prepared in 1991</u>	<u>Estimate prepared in 1997</u>
2000	75,471	66,171	69,653
2010	86,755	79,866	84,454
2020	97,500	92,623	97,920

Source: Office of State Planning

The chart on the following page shows these projections graphically.

Population Projections Brunswick County



Previous discussions with representatives of the Office of State Planning have revealed that the above projections are based primarily on trend lines from the recent past. Thus, the lower than expected 1990 census count for the County had the effect of dampening previous, larger estimates of future population. State demographers have also expressed the opinion that the more recent projections may be *larger* than what is reasonable to expect, based on the probability that Brunswick County will not be able to sustain the rate of growth (percentage-wise) experienced during the 70's, 80's, and 90's.

At the same time, local officials have commented that the 1990 Census may have resulted in an undercounting of the permanent population. The County's experience in reviewing subdivision plats, issuing building permits, water taps, etc. leads local officials to believe that the latest projections may be too conservative.

In light of these differing views, this plan recommends that the most recent higher projections be accepted and employed in the 1997 Land Use Plan Update, as a suitable compromise between the State and the County.

7.1.2 Seasonal Population

As was the case for the 1987 and 1992 Land Use Plan Updates, peak seasonal population is currently projected at two overnight visitors for each permanent resident, on the basis of experience to date and volume of tourist housing. Over time, however, as more retirees and permanent residents move to the County, it is expected that the ratio will begin to moderate, perhaps dropping to 1.5 visitors per permanent resident by the year 2010. Thus, a peak day total population of just under 210,000 is expected in the year 2000 and, by 2020, that figure is projected to grow to about 245,000.

Table 7.1.2
ESTIMATED PEAK DAY TOTAL POPULATION*
Brunswick County

Year 2000	Visitor/Permanent Ratio 2.0	(x3)	Peak Day Population 208,959
Year 2010	Visitor/Permanent Ratio 1.75	(x2.75)	Peak Day Population 232,249
Year 2020	Visitor/Permanent Ratio 1.5	(x2.5)	Peak Day Population 244,800

*The above figures include peak day estimates for the incorporated beach communities of Brunswick County. The Brunswick County Planning Department has estimated that peak to permanent population ratios run as high as seven to one in some beach areas of the County.

7.1.3 Economic Projections /Prospects

The economic analysis included as part of Section 5.2 of this Plan documents the following economic trends for Brunswick County.

- A continued decline in agriculturally-based employment.
- A relative decline in manufacturing employment as a percentage of total employment, compared to service and trade employment.
- A continued increase in the volume of travel and tourism related expenditures as a percentage of the total local economy.
- A continued increase in the "mailbox" economy of the county's rapidly growing retirement population; i.e., transfer payments.

In addition, there are several variables *within the control of Brunswick County residents* that can have a marked impact on the future course of the local economy. These variables include:

1. **Education:** The greater the commitment to improved elementary/high school education, the greater the chances of attracting new business and industry to the County for the benefit of local residents.
2. **Infrastructure:** While not a panacea, the County's continuing commitment to provide potable water for urban and urbanizing areas and, perhaps equally important, a multi-jurisdictional commitment to regional sewage treatment systems, can have a positive influence on new economic development.
3. **Image:** The ability of the County to institute new or improved development controls (zoning, subdivision regulations, sign control, landscaping, buffering and tree preservation, etc.), especially along the County's major roadways, will influence the quality of development. In turn the quality of development will influence the income levels of the permanent residents and tourists coming to the area.

Thus, much of the future economic success of the County will depend upon the commitment of area leaders to determine a deliberate course and invest in the facilities, services and growth management tools necessary to achieve their vision.

7.2 Future Land Use Needs

The State's coastal land use planning guidelines require that estimates be prepared showing how the land classification map compares with projected land use needs of the county over the planning period. In the case of Brunswick County, this requirement rests primarily with the needs and projections of the *Developed* and *Transition* areas. (The Community Class simply reflects existing enclaves of residents, the Developed Class is confined to the incorporated municipalities, the Conservation Class recognizes areas which should receive little or no growth, and the Rural Classes are essentially the residual areas not assigned to any other class.)

Population projections by incorporated versus unincorporated areas.

The Developed Class as used in this plan is reserved exclusively to the incorporated towns of the County, while the Transition areas are targeted for unincorporated areas. Thus, an examination of population projections for incorporated versus unincorporated areas will give some indication of the relative demand for land in the unincorporated areas of the County. The methodology for this determination follows.

Table 7.2 POPULATION PROJECTIONS
BY INCORPORATED VS. UNINCORPORATED AREAS

	1980	1990	2000	2010	% 1980	%1990	%2000	%2010
Towns	8,615	15,644	24,379*	29,559*	24%	30%	35%	35%
Uninc.Area	27,109	35,341	45,280*	54,895*	76%	70%	65%	65%
Total	35,777	50,885	69,653	84,454	100%	100%	100%	100%

*Population projection applies to areas within 1990 municipal/unincorporated boundaries—does not account for population shifts due to new incorporations or annexations.

Source: U.S. Census, Office of State Planning and Glenn Harbeck Associates.

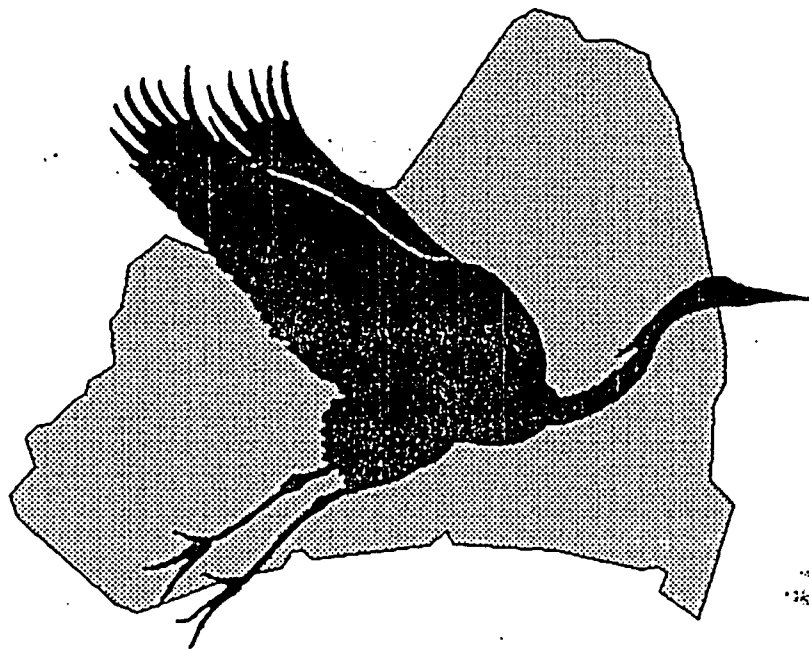
The above table assumes that the percentage of the total county population within the County's 1990 municipal/unincorporated areas will increase by another 5% through the year 2000, and then level off as new regional sewage systems come fully on line in unincorporated areas between the year 2000 and 2010.

Beyond these general projections, it is not possible to predict, with any measure of reliability, the amount of land area that may be necessary to absorb the growth that is foreseen in the unincorporated areas of the County. In fact, County leaders hope that with the advent of new regional sewage systems, an increased emphasis on a town and country growth pattern, and the institution of growth management measures to encourage compact or cluster style development, that the land use consumption patterns of the past two decades can be substantially reduced. The Land Classification Map and Policies contained in this plan reflect this objective.

What can be said, however, is that by about the year 2015, it is likely that the County as a whole will need to absorb nearly twice as many residential units as were on the ground in 1990. Just how the County decides to absorb that growth, and whether the County can effectively follow through on the policies of this plan is the real question. For a more detailed explanation of the growth management tools available to the County to implement this plan, please see Section 8.3.3, entitled Urban Growth Pattern Desired.

7.3 Community Facility And Service Demands

For the sake of uninterrupted analysis and continuity of presentation, a discussion of community facilities demands is included in each of the community facility evaluations conducted in Section 6.2 of this Plan.



8. Policy Statements

8. Policies for Growth and Development

Introduction To The Policies

The data collection and analysis completed in Sections 4,5,6 and 7 of this plan was geared to gathering and summarizing information related to the growth of Brunswick County. Building upon this information, a series of official local government policies are hereby set forth. As officially adopted policies of the Brunswick County Board of Commissioners, they serve as the basis for future decisions on land use, development and capital improvements.

Policy Format

Each major category in the 1997 update to the Policies for Growth and Development is addressed according to the following format:

Discussion

A brief summary of the issues, relevant findings and, where applicable, alternative policy responses.

Policy Statement

Statement(s) of local government principal designed to achieve legitimate public objectives related to the issue.

In addition, Section 12.3 of this Plan, entitled the Action Agenda, includes a number of potential **Implementation Actions** designed to carry out the Policies of the Land Use Plan over the next five years.

It is important to understand that the narrative (discussion) is not policy, and does not carry the same degree of importance as the actual policy statements. The narrative is designed to provide background and rationale for the ensuing policy statement. In most instances, the discussion serves to identify a problem or issue, and may present a summary of findings from other technical studies. There is no intent to establish policy within any discussion section. More detailed discussions of issues related to policies are found in the earlier information sections of the Plan.

The policy statements, on the other hand, must be viewed in a wholly different light. As statements of local government principle, the policies should remain substantially unchanged during the five year planning period. Frequent changes to the policies would undermine their effectiveness in achieving intended goals and objectives. Indeed, the policies are designed to maintain a consistent and predictable direction for local government decisions affecting local growth and development during the planning period. In reviewing the pages that follow, the reader is asked to focus greatest attention on the policies, while relying upon the discussion primarily as explanations as to intent.

8.0 General Vision Policy for Next Ten Years

The CAMA Land Use Planning Guidelines suggest that the policy section begin with an overall guiding policy regarding future growth and development. It is recognized that rapid growth has occurred and will continue to occur in Brunswick County due to its coastal location, the quality of its natural setting, and its favorable climate. This growth is predominantly in the form of a growing tourism economy, rapidly rising seasonal and permanent populations and related residential and commercial development. At the same time, new industrial development is encouraged to help diversify the economy and provide higher paying jobs to area residents. The County wishes to encourage and direct development in a manner which provides for economic opportunity while being supportive of a fragile coastal environment. The following policy statement emphasizes the need for diligence in working to preserve and enhance these qualities.

Policy 8.0

We, the residents, businesses, and property owners of Brunswick County shall seek to preserve and enhance our natural and human resources, and will plan for and accommodate future growth while simultaneously maintaining and improving the quality of life for current and future residents.

8.1 Resource Protection Policies

8.1.0 Basic Policy Statement Regarding Resource Protection

Brunswick County derives much of its economic opportunity and quality of life from the natural amenities of its coastal location. For the county to continue to be a desirable place to live, visit, and work, these natural amenities must be protected, preserved, and whenever possible, improved upon. The land use plan must therefore establish decision making policies and implementation actions designed to achieve a balance between the industrial, commercial and residential development of the county and the continued maintenance of the natural systems that are the driving force in attracting new development.

Policy 8.1.0

The natural and scenic resources of Brunswick County enable many business owners and employees to earn a livelihood, residents to have a high quality of life, and visitors to enjoy the many attractive features of the area. Brunswick County, through its policies and actions, shall not support or approve any action which would significantly jeopardize the long term viability of our natural and scenic resources.

8.1.1 Constraints To Development

Development activities in Brunswick County are constrained by a variety of natural and manmade limiting factors, as discussed in Sections 6.1 and 6.2 of this plan. Of the various natural limitations on development in the County, the suitability of soil for septic tanks is, by consensus, the single most significant constraint presently facing the area. Citizen comments received at the public input meetings held for the land use plan consistently focused on sewage disposal and septic tank permits as a central issue facing the county. Regarding sewage disposal generally, citizens attending the input meetings stated that without additional centralized sewage treatment systems, further economic growth in the county would be seriously constrained. At the same time, many residents and property owners felt that it has become far too difficult to gain approval for a septic tank permit. While the County has responded by hiring more personnel in this area of the Health Department, the fact remains that many parts of the County have soils which are low lying and wet, or have a seasonal water table that is very close to the ground surface.

Another natural constraint to development in Brunswick County, though less pervasive than the septic tank suitability problem, is the occurrence of areas prone to flooding. Flood prone areas have been identified by the Federal Emergency Management Agency (FEMA), FLOOD INSURANCE RATE MAPS (FIRMs) and the U.S. Army Corps of Engineers Special Program to List the Amplitude of Surge from Hurricanes (SPLASH—Also see Section 8.5).

In addition, a SLOSH (Sea, Lake, & Overland Surges) model was designed by the National Hurricane Center in 1992 for the Myrtle Beach and Wilmington area. The Wilmington District of the US Army Corps of Engineers was project manager for the study, which was funded by FEMA, the US ACOE and the State of North Carolina. The work resulted in the production of a Storm Surge Atlas for the Myrtle Beach to Wilmington area.

The composite natural hazards map found in the back of this plan, identifies flood prone areas in Brunswick County. Considering the total amount of acreage in unincorporated Brunswick County, there is a relatively large percentage of land area in the County that is free from the effects of flooding.

Policy 8.1.1(a)

Development is encouraged to locate in areas without soil suitability problems and where infrastructure is available. In areas where suitability problems exist, engineering solutions are supported to the extent that the natural environment is not compromised.

Policy 8.1.1(b)

In the absence of sewer facilities, the County shall work cooperatively with property owners to reevaluate site suitability for septic tank use. When soil conditions are such that, in the opinion of County sanitarians, health or environmental standards would be compromised, full explanation of the reasons for denial shall be given, and alternatives for possible solutions provided.

Policy 8.1.1(c)

Brunswick County supports the administration and enforcement of applicable flood plain management regulations and the national flood insurance program.

8.1.2 Areas of Environmental Concern

The Coastal Area Management Act (CAMA) of North Carolina calls for the identification of certain environmentally fragile and important land and water areas that are judged to be of greater than local significance. The Coastal Resources Commission (CRC), in cooperation with local governments in the 20-county coastal area, has developed a program of permit review and coordination within these Areas of Environmental Concern (AEC's). The intent of the regulatory program is not to stop development, but rather to insure the compatibility of the development with the continued productivity and value of certain critical land and water areas. Each AEC category is summarized below with the applicable policy statement immediately following. The reader is urged to consult with the full definition and state-promulgated use standards of each AEC category before contemplating development in these areas.

Policy 8.1.2.0

Brunswick County will support and enforce, through its local CAMA permitting capacity, the State policies and permitted uses in the Areas of Environmental Concern (AEC's). Such uses shall be in accord with the general use standards for coastal wetlands, estuarine waters, public trust areas and ocean hazard areas as stated in 15A NCAC Subchapter 7H.

Note: The first four AEC's described below together make up the estuarine system AEC's: Coastal Wetlands, Estuarine Waters, Estuarine Shorelines, and Public Trust Waters. They are presented as a system because they are ecologically interrelated.

8.1.2(a) Coastal Wetland AEC's

These are marshes, subject to regular or occasional flooding by tides, including normal wind tides. In Brunswick County, these are predominantly salt water marshes and brackish marshes along the county's rivers and the intracoastal waterway. Other significant wetlands are found along the Cape Fear River. These marshlands serve as a critical component in the coastal ecosystem. The marsh is the basis for the high productivity of the estuary, which is the primary input source for the food chain of the entire coastal environment. Estuarine dependent species of fish and shellfish, such as menhaden, shrimp, flounder, oysters, and crabs, contribute tremendous value to the economy of North Carolina's commercial and recreational fisheries.

Marsh plants found in coastal wetlands include saltwater Cordgrass, Black Needlerush, Glasswort, Salt Grass, Sea Lavender, Salt Meadow Grass, and Salt Reed Grass. The roots and rhizomes and seeds of the marsh grasses serve as food for waterfowl, and the stems as wildlife nesting material. The tidal marsh also serves as the first line of defense in retarding estuarine shoreline erosion. The plant stems and leaves tend to dissipate wave action while the vast network of roots resists soils erosion. Coastal wetlands operate additionally as traps for sediments, nutrients and pollutants originating from upland runoff. Siltation of the estuarine bottom is reduced, and pollutants and excess nutrients absorbed by plants do not burden the coastal waters.

Protection of these sensitive habitats continues to be a high priority for local officials. These marshes should be considered unsuitable for all development and for those land uses which would alter their natural functions.

Policy 8.1.2(a)

Due to the critical role that wetlands play in protecting the quality of estuarine waters and in providing habitat for fish and wildlife, Brunswick County strongly supports the efforts of State and Federal agencies to properly designate and preserve coastal wetlands. Such preservation shall be balanced with the economic and community values of piers, docks, and marinas which serve the public, whether they be publicly or privately owned.

8.1.2(b) Estuarine Water AEC's

An estuary is a semi-enclosed water body having free connection with the open sea and within which sea water is measurably diluted with fresh water drained from the adjacent land. The immense productivity of estuarine waters results largely from unique circulation patterns, nutrient trapping mechanisms, and the protective habitats they provide. Estuarine circulation, influenced by tidal currents, fresh water influx, and shallow bottom depth, keeps the estuarine waters well flushed, dispersing nutrients, juvenile stages, and wastes. Common features in estuarine waters include mud flats, eel grass beds, clam and oyster beds, and fish and shellfish nursery areas. In Brunswick County, estuarine waters are found in the intracoastal waterway and in the southern sections of the Cape Fear, Shallotte, and Lockwood Folly Rivers. As noted in Section 6.1.1(f), all of the County's estuarine waters have been classified as SA (high quality), but many are closed to shellfishing because of unacceptable fecal coliform counts.

The high value of commercial and sports fisheries and the aesthetic appeal of coastal North Carolina are dependent upon the conservation and protection of its estuarine waters. Appropriate uses in and around estuarine waters are those which preserve estuarine waters so as to safeguard and perpetuate their biological, economic and aesthetic values.

Acceptable uses should be water dependent uses such as navigable channels, piers and docks, and mooring pilings, provided that they do not directly or indirectly block or impair existing navigation channels, increase shoreline erosion, deposit spoils below mean high tide, cause adverse water circulation patterns, violate water quality standards or cause degradation of shellfish waters.

Policy 8.1.2(b)
Developments and mitigation activities which support and enhance the natural function, cleanliness, salinity, and circulation of estuarine water resources shall be supported.

8.1.2(c) Public Trust Waters AEC's

Public trust waters are all ocean and inland waters from the mean high water mark to the seaward limit of State jurisdiction. The State of North Carolina supports the traditional public rights of access to and use of Public Trust Waters for purposes including navigation, fishing, and recreation. These areas support valuable commercial and sports fisheries, have aesthetic value, and are important resources for economic development. Navigation channels, piers, marinas, and bulkheads to control erosion are examples of uses which may be found acceptable in Public Trust Waters.

Unless the body of water is a private lake with no public access, it is safe to assume that the water is in the public trust, unless otherwise specifically documented. One issue of special concern in Brunswick County is the trend toward longer piers extending out into the County's estuarine waters. As prime waterfront sites—those with deep water close to shore—have become developed, remaining waterfront sites must build longer piers to reach water of adequate depth for boat dockage. While state regulations require that such piers do not block stream channels, the net effect in many instances is to inhibit the movement of watercraft in the estuary. This is particularly evident at high tide when small boats, which would normally have free movement through the estuary, must constrain their navigation to limited pockets of open water, essentially fenced in by these long pier lengths. In the case of small sailing craft, the presence of these long piers may totally prevent the craft from sailing through the affected body of water.

The County recognizes that this is a complex issue, requiring a careful balance between the rights of the public and the rights of the waterfront property owner. Nonetheless, the County recognizes that the weight of the argument must rest ultimately in favor of the rights of the public to the reasonably unobstructed use of public trust waters.

Policy 8.1.2(c)

The community's need for piers and docks, whether publicly or privately owned, shall be tempered by the rights of the public for the free and open use of public trust waters for navigation, shell fishing, and other uses. Efforts of State and Federal agencies to limit the length of docks and piers as they project into estuarine waters are especially supported.

8.1.2(d) Estuarine Shoreline AEC's

Estuarine shorelines are non-ocean shorelines extending from the mean high water level along the county's estuarine sounds bays and brackish waters for a distance of 75 feet land ward. Where the range of salt water influence on fresh water streams ends is also the approximate location where the estuarine shoreline AEC also ends.

Although characterized as dry land and thus potentially "developable", estuarine shorelines are considered a component of the estuarine system because of the close association with adjacent estuarine waters. These

shorelines may be especially vulnerable to erosion, flooding, or other adverse effects of wind and water and are intimately connected to the estuary.

Because development within the estuarine shoreline AEC can harm the marshlands and estuarine waters, and because of the inherent dynamic and hazardous nature of coastal shorelines, specific restrictions, limitations and standards have been adopted by the State for construction in these areas, as outlined in 15A NCAC 7H at .0209. By regulation, projects cannot weaken natural barriers to erosion, shall have limited impervious surfaces, and shall take measures to prevent pollution of the estuary by sedimentation and runoff. A CAMA (Coastal Area Management Act) permit must also be obtained for compliance with these standards.

Policy 8.1.2(d)

Brunswick County supports the protection and preservation of its estuarine shorelines, as enforced through the application of CAMA use standards.

8.1.2(e) Ocean Hazard Area AEC's

These are natural hazard areas along the ocean shoreline which are especially vulnerable to the effects of sand, wind, water and erosion. Ocean hazard areas include beaches, frontal dunes, inlet lands, and other areas in which geologic, vegetative and soil conditions indicate a substantial possibility of excessive erosion or flood damage, and where uncontrolled or incompatible development could unreasonable endanger life or property. Improper development can also disturb the natural barrier island dynamics and sediment transport, and can interfere with the beach's natural defenses against erosion. Furthermore, there is considerable evidence to suggest that sea level has been and is expected to continue rising steadily. This will result in higher water levels, inundation of wetland areas, and loss of beachfront area.

Within the Ocean Hazard Area AEC are four sub areas as follows: (1) The ocean erodible area (2) The high hazard flood area (3) The inlet hazard area and (4) The unvegetated beach area. Each may be described as follows:

- **Ocean Erodible AEC.** The ocean erodible area is the portion of the shoreline where there exists a substantial possibility of excessive erosion and significant shoreline fluctuation. The ocean erodible AEC is based on a setback from the first line of stable natural vegetation plus an additional area where erosion can be expected from storm surges and wave action. This area includes the ocean beaches and the frontal dune system.

Ocean erodible areas are extremely dynamic lands highly susceptible to becoming displaced by the ocean due to erosion, storms, and sea level rise. The sand deposits of ocean beaches and shorelines represent a dynamic zone which does not afford long term protection for development. The nature of tidal action and the force of storms is such that they cause the beach areas to constantly shift. In addition, littoral drift is a natural phenomenon whereby sand is removed from beaches by wave action and littoral currents and is deposited upon a different stretch of the beach.

The major management objective is to avoid unnecessary hazards to life or property and to maintain reasonable requirements for public expenditures to protect property or maintain safe conditions. This area must be preserved to the greatest extent feasible with opportunity to enjoy the ocean beaches of the State. Appropriate development within the area must be that which will withstand the prevalent natural forces, comply with CAMA and other state requirements, and not unreasonably interfere with the public's use and enjoyment of the beach area.

- **High Hazard Flood AEC.** This is the area of the coast subject to high velocity wave action and storm surge during severe storms. This area typically extends along the shoreline and to some distance landward of the frontal dune. The Federal Emergency Management Agency (FEMA) identifies flood zones for a "100 year" storm on the flood insurance rate maps (F.I.R.M.'s), and designates the high hazard flood AEC as the V zone. The extent of flood hazard areas in Brunswick County is shown on the Hazard Areas, 1997 map.

- **Inlet Hazard AEC.** Inlet Hazard areas of environmental concern are especially vulnerable to erosion, flooding, and other shoreline changes due to their proximity to extremely dynamic, migrating coastal inlets. The inlet hazard area is defined to "extend landward from the mean low water line a distance sufficient to encompass that area within which the inlet will, based on statistical analysis, migrate, and shall consider such factors as previous inlet territory, structurally weak areas near the inlet (such as an unusually narrow barrier island, an unusually long channel feeding the inlet, or an overwash area), and external influences such as jetties and channelization."

The State's original inlet hazard areas were identified in the report to the CRC entitled "Inlet Hazard Areas" by Loie J. Priddy and Rick Carraway (September 1978). The inlet hazard area "shall be an extension of the adjacent ocean erodible area and in no case shall the width of the inlet hazard area be less than the width of the adjacent ocean erodible area."

- **Unvegetated Beach AEC.** These areas are fragile, unstable and unpredictable sections of the ocean beach area. They are subject to rapid changes from wind and wave action. They include the sand reaches often found near inlets and undeveloped beach strands. As in other beach areas, the public maintains a right to access to these beaches. While there are many areas of "unvegetated beach" within Brunswick County, there is no section of area beaches which meets the particular definition for an unvegetated beach AEC as prescribed by the Coastal Resources Commission.

Nearly all ocean hazard areas in Brunswick County are located within the incorporated beach communities. The only exception is the extreme eastern tip of Oak Island and part of Bird Island.

Policy 8.1.2(e)

Brunswick County supports state and federal standards for the management of development in the ocean hazard AECs under the County's planning jurisdiction; the Baptist assembly grounds and part of Bird Island.

8.1.2(f) Public Water Supply AEC's

This category consists of small surface water supply watersheds and public water supply well fields. While there are currently no such officially recognized areas in Brunswick County, public input received during meetings held for the 1997 Land Use Plan indicated some support for designation of, for example, the 211 water treatment plant well sites as a Public Water Supply AEC. In addition, the recently completed Brunswick County Aquifer Sensitivity Map and supporting narrative makes several recommendations for the proper management of land uses in the county relative to their location over different groundwater areas. (See Policy Section 8.1.5 for a discussion of the vital need to protect the County's groundwater resources.)

Policy 8.1.2(f)

Brunswick County supports the designation of Public Water Supply AEC's when such designation meets State prerequisites and when such action is deemed necessary to ensure the long term viability of the County's public water supplies.

8.1.2(g) Natural and Cultural Resource AEC's

Within the system of Natural and Cultural Resource AEC's there are five distinct sub-categories:

1. **Coastal Areas That Sustain Rare Species**—areas that support native plants or animals determined to be rare or endangered.
2. **Coastal Complex Natural Areas**—lands that support native plant and animal communities and provide habitat qualities which have remained essentially unchanged by human activity.
3. **Unique Coastal Geological Formations**—sites that contain geological formations that are unique or otherwise significant components of coastal systems, or that are especially notable examples of geologic formations or processes in the coastal area.
4. **Significant Coastal Archaeological Resources**—these are areas that contain archaeological remains (objects, features, and or sites) that have more than local significance to history or pre-history.
5. **Significant Coastal Historic Architectural Resources**—defined as districts, structures, buildings, sites or objects that have more than local significance to history or architecture.

Currently, there are no natural or cultural AEC's located in the unincorporated area of Brunswick County. Nonetheless, there are many areas which may be deserving. (See section 8.1.4 below for examples of several such areas)

Policy 8.1.2(g)

Brunswick County supports the selective designation of appropriate areas as natural and cultural resource AEC's (Coastal Complex Natural Areas, Coastal Areas That Sustain Rare Species, Unique Geologic Formations, Significant Coastal Archaeological Resources and Significant Coastal Historical Architectural Resources).

8.1.2(h) Wildlife Protection

The protection of wildlife and natural resources was identified as an important issue at public meetings held for both the 1992 and 1997 land use plans. Brunswick County has one of the richest, most biologically diverse ecological systems in North Carolina. The county has numerous wildlife refuges, natural areas, reserves, and sanctuaries for the propagation and management of the region's abundant wildlife. (See especially Section 8.1.4 below).

Measures to protect wildlife and natural resource areas fall largely into one of two categories. First, existing state and federal management policies for specifically designated preserves, sanctuaries and other natural resource areas are instrumental in conserving habitat for wildlife. Second, this plan's emphasis on policies and actions which encourage a distinct "town and country" development pattern can be effective in conserving valuable open space for wildlife propagation by discouraging suburban sprawl.

Policy 8.1.2(h)

The abundance and diversity of wildlife in Brunswick County shall be preserved and enhanced through protection of the unique coastal ecosystems, including marshes, woodlands, open fields and other areas upon which they depend.

8.1.3 Wetlands of Highest Functional Significance

At the time of this writing, the State was in the process of developing and refining the mapped information regarding Wetlands of Highest Functional Significance for Brunswick County. When this information is completed, the County will take appropriate action to address this policy area in accordance with CAMA guidelines.

Policy 8.1.3

None at this time. Awaiting mapped information and explanatory text.

**8.1.4 Other
Hazardous or
Fragile Land Areas
Introduction**

According to a June 1991 article in *North Carolina Wildlife* ("Stew in Brunswick", by Lawrence S. Earley) Brunswick County is one of the most biologically diverse areas in the State of North Carolina. The article quotes Alan Weakley of the North Carolina Heritage Program as saying "Brunswick County has, by far, more records of rare plants, animals and significant natural communities than any other county in the state". More specifically the article continues, "Brunswick County has...more than 500 'natural heritage elements', or populations of rare plants and animals and high quality natural communities. Only three other counties have more of these elements of natural diversity. Brunswick County is the only county with more than 100 rare plant records."

In addition, Brunswick County is the only county with more than 20 natural areas of national and statewide significance. As compiled by the State's Heritage Program, several of the most notable natural areas include the following:

Orton Pond

Millpond and surrounding uplands provide breeding habitat for anhinga, osprey, fox squirrels, alligators, red-cockaded woodpeckers and a rare snail (*Planorbella magnifica*). The Natural Heritage Program rates this site as having national significance.

**Bolling Spring
Lakes Wetland
Complex**

The largest group of pocosins, Carolina bays and savannas in private ownership. Several rare plants have been found here, including the rough-leaf loosestrife. National significance.

**Military Ocean
Terminal Sunny
Point**

The 12,000-acre military base contains a large number of limesink ponds, longleaf pine forests and pocosins which provide habit for many rare and endangered plant and animals species. National significance.

**Waccamaw River
Aquatic Habitat**

The habitats associated with the Waccamaw River contain rare plants, including the disjunct Plymouth gentian, and several rare fish and shellfish. National significance.

Bald Head Island

Diversity of high-quality maritime communities, including the largest remaining maritime forest in the county. The island also hosts the state's only locations of cabbage palm (*Sabal palmetto*). Large numbers of loggerhead sea turtles nest on the island's beaches. National significance.

**Green Swamp
Preserve**

Owned by The Nature Conservancy, the 15,700-acre Green Swamp Preserve consists of an extensive pocosin wetland system associated with probably the best remaining longleaf pine savannas in the state. Provides unique habitat for 14 insectivorous plants and a variety of wildlife, including the black bear, American alligator and red-cockaded woodpecker. National significance.

Battery Island

The maritime forests on this natural island in the lower Cape Fear River host the state's largest breeding colony of herons, egrets and ibises. More than 5,500 nests have been counted. National significance.

**Brunswick-Cape
Fear River Marshes**

The extensive freshwater tidal marshes in this area support one of the largest populations of alligators of any North Carolina river or estuary. Statewide significance.

**Sunset Beach,
Wood Stork Ponds**

In late summer, these ponds are visited by post-breeding wood storks from Florida and Georgia. The ponds are the northernmost localities on the Atlantic coast used by wood storks. Statewide significance.

**Bryant Mill
(Greenbank) Bluff**

Located along the southern shore of the Cape Fear River, this bluff contains a variety of wet and dry habitats sheltering several unusual plant species, including large-leaved grass-of-Parnassus. National significance.

**Zeke's Island
Estuarine Sanctuary**

Complex of islands, marshes, tidal flats and shallow estuarine water on the northern end of Bald Head Island. An important nesting site for loggerhead sea turtles and colonial nesting waterbirds. Statewide significance.

The article notes that most of the county's 20 significant sites are either privately owned or have extremely limited access. Most of the areas identified fall into one or more of the following specific fragile land area categories suggested by the Coastal Area Management Act Land Use Planning Guidelines.

Also see Section 8.1.10 for a discussion of Bird Island).

**8.1.4 (a) Freshwater
Swamps, Marshes,
Pocosins, and 404
Wetlands**

According to National Wetlands Inventory mapping, Brunswick County contains literally thousands of acres of fresh water swamps and marshes, including pocosins and 404 wetlands. While many of these areas have been specifically identified as described in the introduction above, there are many thousands more throughout the length and breadth of the county.

This land use plan, through the land classification map and associated policies, seeks to direct urban level development to specific geographic areas of the county where adequate services are currently provided or can be provided cost effectively. Even within the designated growth (Transition) areas, the county recognizes that there may be extensive areas of fresh water wetlands that cannot be developed without considerable economic and environmental costs. Therefore, the intent of the County's growth policies as contained in this plan is to direct development first, to general geographic areas and secondly, to specific "dryer sections" within the borders of these areas. The specific mechanism by which this policy is implemented on individual sites is through the requirements and standards of the NC CAMA permitting program and the US Army Corps of Engineers "404" permitting program.

8.1.4 (a)

Brunswick County will continue to support the efforts of the CAMA program and the U.S. Army Corps of Engineers 404 permitting program to preserve and protect sensitive fresh water swamp and marsh areas.

**8.1.4(b) Maritime
Forests**

According to a report published by the North Carolina Division of Coastal Management in November of 1988 (An Assessment Of Maritime Forest Resources On The North Carolina Coast, Michael J. Lopazanski, et al) maritime forests are the woody plant communities that develop as an end result of primary succession on coastal dune systems. The report further notes that maritime forests are generally restricted to the coastal barrier islands. (Lopazanski, p. 1)

For Brunswick County, this means that most maritime forests fall within the planning jurisdiction of the incorporated beach communities along the county's ocean shore.

In their 1988 report, Lopazanski, et al compiled "a complete inventory of all maritime forest tracts remaining in North Carolina greater than 20 acres in size". According to the report, the only remaining maritime forest areas in southeastern North Carolina meeting this size requirement are located on Bluff Island, Middle Island, and Bald Head Island. Middle and Bald Head are within the planning jurisdiction of the Village of Bald Head Island, while Bluff is a publicly owned nature preserve within the planning jurisdiction of Brunswick County.

Even so, at least one other source (Earley, 1991) has noted the presence of some maritime forest habitats along the tidal creeks and ridges on the northern bank of the intracoastal waterway in Brunswick County. Because these unique areas are in such short supply, Brunswick County is all the more interested in preserving these few remaining areas for future generations.

Policy 8.1.4.b

Maritime forests in Brunswick County shall receive a high level of environmental protection when considering public and private sector uses. When development is considered, preferred usage shall be for low intensity or clustered development forms, which preserve the majority of forest cover. (See also Policy 8.3.18 Tree cover and Landscaping)

8.1.4.c) Outstanding Resource Waters (ORW)

There are currently no Outstanding Resource Waters identified within the planning jurisdiction of Brunswick County. Lockwood Folly River was at one time up for consideration as an ORW, but was removed from the list of potential ORW's due to periodic high bacterial levels. The NC Division of Environmental Management has reported that failing septic tanks and storm water runoff from subdivisions along the river are the most likely causes of high counts of fecal coliform in the river. High fecal coliform counts have required the closing of shell fishing beds over widespread portions of the river. Mapping provided by the State Division of Coastal Management confirms this assessment, in that nearly all of the upper and middle reaches of the Lockwood Folly River are shown as being closed to shellfishing. Since the 1980's, the State has continued to monitor fecal coliform levels in the river on a routine basis. Brunswick County officials have continued to express their support for a specific management plan to restore the river's water quality, including possible future reconsideration as an ORW. Included among the possible options available to improve water quality is a realignment of the river's ocean inlet to a location more directly in line with the main channel of the river. Some observers feel that such a realignment would facilitate the free movement of ocean water into and out of the upper reaches of the river, thereby flushing the stream of undesirable fecal coliform and other pollutants.

Policy 8.1.4(c)

Brunswick County supports State and local efforts to restore the water quality of the Lockwood Folly River, as well as other estuarine waters in the county to a water quality level deserving of ORW designation.

8.1.4(d) Shellfishing Waters

As noted in section 6.1.1(f) of this report, many of Brunswick County's principal shellfishing waters have been closed to shellfishing due to high levels of fecal coliform. These waters include much of the Shallotte River, the Lockwood Folly River, and the Intracoastal Waterway. The key to solving the problem appears to be reducing stormwater runoff from all sources in each watershed, including runoff from golf courses and lawn areas, highways, streets, driveways, and parking lots, agricultural lands, livestock operations, and other sources of nutrients and toxins. At the same time, the County must also consider the possibility of sewage related point sources of pollution, including malfunctioning septic tanks, and the occasional breakdown of municipal sewage treatment plants and package treatment plants.

Brunswick County has acknowledged the enormous and wide-ranging challenge it faces, and is addressing the problem on several fronts. One is the Sanitary Sewer and Stormwater Management Committee, appointed by the County Commissioners. Their charge is to look into pre-emptive means of warding off the adverse impacts typically associated with developed spawned by the advent of additional centralized sewage treatment facilities. A

second approach is to reexamine the County's development standards, most particularly the County's subdivision regulations. These standards, which determine how new residential subdivisions are to be laid out and developed, can be quite influential in determining drainage requirements, and thus stormwater runoff levels. (See Section 12 Implementation Actions for more on these planned courses of action.)

Policy 8.1.4(d)

The County supports and encourages the activities of the State's Shellfish Management Program. The County shall continue to promote estuarine water quality through its stormwater management planning and stormwater runoff policies. (See Section 8.1.7)

**8.1.4(e) Water Supply Areas/
Other Waters With
Special Values.**

Please see discussion under Section 8.1.5 for a discussion of the vital need to protect the County's groundwater resources.

Policy 8.1.4(e)

The county's groundwater resources, including but not limited to the Castle Hayne aquifer, shall be recognized as an invaluable source of public and private potable water and shall receive the highest level of protection when considering County policies, standards and actions, including the possible creation of a special overlay district.

**8.1.4(f) Cultural and
Historic Resources**

The State Division of Archives and History has stated that there are no fewer than 172 prehistoric sites and 25 significant historic architectural structures and sites in the unincorporated areas of Brunswick County. The State has also noted that there are, in all likelihood, other properties and sites of prehistoric, architectural and/or historical significance of which they are unaware.

Further, the State office has observed that areas along the county's sound shorelines, stream and river shorelines, and some high ground areas within or around low lying marsh land have a higher than average probability for containing archeological sites.

Support for the protection and enhancement of cultural and historic resources has been strong among some segments of Brunswick County society, as evidenced by historic preservation efforts in Shallotte, Southport, Brunswick Town and elsewhere.

Policy 8.1.4(f)

Brunswick County encourages efforts to protect cultural and historic resources to preserve their cultural, educational and aesthetic values and qualities.

**8.1.4(g) Manmade
Hazards**

As discussed more fully under section 6.1.1, Brunswick County contains several sizable manmade hazards including: Carolina Power and Light Nuclear Facility, the Sunny Point Ocean Military Terminal (and its associated railroad corridors), the Archer Daniels Midland Chemical Facility and the DuPont Chemical facility. In addition, the two general purpose airports within the county are also potentially hazardous. Each of these facilities is an important economic asset to the County and, therefore, deserve all due consideration in avoiding the placement of new development which would lead to immediate or long term land use conflicts. As the areas impacted directly by these facilities involve the planning jurisdictions of the Town of Ocean Isle Beach and the Southeastern Sanitary District, continued inter-local coordination will be necessary. Through the County's Planning Department and Emergency Services Department, the mechanisms are in place to achieve this coordination.

Policy 8.1.4(g)

Brunswick County will seek to minimize potential land use conflicts and hazards related to development in areas near existing, potentially hazardous facilities.

8.1.4(h) Hazardous Materials and Events

The presence of potentially hazardous facilities also implies the possibility of hazardous materials moving through the county. The Carolina Power and Light Nuclear Facility, for example, must rely upon the safe movement of nuclear fuels and related materials to and from the facility. Munitions related to the Sunny Point Ocean Military Terminal may arrive by train and depart by ship. Other ships heading up the Cape Fear River to the State Ports at Wilmington frequently carry cargo which may or may not be officially hazardous. Even so, any man-made or processed materials if spilled into the Cape Fear estuarine system could have varying degrees of impact on the ecosystem.

At the same time, public and private officials involved in emergency management must be prepared for the possibility that a hazardous event could occur related to any of the above noted facilities. The County therefore supports the on-going efforts of each of these facilities to properly plan for such circumstances.

Policy 8.1.4(h)

Plans for the safe transportation of hazardous materials, for the prevention and clean-up of spills of toxic materials, and for the evacuation of area residents in response to hazardous events, shall be supported.

Hurricane and Flood Evacuation

Section 8.5 of this plan deals exclusively with the subject of storm hazard mitigation, post disaster recovery and evacuation. The reader is referred to that section, which includes several policy statements on hurricane and flood evacuation.

8.1.5 Protection of Potable Water Supply

As noted in section 6.2 of this report, Brunswick County was, for several years, moving rapidly away from well water as its primary source of potable water. After much careful study, however, the County has elected to pursue a strategy which involves a balancing of surface and groundwater supplies.

Like other counties at the lower end of the Cape Fear River, Brunswick County is aware of the vulnerable position in which it finds itself when relying upon a surface water supply source whose quality is dependent upon the duty and care of upstream water users. By the time the Cape Fear reaches southeastern North Carolina, the river has received urban and agricultural area runoff, various pollutants, and effluent discharges from an area which encompasses a large part of the heavily urbanized piedmont region of the state. At the same time, there is a continuing concern that interbasin transfers could occur upstream, thereby diminishing the flow volume of the river, and further concentrating pollutants in the stream.

In other words, Brunswick and New Hanover Counties are at the end of the pipe, in a manner of speaking, with regard to the quantity and quality of the water in the Cape Fear River.

Nonetheless, the County's piped water system relies primarily upon surface water from the Cape Fear River for its raw water. The raw water intake for the Lower Cape Fear Water and Sewer Authority, from which the County buys its water, is actually in Bladen County, just upstream of the Lock and Dam Number 1 on the Cape Fear. (Lock and Dam Number 1 effectively defines the upstream limit of the area of salt water influence.)

Until recently, the County had been considering phasing out the old 211 Water Treatment Plant, which was the original treatment plant for the County system, and which draws from a series of ground water wells west of Southport. With precautionary concern about the reliability of surface water in the Cape Fear River, however, the County has now elected to keep the plant operational, primarily as a secondary source of water for the system.

At the same time, the County has also begun exploring the possibility of a third source of water, perhaps from the Pee Dee aquifer or from the Waccamaw River at the South Carolina end of the County. (For more information, see section 6.2)

Regardless of the source or sources of water, protection of the County's raw water supply ranks as a very high priority concern for the future growth and development of Brunswick County, and the whole lower Cape Fear region. The County is vitally interested in state, federal, and local efforts to carefully monitor and control development activities so as not to irreparably damage the very future of the County.

In keeping with this high level of concern, the County recently commissioned a special Brunswick County Aquifer Sensitivity Study to examine the occurrence of groundwater aquifers in different parts of the county for their susceptibility to damage from various types of land use activities. A copy of the resulting Aquifer-Sensitivity Map is included in the back of this plan. The map identifies the approximate boundaries of the Surficial, Castle Hayne and Pee Dee aquifers noting, in particular, the Castle Hayne Sinkhole area, and other aspects of groundwater hydrology and resources in Brunswick County.

The study also includes findings and recommendations for dealing with different types of potential groundwater contaminants, several of which are summarized below. Many of the recommendations contain a large number of qualifications, so the reader is directed to the full report for a complete understanding of the issues involved. Similarly, to better understand the specific terminology employed in the recommendations, the reader is referred to the "Explanation of Map Units, contained on the Aquifer Sensitivity Map.

Excerpts of Key Findings and Recommendations (Edited)
Brunswick County Aquifer Sensitivity Study, 1997
Ralph Heath, Consulting Hydrogeologist

1. On-site disposal of domestic wastes through septic tanks and drain fields

These disposal methods adversely affect the quality of water in the Surficial Aquifer and in the Castle Hayne and Pee Dee Aquifers where they are not separated from the Surficial Aquifer by a confining layer. The areas in Brunswick County in which on-site disposal of domestic wastes are likely to be of greatest concern include the wet flat uplands, tile Castle Hayne Aquifer sinkhole area, and the barrier islands. Where shallow wells are used, 20,000 square foot lots are generally recommended.

2. Land spreading of municipal and industrial wastes

This activity will also adversely affect the quality of water in the Surficial Aquifer, and in the deeper aquifers where the overlying confining layer is absent. To avoid adversely affecting more of the groundwater system than is necessary, these waste sites should generally be located as close as possible to ground-water discharge areas. With the possible exception of the extensive wet flat uplands in the northern part of the Brunswick County, it would probably be desirable that wet flat uplands and the Castle Hayne Aquifer sinkhole areas be avoided for these waste-disposal sites.

3. Lagoon and land-spreading sites for animal wastes

Such animal waste disposal activities have been found to adversely affect both ground-water and surface-water quality. Because of the relatively recent rapid increase in intensive swine operations, the ultimate adverse effect of this industry on both ground-water and surface-water quality is not yet recognized. Now, while the number of operations is still relatively small and the two-year moratorium on new operations is in effect, is probably a good time to consider policies and regulations applicable to intensive livestock operations. Intensive livestock operations may not be desirable in the wet flat uplands because of the shallow depth to the water table and should be prohibited, if at all possible, in the Castle Hayne Aquifer sinkhole area.

4. Sanitary landfills and other solid-waste disposal sites

Regardless of the care with which liners are installed and the effort devoted to maintaining the impervious caps, it must be anticipated that every solid waste site will ultimately be a source of ground-water contamination. Solid-waste disposal sites should not be located in the wet flat uplands, the Castle Hayne Aquifer sinkhole area or on the barrier islands. This leaves only the dry flat and sloping uplands. Recognizing the long-term possibility of ground-water contamination, and the advantage of locating sites where the largest depths to the water table occur, primary consideration should be given to sites adjacent to perennial streams.

5. Rock quarries

While there is no rock quarry presently in the county, Martin-Marietta Materials, Inc. has proposed to develop a quarry in the Castle Hayne Limestone in the area along the west side of the Cape Fear River between Walnut Creek and the Sunny Point Military Ocean Terminal. The site is in the Castle Hayne Aquifer sinkhole area and mining of the limestone would require drawdown of the water level in the Castle Hayne a distance of about 70 feet. Objections to the quarry have included: (1) accelerated sinkhole formation resulting from the quarry dewatering, (2) saltwater encroachment into the Castle Hayne Aquifer from both the Cape Fear River and Walnut Creek, and (3) destruction of wetlands. All of these are valid concerns.

6. Ground water is an important source of supply in Brunswick County. A County-owned wellfield consisting of 15 supply wells capable of producing 6 to 7 million gallons per day is located along State Highway 211 about 5 miles northwest of Southport. Water from this wellfield is used in the county water system to supplement surface water obtained from the Cape Fear River at Lock No. 1. Several of the smaller towns that are not yet connected to the County system have their own supply wells. In addition, many rural residents and some residential subdivisions obtain water from individual wells. Ground water is a very important resource that should receive the maximum possible protection.

While the County's options for protecting its raw water supplies are somewhat limited, and the costs uncertain, the importance of this issue warrants a high level of attention from County officials. The preceding excerpts from the Aquifer Sensitivity Study identify several possible local actions for protecting the groundwater resources of the area. The County Commissioners, at their regular meeting on November 17, 1997 took action to incorporate by reference the findings and recommendations of the Study into this Land Use Plan.

Policy 8.1.5(a)

Brunswick County supports federal, state and local efforts to protect the quantity and quality of water in the Cape Fear River, whether such protection involves controls over point source discharges, surface runoff, inter-basin water transfers, or other appropriate means, including upstream activities.

Policy 8.1.5(b)

Brunswick County supports federal, state and local efforts to protect the quantity and quality of water in the region's groundwater system, whether such protection involves controls over the location and management of activities involving hazardous substances, restrictions on groundwater drawdowns, or any other activity which would jeopardize the short and long term viability of groundwater resources.

Policy 8.1.5(c)

Brunswick County will continue improvements to and expansion of the County's potable, piped water supply system, with emphasis on the development of a self-supporting operation where costs are assigned in relative proportion to the benefits conveyed.

Policy 8.1.5(d)

So as to facilitate the orderly development of the County water system, Brunswick County shall establish and maintain utility extension and tap-on policies designed to address the timing, location, priorities and sequence, etc. of system expansion.

**8.1.6 Package
Sewage Treatment
Plants**

As noted in Section 6.2 of this plan, Brunswick County has assumed a leading partnership role in the development of additional centralized sewage treatment facilities at various locations in Brunswick County. Once these various new systems are up and running, it is hoped that most new development will be tied to the publicly operated sewage treatment system closest to them. Not only would this relieve the technical problems associated with septic tanks, but it would also (1) provide the opportunity to better control the location of new development and (2) encourage new development to occur in compact clusters, rather than in the more typical sprawling, large lot pattern fostered by dependence on septic tanks.

All that said, the likelihood of achieving such centralized sewage service for many new developments is doubtful in the near term. Brunswick County is simply too spread out, and the technical, financial and political requirements necessary to build such systems can often be daunting.

Therefore, until such a time as centralized sewage treatment facilities are put in place, new developments in the county will have to rely upon either septic tanks or package sewage treatment plants for their sewage disposal needs. In this regard, package sewage treatment plants have the following factors working in their favor:

1. Newer developments are occurring increasingly on marginally suitable soils.
2. In recent years, regulations concerning the siting and operation of conventional septic tanks have been tightened.
3. The need for a greater variety of housing types in the county—including multi-family cluster development and other forms of innovative residential development—calls for sewage disposal other than by septic tanks.

Even so, all is not favorable when it comes to the merits of package treatment plants. In recent years, increasing concerns have been voiced about the reliability of package sewage treatment plants, and the ability of authorities to adequately monitor their operation. Also, it has been reported that even the developers who install such systems would much prefer the option of tying into a centralized public system rather than dealing with the up front costs, as well as the operation and maintenance of a package treatment plant.

On balance, Brunswick County has elected to adopt a policy in support of the use of package treatment plants, but only in the absence of centralized public sewers. Further, when such package plants are designed, they should be constructed so as to allow for later abandonment and connection of the system to a centralized system.

Policy 8.1.6

Brunswick County advocates the development and use of regional sewage treatment plants over smaller, privately operated package sewage treatment plants. When package treatment plants are employed, they should be designed to allow for future connections to a larger regional system.

8.1.7 Stormwater Runoff

North Carolina hydrogeologist Ralph C. Heath, when speaking about the coastal area, stated over ten years ago that the... "construction...of multi-story condominiums, motels and other vacation facilities, with their parking lots, tennis courts, and swimming pools, is resulting in the creation of large expanses of impervious areas. Disposing of the runoff from these areas during storms in a manner that is not detrimental to the adjacent sounds and ocean is among the most pressing water management problems now confronting the developer and the public officials in this area." (News: Water Resources Research Institute of the University of North Carolina, November 1986).

More recently published findings by State and Federal researchers have confirmed Heath's concerns, pointing increasingly to non-point source pollution as the principal cause of the degradation of water quality nation-wide. The construction of large, impervious surfaces associated with major commercial and residential development, accelerates the rate at which rain waters reach nearby receiving waters. In coastal areas, this rapid influx of fresh water can change the natural salinity of the sound water and disrupt the biological balance of the natural system. The water can also carry higher than normal levels of nutrients and other biodegradable materials that can create excessive oxygen demand for decomposing the material. Many of these factors have been witnessed in the continued rapid growth and development of Brunswick County, and associated declines in area water quality. The widespread closing of the county's estuarine waters for shellfishing is but one symptom of a much larger, multi-faceted problem.

In light of the importance of this problem, the County has undertaken several steps to begin to slow the amount of stormwater reaching estuarine waters. Because the situation stems from an accumulation of problems, it will require an accumulation of actions to correct the problem. Nonetheless, action must start somewhere. Among all the possible actions which could be taken, one that is often cited as being effective is to employ vegetated buffers immediately adjacent to receiving waters. Just as an artificial "silt fence" at construction sites works to prevent soil and sediment from leaving the site, permanently vegetated buffers act to filter stormwater runoff headed for adjacent streams.

Such a program of stream buffers does not single anyone out but applies equally to residential subdivisions, farms, golf courses, shopping centers, and State and local roads. Brunswick County is currently exploring the feasibility of requiring vegetated buffers in all new developments, and by encouraging existing property owners to allow such buffers to grow up adjacent to rivers, lakes and creeks—even ditches. This initiative is also consistent with recommendations of the recently prepared Cape Fear River Corridor Plan, which recommends the use of naturally vegetated buffers along the river shore as well as along the smaller watershed tributaries feeding the River. In this regard, the County may wish to explore the potential for tapping into funding available through the Clean Water Management Trust Fund of the State of North Carolina. (Also see Implementation Action 8.1.7 in Section 12).

Policy 8.1.7(a)

Brunswick County shall take a proactive role in the development of storm water management and design standards intended to protect the quality of the county's streams, rivers, marshes and estuarine systems.

Policy 8.1.7(b)

Brunswick County shall support a program of vegetated buffers adjacent to all streams, rivers, marshes and estuarine waters in the county with the intent of reducing the flow of nutrients and other contaminants into area surface waters.

Policy 8.1.7(c)

Brunswick County shall advocate a policy of stormwater runoff management in which post-development runoff has a rate of flow and volume which approximates, as closely as practical, pre-development conditions.

8.1.8(a) Marinas

Regarding marina development, the County believes that the state's use standards for marinas as specified in T15A:07H.0200 offer sufficient standards and safeguards for future development of such facilities within the public trust waters of Brunswick County. At the same time, the County believes that it is in the best position to evaluate proposed new marinas or marina expansions from a *land side* perspective. For example, marinas associated with shorefront developments may increase demand for landside parking spaces and cause increased traffic on roads and streets leading to the water's edge. For these reasons, the County will seek to monitor the further development of marinas so that their size and location are reasonably related to the near-shore lands they impact.

Policy 8.1.8(a)

As a means of providing public access to area surface waters, Brunswick County encourages environmentally responsible marina development in accordance with State CAMA standards for AEC's. Marina facilities also shall be evaluated for site specific compatibility with surrounding land uses, as well as for aesthetic concerns, parking, access, and available services.

8.1.8(b) Floating Home Development

According to CAMA guidelines, a floating structure is..."any structure not a boat, supported by a means of floatation designed to be used without a permanent foundation, which is used or intended for human habitation or commerce. A structure will be considered a floating structure when it is inhabited or used for commercial purposes for more than 30 days in any one location. A boat may be deemed a floating structure when its means of propulsion has been removed or rendered inoperative and it contains at least 200 square feet of living space area."

Floating home development is not seen by the Brunswick County Planning Board as having any significant benefit to the county. The environmental, aesthetic and public trust area problems associated with such development are deemed to far outweigh any potential economic benefits gained.

Policy 8.1.8(b)

Brunswick County discourages floating home development anywhere in the waterways, public trust waters, and along the shorelines of the county, so as to prevent the unwanted "consumption" of the county's limited estuarine surface waters.

8.1.8(c) Moorings and Mooring Fields

According to CAMA Use Standards, a "free standing mooring" is any means to attach a ship, boat, vessel, floating structure or other watercraft to a stationary underwater device, mooring buoy, buoyed anchor, or piling (as long as the piling is not associated with an existing or proposed pier, dock, or boathouse). According to CAMA Standards, free standing moorings shall be permitted under two circumstances:

- (1) to riparian property owners within their riparian corridors or

- (2) to any applicant proposing to locate a mooring buoy consistent with a *water use plan* that may be incorporated into either the local zoning or land use plan.

Until such time as the County and the various beach communities undertake the development of a *water use plan*, and the issue can be addressed in a comprehensive manner, the granting of additional free standing moorings shall be deferred to CAMA standards as promulgated by the State.

Policy 8.1.8(c)

The desirability of freestanding moorings and mooring fields shall be evaluated on a case by case basis in accordance with CAMA development policies and standards. The unimpeded use of and navigation within public trust surface waters by the boating public shall be of concern.

8.1.8(d) Dry Stack Storage

Dry stack storage facilities can require substantial amounts of associated parking, are significant traffic generators, and may contribute to boating congestion within the vicinity of the dry stack marina. On the positive side, however, dry stack marinas can accommodate the boat storage needs of a large number of boat owners, without "consuming" valuable public trust waters. For this reason, the County views dry stack marinas, on balance, as the preferable alternative to traditional wet slip marinas—with the important proviso that any such facility shall be compatible with its neighboring land uses.

Policy 8.1.8(d)

To minimize consumption of valuable public trust surface waters, dry stack storage marinas generally shall be preferred over wet slip marinas. Dry stack storage facilities shall be evaluated for site specific compatibility with surrounding land uses, as well as for aesthetic concerns, parking, access, and available services.

8.1.8(e) Commercial Fishing Operations

The fishing industry of Brunswick County consists of two distinct components—commercial fishing and sports fishing. Statistics nationally and regionally reveal a sportfishing industry that continues to grow in numbers of participants and dollars spent, regardless of the actual catches experienced. At the same time, commercial fisheries landing statistics for the past ten years reveal a commercial fishing industry which is holding its own, despite many growth and development factors which would seemingly have an adverse impact on the industry. (See Section 5.1.2). Regardless of which component of the industry being evaluated, area residents believe strongly that a healthy, vital fisheries resource is critical to both the economy and cultural heritage of Brunswick County.

Policy 8.1.8(e)

Due to the important role of commercial and recreational fishing to the economy and cultural heritage of Brunswick County, the County shall encourage and support commercial fishing operations and sports fishing operations, provided that such operations meet all applicable development standards and are otherwise consistent with the policies of area local governments.

8.1.9 Industrial Impacts on Fragile Areas

The topic of industrial impacts on fragile areas brings to the forefront two major growth issues in Brunswick County. First, extensive areas of land and water in the county are environmentally fragile; therefore, compared to many other counties farther inland, large areas of the county are readily susceptible to environmental degradation. Second, the area's existing industrial base contributes strongly to the county's tax revenues, and provides diversified jobs to area workers. (The need to encourage jobs in the area that are not tourist related was a concern voiced by area residents during public meetings.)

Of course, the county would prefer that industrial development not locate in fragile areas; however, the county recognizes that the locational needs of many industries are dependent upon proximity to rail, air, and highway transportation and the availability of utilities.

The county's land classification map, which is an integral part of the policy section of this plan, identifies several areas of the county that are suitable for industrial development. The map also reserves a large area in the general "Rural" class which may also be appropriate for certain types of industry.

At the same time, the map identifies extensive areas of the county that are clearly not suitable for industrial development. These areas include, for example, the Green Swamp, certain large Carolina bays, and areas generally designated as "404" wetlands.

Thus, the county will consider all industrial location decisions on a case by case basis, properly balancing environmental concerns with the need for new industry and the continued diversification of the county's economic base.

Policy 8.1.9

Industries shall be encouraged to locate in suitable, non-fragile areas. Environmental impacts on air, land and water resources, as well as compatibility with surrounding land uses and the availability of required services, shall be factors employed in evaluating the merits of any particular industrial development proposal.

**8.1.10
Development of
Sound and
Estuarine System
Islands**

There are many small estuarine system islands in Brunswick County which are privately owned. Among these, the most well known include Bird Island, which falls primarily (95%) within the extra-territorial planning jurisdiction of the Town of Sunset Beach, and Sheep Island, near the Town of Long Beach.

Discussions regarding the fate of the 85 acre Bird Island have been on-going for several years. In mid 1992, the owner submitted plans to the State to build a bridge and causeway to the island, plus a pier with space for six boats, and a 15-lot subdivision. At the same time, a grass roots initiative has emerged to support acquisition of the island as a permanent, public trust area.

Concerning Sheep Island, the Town of Long Beach in 1992 made an official determination that Sheep Island not be part of the Town; rather the island is to be considered part of unincorporated Brunswick County, and therefore under the County's planning jurisdiction.

These islands (and other smaller, ones similar to them) have extremely fragile environmental conditions; therefore, the County would prefer that they not be developed. At the same time, so long as these islands are under private ownership, the county believes that they should be allowed the same private property rights enjoyed by other property owners. If these islands must be developed, the County would strongly encourage the property owner to develop such islands in an environmentally sensitive manner.

Also, given the difficulty in providing services to these islands, it is recommended that any such development be of a character and density that requires few if any services. Further that the occupants of dwellings on these islands, if any, recognize the inherent risks of locating on such islands and assume the risks of not being protected by customary public safety services such as police, fire, and rescue.

Policy 8.1.10

Development of sound and estuarine system islands, while not encouraged, is permitted, provided that impacts on the natural environment are properly mitigated. If such islands must be developed, low intensity uses such as open space, recreation, and very low density residential shall be the preferred uses. When such islands are deemed to have greater than local significance, the County encourages the State or Federal government to purchase these environmentally sensitive areas for the benefit of all residents of the State.

**8.1.11
Development Near
Sea Level**

There has been considerable discussion and debate over the past decade about the influence of sea level rise on beach and shoreline erosion along North Carolina's coast. In the case of Brunswick County, nearly all areas subject to this debate fall within the planning jurisdictions of the incorporated beach municipalities along the county's ocean coast.

Nonetheless, there are some developments occurring along the northern shore of the intracoastal waterway, within the unincorporated area, that could eventually be effected by sea level rise. For this reason, some discussion is in order. Regarding soundfront shorelines, the County's flood plain regulations typically require that development in floodprone areas be elevated above the 100 year flood plain and that they adhere to the estuarine AEC shoreline requirements of the State. In addition, ocean hazard AEC standards govern how close development may be placed to an oceanfront shoreline. Generally, the County supports a policy of prudent initial development with full recognition of the risks and consequences of building on ocean shorelines; that failing, structures should be required to retreat when threatened—rather than hardening the ocean shoreline.

Policy 8.1.11

Development within areas susceptible to sea level rise, shoreline erosion, and/or wetland loss, should take into consideration such conditions upon initial development. In the event such development is later threatened by shoreline loss, the County shall support the AEC use standards governing shoreline protection and management. The County will not permit efforts to harden the shoreline in an attempt to counteract such conditions; however, this policy shall not preclude the use of innovative shoreline preservation techniques as approved by the Coastal Resources Commission.

**8.1.12 Upland
Excavation for
Marina Basins**

As the immediate coastal area of North Carolina, has become more intensively developed for shoreline uses, natural sites for deep water marinas have become increasingly scarce. This is especially true in Brunswick County, where the barrier island system hugs the mainland, effectively limiting the amount of open water in the relatively narrow sound area. State regulations which justifiably discourage or prohibit the destruction of wetland habitats, primary nursery areas and other important, environmentally sensitive estuarine areas, have made opportunities for new marina developments difficult at best. Nonetheless, as the coastal population of Brunswick County grows, demand for marina facilities grows commensurately.

Due to the inherent value of existing public trust surface waters, as well as their biological value to the estuarine system, State CAMA standards have generally favored upland sites over open water sites for new marinas. As a result, excavation for marina basins in upland sites becomes an attractive option from a permitting perspective, especially where no wetlands/habitat alteration is involved and where good water circulation can be achieved.

Policy 8.1.12

Brunswick County supports the development of marina basins in upland sites in accordance with CAMA standards. Marina basins also shall be evaluated for site specific compatibility with surrounding land uses, as well as for aesthetic concerns, parking access, and available services.

8.1.13 Marsh Damage from Bulkhead Installation

Generally, Brunswick County supports the standards for bulkheads and rip rap as identified in T15A:07H.1100 regarding the general permit for the construction of such structures in estuarine and public trust waters. To meet the requirements of the general permit, proposed bulkheads and/or rip rap can be placed only along shorelines either (1) void of wetland vegetation—including marsh grass and wooded swamp, or (2) where all construction is to be accomplished landward of such vegetation.

While Brunswick County supports these standards, it also recognizes that in some instances it may be necessary to use bulkheading or rip rap materials to stabilize a channel leading from an upland marina to a deep water channel. In such instances, the County supports applicable state and federal regulations concerning the minimization of such channels and the mitigation of such impacts on wetlands destroyed by such structures.

Policy 8.1.13

Brunswick County supports state and federal standards which seek to prevent or minimize marsh damage from bulkhead or rip rap installation. The County recognizes, however, that some limited marsh damage may be necessary to provide for otherwise environmentally sound development.

8.1.14 Water Quality Problems and Management Measures

Each of the various Resource Protection Policies stated above, including but not limited to policies concerning Areas of Environmental Concern, marina development, and stormwater runoff, are designed to curtail or halt the further degradation of water quality within Brunswick County. As noted under several of these sections, the County is working proactively toward the development of new management practices and measures to implement improvements in water quality.

Policy 8.1.14

Brunswick County shall encourage and support State and Federal standards which seek to prevent or minimize adverse water quality impacts. The County shall work proactively with the State on measures to reduce stormwater runoff rates, soil erosion and sedimentation, and point source discharges into area waters. (See also especially Policy Section 8.1.7)

8.1.15 Air Quality

With the enactment of federal air quality legislation beginning in the early 70's and continuing through the present day, much progress has been made in the reduction of air pollution levels from both industrial operations as well as vehicular emissions. This legislation has been effective in improving air quality from a variety of measurable air contaminants.

Air pollution related to odor, however, does not always have a direct correlation with air emission standards related to the public health. For this reason, odors can occasionally "slip through the cracks" of state and federal air quality controls. Such has been the case in Brunswick County on several occasions during the recent past. Residents attending public input meetings held for the plan noted that odors emanating from area industry, made life intolerable at times, if not unhealthy. With this situation in mind, Brunswick County wishes to

go on record to encourage area industry and State and Federal agencies to work cooperatively to resolve these problems related to odor.

Policy 8.15

Brunswick County shall encourage and support State and Federal standards which seek to prevent or minimize adverse air quality impacts. The County shall work constructively with State and Federal Agencies and local industries on measures to reduce or eliminate air quality problems, including odor problems that may not fall under prescribed environmental standards.

8.2. Resource Production And Management Policies

8.2.0 Basic Policy Statement Regarding Resource Production and Management

Due to its relatively large geographic size and ecological diversity, Brunswick County continues to maintain a natural resource base of huge proportions. As noted in Section 5, resource based "industries", while in decline as a percentage of the total local economy, maintain a considerable presence in the area. From farming and forestry to commercial fishing, natural resources form the basis for much of the culture and heritage of the county. And, beyond their direct economic impact, such resources convey untold benefits in terms of the open space and rural character they represent. For this reason, the County has committed itself to participating in no activity nor approving of any activity which would seriously damage the long-term productive capability of the areas natural resources.

Policy 8.2.0

Brunswick County is one of the most biologically diverse areas in the State of North Carolina. The County shall take no action nor approve of any action which would seriously or irreparably harm the long term biodiversity and productivity of the area.

8.2.1 Productive Agricultural Lands

Statistics compiled for Section 5.1.2 of this plan (Economy), reveal a continuing decline for agriculture in Brunswick County's overall economy. While the amount of acreage and cropland has fluctuated somewhat from year to year, the overall trend toward declining acreage is quite clear. In addition, compared to some inland counties, Brunswick County's sandy, low nutrient coastal soils have not traditionally generated high agricultural yields.

At the same time, many parts of the county continue to provide a productive livelihood and lifestyle of choice for area farmers. These same parts of the county are being actively managed not only for their agricultural yields, but by default, for their open space value.

Over the past two decades, the County has experienced the conversion of substantial amounts of agricultural land into residential and commercial development. Much of the dissolution of the countryside has been the result of largely unplanned and unguided developments. The County believes that the best way to preserve the countryside is to do a better job of building distinct cities, towns and villages. This means new development in distinct village or town settings, rather than in indiscriminate, sprawling, suburban-style subdivisions.

Policy 8.2.1(a)

The continued agricultural use of the Brunswick County's remaining farmlands shall be encouraged through proactive planning for agricultural and open space preservation as well as through growth management policies which favor distinct, "town and country" style development patterns.

Policy 8.2.1(b)

Brunswick County encourages the planning, installation and on-going maintenance of community-based "cooperative gardens". Such gardens may be planned as a part of new community designs, or may be established in existing neighborhoods through the cooperative efforts of homeowners.

8.2.2 Commercial Forest Lands

While there are no official current estimates of commercial forest acreage in Brunswick County, the Planning Board in 1987 estimated that approximately two thirds of all land in Brunswick County was in commercial forest land. Forest lands for paper production are a very important land use in the county. The most significant environmental impact regarding commercial forestry activities centers on the large drainage ditches oftentimes employed on such lands. The construction of major systems of drainage can radically alter the environmental character and wildlife habitat of these extensive land holdings. Further, such ditches can accelerate the speed at which storm water reaches the estuary, thereby changing the salinity of the estuary. At the same time, drainage can reduce the amount of rain water being recharged to the ground water resource, potentially increasing the speed at which salt water intrusion affects the potable ground water supply. Finally, drained land may eventually be available for urban development.

In the event that a major forest tract should come on the market for development, the County will apply the "town and country" development policies of this plan to such a situation. (See Policy 8.3.3 et. al.) The ability and appropriateness of the county to provide water (and sewer) services to such an area will also be considered.

Policy 8.2.2

Commercial forestry activities shall be supported in Brunswick County, provided significant adverse impacts on natural resource systems are fully mitigated. Such activities should be conducted in accordance with the standards and recommendations of the U.S. Forest Service. The County also advocates the voluntary participation of commercial forestry interests in the State of North Carolina's best management practice program for forest management.

8.2.3 Mineral Production Areas

Historically, mineral production and mining interests in Brunswick County have involved primarily the extraction of sand and gravel for construction purposes. There are known deposits of sand and gravel and coquina scattered throughout the county. Such mining interests have ranged from relatively small borrow pits to more extensive mining operations involving as many as 100 acres of land. Examples of the operations involving the larger acreages may be found currently in the vicinity of Hickman's Crossroads between Shallotte and the South Carolina line.

As noted in Section 6.1.3(b), interest in mining took on a new focus in 1992 when the Martin Marietta Company made known its interest in extracting large quantities of limestone from a site in the county north of Southport. Since that time, there has been considerable debate, including court action, regarding the desirability, safety, and environmental concerns regarding the nature of such a mining operation. These concerns have included the formation of sink holes, saltwater intrusion, and aquifer depletion, among others.

Policy 8.2.3

Mineral production and mining activities will be considered on a case by case review of economic benefits and environmental and land use impacts. Mining activities which would jeopardize the short or long term viability of valuable natural resources or create hazardous conditions in the County shall not be permitted.

8.2.4 Commercial and Recreational Fisheries

Commercial and recreational fishing are an integral part of the economic, social and cultural heritage of Brunswick County. As discussed in section 5.1.2(h) Economy, levels of commercial fishing activity have remained steady or even increased slightly over the past decade or so. This is in contrast with the preceding 20 years, during which seafood landings witnessed a slow but steady decline.

The ability of the commercial fishing industry to maintain its harvested yields over the past decade may be due to (1) improved fishing methods, (2) new types of catches, (3) a more plentiful fishery, (4) better reporting methods, or (5) some combination of all four. Regardless of the cause, area officials are pleased to be able to report that the commercial fisheries resource is holding steady, at least from a statistical perspective.

Fish landing statistics, however, are not the sole indicators of the impact of the fisheries resource on the overall economy of Brunswick County. At the same time that the county's commercial fishing is holding steady, interest in recreational fishing has increased enormously. In fact, much of the county's tourism-driven economy is derived from both the real and perceived image of an area with close ties to sea. During the early public meetings held for the land use plan, this concern was most apparent in the amount of support given to the protection of wildlife habitats and the proper management of the county's natural resources, including the fisheries resource.

State law prohibits local governments from regulating the marine fisheries resource, which is considered to be held in the public trust. The Marine Fisheries Commission and Division of Marine Fisheries, however, welcome the input of local governments and residents in decisions regarding marine fisheries regulations. Also, the County does have the ability to control land side development to minimize adverse impacts on water quality in the estuary, and particularly primary nursery areas and shell fish areas.

In addition to naturally occurring fisheries resources, aquaculture, (which may be defined as the controlled growth of fish, shell fish or marine plants for economic benefit) has gained interest in coastal North Carolina in recent years. Such aquaculture facilities can include both landside containments as well as open water marine sites. Principle species with high potential for aquaculture development in the coastal waters of North Carolina include hard clams, soft shell crabs and oysters. The current situation regarding shellfish closures in many of the county's most productive estuarine areas, however, may preclude open water marine sites.

Policy 8.2.4

Brunswick County supports efforts to maintain and enhance the fisheries resource of its waters, including water quality protection measures, nursery and habitat preservation, proper fisheries management and enforcement, and aquaculture development, and artificial reef activities.

8.2.5 Off Road Vehicles

Concern for the environmental impacts of off-road vehicles in coastal North Carolina is primarily oriented toward beach and near beach dune areas. Such beach areas in Brunswick County occur within the incorporated beach communities along the county's ocean shore. Nonetheless, off-road vehicles have been known to traverse the county's wetlands and other fragile areas at locations further inland. In such areas, off-road vehicle traffic can easily destroy fragile wetland vegetation as well as other natural habitats upon which the county's wildlife depends. For this reason, the county wishes to discourage any forms of off-road activities which would act to abuse valuable natural areas.

Policy 8.2.5

Brunswick County discourages the use of off-road vehicles in all fragile areas because of potential adverse environmental impacts.

8.2.6 Development Impacts

All of the county's major development impact issues, such as strip commercial development, sprawling residential development, and storm water runoff, etc. are covered under specific policy headings in various parts of this plan. The table of contents provides a means of quickly identifying the location of policies concerning particular development types and concerns.

Nonetheless, this approach to addressing development impacts points up the need to consider the "cumulative impacts" of the total number of development activities occurring simultaneously in any given part of the county. It is ultimately the combined effect of all development activities that together define the impact on the area's natural resources, particularly water quality. The County, therefore, recognizes the need to address each new development activity on a case-by-case basis to minimize the cumulative effect of incremental impacts.

Policy 8.2.6

New development and redevelopment activities shall not be permitted which would significantly degrade the quality of natural and scenic resources in Brunswick County, prematurely diminish the predominantly rural character of the area, or create incompatibilities of scale, design, or land use. (Also see specific policy headings under Section 8.3 of this plan.)

8.2.7 Peat or Phosphate Mining Impacts

While peat and phosphate mining have been an issue in other coastal counties of North Carolina, opportunities for peat or phosphate excavation in Brunswick County are speculative at best and would have to be considered at the time any such proposal should arise. Given the fragile nature of extensive areas of the county, the growing dependence of the area on tourism, and the critical importance of groundwater resources to the future of the county, however, prospects for this type of mining operation would necessarily be approached with high level of concern for its environmental consequences. For the present time, the reader is referred to the general mining policy set forth previously under section 8.2.3. for guidance on this issue.

8.2.8 Gamelands/ Hunting Clubs

Extensive areas of wildlife habitat, nature preserves, woodlands, wetlands, marshes, and open fields have made Brunswick County a sportsman's haven. This is evident in the number of private hunting clubs scattered throughout the county. Such activities are viewed positively by the County. In this regard, the County will do its part to foster the protection of critical wildlife habitats through the land use plan and its associated policies. At the same time, the County calls upon area hunters and hunting clubs to continue to serve as proper stewards of the habitats and wildlife resources which may fall more directly under their management. Proper stewardship should include respect for the property of others and for the proper use of public highways (i.e. parking and hunting on the highway is to be discouraged).

Policy 8.2.8

Brunswick County supports efforts to maintain and enhance public and private gamelands, including habitat protection and management, and the proper management of hunting clubs and hunting activities.

Section 8.3 Economic and Community Development Policies

Introduction

This policy section is concerned with those issues associated with the development and redevelopment of Brunswick County. Among the several issues discussed are the types and locations of development to be encouraged, the willingness of the County to provide public services for development, the desired pattern of development, local support for state and federal programs influencing development, and the provision of access to public open space and land and water recreational areas.

The County's overall policy statement in this subject area calls for continued efforts to diversify the local economy, protect area resources, and improve the quality of life. A particular point of emphasis for this plan is the desire to foster the development of a distinct "town and country" development pattern.

Implementation actions in furtherance of this policy will require a reexamination of the County's zoning ordinance and building standards to encourage development projects in keeping with more compact, less sprawling forms of development.

8.3.0 Basic Policy Statement Regarding Economic & Community Development

Brunswick County shall work to maintain a diversified local economy while at the same time protecting the natural and man-made environment and improving the area as a more attractive community in which to work, live and play. Economic and community development initiatives which capitalize upon and enhance a distinct "town and country" character shall be especially supported.

8.3.1 Types and Locations of Industries Desired

Much of the area's present attitudes about growth stem from the economic history of the county over the past 100 years. Prior to the 1960's, most Brunswick County residents lived under a basic, subsistence-level, resource-based economy (i.e. farming and fishing). And, despite the tremendous industrial growth experienced during the 60's and 70's, the county continues to have an unemployment rate consistently higher than surrounding areas. Thus, many residents continue to place a high priority on economic growth and better paying jobs.

At the same time, the educational system remains behind state norms, causing local area workers to have a difficult time competing for job openings. As a result, there is concern among county residents that new industries brought to the county will simply bring employees from outside the area to fill the new positions created. There is a strong feeling among local residents that new industries brought in should use local talent (or re-trained local talent) rather than hiring people from outside the county. Otherwise, the new industry does not represent economic development, but rather, just economic growth for growth's sake.

Regarding the issue of "clean" vs. "dirty" industry, County officials recognize that emerging new industries are often difficult to characterize in today's rapidly changing national and global economy. Rather than attempting to stereotype a particular industry as clean or dirty, it is more constructive to think in terms of the actual impacts that any given industry may generate in terms of, for example, air particulate matter, water consumption, solid waste produced, heavy truck traffic generated, etc. Then, numerically based performance standards may be developed to spell out the reasonable limits that the County is willing to accept in each of these various areas of impact. An implementation action to this effect is noted later in this plan regarding the need

for development of such standards for inclusion in the County's zoning ordinance.

Regarding the location of desired industries, the land classification map accompanying this plan illustrates graphically those areas of the county that, due to their proximity to water, rail, highways, or other strategic assets, are most appropriate for industry.

Policy 8.3.1

*recruiting new
industry*

Brunswick County encourages the development of clean industry in locations where appropriate services can be provided, where transportation facilities are adequate, where environmental impacts can be fully mitigated, and where surrounding land uses are compatible in nature. Brunswick County shall advocate the recruitment of new industries which are compatible with area resources and economic conditions, and to the extent possible promote the upward mobility of low and moderate income persons.

8.3.2 Provision of Services to Development

Brunswick County officials understand the importance of meeting basic infrastructure needs such as water, sewer, and roads to sustain beneficial economic growth. Ongoing efforts to upgrade the County's water system, for example, reflects a continuing commitment on the part of the County to provide these critical infrastructure services.

Further, Brunswick County recognizes that there should be a logical relationship between future growth and the provision of services to support that growth. This relationship is reflected most specifically in the land classification map which accompanies this plan. The land classification map clearly identifies those parts of Brunswick County that the County believes can be adequately serviced within the next ten years. Services provided to these areas will include, first and foremost, the county's piped water system. Since the early 1980's, Brunswick County has been aggressively pursuing the development of a central piped water supply system to all developing parts of the county.

Due to the large geographic size of Brunswick County and its relatively scattered, sparse development pattern, a large centralized, interconnecting sewage collection and treatment system is not feasible. For this reason, it is more likely that smaller systems will continue to be developed to serve, in particular, the barrier island beach communities and the near shore mainland areas just across the intracoastal waterway. The County remains flexible as to whether these sewerage needs might best be handled by individual municipalities, by sanitary districts or by some combination of the two. In any event, the County has moved in recent years to become a supporting partner in local intergovernmental efforts to develop the various authorities necessary to implement such sewage initiatives.

Regarding other services, the County's commitment to law enforcement through the Sheriffs Department, and to emergency services through the Emergency Services Department, and through financial and other support for the volunteer fire departments and rescue squads, is quite clear (See Section 6.2). Also, the County's substantial dollar investments in water system infrastructure, and on-going investments in schools and parks facilities, is the best evidence of the County's commitment to providing the necessary services to support new growth.

Solid waste management, including recycling and disposal, another key service of the County, is discussed specifically in Section 6.2.10 of this plan.

Policy 8.3.2

Brunswick County will strive to the extent that area resources, prudent budgeting, and priority setting allows, to facilitate the expansion of public services and facilities to meet the needs of existing and future commercial, industrial, and residential development. The location and size of such services shall be coordinated with land use policies and the County zoning ordinance.

8.3.3 Urban Growth Pattern Desired

From a broad, regional perspective, Brunswick County's urban growth pattern is strongly influenced by its relationship to the Atlantic Coast, the Intracoastal waterway and, to a lesser extent, the Cape Fear River. The growth trends for various parts of the county are documented in some detail in section 5.2 of this plan. Suffice it to say that the strongest urban level growth has been occurring and continues to occur in that part of the county between US 17 and the intracoastal waterway. This is particularly evident at the end of the county closest to the South Carolina State line, within striking distance of the Grand Strand.

The location of distribution lines for the County's piped water system in recent years has served to reinforce this pattern. At the same time, Section 6.1.2 of this plan documents the many fragile natural areas of the county and their general distribution in relation to these growth areas. It is therefore in the best economic and environmental interest of the county to recognize the existing urban growth area, but to redirect its inertia to those locations within the area most suitable for development. This is best described as the "town and country" or village and country" growth pattern. A review of the various sections of this plan will reveal that the intended cumulative effect is to direct growth in a manner which focuses new developments in compact, village like clusters, with surrounding open space.

While the regional growth area can be well observed in the land classification map accompanying this plan, the map does not reflect the intent of the plan to direct growth into compact clusters within the broadly defined growth areas. For this fine tuning, the plan must rely upon the policies to accurately describe the county's objectives regarding growth patterns. These policies, in turn, must be reinforced by the county zoning ordinance, subdivision regulations, stormwater management controls, and provision of water and sewer. It is through the combined use of policies and the land classification map, and with support from growth management tools like the zoning ordinance and the subdivision regulations, that the desired "town and country" growth pattern of the county can be achieved.

Policy 8.3.3

Brunswick County shall encourage developments which contribute to a distinct "town and country" or "village and country" growth pattern. The intent of this policy is to allow for the preservation of open space and productive farm and timber land, to minimize costs of extending infrastructure and services, to avoid higher taxes, and minimize traffic congestion associated with modern day suburban sprawl.

8.3.4 Types of Residential Development Desired

As noted in Section 5 of this plan, Brunswick County has, for the past few years, been issuing permits for residential units at a ratio of greater than 2:1, mobile homes to single-family stick built construction. In the 1992 land use plan, it was noted that four out of every five residential permits issued between 1987 and 1991 were issued for the placement of mobile homes. While these numbers do not include permits issued within the beach communities and larger incorporated municipalities of the county, they reveal the magnitude of growth, especially regarding new mobile home placements in the county. The County therefore supports efforts to diversify its housing

stock to include more stick built single family and multi family homes in a variety of development densities and types:

Also, in keeping with the general policy statement for the urban growth pattern desired, including, especially, the "town and country" style of development, the County has elected to discourage the development of residential areas in isolated locations, remote from services. Rather, the County would prefer to see new residential developments locate in existing towns or in village clusters near such existing urban centers. Within each town or village cluster, the County supports a wide range of residential development forms, including especially stick built single family and multi-family units, as well as mobile homes in locations where they are permitted. At the same time, it is recognized that when multi-family developments are constructed they should be located so as not to direct higher traffic volumes through adjoining single family areas.

Policy 8.3.4(a)

Brunswick County shall encourage a wide range of residential development forms and products, with emphasis on convenience to town or village based services. Residential developments which would isolate residents from necessary services, thereby increasing transportation, infrastructure, and service delivery costs, shall not be encouraged.

Policy 8.3.4(b)

Multi-family development shall be located so as to have direct access to a state or higher level road. Access to higher density housing through existing lower density residential areas shall be strongly discouraged.

**8.3.5 Types of
Commercial
Development
Desired**

Input received at the public meetings held for the land use plan revealed a consistent perspective that most Brunswick County residents are not in favor of the levels of commercial development that have occurred in their urban area neighbors adjoining the county to the north and south. In fact, many area residents have chosen to live in Brunswick County precisely because of their desire to stay away from that level of commercialism. The end result is that while most residents support the development of services nearby to meet their basic needs, they do not favor the stripping of the County's roadways with commercial development from one end to the other. Commercial strip development, with its traffic congestion, glaring plastic signs, lack of landscaping, and the "sea of asphalt" parking lots adjoining the highway are characteristics of rampant commercialism that most residents would prefer to do without.

Fortunately, from a planning perspective, beneficial commercial development can be accommodated in a manner which adds value to a community, and avoids most of the pitfalls noted above. Positive measures which can be taken include:

- Commercial development can be grouped in existing town centers or in planned clusters to avoid stripping the highways and destroying the rural, open character of the county—a character that so many residents of Brunswick County have come to appreciate, and one that is in keeping with the "town and country" theme of this plan.
- When commercial development must occur along a "country" highway, it should be clustered at the intersection of two roads, thereby allowing for access from four directions. This also avoids concentrating all vehicular turning movements on a single

roadside, and over a period of years, will eventually result in the need for fewer traffic signals.

- Commercial signage can be required to occur as ground level, monument style signs, rather than plasticized, "in your face" pole mounted signs.
- Parking lots can be placed to the side or even the rear of commercial buildings, thereby bringing the architecture rather than the asphalt closer to the viewing public.
- Given the high visibility of most commercial developments, it is reasonable to expect that a fair amount of landscaping and trees should be required. Such landscaping can also double its value by absorbing and retaining stormwater runoff from parking areas, thereby helping to prevent further degradation of the county's estuarine waters, including shellfishing beds, and primary nursery areas.
- A row of trees or other natural buffer strip can be left along both sides of the highway, thereby creating the striking illusion of driving through a corridor of trees, rather than a corridor of asphalt. This natural buffer area can also be instrumental in reducing stormwater runoff.

It is important to note that all of the above measures are fully within the planning enabling legislation for local governments as authorized by the State of North Carolina. It requires only the resolve of County and municipal leaders to put these measures in place through local zoning.

Regarding office and institutional development, this plan recommends that offices be used as a logical buffer between commercial uses and residential uses. This allows commercial uses to be within walking distance of homes, a feature particular beneficial to Brunswick County's growing ranks of senior citizens, who will at some point in their lives be unable to drive to basic services. It also creates the opportunity for area residents to walk to places of employment, either in the offices or at the commercial establishments.

Policy 8.3.5(a)

Brunswick County shall encourage commercial development to locate in town or village centers convenient to surrounding residential neighborhoods and of a scale and design compatible with their surroundings. Automobile-oriented commercial strip development along the County's roadways shall be strongly discouraged. If highway oriented commercial development must occur, then it should be located in a commercial "node", at the intersection of two or more state or higher level roadways.

Policy 8.3.5(b)

Office and Institutional development may be employed as a transitional land use between residences and more intensive forms of commercial development, provided that such transitional development is compatible in design and scale with nearby residences.

**8.3.6
Redevelopment,
Including
Relocation of
Threatened
Structures**

Ten years ago, the 1987 update to the land use plan noted that... "beyond scattered historic home restoration, there is little restoration or redevelopment activity occurring in the unincorporated areas of Brunswick County" (page 86). In the past few years, however, this situation is beginning to change. As the area continues to "mature" there are a high number of substandard houses throughout the county in need of rehabilitation. At the same time, many other older structures are becoming functionally obsolete, (e.g. older service stations) which could eventually lead to their abandonment and decline. In such cases, the best use may be an adaptive reuse for some other purpose.

The County believes that the best way to insure that these structures will be either reused, rehabilitated, or removed, is to provide for good jobs, higher incomes, and a climate of investment for area residents. Thus, the County continues to be very supportive of economic development efforts from both an industrial and tourism development perspective.

* With regard to structures which may be threatened by major storm events or shore line or beach erosion, most of these situations occur within the incorporated beach municipalities of the county. The County's policies concerning such situations are presented fully in Section 8.5 concerning Storm Hazard Mitigation, Post-Disaster Recovery, and Evacuation.

Policy 8.3.6(a)

Brunswick County supports and encourages the restoration and/or appropriate adaptive reuse of significant and architecturally important historic and cultural structures and sites.

Policy 8.3.6(b)

Redevelopment and/or rehabilitation of substandard structures within the county shall be supported through public and private sector initiatives for the economic betterment of area residents.

Policy 8.3.6(c)

Recognizing that most erodible areas are within the planning jurisdictions of the County's municipalities, the County nonetheless supports a policy of relocation and retreat, rather than shoreline hardening, when structures are threatened by shoreline erosion. (Also see Policy 8.3.8(a) regarding support for beach renourishment.)

**8.3.7 Commitment
to State and
Federal Programs**

* CAMA guidelines suggest that local governments address local commitment to state and federal programs including items such as erosion control, public access, highway improvements, port facilities, dredging, and military facilities. Brunswick County acknowledges and supports all such applicable state and federal programs which work to improve the quality of life and economic development opportunities for county residents. The County cooperates and assists in the implementation of these programs whenever possible.

As identified elsewhere in this plan, many roads and bridges in the county are in need of improvement. At the same time, the protection and enhancement of the county's estuarine water resources and waterborne transportation systems are vital to the long term interests of the County from both an economic and tourism standpoint.

For these reasons, programs of greatest significance to Brunswick County include those federal and state programs which would support improvements to the county's road system and to the county's water transportation system. Protection and enhancement of water quality and the fisheries resource are also considered to be top priorities. The County especially supports the efforts of the US Army Corps of Engineers for the maintenance of the

intracoastal waterway and the Cape Fear River channel, as well as proposed efforts related to water quality improvements in the Lockwood Folly River and its inlet (More on this under 8.3.8 below). Obviously, the North Carolina Department of Transportation's ongoing transportation improvement program is also of considerable significance to the County.

Policy 8.3.7

Brunswick County supports applicable state and federal programs regarding economic and community development, especially those programs related to better jobs, water quality, fisheries, and water and land transportation system improvements.

**8.3.8 Assistance to
Channel
Maintenance and
Beach
Renourishment**

As noted immediately above, Brunswick County's waterways are vital to the long term vitality of the county's fisheries industry, as well as recreational boating economy. Efforts to maintain the county's waterways are therefore supported to the maximum extent possible, including activities necessary to provide for the provision of borrow and spoil areas and the provision of easements when necessary to accomplish the work. The maintenance dredging and water quality management efforts on behalf of the Shallotte River and the Lockwood Folly Rivers, in particular, continue to be a priority.

One project of particular interest to the County is the proposed relocation work related to the opening of the eastern channel of the Lockwood Folly River. Proponents of the work believe that relocating the channel to a position more directly in line with the main channel of the river would significantly increase the flushing action of tidal currents, thereby improving the water quality and shellfishing possibilities in the river.

The Wilmington office of the U.S. Army Corps of Engineers (ACOE) has received a special appropriation from Congress to study water quality and preliminary engineering issues related to the future relocation of the channel. Other legislative action is underway in Congress which would authorize the ACOE to undertake the actual relocation work (recognizing that such authorizations can take many months or even years to approve).^{*} A specific implementation action is included in this plan calling upon Congress and all federal and state agencies to pursue these actions with all due speed.

Brunswick County's beaches, while located entirely within the incorporated areas of the beach towns, nonetheless have a spill over economic impact to the balance of the county. Regarding beach renourishment activities, the county recognizes that there can be a reciprocal and supporting relationship between beach renourishment and channel creation and maintenance. The County therefore supports efforts to coordinate the disposal of spoiled materials, if appropriate, on to area beaches in their renourishment. At the same time, the County believes that the direct funding needs for beach renourishment are best handled by the long standing federal/state/municipal cost sharing program. The County, on the other hand, can continue to concentrate its financial resources on many other pressing and costly areas of need, including schools, transportation, growth management, human services, law enforcement, and parks and recreation, among others.

^{*}Telephone call and fax from James Norment of U.S. Congressman Mike McIntyre's office, November 18, 1997.

Policy 8.3.8(a)

Brunswick County supports the continued maintenance of navigable channels and inlets and the renourishment of the county's beaches in a timely, coordinated fashion. The County will assist, in whatever non-monetary capacity it can, to see that proper spoil areas and other channel maintenance needs are made available in support of these efforts.

Policy 8.3.8(b)

Brunswick County supports the existing cooperative planning and cost sharing program among the Federal, State and municipal beachfront communities as the most equitable and practical method for funding beach renourishment projects.

8.3.9 Energy Facility Siting and Development

CAMA guidelines suggest that each local government include specific policies related to energy facility siting and development. Specific subjects under this heading include electric generating plants, inshore and outer continental shelf exploration or energy development, possibilities for onshore refineries, storage, and trans-shipment, and the potential negative environmental effects from potential blowouts, spills, etc.

There are currently two major energy producing industries in Brunswick County—Carolina Power and Light and the Cogentrix Co-generating Plant near Southport. Both of these industries are valuable economic assets to the county. Both facilities have worked to achieve high standards of design and operation. In the case of oil related energy facilities, however, the County is justifiably concerned about the major adverse impacts that this form of energy development could bring with it. With an ever growing economy based on the strength of the county's beach-oriented tourism development, the County must exercise caution in approving of any industry which could jeopardize its long term future. The County is therefore, not supportive of off-shore oil development or its associated on-shore support facilities.

As an aside, recent announcements regarding renewed interest by the oil industry in exploration for oil deposits off the North Carolina coast has reinvigorated the long standing debate about this issue. For this reason, it is certainly prudent to have a specific policy in place regarding off-shore development at this time.

Policy 8.3.9

Due to the inherent conflicts with the growing, substantial, tourist-based sector of Brunswick County's economy, the development of off-shore energy facilities and associated on-shore staging and service bases shall not be supported. Similarly, oil, natural gas and related refining operations shall not be supported in Brunswick County.

8.3.10 Tourism

Tourism as an economic development industry has been a subject of increasing discussion and debate over the past decade. Many residents have voiced concern that the County is becoming too tourism dependent. Other residents have opined that tourism jobs are too often low-paying or offer limited opportunities for advancement. Still others have disputed such views as unwarranted stereotypes of an industry with unlimited potential.

The central issue of discussion suggested by these views is the *type* of tourism that the County wishes to promote. Perhaps all concerns can best be addressed by a County policy which encourages tourism that generates higher expenditures per tourist visitor. Contrary to conventional wisdom, the tourism industry can offer high paying jobs if the tourism market sought after is of high caliber. This requires restaurants and accommodations offering higher value services. In turn, the amenities developed (e.g. golf courses, marinas, ocean front resorts, equestrian facilities, etc.) must be of a quality to enhance the tourism potential of the county.

The advantage of such a strategy is that more dollars will be injected into the local economy for the benefit of year round residents, while minimizing the number of visitors it takes to generate a similar level of economic impact.

Ultimately, "wear and tear" on the area's natural environment will be minimized, while the economic benefits of tourist dollars will continue to flow into the county.

A second component of this strategy is to encourage development forms which are suggestive of more of an upscale tourism trade, meaning the avoidance of garish signage, and the "loud" self advertising often associated with some types of tourist oriented commercial development.

Policy 8.3.10(a)

Brunswick County encourages the development of a high quality tourism trade as a primary element of the county's economic future. Investments in education and training, services, facilities, growth management, and community appearance shall be employed in furtherance of this objective.

Policy 8.3.10(b)

Brunswick County shall pursue a tourism development strategy which capitalizes upon the area's unique natural and scenic resources, specifically avoiding the congestion and garish visual blight often associated with more urban or entertainment-oriented tourist destinations.

8.3.11 Beach, Waterfront and Boating Access

Brunswick County has had in place a Shoreline Access plan since 1990. As stated in the Plan's introduction, "...[t]he primary purpose of the plan is to identify sites, set priorities for possible site development, and clarify County policy on shoreline access, taking into consideration a need to balance provision of shoreline access by both the public sector and private sector". (1990 Brunswick County Shoreline Access Plan, page 2.)

The following summarizes the policy section of the shoreline access plan:

Waters covered—

In addition to ocean and estuarine waters, access should also be provided to fresh water rivers and lakes.

Jurisdictional coverage—

The plan addresses all unincorporated areas of the county plus the Town of Sunset Beach, which agreed to be included in the plan's provisions, in addition to creating their own access plan.

Government involvement in providing shoreline access—

The plan acknowledges that the private development sector oftentimes provides the greatest measure of shoreline access. The plan suggests that the county's "bigger" needs, not met by the private sector, should be addressed by the state and federal government. The County's involvement, at least from a financial standpoint, will be considered on a case by case basis.

No Exercise of Eminent Domain—

Powers of eminent domain shall not be used to acquire any interest in land necessary for shoreline access.

User Fees—

The County supports the employment of user fees to recover the cost of shoreline access facilities and for their operation and maintenance.

Forms of Shoreline Access—

The plan listed the following forms of shoreline access for which no need was identified, at least within the County's unincorporated

jurisdiction: oceanfront, swimming, pedestrian, sailing, and bicycle access.

Forms of shoreline access for which the County felt the private sector should be responsible included: boat berthing and dock/pier access.

Shoreline access facilities for which a need was identified and for which the County should actively support financially or otherwise, included: fishing reefs, visual access (especially to rivers), and boat ramps, including specific recreational amenities such as picnic benches and tables, shelters, and playground equipment.

The plan further stated that while each of the first mentioned specific access facilities were ruled out for County support, the County did feel that such amenities might be developed in conjunction with boat ramp sites as an incidental recreational use.

No Publicly Owned Shorelines To Be Sold or Leased—

All current publicly owned shoreline lands should be retained for some form of public use and enjoyment, rather than being sold off for private development.

Maintenance/Policing of Shoreline Access Facilities—

The plan calls upon various involved state agencies to do a better job of maintaining their existing boat ramp facilities in the County.

Better Utilization of Existing Access Grounds—

The plan calls for the expansion of existing boat ramp facilities within existing sites where adequate space is available.

Shoreline Plan as an Element of the County's Comprehensive Plan—

The 1990 Brunswick County Shoreline Access Plan is one element of Brunswick County's "Comprehensive Plan", of which the CAMA land use plan is also a part.

Need for Flexibility—

The plan emphasizes the need for flexibility with regard to specific sites or future access opportunities not yet identified.

Relationship to Major Thoroughfare Plan—

The plan suggests that access opportunities be sought as all elements of the major thoroughfare plan are executed.

The plan also includes a total of 43 existing or potential shoreline access sites identified in map form.

On January 25, 1990, a work session was held with the County Commissioners and County Planning Board to discuss 14 of the sites for possible first phase development access. The previously mentioned policy statements for the access plan were adopted by the County on February 5, 1990 with adoption of the entire draft occurring on February 19, 1990. This plan suggests that the County update the Shoreline Access Plan within the next five years; an implementation action has been included in Section 12 of this plan to this effect.

Policy 8.3.11(a)

Brunswick County encourages efforts to plan for and provide public access to the county's beaches, shores, rivers, streams, and waterfronts, in accordance with the County's shoreline access plan and commensurate with anticipated population increases.

Policy 8.3.11(b)

The provision of boating access facilities by the County, State, towns and private interests shall be encouraged and supported as an important means of public access to area waters.

**8.3.12
Beautification,
Including Signs,
Roadway
Appearance and
Litter**

The 1996 report entitled Recommendations of the Brunswick County Long Range Planning Committee included the following excerpt regarding the appearance of many of the County's roadways:

"For many visitors to Brunswick County, the roads leading to and from the beaches present one of the primary impressions of the County. Residents, business owners, and technical resource persons consulted during the preparation of this report related many stories and comments from visitors to the County which essentially said the same thing: "Beautiful area, ugly roadways." The County has within its power the authority to institute, modify, and enforce specific regulations concerning the control and prevention of visual blight along the county's roadways.

Foremost among these controls are zoning and subdivision regulations. These local ordinances can be tailored to achieve local objectives regarding the placement and design of new development. Such local objectives may include clustering commercial development in compact shopping centers as opposed to stripping large lengths of highway. Other objectives may include minimizing the number of driveway cuts, limiting the size and number of on-premise signs and off-premises billboards, screening outdoor storage, and prohibiting trash, junked vehicles, and dilapidated structures in yards. Implementing such a program of highway beautification is not a question of *how*, but rather, *how much* the County chooses to make this a priority. (page 3)

Thus, in large measure, Brunswick County's highways are what most travelers see when passing through or visiting the county. If the county is to be successful in recruiting industry and a quality tourism trade to the area, then the issue of highway beautification must take on a high level of importance.

Policy 8.3.12(a)

Brunswick County shall employ a combination of incentives and controls to encourage beautification measures which preserve the natural amenities of the community, especially as seen from the county's highways and roadways.

Policy 8.3.12(b)

The County shall continually improve its signage standards so that as the area grows, additional signage will not visually overwhelm the county's roadways, thereby detracting from the beauty of the area and devaluing its attractiveness as a place in which to live or vacation.

Policy 8-3-12(c)

Brunswick County views junked cars, "permanent" yard sales, flashing signs, and other roadside clutter as eyesores in the community, a detriment to a high quality of life, and a deterrent to tourism and economic development efforts. Brunswick County, shall, in cooperation with the County's municipalities, work to address these problems and eliminate them from our roadsides.

Policy 8-3-12(d)

Brunswick County shall not tolerate roadside litter and, in cooperation with the County's municipalities, shall enforce strict measures against littering.

8.3.13 Airports

Brunswick County has two general purpose airports, (identified on the community facilities map) with no commercial carrier service. Ocean Isle Beach Airport is located within the extraterritorial planning jurisdiction of The Town of Ocean Isle Beach. Brunswick County Airport is located within the planning jurisdiction of the Southeast Sanitary District; the County's previously prepared airspace zoning will continue to be enforced by the County in cooperation with the Sanitary District. Both facilities have prepared Master Airport Plans which have been accepted by the FAA and the State Aeronautics Board. Air service expansion is seen as necessary to improve both traditional industrial development as well as tourist and second home visitation. It is essential that land uses adjacent to airport development and expansion areas be compatible with this most important service.

Policy 8-3-13

Brunswick County supports the continued development of the Brunswick County Airport and will encourage land development patterns which allow for adequate airport expansion and improvements.

8.3.14 Education

Of all the policy categories contained in this plan, education is the category least related, in a traditional planning sense, with the preparation of a land use plan. In fact, in most land use plans, education would not even be included as a subject for policy development. In the broadest context of Brunswick County, however, education is at the very heart of the community's future. Few other factors, including transportation, utilities, land suitability, etc. can compare with the influence that education has over the area's prospects for positive economic development.

In today's industrial recruitment world, it comes as no surprise that a strong educational system is critical in attracting new industries to an area. One of the major factors that a company considers when making a relocation or expansion decision is not only the work ethic of the local labor force, but also the level of educational attainment and perceived trainability of area workers. With rapidly changing technologies, it is important that employees be able to adapt to these situations and to progress as technologies change.

As first noted in the leadership interviews conducted for the 1992 Land Use Plan and later confirmed during the public meetings held for the Brunswick County Long Range Plan (1996), Brunswick County's hopes for economic development rest with an improved, better trained labor force which possesses the basic educational skills necessary to survive in the increasingly technical workplace of the 1990's. In light of this concern, Brunswick County has given increased priority to improving the county's public schools, including substantial increases in funding.

Generally, the County's school facilities (i.e. buildings) are good, and the County has shown a commitment to maintaining its rapid pace of new facility

construction to keep up with Brunswick County's incredible growth rate. Unlike many other counties, Brunswick County does not appear to be lacking the financial resources necessary to support a quality school system.

Policy 8.3.14(a)

The attainment of a quality educational system shall be recognized as a critical factor in the future economic development and quality of life in Brunswick County. Actions taken by the County in support of education shall reflect the high priority given to this issue.

Policy 8.3.14(b)

Responsibility for improvements to the educational system shall not be placed solely with policy makers, professional educators and administrators. Programs and actions which emphasize (1) parental involvement and (2) assistance from the business community shall be strongly pursued.

Policy 8.3.14(c)

Appropriate educational and training programs shall be encouraged to help unemployed and underemployed local residents take advantage of business expansion and to stay abreast of new technologies.

8.3.15 Solid Waste Management

Solid waste management was identified as a high priority issue during the public input meetings held during the early stages of plan preparation. Solid waste continues to be a big issue, in part, due to the environmentally fragile nature of most of the county's land area, and, in part, due to the on-going challenges of making a system work based largely on unsupervised "green boxes".

Opportunities for regional cooperation in solving the solid waste management issue may be especially beneficial to Brunswick County, particularly if the County continues to grow at the rapid pace of the last two decades. Current plans call for the closing of the present County landfill on December 31, 1997. At that time, the site will function in a new role as a county-wide transfer facility for the hauling of all waste, which formerly would have gone to the landfill, to disposal facilities outside the county. (see Section 6.2.10)

Regardless of how the county's solid waste is ultimately disposed of, there is growing public sentiment in favor of recycling efforts in the county. A key to the effort may be how to implement recycling educational programs among part-time residents housed in second homes and resort rental units.

Brunswick County industries generate sizable amounts of industrial waste, the disposal needs for which are handled largely by the industries themselves.

Policy 8.3.15(a)

Local area requirements for solid waste disposal facilities shall continue to be anticipated through advanced planning; facilities shall be located and designed so as not to adversely impact significant natural or manmade resources.

Policy 8.3.15(b)

Brunswick County recognizes the need for a regional solution to the solid waste issue and will support efforts toward that end.

Policy 8.3.15(c)

Research and development of recycling and resource recovery programs, whether public or private, shall be encouraged and supported.

8.3.16 Growth and Development Controls

For the past several years, Brunswick County has been in the process of revising and improving its relatively new zoning standards, as well as its subdivision regulations. Several development trends in the area are causing the County to reassess the adequacy of its existing regulations to guide and control future development. For example, the rate of placement of mobile homes in the County has continued at a rapid pace for some time now, far outdistancing the pace of conventional single family construction in the area. Stormwater runoff and proper drainage continues to grow in importance as more impervious surfaces are created with new development.

Whereas early development in the County was most often concentrated on the best available soils in terms of the septic tank suitability and drainage, newer developments have been moving into marginally suitable soils. There is also increasing recognition of the problem of previously platted lots in private ownership which may or may not be suitable for development under today's tougher standards.

At the public meetings held for the land use plan, the need for improvement in the County's existing land use controls, particularly zoning, was evident from the comments received from area residents. Comments included the need for better, tougher enforcement, the need to better manage mobile home placements, to halt the hodge podge of commercial strip development which has proliferated along the County's major roadways, and the need to encourage cluster development in coordination with sewer services.

As noted repeatedly in this plan, Brunswick County's economic future is based in no small measure on the kind of physical environment and image which, ultimately, will determine the quality of industries and the caliber of tourist and retiree drawn to the area. US 17 and the roads leading to and from it are especially important corridors which will continue to require careful land use planning and zoning controls.

For the 1997 land use plan update, the Brunswick County Planning Board has elected to choose a theme of "town and country", emphasizing the need to encourage new development in or near towns or villages, whether existing or created from scratch. The intent is to avoid a continuation of the sprawling style of development that seems to have overtaken the county in the past two decades.

Policy 8.3.16

Growth and development controls shall be employed to promote a "town and country" pattern of development, thereby conserving open space, and concentrating urban services cost-effectively within developing town and village centers.

8.3.17 Tree Cover, Landscaping and Buffering

As noted above, Brunswick County has, over the past several years, been in the process of revising, improving and, in some instances, creating new land use controls. This is not at all unusual for a rapidly growing area. Among the many shortcomings of the county's existing ordinances, is the general absence of standards for tree preservation, parking lot landscaping, and natural or man-made buffers. At present, planning officials believe that they may best be able to address these needs through the open space standards of the County's subdivision ordinance. In the future, new provisions may also be added to the County's zoning and site plan review procedures.

Policy 8.3.17

The County shall encourage efforts to preserve and enhance tree cover in new development and redevelopment. The County also encourages the use of native landscape plants and materials in new and existing development to buffer incompatible uses, improve appearances, absorb stormwater runoff, and moderate air temperature swings.

**8.3.18
Transportation**

As noted in Section 6.2.4 of this plan, Brunswick County has a Thoroughfare Plan which is updated periodically. Preparation of the plan involves a cooperative effort of the Thoroughfare Planning Unit, Planning and Research Branch, Division of Highways, NC Department of Transportation, and a County-wide Thoroughfare Plan Coordinating Committee, made up of representatives of numerous local governments and Chambers of Commerce in Brunswick County. The last Thoroughfare Plan was adopted by the County and its municipalities in October and November of 1987, just prior to certification of the 1987 Land Use Plan Update. A new Thoroughfare Plan is currently in development. It is hoped that the new Plan will be ready for adoption before the end of 1998.

In addition to the Thoroughfare Plan, Brunswick County also participates in the annual preparation of a Transportation Improvement Program (TIP), a cooperative effort between the State DOT and local governments in the area. The TIP sets forth those transportation projects which, based on a variety of criteria, are to receive priority for funding over the ensuing seven year period.

In recent years, there has been a marked movement in some communities toward the preparation of transportation plans, as opposed to more narrowly focused thoroughfare plans. In the latter case, the plan is oriented almost exclusively toward streets and highways, while in the former, alternative transportation modes like bikeways, mass transit, water borne transportation, air travel, and pedestrian needs are given consideration.

Policy 8.3.18(a)

Brunswick County shall be an active participant in plans and actions related to transportation improvements to and within the County. Transportation improvements shall be coordinated with land use planning, infrastructure improvements, and economic development efforts.

Policy 8.3.18(b)

Brunswick County supports regional intergovernmental planning and cooperation for transportation improvements to and within southeastern North Carolina and northeastern South Carolina.

Policy 8.3.18(c)

Continued use and planned development of the Cape Fear River, Atlantic Intracoastal Waterway, and the Brunswick County Airport shall be encouraged.

**8.3.19 Sunny Point
Military Ocean
Terminal**

The Sunny Point Military Terminal commands a major presence along the west side of the Cape Fear River north of Southport. In addition to its influence over boat traffic and shipping movements in the Cape Fear, the terminal also draws rail shipments from time to time within the County. Beyond those transportation related impacts, the influence of the terminal is largely in terms of the sizable acreage involved in accommodating its operating areas, and to a greater extent, its safety "explosion zone" buffers.

While the County supports the terminal's on-going mission within the national system of defense, local officials also recognize that the development of a contingency plan for the terminal area is prudent, in the event that the Pentagon and/or Congress should ever elect to close the facility.

Policy 8.3.19

Due to the regional economic significance of the Sunny Point Military Ocean Terminal and its strategic role in our nation's defense system, Brunswick County supports its continued presence. The County also supports cooperative long range planning for the future of the terminal property as its mission may evolve over time.

8.3.20 Capital Improvement Planning

In the context of local government, "capital improvements" are often defined as *major, non-recurring expenditures related to the purchase or construction of a permanent or relatively long lasting asset*. Capital improvements may include, for example, land acquisition, construction or major rehabilitation of a building or other facility, the purchase of major equipment, or any planning, feasibility, engineering or design study related to a major capital project.

Given the range of capital improvement needs and expenses that the County will face in the coming years, this plan suggests that a long and short range capital improvement plan be introduced as a routine part of the annual budget setting process for the County. This plan should include a needs assessment and long range plan for such things as schools, fire stations, vehicles, industrial parks, water treatment and distribution, sewage collection, treatment and disposal, stormwater infrastructure, parks and the like. Cost estimates and sources of funding should be summarized in the plan for the approximate year(s) in which expenditures are anticipated. Coordination with the County's municipalities and water districts will be critical.

Policy 8.3.20(a)

Brunswick County shall plan ahead for the timely and cost effective provision of major capital improvements and services on the basis of anticipated growth and demand.

Policy 8.3.20(b)

Coordination between the County, its municipalities, sewer districts, and major industries shall be encouraged in planning and providing for capital facilities and services.

8.3.21 Parks and Recreation

In many vacation areas, particularly beach oriented vacation areas, it is not unusual to hear the comment: "Why do we need parks facilities when we've got miles upon miles of public beaches and open waterways?" The answer is that while beaches and waterways are great, they do not satisfy the need for *organized* athletics—soccer, baseball, tennis, competitive swimming and the like. Several other supporting points can also be made:

- First, while there may be miles of beaches and thousands of acres of open, public trust waters in the County, public access to these areas is not keeping pace with public demand. Demand for public parking at the county's beaches grows with each passing year and the addition of more parking can be contentious and expensive.
- Second, access to the county's public trust waters has stagnated for many years during a time when the population has been exploding. As the county continues to grow, it will become increasingly more important to locate and build boat ramps, marinas, and other forms of public access to the water.
- Third, in terms of athletic facilities, the County built a series of area parks during the 1980s— one in the Leland/Belville area, one in the Southport-Oak

Island area, one in the Mill Creek-Winnabow-Town Creek area, one at Shallotte, one at Supply, and one in the Ash-Waccamaw area. Community centers have been built in two of these parks, and three other centers have been built as separate operations in the Cedar Grove-Holden Beach area, the Northwest Community-Sandy Creek area, and in the Town of Leland. (See Section 6.2.9, for an inventory of facilities at each site)

- Fourth, while some of the county's athletic needs can be met at area schools (and indeed are) school facilities by themselves are seldom sufficient to meet the needs of both school age children and all other post-school age groups.

Thus, while the county's beaches, waterways, and athletic facilities continue to serve the county well, they are no better able to keep up with the ever increasing demands of a rapidly growing population than any other community amenity or service. The County must therefore continue to plan ahead for future park sites or additions to existing park sites. At the same time, the County also encourages area towns to become full participants in the provision of parks and recreation facilities and services. Any such planning should be part of the Capital Improvement Plan identified under Section 8.3.20.

Policy 8.3.21

As the population of Brunswick County continues to grow, the County shall support a commensurate increase in the development, maintenance and enhancement of its parks, open space and recreational facilities, including sound and ocean access facilities. The County shall employ national and State recreation standards as the minimum for such facilities for the benefit of both residents and visitors alike. The County shall explore alternative means of funding for parks facilities as necessary, including State and Federal grants, development impact fees, park user fees, general obligation bonds, and other sources of revenue.

8.3.22 Long Range Planning

In February of 1996, after over a year of public meetings, interviews with dozens of area leaders, and numerous special committee meetings, the Brunswick County Long Range Planning Committee submitted its sixteen recommendations to the Board of County Commissioners. Public input was broad and constructive, and discussions during the development of the recommendations, detailed and probing.

In the time since the completion of the report, many of the recommendations of the Committee have proven to be an accurate gauge of continuing public opinion on issues such as education, land use planning and zoning, solid waste management, roadside litter, industrial development, sewage treatment and stormwater management, and a number of other critical issues facing the county. This was no more evident than during the public input meetings held for the land use plan, when issues identified by the public struck the many of the same major themes that had been first identified during the Long Range Planning Process.

Given the rapid growth of the area, this plan recommends that the County continue to embrace a long range bias within each major area of county government, perhaps by instituting a formal long range planning process within the annual goal setting and budget process.

Policy 8.3.22

Given the accelerated growth of the County and projections of continued rapid growth, Brunswick County shall continue to embrace a bias for long range, strategic planning, with near term priorities established annually in conjunction with the County's budget process.

8.4 Public Participation Policies

The public participation plan and program for the Brunswick County land use plan is discussed fully in Section 11 of this document. For the sake of completeness, however, a summary of the importance of public participation in the Brunswick County land use plan is included here.

Since its inception, North Carolina's Coastal Area Management Act land use planning program has placed a high level of emphasis on public participation in the development of local use plans and policies. The intent is to insure that the resulting plan and policies reflect, as closely as possible, the will of the people in the community. Two key elements must be included in any effective public participation program: (1) public education, and (2) public involvement. The most effective format for public participation involves two way communication between citizens and local planning officials.

The public participation strategy employed in the development of the Brunswick County land use plan involved a variety of activities. Included were a series of "district level" meetings held in seven different locations in the County for the convenience of the attending public. Numerous meetings with the County Planning Board, all advertised and open to the public, focused the Board's attention on the plan and its policies.

CAMA guidelines suggest that public participation policies be discussed in four categories; (1) public education on planning, (2) ongoing public participation opportunities (3) citizen input in developing policy and (4) intergovernmental coordination. The following policies address the suggested headings.

8.4.0 Basic Policy Statement Regarding Public Participation

Policy 8.4.0

Brunswick County believes that an on-going, public information program, combined with meaningful opportunities for citizen involvement in County decision-making, is the foundation for effective public participation in county government.

Policy 8.4.1(a)

Brunswick County shall continue to employ public participation techniques at public meetings which actively involve the public in identifying and discussing planning issues, thereby facilitating a form of engaged education. Media attention concerning such meetings is also strongly encouraged and thankfully acknowledged for the public service they provide.

Policy 8.4.1(b)

Following plan adoption, Brunswick County shall employ frequent, constructive and open regular meetings of the Planning Board and County Commissioners as the primary vehicle for engaging public participation in on-going planning issues and development projects.

Policy 8.4.1(c)

Citizen input in the development of growth policies shall be supported through attention given to the issues and priorities which the public identified during early input meetings.

Policy 8.4.1(d)

Effective public participation in County government planning shall also include coordination with municipal governments and utility districts in the County. The County shall continue to act to facilitate improved communication and coordination on planning matters among local governments in the County. The Land Classification Map of the County land use plan shall be employed as a specific planning tool to identify and affirm County town and village growth centers.

8.5 Storm Hazard Mitigation/Post-Disaster Recovery, & Evacuation Policies and Plans

Introduction

Brunswick County, like so many other coastal counties, is especially vulnerable to the damaging effects of hurricanes. Because of this vulnerability, the County must devise means by which development can be managed to mitigate the hazards associated with hurricanes. To achieve this objective, hazardous areas must be mapped to assess the county's vulnerability to damage. Further, existing mitigation measures must be reviewed and periodically improved.

8.5.0 Description of the Effects of Coastal Storms

8.5.0(a) Storm Effects

During coastal storms, including both hurricanes and northeasters, Brunswick County and its beach communities, in particular, are subject to beach erosion, storm surge, wave action, flooding, high winds, and beach washover. Of these, storm surge and high winds are typically the two most damaging storm effects. These storm effects are listed below for each of the five recognized levels during hurricane events of increasing magnitude (as measured on the Saffir-Simpson scale). Additional descriptions of the effects of flooding, storm surge, and wind effects follow.

<u>Hurricane Category</u>	<u>Storm Surge</u>	<u>Maximum Sustained Winds</u>
Category 1	4-5' above normal	74-95 mph
Category 2	6-8' above normal	96-110 mph
Category 3	9-12' above normal	111-130 mph
Category 4	13-18' above normal	131-155 mph
Category 5	over 18' above normal	over 155 mph

Flooding

Flooding is a hazard along the many rivers in unincorporated Brunswick County, as well as in the area immediately adjacent to the Intracoastal Waterway. As noted in Section 8.5.0(C) below, much of this area is attractive for residential development, so there has been substantial private investment in these flood prone areas. FEMA Flood Insurance Rate Maps identify those areas of land with a 1% chance of flood inundation in any given year. Flooding in areas closest to the ocean can be the result of storm surge, i.e. water that is pushed upstream by strong winds off the ocean. Some flooding on small tributaries can also be attributed to heavy rainfall over a short period of time.

Storm Surge and Wave Action In Brunswick County

The US Army Corps of Engineers has used the Special Program to List the Amplitude of Surge from Hurricanes (SPLASH) model to map Storm Surge Inundation Areas in the County. The resulting SPLASH map, available for inspection at the County Planning Office, shows surge levels based on class one through five hurricanes, traveling at slow and fast speeds. By using these maps, local emergency management authorities can plan evacuation routes based on anticipated inundation levels under various storm scenarios.

In addition, a SLOSH (Sea, Lake, & Overland Surges) model was designed by the National Hurricane Center in 1992 for the Myrtle Beach and Wilmington area. The Wilmington District, USACOE was project manager for the study, which was funded by FEMA, the US ACOE and the State of North Carolina. The work resulted in the production of a Storm Surge Atlas for the Myrtle Beach to Wilmington area.

- Construction materials and utility equipment must be resistant to flood damage.
- Construction shall be by methods and practices that minimize flood damage.
- All new replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
- New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.
- On-site waste disposal systems (e.g. septic) shall be located and constructed to avoid impairment to them or contamination from them during flooding.

Specific Standards:

- Residential structures shall have the lowest floor, including basement, elevated no lower than (1) foot above flood elevation.
- Non-residential structures shall be either elevated no lower than (1) foot above the 100 year base flood elevation or be flood proofed. A registered professional engineer or architect must certify compliance with these standards.
- No mobile home shall be placed in a floodway or coastal high hazard area, except in an existing mobile home park or existing mobile home subdivision.
- All mobile homes shall be anchored to resist flotation, collapse, or lateral movement by providing over-the-top and frame ties to ground anchors.
- In new mobile home parks and subdivisions, stands or lots must be elevated on compacted fill or on pilings so that the lowest floor of the mobile home will be at or above the base flood level.
- The design and installation of anchorings and pilings must be certified by a registered professional engineer or architect.
- No alteration of frontal dunes or use of fill for structural support shall occur in the V zone, except as may be specifically allowed under applicable CAMA regulations.
- Open space or breakaway walls (e.g. lattice work) must be used below base flood elevations in V and A zones.

***Brunswick County
Subdivision
Ordinance***

The Brunswick County Subdivision Ordinance, which was first adopted in 1980, was until recently little more than a registration ordinance for new divisions of land. It contained few specific design criteria for the approval or disapproval of new subdivisions. Only streets that were to be dedicated to the State required design and construction standards. In 1991, however, the ordinance was substantially revised to include specific development standards, including specific requirements for drainage. At the time of this writing, it is undergoing another revision and update. Administration of the ordinance has included the incorporation by reference of Section 1-4-69, the Revised Codes of Brunswick County, Standards For Subdivision proposals, including specific provisions to minimize or eliminate flood damage.

***NC Uniform
Residential
Building Code***

The North Carolina Uniform Residential Building Code is the tool that the County uses to manage development to minimize potential wind damage. The County does not have the authority to modify the Building Code to better meet its needs. Under the laws of the State, each county must enforce these uniform regulations.

***Zoning and Growth
Management***

Since the time of the last land use plan update (1992), Brunswick County enacted a zoning ordinance for the unincorporated area. At present, the

ordinance is in need of review for consistency with the flood hazard and storm hazard mitigation objectives of the County.

**Policy 8.5.1(a)
Storm Effect
Mitigation**

(1) **High Winds:** Brunswick County shall continue to enforce the North Carolina Building Code, particularly those provisions which require construction standards to meet resistive factors, i.e. design wind velocity.

(2) **Storm Surge:** Recognizing that most parts of the County subject to storm surge are within the regulatory jurisdiction of municipalities, Brunswick County nonetheless supports the development standards of the State CAMA Ocean Hazard Area of Environmental Concern (AEC). These standards help ensure that structures, particularly susceptible to storm surge (e.g. first row) are set back from the ocean a distance based on the average annual erosion rate at that location.

(3) **Flooding:** The County is an active participant in the National Flood Insurance Program and is supportive of its hazard mitigation elements. The County shall continue to seek improvements in development standards which would result in lower insurance premiums for County property owners. The County also supports proper enforcement of State and Federal wetlands development permit processes in areas potentially susceptible to flooding.

(4) **Wave Action and Shoreline Erosion:** The County is supportive of the CAMA development permit process for oceanfront and estuarine shoreline areas and the requisite development standards which encourage shoreline preservation, dune stabilization, wave action absorption, and other mitigation measures.

**8.5.1(b)
Discouragement of
Hazardous
Development**

The County employs many of the same ordinances and standards described under Section 8.5.1 (a) above to discourage development in hazardous locations. In addition, the County has an organized, emergency management program and full-time coordinator. The emergency management office works actively with all local governments in the County to plan for and carry out emergency management programs.

**Policy 8.5.1(b)
Discouragement of
Hazardous
Development**

(1) Brunswick County shall discourage high intensity uses and large structures from being constructed within the 100-year floodplain, erosion-prone areas, and other locations susceptible to hurricane and flooding hazards.

(2) Brunswick County, through its Emergency Management Office, shall encourage each of its communities to participate in hurricane preparedness, education and information sharing programs at least once per year. Such public outreach programs should educate the public as to storm resistant building design and construction standards, as well as local government policies on evacuation, reentry, restoration of services and reconstruction.

(3) The County will periodically conduct studies to analyze both the feasibility and benefits of revising local building and development standards to lessen the effects of storm damage. Included shall be an examination of the County's floodplain management, zoning, subdivision and building standards.

**Section 8.5.1(c)
Public Land
Acquisition**

Brunswick County views the purchase of lots or sites that may have been rendered unbuildable by shoreline erosion with a wary eye. The same erosion that renders a lot unbuildable for private use could eventually also render the lot unusable for County purposes. In evaluating potential property purchases, the County shall take into consideration rates of erosion or other factors which could have a bearing on the longevity and ultimate usefulness of the property for public use. If such erosion rates or trends are found to be unfavorable for the longevity of the lot, the County shall not participate in its acquisition.

**Policy 8.5.1(c)
Public Land
Acquisition**

Brunswick County shall not participate in the purchase of land parcels located in hazard areas or rendered unbuildable by storms or other events for the purposes of shorefront access.

**8.5.1(d) Evacuation
and Emergency
Management**

With the recent experience of hurricanes Bertha and Fran during 1996, emergency management officials throughout the county have learned much about improving the coordination of evacuation efforts, especially concerning the various beach communities. This experience should serve the county, its municipalities, and its many law enforcement, fire and rescue programs well in the future.

**Policy 8.5.1(d)
Evacuation and
Emergency
Management**

(1) Brunswick County, in cooperation with municipal and State officials, shall annually evaluate the impact of continued growth on existing transportation facilities with regard to evacuation routes and times. The intent shall be to identify and address needed transportation improvements well in advance of a crisis.

(2) Brunswick County recognizes the critical role that area fire departments, rescue squads and other emergency personnel play in managing emergency situations. The County shall work cooperatively with such emergency personnel to plan for and respond to emergencies and shall facilitate cooperation among emergency personnel.

**8.5.2 Post Disaster
Reconstruction**

Post disaster reconstruction policies are required as part of the land use plan to guide development during the reconstruction period following a disaster so that the community, as it is rebuilt, is less vulnerable to coastal storms than it was before the disaster.

In accordance with CAMA Land Use Planning Guidelines, this section discusses post disaster reconstruction policies according to the following five categories:

- 1- The County Emergency Management Plan, especially the preparation and response sections.
- 2- Local policies which will direct reconstruction over a longer period of time.
- 3- The establishment of a "recovery task force" to oversee the reconstruction process and any policy issues which might arise after a storm disaster.
- 4- The establishment of a schedule for staging and permitting repairs, including the imposition of moratoria, according to established priorities assigned to the restoration of central services, minor repairs, major repairs and new development.
- 5- The establishment of policies for repair and or replacement of public infrastructure including relocation to less hazardous areas.

Each of these categories will now be discussed in turn.

8.5.2(a) Emergency Management Plan

Given the large number of incorporated towns in Brunswick County, and divided responsibilities for the issuance of building permits, and for the enforcement of laws regarding re-entry to area beach towns, a primary concern immediately following a major storm event is county-wide coordination of post disaster reconstruction activities. This is especially important for the beach communities, given the vulnerability of their position along the oceanfront. To insure that there is coordination between the various municipalities and county government, the County Emergency Management Coordinator acts as a liaison between the County and other local governments on emergency preparedness matters.

As noted in the CAMA guidelines, it should not be the intent of this plan to reiterate Brunswick County's emergency management plan. Suffice it to say that the Brunswick County Disaster Relief and Assistance Plan, as it is called, lays out the specific structure of post disaster re-entry procedures, damage assessment policies, and other matters of pressing concern immediately following a major storm event.

Policy 8.5.2(a) Emergency Management Plan and Near Term Response

The County shall prepare and annually update an Emergency Management and Operations Plan, in concert with municipal and State emergency management officials. The plan shall encompass pre-storm and immediate post-storm activities and policies of the County, including coordinated policies on evacuation and reentry to damaged areas. Important elements of the plan and its policies shall be publicized, particularly at the beginning of each hurricane season.

8.5.2(b) Local Policies to Direct Reconstruction

Brunswick County has spent considerable time preparing, testing, carrying out, and improving upon the aforementioned Disaster Relief and Assistance Plan. The Plan has application before, during, and after a major storm event. Included in this Plan are the establishment of mutual aid agreements for assistance in the areas of clean up, damage assessment and reconstruction activities, among others. The policy which follows attempts to reduce down to a single policy statement many of the County's most salient policies regarding reconstruction.

Policy 8.5.2(b) Local Post-Disaster Reconstruction Policies

Redevelopment in the most hazardous areas may be discouraged or prohibited if post storm analysis indicates that rebuilding would be unsafe or unwise. Structures and sites destroyed by 50% or more of their value and which do not conform to the County's building regulations, zoning ordinances, and other storm hazard mitigation policies, shall be redeveloped according to current standards. In some instances, this may mean relocation of construction or no reconstruction at all. Structures and sites suffering damages at less than 50% of their value shall be allowed to be restored to their original condition prior to the storm.

8.5.2(c) Establishment of Recovery Task Force

State guidelines suggest that a *recovery task force* be appointed to guide restoration and reconstruction activities during the post emergency phase. This task force may be active from a period of a few weeks up to one year. The responsibilities of this group typically include:

1. Develop a restoration schedule.
2. Set priorities concerning restoration.
3. Obtain a pre-disaster agreement between the localities and the County that covers the role of local officials and County officials during a disaster.

4. Determine the need for outside assistance and request such assistance when it is needed.
5. Keep state officials abreast of conditions through the use of Situation and Damage Reports.
6. Maintain accurate records of activities and expenditures through the use of standardized forms that will be available at the Office of Emergency Management.
7. Pronounce a local "State of Emergency" if such a determination is warranted.
8. Authorize debris removal and restoration of public utilities. (In the case of private utility companies, the Task Force will act as coordinator for restoration activities.)
9. Commence the repair and restoration of public facilities and services in order of need.
10. Keep an up-to-date listing of various types of federal and state assistance that may be available to private businesses and individual property owners.
11. Organize personnel to assist disaster victims in understanding the different types of assistance available and in applying for such assistance.

Because of the variety of duties that this Task Force must perform, it is necessary that it be composed of a cross section of the public. The precise composition of the Task Force may change from time to time, but could include, for example, the following persons:

Chairman of the Board of County Commissioners
Brunswick County Manager
Emergency Management Coordinator
County Tax Appraiser
County Finance Director
County Building Inspector
County Engineer
Minor CAMA Permit Officer

For an up to date listing of all members of the Recovery Task Force, the reader is directed to the official Disaster Relief and Assistance Plan of Brunswick County.

**Policy 8.5.2(c)
Recovery Task
Force**

The Board of County Commissioners of Brunswick County shall be ultimately responsible for supervising the implementation of policies and procedures contained in the disaster relief and assistance plan, and the post-disaster recovery policies of the land use plan. The Board of County Commissioners shall also have at their disposal a predetermined Recovery Task Force to carry out their directives regarding recovery activities following a major storm event. The composition and duties of the Recovery Task Force shall be specified in the County's Emergency Management and Operations Plan.

**8.5.2(d) Schedule
for Staging and
Permitting Repairs**

The staging schedule for the re-establishment of essential services and the reconstruction and repair of properties damaged during a storm event, will depend on the severity of the storm and the damage inflicted. The County will be working to restore essential services related to the public health safety and welfare first. Properties suffering minor damage will have building permits issued as expeditiously as possible. Properties suffering major damage will be allowed to implement temporary protective measures to protect their property from further damage, or to correct a public safety problem.

**Policy 8.5.2(d)
Staging Schedule
For Reconstruction
and Repair**

(1) To deal with the large number of requests for permits after a major storm, the County shall employ a "building permit triage" system for orderly issuance of building permits. Criteria for the order of issuance shall be developed in advance, with the need for modification acknowledged based upon the specific circumstances being faced.

(2) The Board of County Commissioners may declare a moratorium of up to 180 days on the permitting of any new construction, including new utility hookups, or redevelopment construction that would increase the intensity of the land uses existing before the hurricane.

(3) Immediately following a damaging storm event, the County shall work with all appropriate utility and service companies to implement a planned sequence for the restoration of public utilities and services, with allowance for adjustment to deal with circumstances at hand. Generally, priority shall be given to those repairs that will restore service to critical locations (e.g. hospital) first and secondarily, to those repairs that will restore service to as many persons as soon as possible.

**8.5.2(e)
Repairs/Replacement
of Public
Infrastructure**

Following a major storm event, damages to public infrastructure may be extensive. This may require the replacement and or relocation of roads, water and sewer facilities, and other utilities. This may include the placement of "wired" utilities, which were previously overhead, to underground locations.

Relocation of these capital facilities may be necessary to place the facilities in a less hazardous location, or to better serve a land area which has been reconfigured by storm impacts. In any event, the provision, extension and timing of public utilities such as piped water and sewer collection can be an effective growth management and storm hazard mitigation tool by encouraging redevelopment to occur on lands better suited for urban level growth.

**Policy 8.5.2(e)
Public
Infrastructure
Repairs/
Replacement**

(1) The County encourages underground installation, replacement and storm proofing of public and private utilities and infrastructure.

(2) In the event of extensive hurricane damage to public utilities requiring replacement or relocation of these utilities, efforts shall be made to locate damaged utilities away from hurricane hazard areas or to strengthen their construction.

8.6 Bald Head Island Policies

The Village of Bald Head Island operates as an incorporated municipality. It has, however, elected to remain under the general planning authority of the Brunswick County Land Use Plan for the 1997 Update. (Village officials anticipate that the island will develop its own CAMA land use plan on or before the time of the next update cycle.)

Given these circumstances, the Brunswick County Planning Board invited the Village to prepare its own set of customized policies for inclusion in the County Land Use Plan. In turn, the Village accepted the invitation and responded positively with the following policy statements. Please note that these policies are not intended to have application outside the planning jurisdiction of the Village of Bald Head Island. In the unlikely event that a County-wide policy should be interpreted to be in conflict with a Village policy, the Village policy shall take precedence within the Village of Baldhead Island. The following policies are as they were submitted by the Town to the County Planning Board.

8.6.1 Resource Protection Policies

BHI Policy 8.6.1(a)

The Village of Bald Head Island supports the concept of a family oriented island developed in harmony with nature, promoting responsible development with respect for the environment.

BHI Policy 8.6.1(b)

Educational programs and other efforts targeted to property owners and visitors will be utilized in order to further Bald Head Island's goal of preserving the beauty of its beaches, creeks, maritime forest, and other natural resources which make it unique.

BHI Policy 8.6.1(c)

The Village of Bald Head Island supports state and federal laws designed to manage development in Ocean Hazard Areas of Environmental Concern as well as Estuarine Shoreline Areas of Environmental Concern.

BHI Policy 8.6.1(d)

The Village of Bald Head Island realizes the importance of its shoreline from an aesthetic and economic standpoint. The Village will establish a shoreline management plan to evaluate methods of beach and dune stabilization. The Village supports all State and Federal programs for beach stabilization and encourages the active funding of these programs.

8.6.2 Resource Production and Management Policies

BHI Policy 8.6(a)

The Village of Bald Head Island supports efforts to maintain a high level of water quality in order to enhance fisheries resource and recreational value of its waters.

BHI Policy 8.6(b)

Protection of sea turtle nesting areas will continue to be enforced through recognized ordinances.

BHI Policy 8.6.2(c)

The Village of Bald Head Island recognizes its natural resources as one of its greatest assets. To help preserve these resources the development of a maritime forest management plan and consistent open space plan have become a point of focus.

BHI Policy 8.6.2(d)

Bald Head Island restricts the use of vehicles powered by internal combustion engines because of the fragile nature of its unique habitat. In order to prevent adverse environmental impacts, Bald Head Island will continue to enforce its Internal Combustion Engine Ordinance, which prohibits the use of internal combustion engines on the Island with certain exceptions.

**8.6.3 Economic and
Community
Development
Policies**

BHI Policy 8.6.3(a)

Bald Head Island advocates a strong local government that supports effective community planning and appropriate land use controls.

BHI Policy 8.6.3(b)

Bald Head Island will attempt to facilitate the expansion of public services and facilities to meet the needs of existing and future populations, as resources allow.

BHI Policy 8.6.3(c)

Bald Head Island supports innovative transportation programs related to improved road and water transportation system improvements, including an enhanced emergency transportation system.

BHI Policy 8.6.3(d)

Residential and commercial development in accordance with applicable Village ordinances is encouraged.

BHI Policy 8.6.3(e)

Bald Head Island supports and encourages the restoration and/or appropriate adaptive reuse of significant and architecturally important historic and cultural structures and sites.

BHI Policy 8.6.3(f)

Bald Head Island supports a completed and well-maintained infrastructure, including the development of a state of the art solid waste collection system.

BHI Policy 8.6.3(g)

Bald Head Island supports regional intergovernmental planning as it relates to transportation, emergency services, etc. Bald Head Island encourages improved regional cooperation covering all local government units including Brunswick County area municipalities, neighboring counties, and the State.

BHI Policy 8.6.3(h)

Measures to enhance public safety will be supported, such as regulation of golf cart safety, as well as enhanced emergency medical service programs. Bald Head Island encourages equitable application of county resources to all municipalities, specifically emergency services such as EMT-paramedic and fire protection.

**8.6.4 Continuing
Public Participation
and Coordination
Policies**

BHI Policy 8.6.4(a)

The Village Of Bald Head Island supports continued public participation in Village government. Every effort will be made to improve channels of communication to property owners and residents to obtain input and ideas at the front-end of the decision making process.

BHI Policy 8.6.4(b)

The Village of Bald Head Island believes that the core of strong local government is active citizen involvement and open communication between Village representatives and their constituents. The Village will continue to support efforts to further this purpose, such as the establishment of Village committees including but not limited to: Finance, Beach, Roads and Transportation, Public Safety, and Public Works.

**8.6.5 Storm Hazard
Mitigation & Post-
Disaster Recovery
Policies**

BHI Policy 8.6.5(a)

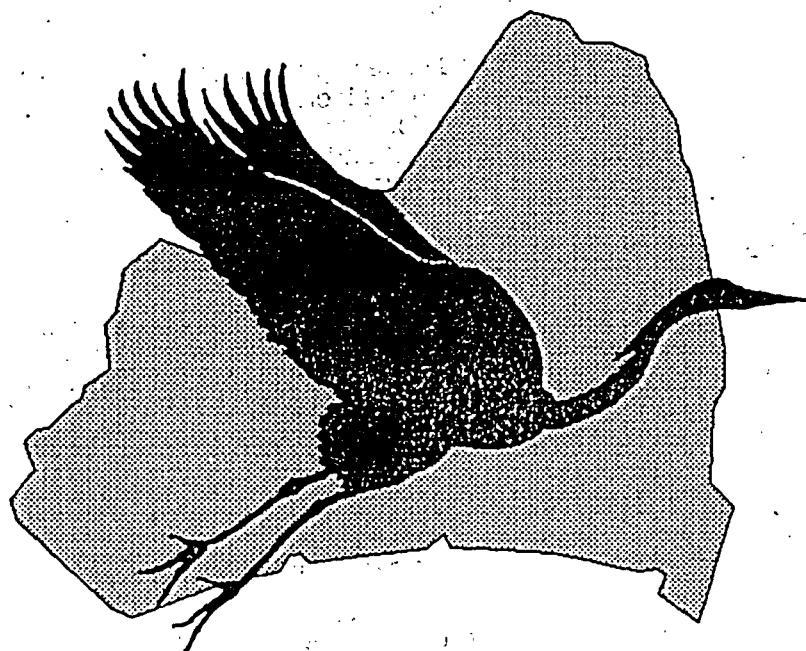
The Village of Bald Head Island will continually pursue methods and procedures to minimize the loss of life and property during major storm events. This includes establishment of an Emergency Mitigation Plan to effectively plan for evacuation/security measures, as well as provide an orderly method of post-disaster clean up and recovery.

BHI Policy 8.6.5(b)

The Village of Bald Head Island shall continue to enforce the North Carolina Building code, which establishes design/construction standards to meet resistive factors such as high wind velocity. The Village will also continue to comply with CAMA regulations, whose standards dictate setbacks for structures particularly susceptible to storm surge.

BHI Policy 8.6.5(c)

Bald Head Island, in cooperation with County and State officials, continues to explore the safest, most expedient and efficient evacuation routes for citizens. Continued cooperation with appropriate officials to ensure proper implementation of emergency planning will be pursued.



9. Land Classification

9. The Land Classification System

9.1 Purpose of Land Classification and Relationship to Policies

The CAMA Land Use Planning Guidelines require that local governments in the coastal area classify various parts of their planning jurisdictions in accordance with the desired density, character of development and extent of service provided for each area of their community. By delineating land classes on a map, the County can specify where various forms of development and redevelopment might best occur, and where natural and cultural resources should be conserved. For example, the **Developed** class is intended for areas that are already urban in nature. The **Urban Transition** class is intended for areas that are expected to become urban within the next decade. The **Rural** class is intended for areas that are not expected to become urban within the next decade—and so forth.

The land classification system is intended to be supported and complemented by zoning, subdivision and other local growth management tools; these local tools should be consistent with the classification system as much as possible. Although general areas are outlined on a land classification map, it must be remembered that land classification is merely a tool to help implement policies and is not, in the strict sense of the term, a regulatory mechanism.

9.2 Land Classification System of Brunswick County

The basic land classification system (as presented in the State guidelines for land use planning) includes seven classes: *Developed*, *Urban Transition*, *Limited Transition*, *Community*, *Rural*, *Rural with Services*, and *Conservation*. The guidelines allow local governments to subdivide these classes into more specific sub-classes if they choose. In keeping with this provision, Brunswick County has elected to create several sub-classes which are outlined in detail below.

9.3 Land Classification Map

The land classification map is provided at the back of this document.

9.4 Land Classification Areas Described

DEVELOPED—NOT IN PLANNING AREA

The purpose of the *Developed* class is to provide for continued intensive development and redevelopment of existing cities, towns and their urban environs. In the case of *unincorporated* Brunswick County, no *Developed* areas are designated on the map. Rather, these areas are more properly reserved to the more densely developed and serviced incorporated municipalities of the County. With two exceptions (Bald Head Island, Sandy Creek), all incorporated communities located in Brunswick County have their own land use plans, and therefore, make their own policy decisions regarding the use of this land class.

TRANSITION AREAS

The purpose of the *Transition* class is to provide for future development on lands that are suitable and that will be provided with the necessary urban services to support such development. Urban services normally include water, sewer, streets and roads, police and fire protection that will be made available at the time development occurs or soon thereafter. Areas meeting the intent of the *Transition* class are presently being developed or will be developed in the next five to ten years to accommodate anticipated growth. Most of these areas are in, or will

be in a "transitional" state of development, going from lower intensity uses to higher intensity uses and, as such, will eventually require urban services. For the Brunswick County Land Use Plan, several sub-categories within the Transition Classification have been proposed as follows:

Area of Town and Village Clusters

The *Area of Town and Village Clusters* has been applied to those parts of the unincorporated area where: (1) authorization for regional sewer service is already in place or (2) where initiatives are underway which have a significant probability of establishing authority for regional sewer service within the next five years and where: (3) county water service is already in place or planned to be in place within the next five years. These areas include, principally, developable areas adjacent to the incorporated areas or extraterritorial jurisdictions of the Towns of Leland, Navassa, Belville, Southport, Long Beach, Holden Beach, Ocean Isle Beach, Sunset Beach, and Calabash.

It is important to note that the intent of this land classification is not to blanket the landscape with suburban sprawl style development, but rather to encourage new developments to occur in Town or Village like patterns, with certain retail services designed into the Town or Village cluster. The intent is to discourage unnecessary increases in traffic volumes on the County's few main roads by encouraging residents to shop for their basic needs closer to home, perhaps within walking or biking distance. At the same time, the compact nature of these clusters, typically involving smaller lots, is intended to allow for the allocation of permanent open space around and between such clusters. This development pattern is entirely consistent with the desires of County residents to preserve open space and the rural character of much of Brunswick County, while allowing growth to occur in a managed way.

Highway-Oriented Services

Areas designated for Highway-Oriented Services are intended to acknowledge the strong pressures for commercial development along some sections of the County's main roadways. While the County would prefer to see such commercial development locate in the incorporated municipalities where services can be provided, the County also recognizes that a certain amount of highway oriented commercial development is inevitable. However, rather than allowing "strip commercial development" to occur unabated along the County's roadways, the Highway-Oriented Services classification has been created to limit such areas to designated roadway sections. Finally, the County anticipates the need to enact special development standards for highway oriented commercial services, including signage standards, landscaping and tree preservation, limits on driveway cuts, possible frontage road or rear access roads, etc.

Industrial Areas

The purpose of the *Industrial* land class is to accommodate and encourage industrial development on appropriate sites within specially designated land areas. Lands designated for the *Industrial* sub-class include areas currently developed for large scale industrial type uses, and lands containing sites that are particularly appropriate for future industrial development.

The *Industrial* land classification has been applied, for the most part, to several relatively large land areas with convenient access to the shipping channels of the Cape Fear River and/or rail service. Existing and planned highway access is also good, particularly with regard to the industrial area north of Navassa. The planned addition of a US 17 Bypass entering Brunswick County near this location will provide convenient access to multiple US and NC highways. This area was also noted in the 1997 Cape Fear River Corridor Plan as being particularly appropriate for industrial development.

Existing industries located within the industrialized areas of the Cape Fear River Corridor include, for example, Dupont, the Sunny Point Military Terminal, the Archer Daniels Midland Plant, the CP&L Nuclear Power Plant, and the Cogentrix Cogenerating Plant. Other land areas which have been included are largely adjacent to these existing industrial operations. It should be noted, however, that the County may seek to employ the *Industrial* class in the future as may be advantageous to recruit new industry to other appropriate locations within the broader *Rural* land area.

Military Reservation

The purpose of the *Military Reservation* land class is to accommodate the needs of the Sunny Point Military Ocean Terminal. As part of the Land Use Plan policies, the County suggests the need for advanced planning for the on-going evolution of the mission of the terminal in the coming decades. This may involve contingency planning in cooperation with the Department of Defense.

COMMUNITY AREAS

The purpose of the *Community* class is to provide for clustered, mixed land uses at low densities to help meet the housing, shopping, employment and other needs in rural areas. Due to the small size of most communities so designated, they will appear as small circular areas on the County's land classification map. This is not to imply that future development shall conform to a circular shape. While future community level development may center on this location, it is recognized that soil limitations, floodprone areas, or other factors may influence the eventual development form of the community. Thus, areas meeting the intent of the *Community* class are usually associated with crossroads in counties. They may be developed at low densities which are suitable for private septic tank use. These areas are clustered residential and/or commercial land uses which provide both low intensity shopping and housing and provide a local social sense of a "community". Very limited municipal-type services, such as fire protection and community water, may be available, but municipal type sewer systems are not usually available.

The *Community* classification has been applied to those relatively small, predominately unincorporated communities in Brunswick County that exhibit many or all of the characteristics described above. Included in the classification are several small communities that, while they may or may not be incorporated, are commonly recognized as having some sense of identity and association with a particular part of the county. This class includes but is not limited to the communities of: Sandy Creek (incorporated), Maco, Clarendon, Bell Swamp/Winnabow, Mill Creek, Piney Grove, Kingtown, Ash/Waccamaw, Longwood, Grissettown, and Hickman's Crossroads.

RURAL AREAS

The *Rural* class is to provide for agriculture, forestry, and other allied uses traditionally associated with an agrarian region. Very low density dispersed residential uses on large lots with on-site water and sewer are consistent with the intent of the *Rural* class. Areas meeting the intent of this classification are appropriate for or presently used for agriculture, forestry, and other similar uses. Population densities are generally very low. The *Rural* class is the broadest of the several general land classes and thus constitutes the major land class on the Brunswick County Land Classification Map. The vast majority of all interior land areas, away from the ocean and intracoastal waterway, have been designated *Rural*.

CONSERVATION AND RESOURCE MANAGEMENT AREAS

The purpose of the *Conservation* class is to provide for the effective long-term management and protection of significant, limited, or irreplaceable areas. Management is needed due to the natural, cultural, recreational, scenic or natural productive values of both local and more than local concern. As such, the *Conservation* class should be applied to areas that should be either not developed at all (preserved), or if developed, done so in a very limited manner characterized by careful planning and cautious attention to the conservation of environmental features.

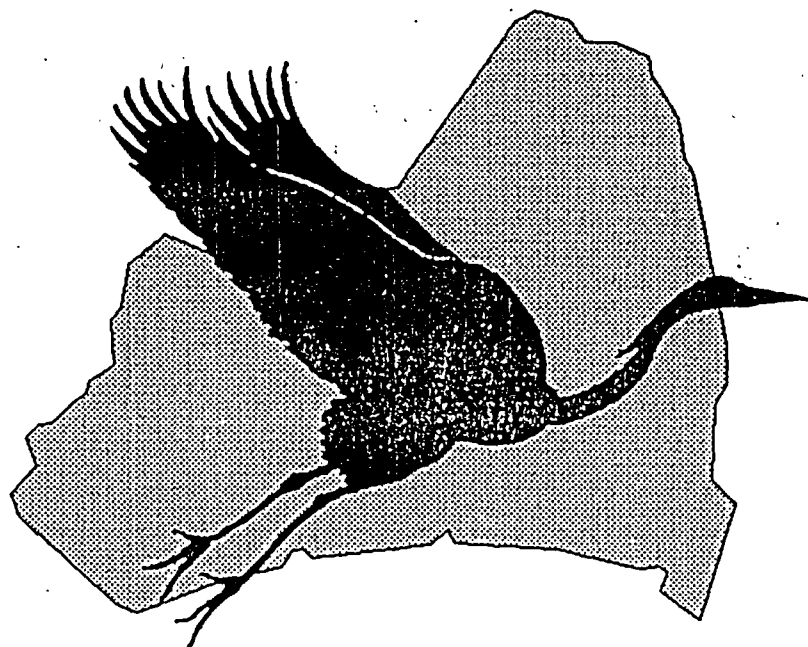
Urban services, public or private, should not be provided in these areas as a catalyst to stimulate intense development. In most cases, limited on-site services will adequately support any limited development within this class and will also protect the very features which justify the area's inclusion in the *Conservation* classification.

For Brunswick County, the *Conservation* class includes:

1. Areas of Environmental Concern, as defined in 15A NCAC 7H and as further summarized in Policy Section 8.1 of the Land Use Plan,
2. Wetland areas under the jurisdiction of the US Army Corps of Engineers' 404 wetlands Permit Program and as generally identified as a *freshwater woody wetland* by the National Wetlands Inventory of the U.S. Fish and Wildlife Service.
3. Certain critical wildlife habitat areas as may be designated by the State Natural Heritage Program and approved by the County Commissioners for inclusion in this class.
4. Other similar lands, environmentally significant because of their natural role in the integrity of the coastal region and which include, but are not limited to: bottom land hardwoods, pocosins, and swamp forests containing significant productive, natural, scenic, cultural or recreational resources, and as may be approved by the County Commissioners for inclusion in this class.

Mapping of AEC's, 404 wetlands, and critical habit areas in the *Conservation* class is accomplished with the understanding that these areas are more accurately defined in their respective management policies and plans. Oftentimes, the scattered, widespread nature of such areas (e.g. 404 wetlands) precludes their mapping except at a very generalized level of detail. In such instances, the standards of the *Conservation* class shall be applied in accordance with the site specific information made available during the land development process.

As part of the *Conservation* Class the County wishes to go on record that in no instances, shall the *Conservation* classification as shown on the land classification map be employed to automatically "trigger" special environmental reviews or wetlands inventories for proposed developments.. Rather, the need for such reviews should be determined on a case by case basis depending on the nature of the site specific situation.



10. Intergovernmental Coordination

10. Intergovernmental Coordination and Municipal Land Use Plans

10.1 Uses of the Land Use Plan

The Brunswick County Land Use Plan, including the policies for growth and development and the land classification map, will serve to coordinate numerous policies, standards, regulations, and other governmental activities at the local, State and Federal levels. Such coordination is achieved in three ways:

1. State and Federal government agencies are required to review local land use plans when considering any actions or activities under their jurisdiction. Their actions are to be consistent, whenever possible, with the intent of the local land use plan.
2. The policies and land classification system described in the land use plan provide a basis for planning and budgeting for the provision of public facilities and services such as water and sewer systems, roads and schools.
3. The County land use plan can serve as a coordinating instrument in helping to bring together the various regulatory policies and decisions of the local government into one document.

The preparation of the Brunswick County Land Use Plan and Policies has proceeded in a manner which recognizes the planning activities of other local government jurisdictions, and State and Federal agencies. In preparing the plan, copies of other local government land use plans (in the County and adjacent to it) were reviewed. In addition, certain relevant State and regional plans and studies, such as the **NC DOT Transportation Improvement Program**, and drafts of the **Cape Fear River Corridor Plan**, were reviewed. State representatives involved in population projections, marine fisheries, and water quality monitoring were also consulted. Further, within Brunswick County government, representatives of many county department and functions were consulted and noted in the appropriate sections of the plan.

Finally, the report entitled: **Second Bridge to Oak Island, Corridor Land Use and Development Plan**, shall be made a part of this land use plan and incorporated by reference upon its adoption.

10.2 Coordination with Other Governmental Jurisdictions

Within Brunswick County there are eighteen incorporated municipalities; having more towns than any other county in North Carolina. These towns are scattered over a broad geographic area, given that Brunswick County is the seventh largest county of the State's one hundred counties. There are also three utility districts, one doing zoning, and numerous special purpose districts or functions. Observers often note the difficulty in reaching consensus among so many fragmented political/governing jurisdictions.

The challenges inherent in accomplishing necessary change in such an environment came to the forefront during development of the **Brunswick County Long Range Plan**, adopted in 1996. There was general consensus that in addition to concerns about sewage treatment, there is also need for continued improvements in coordinating the delivery of emergency services, education, solid waste management, and planning services, to name just a few. The land uses plans of these various municipalities can be instrumental in sharing information about existing conditions in each local government jurisdiction, as well as in discussing plans for the future.

10.3 Municipal Land Use Plans

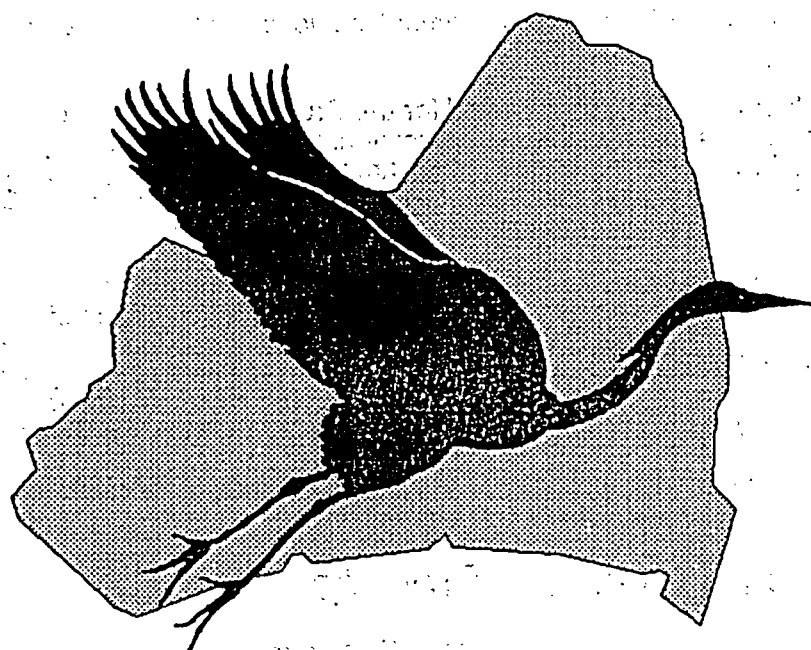
Of the eighteen towns in the County, sixteen have prepared or are preparing their own independent CAMA land use plan. This is in accordance with 113A-110 of the Coastal Area Management Act. These municipalities are as follows:

Belville
Boiling Springs Lakes
Bolivia
Calabash
Caswell Beach
Holden Beach
Leland
Long Beach
Navassa
Northwest
Ocean Isle Beach
Shallotte
Southport
Sunset Beach
Vamumtown
Yaupon Beach

The reader should consult with the appropriate local government land use plan on matters involving activities within each of the communities identified above. As noted previously, these municipalities are shown on the County's land classification map in the *municipal* land class, with an accompanying note to review their independent plans for matters involving these areas.

The two remaining municipal governments in Brunswick County, not having their own independent land use plans are the Village of Bald Head Island and the Town of Sandy Creek. For CAMA land use planning purposes, Bald Head Island is shown on the County's land classification map in the *Transition* land class. Bald Head Island's policies are also included as a special section within the Policies chapter of this plan. Sandy Creek, on the other hand, has been designated as a *Community* in the County's land classification system; the general policies of the County as applied to the *Community* class shall govern within the corporate limits of the Town of Sandy Creek.

In both communities, any Areas of Environmental Concern (AECs) that exist within these municipalities are considered to be in the *conservation* land class. As is the case throughout the county, the *conservation* land class acknowledges that the use and performance standards developed by the North Carolina Coastal Resources Commission for AEC's, as well as all applicable regulations for wetland protection, will be applied to development proposals within each area so designated. As such, these minimum standards for AEC and wetland protection will be used by the appropriate permitting authority in issuing CAMA development permits.



11. Public Participation

11. Summary Of Public Participation

11.1 Public Participation Plan

Since its inception, North Carolina's Coastal Area Management Act Program has placed a high level of emphasis on public participation in the development of local land use plans and policies. The intent is to insure that the resulting plan and policies reflect, as closely as possible, the will of the people in the community.

Meaningful public involvement was an important element in preparing an updated land use plan for growth and development in Brunswick County. For the public involvement program to be effective, two key factors were included:

- 1) public education and
- 2) public input.

The most effective format for public involvement includes this two-way communication between citizens and local officials.

The public involvement strategy employed for the Brunswick County Land Use Plan provided numerous opportunities for effective communication. First and foremost was the appointment of the County Planning Board as the Steering Committee for the Plan. This 6-member board (5 regular members plus 1 County Commissioner) is appointed by the County Commissioners and represents various interests and geographic areas of the county.

The Planning Board had an active, leadership role throughout the preparation of the Land Use Plan. The Committee's role was particularly critical during the formulation of the Growth Policies. In this capacity, the Planning Board offered local perspectives, providing input on the accuracy of information gathered, and feedback on the recommendations given. All Planning Board meetings were open to the public and several, jointly hosted with the County Commissioners, were designed specifically to garner public input in an organized, constructive fashion.

The following is a summary of program phases and key meetings for public involvement in the preparation of the Brunswick County Land Use Plan:

11.2 Public Involvement Process

1. Strategy Development/ Public Participation Plan

The first priority in carrying out the public participation strategy for the Land Use Plan was to meet with key local officials to discuss and receive approval of the planning process for citizen involvement. During this phase, the planning consultant, the County Staff, the Planning Board and the County Commissioners each had a constructive role in preparing, reviewing, and approving the proposed planning and public involvement strategy. Also, State concerns, suggestions, and requirements for the planning process were conveyed to the County staff and elected and appointed officials during a special presentation by a representative of the Division of Coastal Management at the County Government complex in Bolivia.

Public Meetings Held During This Phase:

December 18, 1996

County Planning Board

February 3, 1996

Board of County Commissioners

2. Issue Identification by the Public

Issue identification for the Brunswick County Land Use Plan consisted of a series of seven public meetings held at strategic locations in various parts of the county. A concerted effort was made to cluster the meeting dates within a two week period to maximize public exposure and media attention. Each of these meetings was hosted by one member of the Planning Board. Special meeting announcements were prepared and efforts were made to distribute them widely within the community. Copies of the announcement were published in local newspapers.

The purpose of these meetings was to provide the public with the opportunity to make their concerns known about growth and development issues facing the county. The intent was to accomplish this task as early as possible in the planning process, so that these concerns might be recorded and used as a foundation for the preparation of the Plan.

Public Meetings Held During This Phase:

February 10, 1997	Public Input Meeting No. 1	Waccamaw Community Building
February 11, 1997	Public Input Meeting No. 2	Sunset Beach Town Hall
February 12, 1997	Public Input Meeting No. 3	Lockwood Folly Community Building
February 13, 1997	Public Input Meeting No. 4	Town Creek Community Building
February 17, 1997	Public Input Meeting No. 5	CP&L Visitors Center
February 18, 1997	Public Input Meeting No. 6	Leland Community Building
February 20, 1997	Public Input Meeting No. 7	Shallotte Point VFD

3. Discussion of Public Input

After the entire series of meetings was completed, all growth issues identified by the public were typed up and sorted into policy categories consistent, to the extent possible, with categories suggested in the CAMA guidelines. The complete listing and ranking of all issues as identified at the meetings was then presented to the Planning Board and County Commissioners for discussion and review. This written tabulation of growth issues was also made available for public inspection and review.

Public Meetings Held During This Phase:

Wednesday, April 2, 1997	Discuss public input with County Planning Board
Wednesday, June 4, 1997	Discuss public input in a joint meeting of the County Planning Board and County Commissioners

4. Plan and Policy Development Work Sessions

With the results of the initial public input in hand, and with notes from the discussion at the joint Planning Board and County Commissioners meeting, the consulting planner, working closely with the County planning staff, prepared a draft set of Growth Policies. These draft policies were printed alongside the County's existing policies to allow for comparison of the new with the old. Two special work sessions were then held with the Planning Board to review the entire set of *existing* and *proposed* County policies, and to better understand the way in which the policies interrelate. These work sessions were most beneficial in identifying policies in need of further work.

Public Meetings Held During This Phase:

Wednesday, July 30, 1997

County Planning Board Work Session

Wednesday August 6, 1997

County Planning Board Work Session

5. Public Open House on Draft Policies and Land Classification System

Once a set of draft land use policies were in place, the Planning Board hosted an open public meeting at the County Government Complex in Bolivia to receive public input and comment on the work to date. To facilitate efficient and equitable input from the public, the draft policies were enlarged on poster sized sheets and arranged on the walls of the meeting room in a "walk-around questionnaire" format. The public was then invited to circulate around the room expressing their level of agreement or disagreement with each policy statement as well as being able to provide additional written comments on the sheets. Also, Planning Board members were available in the room to allow for informal discussions regarding the various policies, or to clarify technical terms or issues. This meeting was well attended and quite productive.

Public Meetings Held During This Phase:

Wednesday, August 20 1997

Open House on the Policies and Land Classification Map

6. Completion of Draft Land Use Plan for Planning Board Review

After the Open House on the draft policies and map was completed, explanatory narrative was prepared as background for each policy section of the plan, and incorporated into a complete draft of plan, combining all sections prepared to date. In keeping with the data collection and analysis requirements of the CAMA land use planning guidelines, the final growth factors analysis was also included in this draft for review by the Planning Board.

With regard to the growth factors analysis in particular, a completed draft of the analysis was distributed to the Planning Board for their review and comment. Each Planning Board member was asked to review the document for both its scope and its accuracy. As a result of the review, changes were made and additional research was conducted to address specific comments and points felt to be in need of clarification.

The Planning Board then reviewed the fully narrated policy sections of the plan during a special meeting of the Board. As each proposed policy statement, along with its explanatory text, was reviewed, suggested changes were recorded for inclusion in the final draft to the State.

Following the completion of the review meetings by the Planning Board, a revised, completed draft of the growth factors analysis, policies, text and map was prepared in accordance with the directives and comments of the Planning Board.

Public Meetings Held During This Phase:

Wednesday, October 1, 1997

County Planning Board

Work Session on Growth Factors Analysis

Monday, October 27, 1997

County Planning Board

Work Session on Policies and Land Classification Map

Wednesday, November 5, 1997

County Planning Board

Work Session on Policies and Land Classification Map

7. State Review and Comment/ Prepare Revisions As Appropriate

Following additional revisions to the plan in accordance with directives received from the Planning Board, the plan was sent to the State CAMA program staff for review and comment in November, 1997. Comments were received from the State in February, 1998. The consulting planner then prepared suggested revisions to the Plan for review by the Planning Board. The Planning Board approved the changes and suggested additional changes at a meeting held on April 1, 1998.

The Board of County Commissioners and the Planning Board, at a joint meeting held on May 18, 1998, then reviewed and approved all revisions as authorized by the planning Board. Additional revisions were also discussed and authorized by the County Commissioners at the same meeting.

At a regular meeting on July 6, 1998, the County Commissioners set a date for a formal public hearing on the land use plan, as required, no less than 30 days hence. The public hearing was set for August 17, 1998.

Public Meetings Held During This Phase:

Wednesday, April 1, 1998	County Planning Board	Meeting to approve changes
Monday, May 18, 1998	County Commissioners and Planning Board	Meeting to approve changes and discuss date for hearing
Monday, July 6, 1998	County Commissioners	Established date for public hearing

8. County Commissioners Hearing/Adoption of Plan (Formal Public Hearing/Vote)

The County Commissioners held a formal public hearing on August 17, 1998 to present the plan for a final time for public review and comment. Notice of the meeting was in accordance with requirements for public hearings for the local adoption of CAMA Land Use Plans, as well as the County's normal protocol. Following receipt of comments from the public, the County Commissioners authorized two minor changes (pages 8-25 and 12-6) and remanded the plan back to the Planning Board for consideration of other comments received.

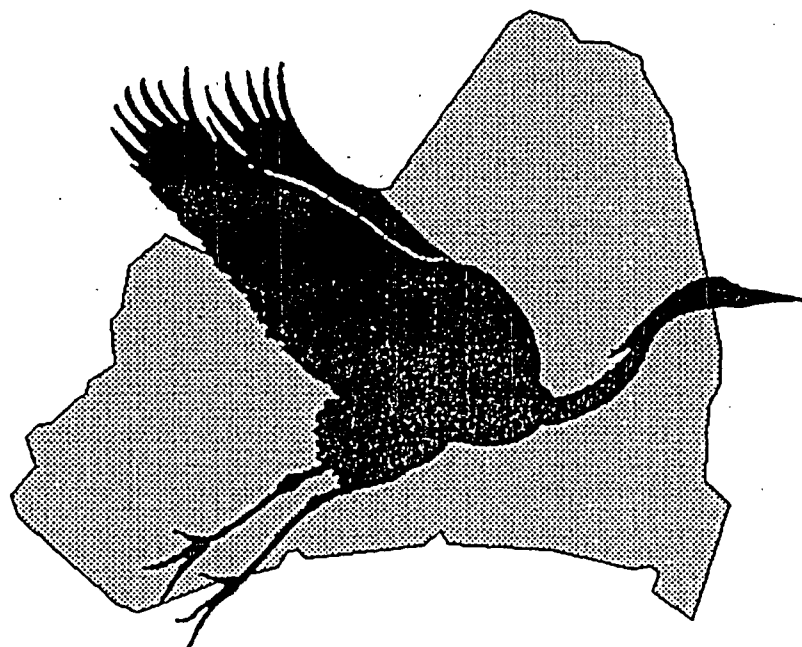
The Planning Board determined that no other changes were needed and recommended the plan as revised to the County Commissioners. On October 5, 1998, the County Commissioners, at their regular meeting voted to adopt the plan. The plan was then submitted to the Coastal Resources Commission for certification by that body.

Public Meetings Held During This Phase:

Monday, August 17, 1998	County Commissioners	Public hearing to consider adoption of the plan
Wednesday, September 2, 1998	County Planning Board	Meeting to review public comments
Monday, October 5, 1998	County Commissioners	Voted to adopt the plan

9. Coastal Resources Commission Certification

The officially adopted Brunswick County Land Use Plan was submitted to the North Carolina Coastal Resources Commission for certification by that body at their regular meeting on _____, 1998.



12. Appendices

12. Appendices

12.1 Evaluation of Effectiveness of Previous Land Use Plan

Evaluation of past five years.

At the time that the last land use plan was being prepared, community leaders were in the midst of pursuing development of a first ever zoning ordinance for the unincorporated areas of Brunswick County. An ordinance and related zoning maps were adopted in the fall of 1993 and went into effect on January 1, 1994. The adoption and implementation of the ordinance occurred over a relatively short period of time—about six months.

During this timeframe over 70,000 parcels of land were zoned for the first time. Of the time spent, about half was employed in the actual development of the ordinance while the remaining three months were used for public review and comment. By most local government standards, this is an extraordinarily brief period of time to develop such a wide-ranging local ordinance. Still, the County Commissioners at the time believed that the unincorporated parts of the County were long overdue for zoning, and with the continued rapid growth of the area, felt a certain urgency to act with decisiveness.

Since the enactment of the zoning ordinance the County planning staff and planning board have spent considerable time "debugging" the ordinance; that is, reexamining the specific language of certain sections, adding needed provisions, etc. This is normal procedure with any zoning law, but especially during the first couple years after a new ordinance goes into effect. At the same time, the high level of attention given to the zoning situation over the past several years has left little time for the staff and planning board to undertake many of the implementation actions identified in the 1992 update. Further, the last two years have seen considerable turnover at both the planning staff and planning board level. Meanwhile, the County continues to grow at an extraordinary rate.

Outlook for next five years.

Despite all of the above developments, the County planning function has continued to perform its basic duties during these challenging times. It is hoped that over the next five year period, the current staff and planning board will be able to devote more attention to the relationship between the County land use plan and the zoning ordinance, as well as water, sewer, and transportation infrastructure. This will mean re-examining the County's zoning maps in light of the land use plan, and relying more heavily upon the policy statements of the land use plan in evaluating individual zoning petitions and development proposals. It will also mean working to coordinate the policies of the land use plan with the water and sewer initiatives moving forward in several parts of the County.

12.2 Sources and Locations of Additional Information

To find out more about various aspects of land use and development in Brunswick County, the interested citizen is invited to visit the County Planning Department at the County government complex in Bolivia where a variety of studies, plans, maps, aerial photographs and booklets are maintained on file.

12.3 Action Agenda for the Brunswick County Land Use Plan

Introduction to the Action Agenda

The Action Agenda of the Brunswick County Land Use Plan is provided to identify specific implementation actions in furtherance of the County's development policies. These actions are normally intended to be accomplished within the five year planning period between adoption of this plan and the next land use plan update (tentatively scheduled for 2002).

Implementation actions are designed to suggest possible courses of action available to the County to carry out the Policies. In some instances, a single implementation action may be listed in support of more than one policy. In other instances, where the County is already implementing a policy, an on-going program of implementation may be mentioned. In still others, a particular policy may not warrant or require a specific implementation action to be effective.

The suggested actions are not all-inclusive nor are they binding; additional actions may be added and others removed as conditions change. In fact, it is suggested that this summary of policies and implementation actions be reviewed on an annual basis during development of the County's work program and budget approval process. In this manner, the effectiveness of the policies and implementation actions can be better evaluated. Further, by making this Action Agenda a separate section of the plan (as opposed to scattering the implementation actions throughout the text of the plan), these actions can be updated and re-inserted into the document on a regular basis.

Policy Area

Implementation Action(s)

8.0 General Vision Policy for the Next Ten Years	
We, the residents, businesses, and property owners of Brunswick County shall seek to preserve and enhance our natural and human resources, and will plan for and accommodate future growth while simultaneously maintaining and improving the quality of life for current and future residents.	The County staff, Planning Board, and Board of County Commissioners shall employ the policies contained in this land use plan on a routine basis in evaluating development proposals and other matters concerning land use.
8.1.0 Resource Protection Policies	
The natural and scenic resources of Brunswick County enable many business owners and employees to earn a livelihood, residents to have a high quality of life, and visitors to enjoy the many attractive features of the area. Brunswick County, through its policies and actions, shall not support or approve any action which would significantly jeopardize the long term viability of our natural and scenic resources.	See specific Implementation Actions listed below as they pertain to specific policy issues.
8.1.1 Constraints To Development: Soils, Septic Tank Suitability, Flooding	
Policy 8.1.1(a)	
Development is encouraged to locate in areas without soil suitability problems and where infrastructure is available. In areas where suitability problems exist, engineering solutions are supported to the extent that the natural environment is not compromised.	(1) Ongoing efforts to incorporate U.S. Soil Conservation Service detailed soil classification maps into the County's geographic information system (GIS) will continue. (2) Plans to produce detailed topographic mapping (2' contour intervals) in the County's GIS will continue.
Policy 8.1.1(b)	
In the absence of sewer facilities, the County shall work cooperatively with property owners to evaluate site suitability for septic tank use. When soil conditions are such that, in the opinion of County sanitarians, health or environmental standards would be compromised, full explanation of the reasons for denial shall be given, and alternatives for possible solutions provided.	The County Health Department will continue to implement internal procedures to make the review and approval process for septic tank permits more customer service oriented.
Policy 8.1.1(c)	
Brunswick County supports the administration and enforcement of applicable flood plain management regulations and the national flood insurance program.	(1) The County will continue to enforce the local flood damage prevention ordinance. (2) Efforts to disseminate flood insurance rate maps to Realtors, developers, financial institutions, and insurance agencies will continue. (3) Efforts by the Federal Emergency Management Agency (FEMA) to update the County's flood insurance rate maps will be

	encouraged and supported. Upon completion, such mapping should be incorporated into the County's GIS system.
8.1.2 Areas of Environmental Concern	
Brunswick County will support and enforce, through its local CAMA permitting capacity, the State policies and permitted uses in the Areas of Environmental Concern (AEC's). Such uses shall be in accord with the general use standards for coastal wetlands, estuarine waters, public trust areas and ocean hazard areas as stated in 15A NCAC Subchapter 7H.	<p>(1) The County's commitment to the protection of coastal wetland AEC's will continue through County financial and staff support for the minor CAMA permit program.</p> <p>(2) Major CAMA permit reviews and comment by the County's staff will include references to the County's land use policies. Also, the County will request that the State consult with the County on all interpretations of the Land Use Plan, its policies, and land classification map, so that consistent State/local interpretations will be achieved.</p>
8.1.2(a) Coastal Wetland AEC's	
Policy 8.1.2(a)	
Due to the critical role that wetlands play in protecting the quality of estuarine waters and in providing habitat for fish and wildlife, Brunswick County strongly supports the efforts of State and Federal agencies to properly designate and preserve coastal wetlands. Such preservation shall be balanced with the economic and community values of piers, docks, and marinas which serve the public, whether they be publicly or privately owned.	
8.1.2(b) Estuarine Water AEC's	
Policy 8.1.2(b)	
Developments and mitigation activities which support and enhance the natural function, cleanliness, salinity, and circulation of estuarine water resources shall be supported.	<p>(1) The County will continue to support and improve upon existing regulations dealing with runoff from proposed development. This shall include modifications to the County subdivision regulations, and recommendations forthcoming for the County Commissioner appointed Sanitary Sewer and Stormwater Management Committee.</p> <p>(2) The County will call upon the North Carolina Department of Transportation to conduct a study of road drainage patterns within the Lockwood Folly Watershed. The study will examine, for example, the effects of direct ditching to estuarine waters and potential corrective actions.</p> <p>(3) The County will consider the creation of a shoreline overlay district as part of an overall zoning ordinance. Such overlay district might include requirements for more intense review of proposed drainage, and limitations on the type of land uses allowed within the overlay district.</p> <p>(4) The County shall review the Cape Fear River Corridor study with the intent of implementing as many recommendations as can be deemed feasible by County decision-makers.</p> <p>(5) The County will continue to press for action in Congress or elsewhere, to approve funding for studies and dredging to reopen the eastern channel of the Lockwood Folly River.</p> <p>(6) The County shall pursue implementation of a natural buffer program adjacent to all streams and drainageways in the County.</p>

8.1.2(c) Public Trust Waters AEC's	
Policy 8.1.2(c)	
The community's need for piers and docks, whether publicly or privately owned, shall be tempered by the rights of the public for the free and open use of public trust waters for navigation, shell fishing, and other uses. Efforts of State and Federal agencies to limit the length of docks and piers as they project into estuarine waters are especially supported.	<p>(1) The County will support implementation of newly revised State standards concerning pier length and obstruction of shallow-water navigation in the county's public trust waters.</p> <p>(2) The County shall update the 1990 Shoreline Access Plan during the next five year period.</p>
8.1.2(d) Estuarine Shoreline AEC's	
Policy 8.1.2 (d)	
Brunswick County supports the protection and preservation of its estuarine shorelines, as enforced through the application of CAMA use standards.	(1) The County will consider the creation of a shoreline overlay district as part of an overall zoning ordinance. Such overlay district might include requirements for more intense review of proposed drainage, and limitations on the type of land uses allowed within the overlay district. In developing such requirements, guidance shall be sought from the County's Sanitary Sewer and Stormwater Management Committee.
8.1.2(e) Ocean Hazard Area AEC's	
Policy 8.1.2 (e)	
Brunswick County supports state and federal standards for the management of development in the ocean hazard AECs under the County's planning jurisdiction: the Baptist assembly grounds and part of Bird Island.	(1) The County will continue to support proper enforcement of applicable CAMA regulations for ocean hazard area AEC's.
8.1.2(f) Public Water Supply AEC's	
Policy 8.1.2(f)	
Brunswick County supports the designation of Public Water Supply AEC's when such designation meets State prerequisites and when such action is deemed necessary to ensure the long term viability of the County's public water supplies.	(1) Brunswick County shall continue to be an active participant in meetings of the NC Coastal Resources Commission to stay abreast of opportunities available at the County and State level to protect critical resources through the AEC component of the State coastal management program.
8.1.2(g) Natural and Cultural Resource AEC's	
Policy 8.1.2(g)	
Brunswick County supports the selective designation of appropriate areas as natural and cultural resource AEC's (Coastal Complex Natural Areas, Coastal Areas that Sustain Remnant Species, Unique Geologic Formations, Significant Coastal Archaeological Resources and Significant Coastal Historical Architectural Resources).	(1) In keeping with the implementation action immediately above, the County supports appropriate State studies to examine areas within Brunswick County for possible AEC designation.
8.1.2(h) Wildlife Protection	
Policy 8.1.2(h)	
The abundance and diversity of wildlife in Brunswick County shall be preserved and enhanced through protection of the unique coastal ecosystems, including marshes, woodlands, open fields and other areas upon which they depend.	
8.1.3 Wetlands of Highest Functional Significance	
(Awaiting development of mapped information by the State)	
8.1.4 Other Hazardous or Fragile Land Areas	
8.1.4 (a) Freshwater Swamps, Marshes, Pocosins, and 404 Wetlands	
Policy 8.1.4 (a)	
Brunswick County will continue to support the efforts of the CAMA program and the U.S. Army Corps of Engineers 404 permitting program to preserve and protect sensitive fresh water swamp and marsh areas.	(1) In the absence of AEC designation, the County supports efforts of the North Carolina Wildlife Resources Commission to identify and designate critical habitat areas within the county, provided that opportunities for local study and evaluation are included.

12. Appendices

8.1.4(b) Maritime Forests	
Policy 8.1.4 (b)	
Maritime forests in Brunswick County shall receive a high level of environmental protection when considering public and private sector uses. When development is considered, preferred usage shall be for low intensity or clustered development forms, which preserve the majority of forest cover. (See also Policy 8.3.18 Tree cover and Landscaping)	(1) The County will include tree preservation in the on-going revisions to the County's subdivision ordinance, particularly regarding open space provisions. Consideration shall be given to a means of addressing outstanding and historic trees, including but not limited to significant live oaks and maritime forest.
8.1.4.(c) Outstanding Resource Waters (ORW)	
Policy 8.1.4 (c)	
Brunswick County supports State and local efforts to restore the water quality of the Lockwood Folly River, as well as other estuarine waters in the county, to a water quality level deserving of ORW designation.	(1) Regardless of whether ORW designation is accomplished, the County will consider creating a special shoreline overlay district within the County's overall zoning ordinance to protect and restore, to the extent possible, water quality in the county's estuarine waters. (2) The County will continue to press for action in Congress or elsewhere, to approve funding for studies and dredging necessary to reopen the eastern channel of the Lockwood Folly River.
8.1.4(d) Shellfishing Waters	
Policy 8.1.4(d)	
The County supports and encourages the activities of the State's Shellfish Management Program. The County shall continue to promote estuarine water quality through its stormwater management planning and stormwater runoff policies. (See Section 8.1.7)	
8.1.4(e) Water Supply Areas/Other Waters With Special Values	
Policy 8.1.4(e)	
The county's ground water resources, including but not limited to the Castle Hayne aquifer, shall be recognized as an invaluable source of public and private potable water and shall receive the highest level of protection when considering County policies, standards and actions, including the possible creation of a special overlay district.	(1) Demands on the county's groundwater resources will be relieved through continued expansion of the county-wide water system, including the feasibility of tapping into the Pee Dee aquifer, or drawing water from surface water sources in addition to the Cape Fear River. (2) In keeping with the recommendations contained in the Aquifer Sensitivity Study recently completed by hydrogeologist Ralph Heath (See Section 8.1.5), the County shall take appropriate measures to ensure the long term protection of the County's critical groundwater resources. (3) The County shall inquire of state coastal management officials as to the feasibility of designating the 211 groundwater treatment plant wells as AEC's.
8.1.4(f) Cultural and Historic Resources	
Policy 8.1.3(f)	
Brunswick County encourages efforts to protect cultural and historic resources to preserve their cultural, educational and aesthetic values and qualities.	(1) Brunswick County will encourage the State to update the current list of cultural and historic resources in Brunswick County.
8.1.4(g) Manmade Hazards	
Policy 8.1.3 (g)	
Brunswick County will seek to minimize potential land use conflicts and hazards related to development in areas near existing, potentially hazardous facilities.	(1) Brunswick County will continue to provide staff assistance in support of air space zoning for the Brunswick County Airport, in keeping with the wishes of the jurisdiction within which the airport falls, the Southeast Sanitary District.

8.1.4(h) Hazardous Materials and Events	
Policy 8.1.4(h)	
Plans for the safe transportation of hazardous materials, for the prevention and clean-up of spills of toxic materials, and for the evacuation of area residents in response to hazardous events, shall be supported.	The County shall continue to encourage the development of emergency response plans for specific industries in the area. All such plans should be fully coordinated with the County's emergency management function.
Hurricane and Flood Evacuation (Covered under Section 8.5)	
8.1.5 Protection of Potable Water Supply	
Policy 8.1.5(a)	
Brunswick County supports federal, state and local efforts to protect the quantity and quality of water in the Cape Fear River, whether such protection involves controls over point source discharges, surface runoff, inter-basin water transfers, or other appropriate means, including upstream activities.	(1) Brunswick County will encourage State efforts to prepare targeted studies and effective policies on water allocation, inter-basin transfers, water quality impacts, etc. as these issues affect the Cape Fear River. (2) The County shall generally support initiatives in the General Assembly to reduce levels of pollutants and nutrient loading in the Cape Fear River. Support for specific measures shall be based upon the rationality and logic of each proposal.
Policy 8.1.5(b)	
Brunswick County supports federal, state and local efforts to protect the quantity and quality of water in the region's groundwater system, whether such protection involves controls over the location and management of activities involving hazardous substances, restrictions on groundwater drawdowns, or any other activity which would jeopardize the short and long term viability of groundwater resources.	(1) The County shall take appropriate measures to ensure the long term protection of the County's critical groundwater resources, consistent with the recommendations set forth in the groundwater management and conservation study prepared by hydrogeologist Ralph Heath. (2) The County shall conduct a study of the quality of groundwater in the County, based on available groundwater information related to existing well sites and known data, with one of the objectives being to create the mapping necessary to support an aquifer protection overlay.
Policy 8.1.5(c)	
Brunswick County will continue improvements to and expansion of the County's potable, piped water supply system, with emphasis on the development of a self supporting operation, where costs are assigned in relative proportion to the benefits conveyed.	(1) The County shall continue with appropriately tailored engineering studies to accurately model the County's existing system, with an eye toward maximizing efficiencies and costs. The feasibility of water districts shall continue to be explored.
Policy 8.1.5(d)	
So as to facilitate the orderly development of the County water system, Brunswick County shall establish and maintain utility extension and tap-on policies designed to address the timing, location, priorities and sequence, etc. of system expansion.	(1) The County shall promulgate clear, written policies regarding water system extensions and tap on policies.
8.1.6 Package Sewage Treatment Plants	
Policy 8.1.6	
Brunswick County advocates the development and use of regional sewage treatment plants over smaller, privately operated package sewage treatment plants. When package treatment plants are employed, they should be designed to allow for future connections to a larger regional system.	(1) The County shall continue to partner with area utility districts to encourage the proper development of regional sewer systems. (2) The County shall encourage the State to enforce strict compliance in the operation of package treatment plants.
8.1.7 Stormwater Runoff	
Policy 8.1.7(a)	
Brunswick County shall take a proactive role in the development of storm water management and design standards intended to protect the quality of the county's streams, rivers, marshes and estuarine systems.	(1) The County will continue to improve upon regulations dealing with runoff from proposed development. Included shall be modifications to the subdivision regulations, and recommendations from the County's Sanitary Sewer and Stormwater Management Committee.

<p>Policy 8.1.7(b)</p> <p>Brunswick County shall support a program of vegetated buffers adjacent to all streams, rivers, marshes and estuarine waters in the county, with the intent of reducing the flow of nutrients and other contaminants into area surface waters.</p>	<p>(1) The County shall pursue implementation of a natural buffer program adjacent to all streams and drainageways in the County. The County will look into the availability of funding available through the Clean Water Management Trust Fund of the State of North Carolina. The contact is David McNaught who may be reached at (919) 830-3222.</p> <p>(2) The County will call upon the NC DOT to conduct a study of road drainage patterns within the Lockwood Folly Watershed. The study will examine, for example, the effects of direct ditching to estuarine waters and potential corrective actions.</p> <p>(3) The County will consider the creation of a shoreline overlay district as part of an overall zoning ordinance. Such overlay district might include requirements for more intense review of proposed drainage, and limits on the type of land uses allowed within the overlay district.</p>
<p>Policy 8.1.7 (c)</p> <p>Brunswick County shall advocate a policy of stormwater runoff management in which post-development runoff has a rate of flow and volume which approximates, as closely as practical, pre-development conditions.</p>	<p>(1) The County will continue to support and improve upon existing regulations dealing with runoff from proposed development. This shall include modifications to the County subdivision regulations, and recommendations forthcoming for the County's Sanitary Sewer and Stormwater Management Committee.</p>
<p>8.1.8(a) Marinas</p>	
<p>Policy 8.1.8(a)</p> <p>As a means of providing public access to area surface waters, Brunswick County encourages environmentally responsible marina development in accordance with State CAMA standards for AEC's. Marina facilities also shall be evaluated for site specific compatibility with surrounding land uses, as well as for aesthetic concerns, parking, access, and available services.</p>	<p>(2) The County shall update the 1990 Shoreline Access Plan during the next five year period. The update will incorporate marina development and a water use plan.</p>
<p>8.1.8(b) Floating Home Development</p>	
<p>Policy 8.1.8(b)</p> <p>Brunswick County discourages floating home development anywhere in the waterways, public trust waters, and along the shorelines of the county, so as to prevent the unwanted "consumption" of the county's limited estuarine surface waters.</p>	<p>The County shall implement specific zoning standards to discourage or prohibit floating homes from locating in the County's public trust waters. In doing so, the County will study other coastal counties such as Carteret County and New Hanover County for examples of appropriate local regulations and standards.</p>
<p>8.1.8(c) Moorings and Mooring Fields</p>	
<p>Policy 8.1.8(c)</p> <p>The desirability of freestanding moorings and mooring fields shall be evaluated on a case by case basis in accordance with CAMA development policies and standards. The unimpeded use of and navigation within public trust surface waters by the boating public shall be of concern.</p>	
<p>8.1.8(d) Dry Stack Storage</p>	
<p>Policy 8.1.8(d)</p> <p>To minimize "consumption" of valuable public trust surface waters, dry stack storage marinas generally shall be preferred over wet slip marinas. Dry stack storage facilities shall be evaluated for site specific compatibility with surrounding land uses, as well as for aesthetic concerns, parking, access, and available services.</p>	

8.1.8(e) Commercial Fishing Operations	
Policy 8.1.8(e)	
Due to the important role of commercial and recreational fishing to the economy and cultural heritage of Brunswick County, the County shall encourage and support commercial fishing operations and sports fishing operations, provided that such operations meet all applicable development standards and are otherwise consistent with the policies of area local governments.	
8.1.9 Industrial Impacts on Fragile Areas	
Policy 8.1.9	
Industries shall be encouraged to locate in suitable, non-fragile areas. Environmental impacts on air, land and water resources, as well as compatibility with surrounding land uses and the availability of required services, shall be factors employed in evaluating the merits of any particular industrial development proposal.	<p>(1) The County will implement and enforce industrial performance standards in the zoning ordinance.</p> <p>(2) The land classification map and zoning ordinance will identify areas particularly suitable for industrial development.</p>
8.1.10 Development of Sound and Estuarine System Islands	
Policy 8.1.10	
Development of sound and estuarine system islands, while not encouraged, is permitted, provided that impacts on the natural environment are properly mitigated. If such islands must be developed, low intensity uses such as open space, recreation, and very low density residential shall be the preferred uses. When such islands are deemed to have greater than local significance, the County encourages the State or Federal gov't to purchase these environmentally sensitive areas for the benefit of all residents of the State.	(1) The County will continually work to improve its subdivision and zoning regulations to provide for proper environmental protection and development on sensitive estuarine system islands.
8.1.11 Development Within Areas That Might be Susceptible to Sea Level Rise or Shoreline Erosion	
Policy 8.1.11	
Development within areas susceptible to sea level rise, shoreline erosion, and/or wetland loss, should take into consideration such conditions upon initial development. In the event such development is later threatened by shoreline loss, the County shall support the AEC use standards governing shoreline protection and management. The County will not permit efforts to harden the shoreline in an attempt to counteract such conditions; however, this policy shall not preclude the use of innovative shoreline preservation techniques as approved by the Coastal Resources Commission.	<p>(1) The County will continue to enforce the flood protection ordinance as a means of ensuring that new development in low-lying areas is consistent with the limitations of the land.</p> <p>(2) The County will continue to support CAMA standards for Ocean Hazard AEC's and Inlet Areas, to the extent that the County has jurisdiction.</p>
8.1.12 Upland Excavation for Marina Basins	
Policy 8.1.12	
Brunswick County supports the development of marina basins in upland sites in accordance with CAMA standards. Marina basins also shall be evaluated for site specific compatibility with surrounding land uses, as well as for aesthetic concerns, parking, access, and available services.	(1) The County will continue to support CAMA standards for the development of marinas in upland locations.
8.1.13 Marsh Damage from Bulkhead Installation	
Policy 8.1.13	
Brunswick County supports state and federal standards which seek to prevent or minimize marsh damage from bulkhead or rip rap installation. The County recognizes, however, that some limited marsh damage may be necessary to provide for otherwise environmentally sound development.	(1) Brunswick County will continue to support State and Federal standards for environmentally sensitive bulkhead installations.

8.1.14 Water Quality Problems and Management Measures	
Policy 8.1.14	
Brunswick County shall encourage and support State and Federal standards which seek to prevent or minimize adverse water quality impacts. The County shall work proactively with the State on measures to reduce stormwater runoff rates, soil erosion and sedimentation, and point source discharges into area waters.	See implementation actions under Sections 8.1.5 through 8.1.7, especially.
8.1.15 Air Quality	
Policy 8.1.15	
Brunswick County shall encourage and support State and Federal standards which seek to prevent or minimize adverse air quality impacts. The County shall work constructively with State and Federal Agencies and local industries on measures to reduce or eliminate air quality problems, including odor problems that may not fall under prescribed environmental standards.	(1) Brunswick County shall intervene as necessary on behalf of County residents who may be affected by inadequate air quality controls. Such intervention may range from informal discussions with local industries to more rigorous communications with industry or State environmental officials.
8.2. Resource Production and Management Policies	
8.2.0 Basic Policy Statement Regarding Resource Production and Management	
Brunswick County is one of the most biologically diverse areas in the State of North Carolina. The County shall take no action nor approve of any action which would seriously or irreparably harm the long term bio-diversity and productivity of the area.	
8.2.1 Productive Agricultural Lands	
Policy 8.2.1(a)	
The continued agricultural use of the Brunswick County's remaining farmlands shall be encouraged through proactive planning for agricultural and open space preservation as well as through growth management policies which favor distinct, "town and country" style development patterns.	(1) The zoning ordinance will be reviewed from time to time as to standards for preservation and protection of the better agricultural lands in the county. (2) The County will encourage the State and Federal Government to develop appropriate regulations over storm drainage and soil erosion from agricultural and forestry activities.
Policy 8.2.1(b)	
Brunswick County encourages the planning, installation and on-going maintenance of community-based "cooperative gardens". Such gardens may be planned as a part of new community designs, or may be established in existing neighborhoods through the cooperative efforts of homeowners.	The County shall encourage area residents to participate in the master gardening program offered by the Cooperative Extension Service.
8.2.2 Commercial Forest Lands	
Policy 8.2.2	
Commercial forestry activities shall be supported in Brunswick County, provided significant adverse impacts on natural resource systems are fully mitigated. Such activities should be conducted in accordance with the standards and recommendations of the U.S. Forest Service. The County also advocates the voluntary participation of commercial forestry interests in the State of North Carolina's best management practice program for forest management.	The County shall request and shall maintain on file a copy of applicable U.S. Forest Service standards and recommendations for commercial forestry management practices.
8.2.3 Mineral Production Areas	
Policy 8.2.3	
Mineral production and mining activities will be considered on a case by case review of economic benefits and environmental and land use impacts. Mining activities which would jeopardize the short or long term viability of valuable natural resources or create hazardous conditions in the County shall not be permitted.	(1) The locations of mineral production and mining activities shall be controlled by County policies and ordinances. No local permit shall be issued until necessary State approvals have been granted.

8.2.4 Commercial and Recreational Fisheries	
Policy 8.2.4 --	
Brunswick County supports efforts to maintain and enhance the fisheries resource of its waters, including water quality protection measures, nursery and habitat preservation, proper fisheries management and enforcement, and aquaculture development, and artificial reef activities.	<p>(1) The County will support educational seminars to inform local area residents and business people about the potential for aquaculture development in the county. Such educational seminars may include courses at County high schools, efforts of the local Extension Service, and course work at Brunswick Community College, and UNC-W.</p> <p>(2) The County shall continue to support Brunswick Community College in its efforts to promote local economic development interests to establish significant aquacultural operations in Brunswick County.</p> <p>(3) The County will continue to provide funding in support of the artificial reef program involving, for example, the sinking of old boats and railroad cars.</p> <p>(4) The County will call upon and cooperate with the State and Federal government for improved marine fisheries management.</p> <p>(5) The County will continue to press for action in Congress or elsewhere, to approve funding for studies and dredging necessary to reopen the eastern channel of the Lockwood Folly River.</p>
8.2.5 Off Road Vehicles	
Policy 8.2.5	
Brunswick County discourages the use of off-road vehicles in all fragile areas because of potential adverse environmental impacts.	(1) The County Magistrate and the Sheriff's Department will be called upon as necessary to enforce trespassing laws involving off road vehicles on properly posted private property, as provided for in the General Statutes.
8.2.6 Development Impacts	
Policy 8.2.6	
New development and redevelopment activities shall not be permitted which would significantly degrade the quality of natural and scenic resources in Brunswick County, prematurely diminish the predominantly rural character of the area, or create incompatibilities of scale, design, or land use.	See table of contents to identify policies and implementation actions concerning particular development types.
8.2.7 Peat or Phosphate Mining Impacts	
Policy 8.2.7	
See the general mining policy set forth previously under section 8.2.3.	
8.2.8 Gamelands/Hunting Clubs	
Policy 8.2.8	
Brunswick County supports efforts to maintain and enhance public and private gamelands, including habitat protection and management, and the proper management of hunting clubs and hunting activities.	
8.3 Economic and Community Development Policies	
8.3.0 Basic Policy Statement Regarding Economic & Community Development	
Brunswick County shall work to maintain a diversified local economy while at the same time protecting the natural and man-made environment and improving the area as a more attractive community in which to work, live and play. Economic and community development initiatives which capitalize upon and enhance a distinct "town and country" character shall be especially supported.	

<p>8.3.1 Industries Desired and Local Assets Desirable to Such Industries</p> <p>Policy 8.3.1</p> <p>Brunswick County encourages the development of clean industry in locations where appropriate services can be provided, where transportation facilities are adequate, where environmental impacts can be fully mitigated, and where surrounding land uses are compatible in nature. Brunswick County shall advocate the recruitment of new industries which are compatible with area resources and economic conditions, and to the extent possible, promote the upward mobility of low and moderate income persons.</p>	<p>(1) The County zoning ordinance contains several manufacturing/industrial zoning districts and an "economic development overlay district". Such an overlay district allows the County to respond to concrete requests for new industrial development in an appropriate and flexible manner.</p> <p>(2) The County will continue to support efforts to actively seek industries with higher pay scales relative to existing pay scales in the county.</p> <p>(3) The County will continue to fund the Economic Development Commission as a principal agency in recruiting new industry to the county, as well as encouraging the expansion of existing industry.</p> <p>(4) The County will consider, when justified, funding of necessary infrastructure and targeted job training at the Community College, in support of new industrial activities in Brunswick County, possibly supplemented by the full university system available within the state.</p>
<p>8.3.2 Provision of Services to Development</p> <p>Policy 8.3.2</p> <p>Brunswick County will strive, to the extent that area resources, prudent budgeting, and priority setting allows, to facilitate the expansion of public services and facilities to meet the needs of existing and future commercial, industrial, and residential development. The location and size of such services shall be coordinated with land use policies and the County zoning ordinance.</p>	<p>(1) The County shall continue with appropriately tailored engineering studies to accurately model the County's existing system, with an eye toward maximizing efficiencies and costs.</p> <p>(2) The County will continue to coordinate transportation improvements in the area through updates to the County thoroughfare plan, and through review and comment on the transportation improvement program (TIP).</p> <p>(3) The County will continue to participate in the development of the Wilmington Urbanized Area Transportation Plan.</p> <p>(4) The County Commissions will review allocations for secondary road improvements on a regular basis.</p> <p>(5) The County will continue to provide its coordinated human services transportation program.</p> <p>(6) The County will continue to support the efforts of the Sanitary Sewer and Stormwater Management Committee to research and recommend upon water and sewer systems to achieve compact growth and favorable environmental effects.</p> <p>(7) The County will continue to serve in a coordinating capacity regarding extra territorial jurisdiction between nearby municipalities (e.g. Sunset Beach, Calabash)</p>

8.3.3 Urban Growth Pattern Desired	
Policy 8.3.3	
<p>Brunswick County shall encourage developments which contribute to a distinct "town and country" or "village and country" growth pattern. The intent of this policy is to allow for the preservation of open space and productive farm and timber land, to minimize costs of extending infrastructure and services, to avoid higher taxes, and minimize traffic congestion associated with modern day suburban sprawl.</p>	<p>(1) The land classification map will be employed to direct urban level growth to appropriate locations where services can be provided.</p> <p>(2) The County zoning ordinance will be continually evaluated for its ability to target and direct growth to areas consistent with the land classification map, the water distribution system, and existing and future sewer systems.</p> <p>(3) The County shall employ specific provisions of the zoning ordinance, subdivision regulations and infrastructure improvements to encourage a town and country development pattern.</p> <p>(4) The County will continue to enforce the flood damage prevention ordinance as a means of discouraging inappropriate development in flood prone areas.</p>
8.3.4 Types of Residential Development Desired	
Policy 8.3.4(a)	
<p>Brunswick County shall encourage a wide range of residential development forms and products, with emphasis on convenience to town or village based services. Residential developments which would isolate residents from necessary services, thereby increasing transportation, infrastructure, and service delivery costs, shall not be encouraged.</p>	<p>(1) The zoning ordinance accommodates a variety of residential development forms including but not limited to: patio homes, townhomes, manufactured homes, zero lot line and flag lot developments, cluster developments, as well as traditional single family subdivision developments.</p> <p>(2) The County shall employ the zoning ordinance to encourage residential developments to occur in or near towns and villages and therefore convenient to urban services.</p>
Policy 8.3.4(b)	
<p>Multi-family development shall be located so as to have direct access to a state or higher level road. Access to higher density housing through existing lower density residential areas shall be strongly discouraged.</p>	<p>The zoning ordinance, subdivision regulations, and site plan review process shall be employed to implement this policy.</p>
8.3.5 Types of Commercial Development Desired	
Policy 8.3.5 (a)	
<p>Brunswick County shall encourage commercial development to locate in town or village centers convenient to surrounding residential neighborhoods, and of a scale and design compatible with their surroundings. Automobile-oriented commercial strip development along the County's roadways shall be strongly discouraged. If highway oriented commercial development must occur, then it should be located in a commercial "node", at the intersection of two or more state or higher level roadways.</p>	<p>(1) The County shall employ the zoning ordinance to encourage commercial developments to occur in or near towns and villages and therefore convenient to urban services. The zoning ordinance shall also be employed to direct commercial development along highways to major intersections, and in planned clusters.</p> <p>(2) The County shall amend its development regulations to incorporate design standards for commercial development in keeping with Policy Section 8.3.5 of this plan</p>
Policy 8.3.5 (b)	
<p>Office and Institutional development may be employed as a transitional land use between residences and more intensive forms of commercial development, provided that such transitional development is compatible in design and scale with nearby residences.</p>	<p>The zoning ordinance shall be employed to implement this policy.</p>
8.3.6 Redevelopment, including Relocation of Threatened Structures	

Policy 8.3.6 (a)	
Brunswick County supports and encourages the restoration and/or appropriate adaptive reuse of significant and architecturally important historic & cultural structures & sites.	
Policy 8.3.6 (b)	
Redevelopment and/or rehabilitation of substandard structures within the county shall be supported through public and private sector initiatives for the economic betterment of area residents.	<p>(1) The County will continue to participate in the Small Cities Community Development Block Grant (CDBG) Program, including opportunities for Section 8 housing.</p> <p>(2) The County will continue to work for higher paying jobs and enhanced economic opportunity for local area residents as a means of providing additional income to residents for rehabilitation of their homes.</p>
Policy 8.3.6 (c)	
Recognizing that most erodible areas are within the planning jurisdictions of the County's municipalities, the County nonetheless supports a policy of relocation and retreat, rather than shoreline hardening, when structures are threatened by shoreline erosion. (Also see Policy 8.3.8(a) regarding support for beach renourishment.)	
8.3.7 Commitment to State and Federal Programs	
Policy 8.3.7	
Brunswick County supports applicable state and federal programs regarding economic and community development, especially those programs related to better jobs, water quality, fisheries, and water and land transportation system improvements.	<p>(1) The County will continue to participate in the Transportation Improvement Program (TIP) process.</p> <p>(2) The County will continue to participate in shared funding of Brunswick Community College.</p> <p>(3) The County will continue to operate job training programs at the County Industrial Park in coordination with the Community College.</p> <p>(4) The County will actively participate in cooperative regional economic development and strategic planning programs, including, for example, the Cape Fear River Corridor Study.</p>
8.3.8 Assistance to Channel Maintenance/Beach Renourishment	
Policy 8.3.8 (a)	
Brunswick County supports the continued maintenance of navigable channels and inlets and the renourishment of the county's beaches in a timely, coordinated fashion. The County will assist, in whatever non-monetary capacity it can, to see that proper spoil areas and other channel maintenance needs are made available in support of these efforts.	<p>(1) The County is committed to ongoing unified support for channel improvements in waterways throughout the county.</p> <p>(2) The County will support efforts to place spoil materials from channel maintenance and dredging on Brunswick County beaches, including each of the county's incorporated beach municipalities, as warranted.</p> <p>(3) The County will continue to press for action in Congress or elsewhere, to approve funding for studies and dredging necessary to reopen the eastern channel of the Lockwood Folly River.</p>
Policy 8.3.8 (b)	
Brunswick County supports the existing cooperative planning and cost sharing program among the Federal, State and municipal beachfront communities as the most equitable and practical method for funding beach renourishment projects.	

8.3.9 Energy Facility Siting and Development	
Policy 8.3.9--	
Due to the inherent conflicts with the growing, substantial, tourist-based sector of Brunswick County's economy, the development of off-shore energy facilities and associated on-shore staging and service bases shall not be supported. Similarly, oil, natural gas and related refining operations shall not be supported in Brunswick County.	(1) The County shall pursue the development of zoning performance standards for private industry, including strict standards for energy facilities.
8.3.10 Tourism	
Policy 8.3.10(a)	
Brunswick County encourages the development of a high quality tourism trade as a primary element of the county's economic future. Investments in education and training, services, facilities, growth management, and community appearance shall be employed in furtherance of this objective.	(1) The County will continue to provide funding on an annual basis to the Southport-Oak Island and South Brunswick Chambers of Commerce for tourism promotion. (2) The County has begun and will continue to develop a litter reduction program, the purpose of which is to educate and organize public and private organizations and individuals to enhance the county's appearance.
Policy 8.3.10(b)	
Brunswick County shall pursue a tourism development strategy which capitalizes upon the area's unique natural and scenic resources, specifically avoiding the congestion and garish visual blight often associated with more urban or entertainment-oriented tourist destinations.	(1) The County zoning ordinance and sign regulations shall be employed to implement this policy.
8.3.11 Beach, Waterfront and Boating Access	
Policy 8.3.11 (a)	
Brunswick County encourages efforts to plan for and provide public access to the county's beaches, shores, rivers, streams, and waterfronts, in accordance with the County's shoreline access plan and commensurate with anticipated population increases.	(1) The County shall update the 1990 Shoreline Access Plan during the next five year period.
Policy 8.3.11 (b)	
The provision of boating access facilities by the County, State, towns and private interests shall be encouraged and supported as an important means of public access to area waters.	(1) The County shall update the 1990 Shoreline Access Plan during the next five year period.
See Section 8.3.5	
8.3.12 Beautification, Including Signs, Roadway Appearance and Litter	
Policy 8.3.12(a)	
Brunswick County shall employ a combination of incentives and controls to encourage beautification measures which preserve the natural amenities of the community, especially as seen from the county's highways and roadways.	(1) The County zoning ordinance, subdivision regulations and recently revised sign regulations shall be employed to implement this policy.
Policy 8.3.12(b)	
The County shall continually improve its signage standards so that as the area grows, additional signage will not visually overwhelm the county's roadways, thereby detracting from the beauty of the area and devaluing its attractiveness as a place in which to live or vacation.	See action immediately above.
Policy 8.3.12(c)	
Brunswick County views junked cars, "permanent" yard sales, flashing signs, and other roadside clutter as eyesores in the community, a detriment to a high quality of life, and a deterrent to tourism and economic development efforts. Brunswick County shall, in cooperation with the County's municipalities, work to address these problems and eliminate them from our roadsides.	(1) The County shall facilitate a meeting of local governments in the County regarding roadside litter and other visual blight related activities.

12. Appendices

Policy 8.3.12(d)	
Brunswick County shall not tolerate roadside litter and, in cooperation with the County's municipalities, shall enforce strict measures against littering.	See action immediately above.
8.3.13 Airports	
Policy 8.3.13	
Brunswick County supports the continued development of the Brunswick County Airport and will encourage land development patterns which allow for adequate airport expansion and improvements.	(1) Brunswick County will continue to provide staff assistance in support of air space zoning for the Brunswick County Airport, in keeping with the wishes of the jurisdiction within which the airport falls, the Southeast Sanitary District.
8.3.14 Education	
Policy 8.3.14(a)	
The attainment of a quality educational system shall be recognized as a critical factor in the future economic development and quality of life in Brunswick County. Actions taken by the County in support of education shall reflect the high priority given to this issue.	(1) In light of the critical importance of primary education to the future of Brunswick County, the County Commissioners, in coordination with Board of Education and the Brunswick Community College Board of Trustees, and with appropriate assistance from the UNC System, will place increasing emphasis on the development of a quality educational system in the county. The important linkage between a good educational system and economic development/quality of life issues will be emphasized during such efforts.
Policy 8.3.14(b)	
Responsibility for improvements to the educational system shall not be placed solely with policy makers, professional educators and administrators. Programs and actions which emphasize (1) parental involvement and (2) assistance from the business community shall be strongly pursued.	(1) Activities which encourage on-going school visitations and workshops by parents, and by leaders in business and industry shall be especially emphasized.
Policy 8.3.14(c)	
Appropriate educational and training programs shall be encouraged to help unemployed and underemployed local residents take advantage of business expansion and to stay abreast of new technologies.	(1) The County will continue to provide support for the Brunswick Community College Industrial Education Center, housed in Brunswick County's Industrial Park in the Leland area.
8.3.15 Solid Waste Management	
Policy 8.3.15(a)	
Local area requirements for solid waste disposal facilities shall continue to be anticipated through advanced planning; facilities shall be located and designed so as not to adversely impact significant natural or manmade resources.	(1) Long range planning for the County's solid waste management needs, including alternative waste disposal methods and cooperative regional solutions, shall continue. (2) The County will continue to educate and enforce efforts to curtail construction material dumping at trash collection sites.
Policy 8.3.15(b)	
Brunswick County recognizes the need for a regional solution to the solid waste issue and will support efforts toward that end.	See implementation action (1) immediately above.
Policy 8.3.15(c)	
Research and development of recycling and resource recovery programs, whether public or private, shall be encouraged and supported.	(1) The County will continue to coordinate the recycling efforts of the incorporated municipalities in cooperation with those of the County.

8.3.16 Growth and Development Controls	
Policy 8.3.16	
<p>Growth and development controls shall be employed to promote a "town-and country" pattern of development, thereby conserving open space, and concentrating urban services cost-effectively within developing town and village centers.</p>	<p>(1) Efforts to improve and refine the County's zoning in the unincorporated areas of the county will continue to be a priority. opportunities to implement a town and country growth pattern shall be sought during future evaluations of the ordinance.</p> <p>(2) The County will support State initiatives for the appropriate regulation of livestock production facilities.</p> <p>(3) The County will accommodate and provide proper planning for four classes of manufactured housing, as specified in the zoning ordinance.</p> <p>(4) Commercial zoning districts and driveway access standards will be implemented and periodically refined to discourage inappropriate stripping of development along the county's highways.</p>
8.3.17 Tree Cover, Landscaping and Buffering	
Policy 8.3.17	
<p>The County shall encourage efforts to preserve and enhance tree cover in new development and redevelopment. The County also encourages the use of native landscape plants and materials in new and existing development to buffer incompatible uses, improve appearances, absorb stormwater runoff, and moderate air temperature swings.</p>	<p>(1) Current efforts to revise, update and improve the County's subdivision regulations, particularly with regard to open space and tree preservation, will continue.</p> <p>(2) The County shall evaluate the need for development standards related to parking lot landscaping.</p>
8.3.18 Transportation	
Policy 8.3.18(a)	
<p>Brunswick County shall be an active participant in plans and actions related to transportation improvements to and within the County. Transportation improvements shall be coordinated with land use planning, infrastructure improvements, and economic development efforts.</p>	<p>(1) The County will continually work to improve road access standards to protect the integrity of significant traffic-carrying roadways through the county.</p> <p>(2) The County Commissions will review allocations for secondary road improvements on a regular basis.</p> <p>(3) The County will continue to provide its coordinated human services transportation program.</p>
Policy 8.3.18(b)	
<p>Brunswick County supports regional intergovernmental planning and cooperation for transportation improvements to and within southeastern North Carolina and northeastern South Carolina.</p>	<p>(1) The County will continue to coordinate transportation improvements in the area through updates to the County thoroughfare plan, and through review and comment on the transportation improvement program (TIP).</p> <p>(2) The County will continue to participate in the development of the Wilmington Urbanized Area Transportation Plan.</p>
Policy 8.3.18(c)	
<p>Continued use and planned development of the Cape Fear River, Atlantic Intracoastal Waterway, and the Brunswick County Airport shall be encouraged.</p>	<p>(1) The County will actively participate in cooperative regional economic development and strategic planning programs, including, for example, the Cape Fear River Corridor Study.</p> <p>(2) Brunswick County will continue to provide staff assistance in support of air space zoning</p>

	for the Brunswick County Airport, in keeping with the wishes of the jurisdiction within which the airport falls, the Southeast Sanitary District.
8.3.19 Sunny Point Military Ocean Terminal	
Policy 8.3.19	
Due to the regional economic significance of the Sunny Point Military Ocean Terminal and its strategic role in our nation's defense system, Brunswick County supports its continued presence. The County also supports cooperative, long range planning for the future of the terminal property as its mission may evolve over time.	(1) The County shall meet with appropriate officials of the Sunny Point Military Ocean Terminal on an on-going basis to discuss opportunities for joint long range planning for the terminal property, areas around it, and transportation facilities serving it.
8.3.20 Capital Improvement Planning	
Policy 8.3.20(a)	
Brunswick County shall plan ahead for the timely and cost effective provision of major capital improvements and services on the basis of anticipated growth and demand.	(1) The County shall prepare a capital improvement plan to address significant capital expenditures anticipated for the next five to ten years.
Policy 8.3.20(b)	
Coordination between the County, its municipalities, sewer districts, and major industries shall be encouraged in planning and providing for capital facilities and services.	(1) The above mentioned CIP shall be coordinated, to the extent practical with area municipalities and other service providers.
8.3.21 Parks and Recreation	
Policy 8.3.21	
As the population of Brunswick County continues to grow, the County shall support a commensurate increase in the development, maintenance and enhancement of its parks, open space and recreational facilities, including sound and ocean access facilities. The County shall employ national and State recreation standards as the minimum for such facilities—for the benefit of both residents and visitors alike. The County shall explore alternative means of funding for parks facilities as necessary, including State and Federal grants, development impact fees, park user fees, general obligation bonds, and other sources of revenue.	(1) Part of the above mentioned CIP shall address long range park and recreation needs in the county.
8.3.22 Long Range Planning	
Policy 8.3.22	
Given the accelerated growth of the County and projections of continued rapid growth, Brunswick County shall continue to embrace a bias for long range, strategic planning, with near term priorities established annually in conjunction with the County's budget process.	(1) The County shall continue to implement the 1996 recommendations of the Long Range Planning Committee. (2) The Planning Board shall continue to meet twice-monthly so as to allow for discussions of long range planning issues on a routine basis.
8.4 PUBLIC PARTICIPATION AND COORDINATION POLICIES	
8.4.0 Basic Policy Statement Regarding Public Participation	
Brunswick County believes that an on-going, public information program, combined with meaningful opportunities for citizen involvement in County decision-making, is the foundation for effective public participation in county government.	
8.4.1(a) Public Education on Planning Issues	
Policy 8.4.1 (a)	
Brunswick County shall continue to employ public participation techniques at public meetings which actively involve the public in identifying and discussing planning issues, thereby facilitating a form of "engaged" education. Media attention concerning such meetings is also strongly encouraged and thankfully acknowledged for the public service they provide.	(1) The County will continue to conduct special public meetings as necessary to address important growth issues and proposals in Brunswick County. (2) The County will continue to provide advance

	notice and interviews with the press in an effort to inform the public as to the purpose of public meetings in advance of such meetings.
8.4.1(b) Continuing Public Participation in Planning	
Policy 8.4.1 (b)	
Following plan adoption, Brunswick County shall employ frequent, constructive and open regular meetings of the Planning Board and County Commissioners as the primary vehicle for engaging public participation in on-going planning issues and development projects.	(1) The Planning Board will periodically evaluate its effectiveness in achieving this policy, and will consider special actions to encourage participation.
8.4.1(c) Public Input in Developing Policy Statements	
Policy 8.4.1 (c)	
Citizen input in the development of growth policies shall be supported through attention given to the issues and priorities which the public identified during early input meetings.	(1) The County will continue to provide for open meetings of the Planning Board and County Commissioners in both the letter and spirit of the open meetings law of the State of North Carolina.
8.4.1(d) Intergovernmental Coordination in Local Government Planning	
Policy 8.4.1 (d)	
Effective public participation in County government planning shall also include coordination with municipal governments and utility districts in the County. The County shall continue to act to facilitate improved communication and coordination on planning matters among local governments in the County. The Land Classification Map of the County land use plan shall be employed as a specific planning tool to identify and affirm County town and village growth centers.	<p>(1) The County shall continue its recent initiatives established over the past 2-3 years in facilitating joint meetings of all local governments and service districts in the county.</p> <p>(2) The Planning Board shall facilitate an annual planning symposium with the various towns on topics of common interest and concern. e.g. adult-oriented businesses, sign regulations, landscape standards, roadside litter, stormwater management, planned unit development standards, etc.</p> <p>(3) Upon its adoption, the County shall incorporate the <u>Second Bridge to Oak Island Land Use and Development Plan</u> into this land use plan by reference.</p>
8.5 Storm Hazard Mitigation/Post-Disaster Recovery, & Evacuation Policies and Plans	
Policy 8.5.0	
The County shall continually seek to establish procedures and take actions to reduce the potential for the loss of life and property damage prior to a storm event, and to provide a framework for orderly reconstruction in the aftermath of a hurricane or other significant damaging event.	
Storm Hazard Mitigation Policies	
8.5.1 A Storm Effect Mitigation	
(1) High Winds: Brunswick County shall continue to enforce the North Carolina Building Code, particularly those provisions which require construction standards to meet resistive factors, i.e. design, wind velocity.	(1) The County will continue to provide building inspections services for the unincorporated area, as well as some of the municipalities in the county, including the enforcement of all provisions relative to storm safety and resistance.
(2) Storm Surge: Recognizing that most parts of the County subject to storm surge are within the regulatory jurisdiction of municipalities, Brunswick County nonetheless supports the development standards of the State CAMA Ocean Hazard Area of Environmental Concern (AEC). These standards help ensure that structures particularly susceptible to storm surge (e.g. first row) are set back from the ocean a distance based on the average annual erosion rate at that location.	(1) The County will continue to push for the re-mapping of flood hazard areas to provide a more accurate picture of land located in hazardous locations.

12. Appendices

<p>(3) Flooding: The County is an active participant in the National Flood Insurance Program and is supportive of its hazard mitigation elements. The County shall continue to seek improvements in development standards which would result in lower insurance premiums for County property owners. The County also supports proper enforcement of State and Federal wetlands development permit processes in areas potentially susceptible to flooding.</p>	<p>(1) The County will continue to enforce the flood damage prevention ordinance.</p>
<p>(4) Wave Action and Shoreline Erosion: The County is supportive of the CAMA development permit process for oceanfront and estuarine shoreline areas and the requisite development standards which encourage shoreline preservation, dune stabilization, wave action absorption, and other mitigation measures.</p>	
<p>8.5.1 B Discouragement of Hazardous Development</p>	
<p>(1) Brunswick County shall discourage high intensity uses and large structures from being constructed within the 100-year floodplain, erosion-prone areas, and other locations susceptible to hurricane and flooding hazards.</p>	<p>The County shall review its zoning map and ordinance concerning commercial and high intensity residential districts as related to floodprone or other high hazard areas. Appropriate zoning amendments may then be undertaken.</p>
<p>(2) Brunswick County, through its Emergency Management Office, shall encourage each of its communities to participate in hurricane preparedness, education and information sharing programs at least once per year. Such public outreach programs should educate the public as to storm resistant building design and construction standards, as well as local government policies on evacuation, reentry, restoration of services and reconstruction.</p>	<p>(1) Continual improvements in the County's administration of the 911 emergency system will be sought. (2) The street signage program will continue. (3) The county-wide street naming and addressing program will continue.</p>
<p>(3) The County will periodically conduct studies to analyze both the feasibility and benefits of revising local building and development standards to lessen the effects of storm damage. Included shall be an examination of the County's floodplain management, zoning, subdivision and building standards.</p>	
<p>8.5.1 C Public Land Acquisition</p>	
<p>Brunswick County shall not participate in the purchase of land parcels located in hazard areas or rendered unbuildable by storms or other events, for the purposes of shorefront access.</p>	
<p>8.5.1 D Evacuation and Emergency Management</p>	
<p>(1) Brunswick County, in cooperation with municipal and State officials, shall annually evaluate the impact of continued growth on existing transportation facilities with regard to evacuation routes and times. The intent shall be to identify and address needed transportation improvements well in advance of a crisis.</p>	<p>(1) An annual report shall be presented to the County Commissioners summarizing any significant developments or concerns regarding hurricane evacuation.</p>
<p>(2) Brunswick County recognizes the critical role that area fire departments, rescue squads and other emergency personnel play in managing emergency situations. The County shall work cooperatively with such emergency personnel to plan for and respond to emergencies and shall facilitate cooperation among emergency personnel.</p>	
<p>Post Disaster Reconstruction Policies</p>	
<p>8.5.2 (a) Emergency Management Plan and Near Term Response</p>	
<p>The County shall prepare and annually update an Emergency Management and Operations Plan, in concert with municipal</p>	

and State emergency management officials. The plan shall encompass pre-storm and immediate post storm activities and policies of the County, including coordinated policies on evacuation and reentry to damaged areas. Important elements of the plan and its policies shall be publicized, particularly at the beginning of each hurricane season.	
8.5.2 (b) Local Post-Disaster Reconstruction Policies	
Redevelopment in the most hazardous areas may be discouraged or prohibited if post storm analysis indicates that rebuilding would be unsafe or unwise. Structures and sites destroyed by 50% or more of their value and which do not conform to the County's building regulations, zoning ordinances, and other storm hazard mitigation policies, shall be redeveloped according to current standards. In some instances, this may mean relocation of construction or no reconstruction at all. Structures and sites suffering damages at less than 50% of their value shall be allowed to be restored to their original condition prior to the storm.	
8.5.2 (c) Recovery Task Force	
The Board of County Commissioners of Brunswick County shall be ultimately responsible for supervising the implementation of policies and procedures contained in the disaster relief and assistance plan, and the post-disaster recovery policies of the land use plan. The Board of County Commissioners shall also have at their disposal a predetermined Recovery Task Force to carry out their directives regarding recovery activities following a major storm event. The composition and duties of the Recovery Task Force shall be specified in the County's Emergency Management and Operations Plan.	(1) The County's Emergency Services Center will serve as a logical command center for the directives of the County Commissioners during and after a major storm event.
8.5.2 (e) Staging Schedule For Reconstruction and Repair	
(1) To deal with the large number of requests for permits after a major storm, the County shall employ a "building permit triage" system for orderly issuance of building permits. Criteria for the order of issuance shall be developed in advance, with the need for modification acknowledged based upon the specific circumstances being faced.	
(2) The Board of County Commissioners may declare a moratorium of up to 180 days on the permitting of any new construction, including new utility hookups, or redevelopment construction that would increase the intensity of the land uses existing before the hurricane.	(1) Implementation of any such moratorium will be carried out if, in the opinion of the Board of County Commissioners, insufficiently planned new construction would result in a compromise of the public health, safety, and general welfare.
(3) Immediately following a damaging storm event, the County shall work with all appropriate utility and service companies to implement a planned sequence for the restoration of public utilities and services, with allowance for adjustment to deal with circumstances at hand. Generally, priority shall be given to those repairs that will restore service to critical locations (e.g. hospital) first and secondarily, to those repairs that will restore service to as many persons as soon as possible.	(1) This policy will be implemented in accordance with the best practices of public and private utilities regarding the restoration of service following a major storm event.
8.5.2 E Public Infrastructure Repairs/ Replacement	
(1) The County encourages underground installation, replacement and storm proofing of public and private utilities and infrastructure.	
(2) In the event of extensive hurricane damage to public utilities requiring replacement or relocation of these utilities, efforts shall be made to locate damaged utilities away from hurricane hazard areas or to strengthen their construction.	(1) The County will monitor all reconstruction efforts involving both public and private utilities, including roads, to provide for less vulnerable redevelopment after a hurricane.