

Brunswick County Planning Department

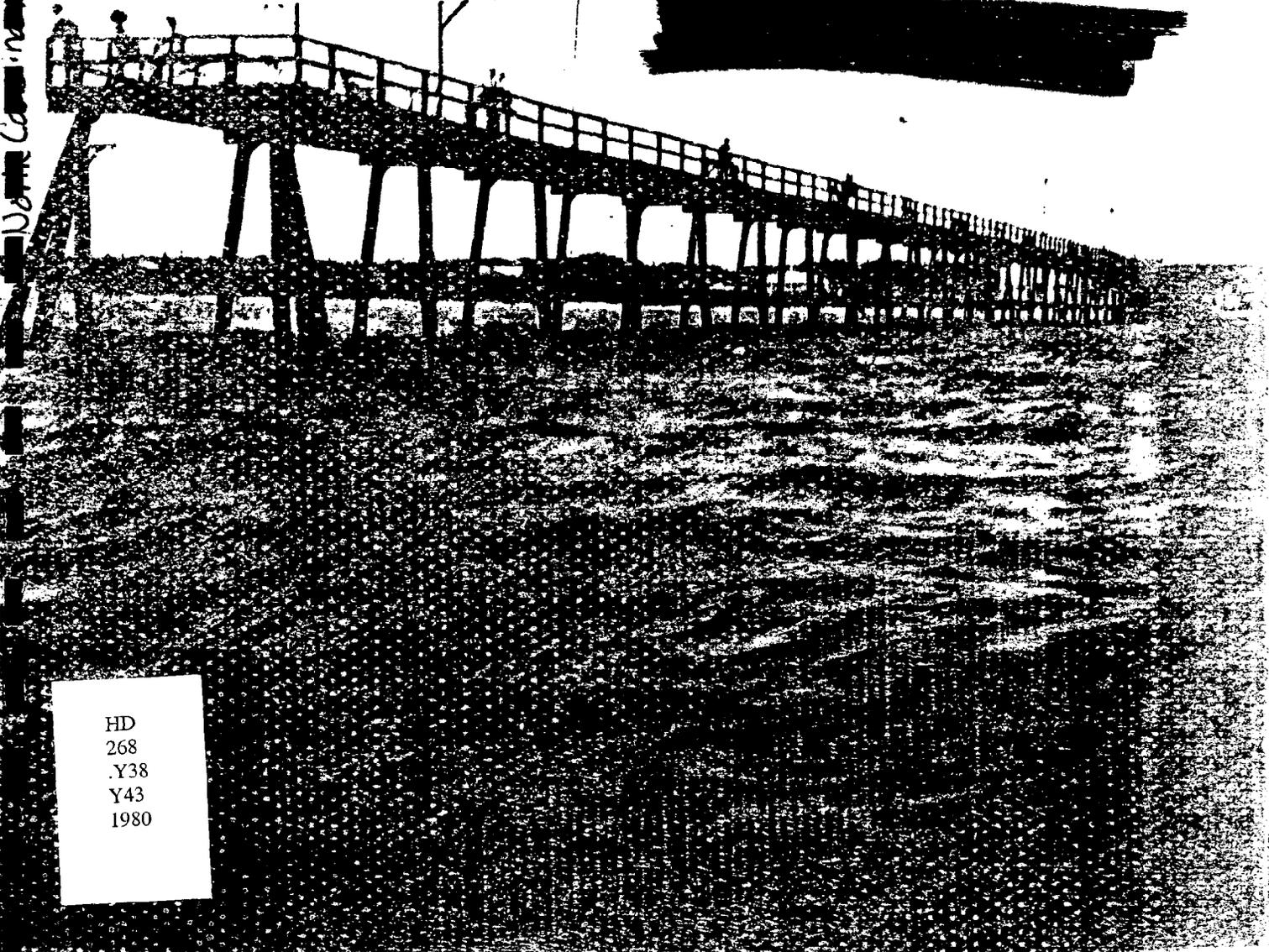
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Yaupon Beach  
North Carolina

**LAND USE PLAN 1980**  
Final Draft

HD 268.Y38Y43 1980



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Y43  
1980

Brunswick County Planning Department

COASTAL ZONE  
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YAUPON BEACH

North Carolina

LAND USE PLAN 1980

Final Draft

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Prepared by  
The Brunswick County  
Planning Department

June 1980



NORTH CAROLINA COASTAL MANAGEMENT PROGRAM

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## INTRODUCTION

### The Coastal Area Management Act

"In recent years the coastal area has been subjected to increasing pressures which are the result of the often conflicting needs of a society expanding in industrial development, in population, and in the recreational aspirations of its citizens. Unless these pressures are controlled by coordinated management, the very features of the coast which make it economically, esthetically, and ecologically rich will be destroyed."

In 1974, the North Carolina General Assembly passed the Coastal Area Management Act (CAMA) in an effort to effectively manage the development of twenty coastal counties. The Act notes that, "among North Carolina's most valuable resources are its coastal lands and waters. The coastal area, and in particular the estuaries, are among the most biologically productive regions of the state and of the nation. Coastal and estuarine waters and marshlands provide almost 90 percent of the most productive sport fisheries on the east coast of the United States. North Carolina's coastal area has an extremely high recreational and esthetic value which should be preserved and enhanced."

Adoption of the CAMA empowered local governments in the twenty North Carolina coastal counties to exercise control over their future. The Act designs a state-local-cooperative program in which local governments shall have the initiative for planning by preparing a blueprint for their future growth and development and the State government shall establish Areas of Environmental Concern where lands are environmentally sensitive to the prospect of development. With regard to planning, State government shall have an advisory role, setting guidelines and standards, and a reviewer's role, evaluating the local land use plans. In addition, the State makes grants to finance local planning and work jointly with local governments to enforce the adopted plans.

The CAMA permit process began March 1, 1978 throughout the entire coastal area of North Carolina. After this date, any development in an area of environmental concern requires a permit. The permitting process is divided into 2 classes; major permits for large scale developments, and minor permits for houses and other small structures. The major permitting process is administered by the North Carolina Department of Natural Resources and Community Development. The minor permitting process is administered locally by the Southport Building Inspector.

The entire CAMA planning process has been oriented towards citizen participation and has continually provided mechanisms for citizen input into the preparation of the land use plan. The primary input has taken the form of future growth policies and identification of existing problems and issues and desired future services. During the local planning process, efforts must be made to secure their public participation.

The land use plans which are prepared by local governments in the coastal area are distributed widely and have many uses. Among the users of the plans are local governments, regional councils of government, state and federal permitting agencies and public and private funding and development groups.

Local Government Uses - Counties and municipalities may use the local land use plans in their day to day business and in planning for the future. Often times, the land use plan provides guidance in local policy decisions relating to overall community development. The plans also provide the basis for development regulations and capital facility planning and budgeting. By delineating how the community wishes to grow, the land use plans help to assure the best use of tax dollars as public utilities can be extended to the best areas for growth.

Regional Uses - The regional councils of government or planning and development commissions use the local land use plans as the basis for their regional plans and in their function as regional clearing-house for state and federal funding programs. The local plans can indicate to these regional decision makers what types of development the local community feels are important and where the development should take place.

State and Federal Government Uses - The local land use plans are used as a major component in the granting or denial of permits for various developments within the coastal area. The State and federal agencies must be sure that their decisions consider the policies which are set out by the local governments in their plans. This is also true for decisions relating to the use of federal or state funds within the coastal counties. If a local plan sets out policies relating to various types and locations of development, the funding and permit decisions must be consistent with the local policies. Projects being undertaken by State and Federal agencies themselves must also be consistent with the local plans.

#### 1980 Yaupon Beach Land Use Plan

The scope of the 1980 Yaupon Beach Land Use Plan includes a community profile, land use survey and analysis, and a land classification map. Specifically, a summary of data collected and its analysis, maps of existing land use and desired land use, Areas of Environmental Concern, assessments of current problems, and policy statements are presented. Because the 1980 United States Census has not yet been published, population figures for 1985-on are projections based on information from state and local sources. Therefore, some of the data presented needs to be updated with the publication of the Census, and it is possible that the data presented is deceptive, but it is not thought to be totally unrealistic.

In preparation of the Yaupon Beach Land Use Plan, several techniques were used to elicit input from the public in the planning process. These include local meetings with citizens and planners, a citizen survey, local weekly newspaper coverage, and a "dial-a-planner" service. The citizens have also been encouraged to comment on preliminary land use and land classification proposals. Significant comments have been incorporated in the final land classification map appearing in this plan. The public participation process for Yaupon Beach is explained in further detail in the text.

PART 1: COMMUNITY PROFILE

YAUPON BEACH  
POPULATION REPORT

## Introduction

The basis for most planning studies is the population, both current and projected, for the geographic area covered in the study. All planning services such as streets, fire protection, recreation, water, sewer, and garbage collection are related directly to the population they serve.

Yaupon Beach also has a Seasonal Population that must be considered along with the resident population for they too create demands on some services and facilities, especially water, septic and roads.

Another factor to be considered is the density pattern. Typically, areas of population concentrations have a greater need for certain services, especially water and sewer, than areas of low density populations.

The historic population statistics show the change and trends that have and are occurring. The population of a given area is never static and change is always occurring. That is why planning is by necessity, an on-going process adjusting periodically as changes occur.

Therefore, it is the purpose of this section to provide the basic population data on which current and future needs for services and facilities and future permanent and seasonal residential land requirements can be determined.

### Current Population

In 1970, Yaupon Beach was the fourth ranked population center of Brunswick County. By 1975 the City fell to fifth ranking sacrificing fourth place to Boiling Spring Lakes. Since 1975, Yaupon Beach has maintained its fifth ranking.

In 1970, the permanent population of Yaupon Beach was 393, and the seasonal population was 654. By 1975 the permanent population had grown to 579 and the seasonal to 961. This was a 47.33% increase for the permanent population, and a 46.94% increase for the seasonal. In 1980, the permanent population increased to 721 and the seasonal to 1,375. From 1975 this was a 24.52% permanent population increase and a 43.08% seasonal population increase.

Another method of determining the growth of the City is by analyzing their growth as a percentage of township and County populations.

Yaupon Beach is in Smithville Township which has approximately 19.1% of the County's population. In 1970, the population of Smithville Township was 4,346, making the Yaupon Beach permanent population 9.04% of the Township population at that time. In 1980, the population of Smithville Township had risen significantly to 7,274, with Yaupon Beach increasing to 9.91% of that total.

In 1970, the permanent population of Yaupon Beach was 1.62% of the County's populations of 24,223. In 1975 Yaupon Beach was still 1.62% of a County population of 35,621, and by 1980 the City's permanent population was 1.89% of a County population of 38,100.

Historically, the seasonal population of Yaupon Beach has been nearly twice that of the permanent population. This ration of 2-to-1 is below the ratios possessed by other beach communities in Brunswick County. For Example, Caswell Beach has a ratio of nearly 7-to-1 and Holden Beach 28-to-1. This low ratio is thought to be due to the more family orientated atmosphere and the year-round facilities of the Oak Island Country Club. However, it is still important to consider this population seriously because of their demands for City services and their affect on the economy.

#### POPULATION CHANGE - 1970-1980

Year	Brunswick County	Smithville Township	Yaupon Beach Permanent	Yaupon Beach Seasonal
1970	24,223(+19.5%)	4,346(29.5%)	393(N/A)	654 (N/A)
1980	38,100(+57.3%)	7,274(+67.4%)	721(57.1%)	1,375%

Sources: 1970- U.S. Census  
1980-N.C. Dept. of Administration, Brunswick County Planning Department projections and the Doutheastern Brunswick County 201 Facilities Plan.

On a township level, statistics are available concerning white/non-white population, household composition, population characteristics, and migration rates.

While the total population of Brunswick County increased by 18,862 from 1950 to 1980, the non-white population increased by only 4,465. Between 1950 and 1980, the percentage of non-white population dropped from 36.7% to 30.18% in 1980.

Of the 4,465 non-white increase, 2,073 were males and 2,392 females. Percentage-wise, the non-white males in relationship to the total males dropped from 35.7% in 1950 to 29% in 1980, and the non-white females declined from 37.5% to 31.2%. It would seem that slightly more males than females migrated from the County but no natural increase statistics by sex are available to confirm this.

Township statistics are available only for 1960 and 1970. Estimates for 1980 were made by the Brunswick County Planning Department for 1980.

Non-White Population Change by Township 1960 - 1970							
	1960			1970			1960-1970 Change
	Total Pop	Non- white	% Non- white	Total Pop	Non- white	% Non- White	
Brunswick Co.	20,278	7,175	35.4	24,223	7,443	30.7	268
Smithville Twp	3,355	1,144	34.1	4,346	1,193	24.4	49

Non-white Population Change by Township 1980				
	Total Population	Non- White	% Non- White	197--1980 Change
Brunswick Co.	38,100	9,335	24.5	1,921
Smithville Twp.	7,274	1,617	23.2	445

#### Household Composition

Household composition was also estimated for Brunswick County and Smithville Township. Analysis shows an approximate average household size of 3.47 for the whole county. The Township white household size is higher than that average for the county, and the Township non-white household size was smaller than that average for the county.

Township Household Composition 1980

	Brunswick County	Smithville Township
Total # Households	10,980	2,096
Household Population	38,100	7,274
Population per Household	3.47	3.47
# White Households	8,359	1,596
Household Population	28,765	5,657
Population Per Household	3.44	3.52
# Non-white Households	2,621	500
Household Population	9,335	1,617
Population per Household	3.56	3.32

Population Characteristics

The median age of a population, that is, the point at which half of the people are older and half are younger, gives a description of the age composition of a given population. The forces which normally act on the median age are births, deaths, and migration, and the complex interplay of these forces can drive the age either up or down. There is presently a nationwide trend toward lower birth rates, and this has caused the median age to rise slightly, since young people became a lesser proportion of the total. From 1960 to 1970, each segment under study (male, female, black, white) grew older. The median age for all groups in Brunswick County was 26.4 in 1970 as opposed to 23.9 in 1960. In 1970, Smithville township registered 32.4, while the North Carolina figure was 26.5. The reason for this difference appears to be that Smithville Township contains a relatively large population of elderly people (those over 65) within its boundaries.

POPULATION CHARACTERISTICS: 1970

	Total	Male	Female	White	Black	Under18	Over 65	Med.Age
Brunswick	24,223	50%	50%	69%	30%	37.4%	8.4%	26.4%
Smithville Twp	4,346	49%	51%	72%	26%	32.4%	12.1%	32.4%
Southport	2,220	47%	53%	62%	35%	32.7%	12.9%	32.4%
North Carolina	5,082,059	49%	51%	77%	22%	34.6%	8.1%	26.5%

SOURCE: U.S. Census, 1970

Estimates of population distribution by race, sex, and age groups were also made for Brunswick County and Smithville Township for 1980 by the Brunswick County Planning Department.

1980 Population Distribution by  
Race, Sex, and Age Group

	Brunswick County	Smithville Township
Total Population	38,100	7,274
Male	18,959	3,548
Female	19,141	3,726
White	28,765	5,657
Non-white	9,335	1,617
Median Age	28.4	N/A
Number Under 13	13,335	2,357
Number over 65	4,191	880

Migration Rates

Recent migration rates, population characteristics and median age figures are not yet available for Caswell Beach, Smithville Township, or the County. To create a general description of the population, 1970 Census figures are presented below. It is expected that this general description will change with the analysis of 1980 Census data. But, hopefully, the change will not be great.

Migration rates which were calculated for Brunswick County from 1960 to 1970 reflect the assumption that more and more of the County's people are staying in the County rather than moving out. A study done in 1969, for example, compared specific age groups in 1950 with the same groups a decade later in order to measure the percentage of persons who had remained within the County during that period (e.g. ages 25-34 in 1950 compared with ages 35-44 in 1960). In every case Brunswick had shown a loss of residents, that is, less than 100% remained ten years later. From 1960 to 1970, the situation was altered significantly. Most age groups exhibited net gains (over 100%) during this span, and in each instance, the percentage of persons continuing to reside in the County was larger than during the previous enumeration. Although age breakdowns since 1970 have been unavailable, the reported substantial additions to the total population would lend support to the notion that currently, an even higher proportion of each age group is being retained. These statistics tend to indicate that Brunswick County is becoming an increasingly attractive area in which to live and work.

MIGRATION RATES: BRUNSWICK CO. 1950-60, 1960-70

	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54
Age Groups in 1960	2441	2469	2417	1928	1125	2298	2509	2155
Same Group in 1970	2653	2320	1840	1542	1326	2634	2677	2320
Percent Remaining	109%	94	76	80	118	115	107	108
Percent Remaining 1950-1960	96%	81	54	61	81	94	92	88

SOURCE: Southport Population & Economy Study 1969 and Calculated from U.S. Census 1970

## YAUPON BEACH HOUSING REPORT

The current residential dwelling count for the Yaupon Beach planning area is 380. The majority of these residences are Seasonal Single Family which total 208 or 54.7% of the total number of dwellings. Permanent Single Family residences constitute the other major portion (42.4%) of total dwellings, totaling 161. Although nine dwellings were classified permanent multi-family residences, 18 units were counted assuming an average of 2 units per dwellings. Seasonal Multi Family residences accounted for 2 dwellings or 4 units.

All of the above structures are structurally sound, and Yaupon Beach currently contains no substandard houses.

No mobile homes are currently located in Yaupon Beach and none are expected in the future. The Town's Zoning Ordinance sets such rigid regulations on mobile homes that it is more or less impossible to locate one within the city limits.

YAUPON BEACH

ECONOMIC REPORT

## Yaupon Beach Economic Report

The economy of an area is constantly undergoing long term change. These changes affect the population in total numbers, in density and, therefore, the level of services required, as well as the economic well being of each person.

The destiny of an urban center is controlled by the extent and character of its productive and income - producing activity and its general vitality. That is, the urban economy conditions the amount of land development that occurs.

For these reasons, an investigation of the economy is an important part of the planning process. If the economic change is to industry, the population will normally increase with the concentration being near the major industrial area.

However, with today's means of transportation, workers commute greater distances than in past years. Too, industry normally increases the income of the area providing a higher standard of living.

So, regardless of the fact that Yaupon Beach does not itself contain any industrial development, nor shall it ever likely contain any, the industrial development of the County as a whole is relevant to the growth of Yaupon Beach. This is particularly true because of Yaupon Beach's near location to the northeastern corridor of the County, the area projected to experience the majority of the County's industrial development.

The type of economy an area has also affects the tax base. Again, industrial development normally means costly plants and equipment that make a major contribution to the Ad Valorem Taxes, thus relieving the individual of some of his tax responsibility.

With so many areas being influenced by the economy, the elements of the economy must be considered as to its foundation, strength, stability and future. While the total economy of an area contributes to the total picture, certain activities are considered to be more important. These are the primary basic economic activities. The stability and growth of any area depends directly upon the stability and growth of these economic activities.

The future growth of an area can be somewhat guided through guidance of economic development. Through planned development, especially of industry, growth can be guided to areas best suited to sustain such growth.

These factors mentioned serve only as a brief and limited explanation of the importance of the economy of an area to its past, present and future and the necessity of considering the economic aspects in the planning process.

Because the residents of Yaupon Beach depend upon outlying areas for their economic well-being, it is necessary to consider the Brunswick County Economic Report as a setting for Caswell Beach in creating a picture of the City's economy.

## Industry

As Brunswick County has shifted from an agricultural/commercial fishing economic base to a more industrial base, during the past decade the economic well being of the County's residents has improved. There are many indicators of this other than the census reports. One such indicator is per capita personal income. In 1973 the per capita Personal Income for Brunswick County was only \$2,911. By 1978 it had risen to \$5,071. Industrial development in Brunswick and New Hanover Counties has contributed to this increase in per capita income.

In 1979, manufacturing was the leading employer and economic contributor to the County's economy. Commercial fisheries ranked second, and transportation and tourism ranked about third as employers. Agricultural activity was the second leading economic contributor, while tourism was the third.

## Manufacturing

Due to its proximity to Southport, the residents of Yaupon Beach have relied upon the manufacturing establishments of that city in the past, and will most likely continue to do so in the future.

For its size, Southport has a good number of manufacturing establishments, which employ County residents as well as Beach residents. Below is a list of firms located in the Southport area. This list was compiled by the Brunswick County Resources Development Office.

<u>Firm</u>	<u>Employment Range</u>	<u>Products</u>	<u>Year Established</u>
Blake Builders Supplies Supplies, Inc.	20-49	Building Supplies, hardware, concrete	1950
Carolina Power and Light Company	250-499	Electrical power	1975
Caroons Crab Company, Inc.	20-49	fresh and frozen seafood	1965
East Coast Ice and Fisheries	20-49	Manufacture ice	1975
Pfizer, Inc.	100-249	Citric acid	1975
Sea-Way Press	1-4	Commercial printing	1967
Standard Products of North Carolina, Inc.	20-49	Fish meal, fish oil, and fish solubles	1922
State Port Pilot	1-4	Weekly newspaper	1928
Woodcraft Cabinet Shop	1-4	Custom- made cabinets, misc. woodwork	1974

It is important to note that no new industries or firms have located in the Southport area since 1975, when Carolina Power and Light and Pfizer companies located there. Both are major employers in the Oak Island area as well as the County.

Yaupon Beach relies upon the Southport area in other economic areas as well as manufacturing. Below are some of the areas included in this economic reliance.

### Fishing

Fishing is a major industry in the Southport area. Southport is the commercial and sport fishing center of the county, with largest amount of registered/licensed fishing boats. This is significant since Brunswick County is one of the leading seafood producers in the State.

Southport has a state owned boat harbor which was recently leased to a private operator. It is reported that the harbor is now doing much better and producing more revenue since the leasing. There is an adjoining harbor, the Old Boat Harbor, which is run down and dilapidated. It is being considered for rehabilitation and historic preservation, but could also contribute more to the fishing industry providing better access and facilities. In the present state, it is definitely not producing or promoting as much revenue as it could be if it was in better condition.

### Agriculture

Agriculture activity in the Southport area is almost non-existent. In the 1976 Land Use Plan, it was reported that Smithville Township had so little agricultural activity, that all acres in agricultural use would be included in the Towncreek Township reports.

### Tourism

Although tourism is the third largest contributor to the economy of Brunswick County, it is perhaps the largest contributor to the economy of Yaupon Beach. Many of the Town's commercial establishments rely heavily on the spending of not only Yaupon Beach's seasonal population, but also the pass through traffic of Long Beach's seasonal population.

Although the commercial activity created by visitors directly benefits the economy of the Town to some extent, even more revenue could be generated if more commercial spending opportunities were available.

In 1974, each visitor to Brunswick County's beaches (no separate study was prepared for Yaupon Beach) spent an average of \$4.66 per person, per day. In 1972, visitors to the upper South Carolina coast (Myrtle Beach area) spent an average of \$10.13 per day; the middle South Carolina coast (Charleston area) spent \$11.84 per day; and the lower South Carolina coast (Beaufort area) spent \$17.31 per day. No studies are available for separate North Carolina beaches, but the average expenditures, statewide, in 1973 were \$14.14 per day. The reason Brunswick County's average was, and is, so low is the lack of commercial spending opportunities.

## Commerce

The fourth largest occupation of Brunswick County residents is that of trade which includes all persons engaged in the sales of merchandise. Gross retail sales have risen steadily since 1973 for the County, with the greatest growth occurring since 1978. The annual increase, from 1978 to 1979 was as large as the total increase for the three-year period from 1973 to 1976.

Although recent retail figures for Southport or Yaupon Beach are not available, it is probable that the merchants have not received their proportional share of the County increases due most probably to their failure to compete with other districts within the market area.

In the past decade, the economic viability of the downtown and waterfront areas of Southport has been jeopardized. To arrest any negative trends in the commercial areas, city officials adopted a Downtown and Waterfront Revitalization Plan in September 1979. Studies done in preparation of this plan by the Brunswick County Planning Department indicated an extreme problem of vacant buildings, due largely to the move of Brunswick County Government offices, and vacant lots, due to lack of demand for floor space in the Central Business District (CBD). In addition, a large number of buildings in the area housed professional offices, primarily attorney. It was also found that large portions of the land in the CBD and along the waterfront was owned by a few people, rather than a large number of individuals. A market analysis for the plan concluded that the CBD has been negatively affected also by the competition of shopping centers in the area. Southport has experienced reduced sales margins, vacancies and lack of capital for improvements. It has obvious from the analysis of goods and services offered in the CBD that business volume has decreased. (For a more detailed analysis, see, City of Southport Downtown and Waterfront Revitalization Plan, 1979.)

The significance of the trends mentioned above is that the Southport central commercial areas are showing definite sign of decline. The movement of the County offices to Bolivia has not only caused vacant buildings, it has also caused a decrease of pedestrian traffic. The professional offices draw some people into the CBD, but not enough to make a real difference. The nearby shopping centers draw people away who would have otherwise shopped in the CBD. It seems obvious that the Southport CBD must become an active competitor, in the market area in order to draw people back to the central commercial areas. To do this, changes in its physical appearance are being planned according to the revitalization plan. This will not be enough, however. Changes must be made in the ownership patterns and marketing techniques of establishments to make revitalization a success. Having a small number of people owning most of the commercial property stifles competition within the commercial areas. Competition between business establishments is a very important factor in the viability of a commercial area. Obsolete marketing techniques should be replaced by more contemporary techniques, taking the lead from the successful shopping center.

Steps to limit commercial development in outlying areas could also be taken in an effort to encourage new business to locate in the downtown areas. Currently, the Zoning Ordinance sanctions strip commercial development along North Howe Street, NC 133 and 211. This a major threat to economic stability and revitalization of the CBD.

### Finance and Real Estate

Activities of financial institutions, banks, and savings and loan associations have increased significantly in the past decade in the County.

Real estate activities have also shown significant increases in the County, and Southport and Yaupon Beach both have a number of real estate establishments. Combined, Southport and Yaupon Beach contain four banks, the largest of which has two branches in Southport and one in Yaupon Beach. A savings and loan is also located in Southport.

### Other Commercial Areas

Commercial development outside the downtown area along North Howe Street, NC 133 and 211 may act to mitigate the effect of the declining downtown. Southport intends to continue to develop these outlying areas. Many of establishments there benefit from the tourist traffic along these roads.

Four major restaurants and four motels are supported in Southport. These establishments do not depend solely on tourist traffic since they are open year round.

The marinas are also commercial enterprises which do well in Southport, although, marina - type activities do not employ a large amount of people.

PART 2: MAJOR ISSUES, PROBLEMS, AND POLICIES

## YAUPON BEACH PUBLIC PARTICIPATION PROCESS

Yaupon Beach is a coastal community of approximately 721 permanent residents and 1,375 seasonal residents. With a total of 275 permanent residential dwelling units and 129 seasonal residential dwelling units, the community has an average household size for permanent residential dwellings of 2.62 and for seasonal residential dwellings of 10.66.

Several techniques were used to involve these residents in the land use planning process for Yaupon Beach. Local meetings with county planners, Town officials, and community residents were held. These meetings fostered public participation in the identification of community problems and issues and in the review of preliminary land use plans and the Town Policy Statements. Important issues were also reported upon in the local weekly newspapers. This served to inform residents and create awareness about concerns affecting their community. Also, as a convenience to the town residents with questions, concerns, and ideas about land use planning for Yaupon Beach, a "dial-a-planner" service was in operation and publicized from February 1, 1980 to June 15, 1980. The service allowed those people unable to attend local meetings to talk directly with a county planner. Finally, as an effort to involve residents in the planning process, the Brunswick County Planning Department sent out a questionnaire to all property owners in the community. The survey sought opinions and attitudes that Yaupon Beach residents hold on issues regarding land use and development, service provision, capital improvements, and beach strand policy.

The questionnaire, by far, elicited the most participation by Yaupon Beach residents in the land use planning process. Approximately 404 questionnaires were sent out the middle of February, 1980. One hundred twenty-one were returned, a response rate of about 30 percent. Responses to the questions were then tabulated during the middle of March, 1980. The following represents an analysis of the opinions and concerns of the 30 percent who took the time to respond.

#### Resident Type

When asked what type of residents they were, 54 percent of the respondents classified themselves as permanent residents and 44 percent classified themselves as seasonal. About two percent did not answer the question.

A range of one to five people live in the houses, with most of the responses centering on two people per house (70 percent of all responses). This prevalent response of two people per house reflects the large portion of property owners who are retired (See Work Place).

The property owners who answered the questionnaire were for the most part between the ages of 41 and 65 years. They indicated the following age and sex distribution in their residences.

<u>Population (Age in Years)</u>	<u>Male</u>	<u>Female</u>
0-25	11	5
26-45	13	9
46-65	27	26
66+	19	12

### Work Place

Responses indicated that approximately 18 percent of the property owners work in the immediate area of Yaupon Beach, while 27 percent work outside the immediate area. Thirty seven percent of the respondents indicated they were retired, and about 17 percent did not answer the question about work place.

### Major Problems Facing Yaupon Beach

Property owners were asked to write out problems they felt were facing Yaupon Beach. Erosion was the most prevalent answer. Other frequent answers included public services, litter, and sewage facilities.

### Characteristics of Yaupon Beach - Desirable and Undesirable

When asked what characteristics made Yaupon Beach a desirable place to live, residents listed most often the characteristics of family orientation and friendly people. The beach location also made it a desirable place to live.

As for undesirable conditions in Yaupon Beach, residents noted a wide range of items; however, litter and odor from the local fish factory were the most frequent answers. The streets and inadequate public services were also mentioned frequently as undesirable conditions.

### Public Facilities and Services

Property owners were also asked to respond to questions evaluating facilities and services in the community and financing mechanisms for future facilities and services. Specifically, they were asked to rate ten service/facility related items on a scale of one to five. One was the lowest or worst rating, while five was the highest or best. In general, water service, refuse service, fire and police protection were rated fairly high.

Recreation, building inspection, zoning administration, and planning were rated fairly low. The responses were not so one-sided for town management and streets. Below is a tabulated summary of their responses.

<u>Item</u>	<u>Rating</u>				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Town Management	11	12	22	13	13
Water-Service-Price	6	3	8	17	50
Quality	7	5	16	11	25
Refuse Service	6	1	7	16	47
Recreation	28	15	14	5	3
Building Inspection	12	10	26	8	6
Zoning Administration	19	9	26	2	7
Planning	13	11	26	7	2
Fire Protection	7	5	17	18	26
Police Protection	7	5	22	16	28
Streets	22	13	22	16	4

Asked about additional or improved services they would like to see, respondents listed improved sewage and trash clean up most often. Other suggestions included paving and repairing streets, more recreational facilities, life guards on the beach during summer, and fire hydrants.

In another question regarding how new public facilities should be financed (to accommodate population increases), approximately 46 percent of the respondents chose user charges/ bond financing, 36 percent chose taxes, and 17 percent chose assessment of property owners.

Property owners were also asked if they would support construction of a bridge from the west end of Oak Island to the mainland. The majority of respondents did support the bridge. Approximately 69 percent of the responses did favor it, 21 percent did not favor it, and 10 percent did not answer the question.

Future Development

When asked about the future development of Yaupon Beach, property owners generally agreed on the types of development to be encouraged and discouraged. Permanent and seasonal, single family dwellings topped the list of types to be encouraged and multi-family, condominiums, mobile homes, and industrial were types to be discouraged. The response was split on whether to discourage or encourage duplex, commercial, and tourist-related business development. The following is a list of the different development types with the percentage of responses for encouragement or discouragement. Any percentages not accounted for in the table are due to "no response".

<u>Type</u>	<u>Encourage</u>	<u>Discourage</u>
Permanent Residential	67%	2%
Seasonal Residential	53	4
Single Family Dwellings	63	3
Duplexes	21	30
Multi-Family	7	48
Condominiums	15	50
Mobile Homes	3	59
Commercial	20	42
Industrial	3	54
Tourist-related business	41	24

### Polluted Shellfish Areas

In reference to shellfish areas adjacent to Yaupon Beach which were closed to harvesting because of pollution, the residents were asked what methods, if any, they would support to clean up these areas and permit harvesting. A total of 167 responses were given. Of these responses, construction of sewage treatment facilities "received 43 percent, "prevention of building near wetlands (within 75 feet)" received 34 percent, and "increase lot size requirements for building homes" received 16 percent. The remaining percentage of responses were other various suggestions for dealing with the problem.

### Beach Erosion

The rate of beach erosion on Yaupon Beach has been established by the State of North Carolina to be three feet per year. The State requires that buildings on the beach front should last thirty years, and that to accomplish this a setback from the water of 60 feet must be required. Yaupon residents were asked what they thought of this policy. The majority of those who answered the question felt that the policy should remain in effect and should be enforced (75 percent of all responses to the question). Eighteen percent felt that people should be able to build closer to the water, but not be allowed to get federal flood insurance if they do build closer, while 7 percent felt the policy should be canceled altogether.

Property owners were also asked what they would favor the Town of Yaupon Beach do in regard to beach renourishment projects. Less than half of the total respondents chose to answer this question. Of those who did respond, 45 percent supported financing a portion of the project cost, 30 percent supported providing areas from which to take sand and places on which waste soils can be deposited, and 26 percent supported providing easements for work.

#### Vehicles on the Beach

The questionnaire asked residents whether or not vehicles should be permitted on the dunes and beaches. About 60 percent of the residents said they should not, 3 percent said they should, and 27 percent chose not to respond.

#### Beach Access

Eighty responses were received for a question regarding what measures residents would support to improve beach access. Of those who responded, 55 percent indicated they would support improving the parking facilities of existing access areas, while 45 percent would favor the construction of dune walkover structures.

#### Recreation Facilities

Residents were asked what type of recreational facilities they felt were needed at Yaupon Beach. A total of 145 responses were given which were fairly well distributed among the four different choices. A multi-purpose center received 33 percent of the total responses, a youth oriented program received 24 percent, an increase in park areas received 23 percent, and an elderly oriented program received 20 percent.

Emergency Preparedness

When asked if Yaupon Beach was well enough prepared for hurricane and flood evacuation, 42 percent of the residents said "yes", while 17 percent said "no". Forty one percent of the residents chose not to answer the question.

Oak Island Merger

One final question was posed to the property owners of Yaupon Beach. Asked if they would support the merging of the towns of Caswell Beach, Yaupon Beach, and Long Beach, the property owners voted equally. Forty five percent said "yes" and 45 percent said "no". Ten percent chose not to respond.

### 3. SUMMARY OF MAJOR ISSUES AND PROBLEMS

The following list is a summary of current issues and problems facing Yaupon Beach as indicated in the Citizen Questionnaire Report.

#### Issues

- Clean-up of Polluted Shellfish Areas
- Duplex Dwelling Development
- Tourist-Related Business and Commercial Development
- Vehicles on the Beach
- Beach Access
- Oak Island Merger ( Merging the Towns of Yaupon Beach, Caswell Beach, and Long Beach. )
- Beach Renourishment Projects

#### Problems

- Erosion
- Public Services
- Litter
- Sewage Facilities
- Odor From the Local Fish Factory
- Streets

#### Areas Where Improvement is Needed

- Recreation Facilities
- Building Inspection
- Zoning Administration
- Planning
- Town Management
- Refuse Collection

POLICY STATEMENTS

The Yaupon Beach Town Council has adopted the following policies for dealing with land use planning issues which will affect the community within the next ten years. These policies establish a systematic basis by which proposed developments will be judged. If a proposed project or development would violate the intent of these policies, action to prevent its construction will be taken by local, state and federal government agencies.

These policies will be used by local officials in their decision making process to increase the consistency and quality of their decisions.

POLICY STATEMENTS:

I.

1. Resource Protection

Yaupon Beach will support and enforce through its CAMA Minor permitting capacity the State Policies and permitted uses in the Areas of Environmental Concern. The State Policy Statements for AEC's offer protection for Yaupon Beach fragile and significant environmental resources through the CAMA permitting procedures. In addition to those policies set forth in Subchapter 7H of the State CAMA Regulations, Yaupon Beach adopts the following policies concerning (AEC's):

- A. Coastal Wetlands. Activities in Coastal Wetland Areas shall be restricted to those which do not significantly affect the unique and delicate balance of this resource. Construction in the Coastal Wetland will be permitted only as is necessary to provide access, easements for those types of development activities that are Water dependent. Such uses as docking facilities, fishing piers and utility easements will be permitted so long as they fulfill the requirements of other applicable laws. Substantial effort must be provided by the developer to disturb as little Coastal Wetland Areas as possible in the design construction and operation of any facility placed in a Coastal Wetland AEC.
- B. Estuarine Waters. Yaupon Beach, in recognition of the importance of Estuarine Water for the fisheries industries, shall promote the conservation and quality of this resource. Suitable uses of this land/water area are those which do not permanently or significantly affect the function, cleanliness, salinity and circulation of Estuarine Waters. Permitted use in Estuarine Waters shall include access and navigation channels. Yaupon Beach will also support projects in Estuarine Water Areas which aim to increase the productivity of these waters. Such projects include oyster reseeded programs, and inlet channeling and dredging operations for the purpose of increasing the flushing action of tidal movement.

Yaupon Beach, in recognition of the shellfish areas pollution problem which closes these areas to harvesting, supports the construction of the Southeast 201 Facilities Plan.

- C. Public Trust Areas. Yaupon Beach supports the N.C. State Policies concerning Public Trust Areas as it is set forth in Subchapter 7H .0207 as outlined below:

A. Management Objective. To protect public rights for navigation and recreation and to preserve and manage the public trust areas so as to safeguard and perpetuate their biological, economic and aesthetic value.

B. Use Standards. Acceptable uses shall be those consistent with the management objectives in (A) of this Rule. In the absence of overriding public benefit, any use which significantly interferes with the public right of navigation or other public trust rights which the public may be found to have in these areas shall not be allowed. The development of navigational channels or drainage ditches, the use of bulkheads to prevent erosion, and the building of piers, wharfs, or marinas are examples of uses that may be acceptable within public trust areas, provided that such uses will not be detrimental to the public trust rights and the biological and physical functions of the estuary. Projects which would directly or indirectly block or impair existing navigation channels, increase shoreline erosion, deposit spoils below mean high tide, cause adverse water circulation patterns, violate water quality standards, or cause degradation of shellfish waters are generally considered incompatible with the management policies of public trust areas. In every instance, the particular location, use, and design characteristics shall be in accord with the general use standards for coastal wetlands, estuarine waters, and public trust areas.

D. Estuarine Shoreline: CAMA defines the Estuarine shoreline at Yaupon Beach as the area 75 ft. landward of Estuarine Waters. Yaupon Beach realizes the dynamic nature of Estuarine Systems and continual interaction of Estuarine Waters and Estuarine Shoreline. The natural process of erosion transforms Shoreline Areas into Public Trust Areas. It shall be the policy of Yaupon Beach to allow this natural process to occur if life or structures are not in jeopardy.

On shore development also has a profound effect on adjacent Estuarine Waters. Effluent from poorly placed or functioning septic systems can pollute shellfish areas which represent much greater economic benefits to the City's citizens than do the residential uses of Estuarine Shoreline Areas. In recognition of this fact, Yaupon Beach discourages the use of Estuarine Shoreline Areas for residential purposes where there is a substantial chance of pollution occurring.

E. Ocean Hazard Areas. Yaupon Beach supports the State Policies for Ocean Hazard Areas as outlined in Subchapter 7H .0306 as outlined below.

A. Development will be permitted only landward of the crest primary dune. If no primary dune is present, development must be set back a minimum of 30 times the average annual erosion (a total of 90 feet at Yaupon Beach) from the first line of stable vegetation.

B. No development will be allowed that involves the removal or relocation of dune sand or vegetation.

C. Mobile homes shall not be permitted within high hazard flood areas unless they are within mobile home parks existing as of June 1, 1979

D. Prior to development in an Ocean Hazard Area, the developer or builder must give written acknowledgement of the risks associated with building in the AEC, and places no responsibility on the Coastal Resource Commission for any future damage.

2. Physical Constraints to Development.

Yaupon Beach adopts the following policies relative to Physical Constraints to development:

A. In conformity with State and Health regulations, growth and development will be discouraged in areas where septic tanks will not function and sewer services are not available.

Some areas of Yaupon Beach contain soils which do not permit adequate percolation necessary for septic system functioning. Also, some areas have high water tables which similarly inhibit septic system functioning. These areas, as they are delineated on the soil suitability maps will not be allowed to be developed unless sewer service is available.

B. Growth and development will not be allowed to be where poor drainage exists. Corrective measures such as stilts will be required if construction is to be done in areas of seasonal high water.

Because Yaupon Beach lies in the low Coastal Plain of the East Coast, flooding can occasionally result. In order to minimize damages to developed land in case of this occurrence, Yaupon Beach will prohibit development in areas of seasonal highwater.

Only developments that cannot be placed in more suitable locations may be developed in these areas. Examples of permitted uses in these areas are low density residential uses, golf courses, and other recreational uses. If residential or other low density "urban" use is to be developed in an area of seasonal highwater, special requirements such as stilts may be necessary.

- C. Growth and development will not be allowed in areas where soils will not support buildings.

Where suitable alternative locations exist for a particular development project, Yaupon Beach will discourage its location in an area where soils will not adequately support the buildings. If no alternative sites exist, the project may be constructed if corrective measures to stabilize the building foundation are incorporated into the project design.

## II. Resource Production and Management

Yaupon Beach's natural resources play a vital role in its economy. Yaupon Beach's beaches and dunes are utilized for recreational uses as well as for fishing. Protection of these resources is a prime concern of Yaupon Beach. To deal with issues that involve resource production and management, Yaupon Beach adopts the following policies:

- A. Productive Agricultural and Forest Lands. Yaupon Beach contains no productive agricultural and/or forest lands. Furthermore, there will not likely be future agricultural and/or forest land use in Yaupon Beach. Therefore, no policy statements concerning this issue will be made.
- B. Net Fishing. Due to the limited beach strand, Yaupon Beach discourages net fishing above the high water marks. Many problems have been caused by the nets conflicting with Yaupon Beach's recreational activity. Yaupon Beach suggests that a set of rules and regulations for net fishing be developed and strictly adhered to. These rules would protect the rights of the fishermen as well as the beach front property owners and those using the beach for recreational purposes.

Yaupon Beach feels that protection of Coastal and Estuarine Waters is a prime prerequisite. Habitats for shellfish in all portions of their life cycle must be preserved in order to maintain fishing as a viable economic and recreational activity. Therefore, any development which will profoundly and adversely affect Coastal and Estuarine Water will be discouraged. In the design, construction, and operation of Coastal and Estuarine development, every effort must be made to mitigate negative effects on water quality and fish habitat. These efforts will be at the owners or operators' own expense.

C. Existing and Potential Mineral Production Areas.

Yaupon Beach contains very little known mineral deposits. Sand is the only deposit in abundance and has never been mined. There is no reasonable likelihood that it shall ever be mined. Therefore, no policy statements concerning this issue will be made.

D. Off Road Vehicles. In November, 1979, the Yaupon Beach Board of Commissioners enacted an Ordinance to protect their beach areas. In this ordinance, all vehicular traffic upon the beach areas within the incorporated limits of Yaupon Beach was prohibited with the exception of those vehicles involved in emergency or rescue operations.

A. Industry. Yaupon Beach will discourage the location of any industrial land use within the town limits.

B. Commercial. Yaupon Beach supports the development of low and medium density commercial development in those areas designated by the Yaupon Beach Zoning Ordinance

D. Provisions of Services to Development.

1. Yaupon Beach is presently completely supported with water. The cost of securing this water supply is borne by the users in the form of user chargers.

2. Yaupon Beach has committed itself to providing major trunk lines throughout the town where public water is feasible and where it becomes needed. Individual connections are done at the user or property owner's expense.

3. Supports the development and construction of the Southeast 201 Facilities Plan.

4. Yaupon Beach recognizes its role as the provider of Solid Waste disposal services for its residents. It is the policy of Yaupon Beach to have this service provided in an efficient, safe, and sanitary manner. In order to carry out this role, adequate means of final disposition must always be available. Yaupon Beach presently uses the County's "Southport Landfill" on Rt. 211. Yaupon Beach supports the County's participation in regional landfill projects so long as adequate landfill sites are retained, maintained, and guaranteed.

5. Yaupon Beach tax money supplements funds for the local rescue squad and continue to support the volunteer Town's Fire Department.

Yaupon Beach does not operate a rescue squad of its own. However, the Town does contribute funds to the rescue squad in the neighboring town of Long Beach. Yaupon Beach coordinates their volunteer fire department with Long Beach's rescue squad through Long Beach's Civil Preparedness Program.

6. Yaupon Beach has children in the Southport School System jurisdiction. Therefore, Yaupon Beach will encourage continued and expanded multi-purpose use of the Southport School facilities for recreation and other purposes.
7. Because of a lack of any organized transportation program, Yaupon Beach does not provide transportation for the elderly or handicapped. However, Yaupon Beach encourages the expansion of such existing programs within Brunswick County.

Yaupon Beach supports the construction of a bridge at the west end of Oak Island to the mainland.

#### E. Growth Patterns

1. Yaupon Beach will encourage existing areas under development to develop fully before expansion into new areas and new developments will occur as an expansion from these fully developed areas.
2. In addition, Yaupon Beach will follow where applicable a policy that will allow existing areas under development and areas with public facilities to fully develop before expanding into new areas and new development will occur as an expansion from these fully developed areas.
3. Urban growth and development will be programmed to occur where adequate services are available or planned.

4. Spatial segregation of conflicting land uses will be encouraged.
5. Yaupon Beach will work to provide neighborhood recreation areas. Yaupon Beach also supports the development of a multi-purpose community center. Such center could be used for indoor recreational purposes.
6. Yaupon Beach will encourage a variety of housing types primarily low and medium density single family permanent and seasonal residences. This policy is supported by the Yaupon Beach Zoning Ordinance.
7. Yaupon Beach supports its commercial and recreational activity and will work to make and keep them attractive and economically sound.

D. Tourism

Yaupon Beach will encourage and promote its tourist industry.

YAUPON BEACH

IMPLEMENTATION PLAN

## IMPLEMENTATION STRATEGIES

In order to carry out the policies and goals which have been adopted by Yaupon Beach, implementation strategies are needed. Strategies are specific tools such as systems of taxation, public expenditures, regulations and ordinances. These tools can be used to promote the policies of the City as well as bring it closer to its desired end state.

These strategies must be realistic in terms of the context in which they operate. To be appropriate, they must be politically viable and enforceable.

Yaupon Beach has two local units of government which provide services to the city and have authority to levy taxes. These two units are: the City of Yaupon Beach and Brunswick County. Historically, counties have been responsible for software services (i. e., health, education and welfare) while municipalities were responsible for hardware services (i. e., water, sewer, streets and sanitation). However with a changing demographic picture, both cities and counties have initiated services of both types. Coordination of services between Yaupon Beach and Brunswick County are very few. However, agreements in several areas should be explored. Possible areas for joint services include recreation, and wastewater treatment.

The degree to which any of these service agreements can be achieved will be determined by the cost involved. The cost in turn can be held to a minimum by land use control. Yaupon Beach has authority to regulate the use of land outside AECs and within its jurisdiction.

Yaupon Beach has several implementation tools, which include a Zoning Ordinance, a Subdivision Ordinance, Health Department Regulations, Building Codes, a very-soon-to-be adopted Land Use Plan, A Land Classification Plan, a Sand Dune Protection Ordinance, and Cama Regulations. Following is a brief description of each strategy and an explanation of how the strategy will operate to implement the policies and goals of Yaupon Beach.

### I. ZONING

Zoning is the enactment of a law by public authority that controls and regulates private property. Zoning consists of dividing the community into districts or zones and regulating within such districts the use of land and the use, height and area of buildings for the purpose of conserving and promoting the health, safety, morals, convenience, and general welfare of the people of the community. A County or town can be divided into any number of districts. Each district will have its own permitted uses, yard size, lot size and height requirements. All pieces of property within one district must be treated and regulated equally.

A zoning ordinance consists of two things: (1) The Text which contains definitions, descriptions of the districts in terms of permitted uses, lot size, yard requirements, etc. Also the text contains information about procedures to get a building permit, a variance or special exception to amend the zoning ordinance. (2) The Zoning Map which shows how the community is divided into districts.

## Special Use or Special Exception

Within one district, certain uses may be permitted with special requirements attached. For example, within a residential zone, houses are permitted and must only meet the standard requirements of that residential zone. They must have a minimum lot size, yard dimensions and building requirements. A convenience store may be permitted in that residential district only if certain other requirements are not met as well. This special use might require that the convenience store provide landscape buffer strips, a parking lot, a larger lot, etc.

Using the special use approach, certain possibly conflicting uses may be permitted within districts so that their negative impacts are reduced.

## Variance

A variance is a permit which allows a property owner to use property in a way that the zoning ordinance restricts. A Variance is a provision to insure that persons are not seriously injured by the use of the Zoning Ordinance. It is a recognition that no law is perfect and thereby provides a means to reduce misjustice. The Board of adjustment can grant a Variance if three findings can be made:

1. There is a practical difficulty in complying with the ordinance or that strict adherence to the ordinance would cause undue hardship. Five things must be proved by the applicant to show practical difficulty.
  - A. If the property owner does comply with the ordinance, he can make no reasonable return on his property.
  - B. The hardship results from the ordinance itself.
  - C. The hardship must be suffered by the lot and not the owner.
  - D. The hardship cannot result from the property owners own action. For example if he had subdivided his lots to small to comply with the Zoning Ordinance.
  - E. The hardship must be peculiar to the individual property.
2. The Variance must be in harmony with the general intent of the Ordinance. If the variance would cause a significant change in the character of neighborhood, the variance should be denied.
3. The public safety and welfare must be assured. If the granting of the variance would cause a dangerous situation, such as high traffic volume on a neighborhood street, the variance should be denied.

### Enforcement of the Zoning Ordinance

The enforcement of the Zoning Ordinance is the responsibility of the zoning administrator or building inspector. His duties are to issue building permits and inspect property for violations.

When a person applies to the building inspector for a permit, the inspector determines if the proposed use and site layout is in compliance with the Zoning Ordinance. If it is not, the permit is denied. The inspector also checks his jurisdiction for violations. If he finds a building is being erected without a permit, a stop-work order will be issued. A fine may then be imposed.

### Importance of the Zoning Ordinance

The importance of a zoning ordinance for Brunswick County is evident. As the population of the Southport Area increases, conflicts in land use begin to emerge. Factories may locate too close to neighborhoods. Mobile homes may invade a previously all single family-home neighborhood. A strip of commercial development along a major highway may cause traffic congestion and accidents. A zoning ordinance can prevent these events. It can alleviate sprawl problems by zoning areas within and immediately adjacent to developed areas at a higher density than outlying areas. The greater use to which land can be put will encourage development there. Zoning can be used to protect natural and recreational resources. The coastal and estuarine waters are a major source of recreational activity. Dense development near these areas can pollute the waters from runoff. Near these areas, zoning can prohibit high densities and industrial development which may harm the fragile environment.

## II. SUBDIVISION REGULATIONS

Subdivision regulation fosters planned and orderly development of the land in the Southport planning area. It determines efficient methods for the integration of proposed subdivision streets with existing and planned streets. Provisions for the dedication of street right-of-way and utility easements and for the planned arrangement of streets and structures that will enable the City to avoid overcrowding and congestion are included in the regulation. Such an ordinance has the general purpose of regulating land within the city limits and the extraterritorial jurisdiction in order to preserve the public health, safety, and welfare.

### Variance

A variance to the ordinance may be granted if strict adherence to the regulations would cause unnecessary hardships or where topographical or other conditions peculiar to the site and a departure from these regulations will not destroy their intent.

### Enforcement of Subdivision Regulations

The enforcement of the Regulations is the responsibility of all permit-issuing administrative agents or departments of the City of Southport. Their duty, aside from issuing development permits, is to determine if the proposed subdivision plan is in compliance with the Subdivision Regulations Ordinance. If it is not, the permit is denied.

Enforcement is also a responsibility of the Brunswick County Register of Deeds who shall not file or record a plat of subdivision located within the territorial jurisdiction of the City of Southport without approval of the legislative body as required in the Ordinance. That body is to determine if the proposed subdivision plan is in compliance with the Regulations.

#### Importance of Subdivision Regulations

The regulations establish general requirements and design standards for development regarding suitability of the land, different types of developments, public facility/service areas, existing and planned streets, and community amenities. Standards for street design, lot size, buffer strips, and easements are also established.

The regulations are designed to insure an adequately planned street system and to avoid sharp curves, hazardous intersections; to avoid overcrowding of the land and extreme concentrations of the population; to secure safety from fire, panic, and other dangers; to provide for adequate water and sewage systems, schools, recreational facilities, to facilitate an orderly system for the use of land; to insure the proper legal description and monumenting of subdivided land; and to provide for the resubdivision of large land parcels.

III. Land Use Plan- Yaupon Beach is in the process of updating and adopting a Land Use Plan for 1980-1985. On the municipal level the Land Use Plan may be used in the day to day business and in planning for the future. Oftentimes, the land use plan guides in local policy decisions relating to overall community development. The plans also provide the basis for development regulations and capital facility planning and budgeting. By delineating how the community wishes to grow, the land use plans help to assure the best use of tax dollars as public utilities can be extended to the best areas for growth.

#### IV. LAND CLASSIFICATION PLAN

The general land classification system was developed by the State of North Carolina to help counties and municipalities in the implementation of their goals, objectives and policies. The use of the land classification system and map is strategy which will promote the orderly use of land within the city. By delineating land classes on a map, the local government can specify those areas where certain policies will apply. Identification will be made of the future use of all land in the Southport area. The designation of land classes allows the local government to identify the use, and density of each area, and hereby plan for public services to service those areas. The land classification system and map will be used as a base to formulate more formal and regulatory tools such as zoning.

The state and the Federal Government utilize the local land classification system and map to determine whether projects and development which requires government license, permits or funds will be permitted to locate in the Southport area. If the proposed project is inconsistent with the land classification at its proposed location, the permit, license or funds will be denied.

One of the objectives the State of North Carolina has set for local government in the land use plan update process is the further examination and refinement of the land classification system. In keeping with that objective, a land classification plan has been developed for Yaupon Beach.

#### V. HEALTH DEPARTMENT REGULATIONS

The Brunswick County Health Department, under the authority of a resolution passed by the Brunswick County Board Health, has the responsibility of administering the rules governing the protection of private water supplies, the rules governing public water supplies, and the laws and rules for ground absorption sewage disposal systems of 3000 gallons or less design capacity, of which were enacted by the authority of the North Carolina General Statues.

#### VI. BUILDING CODE

A building code is a law which requires that minimum, standards, provisions, and requirements are met for safe and stable design, methods of construction and uses of materials in buildings and/or structures erected, constructed, enlarged, altered, repaved, moved, converted to other uses or demolished and to regulate the equipment, maintainance, use and occupancy of all buildings and for structures.

The general purpose of a building code is to promote the public health, safety, and welfare. The state of North Carolina provides a standardized building code which is very comprehensive and insures that all buildings are adequate and safe. All local governments in North Carolina will be required to adopt this code by 1983 and enforce it with a building inspections department. The local government code may deviate fro the State Building Code only if a compelling need can be proved.

Yaupon Beach can use the North Carolina Building Code to improve the quality of construction within the planning area. Many buildings and homes are substandard and do not provide adequate shelters for dwellings, businesses, or other uses.

A building inspector enforces the Building Code. The Building Inspector's responsibilities consist of several things. First, he accepts applications for building permits. No structure can be legally erected without such a permit. The application contains drawings of the proposed building which will allow the Inspector to determine if the building meets the coldes' standards. The Building Inspector also inspects buildings to ensure that the construction is occurring in accordance with the approved specifications. Condemnation of unsafe buildings is also a responsibility of the Inspector. There are less rigid standards that must be met by existing buildings as opposed to new construction.

## VII. CAMA Regulations

Development standards have been established for Areas of Environmental Concern. They serve to protect and to conserve the natural functions of the AEC's (See standards under Fragile Areas).

### Enforcement of CAMA regulations

CAMA requires that each town desiring to develop its own Land Classification Plan and Implementation Plan to identify a "designated local official" to review, process, and issue permits for use of AEC's.

## VIII. Sand Dune Protection Ordinance

The Brunswick County Commissioners have adopted the "Sand Dune Protection Ordinance of Brunswick County" the purpose of which is ". . . . to preserve and promote the protection of the outer banks of Brunswick County . . . .". The areas in which this Ordinance applies includes all of the "barrier" islands on the southern boundary of the County including the Towns of Sunset Beach, Ocean Isle Beach, Holden Beach, Long Beach, Yaupon Beach and Caswell Beach as well as Bald Head Island, Battery Island, Striking Island and Bird Island.

Under this Ordinance a permit is required in order ". . . to damage, destroy or remove any sand dune or part thereof . . . or to kill, destroy or remove any trees, shrubbery, or other vegetation growing on sand dunes . . . ". These permits are issued by the County CAMA Permit Officer who is employed by the County on a full time basis. Permits will not be issued ". . . unless said action will not materially weaken the dune or reduce its effectiveness as a means of protection from the effects of high wind and water . . . ". As indicated, this ordinance applies in both incorporated municipalities as well as unincorporated areas of the County.

## IX. Principals and Standards for Future Development

A set of principals and standards for development has been established for the Yaupon Beach area. A principal is a general idealized relationship between a land use and the surrounding land and people. Standards are specific measurement units used to quantify the terms appearing in the statement of principals. They are not absolute, but, rather, are guides to be followed under average circumstances.

The Yaupon Beach Town Council should refer to these in order to consistently and rationally review development proposals in and around Caswell Beach. These principals and standard form the basis of land use regulations. In the case that a proposed development or some aspect of a proposed development is not covered by a law or ordinance, these principals and standards can be used by City officials as a foundation for negotiation with developers.

X. Maintaining a Low Tax Rate

The City of Yaupon Beach can benefit from a low tax rate in several ways. First, a low tax rate will prevent excessive burden on low and moderate income persons and thereby allow them to care for themselves.

Maintenance of a low tax rate can be accomplished in several ways. First, user charges and special assessments can be utilized to finance construction of public facilities instead of tax money. This will force those persons who directly benefit from public services to pay for them. Second, an increase in the tax base will reduce the tax rate. Finally, City expenses can be kept at a minimum. A growing municipality needs many services, but there are means to reduce costs. The zero-based budgeting concept can be used to prevent the perpetuation of unneeded jobs expenses. Normally, departmental budgets that are reviewed in comparison to last's year's budget are not questioned. In zero based budgeting, all expenses in the budget are questionable. Extensive justification for each item in the budget is necessary for its approval.

PART 3: LAND USE SURVEY AND ANALYSIS

YAUPON BEACH

LAND USE SURVEY AND ANALYSIS

## Introduction

In March of 1980 the Brunswick County Planning Department completed a land use survey of Yaupon Beach. Before this date, no previous data was collected or recorded to compare with to determine acreage and land use increases and decreases as indicators of development trends and land use compatability relationships.

The 1980 land use survey serves four major functions: First, an accurate dwelling unit count is made available. Second, existing acreages for each land use category are determined. Thirdly, the designation of each parcel of land is given. From this process land use compatability relationships are determined. Fourth, and most important, the land use survey serves as the basis for an in-depth land use analysis. It will reveal, for example, the amount of unused but usable land available within the Town. This is an important consideration in shaping policies in matters of commercial and residential development, subdivision control, of facilities provisions and needs assessment and in the future, the establishment of zoning districts. The following analysis will deal primarily with the use of the land and the relationships of the various types of land uses.

## 1. Existing Land Use

There are approximately 454 acres of land within the corporate limits of Yaupon Beach. Of this total, 162.6 acres or 35.8% are classified developed. Included in the developed classification are the following land uses: Permanent and Seasonal Single Family Residences, Permanent and Seasonal Multi-Family Residences, Commercial, Recreation, Public Institution, and Transportation, Communication and Utilities. The following chart details total acreage and percentage of each existing land use.

### A. Residential Land Use

The amount of land in Residential use in Yaupon Beach totals 103.7 acres or 38.05% of developed acreage. This acreage is subdivided into four categories: Permanent Single Family, Seasonal Single Family, Permanent Multi-Family, and Seasonal Multi-Family. Although the largest number of dwellings is in Seasonal Single Family at 208, Permanent Single Family dwellings constitute the largest percentage of developed acreage (19.47%) or 53.0 acres. Seasonal dwellings account for 18.07% of total developed acreage or 49.2 total acres. Almost all the seasonal acreage use is Single Family dwellings (48.9 acres) compared to only .3 acres of multi-family dwellings. Permanent Multi-Family dwellings comprise only .51% of the total developed acreage or 1.4 acres. In terms of the total acreage in Yaupon Beach, developed residential land comprises 22.8%.

### B. Commercial Land Use

Approximately 18 acres of land are in Commercial use in Yaupon Beach. They comprise 6.64% of all developed land or 3.99% of the total incorporated area. Included in this classification are restaurants, arcades, banks, stores, service stations, motels, and offices.

### C. Public Institutional Use

Included in this classification are the Town Hall and Yaupon Beach Church. Together they comprise 2.4 acres or .88% of the developed acreage and .53% of total acreage.

### D. Recreational Land Use

A large amount of acreage (37.7 acres) in Yaupon Beach is classified Recreation. The majority of this land is the Oak Island Country Club Golf Course, but also included is a tennis court owned by a local motel. Although the total recreational acreage comprises 13.84% of the developed acreage and 8.3% of all acreage, the Town owns no land specifically for use as a recreational area, feeling the beach provides all the land needed.

E. Transportation, Communication and Utilities

Included in this classification are the water pumping stations, water tower, and all streets and roads. Combined there are a total of 110.58 acres or 40.59% of the developed acreage and 24.36% of total acreage.

## 2. Development Trends

### A. Major Problems Resulting From Unplanned Development

Often, small and inadequate lot sizes can occur when there are great development pressures on a city of small size such as Yaupon Beach. This problem is complicated when the dwelling units on these lots are without sewerage facilities other than septic tanks. Serious problems may develop in the near future unless adequate services are provided to these areas of Yaupon Beach that are rapidly developing.

### B. Areas of Environmental Concern

Yaupon Beach's primary assets are natural resources. Many of these resources are classified as Areas of Environmental Concern by the Coastal Area Management Act of 1974 in an effort to preserve and protect them.

Of the AEC's designated by CAMA, Yaupon Beach contains the following: Coastal Wetlands, Estuarine and Public Trust Waters, Ocean Beaches, Renewable Resource Areas, and Natural Hazard Areas. For a detailed description of these areas, see the section entitled "Fragile Areas".

Development has occurred primarily in the Ocean Beach area where there have been extensive erosion problems. In addition, some land has been developed along the estuarine shoreline but it has caused no significant problems.

### C. Existing Platted Lots

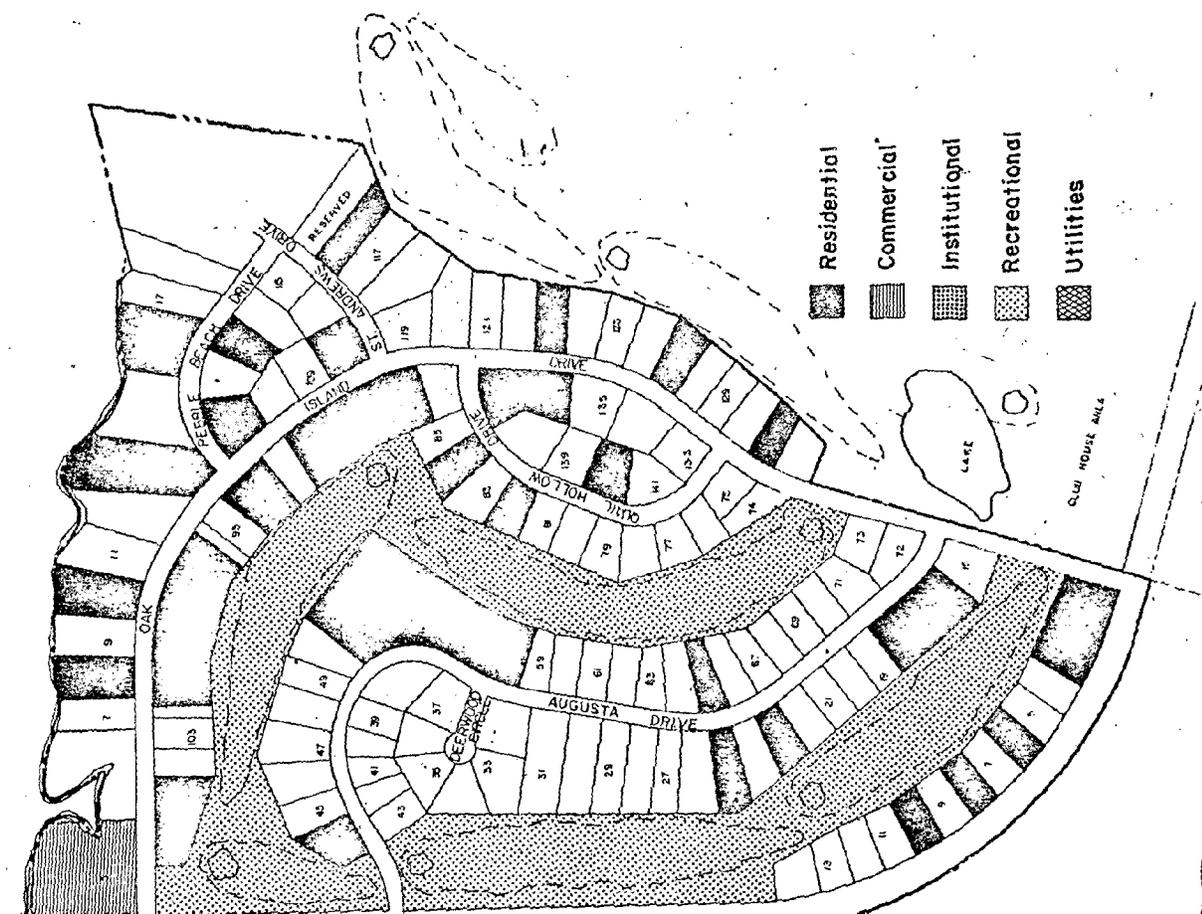
Almost all land (99.4%) in Yaupon Beach is platted. Approximately 178.7 acres of this land or 39.38% of the total acreage is undeveloped. It is doubtful the remaining 2.7 acres of unplatted land is suitable for development.

The average lot size in Yaupon Beach is .37 acres. Permanent Single Family dwellings sit on lots that average about a third of an acre in size. Seasonal Single Family sites are slightly smaller, averaging about a quarter of an acre each. Multi-Family units average much smaller lots (.08 acre) per dwelling.

All development in Yaupon Beach is provided with public water, but are not presently served by public sewer.

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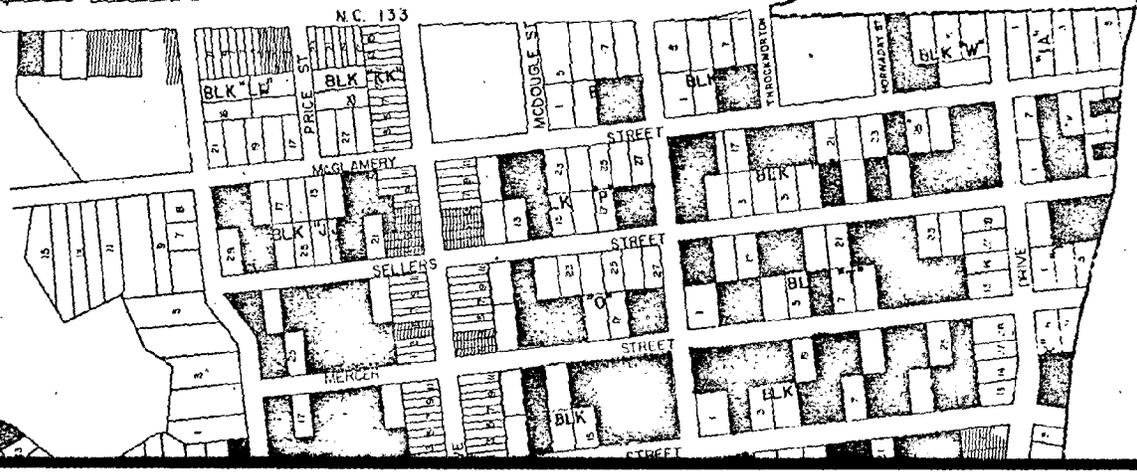
Land Use	Approximate Number of Units	Average Acreage per Unit	Total Acreage	Percentage of Developed Acreage	Percentage of Total Acreage
Permanent Single Family	161	.33	53.92	19.47	11.69
Seasonal Single Family	208	.24	49.92	17.90	10.78
Permanent Multi-Family	10	.60	6.0	.51	.31
Seasonal Multi-Family	4	.03	.12	.11	.07
Commercial	45	.40	18.0	6.64	3.99
Public Institution	2	3.27	6.54	.88	.53
Recreation	NA	NA	37	13.84	8.30
Transportation Communication and Utilities	NA	NA	110.00	40.59	24.36
Subtotal	438	.37	272.58	100%	60.03
Undeveloped Platted Acreage	NA	NA	171.7	NA	39.38
Undeveloped Unplatted	NA	NA	2	NA	.59
Total	438	.37	446.28	NA	100%



- Residential
- Commercial
- Institutional
- Recreational
- Utilities



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HUNSWICK COUNTY PLANNING DEPARTMENT



## YAUPON BEACH EXISTING AND PROPOSED FACILITIES

### 1. A. Water Facilities

Yaupon Beach presently has a small water system which utilizes wells for its water supply. An elevated storage tank is used for fire flow conditions and system pressure maintenance.

A 12" main (phase I) runs along Yaupon Drive to Long Beach and is thus available should Yaupon Beach's well water supply falter. However, at the present time Yaupon Beach has chosen not to tie into the County's system.

Because of a large portion of the Phase II service area, Yaupon Beach is tourist oriented. The design of a water system for the County should be based on seasonal population requirements and not the permanent, or year round population.

The Brunswick County Planning Department completed an in - depth study of seasonal population for the County in May, 1976. This study developed a 1990 peak week population projection for the Planned Phase II Water facilities area of 45,000.

Based on this 1990 peak week population projection, the system will be capable of supplying the Coastal areas the following quantity daily during the 12 week summer season.

$$45,000 \text{ people} \times \text{gpd/capita} = 4,500,000 \text{ gpd}$$

\*Includes commercial demand.

The coastal municipalities of Oak Island, Holden Beach, Ocean Isle, Sunset Beach, Calabash and Boiling Spring Lakes will have a peak week average daily consumption of 3,850,000 gpd. Yaupon Beach will be tied to the Phase II system for emergency purposes by the main line along

Yaupon Drive. The excess (4,500,000 - 3,850,000) of 650,000 gpd will be far above the peak emergency needs of Yaupon Beach should they occur. In addition, the Brunswick County Water System (Phase I and II) will have a total elevated storage capacity of 5.3 million gallons. This reserve capacity will provide for possible emergency fire needs.

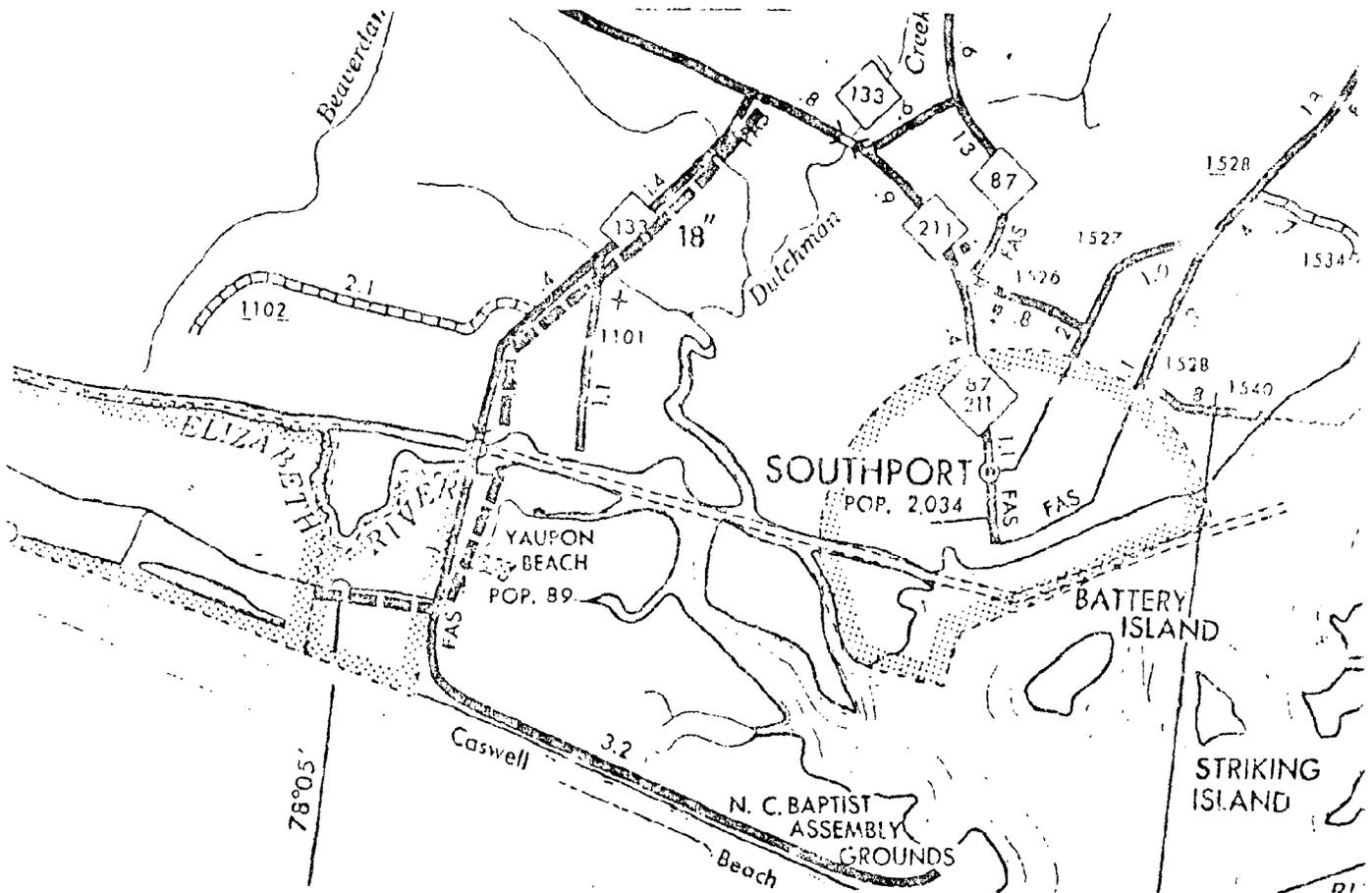
It should also be noted that the existing water treatment plant (Phase I) is being expanded to 6 mgd to provide for the future industrial requirements of the system.

The Brunswick County Phase I and Phase II Water System sources are ground water and surface water. The largest and most dependable surface water source is the Cape Fear River.

The following map shows the Phase II segment #4 water line that will serve Yaupon Beach in emergency situations.

SEGMENT #4:

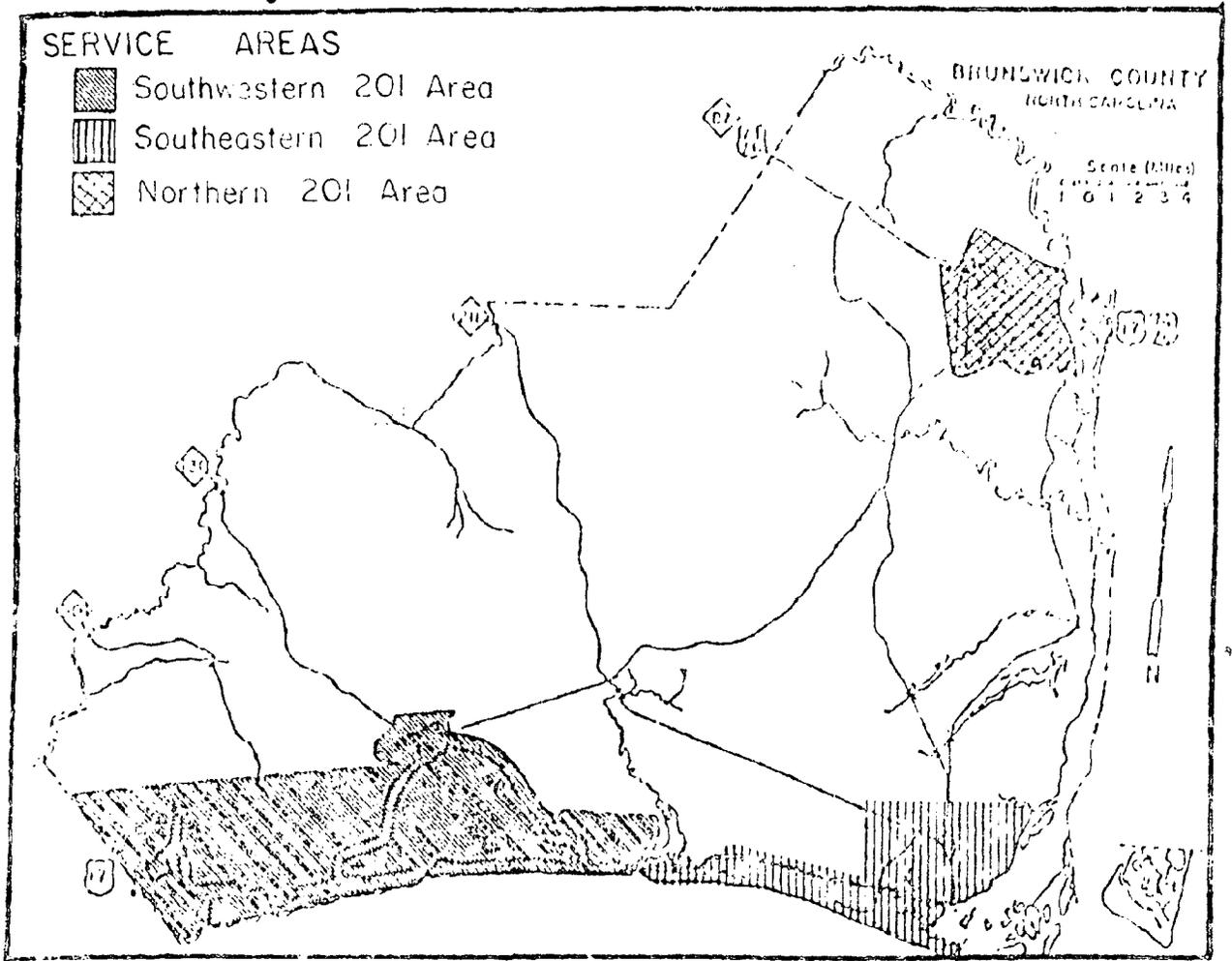
This segment will follow N.C. 133 from N.C. 211 to the Town of Long Beach town limits. Phase I already has a 12" diameter line along this segment. However, it will not be entirely adequate for Phase II service. We, therefore, propose paralleling this existing line with an 18" diameter line. A total of approximately 23, 240 linear feet is involved in this segment. The existing Phase I intracoastal waterway crossing should be adequate for Phase II service, so no new crossing is anticipated at this point in time.



## B. Sewerage Facilities

For Yaupon Beach, where most of the land area is not densely populated, the principal method for disposal of human and domestic wastes in rural and transitional areas outside these densely populated communities is the standard septic tank and filter field system. In the rural and community areas where low densities and suitable soils are present, such septic tank and filter field systems offer adequate sewage disposal without serious repercussions. However, in small towns and residential subdivisions with small lot sizes and high occupancy rates, the effectiveness and safety of septic tank disposal systems is significantly reduced by a smaller filter field dictated by the size of the lot.

In order to accommodate future development, minimize the possibility of septic tank failure and thus public health problems and adverse financial impacts, and to minimize the shellfish areas pollution problems, Yaupon Beach has been included in the Southeastern Brunswick County 201 Facilities Plan. The proposed Phase I (1990) and Phase II (2000) facilities will service 100% of the Town of Yaupon Beach. The Phase I facility can serve a summer population of 2,867 and a winter population of 947. The total flow capacity is 268,065. The serving capacities will more than adequately serve the needs of Yaupon Beach.



Brunswick County Planning Department, 1980 cpb

Yaupon Beach is included in the Southeastern 201 Planning Area

PART 4: LAND CLASSIFICATION DEVELOPMENT

YAUPON BEACH

CONSTRAINTS ON DEVELOPMENT

CONSTRAINTS ON DEVELOPMENT

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- I. Introduction
- II. Soil Suitability Analysis
- III. Septic Tank Problem Areas
- IV. Fragile Areas
- V. Archeological Sites

I.

INTRODUCTION

An analysis was made to determine the suitability for development of all undeveloped lands in Yaupon Beach. This consisted of three major mapping schemes which are as follows:

- 1) Soil limitations and productive lands
- 2) Lands with severe restrictions for development
- 3) Land suitability

These three schemes were analyzed and mapped, based upon the best information available. The major purpose of this analysis was to identify those areas in Brunswick County that have major constraints on development and to better educate the public of these areas before the Land Classification maps were drawn.

1). The first scheme deals with the general soil conditions in Yaupon Beach and how the natural soil properties present certain restrictions on development.

2). The second scheme further breaks down the soil conditions into those areas where septic tanks will not function and development should not occur unless public sewer service is available. This mapping unit combines those soil associations which are sandy, poorly drained, and have relatively high water tables. Included in this analysis are those areas where septic tanks function but where deep sands have fast percolation rates causing contamination to nearby water wells. Since this pollution problem has a high probability of occurring, development within these areas should not occur unless either public water or sewer systems are available. Essentially these areas will be water quality limited areas if present patterns of growth and development continue.

The other division illustrates lands within the City where no development should be allowed. These include a) coastal wetlands; b) ocean beaches; c) frontal dunes and d) fresh water marshes. All of these soil types were given very severe soil ratings and are not further distinguished from one another on the soils map.

3). The last analysis scheme deals with land suitability showing those areas where future growth should not be programmed to occur because of various natural and man-made conditions.

The first breakdown deals with fragile areas which could be easily destroyed or damaged by inappropriate or poorly planned development. These include:

- 1) Coastal Wetlands
- 2) Frontal Dunes

- 3) Ocean Beaches and Shorelines
- 4) Complex Natural Areas
- 5) Wetland Wildlife Habitats
- 6) Fresh Water Marshes

The second division of this analysis identifies natural hazard areas. These consisted of those areas that have high rates of erosion at the present and in the past and could be considered hazardous to development and certain other land uses. These areas are ocean erodible areas.

The third division of this analysis identifies those areas of archeological value. The location of Yaupon Beach's one archeological site is marked to serve as a reminder of their important cultural value. No legal restrictions actually exist in most of these sites, but it is recommended that they be avoided or carefully preserved in the development processes. Most of such sites are those that are recognized by the State, however, it is felt that there are many more that are merely unknown to the State.

## II.

## SOIL SUITABILITY ANALYSIS

### Introduction

This is an analysis of the general suitability of Yaupon Beach's soils for use as future sites for development. All of the Town's soils are classified as having some degree of physical limitations for future development. This analysis uses a general site map of the City and locates those soil associations with natural properties that are not well suited for development. The analysis discusses each soil and its interpretation. This analysis is essentially a guide and aid in the preparation of a land classification map. The maps and analysis are useful guides in planning residential growth, engineering works, recreational facilities and community projects. This is not a suitable analysis for planning and management of a specific residence or lot, or for selecting exact locations for building roads, etc., because the soils in any one association ordinarily differ in slope, drainage, depth and other characteristics that could affect their management.

The Outer Banks S.C.S. Soil Survey was used to develop the soil analysis sections for each association. The soil productive areas were identified by following certain established criteria. Agricultural lands were mapped according to capability class ratings from the S.C.S. which is explained in the text. Productive forest lands were separated according to the site index of the associations with only those of high value being mapped. Loblolly pine was used as the reference species.

### Soil Conditions

This section of the report groups together various soils associations having similar soil properties and thus interpretes their natural soil condition as having either resource potential or specific development limitation. The soil ratings are determined on this basis. Such interpretations encompass certain established tests to each soils physical and chemical properties. They are as follows:

1) Soil Horizons- depth in inches of the major soil strata from surface to subsurface soils. This is used to determine relative depth to water table and the soils chemical properties.

2) Texture- based on the relative amounts of sand, silt, and clay in a soil, giving rise to textured classes such as sand, sandy loam, loam, clay loam, and clay.

3) Particle Size- based on the single soil unit and relates to shrink-swell potential, plasticity, and bearing capacity.

4) Permeability- that quality of a soil that permits the movement of water and air. Estimates of the range of permeability is the rate of time it takes for downward movement of water in the major soil layers when saturated, but allowed to drain freely.

5) Soil Structure- the arrangement and compaction of individual soil particles into the basic soil building blocks.

6) Available Water Capacity- the ability of soils to retain water for plant use.

7) Soil Reaction or ph- the degree of acidity or alkalinity of a soil.

Coastal Floodplain is defined as the land areas adjacent to coastal sounds, estuaries; or the ocean which are prone to flooding from storms, with an annual probability of one percent or greater (100-yr. flood). Land uses must comply with standards of the Federal Insurance Administration.

The flood zone designations used on the suitability maps are those accepted by the Federal Insurance Administration.

Flood Zone A - are those areas of 100-year flood.

Flood Zone B - are those areas between the limits of the 100-year flood and 500-year flood areas.

Flood Zone C - are those areas outside the 500-year flood limits.

The CAMA Area of Environmental Concern for Yaupon Beach is defined as the Ocean Erodible Areas above the mean high water mark where excessive erosion has a high probability of occurring. In delineating the landward extent of this area, a reasonable 25-year recession line shall be determined using the best scientific data available. Appropriate land uses are recreation, conservation, and easements for access.

#### Soils in the Slight Category:

##### Wando fine sand

The soils are sandy and excessively drained. Runoff is slow, while infiltration and permeability range from rapid to very rapid. The seasonal high water table depth is usually greater than five feet. Found on the higher ridges and flats on the sound side of the barrier islands, these soil areas are commonly too far from the ocean to receive large amounts of sea spray.

##### Kureb fine sand

The soils are sandy and excessively drained. Permeability is high, and available water capacity is very low, with a seasonal high water table below five feet. The soils are acid throughout, and are found on the peninsulas between the Intercoastal Waterway and the dunes.

##### Newhan fine sand

The soils are sandy and range from well-drained to excessively drained, often experiencing drought conditions. Water percolation is very rapid through the stratified sandy deposits that range from fine to coarse sand with varying amounts of shells. Typically found in long ridges on dunes parallel to the ocean, the soil areas are subject to salt spray and blowing sand.

#### Soils in the Moderate Category

##### Newhan-Corolla complex

The soils consist of two dominant types, Newhan and Corolla, which occur in an interrelated pattern on the landscape. Often this complex type occupies the transitional zone between the higher-lying dunes to the east and the broad flats to the west, consisting of low dunes and intervening basins that separate the dunes.

Newhán soils are well- to excessively drained, dry, and have a low natural fertility. There is a thin surface layer low in organic matter and plant fiber. Sand is coarse and contains varying amounts of shell fragments. The water table is more than seven feet below the surface.

Corolla soils are moderately well-drained and sandy throughout, containing a high percent of coarse sand with varying amounts of shell fragments. Typically the water table is within 15 to 20 inches of the surface.

#### Soils in the Severe Category

##### Corolla fine sand

The soils are moderately well-drained and sandy throughout, with a thin surface layer that is very low in organic matter. The coarseness of the sand and the amount of shell fragments varies throughout. Percolation is rapid. Depth to the high water table fluctuates with seasonal changes between one and one half to three feet. These soils are located on the flats that lie behind the foredunes.

#### Soils in the Very Severe Category

##### Bohicket soils, low

The soils are poorly drained, clayey marsh soils. They are continuously wet, soft, and sticky. The soils are flooded daily with sea waters, and have a high water table ranging from zero to three feet. Found where rivers and streams empty directly into the ocean, the areas are limited for uses other than for wildlife, marine habitat, and aesthetic purposes. Generally, the soils are "acid sulfate" and therefore incapable of supporting vegetation.

##### Leon fine sand

The soils are sandy throughout with rapid percolation. The seasonal high water table is at or near the surface during periods of high rainfall but may drop below 40 inches during the drier seasons. The surface layer contains some organic matter and plant fiber.

##### Beach-Foredune association

The soil area includes both the beach and the "frontal dune." The beaches are flooded daily by tidal action and contain sand ranging from fine to very coarse with varying amounts of shell fragments. The foredune portion consists of a dune just landward and parallel to the beach. It is subject to severe erosion by wind and wave action in the absence of vegetation. Permeability is rapid for both areas and the high water table ranges from zero to three feet on the beach and up to six feet at the foredunes.

Yaupon Beach Soil Suitability Percentages

<u>Soil Category</u>	<u>Acreage</u>	<u>Percent of Total Acreage</u>
Very Severe	66.93	14.6
Severe	11.43	2.5
Moderate	4.63	1.0
Slight Zone A	73.33	16.0
Slight Zone B	226.23	49.4
Slight Zone C	75.63	16.5
<hr/>		
Total	458.18	100%

## Circumstantial Mistakes

It is all too easy to attempt to point the blame for the failure of septic tanks at individuals such as the builder, the septic tank installer, the Health Department Official, the home owner, or some other State or Local Official. It is true that all of these people may make mistakes from time to time which can result in a septic tank failure, but they are done in an unconscious manner.

Yaupon Beach could get in such a predicament because it is growing very fast and more demands are placed on the septic tank regulation entities. With this additional pressure for growth, the following errors are commonly made:

1) Lots with high water tables which should have never been approved by the local Department and the soil scientists are approved, because the lot was inspected during the dry seasons.

2) Percolation tests which are not done properly because of limits on time and manpower are the beginnings of septic failures. Examples of this situation are not enough percolation test points, and test holes which were not saturated the day before readings are made. Most of these shortcuts are used only where work loads increase and result in the improper analysis of the proposed building lot.

3) If this percolation rate is in error then the design of the septic system is in error also. Usually this results in a waste water absorption system that is too small for the moist conditions that actually exist. In addition, many of the systems are placed too deep and the drainage lines become flooded from a rising water table.

4) Small lot size is another variable that restricts the effectiveness of a septic tank filter field by demanding smaller absorption field areas so the drainage system can stay within the boundary of the lot. A minimum lot size ordinance in Brunswick County would help to alleviate this common problem and take pressures off the persons involved with regulation.

5) Septic tank system installation is a very important business to insure a functioning system. It is necessary to dig to the correct depth, place in the right drain tile, with the proper grade, on top of the most efficient filter gravel in the absorption trench, to match the individual site needs. All too often one of these important variables is overlooked.

6) Finally, maintenance and proper operation of the finished septic tank system by the home owners or occupants is a most important variable to insure a functioning, "healthy" system. Too often the wrong chemicals and objects are flushed into the

### III.

## SEPTIC TANK PROBLEM AREAS

### Introduction

A major factor influencing the health of individuals where public sewers are not available is the proper disposal of human excreta. Many diseases, such as dysentery, typhoid, infectious hepatitis, para-typhoid, and various types of diarrhea are transmitted from one person to another through the fecal contamination of food and water, largely due to the improper disposal of human wastes. For this reason, every effort should be made to prevent such hazards and to dispose of all human waste so that no opportunity will exist for contamination of water or food.

Safe disposal of all human and domestic wastes is necessary to protect the health of the individual and the community and to prevent the occurrence of a bad public nuisance. Although "the two-holer" had a noteworthy and honorable place in history the advancement of indoor plumbing has been the major "savior" of disposing human wastes in a sanitary manner. In a non-urban area such as Brunswick County the principal method used to handle such wastes is the septic tank and filter field. To accomplish satisfactory, sanitary results, such wastes must be disposed of so that they meet the following criteria:

- 1) They will not contaminate any drinking water supply.
- 2) They will not give rise to a public health hazard by being accessible to insects, rodents, or other possible carriers which may come into contact with food or drinking water.
- 3) They will not give rise to a public health hazard by being accessible to children.
- 4) They will not violate laws or regulations governing water pollution or sewage disposal.
- 5) They will not pollute or contaminate the waters of any bathing beach, shellfish breeding ground, or stream used for public or domestic water supply purposes, or for recreational purposes.
- 6) They will not give rise to a nuisance due to odor or unsightly appearance.

These criteria can best be met by the discharge of domestic sewage to an adequate public or community sewerage system. Septic tanks and soil absorption trenches are generally considered by health authorities and the construction industry as an interim solution for waste disposal in urban or semi-urban conditions. In other words, they are used when a public sewage disposal system is non-existent or not immediately available. However, when the above criteria are met, and where soil and site conditions are favorable, the septic tank system can be expected to give satisfactory service. Experience has shown that adequate supervision, inspection and maintenance of all features of the system are required to insure compliance in this respect.

tanks and too heavy of an overload is placed on the capacity of the filter fields to absorb the waste waters. When waste input exceeds design capacity output, like in the beach areas during summer visitation, the system become worthless. Also chemicals and grease may be placed into the tank which may kill or overload the digestion capabilities of the bacteria.

.The use of septic tanks filter fields in defining soil suitability takes into consideration a functional properly operating system. This is a subsurface system of tile or perforated pipe that distributes effluent from a septic tank into natural soil. The soil material from a depth of 18 inches to 6 feet is evaluated. The soil properties considered are those that effect both absorption of effluent and construction and operation of the system. Properties that effect absorption are permeability, depth to water table and susceptibility to flooding.

The use of bearing capacity, as used in this report relates to the ability of a three story residential building to be supported by foundation footings in an undisturbed soil.

## The Problem

The problem of malfunctioning septic tank systems can be more than just a local problem within Yaupon Beach, but a statewide and nationwide problem as well. All too often a septic tank system in a coastal county does not function properly and creates an environmental problem in an otherwise healthful neighborhood. A study conducted by the Brunswick County Planning Department has indicated that 17.1% of the City's total land acreage has been judged to be unsuitable for conventional septic tank systems.\* This percentage does not take into effect the spatial arrangement of development on the better soils, but it does indicate a large number of soils which cause septic tank failures. Failure will mean that either improperly treated sewage is being injected into shallow ground waters of the area, or that sewage effluent appears on the ground surface at sometime during the year to be washed into nearby surface waters with each subsequent rain storm.

Problem areas arise within the City when septic tanks are found in suburban-like subdivisions with small lot sizes, with disturbed or impermeable soils, with seasonally high water tables, and with associated high rates of water usage in the home. In these circumstances the conventional septic tank system is just not well suited for sewage disposal.

\*" Soil Survey of the Outer Banks, North Carolina, Part 1"

## Natural Causes of Failures

The most common cause of any septic tank failures in Yaupon Beach would be the installation of septic tank systems in soils which have seasonally high water tables. In these areas the lot receives a percolation test by the County Health Department Representative and if the climatic conditions are such that the soils "perc" because of a seasonally low water table, the system is then designed according to the present condition and the waste disposal system is installed. After some time, seasonal changes cause the water table to rise and the new system stops functioning.

Another cause of failure would be from the presence of an impervious layer which reaches a certain saturation point after a rain and retards the vertical movement of water. These layers may be hardpans (clays), sandpans, and organic stain layers. The unique situation in Brunswick County is the fact that these impervious layers are scattered in a haphazard fashion and are somewhat unpredictable in determining their spatial arrangement. Percolation test points are not a good indication of well drained soils to be used for filter fields, because the test point may easily miss one of these layers that could be present in Yaupon Beach.

Particularly the organic stain layer is a difficult soil structure to pin point because of its allusive nature caused by uneven organic decomposition. They present a most difficult problem to soil scientists and Health Department personnel within the County, to adequately predict where they can be found.

## Controls

Direct Regulation: This method of controlling the problem of septic tanks is presently being utilized by the County Sanitarians. The local health officials guide the installation of a septic tank system according to State Board of Health Regulations which are incorporated into the Brunswick County Ordinance.\* There are many variables involved and it is a very complex system to regulate, since it requires quite a few steps performed by various individuals. However if a septic tank system is allowed on a lot the following precise sequence of actions must take place:

- 1) An evaluation of the soil and percolation tests must be properly conducted to provide a basis for the size and design of the system.
- 2) A workable layout must be drawn up by an experienced and competent designer.
- 3) Once the design is drawn, there can be no later changes in house layout, or additions to the system, otherwise the drain field will be too small for the input.
- 4) There must be no removal or disturbance of the soil during construction because such disturbances cause compaction which reduces the permeability of the the soil.
- 5) Installation crews must be able to install the appropriate system without disturbing the soils and being able to keep the drain lines level, while carefully following the contour of the lot, and adding sufficient gravel in the trenches.
- 6) There must be no disturbance of the soil after installation caused by deep gardening, digging holes, adding pavement, etc.
- 7) The homeowner must understand the functioning of the whole system and maintain it in the proper working order.

Unfortunately not all of the above actions are followed all of the time and septic systems will fail. It places the local health officials in an awkward position, because they are not able to supervise thoroughly all of the steps. This problem arises in Brunswick County because of large housing demands creating large work loads on limited funding and manpower in the local health department.

Subdivision Regulations: Brunswick County does have a local subdivision ordinance which helps to alleviate septic tank problems, unfortunately it was enacted too late in the development of the County. This Ordinance generally involves the review of the plans for a large residential development or smaller subdivisions by local planning, soils and health officials. Among other things, the soils capability to contain and handle the wastes of a septic tank disposal system is evaluated. Thus the Subdivision Ordinance allows for better review of new projects and notifies the various departments of impending residential developments. In this way they can more effectively enforce their own regulations.

\* Brunswick County Board of Health Regulations

Public Sewer Extensions: A third method of controlling septic tank problems in Caswell Beach is through the extension of public sewage disposal systems. Even though there are a limited number of public sewage disposal systems in operation throughout the City their numbers will greatly increase in the future as development increases. As the new subdivisions increase in both size and numbers, there will be a point reached in density which can not be safely served by purely septic tank systems alone. When this optimum point is reached the only feasible alternative is building a public sewer system which eliminates the septic tank problem altogether. Yaupon Beach is currently included in the Southeast Brunswick County 201 Facilities Plan, however, because of funding problems at federal and state levels, it is uncertain whether or not they will remain in the program.

Conclusion: Yaupon Beach does not presently have a septic tank problem, but due to their present rate of residential growth, and their proximity to many environmentally fragile areas, they could very likely develop severe public health problems in regard to their septic tank systems. Even though their systems are presently functioning properly, there may be detrimental affects on the quality of ground and surface waters by too rapid filtering action in the coastal sands.

## FRAGILE AREAS

Located along the North Carolina coast, Yaupon Beach recognizes areas which are environmentally fragile and for which development is discouraged or subject to specifications. In compliance with the Coastal Area Management Act (1974), Areas of Environmental Concern (AEC's) have been designated for the County. The following list of items apply to some of the fragile areas in Yaupon Beach. On the map of Fragile Areas, this list is associated with the designations of Ocean Beaches and Shoreline and Wetland Wildlife Habitat.

- 1) Coastal Wetlands- Low Tidal Marshland Description. Defined as Marshland consisting primarily of *Spartina alterniflora* and usually subject to inundation by the normal rise and fall of lunar tides.
- 2) Coastal Wetlands-Other Coastal Marshland Description. All other marshland which is not low tidal marshland. Appropriate land uses are those which will not alter natural functions. Examples of acceptable land use may include utility easements, fishing piers, and docks.
- 3) Estuarine Waters Description. Estuarine Waters are defined in G.S. 113229(n) as, "all the water of the Atlantic Ocean within the boundary of North Carolina and all the waters of the bays, sounds, rivers, and tributaries thereto seaward".
- 4) Renewable Resource Areas-Watersheds or Aquifers-Special Aquifer Areas-Outer Banks and Barrier Islands Description. Areas of well-drained sands that extend downward from the surface to include an extensive area of fresh water that is an important source for a public water supply (identified by the North Carolina Department of Human Resources, Division of Health Services, or that are classified for water supply use pursuant of Health Services, or that are classified for water supply use pursuant to G.S. 143-214.1. Appropriate land uses are those which do not rely upon subsurface waste disposal system or result in salt water intrusion.
- 5) Areas Subject to Public Rights-General Description. Areas such as waterways and lands under or flowed by tidal waters or navigable waters, to which the public may have rights of access or public trust rights of access or public trust rights; and areas which the State of North Carolina may be authorized to preserve, conserve, or protect under Article XIV, Section 5, of the North Carolina Constitution.
- 6) Areas Subject to Public Rights-Certain Public Trust Areas Description. 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 there-under to the mean high water mark; all navigable natural bodies of water and lands there-under to the mean high water mark or ordinary high water mark as the case may be, except privately owned lakes to which the public has no right of access. Appropriate land uses are those which do not interfere with public right of navigation. Navigational channels, drainage ditches, bulkheads and piers are appropriate land uses.

7) Natural Hazard Areas-Sand Dunes along the Outer Banks  
Description. Dunes are defined as ridges or mounds of loose wind-blown material, usually sand. Appropriate land uses are those employing engineering practices and site preparation to minimize unnecessary damage.

8) Natural Hazard Areas-Ocean Beaches and Shoreline (on the Outer Banks) Description. These are defined as land areas without vegetation covering, consisting of unconsolidated soil material that extends landward from the mean low tide to a point where any one or combination of the following occur: a) vegetation, or b) a distinct change in predominant soil particle size, or c) a change in slope or elevation which alters the physiographic land form. Appropriate land uses are those which preserve to the greatest extent feasible, the opportunity to enjoy the physical, aesthetic, cultural, and recreational qualities of the shorelines.

9) Natural Hazard Area-Coastal Floodplains Description. Coastal floodplain is defined as the land areas adjacent to coastal sounds, estuaries, or the ocean which are prone to flooding from storms with an annual probability of one percent or greater (100-year storm). Land uses must comply with standards of the Federal Insurance Administration.

10) Natural Hazard Areas-Excessive Erosion Areas Description.  
A. General Description- areas where geologic and soil conditions are such that there is substantial possibility of excessive erosion or seismic activity.

B. Coastal Inlet Lands Description- defined as the natural zone of migration of coastal inlets. Recreation, conservation, and easements for access are appropriate uses. Moveable temporary structures are recommended for recreational purposes.

11) Natural Hazard Areas-Excessive Erosion Areas-Ocean Erodible Areas Description. Defined as the area above mean high water where excessive erosion has a high probability of occurring. In delineating the landward extent of this area, a reasonable 25-year recession line shall be determined using the best scientific data available. Appropriate land uses are recreation, conservation, and easements for access.

12) Natural Hazard Areas-Excessive Erosion Areas-Estuarine and River Erodible Areas Description. Defined as the area above ordinary high water where excessive erosion has a high probability of occurring. In delineating the landward extent of this area, a reasonable 25-year recession line shall be determined using the best available information. Permanent or substantial residential, commercial, institutional or industrial structures are not appropriate land uses.

The following development standards applicable to all AEC's have been established:

1). No development should be allowed in any AEC which would result in a contravention or violation of any rules, regulation, or laws of the State of North Carolina or of local government in which the development takes place.

2) No development should be allowed in any AEC which would have a substantial likelihood of causing pollution of the waters of the State to the extent that such waters would be closed to the taking of shellfish under standards set by the Commission for Health Services pursuant to G.S. 130-169.01.

In addition to the above environmentally fragile areas, Yaupon Beach recognizes it's one archeological site as an area to be environmentally protected.

#### ARCHEOLOGICAL SITES

Throughout Brunswick County, there are approximately 135 known archeological sites. It is important to take note of these locations in the planning process to insure they are not adversely affected by new development.

Archeological resources are objects and/or areas made or modified by man and the data associated with these artifacts and features. These resources rest in or on the ground. Any alteration of the land destroys the associated information and endangers the artifacts themselves. Although most of the known archeological sites in Brunswick County have not been evaluated for their significance, a majority are suspected to have been temporary camp locations used by early Indians for the purpose of shellfish harvesting. But until these sites can be properly evaluated by a competent archeologist, care should be taken to preserve them.

Archeological sites need not be a deterrent to development. The significance of their location in the planning process is to encourage their evaluation before any development is allowed to occur which might harm or destroy them. The government requires all known archeological sites to be evaluated before construction begins on any project financed in whole or part with State or Federal money. Ideally, all sites should be evaluated before construction begins, regardless of the source of funding.

The Fragile Areas Map will be included  
in the final draft

## PRINCIPLES AND STANDARDS FOR FUTURE DEVELOPMENT

Depending on where a particular type of land use locates, it has economic, environmental, safety, and convenience affects on the surrounding land and society. For example, some locations are better for industrial uses than others. In order to provide for the most efficient and beneficial effect of a particular development, principles and standards can be used to guide it's location.

A principle is a general idealized relationship between a land use and the surrounding land and people. General principles relating to the location of land uses customarily identify three major functional areas in the urban complex: the work areas, the living areas, and the leisure time areas. Principles for each of the above areas are outlined in the following pages.

Standards are specific measurement units used to quantify the terms appearing in the statement of principles.

Standards are not absolute, but rather guides to be followed under average circumstances. For each of the three principle categories (work, living, & leisure time areas), standards are provided in several classes: environment; convenience; security; and performance.

In order to consistently and rationally review development proposals in Yaupon Beach the Town Commissioners will use the following principles and standards. These principles and standards will form the basis of land use regulations and suggested amendments to existing regulations will be judged in relation with these statements.

In the case that a proposed development or some aspect of a proposed development is not covered by a law or ordinance, these principles and standards can be used by city elected and appointed officials as a foundation for negotiation with developers.

### LIVING AREA - GENERAL CONSIDERATIONS

Residences are normally the largest users of land in the urban community. Most urban areas range from two-thirds to three-quarters developed for residential purposes. In a few cases, the proportion may run to 90 percent or more.

In designating areas for residential development, it is desirable to think in terms of whole neighborhoods and communities from the earliest stages of planning as opposed to individual subdivisions and apartment developments. By so doing, we can assure the proper relationship of residences to non-residential uses, and an efficient street and utility network, minimizing the possibility of later disruption of the residential environment for such things as major new roadways or unwarranted changes of land use.

Neighborhoods are primarily devoted to homes--single-family and multi-family-- and residentially oriented uses such as churches, elementary schools, neighborhood parks, and neighborhood shopping facilities. In their design, emphasis should be placed on tying these elements together by a system of collector streets

and pedestrian ways. Neighborhoods should be bounded but not crossed by major traffic arteries. Where possible, neighborhoods should be structured and linked to each other by permanent open spaces - stream valley parks, sharp topography, etc. The same general principles are true for the community: an identifiable system of neighborhoods linked to each other by the transportation system and focused on the community center; bounded by major highways, landforms, institutional uses. etc.

#### LIVING AREA PRINCIPLES

1. Residential communities should be located in areas that are not extremely low, or poorly drained.
2. Where applicable, residential communities should locate in close proximity to major thoroughfares and the transit system with direct connections to work and leisure time areas. They should be bounded but not penetrated by major streets and internally served by a system of collector and service streets fitted to the terrain with due consideration of drainage, sunlight, and scenic views.
3. Local shopping facilities should locate on sites adequate for shops, accessory off-street parking and loading, and landscaping; convenient to specific local tributary trade areas and accessible for receiving goods.
  - A. Neighborhood-serving stores should locate within convenient walking distance or driving distance (in low density areas), with due consideration for pedestrian access and the amenity of surrounding areas.
  - B. Community-serving shopping centers should locate on major thoroughfares, at the intersection of a major crosstown street, or toward the edge of tributary trade area, with consideration for integrated design of the center and amenities of surrounding areas.
4. Schools should locate on reasonably level sites, adequate for buildings, recreation facilities, and landscaping, and with due consideration of the safety of children as well as the amenity of surroundings.
  - A. Upper-level schools should be within a convenient community range.
  - B. Lower-level schools should be within walking distance of the age groups served, except in low density areas where convenient driving range rather than walking distance becomes crucial consideration.
5. Churches should locate on reasonably level sites, adequate for parking and landscaping, convenient to potential membership.
  - A. For neighborhood-serving churches, walking distance is important.
  - B. For community -serving churches, accessibility to major street systems is important.

6. Playground and park areas should be located on reasonably level sites, possibly in conjunction with schools, within easy walking distance of age groups served (or within convenient driving range for low density areas), and adequate for appropriate active recreation facilities and for surrounding planted strips. Quiet parks should locate on steep, level, or low sites and fingers of open space along water courses and in low areas, intergrated with active and passive recreation areas and the larger open space system of the city according to the opportunities offered by the topography of the locale.
7. A range of choice in residential densities should exist, with high densities in close proximity to permanent open space and nearest to the thoroughfare and transit systems and community shopping centers.
8. Different housing types and densities should be located with consideration of the potential for degradation of the environmentally sensitive areas and areas of high natural value.
9. Low cost housing should be located throughout the city, with various density levels available to low income persons in proximity to employment centers.
10. Residential development should be kept well away from airport approach zones and "runup" areas because of:
  - A. Noise
  - B. Crash hazards
  - C. Likelihood of industrial growth near the airport.

Since all three of these are likely to exert a detrimental effect on residences, the Federal Housing Administration will not insure home mortgages within defined areas around airports where these factors are present. Many conventional lending institutions now follow similar practices. Because locations near airports are extremely attractive to many industries, there is no real problem in finding alternatives to residential use.

#### LIVING AREA STANDARDS

##### Definitions:

1. High Density Residential = 8 Dwelling units or above per acre.
2. Middle Density Residential = 2 to 7 Dwelling Units per acre.
3. Low Density Residential = 1 Dwelling Unit per acre or less.
4. Low-Low Density Residential = 1 Dwelling Unit per 2-5 acres.

##### Environmental Location Standards

1. Areas that are wooded and have interesting topography and views should be utilized for residential purposes.
2. Low-Low Density Residential should be the only density development in headwater areas of the water supply reservoirs.

3. All housing with a density greater than 1 dwelling per acre should be served by a public sewerage system.
4. Low density housing utilizing on-site disposal methods for sewage (septic systems) shall be located in areas with soils that have a minimum percolation rate of 1" per hour and of generally well established good permeability.
5. Construction of new housing with density great enough to require sewer line extensions shall be located in areas where the stormwater run-off will not cause pollution of the water supply and the extension of line shall not cause an undue burden of public expenditures.

#### Environmental Performance Standards

1. Maximum percentage of lot covered by impervious surface is to be as follows:
  - a. Low-low Density Residential - 10%
  - b. Low Density Residential - 20%
  - c. Middle Density Residential -30%
  - d. High Density Residential - 30%
2. In construction of new housing, only those trees which are necessary to remove for construction, should be removed.

#### Safety Standards

1. No housing should be located below a 100-year flood plain. Housing which is located on a flood prone area shall be built on stilts so that all habital space is above the 100 year flood elevation.
2. All housing should be located within four miles of a fire station.
3. Roads in middle density or greater residential areas longer than 800 feet should have at least two access points.

#### Convenience Standards

The table below indicates standards for the desirable time-distances from residential areas to locations of various facilities.

<u>Facility</u>	<u>High</u>	<u>Middle</u>	<u>Low</u>
Employment Centers	20 min.	30 min.	45 min.
Central Business District	25 min.	40 min.	60 min
Local Shopping Center	10 min.	15 min.	20 min
Elementary School	½ mile	1½ miles	5 miles
Junior High School	1 mile	3 miles	10 miles
Senior High School	1 mile	4 miles	15 miles
Playgrounds and Local Parks	10 min	20 min.	*

### SUPPORT STABILITY - POPULATION REQUIRED

The figures below represent the number of people required to support each type of shopping facility for it to be viable in the community. These should be taken into account when planning commercial development.

Local family shopping	1000-2500 people
Convenience Items	2500-3000 people
Neighborhood Shopping Center	7500-20,000 people
Community Shopping Center	20,000-100,000 people
Regional Shopping Center	100,000-250,000 people

### STABILITY - LOCATION REINFORCEMENT

#### 1. NEIGHBORHOOD SHOPPING CENTER OR STORE:

Stores or neighborhood shopping centers should locate in a non-competitive position at least a 2 - mile distance from any competing center. Any condition promoting further commercial strip development should be eliminated.

#### 2. COMMUNITY SHOPPING CENTER:

Community Shopping Centers should locate such that no competing center is within 5 - 10 miles that draws on the same market population.

#### 3. REGIONAL SHOPPING CENTER:

Regional Shopping Centers should locate such that no competing center is within 10 - 25 miles that draws on same market population.

### BASIC CONSIDERATIONS - REASONABLE SIZE

Local Family Shopping	5 - 10,000 sq. ft. with 30-50% in storage
Neighborhood Shopping Center	5 acres for 7500 pop.; 20 acres for 20,000 pop.
Community Shopping Center	20 acres for 20,000 pop.
Regional Shopping Center	40 acres for 100,000 pop. 60 acres for 25,000 pop.

### Definitions

Neighborhood Center	40,000 sq. ft. selling area
Community Center	100,000 to 300,000 sq. ft.
Regional Center	One to Four major department stores.

### REGIONAL SERVING BUSINESS AREA PRINCIPLES

1. In general, regional serving business areas should locate near adjoining traffic flows, central to their tributary trade areas.
2. The central business district should be located close to the peak flow of vehicular and pedestrian traffic. Retail, professional, financial, and related services should be conveniently accommodated and made easily accessible to adequate parking, transit, and regional transportation services for clientel and employee groups patronizing or working in the CBD.

<u>Facility</u>	<u>High</u>	<u>Middle</u>	<u>Low</u>
Playfields and Recreation Centers	10 min*	20 min*	*
Public Park or Reservation	45 min.	45 min.	*
Regional Shopping Center	20 min.	30 min.	40 min.
Transit System Shop	5 min.	20 min.	*
Major Thoroughfare	5 min.	5 min.	20 min.

\*It is assumed that because of the nature of the life style and private amenities of low density housing-public parks, playgrounds, recreation centers and public transits need not be provided by the government.

### EDUCATION PLANNING STANDARDS

#### 1. SIZE OF SCHOOL ENROLLMENT

$$\#rooms\ needed = \frac{\text{Ultimate enrollment projected}}{\text{average class size}}$$

Average class size = pupils/room for grades 1-6 (Set by N.C. Department of Public Instruction):

Elementary	400-700
Junior High School	500-1,200; optimum 700-1,000
Senior High School	500-1,800; optimum 700-1,500

#### 2. Size of School Site

- Elementary: (min) 20 acres and one additional acre/100 pupils
- Junior High School: (min) 20 acres and one additional acre/100 pupils
- Senior High School: (min) 30 acres and one additional acre/100 pupils

#### 3. Travel Distances - Service Radius

	<u>Vehicle(miles)</u>	<u>Walking (miles)</u>
Elementary	$\frac{1}{2} - \frac{3}{4}$	$\frac{3}{4}$
Junior High School	1 - $1\frac{1}{2}$	$1\frac{1}{2}$
Senior High School	$1\frac{1}{2} - 2$	2

- Senior High Schools are best placed near major thoroughfares because they generate their own traffic and are accessible to the public for auditoriums, stadiums, etc.

SOURCE: N.C. Department of Instruction

### COMMERCIAL STANDARDS

#### TRANSPORTATION STANDARDS

- Commercial areas should be located at the intersection of arterial streets, with limited access, that is no less than 1300' from the intersection. Additional lanes for access and egress traffic should be provided.
- A 3/1 to 6/1 parking / sales area ratio should exist, with all parking within 400' maximum of magnet uses .

### 3. Regional Business Centers:

- A. Regional shopping centers should be located in two major arterials in tributary trade area (50 - 100,000 families). The site should be adequate to accommodate peak parking needs and a complete line of shop and store types, eating and entertainment facilities, and branch business and financial services sufficient fill several of a shopper's time (30 to 150 acres).
  - B. Satellite CBD centers (office parks, automobile sales and service centers, Appliance centers, farmers market, service centers, etc.) should be located on intersections or radial and circumferential arteries and on one or more major transit routes with adequate parking and service areas.
  - C. Highway Service Centers should be located in outlying areas on major highway approaches to urban areas. Sites should be adequate for integrated design of drive-in services and motel accommodations. Proper consideration is given to highway safety, roadside beauty, and the general amenity of adjoining uses.
4. The site must be physically suitable for development as one center internally arranged or, where appropriate, in an integrated series of sub centers, with consideration given to parks and other open spaces, approaches and general amenity within the area and in adjoining use areas.

### MANUFACTURING, WHOLESALE, AND RELATED USE AREA PRINCIPLES

1. In general, manufacturing, wholesale, and related use areas should be located on reasonably level land, preferably with not more than 5 percent slope or capable of being graded without undue expense.
2. A range of size and choice inclose - in fringe, and dispersed locations should exist.
  - A. Extensive manufacturing requires large open sites for modern one-story buildings and accessory storage, loading and parking areas in fringe and dispersed location. Usually, 5 acres is the minimum size. With some sites 10, 25, 50, 100 or more acres, depending on the size of the urban area and economic outlook for industrial development of extensive lines of activity.
  - B. Intensive manufacturing requires a variety of sizes for modern one-story buildings and accessory storage, loading, and parking areas in close-in and fringe locations. Site size is usually under 5 acres.
3. Locations should have direct access to commercial transportation facilities. Fringe and dispersed locations should have access to railroad, major trucking routes, cargo and airports. A major portion of the sites should have access to both railroad and trucking routes, while the rest at least have access to adjoining trucking thoroughfares.
4. Locations should be within easy commuting time of residential areas of labor force and accessible to transit and major thoroughfare routes directly connected with housing areas.

5. Utilities at or near the site such as power, water, and waste disposal facilities should be available.
6. Proposed developments and locations in the extra-territorial jurisdiction should be compatible with surrounding uses, possibilities of protective belts or open space, development of "industrial parks" and other factors as amenity both with the manufacturing area and in relation to adjoining land uses.

#### INDUSTRIAL STANDARDS

##### Definitions of Density Classes

	Workers per Acre	
	<u>Net</u>	<u>Gross</u>
Intensive	147	50
Intermediate	40	18
Extensive	18	6

#### ENVIRONMENTAL LOCATION STANDARDS

1. Location of industry, especially that which has a high possibility of producing non-point sources of pollution should not be near water courses or the Cape Fear River unless control measures can be incorporated into the design of the facility to limit runoff.
2. The location of polluting industries should be banned from airsheds of residential and central areas, space must be allocated for these industries where they will do the least harm.
3. Buffer zones should be required between industry and neighboring residential areas which effectively screen all negative effects such as noise, vibration, etc.

#### TRANSPORTATION LOCATION STANDARDS

1. A site of 20 acres or more and employs over 800 persons per shift, needs direct access onto arterial street. Under all other conditions, access should be indirect via an industrial street.
2. Locations require short, fast and direct truck access via major or arterial streets from service industries upon which the industry will depend.
3. Sites should be near sources of labor (residence areas) with specific emphasis on convenience for type employed. Maximize walk to work potential to reduce parking and travel demands.
  - A. Industries which employ part time unskilled females or males primarily should locate close to low-middle and low income housing areas, fostering a walk-to-work pattern.

- B. Industries which employ full time highly skilled technicians or professionals should locate in convenient driving distance from middle and upper-middle income residence areas.

GENERAL SITING CONSIDERATIONS

1. No industrial sites should be less than 200 feet in depth and 100 feet in width.
2. Railroads should be located at side or rear of Industrial property lines.
3. For industrial developments, off-street parking should be provided in accord with the following schedule:
  - A. 1 space for each 1000 sq. ft. of warehouse floor area
  - B. 1 space for each 500 sq. ft. of manufacturing or research floor area
  - C. 1 space for each 400 sq. ft. of office floor area

GENERAL SITE DEVELOPMENT STANDARDS

<u>Industry Type</u>	<u>Minimum Front Yard Setback</u>	<u>Minimum side and Rear Yard Setback</u>	<u>Building Coverage</u>
Warehousing and General Industry	25 feet	10 feet	70%
Neighborhood Industry, Prestige Industry	100 feet	100 feet	25%
Nuclear, Explosive or Erosive Industry	2000 feet	2000 feet	10%

TRAFFIC GENERATION

Average trip generations have been established for different types of industries. These are presented in the Industrial Traffic Generation table on the following page. When planning industrial locations and development, such standards should be considered for estimating impacts the development may have on the transportation system in the area as well as the safety of area citizens.

INDUSTRIAL TRAFFIC GENERATION

Land Use	Density (Employees/Acre)	Range (Number/Acre)	Typical (Number/Acre)	Range (Number/1000 square feet floor)	Typical (Number/1000 square feet floor)
Highly automated industry .....	5	2.8	4	0.2-1.0	0.6
low employee density (refinery, warehouse)					
Light service industry... Single-lot industry (lumber yard)	5-20	6-30	16	1.4-1.2	0.8
Industrial tract... (5 acres) (machinery factory)	20-100	30-160	70	0.6-4.0	2.0
Office campus ... research & development (research industry)	100	150-200	170	3.8	4
Mixed central industry..	varies	10-200		1.4	

YAUPON BEACH

POPULATION PROJECTIONS

## I. Introduction

Population projections provide the basis for most major planning decisions. It is on these projections that planning future needs for services and facilities are based. Not only are the total number of people important but also whether they are permanent or seasonal residents.

To be sure, projecting population is a guessing game because the influences that create the ebb and flow of people is unpredictable, therefore, projections are made on the assumption that the general conditions at the time of the projection will remain stable. Projections must be reviewed often and updated based on conditions at the time of the review.

The population of Yaupon Beach has already exceeded projections made in the early 1970's for the year 1990 because the degree of current seasonal development was unknown at that time.

Contained within this section are the projections of Yaupon Beach's population through the year 2000.

YAUPON BEACH POPULATION PROJECTIONS

<u>Year</u>	<u>Brunswick County</u>	<u>Yaupon Beach Permanent</u>	<u>Percent of County</u>	<u>Caswell Beach Seasonal</u>	<u>Subtotal</u>
1985	51,200	832	1.62	1,381	2,213
1990	64,300	947	1.47	1,513	2,460
2000	78,000	1,176	1.51%	1,664	2,840

Sources: N.C. Dept. of Administration  
 Cape Fear C.O.G.  
Southeastern Brunswick County 201 Facilities Plan  
 Brunswick County Planning Department

YAUPON BEACH PROJECTED POPULATION CHANGES

<u>Year</u>	<u>Yaupon Beach Population</u>		<u>Percent Change</u>	
	<u>permanent</u>	<u>seasonal</u>	<u>permanent</u>	<u>seasonal</u>
1985	832	1,381	N/A	N/A
1990	947	1,513	13.82%	9.5%
2000	1,176	1,664	24.18%	9.98%

As in the past, Yaupon Beach will continue to rank about fifth as a County population center. Seasonal residents will continue to be a smaller percentage of the total population as more residents retire in the area permanently.

The 1980-1985 population change of Yaupon Beach is, like the 1985 population, somewhat lower than might be expected. These low percentages are due to the nature of the population projection methodology, as outlined on the following page. The methodology is based historically on average increases and percentages of County population, and therefore is thought to be the best method to utilize for the Yaupon Beach Projections regardless of their slightly low characteristic.

From 1985-1990, the population percentage increase in Yaupon Beach is projected to be 13.82% for permanent and 9.56% for seasonal populations. This increase is expected to continue for the 1990-2000 era with 24.18% for permanent and 9.98% for seasonal.

Population Projection Methodology

Projections for both permanent and seasonal populations are based upon a ratio - step down method from historical and existing population trends in Brunswick County. Through simple analysis it was learned that the ratio of the Brunswick County population to the Yaupon Beach permanent and seasonal population, respectively, has remained fairly constant from 1970 to 2000. Using this fact and the following assumption, the above projections were made.

Assumption: The permanent, seasonal, and subtotal populations of Yaupon Beach in relation to Brunswick County's total permanent population will remain the same through time.

Projection Calculations

Calculation of Permanent Population

<u>Year</u>	<u>Brunswick County</u>	<u>Yaupon Beach Permanent</u>	<u>Ratio Factor</u>
1980	38,100	721	.0189238
1990	64,300	947	.0147278
2000	78,000	1,176	.0150769
		Total	.0487285

$$\text{Ratio Factor} = \frac{\text{Yaupon Beach Population}}{\text{Brunswick County Population}}$$

$$\text{Ratio Multiplier} = \frac{.0487285}{3} = .0162428$$

<u>Year</u>	<u>Brunswick County Population</u>		<u>Ratio Multiplier</u>	<u>Yaupon Beach Permanent Population</u>
1970	24,223	X	.0162428	393
1975	35,621	X	.0162428	579
1985	51,200	X	.0162428	832

Calculation of Seasonal Population

<u>Year</u>	<u>Brunswick County</u>	<u>Yaupon Beach Seasonal</u>	<u>Ratio Factor</u>
1980	38,100	1,375	.0360892
1990	64,300	1,513	.0235303
2000	78,000	1,664	.0213333
		Total	.0809528

$$\text{Ratio Factor} = \frac{\text{Yaupon Beach Population}}{\text{Brunswick County Population}}$$

$$\text{Ratio Multiplier} = \frac{.0809528}{3} = .0269842$$

<u>Year</u>	<u>Brunswick County Population</u>		<u>Ratio Multiplier</u>	<u>Yaupon Beach Seasonal</u>
1970	24,223	X	.0269842	654
1975	35,621	X	.0269842	961
1985	51,200	X	.0269842	1,382

Calculation of Subtotal Population

The Subtotal Population is the addition of the Seasonal to the Permanent Populations. The Subtotal Population is the peak number of persons projected to be in Yaupon Beach.

YAUPON BEACH HOLDING CAPACITY

## HOLDING CAPACITY

The holding capacity of a planning district refers to the ability of the natural and man-made systems of an area to support the demands of various land uses. It refers to inherent limits in the systems beyond which change cannot be absorbed without resulting in instability, degradation, or irreversible damage.

Residentially speaking, the holding capacity of a planning district is the number of dwelling units the vacant and renewal land in the planning district will accommodate to a prescribed pattern of residential densities.

The basic elements used in determining holding capacity are projected population increases during the planning period, existing and proposed urban water and sewerage facilities, future planned development, institutional and organizational constraints, transportation systems, vulnerable habitats, aquifer recharge zones, air and water quality standards established by the EPA, energy supplies, man-made hazard areas, and archeological and historical sites.

Measurement techniques for holding capacity are necessarily dynamic rather than static. Measurement is based upon current existing and proposed holding capacity elements. In the future these elements may change and thus alter the holding capacity of the planning area. Changes in the elements may be brought about by technological advances, economic fluctuations, energy crises, new life style attitudes, and institutional changes. However major changes are not brought about in very short time spans. The holding capacity analysis is under review every five years and should therefore keep up with all element changes that have occurred. Because of this, and because the holding capacity analysis is based upon all current element trends, the resultant land use projections are thought to be rather accurate.

The result of a holding capacity analysis is a Land Use Design Map for 1990. Placement of proposed land uses, such as residential, are accurate only in their adherence to suitability and policy criteria. Regardless, the result is a fairly accurate representation of future densities and land use compatibility relationships.

Following in this relationship, the Land Use Design Map is an instrumental factor in the determination of the Land Classification for 1990. The Land Classification Map is one of the most important tools of federal, state, and local level planning for land use related issues. Therefore, it is obvious that the holding capacity analysis is a valuable element in the development of the Yaupon Beach Land Use Plan.

The following chart is the result of the holding capacity analysis process. Also presented is the existing (1980) Land Use Chart for purposes of comparison. The actual process is presented in outline form in the appendix.

Yaupon Beach Holding Capacity

<u>Land Use</u>	<u>Projected 1990 Unit Need</u>	<u>Projected 1990 Acreage Need</u>	<u>Total 1990 Units</u>	<u>Total 1990 Acreage</u>
Permanent single family	28	9.24	189	62.28
Seasonal Single family	60	14.44	268	63.34
Permanent Multi-family	1	.08	19	1.48
Seasonal Multi-family	1	.08	5	.38
Commercial	7	2.81	52	20.91
Public Institution	1	1.2	3	3.6
Recreation	0	0	N/A	37.7
Transportation, Warehousing, Communication, and Utilities	0	0	N/A	.78
<b>Subtotal</b>	98	27.81	536	190.47
Undeveloped Platted Acreage	98	27.81	N/A	150.89
Undeveloped Unplatted Acreage	N/A	0	N/A	2.7
<b>Total</b>	98	27.81	536	453.86

## Yaupon Beach Holding Capacity Analysis

### I. Residential Existing Land Use

#### A. Summary of Existing Stock of Dwelling units

On Yaupon Beach there are approximately 251 permanent single family dwelling units, 125 seasonal single family units, 24 permanent multi-family units and 4 seasonal multi-family units.

#### B. Summary of Existing Acreages in Residential Use

On Yaupon Beach there are approximately 77.4 acres in permanent single family use, 28.9 acres in seasonal single family use, 1.4 acres in permanent multi-family use and .3 acres in seasonal multi-family use.

#### C. Summary of Prevailing Net Densities

<u>Residential Category</u>	<u>Number of Units</u>	<u>Total Acreage</u>	<u>Average Acreage Per Unit</u>
Permanent Single Family	161	53.04	.33
Seasonal Single Family	208	48.94	.24
Permanent Multi-Family	18	1.40	.08
Seasonal Multi-Family	4	.30	.08
Total	391	103.68	.27

#### Density Calculation

$$\frac{\text{Total Acreage}}{\text{Approximate Number of Units}} = \text{Average Acreage Per Unit}$$

#### Yaupon Beach Population Data

<u>Year</u>	<u>Permanent</u>	<u>Seasonal</u>
1980	721	1,375
1990	947	1,513

Average Household Size Calculation

Total 1980 Seasonal Population = Average 1980 Seasonal Household Size  
Total Seasonal Units

1,375 Seasonal Residents = 6.49 Average Seasonal Household Size  
212 Seasonal Units

Total 1980 Permanent Population = 1980 Average Permanent Household Size  
Total Permanent Units

721 Permanent Residents = 4.03 Average Permanent Household Size  
179 Permanent Units

RESIDENTIAL PERCENTAGES

Residential Subcategory

Acreege in Residential Subcategory = Acreege as a Percentage

Total Acres in Residential Use of Total Developed Acreege

53.04 acres in  
Permanent Single Family Use = .511574  
103.68 total acres in Residential Use

The Permanent Single Family land use is 51.16% of the total residential acreege of Yaupon Beach:

1.40 Acres in Permanent Multi-Family Use = .013503  
103.68 Total Acres in Residential Use

The Permanent Multi-Family land use is 1. % of the total residential acreege of Yaupon Beach.

54.44 Acres in Permanent Use = .5250771  
103.68 Total Acres in Residential Use

The Permanent land uses are 52.5 % of the total residential acreege of Yaupon Beach.

48.94 Acres in Seasonal Single Family Use = .4720293  
103.68 Total Acres in Residential Use

The Seasonal Single Family land use is 47.2% of the total residential acreege of Yaupon Beach.

.3 Acres in Seasonal Multi-Family Use = .0028935  
103.68 Total Acres in Residential Use

The Seasonal Multi-family land use is .29% of the total residential acreege of Yaupon Beach.

49.24 Acres in Seasonal Use = .4749228  
103.68 Total Acres in Residential Use

The Seasonal land use is 47.5 % of the total residential acreage of Yaupon Beach.

$$\frac{\text{Acreage in Seasonal Single Family Use}}{\text{Total Acreage in Seasonal Use}} = \text{Seasonal single family acreage as a percentage of total acreage in seasonal use}$$

$$\frac{48.94 \text{ Acres in Seasonal Single Family Use}}{49.24 \text{ Acres in Seasonal Use}} = .9939073$$

The Seasonal Single Family land use is 99.4% of the total seasonal acreage of Yaupon Beach.

$$\frac{\text{Acreage in Seasonal Multi-family Use}}{\text{Total Acreage in Seasonal Use}} = \text{Seasonal multi-family acreage as a percentage of total acreage in seasonal use}$$

$$\frac{.3 \text{ Acres in Seasonal Multi-family Use}}{49.24 \text{ Acres in Seasonal Use}} = .6$$

The Seasonal Multi-family land use is .6% of the total seasonal acreage of Yaupon Beach.

$$\frac{\text{Acreage in Permanent Single Family Use}}{\text{Total acreage in permanent use}} = \text{Permanent single family use as a percentage of total acreage in permanent use}$$

$$\frac{53.04 \text{ Acres in Permanent Single Family Use}}{54.44 \text{ Acres in Permanent Use}} = .9742836$$

The permanent single family land use is 97.4% of the total permanent acreage of Yaupon Beach.

$$\frac{1.4 \text{ Acres in Permanent Multi-family Use}}{54.44 \text{ Acres in Permanent Use}} = .0257163$$

The Permanent Multi-family land use is 2.6% of the total permanent acreage of Yaupon Beach.

## II. Estimate of Future Residential Need

### Assumptions:

- (1) The average permanent and seasonal household sizes are assumed to remain constant through 1990.
- (2) The average acreages per unit for all residential sub-categories are assumed to remain constant through 1990.
- (3) The relative residential percentages given in I(C.) are assumed to remain constant through 1990.

(A) Applied Household Size Assumptions

By applying the present average household size to the present population and the assumed future household size to the estimated future population, the difference between these two results provides a crude unadjusted estimate of the total new dwelling unit requirements.

Calculations:

(1)  $\frac{\text{Present Permanent Population}}{\text{Present Permanent Average Household Size}} = \text{Existing number of permanent dwelling units}$

$\frac{721 \text{ Existing Permanent Residents}}{4.03 \text{ Existing Permanent Residents Per Household}} = 212 \text{ Existing Permanent Residential Units}$

(2)  $\frac{\text{Present Seasonal Population}}{\text{Present Seasonal Average Household Size}} = \text{Existing number of Seasonal Dwelling Units}$

$\frac{1,375 \text{ Existing Seasonal Population}}{6.49 \text{ Existing Seasonal Residents Per Household}} = 179 \text{ Existing Seasonal Residential Units}$

(3)  $\frac{\text{Estimated 1990 Permanent Population}}{\text{Assumed Permanent Average Household Size for 1990}} = \text{Projected Number of Total Permanent Dwelling Units for 1990}$

$\frac{947 \text{ Estimated Permanent Population for 1990}}{4.03 \text{ Assumed Average Household Size for 1990}} = 235 \text{ Projected Number of Total Permanent Dwelling Units for 1990}$

(4)  $\frac{\text{Estimated 1990 Seasonal Population}}{\text{Assumed Seasonal Average Household Size for 1990}} = \text{Projected Number of Total Seasonal Dwelling Units for 1990}$

$\frac{1,513 \text{ Estimated Seasonal Residents for 1990}}{6.49 \text{ Assumed Average Household Size for 1990}} = 233 \text{ Projected Number of Total Seasonal Dwelling Units for 1990.}$

(5)  $\text{Projected Number of Permanent Dwelling Units for 1990} - \text{Existing Number of Permanent Dwelling Units} =$

Unadjusted Estimate of the Total New Permanent Dwelling Units Required for 1990.

$235 \text{ Projected Permanent Dwelling Units Needed for 1990} - 212 \text{ Existing Permanent Dwelling Units} = \text{An Unadjusted Estimate of 23 Total New Permanent Dwelling Units needed for 1990}$

(6)  $\text{Projected Number of Seasonal Dwelling Units for 1990} - \text{Existing Number of Seasonal Dwelling Units.} = \text{Unadjusted estimate of the total new seasonal dwelling units required for 1990}$

$233 \text{ Projected Seasonal Dwelling Units Needed for 1990} - 179 \text{ Existing Seasonal Dwelling Units} = \text{An Unadjusted Estimate of 54 Total New Seasonal Dwelling Unit needed for 1990}$

The total 1990 permanent and seasonal dwelling unit requirement is 77(23 + 54).

#### B. Assumptions of Dwelling Unit Losses

There has been an average of 9 dwelling units per year lost by fire during the past five year period in Yaupon Beach.

Since 52.5% of all dwelling units are permanent units, this same percentage is applied to the dwelling units lost by fire  $9 \times .525 = 05$  permanent units lost by fire. This figure is 7.64% of the total unadjusted estimate of permanent dwelling unit needed for 1990. Therefore, the total permanent need for 1990 is increased by this amount. The new figure, the adjusted estimate of permanent dwelling units needed for 1990 is 28. The vacancy rate will further adjust this figure in the following section.C.

The seasonal dwelling units are 47.5% of all dwelling units. When applied to the dwelling units lost by fire (  $9 \times .475$  ) there results a total of 04 seasonal units lost by fire. This figure is 17.39% of the total unadjusted estimate of seasonal dwelling unit needed for 1990. Therefore, the total seasonal need for 1990 is increased by this amount. The new figure, the adjusted estimate of seasonal dwelling unit need for 1990 is 58. The vacancy rate will futher adjust this figure in the following section C.

#### C. Vacancy Rate Assumptions

Estimates of dwelling unit replacements to cover the residential loses by fire were tallied above in section B. The final cumulative totals of permanent and seasonal estimated dwelling unit requirements for 1990 are increased to make allowance for a normal vacancy rate. An estimated vacancy rate of 5% is applied to the original figures of 23 for permanent dwelling unit need and 54 for seasonal dwelling unit need.

<sup>1</sup> The 1970 Census of Population and Housing

These adjusted vacancy rate estimates will provide a numerical increase of 1 for permanent dwelling unit need and 3 for seasonal dwelling unit need. These amounts when added to the adjusted fire figures in section B give final adjusted totals of 29 permanent dwelling units needed for 1990 and 61 seasonal dwelling units needed for 1990. The breakdown is as follows: 28 permanent single family units; 1 permanent multi-family units; 60 seasonal single family units; and 1 seasonal multi-family unit. The amounts are determined from the residential percentages given in I.C.).

### 3. Fitting Space Needs to Land Supply

#### A. Holding Capacity Analysis

1. The most developable vacant, platted areas of Yaupon Beach will be used for the Land Design Map of 1990. In these areas the streets already exist, so no allowance shall be made for them in the projected acreage needs of 1990.

Residential  
Net Density Table

<u>Land Use</u>	<u>Number of Units</u>	<u>Total Acreage</u>	<u>Net Density</u>
Permanent Single Family	161	53.04	3.04
Seasonal Single Family	208	48.94	4.25
Permanent Multi-family	18	1.40	12.86
Seasonal Multi-family	4	.30	13.33
<b>Total</b>	<b>391</b>	<b>103.68</b>	<b>3.77</b>

\*There is an average of 2 units per dwelling unit for multi-family residences.

Residential  
Total Acreage Requirements

<u>Land Use</u>	<u>Projected 1990 Need</u>	<u>Unit Net Density</u>	<u>Projected 1990 Acreage Need</u>
Permanent Single Family	28	3.04	9.24
Seasonal Single Family	60	4.25	14.40
Permanent Multi-Family	1	12.86	.08
Seasonal Multi-Family	1	13.33	.08
<b>Total</b>	<b>90</b>	<b>3.77</b>	<b>23.80</b>

Safety factors for the allowance of error have not been figured into these total acreage amounts.

### Part III: Commercial Land Use

#### I. Existing Commercial Land Use

##### A. Summary of existing stock of commercial units.

On Yaupon Beach there are 45 existing commercial units

##### B. Summary of existing acreage in commercial use.

On Yaupon Beach there are approximately 18.1 acres in commercial use.

##### C. Summary of Prevailing Net densities.

$$\frac{\text{Total Existing commercial acreage}}{\text{Total Existing commercial units}} = \frac{\text{Existing average commercial acreage}}{\text{per unit}}$$

$$\frac{18.1 \text{ Existing commercial acres}}{45 \text{ Existing commercial units}} = .40 \text{ Existing Average commercial acreage per unit.}$$

$$\frac{\text{Total Existing commercial acreage}}{\text{Total Existing Developed Acreage}} = \frac{\text{Existing commercial acreage}}{\text{as a percentage of Total developed existing acreage}}$$

$$\frac{18.1 \text{ Existing commercial acres}}{272.46 \text{ Total existing developed acreage}} = .06643$$

The total existing commercial land use is 6.64% of the total existing developed acreage.

$$\frac{\text{Total Existing commercial units}}{\text{Existing subtotal population}} = \frac{\text{Existing commercial Units per capita}}$$

$$\frac{.45 \text{ existing commercial units}}{2,096 \text{ existing subtotal population}} = .0214694 \text{ existing commercial units per capita}$$

There are presently .021 commercial units per capita in Yaupon Beach.

#### II. Estimate of future Development

##### Assumptions:

1. The commercial units per capita are assumed to remain constant through 1990.
2. The average commercial acreage per unit is assumed to remain constant through 1990.

3. The commercial acreage as a percentage of total developed acreage is assumed to remain constant through 1990.

A. Applied per capita assumptions

By applying the present average per capita sizes to the present populations and the assumed future per capita size to the estimated future population, the difference between these two results provides a crude unadjusted estimate of the total new commercial unit requirements.

Calculations:

1. Existing Subtotal population  

$$\begin{array}{r} \text{Existing Subtotal population} \\ \times \\ \text{Existing commercial units} \\ \text{per capita} \end{array} = \text{Existing commercial units}$$

2,096 existing population  

$$\begin{array}{r} 2,096 \text{ existing population} \\ \times \\ .021 \text{ existing commercial units} \\ \text{per capita} \end{array} = 45 \text{ existing commercial units}$$
2. Projected 1990 subtotal population      Total projected numbers  

$$\begin{array}{r} \text{Projected 1990 subtotal population} \\ \times \\ \text{Assumed commercial units per capita} \end{array} = \begin{array}{l} \text{of commercial units} \\ \text{for 1990} \end{array}$$

2,460 1990 projected subtotal population      52 total projected  

$$\begin{array}{r} 2,460 \text{ 1990 projected subtotal population} \\ \times \\ .021 \text{ assumed commercial units per capita} \end{array} = \begin{array}{l} \text{number of commercial} \\ \text{units for 1990} \end{array}$$
3. 52 projected commercials units      45 existing commercial  
for 1990      units      = Total  
new commercial units needed for 1990.

B. Assumptions of Commercial Unit losses

Yaupon Beach has not lost any commercial unit by fire over the past five years. Therefore, a fire loss percentage cannot be applied to the estimate of 1990 commercial unit need.

C. Vacancy Rate Assumptions

Yaupon Beach has not had any commercial units vacated over the past five years. Therefore, a vacancy rate percentage cannot be applied to the estimate of 1990 commercial unit need.

## Distribution Criteria

4. When distributing new dwelling units, priority is given to those areas with the following characteristics:
  - . Existing platted areas
  - . Existing accessibility to streets
  - . Within the existing pattern of development as determined from the 1975-1980 building permit records
  - . Existing and proposed facilities available.
  - . Existing historical and/or archeological sites are not present
  - . The soils are suitable for bearing capacity and a septic tank if no sewerage facilities are presently available.
  - . No conflict of use with adjoining and nearby properties.
  - . The Zoning Ordinance, the Subdivision Ordinance, and the Flood Prevention Ordinance are consistent with and favorable to the dwelling unit placement.
5. Refer to the Yaupon Beach Land Use Design Map for the resulting allocation of permanent single family, seasonal single family, permanent multi-family, and seasonal multi-family residential uses for 1990.

### Part IV Recreational Land Use

#### I. Existing Recreational Land Use

A. On Yaupon Beach the major proportion of recreational land use is the Oak Island Country Club. Since this area is so large and is not expected to expand further, it would be deceiving to include this acreage when developing projection percentages for 1990. Therefore, this acreage will be subtracted from the total recreational acreage when determining the 1990 need. The result of this subtraction will be 1 recreational unit that is .23 acres.

#### B. Summary of Prevailing Net Densities

$$\begin{array}{l} 1. \text{ Total Existing} \\ \text{Recreational Acreage} \\ \hline \text{Total Existing} \\ \text{Recreational Units} \end{array} = \begin{array}{l} \text{Existing Average} \\ \text{Recreational Acreage} \\ \text{Per Unit} \end{array}$$

$$\frac{.23 \text{ Existing Recreation Acres}}{1 \text{ Existing Recreation Unit}} = .23 \text{ Existing Average Recreational Acreage Per Unit}$$

$$\begin{array}{l} 2. \text{ Total Existing} \\ \text{Recreational Acreage} \\ \hline \text{Developed Acreage} \\ \text{Minus Golf Course Acreage} \end{array} = \begin{array}{l} \text{Existing Recreational Acreage} \\ \text{as a Percentage of Total Existing} \\ \text{Developed Acreage} \end{array}$$

$$\frac{.23 \text{ Existing Recreational Acreage}}{129.51 \text{ Developed Acreage Minus Golf Course Acreage}} = .0017759$$

The total existing recreational land use is .18% of the developed recreational land use minus the Golf Course acreage.

$$3. \frac{\text{Total Existing Recreation Units}}{\text{Existing Subtotal Population}} = \text{Existing Recreational Units per capita}$$

$$\frac{1 \text{ Existing Recreation Unit}}{2,096 \text{ Existing Subtotal Population}} = .000477 \text{ Existing Recreation Units per Capita}$$

There are presently .005 recreational units per capita in Yaupon Beach.

## II Estimate of Future Development

### Assumptions:

- (1) The recreational units per capita ratio is assumed to remain constant through 1990.
- (2) The average recreational acreage per unit is assumed to remain constant through 1990.
- (3) The recreational acreage as a percentage of total developed minus the golf course acreage is assumed to remain constant through 1990.

### A. Applied Per Capita Assumptions

By applying the present average units per capita figure to the present subtotal population and the assumed future per capita size to the estimated future subtotal population, the difference between these two results provides a crude unadjusted estimate of the total new unit requirements.

#### Calculations:

- (1) Existing subtotal population  $\times$  Existing recreational units per capita = Existing Recreational Units Minus the Golf Course  
 $2,096 \text{ Existing Population} \times .0005 \text{ existing recreational units per capita} = 1 \text{ existing recreational unit}$
- (2) Projected 1990 subtotal population  $\times$  assumed recreational units per capita = total projected number of recreational units for 1990  
 $2,460 \text{ 1990 projected subtotal population} \times .0005 \text{ assumed recreational units per capita} = 1 \text{ recreational unit for 1990.}$

- (3) 1 projected recreational unit for 1990 - 1 existing recreational units = 0 total new recreational units needed for 1990.

B. Assumptions of Recreational Unit Losses

Yaupon Beach has not lost any recreational units by fire over the past five years. Therefore, a fire loss percentage cannot be applied to the estimate of 1990 recreational unit need.

C. Vacancy Rate Assumptions

Yaupon Beach has not had any recreational units vacated over the past five years. Therefore, a vacancy rate percentage cannot be applied to the estimate of 1990 recreational unit need.

3. Fitting Space Needs To Land Supply

A. Holding Capacity Analysis

1. The most developable vacant, platted areas of Yaupon Beach will be used for the Land Design Map of 1990. In these areas the streets already exist, so no allowance shall be made for them in the projected acreage needs of 1990.

2. Recreational Net Density Table

<u>Land Use</u>	<u>Number of Units</u>	<u>Total Acreage</u>	<u>Net Density</u>
Recreational	1	.23	4.35

3. Total Commercial Acreage Requirement For 1990

<u>Land Use</u>	<u>Projected 1990 Unit Need</u>	<u>Unit Net Density</u>	<u>Projected 1990 Acreage Need</u>
Commercial	0	4.35	0

4. Distribution Criteria

When distributing new commercial units, priority is given to those areas with the following characteristics:

- . Existing platted areas
- . Existing accessibility to streets
- . Within the existing pattern of development as determined from the 1975-1980 building permit records
- . Existing and proposed facilities available.
- . Existing historical and/or archeological sites are not present

## YAUPON BEACH LAND CLASSIFICATION

The North Carolina Coastal Area Management Act Guidelines require that each city, town, and county located in the twenty county coastal areas develop a land classification map classifying all of the land within a given jurisdiction into one of five classes and their subdivisions. The criteria for the allocation of land into these categories are explicitly set forth in the State Guidelines, and the final adopted land classification maps for the twenty combined into a coordinated, consistent expression of local policy at the large regional scale.

A land classification system for Yaupon Beach has been developed as a means of assisting in the implementation of goals, objectives, and policies. 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 remembered that land classification is merely a tool to help implement policies and not a strict regulatory mechanism.

The land classification system provides a framework to be used by local governments to identify the future use of all lands in the City. The designation of land classes allows the local government to illustrate their policy statements as to where and to what density they want growth to occur, and where natural and cultural resources will be preserved.

The land classification system includes five broad classes which will be identified by all local governments. Planning units are encouraged, however, to further subdivide these broad classes into more specific land use designations. Any sub-classes which are used should be able to be aggregated back to the original five broad classes. The five general land classes are Developed, Transition, Community, Rural, and Conservation. Two of these classes are applicable to Yaupon Beach. They are Transition and Conservation.

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.

Although, as indicated above, the specific requirements of the land classification system are set forth at the State level, each jurisdiction's land classification map is developed locally and adopted by the local governing body prior to submission to the Coastal Resources Commission. As a result of this process, the land classification map represents a graphic statement of local government policy with regard to where, when and to what densities future land development will be encouraged.

#### 1. Developed

The purpose of the Developed class is to provide for continued intensive development and redevelopment of existing cities. To be classified Developed, the area should have a minimum density of 500 dwellings per square mile or 1000 people per square mile provided with usual public services including at least water, sewer, recreational facilities, police and fire protection. This category does not apply to Yaupon Beach.

## 2. Transition

The purpose of the Transition class is to provide for future intensive urban development within the ensuing ten years 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 class are not available or when they are severely limited for development.

The Developed and Transition classes should be the only lands under active consideration by the county or municipality for intensive urban development requiring urban services. The area within these classes is where detailed local land use and public investment planning must occur. State and federal expenditures on projects associated with urban development (water, sewer, urban street systems, etc.) will be guided to these areas. The Transition class is divided into two types of use: Transition Residential and Transition Mixed Use.

- A. Transition Residential includes the areas with partial municipal facilities provided usually adjacent to developed residential areas. Only residential use is encouraged in these areas.
- B. Transition Mixed Use includes those areas provided with partial municipal services, yet more suitable for a wide range of activity including commercial, recreational, office, and institutional uses, often because of its location to main traffic arteries.

## 3. Rural

The purpose of the Rural class is to provide for agriculture, forest management, mineral extraction and other low intensity uses. Residences may be located within "Rural" areas where urban services are not required and where natural resources will not be permanently impaired. This class does not apply to Caswell Beach.

## 4. Conservation

The purpose of the Conservation class is to provide for effective long-term management of significant limited or irreplaceable areas. This management may be needed because of its natural, cultural, recreational, productive or scenic values. These areas should not be identified as transition lands in the future.

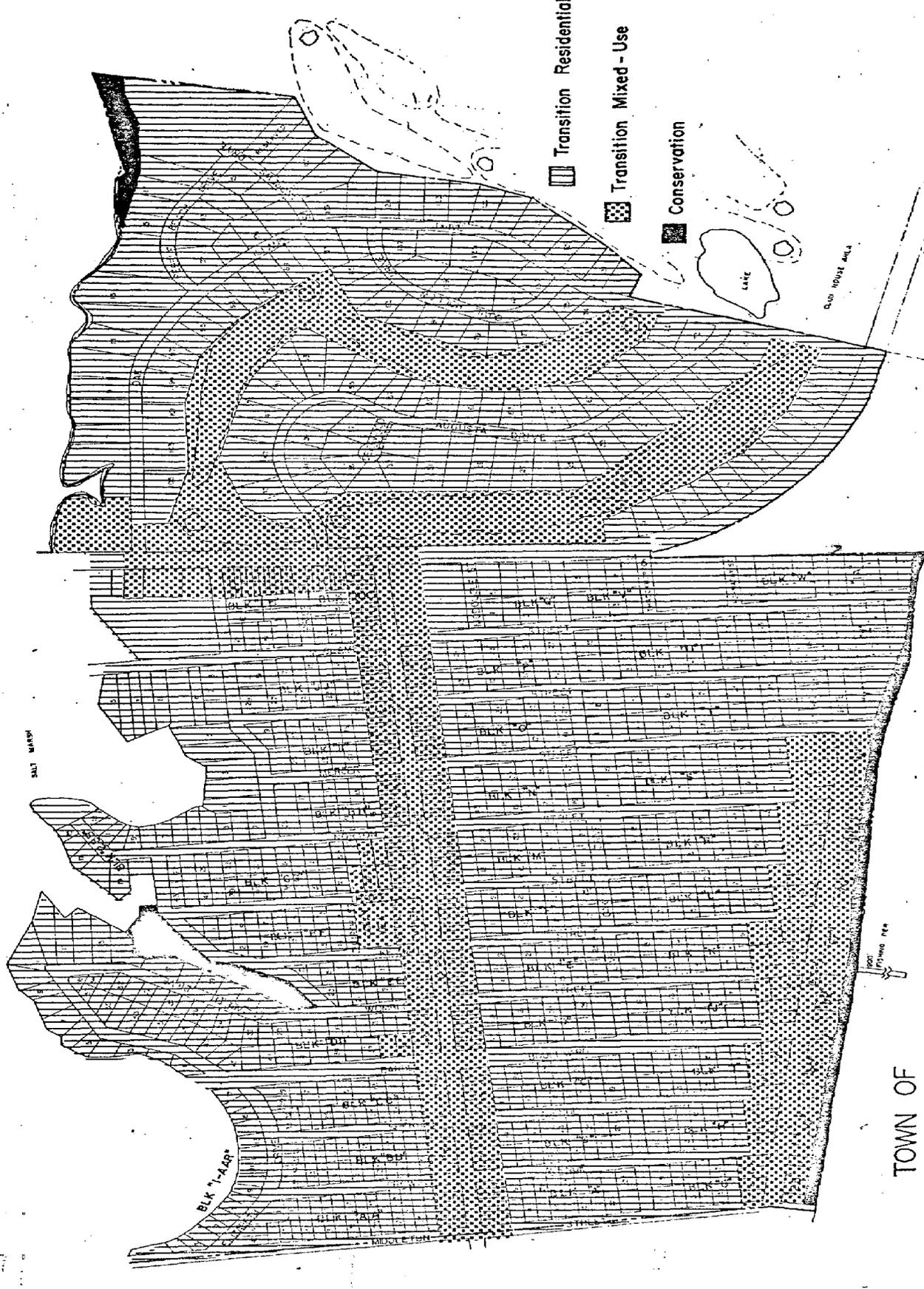
The Conservation class is applied to lands that contain: major wetlands; essentially undeveloped shorelands that are unique, fragile, or hazardous for development; necessary wildlife habitat or areas that have a high probability for providing necessary habitat conditions; publicly owned water-supply, watersheds and aquifers; and forest lands that are undeveloped and will remain undeveloped for commercial purposes.

The projected permanent and seasonal population for Yaupon Beach in 1990 is the primary input used in the preparation of the land classification map. The Transition class allocations are all directly related to the expected population level in 1990. The Conservation category is the only class which is in no way related to population, but is allocated based on completely independent criteria.

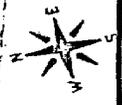
In accordance with State Guidelines requirements, the priorities for allocation to the Transition category included those areas which have experienced septic tank problems and/or face potential public health threats in terms of contamination of on-site wells or pollution of estuarine waters to which much existing residential development is adjacent. Another priority provides for inclusion of more areas where future development is expected and can be clustered through the provision of services. In Yaupon Beach these areas are also where lands are located along existing water and proposed sewer service corridors where higher density development can be expected.

The Transition-Mixed Use category were allocated to those areas meeting the above criteria but, more specifically, allowing for a variety of land used such as residential, commercial, recreational and institutional.

In contrast to the above category, the Transition Residential Category, while meeting all the same location criteria of a Transition Class, would allow only for residential development.



PREPARED BY THE  
BRUNSWICK COUNTY PLANNING DEPARTMENT  
JAN 1980



TOWN OF  
**YAUPON BEACH**  
LAND CLASSIFICATION MAP

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