# Brunswick County Land Use Plan and Policies for Growth and Development

## 1987 Update

COASTAL ZONE
INFORMATION CENTER

**Adopted by**

**The Brunswick County Commissioners**

**November 2, 1987**

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THIS LAND USE PLAN UPDATE WAS ADOPTED BY THE NORTH CAROLINA COASTAL RESOURCES COMMISSION ON DECEMBER 4, 1987

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Table of Contents

Page

Executive Summary ..... 1

1. Data Collection and Analysis ..... 6
1.1 Information Base ..... 7
1.2 Present Conditions ..... 8
1.2.1 Population and Economy ..... 8
1.2.2 Existing Land Use Analysis ..... 23
1.2.3 Current Plans, Policies and Regulations ..... 28
1.2.3(c)Evaluation of Previous Land Use Plan Effectiveness ..... 33
1.3 Constraints; Land Suitability ..... 38
1.3.1 Physical Limitations for Development ..... 38
1.3.2 Fragile Areas ..... 42
1.3.3 Areas with Resource Potential ..... 48
1.4 Constraints; Community Facilities and Services ..... 52
1.4.1 Water ..... 52
1.4.2 Sewer and Storm Drainage ..... 53
1.4.3 Transportation ..... 54
1.4.4 Police ..... 55
1.4.5 Fire and Rescue ..... 56
1.4.6 Schools ..... 56
1.4.7 Parks and Recreation ..... 58
1.4.8 Solid Waste ..... 58
1.4.9 Medical Care ..... 59
1.5 Anticipated Demand ..... 60
1.5.1 Population and Economic Projections ..... 60
1.5.2 Future Land Use Needs ..... 61
1.5.3 Community Facilities Demands ..... 63

2. Policies for Growth and Development ..... 69
Introduction to the Policies ..... 70
Policy 2.0 ..... 71
2.1 Resource Protection Policies ..... 72
2.1.1 Constraints to Development ..... 72
2.1.2 Areas of Environmental Concern ..... 73
2.1.3 Other Hazardous or Fragile Land Areas ..... 75

2.1.4 Hurricane and Flood Evacuation ..... 76
2.1.5 Protection of Potable Water Supply ..... 76
2.1.6 Package Sewage Treatment Plant ..... 77
2.1.7 Stormwater Runoff ..... 78
2.1.8 Marina and Floating Home Development ..... 78
2.1.9 Industry in Fragile Areas ..... 79
2.1.10 Development of Sound and Estuarine System Islands ..... 80
2.2 Resource Production and Management Policies ..... 81
2.2.1 Productive Agricultural Lands ..... 81
2.2.2 Commercial Forest Lands ..... 81
2.2.3 Mineral Production Areas ..... 82
2.2.4 Fisheries Resources ..... 82
2.2.5 Off-Road Vehicles ..... 83
2.2.6 Development Impacts ..... 83
2.3 Economic and Community Development Policies ..... 84
2.3.1 Types and Locations of Desired Industries ..... 84
2.3.2 Provision of Services to Development ..... 84
2.3.3 Urban Growth Pattern ..... 85
2.3.4 Redevelopment ..... 86
2.3.5 State and Federal Program Support ..... 86
2.3.6 Channel Maintenance and Beach Nourishment ..... 87
2.3.7 Energy Facilities ..... 87
2.3.8 Tourism and Beach Waterfront Access ..... 88
2.3.9 Coastal and Estuarine Water Access ..... 88
2.3.10 Residential Development ..... 89
2.3.11 Commercial Development ..... 90
2.3.12 Airstrips and Airports ..... 90
2.3.13 Roads ..... 91
2.3.14 Beautification ..... 92
2.4 Public Participation Policies ..... 93
2.4.1 Public Participation Policy ..... 94

## List of Tables, Figures and Maps


Page

Population Growth ..... 8
Population Growth Dynamics ..... 9
Population Growth by Township ..... 10
Township and Municipal Boundaries Map ..... 10m
Municipal Population Growth ..... 11
Housing Growth by Township ..... 12
Brunswick County Population and Housing Growth ..... 12
Historic Picture of Percentages of Various Age Groups of Brunswick County's Population ..... 13
Percentage of Workers Employed by Major Category: Brunswick County ..... 14
Insured Employment by Major Category: Brunswick County and North Carolina by Percentage: 1983 ..... 15
Economic Impact (selected years) ..... 16
Per Capita Income: 1970, 1975 & 1980 ..... 16
Gross Retail Sales Breakdown: Brunswick County ..... 17
Brunswick County Farms: 1980 & 1984 ..... 18
Percent of Population 65 Years and Over: 1970 & 1980 ..... 19
Persons Receiving Social Security Benefits from Brunswick County ..... 19
Journey To Work Commuting ..... 20
Brunswick County Tax Base ..... 22
Land Suitability Analysis ..... 41
Historic Sites/Fragile Areas ..... 47
Agricultural Lands: Prime Farmland Soils ..... 49
Locally Important Farmland Soils ..... 49
Unique Land Soils ..... 49
Fragile Areas Map ..... 51m
1986 Water Consumption ..... 53
High Accident Concentration Areas Map ..... 55m
Community Facilities Map ..... 59m
Existing Land Use Map ..... Back of Plan
Composite Natural Hazards Areas Map ..... Back of Plan
Land Classification Map ..... Back of Plan

2.5 Storm Hazard Mitigation, Post-Disaster Recovery and Evacuation Plan ..... 95
2.5.1 Storm Hazard Mitigation ..... 97
2.5.2 Post-Disaster Recovery ..... 100
2.5.3 Evacuation Plan ..... 109

**3. Land Classification** ..... 111
3.1 Purpose of Land Classification and Relationship to Policies ..... 112
3.2 Land Classification System ..... 113

**4. Intergovernmental Coordination and Implementation** ..... 117
4.0 Intergovernmental Coordination and Implementation ..... 118

**Appendices** ..... 119
I. Brunswick County Soil Interpretation ..... 120
II. Brunswick County Natural Areas ..... 126
III. Index of Brunswick County's Major Historic Sites ..... 131
IV. Brunswick County Urban Concentrations ..... 142
V. Public Participation Documents ..... 145

# Executive Summary

# Introduction

## Need For Planning

Brunswick County has grown very rapidly during the last 15 to 20 years, largely due to its coastal proximity and location between the City of Wilmington and rapidly growing Myrtle Beach, South Carolina. Brunswick County is one of the fastest growing counties in North Carolina.

As the area becomes more densely settled, however, new problems must be faced, including: land use conflicts, as different uses are forced closer together; large public expenditures for the services and facilities required by this new growth; and possible degradation of the natural features of the County.

The intent of the Land Use Plan is to anticipate and plan for this growth, in a manner which helps protect the existing quality of life of area residents and avoids unreasonable increases in the local tax burden. The North Carolina General Assembly recognized these issues when it passed the Coastal Area Management Act of 1974, which requires coastal local governments to develop land use plans and update them every five years. The first Brunswick County Land Use Plan was adopted in 1976 and updated in 1981; this 1987 update primarily refines the 1981 plan and policies to reflect current conditions in the County.

### Functions of the Plan

The Land Use Plan performs several important functions for local governing bodies and the general public; these functions 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, housing trends and facility needs.
- Guidance for Government Decisions - Once a governing body adopts a plan, it then has a blueprint for guiding future decisions on budgets, ordinances, and zoning and subdivision applications.
- Preview of Government Action - Business 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 expresses the will of the area's citizens.

## Ingredients of the Plan

Several major steps were involved in the preparation of the Brunswick County Land Use Plan. First, a number of technical studies were made on the past and present conditions in the County. From these initial studies, forecasts for future growth and development of the area were summarized. Finally, policies and a land classification map were devised to address present and future needs.

### Technical Studies

A number of basic studies are required before sound policy decisions can be made. These basic studies include the following subjects:

Population and Economy
Existing Land Use Analysis
Current Plans, Policies and Regulations
Physical Limitations for Development
Fragile Areas
Areas with Resource Potential
Water Supply
Sewer and Storm Treatment
Transportation Facilities
Police Protection
Fire and Rescue Protection
Schools
Parks and Recreation
Solid Waste
Medical Care
Population and Economic Projections
Future Land Use Needs
Community Facility Demands

Collectively, these studies summarize past and present conditions, while providing the essential yardsticks for estimating future conditions. The results of these studies are contained in full in Section 1 of the Brunswick County Land Use Plan.

### Highlights of the Technical Studies

### Population

Between 1980 and 1987, the Brunswick County Planning Department estimates that population grew by almost 18,700 people. Approximately 90 percent of that growth is attributable to the migration of people moving into Brunswick County. 1987 population is estimated by the County to be 54,431. The State projects that by the year 2000, population

will increase to approximately 75,500 and to 96,800 in 2010. Brunswick County is projected to continue to have one of the highest growth rates in the State.

### Economy

Tourism and related services are rapidly replacing manufacturing and agriculture as the most important sectors of the Brunswick County economy. Peak seasonal population is projected to reach 215,000 in 1990 due to some 140,000 anticipated tourists. The tourism season in Brunswick County is expanding each year. The County is continuing to strive for a balanced and diversified economy. In addition to the provision of infrastructure, the County has established the Resources Development Commission to promote the newly formed Leland Industrial Park and industrial development within the County.

### Land Use Analysis

A parcel by parcel land use survey was conducted by the Planning Department in 1985. It was found that due to the rapid population growth of the County, the County was more developed than projected in the 1981 land use plan update. Lockwood Folly and Shallotte Townships experienced the most development, particularly in the coastal areas. The current development pattern of coastal development is projected to continue throughout the plan period.

## Constraints; Land Suitability

Wetlands and soil limitations are the largest constraints to development in Brunswick County. The County's low elevation and proximity to the coast and estuarine systems are what both attracts and constrains growth. Where there are septic limitations, the use of package sewage treatment facilities and small district based facilities is encouraged. Whenever possible, engineering solutions will be studied and required in order to mitigate environmental damages of development in environmentally sensitive areas.

Development in designated Areas of Environmental Concern requires special CAMA permits in Brunswick County. Possible flood hazard areas are broadly defined within Brunswick County and measures of elevation are required from all development proposed in potential flood prone areas. Areas with resource potential have been identified for possible conservation measures.

### Community Facilities

The County is currently installing and planning a comprehensive, urban and urbanizing area public water system. A transportation Thoroughfare Plan is in the final stages of completion. Solid waste collection and disposal services are in the process of expansion and improvement. Police, fire and rescue services, and medical care services are all currently adequate, and will be expanded as needed. Planning for additional educational facilities is currently under way.

## Policies For Growth and Development

The Plan sets forth a series of officially adopted policies concerning growth and development. These policies are the most important elements of the Plan as they will serve as a basis for future land use and capital improvements decision-making in Brunswick County. The County has adopted an overall guiding policy which states that **Brunswick County supports the current growth trend being experienced and, to the extent possible, will plan for and accommodate future growth while simultaneously maintaining and improving the quality of life for current and future residents.**

## Land Classification Map

A Land Classification Map has been prepared which broadly defines suggested land uses throughout the County during the Plan period. The Land Classification Map is a carefully designed graphic representation of the policy statements affected in this plan, coupled with a natural extension of the existing growth and development pattern. The Land Classification Map is not a zoning map. It is merely a tool to help implement policies. It is not a strict regulatory mechanism.

# Section 1: Data Collection and Analysis

## 1.1 Information Base

The 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 prior to 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 summarize past and present conditions, while providing the essential yardsticks for estimating future conditions.

## 1.2 Present Conditions

### 1.2.1 Population and Economy

#### 1.2.1(a) Population

Brunswick County has both a substantial year-round permanent resident population and an expanding seasonal population with an expanding season. Brunswick County's people represent many different characteristics, all of which need to be recognized and addressed in preparing plans and programs.

*Population Growth*

The first U.S. Census was taken in Brunswick County in 1790. It listed the County's population as 3,071. From that time forward to 1960, the biennial U.S. Census showed a moderate population increase; generally in the range of 12% to 14% per census. From 1960 to date, however, the population of Brunswick County has grown dramatically. According to estimates made by the Planning Department, the County's population increased from 35,777 in 1980 to 54,431 in 1987, a 52% increase.

**TABLE I**

POPULATION GROWTH

| | *Brunswick Co.* | | | *State of NC* | | |
|---|---|---|---|---|---|---|
| | Number | Percent Increase | | Number | Percent Increase | |
| Year | | Decade | Average Annual | | Decade | Average Annual |
| 1950 | 19,238 | | | 4,052,795 | | |
| 1960 | 20,278 | 5.6% | 0.6% | 4,556,155 | 12.4% | 1.2% |
| 1970 | 24,223 | 19.5 | 2.0 | 5,084,411 | 11.6 | 1.2 |
| 1980 | 35,777 | 47.7 | 4.8 | 5,881,766 | 15.7 | 1.6 |
| 1981 | 37,436 | | 4.6 | | | |
| 1982 | 39,748 | | 6.2 | | | |
| 1983 | 42,170 | | 6.1 | | | |
| 1984 | 45,110 | | 7.0 | 6,164,201 | | 1.2 |
| 1985 | 48,529 | | 7.6 | | | |
| 1986 | 51,779 | | 6.7 | 6,321,228 | | 1.4 |
| 1987 | 54,431 | | 5.1 | | | |

Sources: Through 1980, U.S. Census. For County, each subsequent year, Brunswick County Planning Department. For State for 1984, North Carolina Department of Administration.

Information in Table I indicates that, when compared to the State as a whole, Brunswick County has gained population at a rapid rate. In fact, according to the Office of State Budget and Management, Brunswick County is the second fastest growing county (on a percentage increase basis) in North Carolina.

Population changes in three (3) different ways: natural increase (births minus deaths), in-migration (people moving into the area), and out-migration (people moving out of the area). Brunswick County has experienced dramatic changes since 1960. The County had large out-migrations until 1960, and large in-migrations since then.

From 1960 to 1985, 77% of Brunswick County's population increase has been due to in-migration. Of a total increase of 18,521 persons during the twenty-five year period, 21,966 were persons that moved into the County. Table II provides a specific breakdown explaining how population change has occurred in the County.

**TABLE II**

POPULATION GROWTH DYNAMICS

| Ten year period | Census | Population | + or - | Natural Increase | Out-Migration | In-Migration |
|---|---|---|---|---|---|---|
| | 1930 | 15,815 | | | | |
| | 1940 | 17,125 | | | | |
| 1930-40 | | | +1,310 | 2,709 | 1,399 | |
| | 1950 | 19,238 | | | | |
| 1940-50 | +2,113 | 3,509 | 1,396 | | | |
| | 1960 | 20,278 | | | | |
| 1950-60 | | | +1,040 | 3,752 | 2,712 | |
| | 1970 | 24,223 | | | | |
| 1960-70 | | | +3,945 | 2,524 | | 1,421 |
| | 1980 | 35,777 | | | | |
| 1970-80 | | | +11,554 | 2,897 | | 8,657 |
| Five Year Period | | | | | | |
| 1985 over 1980 | | 48,529 | +12,752 | 1,134 | | 11,618 |

Source: U.S. Bureau of Census, Brunswick County Planning Department Population Estimate for 1985 and North Carolina Department of Human Resources Division of Vital Statistics

### *Population Distribution*

Not all portions of the County are growing at the same rate. From 1980 to 1986, population growth in Shallotte and Lockwood Folly Townships was most dramatic. Both townships grew from 1980 to 1986 at a considerably faster rate than the County as a whole.

The most rapidly growing areas of the County continue to be the beach communities and the mainland along the rivers and the Intracoastal Waterway. The Planning Department estimates that from 1980 to 1986, the then existing beach communities, six in number (Sunset Beach, Ocean Isle Beach, Yaupon Beach, Long Beach, Holden Beach and Caswell Beach), grew in permanent resident population at a collective rate of 64%. The unincorporated area of the County lying south of U.S. 17 and generally west of the Lockwood Folly River has also experienced considerable residential growth since 1980. Because of this growth, the Town of Shallotte is emerging as a strong trade center for the western part of the County. The Leland/Belville/Navassa area is also sustaining considerable growth. In addition, the Southport-Oak Island area continues to experience residential and commercial growth.

Map I identifies township and unincorporated municipal boundaries within the County. Tables III and IV show population growth in these jurisdictions.

**TABLE III**

POPULATION GROWTH BY TOWNSHIP

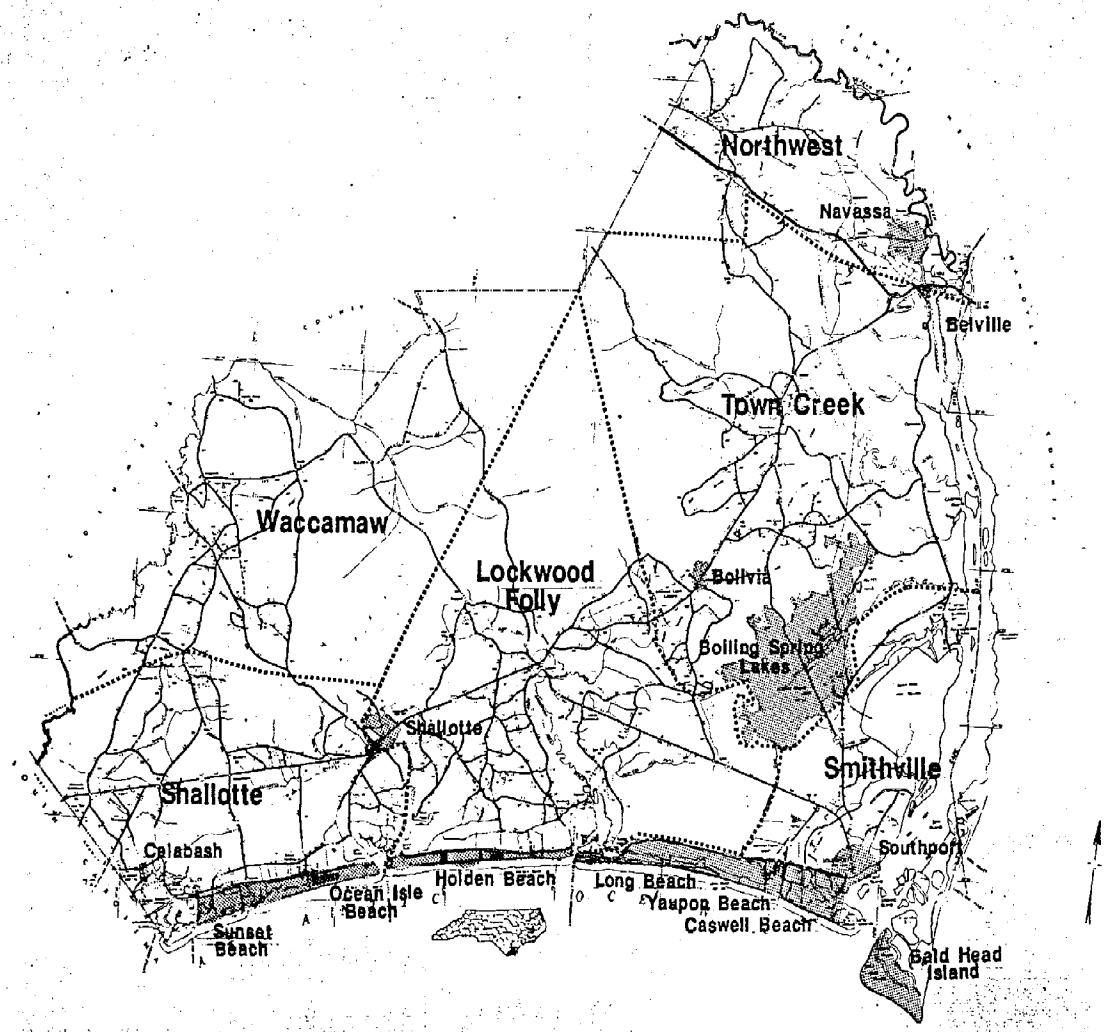
1980 - 1987

| Township | 1980 | 1987 | CHANGE Number | CHANGE Percent |
|---|---|---|---|---|
| Lockwood Folly | 7,361 | 11,903 | 4,542 | 62 |
| Northwest | 6,136 | 8,299 | 2,163 | 35 |
| Shallotte | 6,542 | 12,141 | 5,599 | 86 |
| Smithville | 6,838 | 9,308 | 2,470 | 36 |
| Town Creek | 6,878 | 10,094 | 3,216 | 47 |
| Waccamaw | 2,022 | 2,686 | 664 | 33 |
| TOTAL | 35,777 | 54,431 | 18,654 | 52 |

Source: 1980 Census of Population
1986 Population Estimates by Brunswick County Planning Department

There are fourteen (14) incorporated municipalities in Brunswick County. Long Beach, Southport, and Ocean Isle Beach showed the greatest numerical increase in population, though several communities have had rather large percentage increases in population.

# TOWNSHIP AND MUNICIPAL BOUNDARIES




LEGEND

- Municipality
- Township

Source: Brunswick County Planning Department

BRUNSWICK COUNTY
NORTH CAROLINA

## TABLE IV

## MUNICIPAL POPULATION GROWTH

1980 - 1987

| | 1980 | 1987 |
|---|---|---|
| Bald Head Island* | | 26 |
| Belville | 102 | 104 |
| Boiling Spring Lakes | 998 | 1595 |
| Bolivia | 252 | 272 |
| Calabash | 128 | 212 |
| Caswell Beach | 110 | 319 |
| Holden Beach | 232 | 353 |
| Long Beach | 1844 | 2890 |
| Navassa | 439 | 526 |
| Ocean Isle Beach | 143 | 528 |
| Shallotte | 680 | 895 |
| Southport | 2824 | 3148 |
| Sunset Beach | 304 | 629 |
| Yaupon Beach | 569 | 746 |
| TOTAL | 8,625 | 12,243 |

*Incorporated May, 1985

Source: 1980 Census of Population
1986 Brunswick County Planning Department Estimates

Between 1980 and 1987, about four-fifths (80.5%) of population growth in Brunswick County occurred in the unincorporated part of the County. In the 1980 Census, 76% of total permanent population was reported in the unincorporated areas outside of the municipalities. In 1986 it is estimated that 77% of the total permanent population was located in the unincorporated areas of the County.

### *Population and Housing*

As population has been increasing in Brunswick County, so has the number of permanent and seasonal housing units. Table V exhibits housing growth between 1980 and 1987.

## TABLE V

### HOUSING GROWTH BY TOWNSHIP

| Township | HOUSING UNITS 1980 | HOUSING UNITS 1987 | CHANGE Number | CHANGE Percent |
|---|---|---|---|---|
| Lockwood Folly | 5,636 | 9,052 | 3,416 | 61 |
| Northwest | 2,451 | 3,303 | 852 | 35 |
| Shallotte | 4,701 | 9,445 | 4,744 | 101 |
| Smithville | 5,450 | 7,908 | 2,458 | 45 |
| Town Creek | 2,574 | 3,778 | 1,204 | 47 |
| Waccamaw | 747 | 991 | 244 | 33 |
| TOTAL | 21,559 | 34,477 | 12,918 | 60 |

Source: Population and Housing Counts, 1980-1987, Brunswick County, NC Planning Department. April 1987.

Population and housing growth for the 1980-1986 period is summarized in Table VI.

## TABLE VI

### BRUNSWICK COUNTY POPULATION AND HOUSING GROWTH 1980 - 1987

| Year | Population | Total Housing Units | Permanent Housing Units | Seasonal Housing Units |
|---|---|---|---|---|
| 1980 | 35,777 | 21,565 | 12,411 | 9,154 |
| 1981 | 37,436 | 22,751 | 12,983 | 9,768 |
| 1982 | 39,748 | 24,409 | 13,783 | 10,626 |
| 1983 | 42,170 | 25,936 | 14,699 | 11,237 |
| 1984 | 45,110 | 28,179 | 15,662 | 12,517 |
| 1985 | 48,522 | 30,649 | 16,857 | 13,792 |
| 1986 | 51,772 | 32,551 | 17,920 | 14,331 |
| 1987 | 54,431 | 34,477 | 18,926 | 15,551 |
| 1980 - 1987 Increase | 18,654 | 12,912 | 6,515 | 6,397 |
| 1980- 1987 Percent Increase | 52 | 60 | 52 | 70 |

*Mobile Homes are not counted as seasonal housing units.

Source: Population and Housing Counts, 1980-1987, Brunswick County, NC Planning Department

### *Age Breakdown*

Age characteristics are important because they give an indication of likely future school enrollments, future housing needs, the anticipated market for certain retail goods and various other community facilities. Table VII exhibits historical trends in the population of various age groups from 1940 to 1980.

**TABLE VII**

HISTORIC PICTURE OF PERCENTAGES OF VARIOUS AGE GROUPS OF BRUNSWICK COUNTY'S POPULATION

| Age Group | 1940 | 1950 | 1960 | 1970 | 1980 |
|---|---|---|---|---|---|
| Under 5 | 11.6 | 13.1 | 12.0 | 9.6 | 7.3 |
| 5 through 14 | 24.8 | 23.2 | 24.1 | 21.5 | 17.4 |
| 15 through 19 | 11.4 | 9.9 | 9.5 | 9.6 | 9.0 |
| 20 through 24 | 9.0 | 7.3 | 5.5 | 7.6 | 7.6 |
| 25 through 44 | 25.0 | 25.9 | 23.7 | 22.7 | 27.0 |
| 45 through 64 | 13.7 | 14.7 | 18.0 | 20.6 | 21.0 |
| 65 and over | 4.5 | 5.9 | 7.2 | 8.4 | 10.7 |
| TOTAL | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| POPULATION | 17,125 | 19,238 | 20,278 | 24,223 | 35,777 |

Source: U.S. Census of Population 1940-1980

Between 1970 and 1980, the percentage of Brunswick County's population that was 65 years or older increased from 8.4% to 10.7%. This represents an actual increase from 2,035 persons in 1970 to 3,828 persons in 1980, an 88.1% increase. In addition, the pre-school and school age population (9-19 years) decreased from 40.7% of the population in 1970 to 33.7% of the population in 1980. However, this represented an actual increase in population in their age bracket from 9,858 persons in 1970 to 12,057 persons in 1980; a 22.3% increase.

In March, 1986, the School of Agriculture and Life Sciences of North Carolina State University released a study which reported that, of the 100 counties in North Carolina, Brunswick County had the largest percent increase in the 65-plus population for the decade from 1970 to 1980.

### 1.2.1(b) Economy

The economy of Brunswick County is constantly undergoing change. This change affects the population in numbers, in density, level of service required, and in the economic well-being of each person. In a purely free market system, the economy - and the profit motive - has a direct impact on land development. Governments, through such tools as utility expansion policies, zoning and subdivision ordinances, highway construction and improvements, grants and loans for industrial development and taxes, can guide or influence

development. For these reasons, it is important that the economy of Brunswick County be examined and understood.

### *Economic Sectors and Employment*

Brunswick County's economy has changed from one that was based on agriculture and manufacturing to a much more diverse economy with tourism, retirement and industry playing the more significant roles.

One indicator of diversification of the County's economy is the shift in the percentage of workers employed in manufacturing. This can be illustrated by an examination of information from the North Carolina Employment Security Commission in the number of insured workers in Brunswick County (Table VIII).

**TABLE VIII**

PERCENTAGE OF WORKERS* EMPLOYED BY MAJOR CATEGORY
BRUNSWICK COUNTY
1975 - 1984

| | | PERCENT** | | | |
|---|---|---|---|---|---|
| Year | Total Workers | MFG | TCU | Trade | Const. |
| 1975 | 5,147 | 69% | 8% | 21% | 2% |
| 1976 | 5,408 | 62 | 11 | 21 | 6 |
| 1977 | 5,879 | 57 | 18 | 19 | 6 |
| 1978 | 6,238 | 53 | 20 | 21 | 6 |
| 1979 | 6,228 | 52 | 21 | 21 | 6 |
| 1980 | 6,864 | 47 | 21 | 21 | 11 |
| 1981 | 6,183 | 56 | 17 | 20 | 7 |
| 1982 | 6,601 | 47 | 23 | 24 | 6 |
| 1983 | 6,881 | 43 | 26 | 24 | 7 |
| 1984 | 7,571 | 34 | 26 | 26 | 9 |

*North Carolina Insured Workers
** MFG - Manufacturing
TCU - Transportation, Communications & Utilities
CONST - Construction

Source: NC Employment Security Commission and Resources Development Commission of Brun swick County

From 1975 to 1984, the total number of insured workers increased by 47.1%. However, the number of persons employed in manufacturing actually dropped from 3,551 persons in 1971 to 2,574 persons in 1984. Correspondingly, the other three categories of workers assumed a more prominent role in the County's economy.

The most current information on employment in Brunswick County is available from the North Carolina Employment Security Commission. Reports are issued quarterly on the number of insured employees by major occupation. A summary of information from 1983 for Brunswick County and North Carolina is presented in Table IX.

## TABLE IX

### INSURED EMPLOYMENT BY MAJOR CATEGORY
### BRUNSWICK COUNTY & NORTH CAROLINA
### BY PERCENTAGE
1983

| Category | Brunswick County | North Carolina |
|---|---|---|
| Forestry & Fishing | 0.3% | 0.7% |
| Construction | 5.9 | 4.7 |
| Mining | - | 0.2 |
| Manufacturing | 33.7 | 33.7 |
| Transportation, Communications and Utilities | 15.5 | 4.8 |
| Wholesale & Retail | 14.1 | 21.6 |
| Finance, Insurance and Real Estate | 2.4 | 4.0 |
| Services | 7.8 | 13.9 |
| Government | 20.3 | 16.4 |
| | 100.0 | 100.0 |

Source: NC Employment Security Commission Quarterly Insured Employee Reports

Brunswick County's dependence on manufacturing (principally DuPont and Pfizer), the presence of the Carolina Power and Light Company Power Plant and the Sunny Point Military Terminal are reflected in the percentages of the above table. Conversely, the fact that much retail and service business in Brunswick County is accommodated by Wilmington and Myrtle Beach is reflected by the lower than state-wide average of employment in the retailing and service industries.

The contributions to the economy of most of the activities are reported by annual payroll. The exceptions are: Agriculture, reported by cash receipt of products and government payments; forestry, value of harvested trees; commercial fishery, value of catch; and tourism, expenditures by tourist.

The true contributions of each activity go beyond the reported amount as the monies received are used over and over. For example, a person employed in manufacturing uses part of his pay to purchase food. The store owner would use part of this income to pay his employees who, in turn, spend a portion of their income for more goods. This process continues until, at some point after being used by many persons within the County, that one manufacturing employee's paycheck finally leaves the County or is placed into savings.

Table X illustrates the magnitude of the financial impact of two major sectors of Brunswick County's economy.

TABLE X

ECONOMIC IMPACT (SELECTED YEARS)

| Year | Travel Expenditures (Tourism)** | Total Wages by Manufacturing* | Total Value of Seafood Catches* |
|---|---|---|---|
| 1978 | | $54,446,000 | $3,432,800 |
| 1980 | | 64,104,295 | 5,420,900 |
| 1982 | | 68,870,444 | 3,261,860 |
| 1983 | | 72,861,498 | 3,548,900 |
| 1984 | $98,429,000 | 74,482,039 | 3,592,649 |
| 1986 | $121,117,000 | | |

Source: * Data supplied by Resources Development Commission of Brunswick County.
** Travel and Tourism Division, North Carolina Department of Commerce.

### *Unemployment*

Unemployment has typically been somewhat higher in Brunswick County than many other parts of the state. Since 1980, the average annual rate has ranged from 8.6% to 14.1% in 1983. In July and August of 1983, the rate hit a high of 15.5%.

### *Income*

The U.S. Bureau of Census collects income information during each census. Income information is most commonly expressed by per capita income or median family income. Because of inflation during the 1970s, the comparison of 1970 to 1980 figures is generally meaningless. However, it is useful to compare Brunswick County's income figures from the two censuses to those for North Carolina and the United States (Table XI). This analysis provides an indication of the relative wealth of Brunswick County in comparison to other areas.

TABLE XI

PER CAPITA INCOME
1970, 1975 and 1980

| | 1970 | 1975 | % Increase | 1980 | % Increase 1975-1980 |
|---|---|---|---|---|---|
| Brunswick Co. | $2,363 | $3,398 | 44% | $5,981 | 76% |
| North Carolina | 3,220 | 4,860 | 51 | 7,780 | 62 |
| United States | 3,943 | 5,834 | 48 | 8,458 | 67 |

Source: 1970 and 1980 Census of Population
1975 data from NC Data Center

The per capita income information for the United States, North Carolina and Brunswick County shows that all three have been increasing at nearly the same rates. Between 1970

and 1975, Brunswick County showed the lowest increase of the three entities. However, from 1975 to 1980, Brunswick County was the leader in the percent increase in per capita income. Despite that fact, Brunswick County is still lagging behind North Carolina and the United States in per capita income. In fact, over the 1970 decade, the gap between the amounts of per capita income reported for North Carolina, the United States, and Brunswick County is widening. In 1970, Brunswick County per capita income was $1,580 less than the per capita income for the United States and in 1975 it was $2,436 less. In 1980 the gap widened even further to $2,477.

### *Retail Sales*

Retail sales are an important component of any area's economy. According to the 1980 Census of Population, 1,942 persons were employed in retail sales. Compared to the state as a whole, food, general merchandise, and building materials were the strongest categories in Brunswick County in 1983-84. This reflects the strength of the tourism/second home industry and growth of the construction industry in the County. Information in Table XII indicates the growth of retail sales in Brunswick County in recent years.

**TABLE XII**

GROSS RETAIL SALES BREAKDOWN
BRUNSWICK COUNTY
1980 - 1985

| Year | Amount | Percent Increase |
|---|---|---|
| 1980-81 | $132,348,008 | |
| 1981-82 | 139,609,055 | 5.5% |
| 1982-83 | 155,162,055 | 11.1 |
| 1983-84 | 190,262,478 | 22.6 |
| 1984-85 | 225,478,379 | 18.5 |

Source: NC Department of Revenue, Sales & Use Tax Division

### *Agriculture*

Agriculture is of declining importance to the overall economy of Brunswick County. In the year 1983, $26,000,000 was earned from agricultural products in the County. Tobacco accounted for 28% of that total or just over $7.4 million in income. According to the U.S. Department of Agriculture 1982 Census of Agriculture, 61,325 acres of the County were in farms. This represented about 11.1% of the total land area in Brunswick County. Table XIII exhibits the declining number of operating farms in the County.

TABLE XIII

BRUNSWICK COUNTY FARMS
1980 and 1984

| 1980 | 1984 | Change in Percent |
|---|---|---|
| 2666 | 2222 | -17% |

Source: Agriculture Stabilization and Conservation Service

The overall decrease in farms is part of a national trend. It is due in large part to the consolidation of smaller farms into more profitable larger farming operations. In addition, in the coastal part of the County there has been substantial conversion of agricultural land to residential use. In 1950 nearly 52 percent of the County's population were listed in the census as farm population. By 1980 that percentage had decreased to 4 percent.

### *Tourism*

Tourism is becoming an increasingly important part of Brunswick County's economy. According to the North Carolina Division of Travel and Tourism, over $98 million was spent by tourists in Brunswick County during 1984. This ranked the County twelfth in the State. In 1982, money spent by tourists accounted for about one of every six dollars spent on retail sales in the County. Statewide, the ratio was only one of every twelve dollars.

### *Seafood*

The seafood industry is of variable but overall decreasing importance to the economy of Brunswick County. In 1983, for example, the dollar value for fish, clams, oysters, shrimp and flounder landed in Brunswick County was $3.5 million. In 1980 the value of seafood landed in the County was $6.3 million.

### *Retirees*

Brunswick County is developing into an area for retirees. The County's relatively mild winter climate, nearness to major northern cities (as compared to Florida) and slow-paced lifestyle all have contributed to this growing trend. Data presented in the population section (and briefly reiterated in Table XIV) reveals the trend toward an increasing number of elderly in the Brunswick County population.

## TABLE XIV

PERCENT OF COUNTY POPULATION 65 YEARS AND OVER
1970 and 1980

| Year | No. of Persons 65 and Over | Percent of Total Population |
|---|---|---|
| 1970 | 1,728 | 7.1% |
| 1980 | 3,835 | 10.8% |
| 1987 | 6,083 | 12.3% |

Source: U.S. Census of Population; 1970 and 1980: N.C. OSMB 1987 Estimates

A high percentage of the population in several of the incorporated municipalities is age 65 and over. Most notable are Caswell Beach (24.1%), Yaupon Beach (20.3%) and Navassa (12.1%). The unincorporated area is also attracting a large number of retirees.

While it is common knowledge that there are a large number of retirees in Brunswick County, it is difficult to precisely measure their economic impact on the County. Many of the retirees moving into Brunswick County tend to be in relatively good financial condition; usually with stable incomes. In a typical situation, a retired couple will sell a house in an out-of-county residence and then pay cash for a residence in Brunswick County.

One way to measure the financial impact of retirees on Brunswick County's economy is to examine information from the Social Security Administration on the number of retirees in the County and the average amount of their monthly checks. The totals in Table XV include not only retirees, but survivors (widows or widowers and children) and disabled workers. In 1982, retirees comprised 60.2% of the total number of recipients of Social Security checks in Brunswick County.

## TABLE XV

PERSONS RECEIVING SOCIAL SECURITY BENEFITS FROM BRUNSWICK COUNTY

| Year | Number | Percent of County Population | Monthly Average Amt./Person | Estimated Annual Amount |
|---|---|---|---|---|
| 1970 | 3384 | 14.0% | 94.54 | 3,839,080 |
| 1972 | 3870 | 13.6 | 133.89 | 6,217,850 |
| 1974 | 4475 | 13.4 | 156.23 | 8,389,550 |
| 1976 | 5030 | 23.3 | 187.29 | 11,304,825 |
| 1978 | 5573 | 16.1 | 221.31 | 14,800,325 |
| 1980 | 6020 | 16.9 | 294.95 | 21,307,190 |
| 1982 | 6470 | 13.8 | 323.49 | 25,115,760 |
| 1984 | 7094 | 15.7 | 352.76 | 30,029,755 |

Source: Social Security Administration
U.S. Department of Health and Human Services

*Commuting*

There is considerable commuting of workers from county to county for employment. There are two basic reasons for this. First, many people secure attractive employment at a considerable distance from their residence but, because of their spouse's employment, home ownership situation, having children in school or a basic reluctance to leave their home community, they do not relocate. Secondly, even though the data shows a large number of persons commuting between New Hanover and Brunswick Counties, in actuality many workers are driving only five or ten miles or less. This is because the DuPont plant (located in Brunswick County) is very near Wilmington. Conversely, there is a sizable number of persons that reside in the Navassa/Belville/Leland area of Brunswick County, but are very near major employers in New Hanover County. Table XVI exhibits the number of workers commuting from nearby counties to Brunswick County for employment in 1980.

**TABLE XVI**

JOURNEY TO WORK COMMUTING
1980

COMMUTING TO BRUNSWICK COUNTY

| From County | Number |
|---|---|
| Bladen | 153 |
| Columbus | 681 |
| Duplin | 47 |
| New Hanover | 1,941 |
| Onslow | 9 |
| Pender | 183 |
| Horry County, SC | 171 |
| TOTAL | 3,185 |
| TOTAL LABOR FORCE | 11,926 |

Table XVII exhibits the number of Brunswick County residents who were commuting to nearby counties for employment in 1986.

TABLE XVII

COMMUTING FROM BRUNSWICK COUNTY

| To County | Number |
|---|---|
| Bladen | 34 |
| Columbus | 430 |
| New Hanover | 2,379 |
| Onslow | 9 |
| Pender | 42 |
| Horry County, SC | 330 |
| Other | 471 |
| TOTAL | 3,224 |

Source: U.S. Census of Population, 1980.

Approximately the same number of persons enter the County as leave it daily for work (3,185 entered and 3,224 left). New Hanover County has the largest exchange of workers with Brunswick County, with about 2,400 leaving the County to work in New Hanover and just over 1,900 coming to Brunswick County from New Hanover County.

***The Ad Valorem Tax Base and Revenues***

Local government depends upon taxation as a primary source of revenue for operations, services, and facilities. For local government, counties, and towns, the major portion of their revenue comes from taxes levied upon real property, personal property, and public utilities. The three components are known as the Ad Valorem Tax Base.

Other than this tax base, Brunswick County receives revenue from sources such as state and federal grants, sales tax, court fines, and interest on County funds deposited in financial institutions.

All considerations for current and future provisions for services and facilities must be based on anticipated revenue, especially from the Ad Valorem Tax Base, since this is the primary source of revenue and the only source that can be considered payment. Therefore, in planning for services and facilities to meet needs and demands of the population, the tax base must be analyzed to determine its growth rate and stability.

The total tax base of Brunswick County has grown at a rapid rate since the early 1960s. This rapid increase has been the result of a general increase in land values and new construction, as Table XVIII indicates. Since 1980 the tax base has increased from $1.72 billion to over $2.21 billion in 1985.

TABLE XVIII

BRUNSWICK COUNTY TAX BASE

| Year | Base |
|---|---|
| 1962 | 66,745,740 |
| 1967 | 104,909,600 |
| 1973 | 556,415,240 |
| 1980 | 1,728,506,000 |
| 1985 | 2,213,215,000 |
| 1986 | 3,821,000,000 |

### 1.2.1(c) Impact of Seasonal Population

Estimating the peak day population is important for purposes of planning the construction and expansion of various community facilities. A dramatic temporary increase in population can severely strain government's ability to provide utilities, solid waste collection and public safety services.

Brunswick County has a distinct seasonal population. The tourist season generally runs from approximately Easter to late October. The Fourth of July, the date of the State Parade in Southport, is traditionally called the peak day in Brunswick County, although some years the actual peak day may come as early as Easter or as late as Labor Day.

In 1986 the Planning Department estimates that the County's peak day population was about 152,000. Recent State studies have shown that the peak day population is almost the average day for at least a four month season which can be expected to expand to a six month season.

A formula was developed by the Planning Department in 1983 to estimate peak seasonal population. Essentially this formula (based on 1980 census information) assumes a higher household size in the seasonal housing units nearer the coast than further inland. For example, seasonal units in the beach communities are assumed to have (8) eight persons per seasonal unit whereas those census enumeration districts more inland were assumed to have a person's per seasonal unit rate equal to the average permanent household size. Seasonal population is tabulated on an enumeration district basis.

For purposes of estimating seasonal population, it is assumed that all seasonal units are occupied during the peak period. The formula for determining peak population is as follows:

$$PkP = (p/su \times su) + PP$$

Where:

PkP = peak population
p/su = persons per seasonal unit
su = seasonal units
PP = permanent population

Between 1980 and 1986, 5,177 seasonal housing units were added in Brunswick County, as compared to 5,059 permanent units added (see Table VI). A substantial number of these units were mobile homes. A Planning Department summary of permit activity for the unincorporated area of the County for the period of July 15, 1985 through December 31, 1985 indicated that 66 percent of all housing added was mobile homes (628 out of 954).

Clearly, the impact of a large seasonal population has a profound and dramatic impact on the County. Community facilities and services have to be designed and operated to meet peak seasonal demand, in addition to the demand created by the permanent population

### 1.2.2 Existing Land Use Analysis

*Purpose*

The 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 identifies where development has occurred, what kind of development it is, and at what density. The survey also shows the relationships between different kinds of land use, and whether or not they are compatible.

Current land use information 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 none was present before.

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 park, while in the private sector, the information might be helpful in locating a future shopping center or residential development.

*Methodology*

During the spring of 1985, the County Planning Department conducted a parcel by parcel survey of existing land use in Brunswick County. Existing land use in the municipalities of Calabash, Shallotte, Bolivia, Navassa, Boiling Spring Lakes, Belville, and Sunset Beach was also catalogued. Existing land use information for the incorporated municipalities in the County was obtained from the respective municipalities and is discussed in the

following text but omitted in the Existing Land Use Map found at the back of this Plan. Tax maps at a scale of one inch equals four hundred feet were used as base maps.

This section presents a discussion and analysis of the existing land use in the County on a township by township basis. Particular attention is paid to those areas that have recently experienced growth or are likely to experience growth in the foreseeable future. Special emphasis will be placed on identifying significant land compatibility problems and those areas that are now or are likely to experience problems due to unplanned growth.

*Overview*

Brunswick County is a very rapidly growing county. In the past seven years, population has grown from 35,777 to 54,431. The majority of this growth has occurred in the south portion of Lockwood Folly Township and Shallotte Township. The heaviest concentrations of recently platted lots are adjacent to the Shallotte River and Lockwood Folly River and along the Intracoastal Waterway.

The County is changing from a largely rural, somewhat sparsely populated County to one with moderate to relatively high concentrations of residential development. The incorporated beach areas (Sunset Beach, Ocean Isle, Holden Beach and Oak Island) have all developed rapidly. In addition to the aforementioned growth in Shallotte Township and Lockwood Folly Township, some growth is taking place in the Southport/Oak Island area as well as the area adjacent to the Cape Fear River north of the U.S. 17/74-76 bridge link to Wilmington.

Most of this growth is in the form of low to moderate density development with a scattering of commercial land uses in the form of convenience stores, restaurants, and recreation/ tourist related commercial activities.

The following section is a township by township analysis of the existing land use. Particular attention is paid to discussing those areas that have recently undergone change or are likely to experience growth and change in the next five year period.

***Lockwood Folly Township***

By its size alone, the land use in this Township is diverse. The southern part of the township, particularly sections next to the Intracoastal Waterway and the Shallotte River and Lockwood Folly River, is rapidly developing into a low and moderate density residential area. Retirement and second-home subdivision development has been considerable in recent years.

There are several small communities in the township that provide limited commercial services to a small surrounding area. The community of Varnumtown located along the west shore of the Lockwood Folly River contains a concentration of residences, several convenience or general stores, and at least three fishing operations. Supply, an unincorpo-

rated village located at the intersection of U.S. 17 and N.C. 211, serves as a trading center for a rural agricultural area in the central part of the County. Shallotte, an incorporated municipality of about 900 inhabitants, serves as a "sub-regional" trade center for the southwestern part of Brunswick County. Shallotte has experienced considerable commercial growth, particularly retailing and service-related activities. Some of this growth has extended outside the corporate limits of the Town along U.S. 17 both east and west and southward along N.C. 179 and N.C. 130. The other commercial area in the township is a strip of resort/residential land uses immediately across from Holden Beach on N.C. 130.

Most of the central part of the township, generally along the U.S. 17 corridor, consists of farmland and forested areas. The northern part of the township is very sparsely developed. That area is almost exclusively forested or swampland. The Green Swamp (owned by the Nature Conservancy) is located in this area.

The rapid growth in this area resulted in numerous land compatibility problems in the township. Perhaps the most notable example is the causeway to Holden Beach (N.C. 130). There are several examples of incompatible land uses (residential and commercial uses intermixed). In addition, this strip of road is a particularly noteworthy example of too many access points to N.C. 130, seriously reducing the capacity of the road during peak periods.

*Northwest Township*

This Township is relatively urbanized with considerable industrial development near the Cape Fear River and also near the intersection of U.S. 17/74-76. There has been considerable residential and commercial development in the area; much of it along old 74-76 in the Navassa area. Another cluster of development is located in the Northwest Community. This community serves as a trade center for the extreme northern part of the County.

This area has been growing at a moderately rapid rate. Many areas of the township have a large number of mobile homes on small parcels of property. In some cases there are very small to virtually non-existent side or rear yards. This leads to very congested living conditions. The lack of land development regulations has resulted in haphazard residential development in many parts of the Leland area.

Because of this area's proximity to Wilmington, and its access to rail, water, air and highway transportation, there appears to be considerable potential for future development in the township.

*Shallotte Township*

Shallotte Township has experienced the most significant growth and change in land use of all the townships in Brunswick County. Considerable residential and resort-related development has occurred in Shallotte Township. Most of this growth is adjacent to the Intracoastal Waterway and near the Shallotte River. Much of this resort-type development

is actually an extension of growth that is spreading northward from Myrtle Beach. Several golf courses, condominiums and commercial resort-related activities have located in the Calabash/Sunset Beach/Ocean Isle Beach area.

The northern part of the township, generally the area along U.S. 17 running northward to the Waccamaw River, is predominantly farmland or forest. There has been relatively little development or significant change in land use in this area in recent years. Grissettown and Thomasboro are the principal communities in the northern part of the township.

The resort-related growth in the southern part of the township has caused a number of cases of incompatible land uses. For example, there are many cases were commercial and residential land uses are intermixed, in other cases, an excessive number of access points to heavily used roads has contributed to the congestion and danger. This situation is most acute along N.C. 179 in many areas from the South Carolina state line to near Shallotte.

*Smithville Township*

Smithville Township is a diverse township with industrial, commercial, agricultural, moderate density residential development and considerable vacant or forested land.

The Carolina Power & Light Nuclear Plan and Pfizer are two significant industrial uses, both located adjacent to the Cape Fear River. There is substantial commercial development along NC 211 and NC 133 in the Southport/Oak Island area. Much of this development has taken place very recently. In light of the recent, considerable population growth in the immediate area, it appears likely that commercial growth will continue to take place in the area; especially along NC 133 from its intersection with NC 211 to the Oak Island Bridge.

There are two large vacant areas that would appear to be excellent prospects for large-scale residential development; one is a large area which lies south of NC 211 and west of NC 133. The other is a somewhat small area lying south and east of that same intersection. Although in both cases some of the land is poorly drained, it is likely that, because of pressure in this part of the County, much of this land will be developed in the next five years.

The most prominent example of problems causes by inadequate land management controls is the land use adjacent to NC 133 from its western intersection with NC 211 to the Oak Island Bridge. Lack of land development regulations has resulted in numerous situations of intermixing of residential and commercial land uses. There are also a large number of access points to the highway. This large number of access points reduces the capacity of the road. During "rush hours" or high visitation weekends, traffic becomes rather congested on this road.

*Town Creek Township*

Town Creek Township land use is predominantly rural or low density residential. There are several industrial and commercial land uses at the extreme northern edge of the

township along U.S. 17 and 74-76. Population growth in the township has been nearly as rapid as the County as a whole.

However, except from the Boiling Spring Lakes area in the southern part of the township, growth has been relatively scattered, not actually concentrating in any specific area. Aside from Boiling Spring Lakes, the other principal incorporated community is Bolivia. Winnabow, located north of Bolivia, just off US 17, also serves as a trade center for a small portion of the central part of the County.

Much of the land in the Township is either in commercial forests or vacant. Lands adjacent to the Cape Fear River tend to be low-lying, flood-prone and thereby unsuitable for extensive development.

At present there are few, if any, significant land compatibility problems due to development in this township. As mentioned earlier, most of the development in the township has been relatively scattered and rather low density.

*Waccamaw Township*

This Township, located in the northwestern part of the County, has experienced the least growth and change of any township since 1980. For the most part, uses in this Township tend to be agricultural, forestry, and low density residential development. Lands in the northeastern corner of the township are generally swampy and not suitable for any type of development. Population growth since 1980 has been at a rate only about one-half of the County's rate during the same time.

Because of the relatively sparse development in this Township, there are no significant cases of unplanned development causing major compatibility problems. It is unlikely that any significant development will occur in the foreseeable future that will cause major land compatibility problems.

*Land Use Issues and Trends*

Most of the major problems in the County regarding land use compatibility stem from a mixing of residential and non-residential uses in the small, unincorporated communities. Throughout the public participation process for this plan update, residents have expressed a strong desire to improve and strengthen the County's land use controls in order to avoid incompatible land uses and the other problems associated from unplanned or haphazard development.

Over the past seven years some prominent land use/development trends have been identified in Brunswick County. Foremost is the northward extension of Myrtle Beach associated residential subdivision development into the southern coastal area of Brunswick County. The cost of beachfront property in Brunswick County escalates with its proximity to Myrtle Beach, South Carolina.

In this more developed and developing area of the County, since 1980 there has been a trend to larger lots than were platted between 1960 and 1980. Generally these lots are 17,500 square feet on average when private wells and individual wastewater treatment systems are used. Where public water is being provided by the developer to tie onto the County's new major public water system which has been in place since 1981, new lots are averaging 12,000 square feet. There is further a growing trend for developers to install a central wastewater treatment system. Even in those cases, most lots are being platted at 12,000 square feet or larger.

In recent years the number of small, large-lot subdivisions off of small portions of farm holdings has grown. Small farms, randomly scattered throughout the County, are being subdivided into lots usually ranging from one-half to one acre in size.

There has been a noted increase in golf course and associated residential development along or near the Intracoastal Waterway through Brunswick County. There are currently eleven existing courses with others under construction. Most of these golf course/residential developments are within five miles of the Intracoastal Waterway. Also on the increase along the waterway are condominium, multi-family and marina development.

A final land use trend of note is the marketing and sale of large landholdings of forestlands owned by the paper companies. This activity has given rise to tremendous land speculation in these areas.

### 1.2.3 Current Plans, Policies and Regulations

As a means of coordinating the various planning activities of Federal, State and local government in Brunswick County, a summary of important plans, policies and regulations is included here.

#### 1.2.3(a) Local Government

*Plans and Policies*

1976 Brunswick County Land Use Plan - This was the first countywide Land Use Plan prepared under the guidelines of the Coastal Area Management Act (CAMA). This plan was adopted by the Board of County Commissioners and the North Carolina Coastal Resources Commission.

1981 North Carolina Coastal Area Management Act Land Use Plan Update - This 5-year update was also adopted by both the Board of County Commissioners and by the North Carolina Coastal Resources Commission. Policies were formulated and adopted for dealing with land planning issues which affect the county. These policies establish a systematic basis by which decisions are made regarding the growth and development of Brunswick County.

## *Regulations*

### *Zoning*

At this time, there is no zoning of the lands under the county's jurisdiction. This matter will be dealt with under Policies. There is airport zoning.

### *Subdivision Regulations*

Brunswick County has had a Subdivision Ordinance since 1974, with the one currently in place having been adopted in June, 1980. This ordinance has few requirements or standards. Private roads are permitted; there is no minimum lot size.

Under such conditions, the Planning Board has played a major persuasive role in guiding subdivision development through a series of policies and a formal design review process.

Among Planning Board policies is a required review session with the official agent of each subdivision proposal. This review session is conducted by the Planning Department and brings the applicant to a collective one-on-one setting with the Planning Department, a Sanitarian from the Health Department, a U. S. Soil Conservationist, the County Soil Scientist/Hydrologist, and a representative of the N.C. Department of Transportation, for full report and comment. By far, the majority of proposals are reworked as a result of this review session, before proceeding to the Planning Board for formal consideration. On occasion as needed, other areas of expertise and authority are brought into this review process, such as the Corps of Engineers, various persons and offices under the umbrella of the N.C. Department of Natural Resources and Community Development, the County Engineer, the County Water Management/Mosquito Control Director, and the County Resources (Economic) Development Director.

### *Site Plan Review*

Since 1981, the Planning Board has had a policy calling upon persons who plan to construct larger commercial facilities or higher density residential projects to voluntarily submit their site plans for review and comment. This policy has proven effective with approximately 85% of these types of development proposals going through such review and comment.

### *State Building Code*

In April, 1985, the Board of County Commissioners adopted Ordinance No. 62, calling for a full program of administration and enforcement of all volumes of the State Building Code.

The Planning Director was charged with establishing this function, which is housed in the Planning Department. Basic staffing was completed by July 1, 1985, and an active administration and enforcement program is the result. Current staffing is an Officer

Operator, a Secretary, and five Inspectors. Two planners supplement operational needs during periods of intensive activity.

*Wastewater Treatment Regulation*

The Environmental Health Section of the Health Department administers and enforces State law over septic tank systems. The Environmental Management Division of the N.C. Department of Natural Resources and Community Development exercises authority over other wastewater treatment systems, in a growing working relationship with the County Engineering and Planning Departments.

*Federal Flood Insurance Program*

Also in April, 1985, by Ordinance No. 62, the Board of County Commissioners charged the Planning Director with administering and enforcing the Federal Flood Insurance Program regulations.

Actual enforcement began in March, 1986, following receipt of an acceptable set of final Flood Insurance Rate Maps from the Federal Emergency Management Agency. Since then, not only are elevations required for any lot or acreage parcel which appears to be in one of the 100-year flood boundaries, but detailed topography and elevations for each new lot in any such areas are required through the subdivision process.

The second set of maps provided by F.E.M.A. of Floodway areas are also carefully enforced through the review of applications for building permits and subdivision proposals.

**1.2.3(b) State and Federal Government Licenses and Permits**

STATE LICENSES AND PERMITS

| | |
|---|---|
| Department of Natural Resources and Community Development Division of Environmental Management | - Permits to discharge to surface waters or to operate waste water treatment plants or oil discharge permits; NPDES Permits, (G.S. 143-215).<br><br>- Permits for septic tanks with a capacity over 3,000 gallons/day (G.S. 143-215.3).<br><br>- Permits for withdrawal of surface or ground waters in capacity use areas (G.S. 143-215.15). |

| | |
|---|---|
| | - Permits for air pollution abatements facilities and sources (G.S. 143-215.108). |
| | - Permits for construction of complex sources; e.g. parking lots, subdivisions, stadiums, etc. (G.S. 143-215.109). |
| | - Permits for construction of a well over 100,000 gallons/ day (G.S. 87-88). |
| Division of Coastal Management | - Permits to dredge and/or fill in Areas of Environmental Concern (G.S. 113A-118). NOTE: Minor development permits for construction in the AECs are issued by the local government. |
| Department of Natural Resources and Community, Development, Division of Earth Resources | - Permits to alter or construct a dam (G.S. 143-215.66). |
| | - Permits to conduct geophysical exploration (G.S. 113-391). |
| | - Sedimentation erosion control plans for any land disturbing activity of over one contiguous acre (G.S. 113A-54). |
| Department of Natural Resources Community Development, Secretary of NRCD | - Permits to construct an oil refinery. |
| | - Easements to fill where lands are proposed to be raised above the normal high water mark of navigable waters by filling. (G.S. 146-6(c). |

| | | |
|---|---|---|
| | Department of Human Resources | - Approval to operate a solid waste disposal site or facility (G.S. 130-166.16).<br>- Approval for construction of any public water supply facility that furnishes water to ten or more residences (G.S. 130-160.1). |
| FEDERAL LICENSES AND PERMITS | | |
| | Army Corps of Engineers (Department of Defense) | - Permits required under Sections 9 and 10 of the Rivers and Harbors of 1899; permits to construct in navigable waters.<br>- Permits required under Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972.<br>- Permits required under Section 404 of the Federal Water Pollution Control Act of 1972; permits to undertake dredging and/ or filling activities. |
| | Coast Guard | - Permits for bridges, causeways, (Department of Transportation) pipelines over navigable waters; required under the General Bridge Act of 1946 and the Rivers and Harbors Act of 1899.<br>- Deep water port permits. |
| | Geological Survey Bureau of Land Management (Department of Interior) | - Permits required for off-drilling.<br>- Approvals of OCS pipeline corridor rights-of-way. |

| | |
|---|---|
| Nuclear Regulatory Commission | - Licenses for siting, construction, and operation of nuclear power plants; required under the Atomic Energy Act of 1954 and Title II of the Energy Reorganization Act of 1974. |
| Federal Energy Regulatory Commission | - Permits for construction, operation and maintenance of interstate pipelines facilities required under the Natural Gas Act of 1938.<br>- Orders of interconnection of electric transmission facilities under Section 202(b) of the Federal Power Act.<br>- Permission required for abandonment of natural gas pipeline and associated facilities under Section 7C(b) of the Natural Gas Act of 1938.<br>- Licenses for non-federal hydroelectric projects and associates transmission lines under Sections 4 and 15 of the Federal Power Act. |

### 1.2.3(c) Evaluation of Previous Land Use Plan Effectiveness

The last Update of the Brunswick County Land Use Plan was adopted in 1981. The following is an evaluation by the County Planning Department of how that plan addressed the major issues it identified and how successful the County has been in implementing the policies recommended. For each section of the 1981 plan, the policy topics are listed followed by a brief description of how effectively the policies were carried out.

1. <u>Natural and Manmade Resources and their Protection.</u>

Policies included: A. Estuarine System
(1) Coastal Wetlands
(2) Estuarine Waters

(3) Public Trust Area
(4) Estuarine Shorelines

B. Ocean Hazard Areas

C. Natural and Cultural Areas
(1) Unique Habitats
(2) Designated Coastal Complex Natural Areas
(3) Coastal Archaeological Features of more than local significance.
(4) Type of development encouraged in (2) and (3).

No land uses have received County permissions of any nature that would be in conflict with these policy statements. The 1981 CAMA Land Use Plan proved effective in the interim period of time until this 1987 Update.

2. Physical Constraints to Development.

Policies included:

A. Discourage growth where septic tanks won't work or there will not be sewer systems in ten years.
B. Discourage growth where poor drainage exists unless corrective measures can be taken.
C. Discourage growth where soils will not support the weight of proposed structures.
D. It is to the County's interest to encourage mineral production were deposits to be found.
E. Off-road vehicles discouraged on dunes.
F. Finger canals encouraged if properly designed and if marshlands are protected.

No growth has received County permissions of any nature that would be in conflict with these policy statements. The 1981 CAMA Land Use Plan proved effective in the interim period of time until this 1987 Update.

3. Resource Production and Management.

Policies included:

A. Support State measures to protect prime agricultural land.
B. Seek diversification in the forest/paper industry.
C. Support State and Federal measures to attempt to revive a commercial fishing industry.
D. Actively support enhancement of recreational fishing.

The County has aggressively worked with local farm interests to help their situation. Large farmland areas that were in active production in 1981 are fallow today due to economic circumstances, but the lands are still there.

Meetings have occurred with the forestry/paper company interests to encourage diversification and particularly possible industrial side measures, including possible use of their waste products in various recycling possibilities. No results have yet occurred.

Commercial fishing has continued to be a lessening part of the economy, with the picture unchanged since 1981.

Recreation fishing has been growing. The State lists Brunswick County as having more recreation boats listed than any other North Carolina county. The County has provided funds and is an active agent to obtain off-shore fishing reefs and to support marina proposals to further enhance the recreational fishing industry.

4. Provision of Services for Development.

Policies included:
A. Public water supply.
B. Public sewerage facilities.
C. Solid Waste disposal.
D. Rescue Squad and Fire Protection.
E. Public school facilities.
F. Transportation.

Starting the day following the State's adoption of the 1981 Plan Update, Brunswick County has aggressively pursued provision of infrastructure for those population and growth areas shown on the Land Classification Map.

In fact, major attention of County government has been to assure such infrastructure not only for the short-term view of that 1981 Plan, but for an extended future period of time of growth and development.

5. Growth Patterns.

Policies included:
A. Encourage development according to the Land Classification Map.
B. Require that adverse characteristics of possible conflicting land uses be minimized as to impacts.
C. Seek housing and neighborhood improvements.
D. Support airport expansions.
E. Support and promote socially, physically, and environmentally sound manufacturing and other industrial enterprise.

The County has indeed encouraged development to follow the classifications as shown in the 1981 Update. However, development of more information has revealed errors in that Plan. For instance, in the early 1980s, the first base maps of the County were prepared. These maps for the first time showed numerous subdivisions with their thousands of lots individually owned by people all over the nation in areas that had been shown rural. These

maps further revealed significant areas that had already developed to urban character that had been shown rural. This 1987 Update corrects those situations.

Through a policy established by the Planning Board in August, 1981, which called for voluntary exposure of plans for developments on any scale, approximately 85% of all plans within the County's jurisdiction have been filed for review and comment, bringing about a number of changes to make them more compatible with plans and policies.

The public infrastructure and all services have been designed to respond to and encourage growth according to the Land Classification Map.

On numerous applications for State and Federal permissions, the County has spoken out against them if they had possible incompatible characteristics. The County's economic development program has carefully steered all interests considering possible industries to look only at areas shown for such use by the Land Classification Map.

And the Land Classification Map became the basis for North Carolina Department of Transportation's work in development of a Major Thoroughfare Plan.

The County has been active agent in development of master plans for the airports, in providing funds for their improvements, and prepared the airport zoning ordinance now in effect over these two airports. Indeed, one of those airports had not been mentioned or known of at the time of the development of the 1981 Plan.

6. Economic and Community Development.

Policies included:

A. Conserve and protect existing business and industry.
B. Encourage new enterprise.
C. Encourage tourism.
D. Support proposals for siting of energy facilities.
E. Support oil refinery location in County.
F. Encourage deepening and maintenance of all waterways, particularly those closely associated with economic development.
G. Encourage beach nourishment.
H. Support enhancement of archaeological, architectural and historic resources by relating them to tourism.

The County is vigilant in making these policies come true and they have worked effectively since adoption of the 1981 Update.

7. Carrying Capacity - Possible Plan Adjustments.

The Policy: The County pledges that if circumstances arise that preclude the possibility within a ten year period of provision of an adequate support

system for the growth projected, that it would cause changes as may be necessary to the Plan.

This was a special Policy that the North Carolina Coastal Resources Commission required to be added to the Plan before they would adopt it.

Indeed, the County has been extremely vigorous and vigilant in assurance of necessary public support system.

8. Continuing Public Participation.

The Policy: Opportunity for citizen and local government involvement in the land use planning process will be provided.

The County has bent over backwards to assure such opportunities are available. Every Agenda of the Planning Board on which this matter is listed is posted in at least three public places, and advance copies sent to those news media requesting such service.

From time to time, workshops are called on special features of the Plan, or special issues, or on the whole subject of the Plan. Public Hearings are also called. Not only are Notices carried in those newspapers in general circulation in the County, but for each such event, the Planning Director has mailed letters personally to approximately one hundred persons representing various interests in the County, not only offering them the opportunity of input, but also asking their active involvement.

## 1.3 CONSTRAINTS; LAND SUITABILITY

The state has established guidelines relating to the land use plans required by CAMA. These guidelines identify three factors which are to be considered regarding land suitability constraints. The factors identified are: (1) physical limitations for development, (2) fragile areas, and (3) areas with resource potential.

### 1.3.1 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%.

### 1.3.1(a) Natural Hazard Areas

In Brunswick County, natural hazard areas are areas of shallow flooding as well as areas which are subject to wave velocity. 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 depletion of ocean front lands.

The Federal Emergency Management Agency (FEMA) has designated flood hazard areas in Brunswick County. The U.S. Army Corps of Engineers has prepared a map of Storm Surge Inundation Areas for Brunswick County. This map is based on the Special Program to List the Amplitude of Surge from Hurricanes (SPLASH) model. Because of the lack of detailed topographical information on Brunswick County, both the FEMA Flood Insurance Rate Map and the Storm Surge Inundation Map suffer a lack of precision and accuracy; however, both do serve as a general guide as to where flooding could potentially occur. Neither map should be used for site-specific land use interpretations. Current topographical maps for the County have 20' contour intervals and the majority of elevations within the coastal areas of the County are between 10' and 40'.

A Composite Natural Hazards Map is presented later in Section 2.5 of the Plan where storm hazard mitigation is discussed.

### 1.3.1(b) 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 corridors, and the Pfizer Chemical facility. In the northeast area of the County is the Dupont Chemical facility. The three airstrips within the County also are potentially hazardous.

These land uses are of great economic benefit to Brunswick County; however, it needs to be recognized that there exist potential hazards in the areas surrounding these facilities.

Land uses locating adjacent to or near these facilities need to be sensitive to potential associated hazards.

These manmade hazard areas are identified on the Fragile Areas Map. Airstrip locations are shown on the Community Facilities Map.

It has been stated in public meetings that inadequate and unsafe road conditions pose the greatest manmade hazards in Brunswick County. This concern is addressed later in Section 1.4.3(a) and Policy Area 2.1.3(c).

### 1.3.1(c) Soil Limitations

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

The U.S. Department of Agriculture and Soil Conservation Service has completed a detailed soil survey of Brunswick County. This soil survey is useful in providing easily accessible detailed information on soils in the county. The suitability of soils for septic tanks, roads, and building development are listed in Appendix 1. The full report and maps of the Soil Survey are available from the US Soil Conservation Service.

Basic rating categories of soil associations 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.

The Subdivision Ordinance requires reports from the US Soil Conservationist assigned to Brunswick County, who field tests for soil types on proposed development sites.

The County has employed a staff person, based in both the Environmental Section of the Health Department and in the Planning Department, to serve as a Soil Scientist/Hydrologist. Primary duties include determination of soil characteristics in relation to development proposals and required permits.

Problem areas arise within the County when septic tanks are located in transitional or urban areas with small lot sizes with: disturbed or impermeable soils, seasonally high water tables, or areas with associated high rates of water usage in the home. In these circumstances the conventional septic tank system is not acceptable for sewage disposal.

*Causes of Failure*

Since 1976, due to changes in State Regulations, percolation tests have not been performed. Instead, judgement of analysis is based upon a site evaluation. Water tables must be at least 36 inches below the ground surface before a system is permitted.

Percolation tests have not been performed on individual lots since 1976, because the State believes they are an invalid means of determining a site's soil absorption rate. Instead, lot by lot on-site inspections are performed taking into account the following factors:

1. Topography
2. Soil Characteristics:
   a. Texture
   b. Structure
   c. Depth
   d. Restrictive Horizons
   e. Drainage
   f. Available Space

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 a haphazard fashion and it is difficult to determine 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 dimension of lots are necessary in 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).

Prior to the NC Ground Absorption and Sewage Treatment Act of 1981 and resultant Administrative Law, many very small lots were platted in the country. That process changed materially following the 1981 law. Nevertheless, the Planning Board with its staff as well as that of the Environmental Section of the Health Department and the current

Acting Health Director are of the opinion minimum lot sizes are needed in the Subdivision Ordinance.

*Land Suitability Analysis*

Out of the County's total land acreage of 558,720 acres, the following breakdowns have been tabulated from the land suitability analysis of the Brunswick County Soil Survey:

| CATEGORY | ACRES | % OF TOTAL |
|---|---|---|
| 1. Soils with Limitations for Functional Septic Tank Systems | 305,120 | 54.6% |
| 2. Soils with Limitations for the Adequate Support of Building Foundations | 233,520 | 41.8 |
| 3. Soils well suited for Development | 247,000 | 44.3 |
| 4. Soils wells suited for Agricultural Development | 139,940 | 25.1 |
| 5. Soils well suited for Forest Protection | 325,200 | 58.2 |

### 1.3.1(d) 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 1.4.1 of this Plan. The piped water supply system is fed by treated surface water.

The majority of Brunswick County residents and other users of water continue to rely on groundwater wells as a source. Among problems associated with ground 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 between industry and agriculture.

The need for a piped water supply is obvious. Engineers have predicted salt water infiltration of the groundwater by the year 2000 from the ocean to at least U.S. 17, and along the Cape Fear River all the way northwards to the general area of the Dupont Plant.

While hook-up to the piped water supply is not yet mandatory, it is highly encouraged. In areas of low density development and less intensive uses, an adequate and safe potable water supply can still be provided through the use of groundwater wells.

### 1.3.1(e) Areas Which Exceed 12% Slope

There are no known areas with slopes as extreme as 12%, excepting a ravine which is undevelopable near the Cape Fear River.

### 1.3.2 Fragile Areas

Fragile areas are those areas which could be easily damaged or destroyed by inappropriate or poorly planned development. Some of these sensitive lands have been designated by the Coastal Resources Commission as Areas of Environmental Concern (AEC's). Special consideration is to be given regarding their use.

This section of the Plan describes the significance and location of fragile areas located within Brunswick County's planning jurisdiction. These sensitive areas are identified on the Fragile Areas Maps. Policies regarding land use in, or adjacent to, fragile areas are outlined in Sections 2.1.2 and 2.1.3.

*Areas of Environmental Concern (AEC's)*

The Coastal Area Management Act 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, 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 development with the continued productivity and value of certain critical land and water areas.

There are four broad categories of AEC's:

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

Special CAMA permits are required of all developments within designated AEC's.

### 1.3.2(a) Estuarine Systems AEC's

The estuarine system of Brunswick County consists of all estuarine waters, coastal wetlands, Public Trust areas and estuarine shorelines. In many areas, the above designations seem to overlap. In general, the estuarine system is defined by all of the salt and brackish inland waters and adjacent land areas of the County.

*Coastal Wetlands AEC's*

These are the marshes, subject to regular or occasional flooding by tides, including normal wind tides. Brunswick County contains numerous salt water marshes and brackish marshes along its rivers and along the Intracoastal Waterway. It is the objective of the state and county to safeguard and perpetuate the biological, social, economic, and aesthetic value of these marshes as a natural resource essential to the functioning of the estuarine system. Accordingly, state administrative law defines suitable and unsuitable uses.

*Estuarine Water AEC's*

Estuarine waters are defined as "all the water of the Atlantic Ocean within the boundary of North Carolina, and all the water of the bays, sounds, rivers, and tributaries thereto, seaward of the dividing line between coastal fishing waters and inland fishing waters, as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Natural Resources and Community Development", found in 15 NCAC3F. 0200 in the most current revision of the NC Fishing Regulations for the Coastal Waters. Another way of defining estuarine waters is to say that estuaries are semi-enclosed coastal water bodies having free connection with the open sea and within which seawater is measurably diluted with fresh water drained from the adjacent land.

The estuarine waters AEC's of Brunswick County are associated with the Intracoastal Waterway and the southern sections of the Cape Fear, Shallotte, and Lockwood Folly rivers.

*Public Trust AEC's*

Public trust AEC's are all waters of the Atlantic Ocean and the lands thereunder, from the mean high water mark to the seaward limit of State jurisdiction; all natural bodies of water subject to measurable lunar tides and lands thereunder to the mean high water mark; all navigable natural bodies of water and lands thereunder to the mean high water level of mean water level, as the case may be, except privately owned lakes, to which the public has no right of access; all water in artificially created bodies of water containing significant public fishing resources or other public resources which are accessible to the public by navigation from bodies of water in which the public has rights of navigation; and all waters in artificially created bodies of water in which the public has acquired rights by a prescription, custom, usage, dedication, or any other means.

In considering development on any body of water in Brunswick County, it is best to presume that the water is in public trust, unless otherwise specifically documented. The Intracoastal Waterway is the major Public Trust AEC in Brunswick County.

Development which would 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 is considered incompatible with public areas.

*Estuarine Shorelines*

Estuarine shorelines, although characterized as dry land, are considered a component of the estuarine system because of the close association with the adjacent estuarine waters. Estuarine shorelines are those non-ocean shorelines which are especially vulnerable to erosion, flooding, or other adverse effects of wind and water, and are intimately connected to the estuary. This area extends from the mean high water level of normal water level along the estuaries, sounds, bays, and brackish waters as set forth in an agreement adopted by the Wildlife Resources Commission and the Department of Natural Resources and Community Development for a distance of 75' landward.

Estuarine shorelines in Brunswick County are generally non-ocean shorelines along estuaries, sounds, bays, and brackish waters extending landward from mean high water or normal water level for a distance of 75'. It is useful to emphasize that where the range of saltwater influence on freshwater streams ends is also the approximate location where the estuarine AEC ends.

Because of the direct proximity, development in this area has a great influence on the quality of the estuaries and is also subject to the damaging processes of shoreline erosion and flooding.

Accordingly, the state has defined standards for development which take into consideration the dynamics of the shoreline and the resources associated with estuarine waters. These standards are to insure that development does not have an adverse impact on the estuarine system.

### 1.3.2(b) Ocean Hazard Area AEC's

These are natural hazard areas along the ocean shoreline where, because of their special vulnerability to erosion or other adverse effects of sand, wind, and water, uncontrolled or incompatible development could unreasonably endanger life or property. Such areas include beaches, frontal dunes, inlet lands, and other areas where there is a substantial possibility of excessive erosion or flood damage.

It is the objective of the state and county to provide management policies and standards for such areas that serve to eliminate unreasonable danger to life and property. A balance must also be achieved between the financial, safety, and social factors involved in this type of development.

Types of Ocean Hazard Areas Are:

**Ocean erodible areas** - these are areas in which there exists a substantial possibility of excessive erosion and significant shoreline fluctuation.

**High hazard flood areas** - this is the area subject to high velocity waters in a storm having a one percent chance of being equalled or exceeded in any given year, as identified as Zone VI-30 on federal flood insurance rate maps.

**Inlet hazard areas** - these are areas with a substantial possibility of excessive erosion, located adjacent to inlets. The state sets use standards for ocean hazard areas by administrative law. The state further; requires erosion control activities, dune establishment and stabilization, sets standards for structural accessways, and new/substantial construction standards in ocean hazard areas.

The Ocean Hazard Areas designated within Brunswick County are for the most part within the municipalities' jurisdictions. The only exception to this is the extreme eastern tip of Oak Island. This area contains Fort Caswell and is owned by the North Carolina Baptist Assembly. Only limited public access is allowed.

### 1.3.2(c) Public Water Supply AEC's

*Small Surface Water Supply Watershed AEC's*

Small surface water supply watersheds are catchment areas situated entirely within the coastal area, classified by the North Carolina Environmental Management Commission as Class A-II, which means that the maximum beneficial use is that of a public water supply.

Classification of streams and rivers is an ongoing process by the state. When a stream is Class A-II, no ground absorption sewage disposal systems shall be located within 100 feet of the water, a National Pollution Discharge Elimination System (NPDES) is required, and the standards of the North Carolina Sedimentation Pollution Control Act of 1973 must be met. There are no such designated areas in Brunswick County.

*Public Water Supply Well Field AEC's*

Public water supply well fields are areas of well-drained sands that extend downward from the surface into shallow ground water supplies. The North Carolina Department of Natural Resources has identified such areas. There are standards to be met on any development over such a well field. There are no such designated areas in Brunswick County.

### 1.3.2(d) Natural and Cultural Resource AEC's

This fourth category of AEC's covers areas containing environmental, natural, or cultural resources of more than local significance. State Administrative Law (15 NCAC 7H.0503) provides a nomination and designation process in order for any site to be declared this type of an AEC.

### *Coastal Complex Natural Areas and Coastal Areas that Sustain Remnant Species AEC's*

Coastal complex natural areas are lands that support native plant and animal communities and provide habitat qualities which have remained essentially unchanged by human activity. These areas function as key biological components of natural species. They may be surrounded by landscape that has been modified but does not drastically alter conditions within the natural area.

Coastal areas that sustain remnant species are areas that support native plants or animals determined to be rare or endangered. The objective is to protect habitat conditions necessary to the continued survival of threatened and endangered native plants and animals.

Although no areas in Brunswick County have been officially designated as these types of AEC, there are many such areas in the County. The North Carolina Department of Natural Resources and Community Development, Division of Parks and Recreation, National Heritage Program has compiled detailed information of these areas which is presented in Appendix II.

### *Unique Coastal Geologic Formation AEC's*

No unique coastal geological formations have been identified by State geologists in Brunswick County.

### *Significant Coastal Archaeological Resource AEC's*

Significant coastal archaeological resources are sites, objects, or features evaluated by the NC Historical Commission that have more than local significance to history or prehistory.

Brunswick County has a large amount of archaeological sites. The great majority of these sites have not been excavated nor has the County been systematically surveyed. However, 172 prehistoric sites have been identified and entered into the State's prehistoric file inventory maintained by the Department of Cultural Resources and the Archeology Branch section.

The majority of these sites consist of surface scatters whose cultural affiliation has not been identified. A number of midden mounds, which were areas of discard and refuse, have also been noted.

In addition to the prehistoric sites, there are a number of known shipwrecks in the Cape Fear River which could provide valuable information if excavated.

*Significant Coastal Historical Architectural Resources*

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

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 Rocks"
13. Quarantine Station
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

These sites are identified by their corresponding numbers located on the Fragile Areas Map. Detailed descriptions of some of the more prominent sites are found in Appendix III.

### 1.3.2(e) Fragile Land Areas

Areas listed in this section include important natural or manmade sites which do not conveniently fit into previously listed 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.

*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, Lockwood Folly, Shallotte, and Waccamaw Rivers.

*Maritime Forest*

There are no maritime forests located in unincorporated Brunswick County.

### 1.3.3 Areas With Resource Potential

Areas with resource potential include productive and unique agricultural land, valuable mineral sites, Private Sanctuaries, Public Recreation Land, and other non-intensive recreational uses.

### 1.3.3(a) Productive and Unique Agricultural Land

The Governor's Executive Order 96, Conservation of Prime Agricultural and Forests, sets forth the State's policy of 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.

The District's soil scientist has identified soils that should be considered prime farmland, soils which are locally important, and soils that are unique to specific locations.

Prime farmlands 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.

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In addition, certain soils have been designated as unique. This is farmland which is 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 |
| | 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 |
| Pantago | 8,305 acres |
| Rains | 35,619 acres |
| Tomahawk | 4,975 acres |
| Torhunta | 3,994 acres |
| Wando | 12,176 acres |
| Woodington | 29,703 acres |
| | 260,190 acres |

UNIQUE LAND SOILS

| | |
|---|---|
| Leon Fine Sand | 45,611 acres |
| Murville Mucky Fine Sand | 39,490 acres |
| Total | 85,101 acres |

It should be noted that these figures tend to exaggerate the amount of land actually available to 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. In addition, only 15 acres of blueberries are actually in production on land classified as unique.

### 1.3.3(b) Valuable Mineral Sites

No known valuable mineral deposits exist in Brunswick County. Sand is sometimes extracted for construction applications. There are some scattered deposits of gravel and Coquina, but the feasibility of mining is highly questionable.

### 1.3.3(c) Private Sanctuaries

The Nature Conservancy owns15,814 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 of any sort.

Various large private landholdings are "de facto" gamelands by virtue of their isolation and general in-accessibility. (these areas are mainly owned by timber companies).

The Orton Plantation and Pond is another major private landholding in Brunswick County.

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.

### 1.3.3(d) Public Recreation Land

There have been some significant developments with regard to public land acquisition since the 1980 Land Use Plan Update. 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 of marsh, water, and small islands).

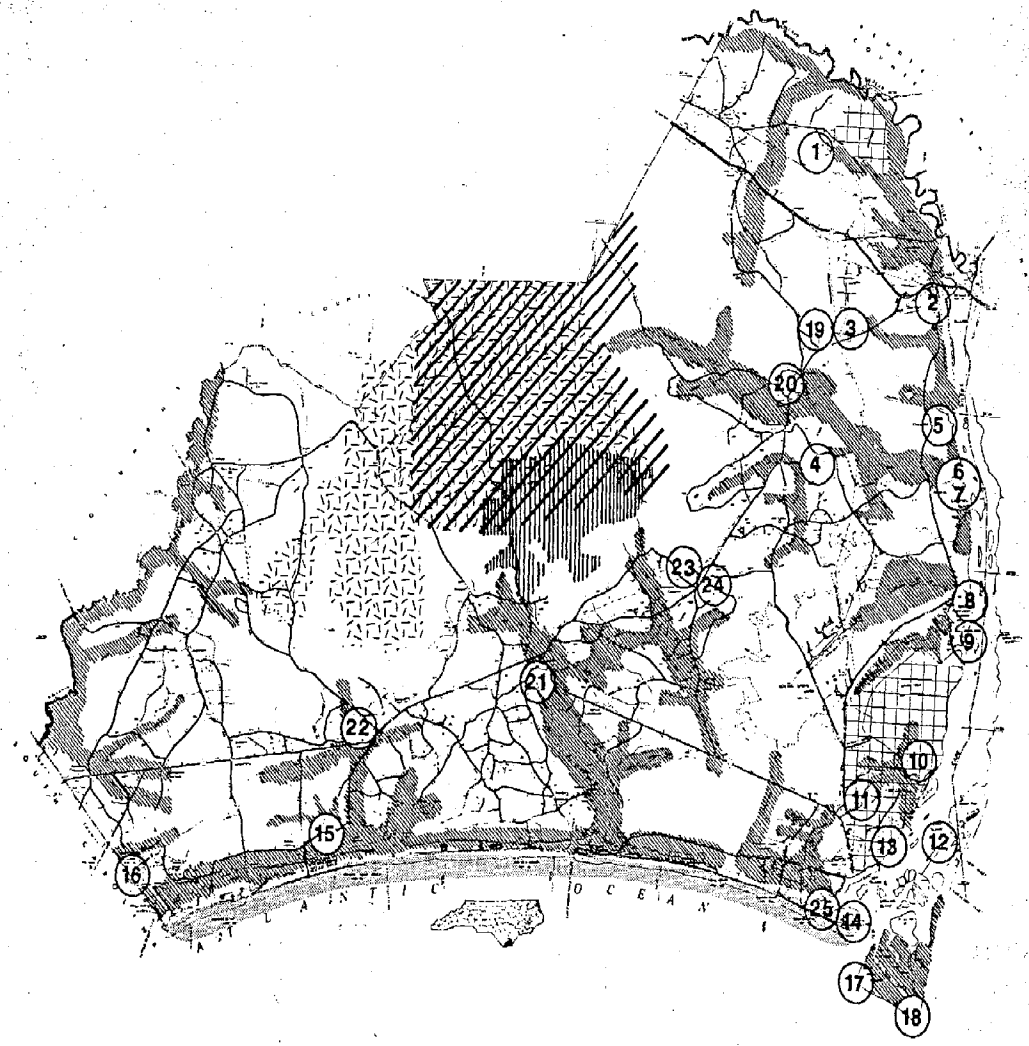
Within this area are several different management and administrative jurisdictions. The area adjacent to the New Hanover County line is now part of the National Estuarine Sanctuary Program. This is a federal program (Section 315 of the Coastal Zone Management Act) which provides states with 50% matching grants for acquiring, developing, or operating 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 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 December of 1981 as the initial component of North Carolina's National Estuarine Sanctuary. The area is managed primarily as an educational and research site, though compatible recreational uses are allowed.

For further information regarding the Zeke's Island sanctuary, contact either the Brunswick County Planning Department or the Marine Sanctuary Program, Division of Coastal Management in Raleigh.

The area south of Zeke's Island sanctuary consists of about 10,000 acres of marsh and approximately 1,000 acres of upland. This area is presently being administered by several State agencies. The majority of this area is administered by the Department of Parks and

# FRAGILE AREAS




**LEGEND**

- Ocean Hazard Areas
- Estuarine and Freshwater Systems
- Green Swamp
- Wildlife Management Areas
- Man-made Hazard Areas
- Bear Sanctuary
- (18) Historic Sites

Source: Brunswick County Planning Department

BRUNSWICK COUNTY
NORTH CAROLINA

Recreation. The Wildlife Resources Commission and the Division of Marine Fisheries combine regulatory and enforcement jurisdiction.

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.

There is one small section of land adjacent to the Village of Bald Head Island which is privately owned.

### 1.3.3(e) Other Non-Intensive Recreational Uses

All of the navigable waters in the county are publicly owned. 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. A majority of these courses are being built adjacent to the Intracoastal Waterway in conjunction with single family residential developments. There are currently nine (9) golf courses in Brunswick County with several more under construction.

## 1.4 CONSTRAINTS; COMMUNITY FACILITIES AND SERVICES

As discussed in the preceding section, the suitability of land for development presents one set of constraints on the future growth of Brunswick County. These mostly natural constraints are largely beyond the control of man, without considerable and often costly modification of the land resource.

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 government as to whether such services are needed, who will pay for them, how and when.

### 1.4.1 Water

In 1981, immediately after adoption of the Land Use Plan, the County began an aggressive program of expansion of the county water system to have it available in all areas shown on the Plan to be urban in the future.

In August, 1981, a $37 million General Obligation Bond issue referendum passed, the voters thus giving strong directive to elected and appointed officials to proceed rapidly towards such a system.

The county is the major provider of water, not only to the unincorporated areas but to the municipalities and the one sanitary district as well. In 1974- 75, the County built a water system serving the general Southport - Oak Island area and Holden Beach, capable of providing seven million gallons a day. The plant was soon operating at capacity.

Since then, the County has constructed a major new water treatment plant which will originally provide an additional 24 million gallons a day. Planned system capacity is 48 million gallons a day. The County has constructed trunk lines with necessary appurtenances bolstering the old existing system, and expanding it through Calabash to near the state line. Major new trunk lines with appurtenant features are currently under construction to serve broader areas, and to provide more water capability to all of the existing system.

Throughout this process of expansion, the County has operated with an advisory committee structure not only on development of the system per se, but on all types of necessary policies in relation to such a large system. The Planning Board Chairman and Planning Director has served continuously as a member of the advisory committee for coordination. In September, 1986, the Board of County Commissioners by ordinance created a Utility Operation Board, to which this advisory role is now assigned. The Planning Board Chairman was named a member of that new Board.

Since the Water Distribution Systems Policy regarding new developments was adopted in 1984, over 30 developers of subdivisions have installed and dedicated to the County, water distribution systems to serve these new areas.

The County, as leader of a multi-county effort, provided on a loan basis the necessary up-front $7 million dollars to the Lower Cape Fear Water and Sewer Authority, permitting them to construct an in-take plant on the Cape Fear River above Lock No. 1 on the Cape Fear River in Bladen County, and to build a fourteen mile trunk main to Hood's Creek in Brunswick County to tie into the County's new treatment plant.

Since this effort began in 1981, the County has been able to add the towns of Shallotte, Ocean Isle Beach, and Sunset Beach to this water system, as well as hundreds of "rural" customers. In 1986 the Brunswick County public water supply system distributed a total of 827,781,300 gallons or an average of 2,267,893 gallons per day. The breakdown of that distribution is as follows.

**1986 Water Consumption**

| Use | Gallons |
|---|---|
| Domestic | 30,658,800 gls. |
| Commercial | 57,357,800 |
| Industrial | 31,505,200 |
| Municipal | 708,255,600 |
| Miscellaneous | 3,900 |

For fiscal year 1986-87 and 1987-88, the Board of County Commissioners added five cents to the ad valorem tax rate to create a fund towards assuring water distribution systems which will be provided in all urban areas.

It is anticipated this will continue to be the major community facilities project of the County for the next five years. Major planning of system improvements and extensions is currently underway.

### 1.4.2 Sewer and Storm Drainage

In 1986, the County undertook its first activity in the provision of a public wastewater treatment plant and service. This was in connection with a new county-owned industrial park. The plant currently under construction will have some excess capacity to begin provision of this service to others.

The County sewer system at the Leland Industrial Park is a modular, package system capable of easy expansion. The treatment plant located adjacent to the receiving stream, the Cape Fear River, provides 24-hour hydraulic detention time for the 250,000 gpd design flow, and is capable of meeting the 30 mg/l effluent limits for biochemical oxygen demand

# HIGH ACCIDENT CONCENTRATION AREAS

**10 Accidents or more per mile from January 1979 to January 1985**

## LEGEND

- 10-20
- 21-50
- 51-100
- 100+

**Source: NC Department of Transportation Traffic Engineering Branch**

**BRUNSWICK COUNTY**
NORTH CAROLINA

and suspended solids respectively. The system currently has a 4.5 mile 8" sewer main. The system will probably come on line during 1987 and 10 percent usage is predicted within the first year.

As areas of the County continue to urbanize with higher development densities, septic systems are becoming inadequate. It is the County's position that areas identified as Developed on the Land Classification Plan should have district based sewer systems introduced as time and conditions permit, as far as is possible by private enterprise. Three incorporated communities (Southport, Ocean Isle Beach, and Shallotte) within the County have already installed central sewer systems and several other communities are studying this possibility. It is anticipated that the use of private, package sewage treatment plants will for larger scale developments also be increasing.

Through its water management program, and more particularly through its subdivision review and approval program, the County has assured provision of significant storm drainage facilities.

### 1.4.3 Transportation

#### 1.4.3(a) Public Roads

Brunswick County has 587 miles of paved public roads and 166 miles of unpaved public roads. There is a considerable undetermined amount of unpaved private subdivision roads that have yet to be upgraded and added to the state secondary road system.

During public meetings, the number one concern voiced by County residents was the numerous inadequate and unsafe roadways within the County. Because of the high volume of seasonal visitation to the beach areas, certain roads are carrying excessive amounts of traffic.

The principal hazardous roads are U.S. 17 from the Bell Swamp area to the South Carolina state line; NC 133 from its western intersection with NC 211 to the Oak Island Bridge and NC 133 from that intersection to the Southport Municipal limits. Other high hazard areas are the Village Road area in Leland, and NC 179 and NC 904 in the southwestern beach area. Road sections with frequent reported accidents are identified on the High Accident Concentration Areas Map.

The lack of a high rise bridge at Sunset Beach and the need for a second bridge at the west end of Oak Island are also reasons for concern. Evacuation due to hurricanes or other emergencies could be a problem.

The North Carolina Department of Transportation acknowledges the lack of adequate capacity and associated hazards of much of the existing road network. Beginning in October 1986, the State began working with the County to produce a Thoroughfare Plan which assesses the problems of the current road network.

The Community Facilities Map shows major existing thoroughfares within the County as well as proposed thoroughfare improvements recommended in a preliminary report on the Thoroughfare Plan.

This final study scheduled for completion in 1988 will become the basis for decisions on which improvements would be made and the timing of those improvements.

### 1.4.3(b) Air Transportation

There are two publicly owned general aviation airports in the country. 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 provided with County funding, and work is underway on a new terminal building at this time. Also in the early 1980s, the County Planning Department prepared an Airport Zoning Ordinance which was adopted and is being enforced through joint actions of the Airport Manager and the Buildings Inspection Division of the Planning Department.

The Ocean Isle Beach Airport, owned by that municipality, is located on the mainland across from that island. During the 1980s, an Airport Zoning Ordinance was prepared by the County Planning Department and is in effect, being enforced jointly by the Town Airport Commissioner and the Building Inspection Division of the County Planning Department. The Town has recently employed services and an updated Master Plan for that facility is being prepared.

There are several privately owned airstrips in different locations around the County, the largest being that facility known as the "Winnabow International Airport." It has less than ten home based aircraft, and a large paved and lighted runway. Most others 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 development of plans and ordinances for same. The locations of the three major airstrips within the County are shown on the Community Facilities Map.

### 1.4.4 Police

Police protection for Brunswick County is provided by the County's Sheriff's Department and local municipal police forces. The Sheriff's Department currently has 24 hour service with 49 personnel and 37 vehicles. As population continues to increase, it is anticipated that the resources of this vital public service would also be increased.

### 1.4.5 Fire and Rescue

There are currently 29 volunteer fire and rescue departments and associations within Brunswick County. The majority of these units are well equipped and staffed. The Brunswick County Fire/Rescue Association maintains a Resource Manual of personnel and equipment at each unit.

### 1.4.6 Schools

Brunswick County is continuing each year to experience moderately increased enrollment in the public school system. The County over the past decade through both an ad valorem bond issue and from such sources as the former Federal Revenue Sharing Program, has provided sufficient funding for a total revamping of all the physical plants of the system, and continues to fund improvements.

In October 1985, the "Brunswick County School Survey Report 1984-85" was completed by the North Carolina Department of Public Instructions, Division of School Planning. Their conclusions regarding facilities are as follows:

"Facilities

Brunswick County has made substantial progress in recent years in coping with an increasing student population while replacing inadequate, obsolete buildings. The facilities constructed since 1977 are generally attractive, functional buildings which will serve the communities for many years.

Since 1977, a new standard has been established for Brunswick County. This higher standard focuses attention on the marginal facilities. For example, the 1951/77 classroom/ administration building at Lincoln is structurally sound and has been rated in category III, but is marginal if not inadequate for educational purposes. The 1951/57 classroom building at Union is similar.

The 1959 reading building and the 1965 music building at Lincoln are category IV and should be replaced; the same is appropriate for the 1960 gymnasium and 1962 classroom buildings at Union.

The Waccamaw School has four buildings in category V which are not used for instructional purposes. They should be razed as they are a liability.

Each of the three high schools has a rifle range constructed in 1975. These building should be replaced or improved.

The Division of School Planning calculates the capacity of elementary school buildings using a factor of 22 students per teaching station. Using this formula, for instance, a school with ten classrooms would have a capacity of 220 students. For the Brunswick County

study, a high school's optimal capacity was calculated as simply the multiple of the number of teaching stations times 20 students. Specialized areas for art, music, physical education, etc., were not calculated in the formula for elementary schools but were included in the capacity calculations for the secondary schools. Capacity is not an exact quantity; however, it represents an approximate number of students which a building can accommodate efficiently.

Some of the elementary schools in Brunswick County are under capacity and some over capacity. For example, Waccamaw is 6 percent under capacity; Lincoln is at capacity. The remaining elementary schools in Brunswick County are, however, considerably over capacity. Southport is 20 percent over capacity; Bolivia is 10 percent over capacity; Union is 17 percent over capacity.

The three middle schools are likewise crowded. Leland Middle School is at capacity, but the South Brunswick Middle School is 17 percent over capacity and the Shallotte Middle School is 16 percent over capacity.

The three high schools are over capacity as follows: North Brunswick High School, 8 percent; South Brunswick High School, 34 percent; West Brunswick High School, 13 percent."

* NC Dept. of Public Instruction, Division of School Planning. Brunswick County School Survey Report 1984-85. October 21 1985 pp. 105-106.

Overall conclusions of the survey and report are as follows:

"Summary and Conclusion:

The Division of School Planning has determined that the present plan of organization over-utilizes school facilities based upon up-to-date standards. The proposed plans outlined in this survey will begin the long and short range planning needed to resolve the problem of overcrowding to place all students in excellent facilities and ultimately to provide for a K-5, 6-8, 9-12 plan of organization.

The Division of School Planning is recommending that the board of education adopt a policy regarding school size. Because many variables enter into decisions regarding school size, it is an area which will require much deliberation by board members and staff.

The educational programs including exceptional and vocational education are being maintained and expanded. The middle school philosophy is being implemented and is an ongoing part of the curriculum.

During the last ten years many changes have occurred in Brunswick County. The CP & L plant has significantly increased the tax base. Industrial and resort growth have contributed to a population increase. The Brunswick Board of Education and Board of County

Commissioners have responded to these changes by improving educational programs and facilities. With the proposed long range plan, Brunswick can relieve overcrowding and improve the system's plan of organization. The proposed plan, however, will not be inappropriate if the student population should stabilize or increase dramatically."

* NC Dept. of Public Instruction, Division of School Planning. Brunswick County School Survey Report 1984-85. October 21, 1985. pp. 115-116.

A significant finding of the report is the need for an additional elementary school within the County.

### 1.4.7 Parks and Recreation

During the early 1980s, the County has built the Shallotte area, the Smithville area, the Town Creek area, and the Waccamaw area Recreational Parks, each having a community center as a feature. Land has been acquired and construction is in progress on a Leland Area Recreation Park. Further, for the existing Lockwood Folly/Supply Area Recreational Park, additional land was acquired and additional facilities provided. Community Recreation Areas are denoted on the Community Facilities Map.

The County has sought State help in obtaining lands for scenic parks, such as along the Brunswick River. The County has further developed a specialized plan of needs for boat ramps.

The County has had an active program of providing all necessary features to enhance use of the numerous water bodies in the County.

Among these water features are the Brunswick, Calabash, Cape Fear, Lockwood Folly, Shallotte, Town Creek, and Waccamaw Rivers, the Intracoastal Waterway, and the Atlantic Ocean.

The County has financially supported creation of additional fishing reefs, boat ramps, and aggressively supports private efforts to provide such features as; access points to coastal waters in new subdivisions, docks and piers, boat ramps, and marinas. Marinas and boat storage facilities are currently in particular demand.

### 1.4.8 Solid Waste

Through the Planning Board and an Advisory Committee of the Board of County Commissioners, in 1983 an updated Solid Waste Collection and Disposal Plan was adopted and is rapidly being implemented.

A major new central landfill was established, and former scattered landfills were closed out. Currently, landfill expansion by about three hundred acres is being implemented. The central landfill site comprises 53 acres currently of which 15 are being used for active

landfill operations. It is estimated that the 53-acre site has approximately six years of dumping capacity.

The County is moving away from the old "green box" system in all areas which are expected to be urban in character in the future. Transfer Stations with compaction units have been developed in three areas. Additionally, two separate 40 cubic yard roll off convenience stations have been established with funds allocated for a third site in 1987. There are still about 200 scattered green boxes in use throughout the County.

The central landfill location is identified on the Community Facilities Map.

### 1.4.9 Medical Care

The County Hospital has undergone important changes in operational structure and major improvements and expansions have been carried out during the 1980s. Dosher Hospital is located in Southport and is continuing to be expanded and improved.

The locations of Brunswick County's two hospitals are shown on the Community Facilities Map.

## 1.5 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.

### 1.5.1 Population and Economic Projections

#### 1.5.1(a) Permanent Population

A provisional estimate from the North Carolina Office of Management and Budget (OMB) for Brunswick County, July 1, 1986 total population is 47,797. (This figure is lower than the County estimate.) Based upon this provisional estimate, OMB makes the following population projections for Brunswick County:

| Year | Population |
|---|---|
| 1995 | 65,002 |
| 2000 | 75,471 |
| 2010 | 96,755 |

The county has the second highest inmigration rate in the State. This trend is expected to continue, resulting in an increasingly aging population within the County as more and more retirees continue to migrate to Brunswick County.

#### 1.5.1(b) Seasonal Population

Peak Seasonal Population

Peak seasonal population is projected at two visitors for each permanent resident, on the basis of experience to date and volume of tourist housing. By 1995, a peak day total population of 195,006 is expected and, by 2000, that figure is projected to grow to 226,413.

| | Peak Day Total Population |
|---|---|
| 1995 | 195,006 |
| 2000 | 226,413 |
| 2010 | 290,265 |

It is further estimated that currently the peak day is almost the average day for at least a four month season which can be expected to grow to at least a six month season.

### 1.5.1(c) Economic Projections

It is the position of the Brunswick County Planning Board that "proper" development of the coast is imminent and desirable. To this end, the County will continue to lend guidance to residential, commercial, and industrial development to assure compatibility of new growth with existing development and the natural environment.

Brunswick County will continue to strive for a balanced and diversified economy. The Resources Development Commission for Brunswick County is actively promoting business and industrial development through its economic development activities. The Commission recently established the Leland Industrial Park.

The tourism and related services industries are expected to continue to increase in Brunswick County as vacationers and retirees continue to migrate to the area. Commercial, retail and service industries should correspondingly increase to meet the demands of a rapidly growing population.

### 1.5.2 Future Land Use Needs

In response to Brunswick County's rapid existing and projected rate of population growth, it is anticipated that a great deal of the County's unincorporated coastal areas will become developed within the plan period. Also, many formerly rural areas will become transitional as growth continues.

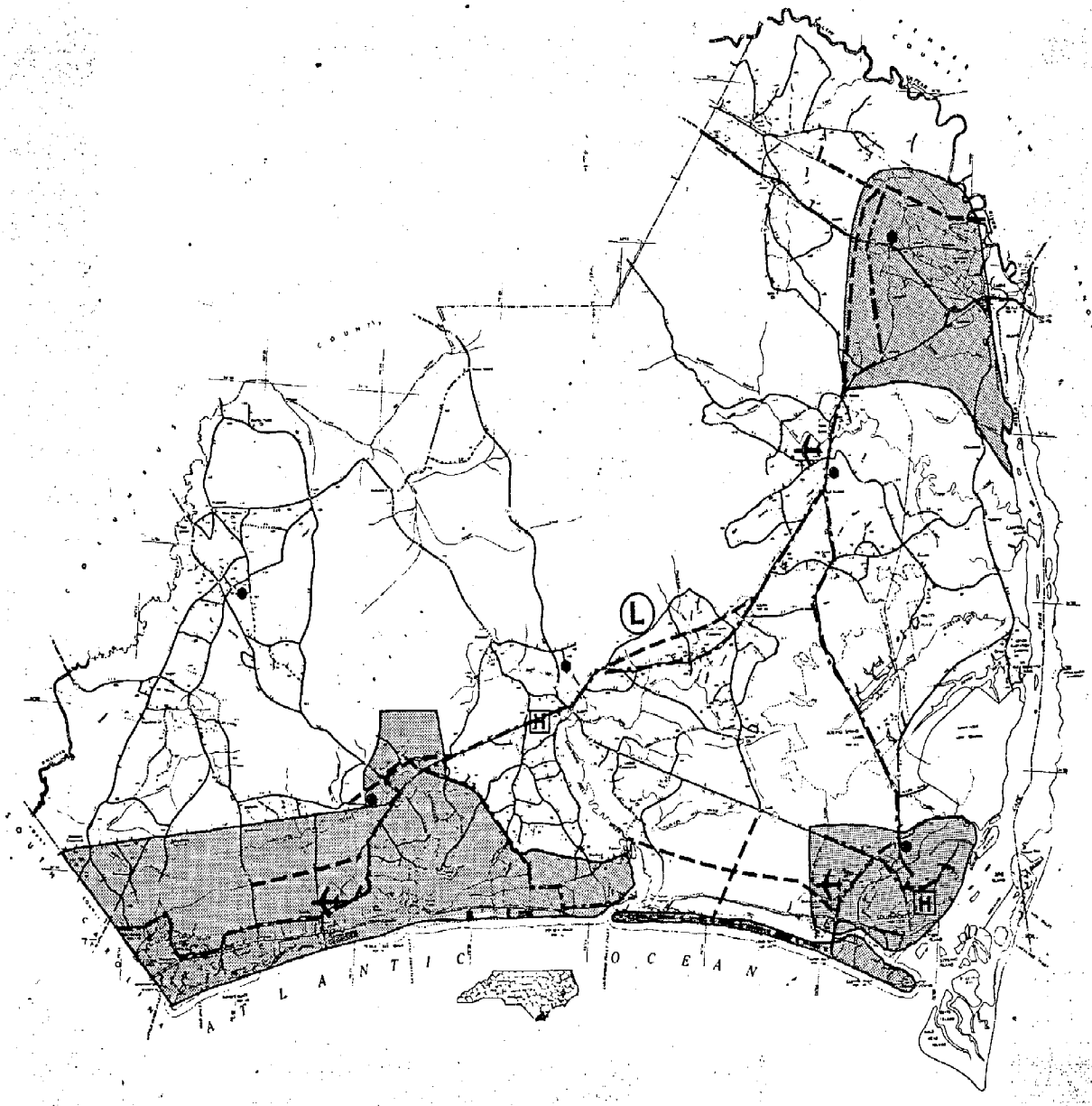
Future land uses will predictably follow patterns already established and be augmented by the provision of the piped water system along major arterials. The southwestern portion of the County is expected to develop the fastest due to its proximity to growing Myrtle Beach, South Carolina. Developed and Transitional uses are expected all along the coast and Intracoastal Waterway from the South Carolina state line to Southport. Along the eastern edge of the County, Transitional mixed and industrial uses are projected parallel to the Cape Fear River and NC 133.

The north central and northwest areas of the County are expected to remain in their relatively rural state throughout the plan period.

As stated earlier in this plan, it is the County's intention to encourage and facilitate responsible growth. However, without county-wide zoning controls, the location of imminent development is to a large extent uncontrollable in Brunswick County.

The Land Classification Map, presented at the back of this Plan and defined in Section 3.0, is the best reflection of how Brunswick County residents would like to see future land use needs met.

Future land use needs are discussed on a township by township basis in Section 1.2.2 of this Plan. The Land Classification Map, discussed and presented in Section3, reflects the desires




# COMMUNITY FACILITIES

## LEGEND

- Roads
- Proposed Road
- Sanitary Landfill
- Airstrip
- 201 Wastewater Treatment Area
- Hospital
- Community Recreation Area
- Water System Trunk Lines

Source: Brunswick County Planning Department

BRUNSWICK COUNTY
NORTH CAROLINA

of the citizens of Brunswick County in establishing land use areas on the basis of needs.

It is a documented fact that Brunswick County has experienced rapid growth. Both state and federal governments project this rate of increase to continue. Accordingly, a great deal more land in the County will have Developed characteristics.

It is the opinion of the Planning Boardthat the critieria specified in the Land Classification system do not readily apply to Brunswick County. Given the historical exclusively rural nature of the County, it is unreasonable to expect growth to occur in traditional patterns associated with older urban areas of the state and their areas of expansion. Rather, growth is taking place at an extremely low density.

There are several reasons for this, which are listed below:

1. The County has carefully adhered to State law regarding wastewater treatment systems, so that the average lot created since 1981 that is to have its own well and septic tank averages 17,500 square feet.

2. Large, common nitrification fields are a feature of many of the newer subdivisions, accounting for larger amounts of land associated with residential development.

3. Golf course expansion and development has occurred and is projected to continue. This accounts for large amounts of acreage.

4. Wetlands are no longer being filled to create lots. Since 1981, the County has required the U.S. Army Corps of Engineer's "404" fresh water wetland boundary be shown on development plats. CAMA standards have also been enforced regarding saltwater marshes.

5. Features such as sedimentation ponds and lakes are being incorporated into new development.

6. New citizens of the County are demanding open space amenities such as parks and recreational areas which were not provided earlier.

7. Nationally, the trend is for smaller household sizes. This is reflected in Brunswick County as well.

8. Industrial use has occurred in a broad pattern. This trend is expected to continue. For example, the DuPont plant encompasses five square miles of land, the CP&L Plant five square miles, and the Sunny Point Military Ocean Terminal fourteen square miles. Two new contiguous industrial parks in the Leland area account for four square miles of land.

Although the growth outlined here does not have the density described in the classification system, as it applies to Brunswick County the land is developed.

*Appendix IV, Urban Concentrations, summarizes a grouping of areas within the County's jurisdiction that were of such density/intensity of land use as to merit the full range of urban type services. These areas were identified in a land use survey conducted during April and May of 1985. These are areas shown on the existing land use map as residential, office, and commercial; also, industrial, transportation, communication and utilities.

In the future, the County anticipates an extremely large need for additional industrial lands. The basic points of this premise are as follows:

1. Unemployment in Brunswick County is greater than the State average and per capita income levels are low. Diversified industries are needed to provide more year round employment opportunities for County residents.

2. The east side (New Hanover County side) of the Cape Fear River is severely limited in supporting future industrial, deep draft and barge sites. Internal and shoreline properties found within the Leland Area provide a viable alternative to industry which is attracted to the North Carolina State Port of Wilmington and the New Hanover County Airport, and the services found in the Wilmington/New Hanover County area.

3. New industry is being attracted to the Highway U.S. 74/76 Industrial Corridor and the public water supply system already in place.

4. Brunswick County, because of its vast available land resources, has the potential of becoming a major regional center for industry.

### 1.5.3 Community Facilities Demands

As Brunswick County looks over the next 23 years to the year 2010, during which time the North Carolina Office of State Budget and Management predicts it will have an increase in permanent resident population almost twice that of today, to just shy of 100,000 persons, with that figure tripled during peak tourist season, the County constantly maintains vigilance to assure necessary public support structure is in place at the needed time for such population.

Among the chore duties assigned by State government to County government are provision of social services, health services, courts, jail, sheriff services, and personal and real property valuation. In addition, the County has assumed a major role on behalf of its citizens and visitors in the provision of necessary infrastructure for a significant urban population, including the 14 municipalities.

*Fire and Rescue Services*

For many years, the County has been the prime source both for funds for operation and maintenance of fire departments and rescue squads both in the unincorporated areas and also in the municipalities.

Further, starting in the 1960s, the County underwrote the mortgages these agencies took on for purposes of erecting buildings. The Institute of Government reports Brunswick County is the only county that is or had been so heavily financially involved in provision of fire and rescue services.

The current FY 1987-88 County budget provides evidence of this commitment. For each of the 20 fire departments totally within the County, whether they limit their service to their municipality, provide service only to a specified unincorporated area, or provide a combined service, $10,000 direct grant is provided. In addition, on the basis of the five Electoral Districts, $50,000 in each of the five such Districts is set aside for fire and/or rescue services, individual judgments to be made during the course of the fiscal year by the Board of County Commissioners as to distribution of those funds.

An additional fire department that is 90% in Columbus County and only 10% as to service within Brunswick County was granted $2,500 and also is eligible to seek some share of the $50,000 set-aside funds in that Electoral District.

Further, each of the 10 rescue squads in the County received a $10,000 appropriation, and they also are eligible to seek some share of the set-aside funds.

Fire and rescue services, service areas, and operations are coordinated by the County Fire Marshal, who is also the Emergency Services Coordinator. The result is a coordinated, unified network, all of which is related to and part of the communication/telephone system housed in the Sheriff's Department at the County Government Center.

The County is working with these various departments and squads towards possible future adjustments. Currently, service areas officially acknowledged at the State level for fire departments range for 1.5 miles to 3.0 miles. With the County water system now in place, many of these service areas could be extended to serve a four mile radius, and consolidation/merger of some of these departments is a long-range goal.

As urbanization continues and such factors as tourism increase, the County will maintain its overseership of these programs and assure needs of the citizens and visitors to the County are met.

*Solid Waste*

The State mandates county governments provide a landfill, capable of meeting needs for all areas in the county including for the load from municipalities.

Brunswick County historically has provided a level of service far beyond that minimum.

Currently, the County operates a central landfill in the exact geographic center of the County, situated about two miles from the intersection of U.S. 17 and NC 211.

The County has caused detailed plans to be made for and is in the land acquisition negotiation stage for adding several hundred acres to that site, to provide for at least a 20 year projection of need.

The County also provides an extensive solid waste collection system, including collection centers for municipalities to use so that they can avoid long hauls to the landfill.

For all areas expected to be of urban character over the next 20 year period, the County is providing either of two types of collection stations, one type locally called the "transfer station" type facility and the other called the "convenience station" collection type facility.

Three transfer stations are available. These facilities provide for compaction on site before transference of material to the landfill. One is situated in the Belville area of Leland, one between Southport and Oak Island, and one midway between Shallotte and Ocean Isle.

Currently, two convenience stations are in operation. This type facility provides a series of 40 cubic yard containers. As filled, loads are transferred to the landfill. One facility is situated halfway between U.S. 17 and Holden Beach, midway between the Lockwood Folly River and the Shallotte River. The other is located on NC 904 slightly north of S.R. 1163, Old Georgetown Road S.W.

Plans call for adding at least three more convenience stations to those sectors of the County emerging as urban. FY 1987-88 budget allocates funds for another convenience station, and the plan calls for one more to be added each fiscal year.

For the remainder of the County anticipated to remain in rural character, a green box system exists.

Brunswick County has made numerous studies of prospects for resource recovery. To date, none of these studies and efforts has proved practical. The County has also entered discussions with surrounding counties on this matter. Further study will be given to this possibility.

### *Parks and Recreation Programs*

As with most other services, the County is the main provider of parks and recreational programs to the entirety of its population, rather than such service being a municipal activity as is the norm in most other locations.

As a result, major recreational fields locally called parks have been developed on a mid-1970s plan calling for one such facility in each of the six Townships. The location of these facilities is not related to the present or future distribution of population, but appears to have been more of a space-apart theme.

Five such recreation fields exist, with a sixth site having been acquired which is under development and expected to open in late 1987. These sites contain such features as a series of baseball fields, tennis courts, usually some picnic areas, and a community building complete with kitchen and meeting rooms capable of serving fairly large groups.

In addition, the County has developed several specialized features, such as the Leland Community Center, and has acquired sites and is currently building structures called either community centers or senior citizen centers, dependent on location, one in the northern sector of Leland and one across from Holden Beach. These facilities are expected to be operated as multipurpose activity centers. The County also owns and operates a senior citizen center at Shallotte.

The citizen participation process of this CAMA Land Use Plan Update showed one of the major desires of the citizens is that the County provide a totally different type of park, the more traditional passive facility with significant green space and shade trees, particularly related to major waterways, for viewing the waters while driving or sitting in your car, or while strolling a path along the waterway. The County will explore the possibility of providing such features by some level of government.

Recreational boating was also brought out as an activity area needing help to assure adequate facilities. It is the County policy to do all it can to further the provision of marinas, both public and private, to meet this need.

*Sanitary Sewer Services*

Need for sanitary sewer systems rather than individual septic tanks and nitrification fields had been recognized for 20 years. In-depth plans and studies towards this goal were made as early as 1968.

This Plan includes policy that the County will actively help to seek such systems for those areas of the County projected to be of urban character, with the expectation that private enterprise will prove the only viable vehicle to accomplish this goal.

*Storm Drainage System*

With urbanization is the accompanying need for detailed environmentally sensitive storm drainage plans to serve as a guide as development occurs.

This is an unmet need of the County.

In 1986, the County added to its staff a professional hydrologist, and one of his various assignments is the development of such plans.

More recently, trends in controls at the State level over concern as to water quality and possible development of law by the State mandating involved means of providing storm drainage may well accelerate need for the development of such plans. It is expected such studies will start with the more rapidly developing water sheds.

*Potable Water System*

After years of study, the County entered the water business on a fairly large scale in 1974, providing a water treatment plant served by a well field, located about two miles west of the Southport-Oak Island area, on NC 211. Trunk mains were provided so that this plant served 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.

That system was upgraded in 1980 and the plant is capable of producing six million gallons of potable water a day.

Starting in 1981, a major expansion of the system began, extending trunk mains, with necessary booster pumping stations and water tanks, northerly from Holden Beach via NC 130 through the heavily developed area between the Lockwood Folly and Shallotte Rivers to and through Shallotte thence via NC 179 through the heavily developing southwestern sector of the County all the way through Calabash to a point just shy of the South Carolina state line. Shallotte, Ocean Isle Beach, and Sunset Beach then tied on the County's system, together with approximately 1,000 "rural" customer connections.

More recently, a new 24 million gallon per day water treatment plant has been opened, with an extensive additional network of trunk mains.

The main source of water 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. Net result is the principal source of water now is from the Cape Fear River above the first lock in Bladen County. From there, it is pumped through a 48" trunk main through Columbus County into Brunswick County, where it connects at the new water treatment plant in the northwest area of the County.

From this new 24 MGD plant, capable of easy expansion to 48 MGD, 48" trunk mains extend, then 42", then 36", and in some cases, then down to 24", running in varying directions. These new connections cut through the northeastern portion of the County and provide a connecting point for the Leland Sanitary District on Mount Misery Road, then via Sunny Point Railroad right-of-way, then southwesterly on U.S. 17 to connect into the system in Shallotte, and southerly to connect into the original plant on NC 211 in the Southport-Oak Island area.

With the advent of these expanded services, in this short period of time over 30 large new subdivisions have provided water distribution systems and connected to the County system, dedicating to the County their distribution lines.

The County obtained a Special Act in 1985 permitting existing or partly developed subdivisions to obtain water distribution lines, by means of up-fronting funds with a Special Assessment District created.

Further, the County has continued to add to the base system as needs arise, such as additional pumping stations and more trunk mains.

A Utility Operations Board was created in 1986, $3,000,000 in funds provided, and the County is the active agent in establishment of water distribution system special assessment districts. One hundred subdivision or geographic areas were identified as result of an existing land use study in April and May, 1985, which merit water service at the earliest opportunity. Priorities were established, and this is an ongoing program.

On the basis of this Land Use Plan Update, and using the most recent projections of the North Carolina Office of State Budget and Management showing a permanent resident population of Brunswick County of 96,755 by the year 2010, and recognizing that during tourist season that population is three times that size, the Utility Operations Board is undertaking additional study to determine needs and priorities to assure this system continues to meet needs.

# Section 2: Policies for Growth and Development

## Introduction to the Policies

The data collection and analysis described in Section 1 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 policy category in the 1987 update to the Policies for Growth and Development is addressed according to the following format:

| | |
|---|---|
| Discussion | - A brief summary of the issues and relevant findings. |
| Policy Statement | - A statement of local government principals designed to achieve legitimate public objectives related to the issue. |
| Implementation - Actions | Assignable actions designed to carry out the policies, and which can be accomplished within the 1987-1992 timeframe. |

It is important to understand that discussion and implementation actions are not policies, and do not carry the same degree of importance as the actual policy statements. The narrative in each discussion section 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.

Short-term (i.e. within five years) implementation actions are designed to suggest several possible courses of action available to a County government to carry out the policies. The suggested actions are not intended to be all-inclusive, nor are they binding. In other words, as conditions change, additional actions may be added to the list and others removed.

The policy statements, on the other hand, must be viewed in a wholly different light. As statements of local government principal, 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 the local growth and development of the planning period. Therefore, in reviewing the pages that follow, the reader is asked to focus greatest attention on the policies, while relying upon the discussion and implementation actions primarily as explanations as to intent.

Brunswick County believes that it would be appropriate to begin the policy section of this Plan with a comprehensive guiding policy regarding the position of the County in regards to the overall future growth and development of the County.

It is recognized that imminent, rapid growth is occurring in Brunswick County due to its coastal location. This growth is predominantly in the form of a growing tourism economy and rapidly rising seasonal and permanent populations. This growth is deemed to be beneficial and, in most respects, is encouraged.

**Policy 2.0**

**BRUNSWICK COUNTY SUPPORTS THE CURRENT GROWTH TREND BEING EXPERIENCED AND, TO THE EXTENT POSSIBLE, WILL PLAN FOR AND ACCOMMODATE FUTURE GROWTH WHILE SIMULTANEOUSLY MAINTAINING AND IMPROVING THE QUALITY OF LIFE FOR CURRENT AND FUTURE RESIDENTS.**

**Implementation Actions**

1. Adopt and follow the policies outlined in this Plan.

## 2.1 Resource Protection Policies

### 2.1.1 Constraints to Development

Different soil types possess varying degrees of suitability for development. In Brunswick County there are soils with limitations for functional septic tank systems and soils with limitations for the adequate support of building foundations. Soil limitations are further explained and identified in Section 1.3.1(c).

Another natural constraint to development is the occurrence of flood prone areas in the County. Flood prone areas are identified by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) and the U.S. Army Corps of Engineers Special Program (SPLASH). A Composite Natural Hazards Map identifying flood prone areas is presented in the back of this Plan.

Soil survey maps, FIRMs and SPLASH maps are available for inspection in the County Planning Department.

**Policy 2.1.1(a)**

**DEVELOPMENT IS ENCOURAGED TO LOCATE IN AREAS WITHOUT SOIL SUITABILITY PROBLEMS; HOWEVER, IN AREAS WHERE SUITABILITY PROBLEMS DO EXIST, ENGINEERING SOLUTIONS ARE SUPPORTED TO THE EXTENT THAT THE NATURAL ENVIRONMENT IS NOT COMPROMISED.**

**Implementation Actions**

1. The County Sanitarian and Soil Scientist will work with local developers to properly address soil suitability problems.

2. State health laws regarding septic tank systems will continue to be enforcecd by the County Sanitarian.

3. Approvals for subdivisions will be denied by the Planning Board if soil suitability problems cannot be adequately addressed.

4. A zoning ordinance should be developed and implemented which discourages higher density and intensive uses in areas with uncorrectable soil suitability problems.

**Policy 2.1.1(b)**

**BRUNSWICK COUNTY SUPPORTS THE ADMINISTRATION AND STRICT ENFORCEMENT OF ALL APPLICALBE FLOODPLAIN MANAGEMENT REGULATIONS AND THE NATIONAL FLOOD INSURANCE PROGRAMS.**

Implementation Actions

1. Building permits will not be issued to developments not in accordance with the above regulations.

2. In areas identified by the FIRMs 100 year flood zone, all developments are required to show precise elevations.

3. A zoning ordinance should be developed and implemented which discourages development in severe flood prone areas.

### 2.1.2 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 development with the continued productivity and value of certain critical land and water areas.

Detailed descriptions of all AEC's found in Brunswick County are located in Section 1.3.2 of this Plan.

**Policy 2.1.2(a) Coastal Wetland AEC's**

**BRUNSWICK COUNTY SUPPORTS ALL REASONABLE AND APPROPRIATE EFFORTS TO PROTECT AND PRESERVE THE ENVIRONMENTAL VALUES OF COASTAL WETLAND AEC's BALANCED AGAINST THE ECONOMIC AND COMMUNITY VALUE OF THE DEVELOPMENT OF PIERS, DOCKS, AND MARINAS WHICH SERVE THE PUBLIC, WHETHER THEY BE PUBLICLY OR PRIVATELY OWNED FACILITIES.**

**Implementation Actions**

1. CAMA permits are required for all developments in Coastal Wetland AEC's.

2. A zoning ordinance should be developed and implemented that is sensitive to all AEC's.

**Policy 2.1.2(b) Estuarine Water AEC's**

**BRUNSWICK COUNTY SUPPORTS THE PRESERVATION AND PROTECTION OF ESTUARINE WATER AEC's BY DISCOURAGING OR REQUIRING MITIGATION**

FROM DEVELOPMENTS WHICH WOULD PERMANENTLY AFFECT THE FUNCTION, CLEANLINESS, SALINITY, AND CIRCULATION OF ESTUARINE WATER RESOURCES.

Implementation Actions

1. CAMA permits are required for all developments in Estuarine Water AEC's.

2. A zoning ordinance should be developed and implemented that is sensitive to all AEC's.

Policy 2.1.2(c) Public Trust AEC's

BRUNSWICK COUNTY SUPPORTS THE PROTECTION OF PUBLIC RIGHTS FOR NAVIGATION AND RECREATION IN PUBLIC TRUST AEC's, TEMPERED BY THE COMMUNITY'S NEED FOR PIERS AND DOCKS WHICH SERVE AND BENEFIT THE PUBLIC, WHETHER PUBLICLY OR PRIVATELY OWNED.

Implementation Actions

1. CAMA permits are required for all developments in Public Trust AEC's.

2. A zoning ordinance should be developed and implemented that is sensitive to all AEC's.

Policy 2.1.2(d) Estuarine Shoreline AEC's

BRUNSWICK COUNTY SUPPORTS THE PROTECTION AND PRESERVATION OF ITS ESTUARINE SHORELINES AND, ACCORDINGLY, ALL DEVELOPMENT WITHIN THESE AEC's SHALL BE SUBJECT TO STATE AND FEDERAL REGULATIONS.

Implementation Actions

1. CAMA permits are required for all developments in Estuarine Shoreline AEC's.

2. A zoning ordinance should be developed and implemented that is sensitive to all AEC's.

Policy 2.1.2(e) Ocean Hazard AEC's

BRUNSWICK COUNTY SUPPORTS STATE AND FEDERAL GUIDELINES CONTROLLING DEVELOPMENT IN THE OCEAN HAZARD AEC OF THE BAPTIST ASSEMBLY GROUND, THE ONLY OCEAN HAZARD AEC UNDER COUNTY PLANNING JURISDICTION.

### Implementation Actions

1. CAMA permits are required for all developments in Ocean Hazard AEC's.

2. A zoning ordinance should be developed and implemented that is sensitive to all AEC's.

### Policy 2.1.2(f) Natural and Cultural Resource AEC's

**WHEN IT IS IN THE BEST PUBLIC INTEREST, THE COUNTY WILL SUPPORT THE DESIGNATION OF APPROPRIATE AREAS AS NATURAL AND CULTURAL RESOURCE AEC's (COASTAL COMPLEX NATURAL AREAS, COASTAL AREAS THAT SUSTAIN REMNANT SPECIES, UNIQUE COASTAL GEOLOGIC FORMATIONS, SIGNIFICANT COASTAL ARCHAEOLOGICAL RESOURCES, AND SIGIFICANT COASTAL HISTORICAL ARCHITECTURAL RESOURCES).**

### Implementation Actions

1. CAMA permits are required for all developments in Natural and Cultural Resource AEC's.

2. A zoning ordinance should be developed and implemented that is sensitive to all AEC's.

## 2.1.3 Other Hazardous or Fragile Land Areas

Besides those areas designated as AEC's, there are numerous other hazardous and fragile land areas in Brunswick County. The County regards these areas to be no less significant than those officially designated, and has established policies to guide development practices and land use decisions in these areas.

These other hazardous and/or fragile land areas that exist in Brunswick County are described in Section 1.3.2 of this Plan.

### Policy 2.1.3(a) Freshwater Swamps and Marshes

**BRUNSWICK COUNTY SUPPORTS EFFORTS TO PRESERVE AND PROTECT THE MANY PRIVATE AND PUBLIC FRESHWATER SWAMPS AND MARSHES WITHIN COUNTY JURISDICTION.**

### Implementation Actions

1. A 404 permit from the Army Corps of Engineers is required for all developments located within designated 404 wetlands.

2. For all developments over one acre in size, a Sedimentation and Erosion Control Permit is required from the NC Department of Natural Resources and Community Development.

Policy 2.1.3(b) Cultural and Historic Resources

BRUNSWICK COUNTY SUPPORTS THE PROTECTION OF OTHER NATURAL AND CULTURAL RESOURCE AREAS (BEYOND THOSE DESIGNATED AS AECs) IN ORDER TO PRESERVE THEIR SCIENTIFIC, EDUCATIONAL, AND AESTHETIC VALUES AND QUALITIES.

Implementation Actions

1. The County will continue to maintain an inventory of such significant areas.

Policy 2.1.3(c) Manmade Hazards

BRUNSWICK COUNTY WILL SEEK TO MINIMZE POTENTIAL LAND USE CONFLICTS AND HAZARDS RELATED TO DEVELOPMENT IN AREAS ADJACENT OR NEAR TO THE: SUNNY POINT MILITARY INSTALLATION, PFIZER CHEMICAL FACILITY, CP&L NUCLEAR GENERATOR FACILITY, THE DUPONT FACILITY, AND THE THREE AIRSTRIPS WITHIN THE COUNTY.

Note: Manmade Hazards are further described in Section 1.3.1(b) of this Plan.

Implementation Actions

1. Existing airport zoning ordinances will continue to be enforced.

2. A County zoning ordinance should be developed and implemented to ensure land use compatibility in areas where manmade hazards exist.

### 2.1.4 Hurricane and Flood Evacuation

Section 2.5 of this Plan deals exclusively and comprehensively with the subject of storm hazard mitigation, post disaster recovery, and evacuation. Specific policies regarding hurricane and flood evacuation are outlined in that section of the Plan.

### 2.1.5 Protection of Potable Water Supply

Brunswick County is currently expanding the urban areas public water supply system. It is anticipated that all existing and future development within the developed and transitional land classes of the County. Incorporated municipalities will also be serviced by this system. There is concern that continued groundwater extraction will accelerate salt water

intrusion, especially in the coastal areas. The County recognizes its groundwater resources to be a valuable commodity and will continue to protect water quality.

**Policy 2.1.5**

**BRUNSWICK COUNTY WILL CONTINUE IMPROVEMENTS AND EXPANSION OF THE PUBLIC WATER SUPPLY SYSTEM AND WILL CONTINUE TO PROTECT THE QUALITY OF THE GROUNDWATER RESOURCE THROUGH IMPROVEMENTS IN THE PUBLIC WATER SUPPLY SYSTEM; CONTROL OF TOXIC INDUSTRIAL AND SEPTIC EFFLUENT DISCHARGES INTO GROUNDWATER SUPPLIES AND EFFECTIVE STORMWATER MANAGEMENT AND EROSION/SEDIMENTATION CONTROLS.**

**Implementation Actions**

1. The County will require mandatory hook-up to the public water supply system when it is available.

2. The County will support state and federal guidelines for industrial water pollution control and septic limitations.

3. Environmentally sensitive development/drainage schemes will be encouraged.

4. A Zoning Ordinance should be developed and implemented which encourages higher density and more intensive development to locate in areas where public water exists.

### 2.1.6 Package Sewage Treatment Plants

In the absence of a county-wide central sewerage treatment and disposal system, Brunswick County encourages the use of private, small package sewage treatment plants and dry sewers to service developments. The installation of a central sewage system is a long way off and package treatment plants are deemed to be an acceptable intermediate solution over the continued use of septic systems. Many areas of the County have severe septic limitations due to poor soil suitability.

**Policy 2.1.6**

**BRUNSWICK COUNTY ENCOURAGES THE USE OF PRIVATE, SMALL PACKAGE SEWAGE TREATMENT PLANTS AND DRY SEWERS FOR ALL APPROPRIATELY SCALED DEVELOPMENTS UNTIL SUCH TIME THAT A DISTRICT SEWAGE TREATMENT SYSTEM IS FEASIBLE AND AVAILABLE, ESPECIALLY IN THOSE AREAS WITH SEPTIC LIMITATIONS.**

## Implementation Actions

1. In areas with uncorrectable soil suitability problems causing severe septic limitations, a package sewage treatement plant will be required of all major subdivision projects.

### 2.1.7 Stormwater Runoff

The protection of surface water quality is particularly important in the coastal areas of Brunswick County, where the rivers and estuarine areas play an important environmental and economic role. The County encourages all developments to utilize environmentally sensitive stormwater management practices. Additionally, the County supports strong local, state and federal stormwater runoff guidelines for inland counties which play an equal if not greater role in effecting surface water quality, but are currently not regulated as restrictively as coastal counties.

**Policy 2.1.7**

**BRUNSWICK COUNTY ENCOURAGES ALL DEVELOPMENT TO PRACTICE EFFECTIVE STORM WATER MANAGEMENT PRACTICES IN ORDER TO PROTECT THE QUALITY OF THE COUNTY'S STREAMS, RIVERS, MARSHES AND ESTUARINE SYSTEMS.**

**Implementation Actions**

1. Brunswick County will enforce all water quality standards established by the North Carolina Division of Environmental Management.

2. Stormwater management plans will continue to be reviewed as part of subdivision approval.

3. Brunswick County will support all standards and regulations of the North Carolina Natural Resources and Community Development Sedimentation Erosion Control Act.

4. CAMA permits will be required of all proposed developments in AEC's.

### 2.1.8 Marina and Floating Home Development

Marina development is encouraged in Brunswick County as there is an increasing demand for such development in the area. Marina developments need to be balanced against the equally important aspect of environmental protections. Marina developments which minimize and mitigate environmental impacts will be favored over those which do not.

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

Policy 2.1.8(a)

BRUNSWICK COUNTY ENCOURAGES ENVIRONMENTALLY SENSITIVE MARINA DEVELOPMENT.

Policy 2.1.8(b)

BRUNSWICK COUNTY DISCOURAGES FLOATING HOME DEVELOPMENT IN THE WATERWAYS AND ALONG THE SHORELINES OF THE COUNTY.

Implementation Actions

1. Navigable waterways and water quality standards will be enforced in Brunswick County.

### 2.1.9 Industry in Fragile Areas

Clean industry is encouraged throughout the County. Preferably, the County would not like to see industrial development in fragile areas; however, certain resource-linked industries have a need to locate adjacent to resources which are also deemed as fragile. An example of this type of industry is a marina/boat yard which has to be located along a waterway. The County will consider all industrial location decisions on a case by case basis and when it is felt appropriate and necessary for an industry to locate in a fragile area, environmental impacts will be mitigated to the greatest extent possible.

Policy 2.1.9

CLEAN INDUSTRIES WILL BE ALLOWED TO LOCATE IN FRAGILE AREAS WHEN PROVEN ABSOLUTELY NECESSARY TO DO SO AND ENVIRONMENTAL IMPACTS CAN BE MITIGATED.

Implementation Actions

1. Brunswick County will require all industries proposing to locate in fragile areas to have prepared an Environmental Impact Statement (EIS) with acceptable mitigation strategies.

2. A CAMA permit will be required of all developments in AEC's.

3. A zoning ordinance should be developed and implemented which imposes performance standards for industrial uses.

### 2.1.10 Development of Sound and Estuarine System Islands

There are many small sound and estuarine islands in Brunswick County which are privately owned. The most significant of these islands is Bird Island. These islands under private ownership should be allowed to be developed in accordance with private property rights enjoyed by other property owners in the County, provided the natural environment is not compromised.

**Policy 2.1.10**

**DEVELOPMENT OF SOUND AND ESTUARINE SYSTEMS ISLANDS IS PERMITTED PROVIDED THE NATURAL ENVIRONMENT IS NOT COMPROMISED.**

**Implementation Actions**

1. A CAMA permit is required of all proposed developments located within Estuarine Shoreline AEC's.

## 2.2 Resource Production and Management Policies

### 2.2.1 Productive Agricultural Lands

Agricultural lands and production have been decreasing in Brunswick County over recent years due to a general downtrend in the U.S. farm economy. Farm lands in Brunswick County are not yet experiencing significant development pressures. Currently, agricultural practices are not placing severe adverse impacts on the natural environment. For these reasons, the County's policy on agricultural lands is oriented towards general support of farming.

**Policy 2.2.1**

**BRUNSWICK COUNTY SUPPORTS THE CONTINUED PRODUCTIVE AGRICULTURAL USE OF LANDS TEMPERED BY THE PROPERTY OWNER'S RIGHTS TO DEVELOP HIS LAND IF HE SO WISHES UNDER ALL APPLICABLE REGULATIONS.**

**Implementation Actions**

1. A zoning ordinance should be developed and implemented which protects active farmland from intense development pressures.

### 2.2.2 Commercial Forest Lands

The Planning Board estimates that approximately two-thirds of all land in Brunswick County are commercial forest lands. Commercial forest lands for paper production are a very important land use in the County. Commercial forestry activities in accordance with standards and recommendations of the U.S. Forestry Service are not deemed to have significant adverse environmental impacts.

**Policy 2.2.2**

**BRUNSWICK COUNTY SUPPORTS COMMERCIAL FORESTRY AS A MAJOR LAND USE PROVIDED SIGNIFICANT ADVERSE IMPACTS ON NATURAL RESOURCE SYSTEMS CONTINUE TO BE MINIMAL.**

**Implementation Actions**

1. A zoning ordinance should be developed and implemented which, on one hand, protects commercial forest lands and, on the other, would easily facilitate higher intensity land use should commercial forestry no longer become a viable use of the land.

### 2.2.3 Mineral Production Areas

There are no significant mineral production and mining activities in Brunswick County. There are deposits of sand, gravel and coquina scattered throughout the County. The feasibility of mineral or peat mining and production is speculative at best and would have to be considered at the appropriate time given the prevailing circumstances.

*Policy 2.2.3*

MINERAL PRODUCTION AND MINING ACTIVITIES WILL BE CONSIDERED ON A CASE BY CASE REVIEW OF ECONOMIC BENEFITS AND ENVIRONMENTAL AND LAND USE IMPACTS.

**Implementation Actions**

1. Brunswick County will enforce all state guidelines and regulations regarding mining and extraction activities.

### 2.2.4 Fisheries Resources

Brunswick County has been experiencing increasing amounts of recreational fishing boats in its waters with the growth of tourism. There is public concern that the County's waters are being overfished and that all manner of marine life is being rapidly depleted. The County would like to see better fisheries management and enforcement in its waters. Additionally, the County is interested in the feasibility of aquaculture to aid in restoration of fish and other marine populations.

Policy 2.2.4

BRUNSWICK COUNTY SUPPORTS EFFORTS TO MAINTAIN AND ENHANCE THE FISHERIES RESOURCES OF ITS WATERS, INCLUDING BETTER FISHERIES MANAGEMENT AND ENFORCEMENT SUPPLEMENTED BY AQUACULTURE ACTIVITIES.

**Implementation Actions**

1. Brunswick County will participate in the off-shore artificial reef program.

2. Brunswick County will help facilitate permits for aquaculture activities.

3. Brunswick County will support and assist the Department of Marine Fisheries in its Fisheries Management Enforcement activities.

### 2.2.5 Off-Road Vehicles

The majority of four wheel drive vehicle use in Brunswick County occurs along the beaches which are not under County jurisdiction. Off-road vehicles have also been known to traverse the County's wetlands and other fragile areas. This practice is highly discouraged in wetland areas because of the adverse impacts these vehicles inflict.

Policy 2.2.5

**BRUNSWICK COUNTY DISCOURAGES THE USE OF OFF-ROAD VEHICLES IN ALL FRAGILE AREAS BECAUSE OF POTENTIAL ADVERSE IMPACTS.**

**Implementation Actions**

1. Brunswick County will enforce all private property trespass laws.

2. Brunswick County will enforce AEC guidelines for fragile areas which restrict off-road vehicle use.

### 2.2.6 Development Impacts

All of the County's major development impact issues are covered under specific policy area headings in various parts of Section 2 of this Plan. The Table of Contents provides a means of quickly identifying particular development impact policies.

## 2.3 Economic and Community Development Policies

Of equal importance to resource protection, production and management is the economic and community development of Brunswick County. Policies outlined in Section 2.3 will encompass such issues as the types and locations of development, provision of services for development, the desired pattern of development, state and federal program support, and other more local issues.

### 2.3.1 Types and Locations of Desired Industries

Brunswick County encourages clean industry to locate throughout the County as long as siting is compatible with existing land uses and environmental impacts can be mitigated. Industrial location in fragile areas is not encouraged; however, it is recognized that certain industries necessarily need to be resource based. Industrial siting in fragile areas will be reviewed on a more rigorous case by case basis (discussed in policy area 2.1.9).

Tourism and related services is the biggest growth industry in the County and it is recognized that Brunswick County's greatest tourism attractions are its coastal proximity and unspoiled natural environment. Therefore, the County feels it essential to protect these vital assets. To this end, potentially hazardous industries such as those which produce hazardous wastes and toxic substances, and which cannot clearly demonstrate how such wastes will be adequately disposed of, will, in the future, be discouraged.

**Policy 2.3.1**

**BRUNSWICK COUNTY ENCOURAGES THE DEVELOPMENT OF CLEAN INDUSTRY THROUGHOUT THE COUNTY, PROVIDED SUCH DEVELOPMENT IS COMPATIBLE WITH SURROUNDING LAND USES AND THAT POTENTIAL ENVIRONMENTAL IMPACTS CAN BE EFFECTIVELY MITIGATED. HAZARDOUS WASTE DISPOSAL SITES ARE DISCOURAGED WITHIN THE COUNTY.**

**Implementation Actions**

1. A zoning ordinance should be implemented with performance standards for industrial uses.

2. Brunswick County will require all potential industry to obtain applicable State and Federal permits.

### 2.3.2 Provision of Services to Development

Brunswick County is attempting to provide basic services to new and existing developments in the unincorporated areas of the County classified as Developed or Transitional. A central piped water supply system is already in place and capacity is being expanded.

The County supports and encourages private district based wastewater treatment services for developed areas in the absence of a county-wide sewer system. Several municipalities within the County are tied into the County piped water supply system and have their own municipal sewerage systems. All municipal and unincorporated areas of the County utilize the County operated sanitary landfill for solid waste disposal. Collection and disposal services will need to be expanded to facilitate future growth. Strides are being made in this area.

As discussed in Section 1.4 of this Plan, other Brunswick County community facilities and services are being adequately provided for. Although school enrollments have been increasing in recent years, there is not expected to be an overwhelming demand for additional school services since the majority of population growth in the County is attributable to tourism, seasonal influxes and retirees. School facility planning is addressed separately in the "Brunswick County School Survey Report 1984-85" and referenced in section 1.4.6 of this Plan. (Road development will be discussed in a separate policy area.)

**Policy 2.3.2**

**BRUNSWICK COUNTY WILL STRIVE, TO THE BEST EXTENT POSSIBLE, TO FACILITATE THE EXPANSION OF PUBLIC SERVICES TO MEET THE NEEDS OF EXISTING AND FUTURE POPULATIONS.**

**Implementation Actions**

1. Brunswick County will continue an ongoing program of expanding and improving public services and facilities through the plan period, as outlined in Section 1.5.3 and in the annual budgets.

2. A detailed 5 year Capital Improvements Program should be developed in conjunction with this Land Use Plan and the annual County budget.

### 2.3.3 Urban Growth Pattern

The urban growth pattern of Brunswick County is predictably linear along its Atlantic coast and somewhat along the western bank of the Cape Fear River. In 1986 it is estimated that between 75 and 80 percent of the County's total population is located in the unincorporated areas of the County. Rapid growth is still being experienced in the incorporated beach communities, particularly in the southern portion of the County. Strong growth is also being experienced in the Shallotte area and in the Leland/Belville/Navassa area. Most of this growth has taken the form of low to medium density single-family residential.

The growth pattern of Brunswick County has, and will continue to be, strongly influenced by its coastal proximity and the existing road system. A public piped water supply system is reinforcing the existing urban pattern. Should any development occur at all in the remote non-serviced areas of the County, it should preferably be low density residential.

Policy 2.3.3

BRUNSWICK COUNTY SUPPORTS AND ENCOURAGES THE CONTINUED EXPANSION OF THE EXISTING URBAN GROWTH PATTERN AND WILL ATTEMPT TO MANAGE FUTURE GROWTH THROUGH THE DEVELOPMENT AND USE OF ENHANCED LAND USE CONTROLS AND GROWTH MANAGEMENT TECHNIQUES.

Implementation Actions

1. A zoning ordinance should be developed and implemented which reflects the overall pattern and trend of the Land Classification Map and facilitates the adjacent spatial location of compatible land uses.

2. Public services and facilities provided by Brunswick County, such as piped water, will be extended in accordance with the established pattern of growth.

### 2.3.4 Redevelopment

Beyond scattered historic home restoration, there is little restoration/redevelopment activity occurring in the unincorporated areas of Brunswick County. The need for traditional forms of redevelopment seems to take care of itself more so in Brunswick County than in other counties that are experiencing less dramatic growth and escalating property values.

Policy 2.3.4

BRUNSWICK COUNTY SUPPORTS AND ENCOURAGES RESTORATION OF SIGNIFICANT AND ARCHITECTURALLY IMPORTANT HISTORIC STRUCTURES AND REDEVELOPMENT OF SUBSTANDARD DEVELOPMENT WITHIN THE COUNTY.

Implementation Actions

1. The County will continue to enforce the State Building Code to ensure new and existing developments comply with State safety and health standards.

### 2.3.5 State and Federal Program Support

Brunswick County recognizes and supports all applicable state and federal programs affecting economic and community development. The County attempts to cooperate and assist in the implementation of these programs whenever possible. Of most significant importance to Brunswick County are those federal and state programs related to roads and water transportation. The County supports the U.S. Army Corps of Engineers' continued maintenance of the Intracoastal Waterway and the North Carolina Department of

Transportation's ongoing Thoroughfare Improvements Plan. As identified elsewhere in this Plan, the conditions of many roads in the County are hazardous. Immediate and continuing improvements are needed.

**Policy 2.3.5**

**BRUNSWICK COUNTY SUPPORTS ALL APPLICABLE STATE AND FEDERAL PROGRAMS REGARDING ECONOMIC AND COMMUNITY DEVELOPMENT, ESPECIALLY THOSE PROGRAMS RELATED TO WATER AND ROAD TRANSPORTATION SYSTEM IMPROVEMENTS.**

**Implementation Actions**

1. The County will work with the North Carolina Department of Transportation to implement the recommendations of the ongoing Thoroughfare Plan.

2. The County will continue the economic development efforts of the County Resources Development Commission.

3. The County staff will closely monitor Federal and State programs, especially grant funding programs, with the interest of informing County Commissioners and the Planning Board of important information or changes pertaining to these programs.

### 2.3.6 Channel Maintenance and Beach Nourishment

Brunswick County's beaches and boating waterways are vital to the tourism economy of the entire County. Efforts to maintain the County's beaches and waterways are encouraged by the Planning Board, including the use of Intracoastal Waterway dredge spoils for beach renourishment and inlet stabilization.

**Policy 2.3.6**

**BRUNSWICK COUNTY SUPPORTS THE CONTINUED MAINTENANCE OF NAVIGABLE CHANNELS AND INLETS AND THE RENOURISHMENT OF THE COUNTY'S BEACHES.**

**Implementation Actions**

1. Brunswick County support U.S. Army Corps of Engineers' ongoing maintenance and beach renourishment activities.

### 2.3.7 Energy Facilities

There are currently two major energy producing industries in Brunswick County, Carolina Power and Light and Cogentrix, Inc. Both of these industries are valuable economic assets

to the County. Future energy facilities locating in Brunswick County, whether on-shore or off-shore, are encouraged to meet or exceed the standards of design and operation being used by existing energy facilities. It will be the burden of future energy facilities, as well as any other major industries, to prove that their design and operations will have no significant adverse impacts on the environment or the County's communities and people.

Policy 2.3.7

ANY NEW MAJOR ENERGY FACILITIES TO BE LOCATED IN BRUNSWICK COUNTY SHALL, PRIOR TO APPROVAL, MAKE A FULL DISCLOSURE OF ALL COSTS AND BENEFITS ASSOCIATED WITH THE PROJECT AND WILL FURTHER MITIGATE ALL POTENTIAL ADVERSE IMPACTS OF THE PROJECT.

**Implementation Actions**

1. Brunswick County will support the preparation of an Environmental Impact Assessment and Mitigation Plan of any proposed new major energy facilities.

### 2.3.8 Tourism and Beach and Waterfront Access

The beaches and waterfronts of Brunswick County are its single greatest economic attraction. Maximum access to these areas is critical. The County only has a very small amount of beach under its direct jurisdiction (Baptist Assembly Ground). Most of the County's beaches are under the jurisdiction of incorporated beach municipalities. There is concern that the County's beaches and waterfront need to remain highly accessible in order to facilitate new growth in tourism.

Policy 2.3.8

BRUNSWICK COUNTY SUPPORTS AND ENCOURAGES EFFORTS TO PROVIDE REASONABLE PUBLIC ACCESS TO THE BEACHES AND COASTAL WATERFRONTS.

**Implementation Actions**

1. Brunswick County will participate in State Beach Access programs.

### 2.3.9 Coastal and Estuarine Water Access

Equally important to beach access is the continued provision of access to the County's estuarine waters, the Intracoastal Waterway, and other coastal areas. This issue is not felt to have been adequately addressed in the past.

Policy 2.3.9

BRUNSWICK COUNTY SUPPORTS AND ENCOURAGES EFFORTS TO PROVIDE REASONABLE PUBLIC ACCESS TO ITS ESTUARINE WATERS, THE INTRACOASTAL WATERWAY, AND OTHER COASTAL AREAS.

Implementation Actions

1. Brunswick County will participate in State Coastal and Estuarine Water Access programs.

**2.3.10 Residential Development**

Rapidly increasing residential development is a direct outcome of Brunswick County's tremendous tourism, seasonal and permanent population growth. As stated in Policy 2.0, it is the County's intention to encourage and service existing and new residential development to the extent possible. A wide variety of housing types and costs is encouraged. Brunswick County experienced approximately 50 percent increase in total housing units between 1980 and 1986. Mobile homes constituted a large percentage of these 10,686 total units added. The County is currently considering a mobile home ordinance to manage this type of residential growth since it is expected that manufactured housing will continue to be prevalent in the future development of the County. The location of new residential development should be generally located in those areas identified as appropriate on the Land Classification Map.

**Policy 2.3.10**

**A VARIETY OF SAFE, SANITARY, AND AFFORDABLE RESIDENTIAL DEVELOPMENT TYPES IS ENCOURAGED WITHIN THOSE AREAS OF BRUNSWICK COUNTY IDENTIFIED AS APPROPRIATE BY THE LAND CLASSIFICATION MAP IN CONCURRENCE WITH THE PROVISION OF NECESSARY URBAN SERVICES.**

**Implementation Actions**

1. A zoning ordinance should be developed and implemented to guide the location and density of future residential development.

2. The County subdivision ordinance should be strengthened to better control subdivision design and improvements, including the establishment of minimum lot sizes.

3. The County should consider the development and implemention of a mobile home ordinance.

## 2.3.11 Commercial Development

In the past, the commercial needs of Brunswick County residents were met by either Myrtle Beach, Whiteville, or Wilmington. As the County continues to grow, the need for more localized commercial activities and services also continues to increase. Commercial Development is therefore encouraged in order to meet the needs of expanding residential markets.

In most urban areas, there is a natural tendency for commercial uses to locate in a stripped fashion along the area's major highways. Such stripping provides maximum exposure to the traveling public and allows developers to pick scattered sites where real estate prices are less competitive.

Unfortunately, this pattern of development has many public costs:

1. The use and efficiency of the highway is diminished by the number of driveway cuts and turnouts onto the highway. This can cause an unpredictable flow of traffic, resulting in congestion and increased accidents. In most instances, it eventually results in the loss of the highway for its originally intended purpose, that of moving traffic through the area. Parallel roads must then be built at additional public expense.
2. This stripped development pattern is also more costly to service with regard to the extension of water and sewer lines, police and fire protection, and trash collection.
3. Strip commercialization can eventually lead to visual blight due to a proliferation of signs, variable setbacks, unplanned parking areas with minimal landscaping, etc.

Strip commercial is prevalent in Shallotte along US 17 and in other spots throughout the County.

### Policy 2.3.11

**BRUNSWICK COUNTY ENCOURAGES COMMERCIAL DEVELOPMENT IN APPROPRIATE LOCATIONS THROUGHOUT THE COUNTY; THE COUNTY DISCOURAGES COMMERCIAL STRIP DEVELOPMENT.**

### Implementation Actions

1. A zoning ordinance should be developed and implemented to gude the location and intensity of future commercial development.

## 2.3.12 Airstrips and Airports

Brunswick County has three airstrips (identified on the Community Facilities Map) with no commercial service. Air service expansion is expected to be necessary in light of increasing growth and development. It is essential that land uses adjacent to airport development and expansion areas be compatible with this most necessary service.

Policy 2.3.12

BRUNSWICK COUNTY ENCOURAGES AIRPORT EXPANSION AND DEVELOPMENT TO BETTER SERVE THE TOURISM ECONOMY.

Implementation Actions

1. The County will continue to enforce airport zoning on land adjacent to existing air strips in order to ensure land use compatibility.

2. A zoning ordinance should be developed and implemented which is sensitive to future airport expansion/relocation needs.

### 2.3.13 Roads

The number one issue identified in public meetings in Brunswick County is the numerous inadequate and unsafe roadways. Numerous road areas with unusually high accident concentrations are identified in Section 1.3.1(b) of this Plan. The North Carolina Department of Transportation (NCDOT) is currently working on a Thoroughfare Plan for Brunswick County which will identifies inadequate and unsafe areas and recommends necessary improvements. The preliminary recommendations of this Plan regarding necessary new roads and improvements are exhibited on the Community Facilities Map.

Brunswick County roads are particularly hazardous during the summertime peak population months and in areas where expedient evacuation may be necessary.

Another issue of concern in the County is the number of inadequate and unpaved subdivision roads. The primary reason subdivision roads need to be standard is to ensure that emergency vehicles will be able to safely operate on them should an emergency arise.

Policy 2.3.13

**BRUNSWICK COUNTY SUPPORTS ALL STATE AND FEDERAL PROGRAMS DESIGNED FOR LOCAL ROAD IMPROVEMENT, AND ENCOURAGES THAT ALL SUBSTANDARD EXISTING SUBDIVISION ROADS BE UPGRADED AND IMPROVED TO AT LEAST STATE SECONDARY ROAD STANDARDS, AND THAT ALL NEW SUBDIVISION ROADS ALSO BE CONSTRUCTED TO AT LEAST THAT STANDARD.**

Implementation Actions

1. The County will work with the NCDOT to implement the recommendations of the ongoing Thoroughfare Plan.

2. The subdivision ordinance should be improved to ensure that all new subdivision roads be constructed to at least State secondary road standards.

### 2.3.14 Beautification

Part of Brunswick County's tourism attraction is its unspoiled beauty and unobtrusive scale of development. It is important that these characteristics be preserved in order to maintain and improve the tourism economy.

**Policy 2.3.14**

**BRUNSWICK COUNTY SHALL SEEK TO ENCOURAGE BEAUTIFICATION MEASURES WHICH PRESERVE THE NATURAL AMENITIES OF THE COMMUNITY WHICH FIRST ATTRACTED TOURISTS HERE TO BEGIN WITH.**

**Implementation Actions**

1. Important tourism transportation corridors should be identified and tagged for focused beautification efforts.

2. A zoning ordinance should be developed and implemented which establishes beautification standards for identified important tourism corridors, discourages strip development and establishes adequate setbacks, buffering and landscaping requirements.

3. The County should continue and step-up enforcement of the litter and refuse ordinance.

4. The County should consider developing and implementing a sign and mobile home ordinance.

## 2.4 Public Participation Policies

*Introduction*

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 policies reflect, as closely as possible, the will of the people in the community.

*Process*

The public participation process for this Land Use Plan Update began in the Fall of 1985. A series of seven public work sessions was conducted in November. Meetings were advertised and held in each of the County's six townships. In addition, a seventh meeting was held for identified organizations and interest groups within the County. A total of ninety persons participated. The purpose of this series of meetings was to identify important land use problems and opportunities for the plan update to address. A summary of comments from those public meetings is included in Appendix 4 of this plan.

After the plan was preliminarily reviewed by the Coastal Resources Commission in the Fall of 1986, a second series of public meetings were held in the Spring of 1987 to help further define the issues. The Brunswick County Board of Commissioners declared the week of May 11th through May 15th, 1987 as "Land Use Week." A series of four public meetings was advertised in the *State Port Pilot* and the *Brunswick Beacon*. Official public notice was given and announcement flyers were distributed. In addition, 184 personalized letters were sent to known interest groups and leading citizens inviting participation.

Despite these attempts, attendance at this round of public meetings was low. Each of the four meetings held was co-chaired by members of the County Board of Commissioners and the Planning Board. In order to maximize input from those attending, a nominal group process was used to identify and prioritize development issues. A summary and prioritization of the issues discussed at each meeting is included in Appendix V of this plan. The Planning Department conducted a comparative analysis of the priority ranking of major problems, issues and opportunities identified in workshops and public hearings during previous and current Land Use Plan Updates. This analysis is also presented in Appendix V.

On June 17th the Brunswick County Planning Board conducted an advertised special meeting to develop policy statements and implementation actions for this plan. Following completion of the first draft, another Planning Board session was conducted August 19th to discuss the Plan Update. On August 26th the Board met for another plan workshop and later met jointly with the Brunswick County Commissioners to discuss setting a Public Hearing for the Plan Update. The Commissioners set the Public Hearing for October 5, 1987.

The Public Hearing was advertised in the local press on September 2, 1987. Copies of the Public Hearing Draft Plan were sent for review to the County's 14 municipalities, Wilmington and neighboring counties including Columbus, New Hanover, and Horry County, SC. Additional copies of the Draft Plan were available for inspection in the County Planning Department. On October 5, 1987 the Public Hearing was held and 13 residents attended. Four persons spoke in favor of the plan and its reference to the need for zoning. No negative comments regarding the Plan were received during the Public Hearing Process.

On October 21, 1987 the Brunswick County Planning Board adopted the Brunswick County Land Use Plan and Policies for Growth and Development: 1987 Update. The Brunswick County Commissioners adopted the Plan November 2, 1987.

Overall, since the Fall of 1984, when work began on the Plan Update, the Planning Board has addressed the Plan in 28 meetings open to the public. Since November, 1985, seven public hearings and 15 public workshops have been held regarding this Plan Update.

**Policy 2.4.1**

**BRUNSWICK COUNTY WILL, TO EVERY EXTENT POSSIBLE, ENCOURAGE PUBLIC INVOLVEMENT IN LAND USE PLANNING AND DECISION-MAKING BY IMPROVEMENT OF PUBLIC PARTICIPATION COORDINATION AND NOTICE.**

**Implementation Actions**

1. Ensure adequate public notice of Planning Board meetings through the local press.

## 2.5 Storm Hazard Mitigation, Post-Disaster Recovery and Evacuation Plan

*Introduction*

Brunswick County, like other coastal counties, is vulnerable to 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 in order to assess the county's vulnerability to damage, mitigation processes must be identified and existing mitigation measures must be reviewed.

*Flooding*

Flooding is a hazard along the rivers in the county as well as the area immediately adjacent to the Intracoastal Waterway. Since much of this area is attractive for residential development, there is considerable private investment in these flood prone areas. Information gathered from a land use survey conducted in spring, 1985, indicated that nearly 1,500 residential structures were located in flood hazard zones as identified by the Federal Emergency Management Agency (FEMA). The total value placed on these structures by the Brunswick County Tax Supervisors office is approximately $41.2 million.

FEMA Flood Insurance Rate Maps identify those areas of land with a one percent chance of flood inundation in any given year. These flood prone areas are primarily the result of flooding that would be the result of storm surge, i.e. water that is pushed upstream by strong winds. Some flooding on small tributaries could be attributed to the more typical heavy rainfall over a short time period.

Storm surge flooding has been studied by the US Army Corps of Engineers. The Special Program to List the Amplitude of Surge from Hurricanes (SPLASH) model was used to map Storm Surge Inundation Areas so that evacuation studies could be made. The SPLASH map shows surge levels based on class one through class five hurricanes. By using these maps, local emergency management authorities can plan evaucation routes based on anticipated inundation levels. The SPLASH map is available for inspection at the Brunswick County Planning Office. Both the FEMA map and the SPLASH map are lacking in accuracy due to the lack of detailed topographical information in Brunswick County.

The most populated unincorporated areas of the county are generally not subject to flooding. Populated areas include; the Leland area, the area between Southport and Oak Island, and much of the area near the Intracoastal Waterway from the Lockwood Folly River westward to the South Carolina state line. Lands immediately abutting the waterway are subject to flooding.

### *Winds*

Hurricane force winds can cause serious structure damage as well as damage to overhead utilities. Brunswick County is located in a zone identified by the State Building Code as having a reasonable expectation of having 100 mph winds from a hurricane. The State Building Code requires that any new structure built in the county be able to withstand winds of 100 mph. The Building Code sets standards for design, anchorage and tie downs for structures.

### *Composite Hazard Map*

The Composite Hazards Map includes areas identified on the FEMA Flood Insurance Rate Map as being within the 100 year flood zone and areas identified by the Storm Surge Inundation Areas Map. It serves as a general guide as to where flooding could occur; however, it should not be used for site specific land use interpretation since detailed elevation information is not provided.

### *Existing Development at Risk*

Development in Brunswick County has historically taken place in a generally sweeping pattern that runs east of NC 87 in the northeast, and south of US 17 in the Waccamaw area which is in the northwest quadrant of the county. In the past five years, the greatest amount of development has been occurring in those areas adjacent to the beach communities, the Intracoastal Waterway and the rivers. This growth is primarily reflected in summertime populations rather than permanent populations. Development within the county's municipalities is addressed within individual municipal land use plans.

As stated earlier, there is considerable development located within flood hazard areas. There are, however, no recurring flooding problems on the mainland. Highway 17 in the Winnabow area is subject to flooding during extreme rainfalls. There are other isolated drainage problems that usually are associated with small area drainage basins.

None of the potentially hazardous industries located in Brunswick County (Sunny Point Army Terminal, which stores and transfers hazardous materials, Carolina Power and Light nuclear facility, and Pfizer Company which produces citric acid) are located in flood hazard areas. These facilities are all located on Highway 133 near Southport.

Unfortunately, the same environmental conditions and geographic locations that make the County so suceptible to hurricanes, also makes the County very attractive for seasonal, second home and permanent populations. Land development in the flood prone areas will continue to occur as the tourism/retirement economy of Brunswick County continues to expand. The County estimated that in 1985 there were residential structures valued at approximately $41.2 million within flood prone areas. 1987 Planning Department estimates the value of all structures within flood prone areas has increased to nearly $58 million.

### 2.5.1 Storm Hazard Mitigation

Storm hazard mitigation involves "activities which reduce the probability that a disaster will occur and minimize the damage caused by a disaster. Such activities can range from the establishment of a nationwide hurricane tracking system to the adoption of local land use regulations which discourage residential construction in floodprone areas. Mitigation activities are not geared to a specific disaster; they result from a long-term concern for avoiding the damages of future natural disasters." (McElyea, et al, *Before The Storm: Managing Development to Reduce Hurricane Damages,* 1982).

*Current Measures*

Current storm hazard mitigation measures are incorporated in various County and State ordinances and guidelines including the following:

- Brunswick County Flood Damage Preventors Ordinance.
- Brunswick County Building Code Ordinance.
- Brunswick County Subdivision Ordinance.
- Brunwick County Flood Insurance Rate Maps.
- Guidelines for Areas of Environmental Concern.
- NC Residential Building Code.

Brunswick County regulates development in hazard areas primarily through the flood plain management regulations which are outlined in Article 5, Articles A-E in Ordinance No. 62, an Ordinance Enacting a Building Code for Brunswick County, North Carolina. All development occurring in AEC areas must conform to state guidelines.

The following is a summary of findings relevant to the ability of current Brunswick County regulaitons to adequately manage development in hazard areas:

BRUNSWICK COUNTY BUILDING CODE ORDINANCE

The Brunswick County Building Code Ordinance which was enacted April, 1985 contains an element entitled "Provisions for Flood Hazard Reduction, (Article 5). This section cites the requirements for new construction or substantial improvements in areas of special flood hazard.

GENERAL STANDARDS

All structures shall be anchored to prevent flotation, collapse or lateral movement.

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 achors.

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 achitect.

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 adopted in 1980, is essentially a registration ordinance for new divisions of land. It contains no specific design criteria for the approval or disapproval of new subdivisions. Only streets that are to be dedicated to the state require design and construction standards. This results in some private roads in older subdivsion deteriorating and causing problems for vehicular traffic. The Subdivision

Ordinance does contain general design requirements as they apply to flooding. These requirements are as follows:

All minor subdivisions shall be designed so as to minimize flood damage to any lots, building, or other facilities within the development.

All utilities in a subdivision shall be designed and constructed so as to eliminate or minimize flood damage to those facilities.

All water supply and sewerage systems shall be designed so as to eliminate infiltration of flood waters into the systems and to eliminate discharge from the systems into flood waters.

Adequate drainage shall be provided in all minor subdivisions so that exposure to flood hazards will be at a minimum.

THE NORTH CAROLINA 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. Structures must be designed upon the size of the unit. 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*

Brunswick County does not have a zoning ordinance in effect in the unincorporated area. Without a zoning ordinance, the county does not possess the primary means available to local governments for controlling the location of different land uses and development in general. It is apparent that the primary need of the County, in relation to storm hazard mitigation, is the development of an ordinance to control how and where development occurs.

Countywide zoning could serve as an effective tool to guide growth and development to areas which would mitigate storm hazards. The provision, extension and timing of public utilities such as piped water and sewer can also be an effective growth management and storm hazard mitigation tool.

### *Storm Hazard Mitigation Policies*

**Policy 2.5.1(a)**

**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.**

Policy 2.5.1(b)

BRUNSWICK COUNTY, IN COOPERATION WITH THE STATE OF NORTH CAROLINA, SHALL CONSIDER PURCHASING PARCELS LOCATED IN HAZARD AREAS OR RENDERED UNBUILDABLE BY STORMS OR OTHER EVENTS, FOR THE PURPOSES OF SHOREFRONT ACCESS. DEVELOPERS MAY ALSO BE REQUIRED TO PURCHASE SUCH PROPERTIES FOR PUBLIC ACCESS AS A CONDITION FOR PROJECT APPROVAL.

Policy 2.5.1(c)

BRUNSWICK COUNTY SHALL CONTINUE TO ENFORCE THE NORTH CAROLINA BUILDING CODE, PARTICULARLY THOSE PROVISIONS WHICH REQUIRE CONSTRUCTION STANDARDS TO MEET WIND RESISTIVE FACTORS, I.E., DESIGN, WIND VELOCITY.

Policy 2.5.1(d)

BRUNSWICK COUNTY ENCOURAGES THE PLACEMENT OF UTILITIES UNDERGROUND FOR ALL NEW DEVELOPMENT.

2.5.2 Post Disaster Reconstruction

In order for the County to succeed in orderly reconstruction, each of the municipalities must prepare reconstruction plans. This is especially imperative of the beaches since they possess the greatest potential for destruction. The levels of hazard present in the County and the small number of persons qualified to handle reconstruction, makes it necessary for communities to make as many advance preparations as possible. The officials in each of the jurisdictions in the county must review each of their policies to determine which ones will be used in the guidance of reconstruction. Although each municipality will prepare its own reconstruction plan, the plans will have to be coordinated. This is especially true of the beaches because the beach communities are closely related and the actions of one municipality may affect conditions in the others.

In the wake of a hurricane that causes a great deal of structural damage, the importance of jurisdictional boundaries may be completely ignored as property owners return to repair or rebuild their property. A reconstruction plan prepared in advance will alleviate much of the confusion and make it possible for residents of all areas to rebuild quickly. It will also offer the additional advantage of requiring them to rebuild safely.

The local authorities should work closely with the Division of Emergency Management to determine if adequate evaluation has taken place. Local government authorities should be mindful of evaulation considerations when development is proposed in hazard areas.

To insure that there is coordination between the various municipalities and County government, periodic meetings are held. These meetings, which are both of a formal and informal nature are conducted to assure a constant state of preparedness for any foreseeable disaster or emergency. The County Emergency Management Coordinator acts as a liasion between municipal and county government on emergency preparedness matters.

*Major Reconstruction Steps*

It is of primary importance that local officials be aware of the federal, state and local procedures for assessing damages and filing for disaster aid. Due to this need, a discussion of the current procedures followed by the various agencies will be presented. These procedures provide the framework within which officials must work to carry out recovery activities. The major federal legislation geared towards disasters is the Disaster Relief Act of 1974, which embodies a variety of financial and direct assistance to local government and private citizens. The steps to be taken after a major storm event are as follows:

1. Local damage assessment teams survey the affected areas to determine the extent of storm drainage within the community.

2. Damage information is compiled and the nature and extent of damage is reported to the North Carolina Division of Emergency Management (DEM).

3. The DEM evaluates the damage information and advises the Governor of the seriousness of the situation.

4. The Governor may declare a State of Emergency and put the State's disaster relief and assistance plan into effect as well as direct state resources to places in need.

5. If it is determined by the Governor that the severity of the situation exceeds the capabilities of state and local government, the Governor may ask the President, via FEMA to declare an "emergency" or "major disaster".

6. Federal relief assistance given to a community after a declaration of an "emergency" usually ends one month after the initial Presidential declaration. Federal assistance for emergency work after a major disaster has been declared typically ends 6 months after the declaration and federal assistance for permanent work ends after 18 months.

*Federal Disaster Assistance*

Federal disaster assistance programs in the past allowed communities to rebuild to the same standards that existed before the storm. In recent years, however, policy has changed in order to keep communities from repeating the same mistakes. The following are two examples of such legislation:

1. <u>Executive Order 11988 - Flood Plain Management</u>

Directs federal agencies "to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of flood plain development wherever there is a practicable alternative."

2. Section 406 - Hazard Mitigation

FEMA can approve or prescribe hazard mitigation measures that a community must undertake as a prerequisite for issuing federal disaster aid. This can take the form of developing land use regulations, construction standards, and other means of avoiding storm hazards.

The County has a listing of the Federal Disaster Assistance Programs that it may be eligible for after a major storm event. The programs listed fall in the categories of Temporary Housing, Home/Personal Property Loans, Aid to Major Sources of Employment, Repair of Public Facilities, and a variety of others. The County, due to Hurricane Diana in September, 1984, has considerable expertise in identifying and applying for aid for which it is eligible.

*Local Damage Assessment Team*

A local damage assessment team must necessarily be composed of individuals who are capable of giving reliable estimates of the original value of structures, estimations of the value amount of damages sustained, and an account of reparis. Due to the vast amount of land and structures found in the unincorporated area, this calls for the organization of several assessment teams. The following are recommended team members as are delineated in the Brunswick County Disaster Relief and Assistance Plan.

PLAN PROPERTY SURVEY TEAM

Building and Grounds (driver)
Parks and Recreation Department Representative
Building Standard and Code Enforcer (Captain)
Architect

BUSINESS AND INDUSTRY SURVEY TEAM

Tax Collector (Captain)
Building Inspector
Realtor
Volunteer Fireman (driver)

PRIVATE DWELLINGS SURVEY TEAM

Tax Supervisor (Captain)
Volunteer Fireman (driver)

Realtor
Architect

PRIVATE DWELLINGS SURVEY TEAM

Building Contractor (Captain)
Civil Engineer
Realtor (driver)
Architect

The Emergency Management Coordinator should immediately begin efforts to secure volunteers and several alternates needed to complete the damage assessment teams. It will facilitate the speed at which the teams can be assembled if persons are already aware that their services will be needed following a disaster. In addition, if the persons who are to form these teams have already been chosen, then they can easily be informed of the necessity to attend training sessions and also where to meet immediately following a storm. These sessions will acquaint them with the damage classification procedures and reporting requirements that are in effect.

It would be advantageous if the County established such a training program and opened it to both County and local damage assessment teams. This would insure that all of the teams are evaluating structures and recording the information in the same manner. Also, to foster this goal and to increase preparedness, the team members should complete damage assessment forms as part of their training programs. This will allow them the opportunity to ask questions or receive clarification on any of the procedures.

It is extremely important that the status of damage assessment teams be updated on a frequent periodic basis in order to maintain an accurate file.

*Damage Assessment Procedures and Requirements*

Damage assessment is a rapid means of determining, to the best extent possible, an estimate of the amount of damage caused by either a natural or manmade disaster. In the advent of a major storm, it is expressed in terms of 1) the total number of structures damaged; 2) the extent of damage by type of structure; 3) estimated total dollar loss, and 4) estimated total dollar loss covered by insurance.

Immediately following a major storm, Damage Assessment Team members should report to the Emergency Operations Center for a briefing by the Emergency Management Coordinator. In the aftermath of a storm, it may be difficult to determine which areas received the most damages given the vastness of the County and possible unsafe road conditions. Since it is imperative that the Damage Assessment Teams be deployed to those areas that are worst hit, it would be particularly useful if those areas could be identified from the air. An aircraft of some type would be able to cover a great distance and obtain an overall picture of the damages. This information would assist the Emergency Manage-

ment Coordinator in dispatching the Damage Assessment Teams to the most heavily damaged areas. This could be accomplished through a prearranged commitment with organizations such as the Marine Corps or the Civil Air Patrol who could provide helicopter assistance.

The magnitude of damages will depend, to a large extent, on the severity of the storm and where it enters upon land. Because of the potential of the task, the limited personnel available to conduct the assessments, and the limited time frame for assessing damages, the first phase of the assessment should be restricted to external surveying of damaged structures. After filing the initial damage reports, a more detailed second phase assessment can be conducted.

The first phase of damage assessment should make an estimate of the damage caused to each structure. This damage assessment should also identify the cause of the damage to a structure - whether it be due to wind, flooding, wave action or a combination of events.

Damaged structures should be classified in accordance with the following suggested state guidelines:

DESTROYED - repairs that would cost more than 80 percent of the structure's value.

MAJOR - repairs that would cost 30 percent of the structure's value.

MINOR - repairs that would cost less than 30 percent of the structure's value, but the structure is presently uninhabitable.

HABITABLE - minor damage, with repairs less than 15 percent of the structure's value.

The Damage Assessment Team will color code tax maps according to the damage classification scheme outlined in the preceding paragraph.

DESTROYED - red
MAJOR - orange
MINOR - yellow
HABITABLE - green

In many cases mailboxes and other sources used to identify property will not be present following a major storm. This could pose a significant problem, however, because of the necessity of thoroughly documenting each assessment. One way to circumvent this problem is to provide the Damage Assessment Teams with tax maps and cameras in order to document their field observations. Enough information on each structure must be gathered to complete the Damage Assessment Worksheet.

In the second phase of the Damage Assessment Operation, estimates of the value of sustained damages must be calculated. This phase should be completed in the Office of Emergency Management under the direct supervision of the Emergency Management

Coordinator. The team who will be conducting these calculations should consist of the County tax clerks, tax assessors, and other personnel who are similarly qualified. This team should be organized by the Emergency Management Coordinator and included in the Damage Assessment Plan.

The materials that are listed below should be available in the office of Emergency Management. They will be needed in order to estimate total damage values.

- A set of property tax maps that are identical to those used by Damage Assessment Team members.
- A set of aerial photographs.
- Several County maps which show the survey areas covered by each team.

A complete copy of County property tax records which indicate the estimated values of all structures existing in the unincorporated area on the appropriate lots. It is recognized that this would be a time-consuming task, but it would provide information that would be of great use in the event of a disaster. Also, in order to keep the information up-to-date, it should be reviewed annually before the onset of the hurricane season. This information should be kept in the office of Emergency Management so that all data will be centrally located.

The County should take responsibility for contacting area lending agencies to determine the average value of flood insurance coverage carried by Brunswick County program participants. This information should be updated on an annual basis before the hurricane season begins. These updates should be kept in the office of Emergency Management and be made available to all of the towns for estimating the value of sustained damages covered by hurricane insurance.

The information on the value of damages sustained should be derived through the following recommended methodology.

1. The number of businesses and residential structures that have been damaged within unincorporated areas of the County should be summarized by damage classification category.
2. The value of each damaged structure should be obtained from the market set of tax maps and multiplied by the following percentages for appropriate classification category:

   DESTROYED - 100%
   MAJOR DAMAGE - 50%
   MINOR DAMAGE (uninhabitable) - 25%
   HABITABLE - 10%

3. The total value of damages for unincorporated areas of the County should then be summarized.
4. The estimated value loss covered by hazard insurance should then be determined by: 1) estimating full coverage for all damaged structures where the average value of such coverage exceeds the amount of damage to the structure; and 2) multiplying the number of structures where damage exceeds the average value of insurance coverage by the average value of such coverage.
5. Damage to public roads and utility systems should be estimated by utilizing current construction costs for facilities by lineal foot (e.g. 10' water line replacement cost = xs/ L.F.)

SOURCE: Carteret County Storm Hazard Mitigation Plan and Post Disaster Reconstruction Plan.

The procedures recommended above provide a relatively time efficient and uncomplicated means by which to estimate overall property damage. In order for this method to be utilized, however, it is necessary that flood insurance information is obtained and that the value of each structure is placed on the tax maps. These two components must be attended to immediately in order to insure the effectiveness of the Damage Assessment Plan.

*Organization of Recovery Operations*

The preceding section dealt with the procedure and requirements that must be completed during the emergency period in order to restore public health and safety. There are also procedures and guidelines which must be followed after the preliminary damage assessment has been completed. The state suggests 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 will be as follows:

1. Develop a restoration schedule.
2. Set priorites concerning restoration.
3. Obtain a predisaster agreement between the localities and the County that covers the pole 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 activites.)

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 Task Force should include 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

The County will work with all appropriate State and Federal Agencies and Officers during local recovery planning efforts.

It is not possible to devise a rigid schedule for local recovery decisions before a storm occurs due to the unpredictability of those events. The amount of time that it takes to assess storm damages and make reconstruction decisions directly correlated with the level of damage caused in the community. It is possible, however, to establish a sequence of activities that the County will need to follow in assessing damages and granting permits for repairs and reconstruction. The sequence of activities that follow should be reviewed by the Recovery Task Force and be amended as necessary after damage assessment operations have been completed.

| ACTIVITY | TIME FRAME |
|---|---|
| 1. Complete Initial Damage Assessment | Immediately after storm is over |
| 2. Begin Repairs to Critical Utilities and Facilities | As soon as possible after storm is over |
| 3. Access, Classify and Map Damages | Complete by second week after the storm |
| 4. Summarize Reconstruction Priorities and Develop Master Reconstruction Schedule | Complete one week after second phase damage assessment is completed |

| ACTIVITY | TIME FRAME |
|---|---|
| 5. Decide whether Temporary Development Moratorium is needed | One week after second phase damage assessment completed |
| 6. Issue Permits for all Structures needing Minor Repairs | One week after second phase damage assessment completed |
| 7. Issue Permits for Conforming Structures needing Major Repairs | Two weeks after second phase damage assessment completed |
| 8. Begin Assessment of Existing Mitigation Policies | Two weeks after second phase damage assessment completed |
| 9. Evaluate Hazardous Areas and the Effectiveness of Mitigation Policies | The length of time needed to conduct re-evaluations and receive comments from the state (not to exceed two months) |
| 10. Amend Mitigation Policies and Development Standards for Areas under Development Moratorium and Lift Development Moratorium for Major Repairs with Changes to Conform | Two months after Development Moratorium is imposed |
| 11. Issue Permits for New Development | As soon as the Tempory Development Moratorium is suspended |

*Post Disaster Reconstruction Policies*

Policy 2.5.2(a)

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. UNDERGROUND UTILITIES WILL ALSO BE ENCOURAGED.

Policy 2.5.2(b)

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.

Policy 2.5.2(c)

PRIORITY SHALL BE GIVEN TO THOSE REPAIRS THAT WILL RESTORE SERVICE TO AS MANY PERSONS AS SOON AS POSSIBLE.

Policy 2.5.2(d)

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.

### 2.5.3 Evacuation Plan

Evacuation refers to the range of activities involved in the assignment of evacuation routes and shelter locations, the determination of when to issue an evacuation order, the procedures for notifying the public of both the evacuation routes and the order to evacuate, and the implementation of the evacuation during the storm event. Evacuation activities are related to both specific storm events (e.g., actual evacuations) and storm events in general (e.g., establishment of evacuation routes and shelter locations; notification of the public of routes and shelters).

Brunswick County has an official Hurricane Evacuation Plan which has been prepared at the request of and approval by the Brunswick County Board of Commissioners, and mayors of towns and municipalities in the County. This plan was prepared with the assistance of the Brunswick County Civil Preparedness Agency and the North Carolina Department of Crime Control and Public Safety, Division of Civil Preparedness.

# Section 3: Land Classification

# 3.0 LAND CLASSIFICATION

## 3.1 Purpose of Land Classification and Relationship to Policies

A land classification system has been developed as a means of assisting in the implementation of the policies adopted by the County. By delineating land classes on a map, local government and its citizens can specify those areas where certain policies (local, State, and Federal) will apply. Although specific areas are outlined on a land classification map, it must be emphasized that land classification is merely a tool to help implement policies and not a strict regulatory mechanism. The designation of land classes allows the County to illustrate its policy statements as to where and at what density growth should occur, and where natural and cultural resources should be conserved by guiding growth.

The Land Classification Map is a carefully designed graphic representation of the policy statements reflected in this Plan, as was clearly based upon the citizen participation results.

This Map reflects not only existing land use patterns and intensities, but a ten year future extension of this situation, imagining as it does a continuing advancement of life style opportunity for present and future residents and visitors. The delineation of the classifications on the map is also a reflection of projected population growth and future land use needs.

This Land Classification Map is not a zoning map. There was some confusion with the 1981 Land Classification Map over this point. Accordingly, this Map no longer isolates out or separates out further breakdowns in the various classifications, such as Residential, or Rural Residential.

## 3.2 Land Classification System

While North Carolina's Coastal Area Management Act Guidelines for Land Use Planning suggest a general format for the land classification system, local governments may modify the system within reason to meet local area needs.

The land classification system includes five broad classes, some of which have been further subdivided to better classify existing development in the County. The five general land classes are developed, transition, community, rural, and conservation. A sixth major category delineated on the map is Municipal. These areas are incorporated municipalities which have separate Land Use Plans.

As discussed earlier in the section on Land Use Needs, it is the opinion of the Planning Board that the criteria specified by CAMA for the Land Classification System densities do not readily apply in Brunswick County for many reasons.

The N.C. Office of Budget and Management projects Brunswick County's permanent resident population in 1995 will be 65,002, and by 2000 will be 75,471.

Since the projection date of this Plan is ten years, by extrapolation, Brunswick County's permanent resident population in 1997 should be approximately 70,000.

It is projected that 80% of this permanent resident population will be situated in those areas of the country under the jurisdiction of this Plan, i.e. the unincorporated area. Thus a population of permanent residents for that area is projected at 56,000 in 1997.

Studies have determined that peak seasonal population adds two tourists for each permanent resident. For the county, 140,000 additional persons who are staying overnight will be in the county during peak tourist season in 1997.

The 1980 Census showed that 45% of the seasonal housing units are in this unincorporated area. Thus, an additional 63,000 persons staying overnight are projected during peak season in 1997.

Totals for 1997:

| | |
|---|---|
| Permanent Resident Population | 56,000 |
| Season Population | 63,000 |
| | 119,000 |

For purposes of this Update, this figure has been rounded to 120,000 as peak population staying overnight in the county by 1997, in the unincorporated area.

It is the county's position that the criteria and standards set by the NC Coastal Resources Commission do not relate to the facts of the pattern and density/intensity of development of Brunswick County, due to the factors outlined in Section 1.5.2 of this Plan.

Were the NC Coastal Resources Commission's standards to apply to this Plan, the following table illustrates the result:

| Land Classification | Square Miles | CAMA Density Guidelines | Assumed Population |
|---|---|---|---|
| Developed Mixed Use | 43 | 2,000/sq. mile | 86,000 |
| Transitional Mixed Use | 148 | 1,500/sq. mile | 222,000 |
| Community | 30 | 640/sq. mile | 19,200 |
| **Total** | | | **327,200** |

By the end of this period of planning, 1997, in Developed and Transitional areas where there is such a mix of land uses, including schools, churches, medical care facilities, fire departments, rescue stations, community centers, specialized features such as libraries, senior citizen centers, plus office and commercial needs, in addition to the open space features of wetlands, parks, recreation, water bodies, it is projected there will be not over one household per acre. Recall that even in the most densely developed areas of any city, some lands simply are not used.

A design factor of 700 persons per square mile is established for Developed Area. A design factor of 450 persons per square mile is established for Transitional area. And a design factor of 400 persons per square mile is established for Community areas.

| Land Classification | Square Miles | 1997 Population |
|---|---|---|
| Developed Mixed Use | 43 | 30,100 |
| Transitional Mixed Use | 148 | 66,600 |
| Community | 30 | 12,000 |
| Rural | | 11,300 |
| | | 120,000 |

The inclusion of a land area into a land classification category does not dictate the type of land use that will be allowed in a particular location. Several of the classes provide for and are designed to encourage a variety of land uses.

The Land Classifications and their subcategories are defined as follows:

1. Developed

   The purpose of the developed class is to provide for continued intensive development and redevelopment of existing urban areas. To be classified developed, the area should have a minimum density of 500 dwellings per square mile or 2000 people per square mile provided with usual public services including at least water, sewer,

recreational facilities, police, and fire protection. The developed class if divided into two types: Developed Mixed Use and Developed Industrial.

a. Developed mixed use areas are those with a full range of municipal services, yet are more suitable for a wide variety of development ranging from residential to industrial.

b. Developed Industrial specifically includes the land owned by existing major public or private industries operating in the County.

2. Transition

The purpose of the Transition classification is to provide for emerging and future urban development areas within the ensuing ten year period on lands that are most suitable and that will be scheduled for provision of necessary public utilities and services. The Transition lands also provide for additional growth when additional lands in the Developed classification are not available or when they are severely limited for development.

Other than on Developed lands, the developed or mostly developed Transition lands should be the only lands under active consideration for traditional urban services. This Plan proposed two categories of Transitional lands:

a. Mixed Use

This is the area of the county where thousands of individually owned lots are in the slow process of development, and where new development is occurring. These areas exhibit a variety of land uses, from low-density residential to commercial and very small industrial activities.

b. Industrial

These are the lands deliberately set aside by public policy to induce continuing economic development and job opportunities. In these areas, the county has a continuing activity of recruitment and help to industry and expansion of existing industry. It is in such areas that the newer industries have located and that the county's new Industrial Park is situated.

3. Community

This classification covers the traditional growth pattern of North Carolina, other than in traditional, real cities, with growth along established transportation corridors in a linear, low density character. It is usually mixed use.

Such areas are considered of rural character, and usually the full glamour of urban services is not expected to be expended to such areas. It is often necessary in such areas that a potable water supply source eventually replace utilization of ground water by wells, to avoid salt water infiltration.

4. Rural

Two rural classifications are shown. One is for the better agricultural lands that will not be absorbed in the normal urban development process, and one is for the unique forestry industry of the coastal plane. Experience shows wildlife preservation is in some instances in direct opposition to agricultural practices. So this Plan shows the only areas that may possibly provide a future for wildlife as the forestry areas.

5. Conservation

Two categories are shown, the same as in the 1981 Plan. The conservation per se classification is applied to lands that contain major wetlands, unique shoreline areas, areas hazardous for development.

Industrial Access Conservation is for those wetlands which are between the better industrial lands and the major channels of the Port. In such areas, access over such wetlands for port connections is permitted, as long as measures are taken to maintain those wetlands as nearly as possible in their natural condition.

Approximately 68 square miles have been classified as Conservation and 8 square miles have been classified as Conservation: Industrial Access.

# Section 4: Intergovernmental Coordination and Implementation

## 4.0 Intergovernmental Coordination and Implementation

During formulation of major plans and policies of the municipalities within the county, the Brunswick County Planning Department is involved in varying degrees, dependent upon particular situations. Sometimes, the department prepares the full plans of municipalities. Other times, it serves as a continuing advisor in the full development process. In other cases the Department only comments during formal review sessions in order to meet requirements of the Land Use Planning Guidelines of the NC Coastal Resources Commission.

Not only were the plans and policies of the municipalities considered in the development of the county's Land Use Plan, but special care was given to obtain the interaction and direct involvement of municipal elected and appointed officials in the planning process.

This Plan merges with as well as coordinates the plans of the municipalities.

Further, as in the past, and has been recognized, accepted, and recommended by the NC Division of Coastal Management over the years, the two small municipalities of Belville and Bolivia are served for their necessary plan activities by this Plan. The Town of Calabash will be preparing its own separate Land Use Plan beginning in 1987.

# Appendix I
## Brunswick County
## Soil Interpretation

| Soil | General Description | Slope | Septic Tank | Suitability for* Building | Roads |
|---|---|---|---|---|---|
| MANDARIN FINE SAND | Somewhat poorly drained nearly level soils on landscapes that are slightly higher than the adjacent flatwoods. | 0-2% | Severe (W) | Moderate | Moderate |
| MARVYN LOAMY FINE SAND | Deep, well drained upland soils. | 6-15% | Moderate (S) | Moderate (S) | Severe (S) |
| MUCKALEE LOAM | Poorly drained soils on floodplains. Subject to frequent overflow. | 0-2% | Severe (F) | Severe (F) | Severe (W) |
| MURVILLE FINE SAND | Nearly level poorly drained soils on flats or in slight depressions. | 0-2% | Severe (W) | Severe (W) | Severe (W) |
| NEWHAN FINE SAND | Gently undulating to steep excessively drained soil along the beaches and waterways. | 2-30% | Severe | Slight to Severe* | Slight to Severe* |
| NORFOLK LOAMY FINE SAND | Well drained. Nearly level to sloping soils on uplands. | 2-6% | Moderate | Slight | Slight |
| ONSLOW LOAMY FINE SAND | Moderately well drained soils on nearly level to gently sloping uplands. | -- | Severe (W) | Moderate (W) | Slight |
| PALTOLOS FINE SAND | Nearly level to gently sloping moderately well drained and somewhat poorly drained soils on stream terraces and uplands. | 0-5% | Severe (W) | Moderate | Moderate |
| PANTEGO MUCKY LOAM | Poorly drained nearly level soils on coastal plains. | Greater than 2% | Severe (W) | Severe (W) | Severe(W) |
| RAINS FINE SANDY LOAM | Poorly drained moderately permeable soils of the coastal plain. | Greater than 2% | Severe (W) | Severe (W) | Severe(W) |
| SWANSBORO FINE SAND | Excessively drained soils which are formed in coarse textured soil material deposited by dredging operations. | 0-15% | Severe | Slight to Moderate | Slight to Moderate |
| TOMAHAWK LOAMY FINE SAND | Somewhat poorly to moderately well drained soils on nearly level ridges. | 0-3% | Severe | Moderate | Moderate |
| TORHUNTA FINE SANDY LOAM | This soil is very nearly level, very poorly drained in upland bays and on stream terraces. | 0-2% | Severe (W) | Severe (W) | Severe(W) |

* [illegible] slope.

| Soil | General Description | Slope | Septic Tank | Suitability for* Building | Roads |
|---|---|---|---|---|---|
| WANDO | Excessively drained, rapidly permeable soils. | 0-6% | Severe | Slight | Slight |
| WOODINGTON LOAMY FINE SAND | These are poorly drained soils. | 0-2% | Severe (W) | Severe (W) | Severe (W) |
| YAUPON SILTY CLAY | Somewhat poorly drained finely textured soils. | 0-15% | Severe (W) | Severe | Severe |

# Appendix II

## Brunswick County Natural Areas Including Coastal Complex Natural Areas And Coastal Areas That Sustain Remnant Species

## APPENDIX II

## BRUNSWICK COUNTY NATURAL AREAS INCLUDING COASTAL COMPLEX NATURAL AREAS AND COASTAL AREAS THAT SUSTAIN REMNANT SPECIES

Brunswick County is one of the best endowed counties in the State with regard to natural diversity. The beaches, estuarine areas, rivers, pocosins, savannahs, and other natural areas all combine to give Brunswick County and its inhabitants a rich and unique ecological heritage.

The following information was provided by the Natural Heritage Program, a section of the Division of Parks and Recreation, North Carolina Department of Natural Resources and Community Development. These areas are considered to be of preservation priority containing significant natural features such as unique or rare species, habitats, plant communities, and geologic formations.

Endangered species known to exist in Brunswick County include the American alligator (alligator mississippiensis), the red-cockaded woodpecker (pecordes borealis), and the loggerhead sea turtle (caretta caretta).

Bald Head Island and Smith Island Complex - This area is an extremely rich and ecologically important habitat, encompassing about 9,000 acres of intertidal marsh and about 1,000 acres of upland. It is the most important nesting area for loggerhead sea turtles in North Carolina. The maritime forest is dominated by live oak with the northernmost population of sabel cabbage palmetto occurring here. The area is now managed as an ecological preserve.

Battery Island and Striking Island - These islands contain two of the largest and most diverse assemblage of nesting, wading birds in North Carolina. They are owned by the State and presently leased to the Audubon Society.

Big Cypress Bay and Ponds - This area represents an undisturbed limes sink complex. Rare plant and animal species include pondspice, a minor rookery for the great blue heron, and a nesting area for osprey and anhinga. The southern fox squirrel and the American alligator also use the area as as breeding ground. The area is prime wildlife habitat.

Big Island Savannah - One of the most diverse and exemplary pine savannahs in North Carolina. At least eight rare and endangered plant species are located in this 92-acre tract. The area was recently acquired by the Nature Conservancy, thus its preservation is insured.

Bird Island - Bird Island is the southernmost barrier island in North Carolina. It is presently undeveloped and relatively undisturbed. The island contains vegetation and animal species associated with a barrier ecosystem.

Blue pond and associated Limesink Complex - These ponds exist in relatively pristine condition. They contain large population of pondspice shrub and old growth stands of pond cypress. The pond is also a nesting area for osprey.

Boiling Springs Nature Area - This area consists of approximately 98 irregularly shaped variously sized depressions with white sandy bottoms and clear water, the majority of which are located within the municipality of Boiling Spring Lakes. Because of subdivision development, the area has been highly disturbed and total species diversity is low. However, it is probable that there exists a breeding population of red-cockaded woodpeckers.

Brunswick - Cape Fear Rivers and Tributaries - The rivers and their associated tributaries are home to and support a large variety of plant and wildlife. The area around Eagle Island supports one of the largest populations of alligators in any North Carolina river. Sixty-two were sighted in 1979.

Bryant Mill Bluff (Green Bank Bluff) - This is a unique topographic feature, a steep bluff, in Brunswick County facing the Cape Fear River. The area contains a stand of mixed hardwoods and a large population of galax, both unusual for a southeastern, coastal location.

Camp Branch Savannah - This savannah is one of the larger known longleaf pine and orange grass savannahs. It is intermediate in wetness and there is no shrub layer. The site contains a population of grass-of-Parnassas (Parnassia Caroliniana), a rare species throughout the state.

Drowned Bay Savannah - This is the most extensive sandy soil longleaf pine (Pinus palustris) savannah in the County. The site was probably timbered in the near past and there is evidence of frequent burning.

Ferry Slip Island - This is a low dredge spoil island in the Cape Fear River hosting very dense populations of seabirds. It contains the largest nesting colonies of brown pelicans and royal terns in North Carolina.

Gause Savannah - This savannah represents the drier end of the spectrum among clay soil savannahs and is unique in that respect. The site also contains a large population of hooded pitcher plants.

Green Pond Savannah - This savannah is dominated by mature pines and a low shrub layer of sand myrtle. Green Pond, located within the site, contains the threatened species loose water-milfoil and is a good example of a steep walled limesink.

Green Swamp Preserve - The preserve is a 15,722-acre tract owned by the Nature Conservancy. It represents one of the best remaining pocosin ecosystems North Carolina, while also containing pine savannahs, bay forests, and stands of white cedar. The area provides habitat for a variety of endangered and threatened species as well as fourteen different insectivorous plants. Its significance was recognized nationally by its designation in 1974 as a National Natural Landmark.

Henrytown Savannah - This is one of only a very few extensive, upland (slope) savannahs known (the only such one over an Entic Haplohumod soil).

Long Bays Savannah - This site represents an extensive high quality longleaf pine savannah. Both the red-cockaded woodpecker (federally endangered species) and Bachman's Sparrow (a threatened species within the state) were observed here. Also, an extremely large population of yellow star-grass (Hypoxis juncea), an infrequent savannah species within the state, occurs at this site.

Monks Island - This island contains the largest least tern breeding colony in the State, as well as breeding populations of black skimmers, gull billed, and common terns.

Orton Pond - Orton Pond is the largest and oldest open body of water within the County. It provides breeding habitat for anhinga, osprey, fox squirrel, alligator, and the red-cockaded woodpecker. Endangered plants include dwarf spike-rush, pondweed, meadow-beauty, tracy's beack-rush, and dwarf bladderwort. When the site is considered in its entirety, along with the Brunswick Town area limesinks, it is one of the most significant natural areas in Brunswick County and within the State.

Sandhill Creek Impoundment - This body of water, like Orton Pond, is the manmade lake of an old plantation. However, it is much more shallow and relatively little open water exists. A swamp forest is dominated by black gum and pond cypress. The site contains breeding population of great blue herons, anhingas, and alligators.

Shallotte Firetower Bay and Pocosin - This is a large bay with scattered low stunted pine and evergreen scrubs. An old red-cockaded colony was reported near the rim. The potential is good for other rare species.

Smithville and Carolina Bay Complex - This complex consists of a series of dozens of small and large Carolina bays, associated with sand rims, and pleistocene low ridge and swale topography. The bays are vegetated bay pond pine dominated low pocosin, along with examples of pine savannah communities. There also exists what is probably the largest population of sand myrtle in North Carolina. The bay complex represents significant wildlife habitat, both in terms of its size and diversity of available habitats.

Spring Creek Pond - This pond harbors a rare plant community of horsetail spikerush, fragrant water lily, and two unusual black gum domes.

Sunny Point Limestone Sinks - These five sink pools are located entirely within the boundaries of the Sunny Point Military Ocean Terminal owned by the United States Army. They provide habitat for several rare plants as well as being unique natural ponds restricted to a limited geographic region.

Sunset Beach Wood Stork Areas - A small flock from Florida and Georgia regularly visits during late summer in the vicinity of two freshwater ponds near Sunset Beach. This is thought to be the northernmost locality on the Atlantic Coast for use by wood storks.

Waccamaw Island Savannah - This savannah occurs on a fluvial "island" within the swamp forest adjacent to the Waccamaw River. Because of this, there are a number of extremely diverse microhabitats responsible for a large variety of plant species. It is a very high quality site and the only known example of a fluvial ridge and swale savannah in the state. There are also a number of rare and endangered plants.

Waccamaw River - Juniper Creek - This is an example of a meandering Blackwater River with extensive swamps of bald cypress and gum along its western shores. There is a diversity of animal and plant species within the river basin.

Zeke's Island Estuarine Sanctuary - The Zeke's Island Sanctuary is part of a national system designed to promote preservation, research, education, and to insure that the renewable economic resources of these areas are preserved. The area consists of approximately 1,165 acres of upland, sand flats, associated inter-tidal marsh, shallow water areas; and associated flora and fauna.

Addendum - A site listed in the 1980 Land Use Plan Update, Piver's Bay Bog, has since been destroyed. It is possible that the information pertaining to some of the sites listed above is now out-of-date.

# Appendix III

## Index of Brunswick County's Major Historic Sites

## APPENDIX III

### INDEX OF BRUNSWICK COUNTY'S MAJOR HISTORIC SITES

| Site | Location | Ownership |
|---|---|---|
| Williams House | On S.W. side of S.R. 1426, 0.7 mi. N.W. of junction with S.R. 1430, Phoenix Vicinity | Private |
| Belvedere Plantation | On west bank of Brunswick River near junction of U.S. 17-74-76 and River Road | Private |
| Railroad Hotel | On East side of S.R. 1438 at junction with U.S. 17, Lanvale | Private |
| Winnabow Plantation | On S.W. side of S.R. 1521, 1.5 mi. S.E. of junction with U.S. 17, Winnabow | |
| Clarendon Plantation | Between N.C. 133 and Cape Fear River S. of Junction with U.S. 17 | Private |
| Old Town Plantation | On N. Bank of Town Creek, at Cape Fear River | Private |
| Pleasant Oaks Plantation | At the intersection of N.C. 133 and State Road 1518 | Private |
| Orton Plantation | On East side of S.R. 1529, across from S.R. 1530, near Brunswick Town | Private |
| Brunswick Town | At the end of S.R. 1533, Orton Vicinity | State |
| Fort Anderson | Along the Edge of the River at Brunswick Town | State |
| St. Phillips Church | N.C. 133 off U.S. 17, Brunswick Town State Historic Site | State |
| Liberty pond and Colonial Fort | On West side of S.R. 1533, known as Orton Pond, Fort area is in Sunny Point | Private |

| Site | Location | Ownership |
|---|---|---|
| Battery Lamb and Saltworks | Old Bunkers within Sunny Point, Restrictive Zone and Saltworks near junction of Walden Creek and Cape Fear | Federal |
| Price's Creek Lighthouse | W. Bank of Cape Fear River on Price's Creek, at end of S.R. 1540 Southport | Private |
| "The Rocks" | In the Cape Fear River and extends from Federal point through Zeke's Island to Smith Island Marshes | Federal |
| Quarantine Station | Within the Cape Fear River 1-1/8 miles northeast of Southport | Federal |
| Fort Caswell | At the end of N.C. 133 at Caswell Beach | Private |
| Gause's Tomb | 500 feet Eastward from S. R. 1154 and South of Junny Branch Creek | Private |
| Boundary House | Located near the North and South Carolina State Boundary, .4 mile South of U.S. 17 | Private |
| Hickory Hall | Along the Western town limits of Calabash, South of S.R. 1163 | Private |
| Bald Head Lighthouse | In the N.W. corner of Bald Head Island | Private |
| Cape Fear Lighthouse Complex | S.E. corner of Bald Head | Private |

Historic sites are unique and nonrenewable educational, scientific, associative, or aesthetic resources which own their importance to associations with American history, archaeology, architecture, and culture of the past. These valuable resources constitute part of the human environment.

In order to seek to preserve this unique County asset, there is need for a management program. It is recommended that the joint Southport-Brunswick County Historic Preser-

vation Commission renew their activity to develop the means necessary to protect these important historical resources.

The Williams House

The Williams House at Phoenix is one of the last surviving country homes of its era in Northeast Brunswick County. The design and architectural style of this home lends itself to historical significance since this building form has been modified since the turn of the century. Unique features of the home include the separation of the kitchen and dining room from the main house, front door design, large number of fireplaces, and its elegant landscaped entrance. Presently the house is unoccupied.

Belvedere Plantation

This Plantation site is situated nearly opposite the City of Wilmington on the banks of the Brunswick River and near the junction of Highway 17 and River Road. It became the home site of two North Carolina Governors, Benjamin Smith and Daniel Russell.

At one time, the plantation encompassed over 1000 acres of land. A large brick manor house, carriage house smoke house, barn, overseer house, and slave quarters were grouped together on the one portion of the property.

The area has since been subdivided and a road has been laid where most of the buildings once stood. All that remains is a ballast stone building and huge old oak trees.

Battery Lamb and The Confederate Saltworks

Battery Lamb was a Confederate Fort on Reeves Point on the edge of the Cape Fear River. It was used during the Civil War as protection for the Wilmington Seaport.

Just below this area on Walden's Creek, a large Confederate Saltworks for the supply of salt to the soldiers was established. Saltwater was carried in tanks from New Inlet to the creeks and evaporated by artificial heat, producing a fine white salt at a small expense. It was probably demolished by the Federal blockades who fired at all signs of smoke.

Railroad Hotel

The Railroad Hotel located one-quarter mile off U.S. 17 on State 1538 is one of the more impressive landmarks in the area. It is a two-story wood frame building with a gable roof and a monumented front portico. It has a diamond shape louvered vent in the gable and two central interior chimneys.

The hotel was financed by Dr. E.G. Goodman sometime in the late 1880s as a business venture when there were proposals to link the railroad of Southport (Smithville) with Chicago. Because this speculation failed, the Railroad Hotel only saw limited use with local

visitors between Wilmington and Southport. The Railroad Hotel became utilized as a school house and at the present it lies idle.

Winnabow Plantation

Winnabow Plantation is located on the Southwest side of State Road 1521 along the edge of Rices Creek. It was built approximately in the 1730s and was said to be one of the nicest plantations in the early settlement days of the Lower Cape Fear Region. This plantation site became incorporated into Governor Russell's Plantation a few hundred feet further South of S.R. 1521.

The Governor Russell Mansion can still be seen at this location which is in fine repair, illustrating some of the colonial features of that era.

Clarendon Plantation

Clarendon Plantation is located five miles South of Belville along Rt. 133 and is one of the few fine old Cape Fear Plantations which has retained its identity. Clarendon, a 1,000-acre cotton and tobacco plantation, was named after Clarendon County which originally extended from Albemarle on the North to Saint Augustine, Florida on the South.

The powder magazine that is still standing on Clarendon Plantation is said to be the oldest building in the Carolinas. It is a square building of distinctive brick work believed to be late 17th century because the brick corner bonds and the pantile roof are the same architectural styles used at both Williamsburg, Virginia and Charleston, South Carolina.

During the aftermath of the American Revolution, the first Governor of North Carolina, Benjamin Smith, came into possession of Clarendon Plantation. Later in 1934 the site was purchased by the Watters Family who built a two-story antebellum house which has been moved but is still in good repair. It is here that the famous author, Inglis Fletcher, wrote "Lusty Wind for Carolina" (Archives and History, 1975).

Bordering the plantation along the Cape Fear River can be found one of the most interesting and intriguing time telling devices in America. It is a 50 foot wide canal said to be dug by the Indians and oriented so perfectly that the Summer Solstice sunrise ascends dead center in the canal, thus telling the Indians that the sun would then start moving Southward and providing them with the first calendar that was ever set up in these parts. There is also an unidentified avenue of ruins and live oaks which leads to an old Indian field where many different pieces of Indian pottery have been found.

Presently, Clarendon is closed to the public.

## Old Town Plantation

Old Town Plantation was located on the North bank of the Town Creek where it meets the Cape Fear River and was one of the oldest, if not the first, plantations in the Lower Cape Fear Region.

Artifacts collected by a UNC-W archaeological group around the old house site included a Hibernia half penny dated 1723, colonial red clay pipes and white salt-glazed stoneware of the eighteenth century. There is evidence of a mansion house with a central chimney and a four room structure with a fireplace in the corner of each room, which is very similar to the early eighteenth centuryVirginia buildings. Logistic analysis of the house site places the mean occupation date about 1723. This site is not open to the general public.

## Pleasant Oaks Plantation

The entrance to this beautiful plantation is located at the junction of Rt. 133 and State Road 1518 and extends back to the Cape Fear River.

"The Oak" as the plantation was originally named for many years was particularly distinguished for a grand grove of Oaks that extended from the antebellum house (which is situated on the junction between the river and Town Creek) from 1/2 mile to a large artificial lake. This body of water was known as the "Mill Pond" which supplied motive power for the Saw Mill and the grist and rice mills.

Pleasant Oaks Plantation had one of the most beautiful camellia gardens in the nation and at the present time, acres of azaleas and camellias are cultivated on the plantation. Unfortunately, the grounds are not open for public visitation.

## Orton Plantation

Orton Plantation, which is located seventeen miles South U.S. 17 and just nine miles North of Southport, is generally recognized as being one of the finest examples of Southern antebellum architecture, and has been acclaimed as one of the most beautiful showplaces in the South. The old mansion is not open to the public, but the beautiful structure is centrally located amid gardens that are open to the public with many interesting views from points of vantage along the meandering garden paths. The gardens are especially beautiful in early April when azaleas and camellias bloom and exhibit kaleidoscopic scenes around the stately mansion, under towering live oaks.

## Brunswick Town

The colonial town of Brunswick was begun in 1725 by Col. Maurice Moore of South Carolina as a real estate venture. In the 1730s, Brunswick Town was the seat of New Hanover County and, in 1764, it became the seat of the newly created Brunswick County. Brunswick Town was used as an early port town on the Cape Fear River where interchange

of goods between England and the colonists occurred. Once this small village was established, approximately sixty buildings were situated along the banks of the river.

In 1776, Brunswick was burned by British troops. Only two or three families returned after the Revolutionary War, and by 1830, the Town was totally in ruins.

In 1861, hundreds of tons of soil were placed over many of the ruins of the colonial town to establish Fort Anderson. The remaining ruins of Brunswick Town have been designated as a State Historic Site and are open to the public.

Fort Anderson

In 1861, hundreds of tons of soil were placed over many of the ruins of Brunswick Town to establish Fort Anderson. Located on both the mouth of a river and on a ridge, it was ideally located for defense.

Th Fort stretched one mile in length and it was composed of two batteries, "A" and "B", which possessed five guns each. Other gun emplacements. less impressive than the main batteries, were strewn along the line of defense. However, the guns were not utilized in the following years and North Carolina's 40th Regiment became bored, except for the practice drills and visitors from nearby areas (Asbury 1964).

On February 19, 1865, after severe bombardment, Fort Anderson fell to the North.

Today the earthwork mounds of the Fort have been naturally preserved, for the most part, and can be seen at the Old Brunswick Town Site, which is open to the public.

St. Phillips Church

St. Phillips Church, located in Brunswick Town, was constructed in 1736, making it one of the first churches in North Carolina. In 1754, construction was begun on a new church building to replace the first structure, but met numerous delays, and was not completed until 1768.

When Brunswick Town was burned in 1775, St. Phillips Church was probably destroyed at that time. When Confederate Fort Anderson was built across the ruins at Brunswick Town in 1862, the ruins of the church were planned as part of the Fort. During the bombardment of Fort Anderson in 1865, naval shells struck the church but did little damage. The Confederate dead from the bombardment were placed inside its walls where they were found by the capturing union troops.

At present, a restoration project is being coordinated by the State to help preserve the foundation and walls of this old historical church. It is open to the public.

## A Colonial Fort and Liberty Pond

A short distance below Fort Anderson, on a bluff called Howe's Point, are the remains of a Colonial Fort, and behind it the ruins of a residence in which tradition says was born, in 1730, one of the greatest heroes of the revolutionary (General Robert Howe). He was the trusted and honored Lieutenant of Washington. Robert Howe also lived at Kendal Plantation for a while, which is not part of Orton Plantation.

Presently the area is owned by the Federal Government at Sunny Point. It is not known how much of the site still exists because the whole area has been modified by the Federal Government. However, Liberty Pond is now known as Orton Pond and presents a beautiful example of a Historic National Landmark. This Pond was also used as the irrigation source for Orton Plantation's Rice Fields and can be viewed by the public.

## Price's Creek Lighthouse

Price's Creek Lighthouse, which is located along the banks of the Cape Fear River and its junction with the ferry landing, is one of the oldest range lights still standing in the Cape Fear Region. The circular brick tower and adjacent dwelling for the light keeper were both constructed in 1849 to serve the purpose as a range light for New Inlet. There also was a smaller back beacon which sat atop the keeper's dwelling.

The tract has been restored and preserved by its present owners, Pfizer Pharmaceutical Company.

## "The Rocks"

To prevent the Cape Fear River from silting shut from the opening of the New Inlet, Congress was petitioned to appropriate necessary funds for increasing the depth of water on the Cape Fear Bar and River. After careful surveys and estimates by the Corps of Engineers, it was decided to undertake the entire closure of New Inlet under the direction of Colonel W. P. Craighill. This work was begun in 1875.

A continuous line of mattresses composed of logs and brushwood loaded with stone was sunk and laid entirely across New Inlet. This work was continued from year to year by piling small stone rip-rap on and over this foundation, building it up to high water, and then finally covering it with heavy granite stones on its tip and slopes to low water. The project was completed and saved the deep water port of the Cape Fear River.

Today it is still standing and can be seen from the ferry that crosses from Southport to Fort Fisher.

## The Cape Fear Quarantine Station

Prior to building the Cape Fear Quarantine Station, all disinfection of vessels took place at the mouth of the Cape Fear by burning large quantities of sulphur, but the disinfection of crew clothing was never done properly. There were also no facilities to care for the sick, or detention areas for suspects; thus arose the need of a Quarantine Station.

In 1893, Congress granted the Marine Hospital Service the funding of $25,000 to build and equip a Quarantine Station. This new station was located in the river about 1-1/8 miles Northeast of Southport. The station was built on a pier 600 feet long, with gangways, docks, and ballast cribs.

Presently, only the foundations of a few water tanks are left intact and can be seen when crossing the Cape Fear River on the Ferry.

## Fort Caswell

Fort Caswell, which is located at the end of Caswell Beach, has been for years the principal coast defense of the Cape Fear River. Construction started in 1826, but the Fort was not completed until some time later.

Fort Caswell had an enclosed pentagonal structure with two rolls of moated soil mounds used as fortifications. Each mound contained many small openings through which small firearms could be discharged easily.

On the top of the Fort were enough emplacements for sixty-one channel bearing guns and situated within the soil fortress were spacious barracks, officer quarters, store rooms and armory areas. In fact, Fort Caswell was one of the most well built forts in the South.

During the later part of the Civil War, the Fort was destroyed, not by the Federal fleet, but by the Confederates themselves when they received word that Fort Fisher had fallen. Before the Confederates abandoned the Fort, they blew up all of the major power magazines and most of the original Fort Caswell was reduced to ruins.

Towards the latter part of the nineteenth century, the Fort was allowed to deteriorate to such an extent that just prior to the Spanish-American War, it was in a dilapidated condition. Then came the Spanish-American War and Fort Caswell was rebuilt with concrete emplacements on which five, eight and twelve inch disappearing rifles were mounted atop the Southeast corner of the original Fort. Along with attendant magazines there were spacious wooden barracks and five wooden dwellings for the officer quarters. Most of these structures are existing today.

The Fort was actively garrisoned until about 1923, after which it was declared surplus and all of the remaining armament and material declared obsolete and sold for scrap. Fort Caswell lay idle until the U.S. Navy used it during World War II as a military base to control

submarine attacks. It saw limited use during the following years and the Fort was again declared a surplus site and offered for sale.

From 1949 until the present, Fort Caswell has been owned by the North Carolina Baptist Seaside Assembly and utilized by that organization as a recreational and religious center for Baptists of North Carolina. There is only limited public access to the beautiful, spacious, historic grounds of the old fort site, which exists as an important part of our common heritage.

Bald Head Lighthouse ("Old Baldy")

The first lighthouse on Bald Head Island was constructed in 1796 but, due to extensive erosion of the shoreline, was replaced by an octagonal tower on the North-West corner of the island. This uniquely shaped tower is now known as "Old Baldy" and is the oldest lighthouse still standing on the North Carolina shores.

Erosion became a difficult problem for "Old Baldy" in 1881 and two years later to prevent the lighthouse from destruction, a stone jetty, 150 feet long, was authorized for the protection of the foundation of the tower. This helped control erosion for a while, but in succeeding years, rapid abrasion of the shoreline occurred again. In addition, the Bald Head Lighthouse was so far inland and was not of sufficient height to light the dangerous Frying Pan Shoals that a replacement tower, (The Cape Fear Lighthouse Complex) was planned for the Southeast corner of Bald Head Island. At this time, Old Baldy became a fourth-order fixed light station. The light beacon was then discontinued in 1935 and a radio-beacon was established on the site in 1941. This beacon was of service during World War II when Fort Caswell, across the river, was used by the U. S. Navy. When the new Oak Island Light was activated on May 15, 1958, the new station took over the operation of the radio-beacon.

Today, "Old Baldy" stands as a beloved reminder of the hard times in the past. It is a landmark that has withstood many adverse weather conditions and has served for a century and a half in the lower Cape Fear area. Carolina Cape Fear Development Corporation has preserved the site but only limited public access is allowed.

Cape Fear Lighthouse Complex

In 1903, a new lighthouse complex was added to service the lower Cape Fear area and replaced "Old Baldy" on Bald Head Island. The new lighthouse complex was located on the South-East corner of Bald Head Island and had three keepers' houses. This fourth order lighthouse was 150 feet high and had a radius of 18.5 miles of light which could reach out towards the Frying Pan Shoals.

Today the site is owned by Carolina Cape Fear Corporation. The remains of the site still are exhibited by the keepers' houses and other out buildings, but cannot be seen unless permission is received from the present owners.

## Gause's Tomb

An unusual and interesting memorial to a family that was prominent in the life and activities of Brunswick County during the Colonial Period can still be seen on an old plantation site just five miles from Shallotte. The brick burial tomb of John Julius Gause (1774-1836) is located some 500 feet Eastward from State Road No. 1154 and about the same distance south of Junny's Branch.

The Gause family had large land holdings in Horry County, South Carolina, and also scattered around Shallotte and Ocean Isle. The father of this Brunswick County Clan was William Gause, referred to in South Carolina as the "Innkeeper" because of his large business operations. Old William had six sons, two of which moved to Brunswick County prior to the Revolution when, in 1762, they became active in local government and fought in the Revolutionary War. Later, William Jr. served in the House of Commons from Brunswick County in 1778 and his home seems to have been near Gause's Landing.

John Gause, the Revolutionary veteran, and brother William Jr. was also the father of John Julius Gause, the person responsible for erecting the tomb. In his will, dated May 3, 1836, recorded in Will Book B. Page 171, Brunswick County Court House, he authorized the building of the Gause Tomb and tells who shall be buried there.

Presently the Tomb is in fine repair and offers an enchanting sight to the visitor.

## The Boundary House

The Boundary House, which is located South along a dirt road, 4 miles off of U.S. 17, stood astride the State line prior to 1750. Only the chimney remained during the Civil War and it always marked the dividing line between the two early Carolina Provinces. In fact, it was a documented truth that the early boundary line established in the Spring of 1735 ran right through the center of the Boundary House.

The location of the building had to be determined to properly survey the State line when it was last surveyed in 1928. At that time, the surveyors erected a 600 pound granite post inscribed "Boundary House" to mark the site of Horry County's oldest known building.

## Hickory Hall

Hickory Hall, located in Calabash, is typical of rural, middle class homes for this area of Brunswick County during the past Colonial Era. Most of the homes of this type have disappeared, especially within this vicinity, either from fire, age, or natural elements. Hickory Hall has not been necessarily restored but it has been kept in good repair throughout its time.

The unique feature of this house is the fact that it was built over a huge hickory stump that later became used as a table for many decades. Due to decay, the old stump has been since removed; however, the name of this unique feature still remains.

Other architectural features include two chimneys that were a part of the original house and were built from ship ballast stones. The foundation of the house contains oyster shells which were burned into limelike substances used in the mortar. Included were five fireplaces used for cooking and heating, and ceiling and walls consisted of beaded paneling, possible imported from England. The original floors were, for the most part, native long leaf planking, some of which remain to this day.

The present owners of Hickory Hall reside there and operate one of Calabash's restaurants.

The J.W. Sykes Plantation

This house is located on the Gooseneck Road, just inside the Brunswick County line. It was built about 1860 and is a small country farm house, very interesting construction. It is still occupied by the Sykes family.

Point Repose Plantation

This plantation was located in the Northwest section of the County, bounded by Hoods Creek and the Cape Fear River. There is no housing standing, but a number of years ago you could see evidences of the house. It was built by James Murray, but at the beginning of the Revolution it became the property of General Thomas Clark, of Revolutionary War fame, who lived there until his death.

Major General Robert Howe is said to have died there.

# Appendix IV
## Brunswick County
## Urban Concentrations

## URBAN CONCENTRATIONS

| LOT SIZE SQUARE FEET | DIMENSIONS | GENERAL NAME IDENTIFICATION | NUMBER OF LOTS | DATE PLAT RECORDED |
|---|---|---|---|---|
| 10,300 | 80' x 135' | Calabash Acres ) | | 07/20/66 |
| 6,000 | 60' x 100' | Carlyle Acres ) | 606 | 01/17/74 |
| 13,000 | 65' x 200' | Pine Burr ) | | 11/13/67 |
| 10,500 | 70' x 150' | Heritage Haven ) | 401 | 06/10/74 |
| 9,000 | 60' x 150' | Seaside Station ) | | 05/02/77 |
| 9,000 | 60' x 150' | Salt Marsh Cove ) | 373 | 05/06/77 |
| Tracts | 3 acres | George Brooks ) | | 08/09/63 |
| 5,000 | 50' x 100' | Seaside Heights ) | | 02/23/75 |
| 9,750 | 75' x 130' | Ocean View Landing ) | 116 | 04/1[illegible]/74 |
| 5,000 | 50' x 100' | Brooks Acres ) | | |
| 7,000 | 70' x 100' | B & B Estates ) | | 07/22/74 |
| 5,000 | 50' x 100' | Eastside Heights ) | 331 | |
| | | Odell Williamson ) | | 08/26/76 |
| 5,000 | 50' x 100' | Seaside Acres ) | | 08/26/76 |
| 6,500 | 65' x 100' | Marlee Acres ) | | 03/22/72 |
| 7,200 | 60' x 120 | Ocean Haven ) | | 07/23/59 |
| 20,000 | 100' x 200' | Tarheeland Acres ) | 1,014 | 04/23/60 |
| 5,000 | 50' x 100' | Water Wonderland ) | | 04/05/63 |
| 7,500 | 60' x 125' | Whispering Heights ) | | 09/07/65 |
| 6,000 | 50' x 120' | Ocean Pine Acres ) | 156 | 05/23/63 |
| 5,000 | 50' x 100' | Pine Acres ) | | 06/29/73 |
| 9,375 | 5' x 125' | Ocean Isle Estate ) | 37 | 03/26/76 |
| 4,356 | 33' x 132' | Cause Landing ) | 140 | [illegible]/14/75 |
| 9,000 | 60' x 150' | Ocean Aire Estates ) | 95 | 12/31/82 |
| 11,250 | 75' x 150' | Quail Run ) | | 02/25/75 |
| 10,500 | 70' x 150' | Sea Village ) | 293 | 05/02/75 |
| 10,500 | 70' x 150' | Brunswick Shores ) | | [illegible]/24/73 |
| 5,000 | 50' x 100' | Long Acres ) | 439 | 06/08/72 |
| 6,000 | 60' x 100' | Shangrila ) | | [illegible]/[illegible]/71 |
| | | Stanley Campground) South of Sausegan ) East of Brick-Landing ) | 140 | |
| | | Shallotte Point | 3[illegible]2 | |

| LOT SIZE SQUARE FEET | DIMENSIONS | GENERAL NAME IDENTIFICATION | NUMBER OF LOTS | DATE PLAT RECORDED |
|---|---|---|---|---|
| 7,200 | 60' x 120' | Little Shallotte River Estates | ) | 09/10/76 |
| 7,200 | 60' x 120' | Riverview | ) 344 | 04/16/76 |
| 13,200 | 80' x 190' | Shell Point | ) | 02/23/62 |
| 7,200 | 60' x 120' | Shell Point Acres | ) | 09/06/73 |
| 7,200 | 60' x 120' | Shell Point Rec. Village | ) 673 | 08/21/73 |
| 5,000 | 50' x 100' | Boonesboro | ) | 01/24/70 |
| 5,000 | 50' x 100' | Buccaneer Hills | ) | 12/13/70 |
| 5,000 | 50' x 100' | Herandos Hideaway | ) | 06/28/71 |
| 18,000 | 120' x 150' | Windy Point | ) 1,166 | 03/23/73 |
| 5,500 | 50' x 110' | Tanglewood | ) | 06/28/71 |
| 7,500 | 50' x 150' | Four Winds | ) | 04/23/80 |
| 7,500 | 60' x 125' | Gator's Grant | ) | 04/18/77 |
| 6,250 | 50' x 125' | Driftwood Acres | ) | 07/06/73 |
| 8,750 | 70' x 125' | Bacon's Bluff | ) 1,049 | 03/11/77 |
| 11,200 | 70' x 160' | Robinwood | ) | 02/23/80 |
| 7,500 | 50' x 150' | Ocean Sound | ) | 06/30/82 |
| 6,250 | 50' x 125' | Sandy Shoals | ) | 06/18/69 |
| 7,500 | 60' x 125' | Whispering Heights | ) | 09/07/66 |
| 6,000 | 60' x 100' | Carl Andrews | ) | 05/03/61 |
| 5,000 | 50' x 100' | Moore Subdivision | ) 662 | 01/22/71 |
| 10,500 | 70 x 150' | Sea Air Estates | ) | 09/24/63 |
| 7,500 | 50' x 140' | Mariner's Village | ) 75 | 09/10/76 |
| 7,500 | 50' x 150' | Pine View Acres | ) | 06/05/72 |
| 15,000 | 100' x 150' | Troy Carson Heirs | ) 4,20 | |
| 6,300 | 70' x 90' | Tuscarora Village | ) 30 | 04/05/71 |
| 21,375 | 125' x 175' | Thomas Grey | ) | |
| 6,250 | 50' x 125' | Holiday Ranches | ) 707 | 04/11/75 |
| 7,700 | 70' x 110 | Reaves Subdivision | ) | 12/17/30 |
| 5,000 | 50' x 100' | J.S. Fullore | ) 132 | |
| 9,000 | 60' x 150' | Arrow Wood | ) | 11/29/82 |
| 6,250 | 50' x 125' | Holiday Haven | ) 483 | 07/01/76 |
| 7,500 | 50' x 150' | Tropical Shores | ) | 03/01/67 |
| 9,000 | 60' x 150' | Coastal Retreat | ) | [illegible]/16/73 |
| 6,300 | 50' x 125' | Siesta Sands | ) 303 | [illegible]/16/73 |
| 7,500 | 60' x 125' | Sea Castle | ) | 03/21/73 |
| 20,200 | 100' x 200' | Stanbury Heights | ) [illegible] | 03/[illegible]3/53 |
| | | Varnum Town | 426 | |
| 9,600 | 55' x 120' | Sunset Harbor | ) [illegible] | [illegible] |

# Appendix V
## Public Participation Documents

Identification of Growth and Development Issues
Land Use Week
1st Citizen Input Meeting
May 11, 1987
Leland Community Center, Leland, NC

The following development issues were identified for consideration in the 1987 CAMA Land Use Plan Update for Brunswick County. After identification using a nominal group technique, each of the issues were ranked according to their relative priority by a showing of hands. For the following list, the left hand column number indicates the relative priority of each issue with 1 being most important, 2 being next important and 3 being less important.

| RELATIVE PRIORITY | ISSUE |
|---|---|
| (1) | 1. Traffic problems from Woodburn to Olde Towne. |
| (2) | 2. Upgrading transportation system to keep pace with growth. |
| (2) | 3. Developers to bear cost (or pass along costs) associated with development. |
| (3) | 4. Watching residential density. |
| (1) | 5. Need for County wide water and sewer. |
| (1) | 6. Acccelerated improvements to major thoroughfares (specifically US 17 four-laned). |
| (3) | 7. De-valuation of property due to no regulations. |
| (3) | 8. Is there a plan for a set of County pools? |
| (2) | 9. Plans should encourage higher standards to ensure higher quality development. |
| (1) | 10. Preserve aesthetics of certain transportation corridors (NC 133, Hoods Creek, Inland Waterway). |
| (1) | 11. Plans should have specific long-range goals, not quick fixes. |
| (1) | 12. Protection of historic sites. |
| (2) | 13. State wildlife boat ramp in northwest township. |
| (2) | 14. Natural beauty of County needs to be improved. |
| (1) | 15. Billboard regulations needed in Brunswick County now to avoid having to later buy them back. |
| (2) | 16. Plan needs clear, simple guidelines and processes and should have some flexibility. |
| (3) | 17. Some ordinance needed to control discharge of firearms in populated areas. |
| (2) | 18. More family-oriented recreation facilities, specifically bike lanes, bike trails. |
| (2) | 19. Better, more responsive police protection in Northwest township. |
| (3) | 20. What has happened to Northwest Park planned improvements (ball fields, pool, tennis, etc.) |
| (1) | 21. See that estuaries are protected (productivity, nursery areas, shellfish and other marine life). |
| (2) | 22. Protect carolina bays from development getting too close (Goodman Road off Route 17). |
| (1) | 23. Plans should be aware of affect of adjoining areas on growth in Brunswick County (Wilmington and Myrtle Beach). |
| (2) | 24. Plans should recognize farming areas of County. |
| (3) | 25. Like to see district-based County offices for permits, local health dept., etc. |
| (2) | 26. Protection of natural neighborhood drainage systems from changes by developers. |
| (2) | 27. Would like to see zoning to separate residential, commerical uses etc. from one another. |

Identification of Growth and Development Issues
Land Use Week
2nd Citizen Input Meeting
May 12, 1987
Multi-Purpose Room, South Brunswick High School, Boiling Spring Lakes

The following development issues were identified for consideration in the 1987 CAMA Land Use Plan Update for Brunswick County. After identification using a nominal group technique, each of the issues were ranked according to their relative priority by a showing of hands. For the following list, the left hand column number indicates the relative priority of each issue with 1 being most important, 2 being next important and 3 being less important.

| RELATIVE PRIORITY | ISSUE |
|---|---|
| (1) | 1. Overloaded road network (NC 130 and US 17). |
| (2) | 2. Need more to be done about drainage. |
| (3) | 3. Need County-wide house numbering. |
| (1) | 4. Better transportation system throughout the County. |
| (2) | 5. Water line extensions to serve existing pockets of population. |
| (3) | 6. Over-harvesting of shellfish/marsh land areas. |
| (2) | 7. Look seriously at sewer districts. |
| (1) | 8. Litter problems/garbage disposal. |
| (2) | 9. Need for zoning for commerical, residential, etc. |
| (2) | 10. Runoff from townhouses/condos into estuarine waters. |
| (2) | 11. Efficiently use existing facilities for public/social/multi-purpose needs. |
| (3) | 12. Septic tanks on beaches polluting waters. |
| (3) | 13. Jobs for younger people. |
| (2) | 14. Need more non-polluting industry. |
| (3) | 15. Planning and providing services for retired/elderly. |
| (3) | 16. Need for jetport capacity type airport to help attract industry. |
| (3) | 17. No building within 1000 feet of all waters, |
| (3) | 18. Need for better education (to deal with adult illiteracy, etc.) to attract industry. |
| (2) | 19. No zoning south of US 17 as a resort area. |
| [illegible] | 20. Need for adult day care center. |
| (3) | 21. No more landfills but incinerators okay. |
| (2) | 22. Runoff from building in general. |
| (2) | 23. Need for county-funded emergency medical services (for the retired). |
| (2) | 24. Need for stronger subdivision regulations (road standards). |
| (2) | 25. Water and beach access (i.e. ramps, marina, parking). |
| (3) | 26. New/improved educational facilities. |
| (2) | 27. Economic study on future populations to determine services needed (nursing homes). |
| (3) | 28. Need for mosquito program (drainage). |
| (3) | 29. Need larger senior citizen center for growing elderly population. |

Identification of Wetland Development Issues
Land Use Week
3rd Citizen Input Meeting
May 13, 1987
Multi-Purpose Room, West Brunswick High School, Shallotte

The following development issues were identified for consideration in the 1987 CAMA Land Use Plan Update for Brunswick County. Following identification using a nominal group technique, each of the issues were ranked according to their relative priority by a showing of hands. For the following list, the left hand column number indicates the relative priority of each issue with 1 being most important, 2 being next important and 3 being less important.

| RELATIVE PRIORITY | | ISSUE |
|---|---|---|
| (1) | 1. | Plans for future disposal of household garbage. |
| (1) | 2. | Need for a district/regional sewage treatment system. |
| (2) | 3. | Uncontrolled development. |
| (1) | 4. | Need for zoning. |
| (3) | 5. | Emergency services for service districts outside municipalities. (Coordinate with municipalities/ 911 system) |
| (3) | 6. | Planning for traffic flow, specifically beaches (Long Beach Road) |
| (2) | 7. | Water lines to outlying developed areas. |
| (1) | 8. | Against legislation for atomic waste disposal, possibly in Brunswick County. |
| (1) | 9. | Encourage clean, economic development to help unemployment, and to absorb excess water supply. |
| (1) | 10. | Prevent billboards from moving into the County. |
| (3) | 11. | Aggressive policy to purchase right-of-way to help future traffic flow. |
| (2) | 12. | Aggressive game planning for tourism--being prepared (trash, road right-of-ways, etc.). |
| (3) | 13. | Discourage use of wetlands for housing, etc.; encourage proper use. |
| (2) | 14. | Encourage citizen participation in disaster preparedness. |
| (3) | 15. | Planning for convention center (especially beach areas) by the County. |

Identification of Growth and Development Issues
Land Use Week
4th Citizen Input Meeting
May 14, 1987
Public Assembly Bldg., County Government Center, Bolivia

The following development issues were identified for consideration in the 1987 CAMA Land Use Plan Update for Brunswick County. After identification using a nominal group technique, each of the issues were ranked according to their relative priority by a showing of hands. For the following list, the left hand column number indicates the relative priority of each issue with 1 being most important, 2 being next important and 3 being less important.

| RELATIVE PRIORITY | ISSUE |
|---|---|
| (3) | 1. Use of low lying land for trailer parks. |
| (1) | 2. Conservation of marshes and swamps but with concern for insect control. |
| (3) | 3. Inconsistent enforcement of regulations (wetlands). |
| (1) | 4. Better roads and drainage along roads. |
| (3) | 5. How are plans made for further growth, specifically industrial? |
| (2) | 6. Right-of-way aquisition for present and projected roads, especially for commerical/industrial areas. |
| (3) | 7. Non property owners telling a person how to use his or her land. |
| (2) | 8. Would like to see minimum lot size put into effect. |
| (1) | 9. Road side beautification/taking care of litter. |
| (1) | 10. Stronger laws against dumping trash. |
| (3) | 11. Require that utility repairs go under the road, instead of tearing it up. |
| (1) | 12. Farming and forestry should be protected (i.e. not listed as industrial and taxed as such). |
| (3) | 13. Against requiring permits for land clearing. |
| (3) | 14. Require developers to prepare roadbed and let sit for six months minimum before paving. |
| (2) | 15. Against heavy, dirty industrial development along Cape Fear River and on lands with high water table. |
| (3) | 16. Ensure development conducive to retirement population. |
| (1) | 17. Developers (or developments) should be required to build roads to state standards and maintain them until state takes them over. |
| (3) | 18. County funding for volunteer information and referral center. |

SUMMARY OF COMMENTS FROM THE PUBLIC AT THE SIX TOWNSHIP WORKSHOPS REGARDING UPDATING OF THE C.A.M.A. LAND USE PLAN DURING NOVEMBER, 1985.

Northwest (11 persons in attendance)

1. The county needs to provide better storm drainage in areas being urbanized.

2. The county needs to actively help get a sanitary sewer system for the Leland area.

3. The county needs to zone as a minimum the urbanizing area of Leland.

4. The county needs to continue its aggressive actions towards more industry in the Leland area, for better job opportunity and for the expanding population.

5. The county needs to create an industrial corridor along U.S. 17-76 from the new county industrial park towards Columbus County.

6. The county needs to continue activities towards port-oriented industry on Eagle Island, and see that industry does not go along the mainland side of Brunswick River, to keep that area for residential use.

7. Keep a diversified, balanced economy; don't let it get too touristy.

8. Be aggressive in getting more roads and bridges. We need a direct link to I-40, somewhere near Dupont.

9. The county needs to establish a means of providing water distribution lines to those areas beyond the Leland Sanitary District where there are population concentrations, such as along Mount Misery Road.

10. There is a need for scenic, non-recreational parks, with strong possibilities along Brunswick River and Sturgeon Creek.

11. More boat ramps are needed.

Lockwood Folly (19 persons in attendance)

1. Septic tanks are a problem. The county needs to see that a public sewer system is provided.

2. Zoning is needed.

3. Better road network is needed, for safer and more efficient travel.

4. The county needs to see that there are oceanfront beach access parks for mainland residents and visitors.

5. The solid waste collection system remains a problem; there is too much litter along the roads.

6. What is the county going to do to provide necessary services if the property tax is abolished?

Lockwood Folly, continued.

7. We need water distribution lines; find a way.

8. More respect should be given to the Land Use Plan; make it strong.

9. The county needs a stronger position in working with the state and federal governments to assure clean waters.

10. There is a storm drainage problem; the county needs to work on it.

Waccamaw (5 persons in attendance)

1. There is too much regulation. The Building Inspection Program is being administered too stringently. Too much state and federal interference.

2. There is so much regulation on the farmer he can't make a living.

3. The farmer should have the same exclusions in law that are enjoyed by the paper companies.

4. Have a more aggressive program to get industry and jobs.

5. There remain problems with the school system; keep a closer eye on the Board of Education.

Shallotte (20 persons in attendance)

1. The county needs zoning, with particular emphasis on building setback lines, sign control, and density determinations by the county rather than through the health department.

2. The county needs to make sure that somehow a public sanitary sewer system is provided.

3. The county needs an aggressive campaign to make sure either the state or federal government acquires Bird Island and makes it a park.

4. Highways and bridges remain a need, particularly the Shallotte By-pass, the Sunset Beach bridge, opening of Old Georgetown Road, and major intersection improvements.

5. The solid waste system still hasn't improved sufficiently.

6. Sports fishing needs more emphasis than commercial fishing; the county needs a specifically spelled out program to help.

7. There is need for a balanced economy, but with emphasis upon tourism; industry would be out of place in this area of the county.

8. Don't let immigration be only of older people; a geriatric ghetto would inadvertently make provision of necessary urban support services a near impossibility.

9. See that we get water distribution lines, including mandatory tap-ons. Make it easier for the developer to put in lines, with public financial assistance.

Town Creek ( 12 persons in attendance)

1. The subdivision regulations are too weak; the county needs stronger controls to require paved roads, better storm drainage, and beautification.

2. Perhaps there should be two sets of standards in the subdivision ordinance, one for urbanizing areas and one for areas that will stay rural.

3. It appears the 1981 Land Use Plan has been ignored too much in decision-making, such as the water lines to go down U.S. 17 and N.C. 87. Before public decisions are made, refer them to the Planning Board for a report on impact on the Land Use Plan.

4. The county needs zoning. It can be a positive tool, and should include density standards, planned unit development standards, and checks to ensure water quality will not be degraded.

5. The county should have a more aggressive program relating to sports fishing. It is an unrecognized major economic factor in the county.

6. Be aware of aesthetics in all actions. Screen green boxes and junkyards.

7. The large land owners aren't afraid of good zoning. They are afraid of uncontrolled growth, and think it will destroy them and their way of life.

8. More boat access points are needed to the rivers.

9. Remove the Cape Fear River Industrial Corridor from the Plan; it was a mistake to ever have it in. Concentrate industry in Leland and up to Columbus County.

10. Urban areas need water distribution lines and sewer systems.

11. Make sure there are density controls in the zoning ordinance

12. Litter is a big problem.

13. Growth is inevitable; give it positive guidance; don't be afraid of regulation.

14. Roads and bridges need improvements.

15. There is need for regulation of activities on paper company lands.

Smithville ( 10 in attendance)

1. Start countywide comprehensive zoning based on a comprehensive plan; don't do it piecemeal, that would be a mistake that would haunt you for years.

2. The county needs to make sure there is a public sanitary sewer system.

3. Road and bridges need attention, from more lanes and facilities to lighting and safety markings.

4. Keep a close eye on development to try and enhance water quality.

Smithville, continued.

5. The county needs a game plan of how it will provide services in the event there is no longer a property tax.

6. The county needs a continuing, close working relationship with the towns as growth continues, particularly in guidance measures over that growth.

7. More areas of the county should be shown "conservation" on the Plan where there would be closer scrutiny of development to make sure it doesn't degrade the waters.

Comparative Analysis of Priority Ranking of Major Problems, Issues or Opportunities as Expressed by the Public in Workshops and Public Hearings over the C.A.M.A. Land Use Plan Process Since Its Inception.

| Problem, Opportunity, or Issue | Highest to Lowest Priority Ranking | | | |
|---|---|---|---|---|
| | 1976 | 1981 | 1985 | 1987 |
| More and better roads and bridges | 3 | 5 | 1 | 1 |
| More aggressive industrial recruitment for clean industry | - | 16 | 13 | 2 |
| Provide better storm drainage in urban/urbanizing areas | 10 | 11 | 12 | 3 |
| Provide water distribution systems in urban/urbanizing areas | 1 | 3 | 3 | 4 |
| Provide the protection of zoning | 14 | 7 | 2 | 5 |
| Better solid waste collection and disposal system | 17 | 18 | 6 | 6 |
| Stronger litter control program | 20 | 8 | 15 | 7 |
| Provide public sewer systems for urban/urbanizing areas | 2 | 4 | 4 | 8 |
| Promote tourism as base industry | - | 20 | 5 | 9 |
| Provide stronger subdivision regulations | - | - | 11 | 10 |
| More pedestrian and vehicular access to rivers and ICWW | 6 | 14 | 9 | 11 |
| Protect wetlands (swamps, marshes, estuaries) | - | - | - | 12 |
| Base all programs and decisions of county government on the Plan | - | - | 17 | 13 |
| Establish beautification program | 16 | 9 | 18 | 14 |
| Billboard control ordinance | - | - | - | 15 |
| Reduce taxes and financial burdens of farmers | - | - | - | 16 |
| Watch and relate to growth of Myrtle Beach and Wilmington | - | - | - | 17 |
| Obtain Act to prohibit atomic waste sites in county | - | - | - | 18 |
| Protect and enhance scenic roads | - | 2 | - | 19 |
| Provide new centrally located commercial flight airport | - | - | - | 20 |
| Protect historic sites and structures | - | 17 | - | 21 |
| Make developer pay all costs associated with his development | - | - | - | 22 |
| Better citizen participation in disaster preparedness | - | - | - | 23 |
| Better law protection | - | - | - | 24 |
| Make E.M.S. persons fulltime county employees | - | - | - | 25 |
| Provide more marinas, public and private | - | - | 7 | - |
| Emphasize sports fishing and deemphasize commercial fishing | - | - | 5 | - |
| More economic diversification | - | 12 | 10 | - |
| Create U.S. 74-76 industrial corridor | - | - | 14 | - |
| Develop scenic parks (no recreation) | 12 | - | 16 | - |
| Regulate paper company lands | - | - | 19 | - |
| Get state and federal government to buy Bird Island for park | 5 | 13 | 20 | - |
| District recreational parks | - | 1 | - | - |
| Improve public educational system | 8 | 6 | - | - |
| Obtain cultural opportunities in county | 9 | 10 | - | - |
| Obtain more retail stores and services | 11 | 15 | - | - |
| Provide facilities for the elderly | - | 19 | - | - |
| Provide better and more fire and ambulance service | 4 | - | - | - |
| Provide better medical care facilities and services | 7 | - | - | - |
| Build an auditorium | 13 | - | - | - |
| Develop Cape Fear Industrial Corridor | 15 | - | - | - |
| Inlet stabilization | 18 | - | - | - |
| Avoid groundwater pollution | 19 | - | - | - |

*"What Do You Feel Is Best For Brunswick County?"*

LAND USE WEEK

| | | | |
|---|---|---|---|
| Monday, May 11, 1987 | Leland Community Center Leland | Wednesday, May 13, 1987 | Multi-Purpose Room West Brunswick High School |
| Tuesday, May 12, 1987 | Multi-Purpose Room South Brunswick High School | Thursday, May 14, 1987 | Public Assembly Building County Government Center |

All workshops will begin at 7:00 P.M.

WHY: To receive your concerns and suggestions for the upcoming update to the Brunswick County Land Use Plan and Policies. Issues and concerns identified at these meetings will serve as an important foundation for the writing of the plan. Your views are important.

All interested persons are invited to attend.

For more information contact:
Brunswick County
Planning Department
PO Box 249
Bolivia, NC 28422
253-4361/762-7810/457-9912

Sincerely,

Ed Gore, Chairman
Planning Board

Grace Beasley, Chairman
Board of County
Commissioners

Brunswick County

# PUBLIC HEARING NOTICE

## C.A.M.A. LAND USE PLAN UPDATE

The Brunswick County Board of Commissioners together with the Planning Board will hold a Public Hearing at 7:30 p.m., Monday, October 5, over the draft of the N.C. Coastal Area Management Act Land Use Plan Update.

The Hearing will be held in the Public Assembly Building, County Government Center, U.S. 17, approximately one mile west of the Town of Bolivia, N.C.

Copies of the draft may be viewed in the offices of the Planning Department, Planning and Development Building, County Government Center.

Advance written comments may be filed with John B. Harvey, Planning Director, P.O. Box 249, Bolivia, N.C. 28422.

Grace Beasley
Chairman
Board of County Commissioners

# PUBLIC HEARING NOTICE
# C.A.M.A. LAND USE PLAN UPDATE
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Grace Beasley, Chairman
Board of County Commissioners

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