SURF CITY 1976

COASTAL ZONE
RESOURCES
CORPORATION

4505 FRANKLIN AVENUE
WILMINGTON, N.C. 28401

A

LAND USE PLAN

FOR THE

TOWN OF SURF CITY, NORTH CAROLINA

Prepared in accord with
State Guidelines for Local Planning in the Coastal Area
Under the Coastal Area Management Act of 1974.

To Be
Submitted to
North Carolina Coastal Resources Commission
May 21, 1976

The preparation of this report was financially assisted by grants from the State of North Carolina, the National Oceanic and Atmospheric Administration, and the Coastal Plains Regional Commission.

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INTRODUCTION

PURPOSE OF A LAND USE PLAN IN NORTH CAROLINA COASTAL AREA MANAGEMENT

The North Carolina Coastal Area Management Act of 1974 /Chapter 1284 1973 Session Laws (G. S. 113A/ (CAMA) established "....a cooperative program of coastal area management between local and State governments" whereby "Local government shall have the initiative for planning."

Enactment of CAMA was based upon findings by the General Assembly that

- "Among North Carolina's most valuable resources are its coastal lands and waters."
- "the estuaries are among the most biologically productive regions of this State and of the nation"
- "an immediate and pressing need exists to establish a comprehensive plan for the protection, preservation, orderly development, and management of the coastal area of North Carolina."

The CAMA established the following goals for the coastal area management system:

"(1) To provide a management system capable of preserving and managing the natural ecological conditions of the estuarine system, the barrier dune system, and the beaches, so as to safeguard and perpetuate their natural productivity and their biological, economic and esthetic values;

"(2) To insure that the development or preservation of the land and water resources of the coastal area proceeds in a manner consistent with the capability of the land and water for development, use, or preservation based on ecological considerations;

"(3) To insure the orderly and balanced use and preservation of our coastal resources on behalf of the people of North Carolina and the nation;

"(4) To establish policies, guidelines and standards for:

(i) Protection, preservation, and conservation of natural resources including but not limited to water use, scenic vistas, and fish and wildlife; and management of transitional or intensely developed areas and areas especially suited to intensive use or development, as well as areas of significant natural value;

(ii) The economic development of the coastal area, including but not limited to construction, location and design of industries, port facilities, commercial establishments and other developments;

(iii) Recreation and tourist facilities and parklands;

(iv) Transportation and circulation patterns for the coastal area including major thoroughfares, transportation routes, navigation channels and harbors, and other public utilities and facilities;

(v) Preservation and enhancement of the historic, cultural, and scientific aspects of the coastal area;

(vi) Protection of present common law and statutory public rights in the lands and waters of the coastal area."

The planning processes established by the CAMA include: (a) State guidelines setting the objectives, policies and standards to be followed in public and private use of land and water within the coastal area; and (b) a land use plan for each county within the coastal area.

Following the procedures contained in the CAMA, the Mayor and Board of Town Commissioners of Surf City declared the intent of the Town to prepare a land use plan in accordance with State Guidelines for Local Planning in the Coastal Area under the Coastal Area Management Act of 1974 (Guidelines) adopted by the North Carolina Coastal Resources Commission on January 27, 1975, as subsequently amended.

The Guidelines mandate that each land use plan contain:

1) A statement of Local Land Use Objectives, Policies and Standards;

2) A Summary of Data Collection and Analysis;

3) An Existing Land Use Map;

4) A Land Classification Map;

5) Written text describing and indicating appropriate development for Interim Areas of Environmental Concern.

A land use plan is one of many elements that constitute a comprehensive plan for Surf City. The land use plan expresses the way the democratically elected representatives of the people think the finite land area should be allocated to best meet the hopes and aspirations of the people who live and pay taxes in a specific jurisdiction. A land use plan can only be thorough when health care, education, transportation, economic development, leisure time, and other components of a comprehensive plan are tested against the people's goals and objectives so they can be integrated into the land use element.

Surf City's land use plan relies upon those data most readily available and focuses upon the major emphases of the CAMA: development within the capability of the natural resources. Other topics, such as water and sewer, roads and streets, and employment are consistent with issues raised by the public, but are peripheral to establishing a basis for decision-making with respect to land.

It is Surf City's intention to utilize the plan as a keystone for all future town activity. The land use plan is a major step in comprehensive planning for Surf City. Matters such as zoning, building codes, Town appearance, and beach maintenance can be based upon the plan;

policy issues, such as annexation, taxes, maintenance of water quality, health care and employment are preliminarily identified for later study and decision-making as elements of the Town's comprehensive planning process.

METHOD OF PREPARING THE PLAN

The Surf City land use plan was developed as an iterative process among elected and appointed public officials, the public, and professional resource specialists.

The iterative process: 1) Sampled public recognition of problems and opportunities in general terms; 2) defined the known physical, social, and institutional setting; 3) invited the public to participate in matching problem solutions with the setting by defining objectives and standards for the Town; 4) projected factors consistent with the selected Town goals and the physical restraints; 5) allocated land according to the projected magnitude of demand and the physical characteristics of the Town; and 6) used the inventory data developed in step 2 to delineate areas recommended as areas of environmental concern with a list of suggested uses.

Coastal Resources Commission Guidelines emphasize the need to map three sets of data: existing land use, land classified according to projected use in 1985, and areas that will be recommended as interim areas of environmental concern. These Surf City data were mapped at a scale of 1 inch = 400 ft. The basic map medium was an aerial photograph mosaic prepared by Coastal Zone Resources Corporation from N. C. Department Transportation 1 inch - 1,000 ft photography taken in December 1974.

Existing land use was determined by air-photo interpretation and visual inspection of structures, vegetation and water. This method of defining existing conditions permitted rapid identification of hazardous, fragile, and unique areas which, in turn constitute a major portion of the areas that should be of environmental concern.

The air-photograph maps are easily reproducible and will serve as a useful public information tool. Additionally, the reproducible mosaic is available for use as a base map to support other planning activities and for implementation of the plan.

Data describing current conditions in the Town were assembled from numerous federal, state and local government sources, as listed in Reference Cited (p. VI-1). Where more current or detailed information than was available in publications was needed, personal communications with representatives of the publishing agencies and knowledgeable Town residents were used to complete the data collection and analysis.

Details of Surf City's public participation program are contained in Appendix A.

Land use planning in Surf City was complemented by a concurrent sewerage study for Topsail Island[a] conducted under the terms of a Section 201 of the Water Pollution Control Amendments of 1972 (201 Plan). Existing land use, dwelling unit density, and population estimates were jointly derived. The CAMA sponsored planning in the Town was closely coordinated with comparable activities conducted by the Pender County Planning Board. No major conflicts between the county and municipal plan have surfaced. If in the future, conflicts should arise, provisions of the county plan shall govern, except in cases where the municipal plan imposes greater restrictions upon land use or greater demand for new development.

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[a] Topsail Island has three political entities: Town of Surf City and Town of Topsail Beach in Pender County and an unincorporated segment in Onslow County.

SECTION I

CURRENT CONDITIONS

POPULATION AND ECONOMY

Population

The population of Surf City was reported to be 166 in the 1970 U. S. Census of Population (U. S. Department of Commerce 1973). Earlier Surf City population information is not available because Census data for the Town were not separated from Topsail Township prior to 1970. The Census population figure of 166 reflects only the year-round residents of the Town. The Corps of Engineers estimated seasonal residency in 1963 to be 1450 (U. S. Army Corps of Engineers 1965).

Mr. Alva Ward, who located his real-estate business on Topsail Island in 1949, inventoried all structures on Topsail Island in 1970 and again in May 1975. The counts of dwelling units were recorded according to single family, multi-family and motel unit categories, by political jurisdiction.

As part of the 201 Plan preparation, the contractor, Henry von Oesen and Associates, recorded and mapped the total number of structures on Topsail Island, including mobile homes and trailers. The number of units in multi-family residential and transient accommodation structures and the use of commercial structures, e. g., restaurant, bank, were noted.

In late June and early July 1975, a survey of dwelling unit occupancy was conducted cooperatively by Coastal Zone Resources Corporation, Henry von Oesen and Associates, and the Cape Fear Council of Governments. Approximately 10 percent of all dwelling units in the Town were surveyed. The primary purpose of the survey was to determine the average number of persons occupying the different kinds of dwelling units

on a year-round and seasonal basis. The number of dwelling units reported for Surf City in 1975 was multiplied by these average occupancy rates by category to yield the average seasonal and year-round population of the town for 1975. Results of the survey show that, on the average, 24 percent of residential housing units in Surf City were vacant during the summer of 1975. Peak summer population, or the maximum number of people that could be accommodated in the existing units, was derived by assuming all dwelling units were occupied at the appropriate occupancy rates.

Survey results show that the average summer population in 1975 was 3,767. Year round population was 729 (up 563 from 1970, a 339 percent increase overall and 67.8 percent increase per year)[a], seasonal population was 3,038 (up 2,317 from 1963, a 160 percent increase overall and 13.3 percent per year); on those days when all dwelling units were occupied the peak population was 5,424. Sixteen percent of the summer population was residing in motel units at the time of the survey, and eighty-four percent in non-motel units (single-family cottages, duplexes, mobile homes, or apartments). The data do not account for day-use visitors or overnight visitors occupying space in campgrounds or parking lots associated with fishing piers. Thus, on some days the total number of persons in Surf City could be considerably greater than 5,424.

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[a]The year round population may not equate with the Census definition of permanent resident. This is so because some family units are transient; that is, they are regularly transferred personnel, e. g., military, who may reside one or two years in Surf City but maintain a permanent residence elsewhere.

According to Ward inventory, there were in 1970, 1,027 dwelling units in Surf City, 138 (13 percent) motel and 889 (87 percent) non-motel; in 1975 there were 1,321 dwelling units, 208 (16 percent) motel and 1,113 (84 percent) non-motel.

Since 1973 the Town of Surf City has recorded the number of building permits issued each year and submits yearly an "Annual Report of Building Permits Issued for New Residential Buildings" to the U. S. Department of Commerce, Social and Economic Statistics Administration, Bureau of the Census. The Annual Reports show that 40 permits for new building were issued in 1973 and 78 in 1974. In 1973, 36 of the permits were for single family residences, two for duplexes, and two for transient housing. In 1974, 38 permits were issued for single family residences, 39 for mobile homes, and one for a 24 unit motel.

The 1975 survey of dwelling units shows that average occupancy of vacationers was 1.5 persons per unit in motels and 4.2 persons per unit in non-motel residences; year-round population occupancy was lower, 3.7 persons per unit. At the time of the survey, 30 percent of the non-motel units were occupied by their owners, 46 percent were occupied by renters, and 24 percent were vacant.

Municipal Finance

The Surf City Town Budget for fiscal year (FY) 1974-1975 was based on a total property valuation of $10,427,882 and a tax rate of $.81 per $100 valuation. The property valuation in FY 1973-1974 was $5,273,537 and the tax rate was $1.35. The 98 percent increase in valuation was substantially offset by the 66 percent decrease in the tax rate; ad valorem taxes produced a revenue of $20,000 in 1968, $68,345 in 1973, and

$76,019 in 1974.

Ad valorem taxes accounted for 63 percent of the General Fund revenues in both 1968 and 1974, 69 percent in 1973. State shared taxes, such as Franchise, Intangibles and Beer and Wine, Powell Bill Allocations, and the one percent of the four percent sales tax contribute to the total revenues of the town. The Cash on Deposit has increased over the years from $11,647 in 1968 to $30,971 in 1974.

The cost of general government[a] as a percent of total expenditures has decreased since 1968; expenditures for services have increased. Table 1-1 lists the General Fund expenditures to service facilities and general government as appear in the FY 1968-1969, 1973-1974, and 1974-1975 Town Budgets.

Economy

The economy of Surf City is dependent on its land and water resources. The ocean and sound waters constitute the major attractions for the swimming, fishing, and boating enthusiasts who visit the town in summer. It is estimated that approximately 54 persons are employed year round in Surf City, principally in fishing pier and tackle shop operations.[b] Many Surf City residents work in areas off of Topsail Island, commuting mainly to Jacksonville, Camp LeJeune, and Wilmington. Employment opportunities in the town increase by as much as 50 percent during the summer vacation season, with job openings in fishing piers, motels, restaurants, and shops.

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[a] For the purpose of analyzing community service finance, general government includes all expenditures except those cited here as service facility expenditures.

[b] Connie Morgan, Town Clerk; Personal Interview, May 20, 1975.

Table 1-1. Surf City General Fund Expenditures.[a]

Cause of Expenditure	Fiscal Year 1968-1969	% Total	Fiscal Year 1973-1974	% Total	Fiscal Year 1974-1975	% Total
General Government	29,174	57	61,850	49	55,075	36
Police Department	8,815	21	30,596[b]	24	40,060	26
Street and Related Structures	2,948	7	3,384	3	17,820	12
Health and Sanitation[c]	6,450	15	29,858	24	32,560	22
Fire Department[d]					6,200	4
Total Expenditures	42,387	100	125,688	100	151,715	100

[a]Source: Town of Surf City (Adopted) Budgets; 1968, 1973, 1974.

[b]In 1973 includes expenditures for fire equipment.

[c]Includes solid waste collection and pest control.

[d]Includes expenditures for rescue squad.

In summer, Surf City commerce can supply the day to day needs of vacationers, with grocery stores, tackle shops, and gift shops; lodging, dining, and recreational facilities. Most year-round residents, however, find it necessary to do much of their shopping off the island. The nearest professional services, such as doctors, lawyers, and dentists are found in Wilmington and Jacksonville, as are specialty shops, prescription drugstores and the like. As noted, property tax collections account for 63 percent of income to the Town Government. In July, 1975, there were 815 taxpayers listed by the Town Clerk. At a rate of 3.7 persons per dwelling unit, year round population accounts for 197 taxpayers. Assuming permanent residents holding more than one taxable parcel balances with non-permanent, year round residents, 618 taxpayers are absentee owners. Thus, the majority of property tax income comes from absentee property owners. But serious problems have already been encountered as a result of the great demand placed on the land and its adjacent waters. A tremendous growth in tourism has occurred in Surf City in the last 20 years. The increase in disposable income, mobility, leisure time and access, in the two decades between 1950 and 1970, has resulted in an increase in outdoor recreation and vacation second-home building in the Town. Home building and real estate services are major employers. Unfortunately no measure is available for construction, sales, and service employment associated specifically with homebuilding in Surf City because the sector is made up of many small enterprises that operate in all jurisdictions of Topsail Island and on the mainland.

EXISTING LAND USE

The Town of Surf City is located in the southern half of Topsail Island on the east coast of Pender County. Topsail is a barrier island stretching for approximately 25 miles in a NE-SW direction between New Topsail Inlet in Pender County and New River Inlet in Onslow County. It is bounded on the northwest by the Atlantic Intracoastal Waterway (AIWW) and on the southeast by the Atlantic Ocean. The island is bisected by the Onslow-Pender County line, the Pender County portion being comprised of two municipalities, Surf City and Topsail Beach. Topsail Beach forms the southern 4.8 miles of the island; Surf City extends for 6 miles between Topsail Beach and the Onslow-Pender County line.

Until 1940, Topsail Island was deserted, totally undeveloped, and inaccessible by automobile. In 1941, the U. S. Government established Camp Davis as a temporary military reservation in the Holly Ridge area, and leased Topsail Island for use as a missile testing range. In order to facilitate military activities, a pontoon bridge was constructed across the AIWW, barracks and observation towers were built, and a road extending the full length of the island was developed. In 1948, military activities ceased, Topsail Island facilities were abandoned, and land that had been leased was returned to its owners, complete with roads, buildings, and most importantly, a bridge. Prompted by its newly established accessibility, development of the island began immediately; Surf City was incorporated in 1948.

Surf City is situated 22 road miles northeast of Wilmington and 26 road miles southeast of Jacksonville, the two population centers closest to the Town. Access to the island from Wilmington is provided by US 17 to NC 50 with a drawbridge connection to the mainland. Access from Jacksonville to the island is provided by US 17 to NC 210 with a fixed span bridge across the waterway.

Ownership prior to 1941 of the majority of the island (including some submerged land extending to the mainland) by a relatively few individuals, development by the Army of the major paved road close to the frontal dune system, and rapid subdivision of land and sale of lots have been and will continue to be the major determinants of land use in the developable parts of Surf City. The military road, now NC 50, served as the backbone for the division of land; the subdivisions with or without deed restrictions have been officially platted and recorded. Present subdivisions, with but one exception, consist of rectangular lots measuring from 25 ft to 50 ft across and 60 ft to 100 ft deep. Thus, some platted lots of 2,500 square feet (ft^2) (1/16 of a commercial acre) have been sold and built upon. Many people may have purchased more than one lot, but the number of additional lots that were acquired to afford protection for a large house as opposed to the number acquired to accommodate one structure on each lot is not known.

The few large parcels that are not subdivided have remained open and natural through the will of owners or the condition of the money markets.

Surf City is made up of beaches, dunelands, marine forest, and

salt water marshes, the distribution and extent of which vary throughout the town. Estuarine waters and associated coastal marshes cover a large area of the town whose jurisdiction extends westward to the centerline of the AIWW; throughout most of the town, a line of shrubs or woodland separates the estuary from the higher, developed land. Between the Surf City-Topsail Beach town line and the fork of NC 50, the maritime forest extends from NC 50 to the marsh. East of NC 50 in this area is a narrow strip of duneland with a cover of grass and low shrub. From the fork in NC 50, north to the town limits, is an area of duneland characterized by a foredune and nearly level grass covered land extending to a narrow line of maritime forest. In the marshland north of the causeway, west of New River Drive, several linear "islands" of higher woodland are oriented N-S. Some of these "islands" have been connected to the dune-lands by causeways and are being developed for urban uses.

The NC 210 causeway (Rowland Avenue) divides the town north and south. The area from Durham Avenue north to New Bern Avenue, from the ocean west across the causeway to the town limits, is zoned for commercial uses. The Central Business District is within this area, extending for two blocks on either side of Rowland Avenue, and along Rowland Avenue from the ocean to the third block west of New River Drive. The majority of the shopping facilities of the town are found in this district, including groceries, clothing stores, beach shops, fishing supplies, hardware, and an ABC store. The Town Hall and Volunteer Fire Department are located in this district along with the post office and bank, barber and beauty shops, a service station, an appliance service, motels, restaurants, business offices, and a fishing pier. The primary use of the land

immediately adjacent to the causeway is commercial recreation, with numerous motel units, camper-trailer parks, and boating facilities.

From New Bern Avenue north to the town limits, land use is predominantly mixed commercial-residential. This area is characterized by a mixture of single-family cottages, motels, trailers, apartments, and duplexes; with a bait shop, a fishing pier, a tavern, a church, and several restaurants. The Del-Mar Beach subdivision in this area has deed restrictions limiting land use to single-family residential.

The whole area from Durham Avenue south to the town limits is zoned for residential uses, with the exception of an ocean to sound strip, 100 ft wide, located about 1/2 mile north of Surf City-Topsail Beach line; this strip is zoned Commercial and permits the operation of a fish house. The predominant use made of the land in this area is single family residential, with two rows of housing, one row on either side of NC 50. The housing density in this area is presently very low, but throughout most of the maritime forest, individual homesite lots are for sale. Boat channels have been dredged along the marsh-forest interface of much of this area, giving road-to-sound lots water frontage and access to Banks Channel.

There are several mobile home parks in Surf City, located along Rowland Avenue in the vicinity of the causeway, and in scattered locations north of Rowland Avenue to the town line. The Town of Surf City has an ordinance relating to mobile homes, trailers and campers, permitting their location in an area north of Dolphin Avenue to the A. S. King northern line, and north of New River Drive.

CURRENT PLANS AND REGULATIONS

Current Plans Concerning Land Use in Surf City

Water and Sewer

1. Comprehensive Water and Sewer Program, Pender County, North Carolina. F. T. Green and Associates, 1968.

   Recommendations

   a. Expand existing source of water supply and distribution system to serve new customers.

   b. By mid-1980, Surf City expects to have a population meriting a system of sanitary sewage collection and disposal.

2. Water Supply System for Surf City, Henry von Oesen and Associates, 1968.

3. Town of Surf City, Capital Improvements Program 1974-1979, Town of Surf City and Cape Fear Council of Governments, June 1974. Describes proposed Surf City capital improvements expenditures necessary in the succeeding 5-year period in order to implement:

   a. The Surf City part of a Topsail Island sewage collection system.

   b. Water main extensions to serve areas of the Town of Surf City that are presently drawing their water supply from individual wells.

   c. The Topsail Island Sewage Treatment Plant - a proposed common facility with an estimated capacity of 1 mgd.

Transportation

1. Regional Development Guide Year 2000 - Region "O", Cape Fear Council of Governments, June 1972.

   Recommendations

   a. Improvement and extension of the Coastal Corridor Highway (U. S. 17) through Region "O".

   b. Development of a new highway from Hampstead to Topsail Beach.

   c. Improvement (four-laning) of U. S. 74 from U. S. 17 to the Intracoastal Waterway.

2. Transportation Needs Study - Region "O", Cape Fear Council of Governments, Traffic Planning Associates, Inc., 1971.

   Recommendations

   a. Provide a limited access facility, generally parallel to the coast, serving the recreation and population centers.

   b. From the above facility, provide additional connections to the major beaches and inland recreation areas with high type secondary roads.

3. Town of Surf City Capital Improvement Program 1974-1979, Town of Surf City and Cape Fear Council of Governments, June 1974.

   Recommendations

   a. Keep paving compatible with existing municipal thoroughfare system.

   b. Construct 4200 feet of asphalt roadway on Shore Drive in order to improve traffic flow.

There are currently no utilities extension or open space and recreation policies in effect in Surf City.

Existing Local Regulations Affecting Land Use in Surf City

1. An Ordinance Providing for the Zoning of the Town of Surf City, North Carolina

   Effective Date: March 2, 1965

   Application: Within the corporate limits of the Town of Surf City

   Summary of Provisions

   a. Four Districts are specified in order to regulate and limit the height and size of a building, the intensity of use of the lot, the areas of open spaces, and the location of trades and industries.

      1. R-1 Single Family District
      2. R-2 Multiple Family District
      3. C-1 Commercial District
      4. F-1 Fire District

   b. The boundaries of Districts are established and shown on the "Zoning Map of Surf City."

   c. Each District has specified uses permitted, building site area, and yard areas required.

   d. All structures erected, extended or modified shall comply with the North Carolina State Building Code as amended in 1964.

   e. A Board of Adjustment is to be appointed by the Town Commissioners for the purpose of hearing and deciding appeals and authorizing variances in specific cases.

f. Each application for a Building Permit from the Building Inspector is to be accompanied by a plat drawn to scale.

g. The Town Commissioners may amend, supplement, change or repeal the regulations, restrictions or district boundaries set out in this ordinance.

2. Ordinance of the Board of Commissioners of the Town of Surf City, North Carolina, Relating to Mobile Homes, Trailers and Campers, Etc.

Effective Date: December 9, 1974

Application: Within corporate limits of the Town of Surf City

Summary of Provisions

a. Trailers and mobile homes shall be permitted to remain where located and now in use.

b. Mobile home trailers and campers may be located in specified areas of Surf City.

c. Trailer and mobile home courts now in existence may replace a unit only when a clearance of 15 feet on each side is left.

d. A mobile home trailer may not be connected with lights or water until a permit has been issued by the Building Inspector.

e. The Building Inspector shall be the sole judge of what is ample and adequate concerning storage for garbage and other facilities.

Local land use regulations are limited to those listed above. There are currently no subdivision or nuisance regulations, floodway, historic district, or environmental impact statement ordinances in effect in Surf City.

CONSTRAINTS

There are certain areas of Surf City where development would be either especially costly or likely to cause undesireable consequences because of the inherent characteristics of the land and water. The permeability of soils, their susceptibility to flooding, and their biological productivity can and have exerted influence upon the choice of land areas that can most economically, and with the least risk and uncertainty, be put to various uses.

Physical

Flooding

The U. S. Geological Survey (USGS) is mapping Flood Prone Areas of Surf City. The purpose of these maps, as stated on each map, is to "show administrators, planners, and engineers concerned with future land developments, those areas that are subject to flooding." The Flood Prone Areas shown on these maps have a 1 in 100 chance on the average of being inundated during any year.

Flood Prone Area maps have been completed by USGS to date at 1"=2000' scale for only parts of Surf City; flood areas mapped to date indicate a flood elevation of between 10 and 15 ft msl. Virtually all of the land surface of Surf City, with the exception of some high foredunes, would fall within the Flood Prone Area.

Soils

According to the U. S. Soil Conservation Service (SCS) "General Soil Map for Pender County," the only soil association present in Surf City is the Capers-Newhan Association. This association is made up of the Capers and Newhan soils, each with different physical characteristics and

suitabilities for various purposes. The Capers soils are found mainly in the marsh areas of the town, where the dominant vegetation is salt marsh grasses such as Spartina and rushes. This soil is characteristically very poorly drained and subject to frequent storm and tidal overflow. It was formed by both the deposition of silts, sands, and clays in the slowly moving waters of the estuary, and by the build-up of organic debris that is entrapped by vegetation growing in it. It is the wetness and regular flooding of the Capers soils that render them generally unsuitable for septic tank fields; the Capers soils also tend to have low traffic supporting capacity and are poorly suited to supporting buildings, roads, and streets.

The Newhan soils are found on the dune and beach areas along the coast. Deposited by both existing and past wind and water action, this soil is often found forming inland sand dunes and ridges as well as foredunes. It is a fine to coarse sand, excessively drained, with varying amounts of marine life deposits. The sands of the Newhan soils, characteristically excessively drained, are classed as having moderate to severe limitations for septic tanks because of their inability to filter wastewater in large quantities, as required in areas of high population density. Further limitations of these soils are usually associated with their proximity to the ocean and susceptibility to flooding.

Between the foredune and marsh, underlying both dunelands and woods, are soils that have a combination of the characteristics of Newhan and Capers soils. The principal factor limiting the use of the soils in this area is depth to the water table which on Topsail Island tends to be relatively shallow, but can vary substantially locally. The action of trees

growing on these soils, by their transpiration of large amounts of moisture, can keep the water table at lower levels than would be found were the trees removed; the water table may change seasonally as well, being highest in the winter months.

A factor sometimes limiting the use of the soil underlying sparse herbaceous or shrub vegetation is its stability. Close to the ocean, the vegetation type is often dictated by a tolerance for both salt and wind; a lack of vegetative cover here may be indicative of moving sands.

The suitability of all three of these soils for developments in which septic tanks are used as the sewage disposal method is dependent primarily on population density.

Sources of Water Supply - Recharge Areas

Ground water comprises the sole source of water supply for both public and private systems in Surf City. Pender County is underlain by a vast aquifer system, two strata of which are important in the Surf City area as sources of ground water.

Pleistocene and Recent surficial sands cover the beach areas of the county and constitute the principal water source for most private wells. In the surficial sands, water usually occurs under water table conditions within 15 ft of the land surface, but may be partially confined by clay in the lower part of the aquifer (Layman 1965). The productivity of this aquifer is limited primarily by its thickness; it is recharged directly by rainfall and easily subject to contamination.

The Castle Hayne limestone is not extensively used for water supply in the beach area, but is potentially valuable as a large, long term supply. The formation begins at 35 ft below msl where its waters occur

under artesian conditions. Recharge to the Castle Hayne would, therefore, not be expected to occur in the immediate beach area and its waters would not be as vulnerable to contamination as those of the surficial sands.

The quality and quantity of water from the Castle Hayne vary locally. In the Surf City Area, it is generally high in iron, low in chlorides, with a pH of 7-8; at Holly Ridge, indications are that a specific capacity of 50-70 gpm per ft drawdown can be obtained (Laymon 1965). Most attempts to obtain good water from the Castle Hayne in the immediate beach area have proved unsuccessful thus far.

Fragile

Coastal Wetlands

Estuarine tidal marshes and mud flats are found covering all but the high sand ridges, dunelands and maritime forests of Surf City along the entire length of the Town's sounds, creeks and bays. The dominant soil found in these marsh areas is the very poorly drained Capers soil, subject to daily and frequent tidal flooding; the dominant vegetation is salt marsh grass.

For the purpose of better defining their significance, tidal marshes can be divided into two categories: low tidal and high tidal marshes. Low tidal marshland is defined as that consisting primarily of Spartina alterniflora and usually subject to inundation by the normal rise and fall of lunar tides (N. C. Coastal Resources Commission 1975). The particular significance of the low marsh is based on its high yield to the estuarine waters of organic detritus, which serves as a primary food source for various species of fish and shellfish, such as menhaden, shrimp, flounder, oysters, and crabs. The roots and rhizomes of the Spartina alterniflora

serve as waterfowl food, and the stems as wildlife nesting material. Low tidal marshes also help to retard shoreline erosion.

High tidal marshland is subject to occasional flooding by tides, including wind tides, and is characterized by a variety of marsh grasses, including Juncus roemerianus and various species of Spartina. The high marshes also contribute to the detritus supply of the estuarine system and support a diversity of wildlife types; they function as effective sediment traps and as a further deterrent to shoreline erosion.

Much private development has already occurred along the tidal marshes of Surf City, particularly in places adjacent to higher land north of the Causeway and west of New River Drive. The Intracoastal Waterway is used extensively for water transportation, fishing, and related water sports; the adjacent marshland has been used as sites for homes, piers and recreational facilities supporting the Waterway activities.

The once common practice of channel dredging and adjacent marsh filling has recently come under closer scrutiny of State and Federal authorities; as a result, there is currently little development of the marshland in Surf City.

Estuarine Waters

The estuarine waters that surround the coastal wetlands in Surf City are one of the most productive natural environments in the county, supporting many fish and shellfish species for part of all of their life cycles. According to the statuatory definition /G.S. 113-229(n)(2)/ estuarine waters in North Carolina include all of the waters of the Atlantic Ocean within its boundaries, and all the waters of the bays, sounds, rivers and tributaries thereto seaward of the dividing line between Commercial Fishing Waters and Inland Fishing Waters; the dividing line between these

waters has been established for each body of water by agreement between the N. C. Department of Conservation and Development (now DNER) and the N. C. Wildlife Resources Commission. All of the surface waters within the jurisdictional boundaries of Surf City are classified Commercial Fishing Waters and, as such, are designated estuarine waters of North Carolina.

Public Trust Areas

The State of North Carolina supports the traditional public rights of access to and use of lands and waters designated Public Trust Areas for purposes including navigation, fishing and recreation. Public Trust Areas include estuarine waters, navigable water bodies to their ordinary high water marks, and all lands beneath these waters. The State allows appropriate private development within Public Trust Areas, provided that the development not be detrimental to public trust rights.

Ocean Beaches and Sand Dunes

Surf City has approximately 6 miles of barrier island ocean shoreline characterized by wide and sandy beaches with moderately high foredunes. The ocean beaches consist of unconsolidated soil material without vegetative covering; they are characteristically of a larger soil particle size and lower slope than the adjacent sand dunes into which they grade. The character of the sand deposits on ocean beaches is dynamic in nature, responding to fluctuations in the forces which cause their deposition and erosion. Tidal action, littoral currents, and storms cause a continual movement of sand both along the beach and between the dunes and deeper ocean waters. The resultant changes in beach morphology cause the shoreline, theoretically demarking the confluence of land and water, to shift to the point of being virtually undefineable.

The ocean beaches are the most valuable natural recreational resource in Surf City, and are extensively utilized as such. Their dynamic nature, however, precludes safe and cost effective structural development on them without the use of sound engineering practices established for coastal hazard areas.

The foredunes in Surf City have an average elevation of about 20 ft msl. From the northern town limits south to Barnacle Bill's Pier the duneline is virtually solid, with only isolated spots broken or built upon. From the pier south to the vicinity of High Point Road, the duneline has been damaged and in some cases obliterated. From the High Point Road vicinity to about 3/4 of a mile south of the fork in NC 50 the duneline is again in good condition, its condition varying from good to damaged the rest of the distance south to the town line.

Sand dunes are valuable both for their aesthetic appeal and for the protection they afford the land behind them. Where stabilized by vegetation, a foredune can act as a temporary buffer to the erosive effects of storm wave action. For the most part, however, dunes are relatively unstable land features over time and as such, are hazardous areas for the location of permanent structures.

Excessive Erosion Areas

"Storm erosion of beaches and dunes of the North Carolina coast has always occurred, but it has not been a serious economic problem until recently when increased development of beach front property has taken place" (Knowles, et al. 1973). Knowledge of the patterns of coastal erosion is essential to the safe and productive development of a coastal region.

The continual erosion and acretion occurring along a beach result in a gradual change in the location of both the high water and dune lines

over time; excessive erosion and acretion, as accompany large storms, can affect a change in the location of these lines very rapidly. In the course of a large storm, great quantities of beach and dune sand can be eroded from a site and replaced by subsequent acretion, with no net erosion resulting. Structures situated on these sands, however, once removed, are seldom replaced intact. Planning for safe development of beach front property must take into account both long term erosion trends, established from historical records, and the probability of extensive shorter term erosion losses predictable by scientific study.

A comparison of mean annual erosion and acretion rates occurring along Surf City beaches between 1938 and 1972 reports relatively minor changes taking place annually in the dune and high water lines of the town. Over the 34 year period, the high water line in Surf City has been eroding at a rate of .1 ft per year and the dune line has accreted at the rate of .5 ft per year (Wahls 1973).

The amount of dune erosion that will take place during a storm of a given frequency depends on several factors, primarily the storm surge level, the height and massiveness of the dune, and the distance of the dune from the mean water line (Knowles et al. 1973). Along Surf City beaches, the calculated recession from the toe of the dune during a storm with an expected frequency of once in twenty-five years is approximately 112 feet (Knowles et al. 1973).

Erosion and acretion occur normally along the watercourses of estuarine marshland in Surf City, but generally to a much lesser degree than along its beaches. Erosion in the sound and along the Intracoastal Waterway

is often accelerated by the wake of motor boats; accretion in these waters is accelerated when sands and silts, carried by streams from the mainland, settle out in the calmer waters of the sounds. Costly bulkheading of sound front property and maintenance of navigation channels are often required for developments in these areas.

Resource Potential

Archeologic

Two types of archeological resources have been recognized on the North Carolina sea coast: remnants of earlier dwellers and sunken vessels offshore.

Remains of prior cultures may be on dry land; the most common are the shell mounds marking the scene of major fishing expeditions. There is always the possibility that people of the area during the pleistocene period occupied areas now beneath the sea. There has been no systematic inventory of such sites or indications of areas where there is a high probability of finding evidence of ancient settlement.

The second resource is the wrecks of vessels sunk naturally or by acts of war. Recent sub-surface exploratory work located a blockade runner, the Phantom, off New Topsail Inlet. No evidence of valuable wrecks is indicated in the uniform sea bottom off Surf City.[a]

Historic

Topsail Island was the scene of early rocket test facilities. The test range was constructed and operated by the military establishments. Work conducted from Camp Davis and the missile range on Topsail

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[a]George Feehney, Personal Communication, October 28, 1975.

Island was the forerunner of National Aeronautics and Space Administration's widely acclaimed achievements at Cape Canaveral.

Many of the key facilities were located in what is now Surf City -- the island terminus of the pontoon bridge to the mainland. The remaining evidence of the missile test range are an historic resource of state and national importance.

Community Facilities

Community facilities in Pender County are operated some on a county-wide basis, and some by individual communities and municipalities. Many of the facilities and services that are offered on a county-wide basis are operated out of the town of Burgaw, located centrally in Pender County. Road networks in the part of the county west of the Northeast Cape Fear River are integrated and distributed in such a manner as to make the delivery of services out of Burgaw efficient for that area. A "rule-of-thumb" is that all of this part of Pender County is within a 30 minutes drive of Burgaw. Surf City, however, located on the east coast of Pender County, is well beyond a 30 minute drive from Burgaw, being isolated from the bulk of the county by the vast Holly Shelter swamplands with their complete lack of throughroads. As a result, some of those services offered by the county, including the rescue squad and solid waste collection, do not serve the Town of Surf City. Other County services, such as the health clinics, hospital, and library, while available to Surf City, are little used by town residents. By virtue of U. S. 17's N-S orientation many services can be obtained more readily by Surf City's residents in Wilmington or Jacksonville.

Health Service

Health services in Pender County are maintained primarily by the Pender County Health Department, with headquarters in Burgaw. Health services include Pender Memorial Hospital and Pender County Health Clinics. However, most residents of Surf City, when in need of medical facilities, use those facilities in New Hanover or Onslow County. There are no doctors or dentists operating medical practices in Surf City.

Under the direction of a non-profit organization, the Penslow Foundation, a new health center complex is being planned for the coastal area of the County. The plans call for completion in 1976 of a health clinic in Holly Ridge to house three doctors offices, one dentist office, a pharmacist, waiting room, six treatment rooms, an X-ray room, and a laboratory. The clinic would be operated on a 24-hour basis to serve residents of the area from the Ocean west to Maple Hill and from Hampstead north to Verona in Onslow County.

The Town of Surf City operates its own rescue squad equipped with one ambulance and all volunteer personnel. Rescue squad vehicles presently take emergency patients to hospitals in either Wilmington or Jacksonville, but will in the future use emergency facilities of the Penslow Clinic.

Fire Protection

Surf City has a 25 member volunteer fire department, equipped with two trucks and one 750 gpm tanker. Fire calls from Surf City and throughout the county go to a central dispatcher in Burgaw who activates an alarm button to alert that fire department closest to the endangered area.

The Surf City Volunteer Fire Department has been given a fire protection insurance rating of 8 by the North Carolina Insurance Rating Bureau. A rating of 8 indicates that the department equipment is in excellent condition, personnel are adequately trained, and the water supply and fire hydrant systems are reliable.

Education

Pender County has a consolidated school system with 12 schools located throughout the County. Surf City resident school children attend grades K-3 at Topsail High School in Hampstead, 4-7 at Topsail Middle School in Annandale, and 8-12 at Topsail High School. Both of these schools are located on U. S. 17 and require an eleven to thirteen mile trip each way from Surf City. A county school bus system is available for all students grades K-12.

Solid Waste Disposal

There are at present two solid waste collection and disposal systems in operation in Pender County. The whole inland area of the county is provided with garbage pickup and disposal by a county system begun in February, 1973. There is one landfill for the area, located on SR 1640, 4 miles west of Burgaw. Garbage collection trucks, operated by the County, make collections at designated locations, with subsequent deliveries to the landfill.

The Topsail Township Landfill opened on July 7, 1975, to provide a waste disposal site for the Beach areas of the county. Garbage collection in Surf City is operated by the municipality; the landfill is operated by the county. Garbage is collected 4 times each week in Surf City. The collection equipment is small, consisting of one dump and one pickup truck,

as the town cannot afford a large compactor type truck. Personnel include 3 men. In the winter months when the population is low, few trips to the site west of the Surf City Bridge on N. C. 50 are needed each collection day. In summer, however, with the greatly increased tourist population, facilities and manpower are required to work long hours in order to keep up with the increased loads.

Water and Sewer

As of June, 1973, there were a total of nine public water systems in operation in Pender County; three of these systems are municipally owned, the remaining six serving mobile home parks (Wiggins-Rimer and Associates 1973). Of the three municipal systems, only two, in Burgaw and Surf City, actually have wells. The third, Topsail Beach, buys its water from Surf City, but operates its own distribution system.

The Surf City water system was established in May, 1968, with the financial assistance of the Federal Housing Administration. At the time of the new system's installation, there were waterlines running N-S along NC 50, and a storage tank located in the center of town, left from former military activities. The new system, wherever feasible, incorporated the existing lines and storage, adding new lines, drilling two new wells, and installing an underwater pipeline across the AIWW. The water system was designed to have an ultimate capacity of 2.5 mgd by the addition of up to four more wells.

The two existing wells are located on NC 50-210 just west (one, about 1/2 mile, the other, about 1 mile) of the AIWW; the wells have a combined rated capacity, based on State Board of Health criteria, of 516,000

gallons per 12 hour pumping day.[a] According to Mr. Benson, there are approximately 500 customers connected to the system in each of the two towns (Surf City and Topsail Beach), with a combined peak use of about 375,000 gallons per day in summer; peak use averages 140,000 gallons per day in Topsail Beach and 235,000 gallons per day in Surf City. The greater amount of commercial activity in Surf City, including trailer parks, motels, and restaurants probably accounts for the Town's larger water consumption per customer.

Waterlines in Surf City are located along the three N-S streets with additional lines on major E-W streets. Anywhere in the developed part of town, connection to the water system is economically feasible, and few private wells remain in use. In the southern maritime forest area of town, where there are no major E-W streets, a single N-S waterline runs along NC 50. Future development in the maritime forest may require more extensive line installation, which should be planned so as to destroy as little of the forest resource as possible.

In 1973, approximately 93% of the population of Pender County was served by private waste water disposal systems, most of which serve individual single-family residences and rely on subsurface disposal methods. The problems with waste water disposal in Surf City are widespread, and relate to three major characteristics of the area: a high water table, poor soil conditions in some areas, and a population density which cannot support public waste water collection and disposal systems.

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[a]Robbie Benson, Henry von Oesen and Associates, Personal Communication.

In Surf City, the development on small lots has created overcrowded conditions for the septic tanks in use. The Town of Surf City, in cooperation with Topsail Beach and Onslow County, is presently sponsoring a 201 Plan to determine the feasibility of developing a waste water treatment facility to serve all of Topsail Island.

Because of limited data, no other types of area with resource potential, fragile or hazard areas, or other physical constraints on development have been identified at this time.

In general, land uses now present in Surf City have not resulted in problems of compatability; residential/recreational land use is supported by commercial and institutional facilities. There are no agricultural, industrial or forestry activities in conflict with the above uses nor are any foreseen in the near future. Rather, land use problems beginning to surface in the town and likely to be augmented in the future involve more the intensity of various uses and the accommodation of future growth on the limited amount of developable land in the town.

SECTION II

ISSUES, OBJECTIVES, AND STANDARDS

MAJOR ISSUES AND GENERAL ALTERNATIVES

Since 1963, the Surf City summer population has increased by 160 percent; the year-round population increased by 339 percent between 1970 and 1975. Land prices have escalated accordingly. Ocean front lots that in the early 1950's sold for $1,500 are now asking $15,000.[a]

As vacation homes have increased in number, so have commercial support facilities such as restaurants, motels and shopping areas. Throughout the town and adjacent jurisdictions, single-family detached dwellings abound, each utilizing sub-surface sewage disposal methods in soils with moderate to severe limitations for septic tanks. The closing of Virginia and Bekkie Creek shellfish waters to harvesting, traffic congestion, and more crowded living conditions have already resulted, threatening the quality of those resources on which the town is based. Yet the demand for living space, water, and services continues to rise.

Responses to a questionnaire sent to all property owners (see Appendix A) indicate that the open space and abundant natural recreation resources of Surf City, providing a variety of outdoor activities, are the primary atractions of the Town for both permanent and vacationing populations. The quality of the beaches and waterways and their high recreation value warrants the high price of beach area land. Existing employment opportunities, public services, indoor entertainment, and cultural and shopping facilities of the area do not offer sufficient incentive for either permanent location or vacationing in the Town.

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[a] Mr. Alva Ward, Personal Interview, October 21, 1975.

There is some division in Surf City as to whether future growth in the Town should occur slowly or rapidly. Tabulations of the questionnaire show that 45 percent of those responding desire slow growth of the tourist trade and seasonal residents in the future, 42 percent want rapid growth. There were 66 responses to the questionnnaire received from permanent residents and 113 from absentee property owners; 60 percent of the permanent residents opted for rapid growth, 57 percent of the absentee owners for slow growth. The majority of permanent residents, many of whose livelihoods depend upon the tourist trade, could benefit financially from increased commercial activity in the Town, including an increase in shopping areas open year-round. Many absentee property owners, as well as some permanent residents, see rapid growth as a threat to the uncrowded living conditions and clean air and water that drew them to the town in the first place. Both resident and non-resident property owners agreed that the main problem in the Town at present is unsightly development; over 80 percent of both segments stated that future growth of commercial activity in the town should be regulated. The lack of shopping areas, septic tank problems, poor construction, and lack of beach access were cited as the next four major problems. (Tabulated results of the questionnaire survey are shown in Appendix A.)

Past Development Activities

The demand for land, particularly ocean and sound waterfront land, continues to increase, but the supply remains constant. The development industry of Surf City has responded to the increases in demand over

the years by increasing the intensity to which the existing land is used. Most land use problems that have occurred in Surf City such as the closing of shellfish waters to harvesting, extensive hurricane damage, and the degradation of the scenic value of the land are the direct result of attempts to develop the existing land surface beyond its inherent capacity for that development. Development does not cause hurricanes, pollution, erosion or siltation; but inappropriate development activities can accelerate the damage caused by these natural phenomena and create new problems such as overcrowding and the general degradation of the natural resources on which the town is based.

The highest demand in beach areas (therefore the highest dollar value) has long been placed on the oceanfront acreage. The post WWII increase in affluence, mobility, and second home building in this country had already begun when private development of Surf City was initiated; as a result, developed oceanfront acreage in Surf City has always been relatively expensive. In order to offer for sale to the general public, the limited amount of land, the narrow oceanfront lots were developed (generally 25 ft to 50 ft wide).

The military-built road extending the length of the island was included in the North Carolina road system by N. C. Department of Transportation (NCDOT) as NC 50, and became the Town's main thoroughfare. The proximity to the duneline of NC 50 and Shore Drive in most cases dictates the depth of lots and, to a certain extent, the location of houses on those lots. The esthetic and protective nature of the foredune were often disregarded. In some cases the dunes were considered an obstacle

to land use; some areas of dunes were obliterated to make way for a building while other dune areas were simply stripped of natural vegetation to accommodate construction. In most cases, the foredunes were left intact by the elevating of houses over the dune and storm wave attacks.

Storm and Erosion Protection

In October 1954, Hurricane Hazel hit Topsail Island causing severe damage to the existing buildings and destroying the pontoon bridge to the mainland. Hazel produced a high tide of 9.6 feet above mean sea level (msl), inundating virtually the whole island, whose average elevation is 8 ft msl. The storm removed 850,000 cubic yards of sand from the beaches of Topsail Beach and Surf City, depositing much of it in the central part of the island (U. S. Army Corps of Engineers 1965). Many of the demolished buildings were rebuilt after the storm and a new bridge was constructed; emergency crews returned much of the deposited sand to the beach but the net elevation of the beach was lowered by two feet causing future storm waves to break even closer to the remaining and new structures. The Surf City area has not received severe hurricane damage since "Donna" in 1960; historical records of hurricane occurrence, however, indicate a high probability of hurricane recurrence in the near future.

There are risks inherent in the ownership of beach property due to weather patterns and the changeable nature of the environment. Some degree of shoreline erosion must be expected to occur over time, new inlets open where once there was solid land, and the high winds and waves of hurricanes cannot be avoided. But to a certain extent, damages from

these forces can be reduced by the proper design and location of roads and structures and by care taken to avoid the destruction of natural protective features.

To be successful, storm and erosion protection measures must be practiced throughout a hazard area, as one man's efforts to protect his property can be thwarted by the negligence of neighbors. The elevation of buildings on pilings to a level above the level of breaking waves can prevent storm wave damage; but the erosion of sands on which the building is situated can cause the collapse of a structurally sound building that is located too close to the moving water. Homes can be situated sufficiently far inland to be safe from actual wave and erosion damage, but may remain susceptible to the battering-ram action of flying debris from the breaking up of other structures not so well situated. A gap in the duneline on one lot can initiate flood and erosion damage on adjacent lots.

The health and safety of human life, the protection of property, and the preservation of those natural resources which make beach areas both attractive and economically productive must be primary matters of local public policy. To be appropriate, development of beach areas must consider not only the immediate return on the private investment dollar, but also, the long range impact on community resources, values, and welfare.

Visual Quality of Development

Responses to the questionnaire indicate that the people of Surf City consider unsightly development to be the major problem in the town. Former military activities left the town with an assortment of

buildings in a variety of sizes and shapes, all designed to meet military specifications of visual quality; many of these structures have since been adapted for private commercial or residential use.

Over the last twenty-five years, a variety of real-estate firms has been involved with the subdivision of land and the platting of lots in Surf City; only rarely did the development process include the design of structures. Individual buildings were erected to meet individual tastes and needs with little regard for uniformity of style or quality. The extreme variation in building density is accentuated by the grid road pattern, with squared-off empty blocks adjacent to full ones. In the dunelands of the town there is little natural topographic or vegetative relief to limit visibility; that which is unsightly is unsightly for some distance.

The southern end of Surf City is graced with a narrow but lush band of maritime forest beginning just west of NC 50. The forest canopy begins at ground level as a shrub zone, and curves gently upward assuming the form of a large dune. Much of the forest land is developed only on its periphery as a single row of houses along NC 50. Most dwellings located deeper in the woods are secluded single family detached homes, placed on large lots with only minimal damage done to the forest. In isolated instances, bulldozers were used to scalp lots prior to construction. But for the most part, the integrity of the forest has so far been maintained and large parcels with tremendous potential for high quality development remain.

At present, many undeveloped single lots in the woods are for sale, and the risk of the forests being carved into individual homesites

is high. In some areas, restrictive covenants limit the haphazard use of bulldozers for clearing vegetation, but a grid pattern of driveways and streets could well result from the sale of single rectangular lots.

The special scenic value of the maritime forest calls for an alternative development approach that minimizes clearing and leaves a maximum amount of solid forest stands. The clustering of housing in the area, with common driveways and parking facilities, could result in a sufficiently high gross density of families to be profitable to the developer, while retaining the integrity of the land for the mutual benfit of property owners and townspeople.

In the grass covered dunelands in the center of town, the percentage of land actually occupied by buildings is relatively low; many platted blocks between Charlotte Avenue and the fork of NC 50 are virtually undeveloped.

In the northern part of town, starting near New Bern Avenue, structural density is extremely high with at least as many as 35-40 trailers per acre. Some owners, rather than subdividing and selling individual lots, rent trailer spaces. Septic tanks are the sole method of sewage disposal in the town despite the severe limitations for septic tanks characteristic of the Capers-Newhan soils. Some trailer parks are situated immediately adjacent to estuarine surface waters at elevations everywhere less than 10 ft msl. Some of the estuarine waters in the vicinity, including Bishop, Virginia and Bekkie Creeks, were closed to shellfish harvesting by the Division of Shellfish Sanitation in January 1974. The concern of local residents over the degradation of their environment and the potential threat to human health prompted the U. S. Environmental

Protection Agency, and the NC division of Planning and Evaluation and Water Quality to undertake a study to determine the source of the area's pollution.

Providing Community Facilities and Services

Surf City has been developed as an ocean resort; resort communities have the particularly troublesome problem of meeting with a small permanent population the needs of a population that is seasonally four or five times as large. Much of the year-round population relies upon the spending of the seasonal (vacation) population for its livelihood; conversely, the seasonal population relies upon the year-round population to provide the commercial services it demands, such as shopping, dining, and lodging, and to operate public services, such as police and fire protection. The unevenness of the population throughout the year limits expansion of commercial facilities (causing questionnaire respondents to select lack of shopping areas as a problem) and is a major problem for providing community facilities and services. Facilities and personnel sized to meet the demand of seasonal residents and visitors exceed by far what is necessary to meet off-season demand. Specific issues are:

(1) Central Water Supply. The public water system in Surf City was designed to be expandable to meet increasing demand. The two existing wells with a combined rated capacity of .516 mgd (with pumps operating only 12 hours per day) are adequate to serve the present demands of Surf City and Topsail Beach, or an average of about .375 mgd in summer.[a]

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[a]The Town of Topsail Beach presently buys water from Surf City.

As explained in the description of present public facilities, the average per capita use of the public water system is 47 gallons per day in Topsail Beach and 100 gallons per day in Surf City. The projected combined peak population of the two Towns in 1985 is nearly 17,500.

Assuming the per capita quantity of water use in the future to be the same as at present and that all units will be connected to the public water system, at least 1.5 mgd will be required to supply peak population demands in 1985. The capacity (2.5 mgd) of the waterline connecting the mainland well field with the island would remain adequate. If the existing wells were pumped on a 24 hour per day basis, they could produce 1.032 mgd. Additional wells will be required in the near future if Surf City is to continue supplying water to meet both Surf City and Topsail Beach needs. Secondary issues are: (1) whether the Surf City system should become a regional system to meet island-wide demand or be limited to Surf City thus forcing Topsail Beach and Onslow County to independently seek and distribute water supplies and (2) insuring that all dwelling units and businesses in Surf City are connected to the central system.

(2) Sewage Collection and Treatment. The soils of the area cannot accommodate the quantity of sewage that is produced by residential densities as high as thirty units per acre. As noted earlier, the possibility that current volumes of effluent discharged through individual septic systems have saturated the permeable soil mantle and is moving laterally into Class SA estuarine waters is under active study by state and federal agencies. Even if the results of the study do not conclusively show that present septic systems pose a clear threat to water quality standards, new N. C. Department of Human Resources regulations governing

new septic systems will preclude new construction in much of Surf City. The basic issue is the choice between continued reliance upon individual systems or installations of a municipal sewer system. Required connection to the sewer lines would not only allow for high density population in the future, but would relieve problems caused by presently malfunctioning sewage systems. The natural biological activities and filatration capacity of the soils and estuarine waters can be expected to eliminate the existing pollution in surface and ground waters over a period of years if the sources of those pollutants are eliminated or reduced to tolerable levels. If the issue is resolved by choice of a sewer system, the concommitant water system issue will remain: separate systems for each jurisdiction or a regional system.

(3) Police requirements. The cost of the Surf City Police Department accounted for 26 percent of the 1974-75 Town budget. Yet the size of the force is not commensurate with the summer population, traffic flow, and the special attitudes and mores of people when they are away from home. Vacant houses and closed-up businesses must be patrolled during the off-season. The issues are (a) determining the level of protection required, (b) the level of year-round/seasonal population that will dictate a major expansion in police service demand, and (c) whether Surf City should maintain an independent department, or rely upon county provided service.

(4) Fire protection. Fire equipment is now housed in a single, central fire station. Equipment and personnel are adequate for present conditions, but increased population and visitation may impose stresses on the system. The issues are (a) finding ways to maintain

personnel in the station to accelerate responses to alarms and (b) whether specialized equipment will be needed if structures suitable for accommodating higher population densities are constructed.

(5) Solid waste requirements. Pender County government recognized the need for more intensive solid waste disposal service by opening and operating a sanitary landfill to serve the area of the County between the ocean and U. S. 17. Two issues are emerging: (a) Land that will meet specifications for a sanitary landfill anywhere in the strip between U. S. 17 and the AIWW is scarce and in high demand for development. Disposal of solid wastes will become a serious problem if the existing landfill should prove to be inadequate for future needs and (b) equipment to collect wastes from urban density summer populations is too expensive to remain idle for the majority of the year.

(6) Beach and dune maintenance. The issue of beach maintenance is closely related to the issue of access to Public Trust Areas. Eleven questionnaire respondents listed beach litter as a main problem. Other related problems are: (a) provision of lifeguard service and the relationship of such service to the Surf City Rescue Squad; (b) control of motor vehicles on the strand and crossing the dune line (the Town now prohibits vehicular use of the beach between May 1 and Labor Day); and (c) construction and maintenance of structural access across the dunes, enforcement of state dune protection ordinances and prohibitions against removal of natural vegetation, and correction of gaps in the dune line.

(7) Recreation facilities and programs. There are presently no public recreation facilities or programs in Surf City. The increasing of seasonal population and day visitors, consisting largely of

family units with children, will require increasingly diverse recreation activities. Open water for motorboating and water skiing and land for tennis courts and game fields will be desired as year-round and seasonal populations increase and become more sophisticated. Diverse year-round recreation services will also become necessary as the number of retired people increases. This has been true in all communities that have attracted sizeable numbers of retirees. The issues involved are (a) determining priorities for recreation facilities to be developed, (b) acquiring suitable land for recreation areas and (c) scaling the size of facilities for year-round or seasonal populations.

(8) Traffic. Surf City is the main point of entry to Topsail Island. All traffic to and from the Town of Topsail Beach must pass through Surf City, as must traffic from the south going to the Onslow County portion of the island. Through traffic is confined to NC 50 and 210 which also serve as the paved thoroughfares for all local traffic. Four issues present themselves: (a) Separation of local traffic from through traffic; (b) increasing the capacity of the through roads; (c) alleviating the bottleneck caused by the frequent opening of the bridge over the AIWW; and (d) facilitating the use of bicycles and other off-road vehicles.

(9) Utilities. Electric service is provided by the Jones-Onslow Electric Membership Corporation and telephone service is provided by Carolina Telephone and Telegraph Company. The lines are aerial. As structures are added, the number of poles, all very visible on a barrier island, will increase apace, and detract further from the present visual amenities of Surf City.

Financing Service Facilities

The major issue in financing the services enumerated is determining an equitable distribution of the costs. The participants are developers and commercial interests in the Town, visitors to the Town, and taxpayers of Surf City, Pender County, North Carolina and the Nation.

A principle of equity is that beneficiaries should pay a proportion of costs equal to the proportion of benefits received. Unswerving application of that principle poses problems and implications for public policy.

For instance:

(1) In resort communities such as Surf City, the vacationing population comes from various parts of the state and country and enjoys the use of beaches and waterways with no "admission fee" charged by the Town. The commercial activity created by vacationers directly benefits the Town financially, but does not provide adequate revenue to support major service facilities such as sewage treatment plants and public water supplies. The local estuarine waters and marshes are a valuable resource of the Town, supporting sport fishing and boating activities; but they are also of value to the nation, contributing to commercial fishing activities and resultant food supplies. The responsibility for the health of vacationing populations (as well as year round residents) and for the preservation of the productivity of estuaries must be shared by local, state and federal governments.

(2) The State of North Carolina's Public Trust policy supports

the public's right to use the State's beaches and waterways, and requires the provision of public access to Public Trust Areas. It may be the responsibility of developers to provide access for the residents of subdivisions, and the responsibility of the town to assure access for the townspeople; but the state must assume some degree of responsibility for the provision of access to the general public, if the state requires the provision of that access. Public use of beaches and waterways necessitates public sanitation facilities and parking areas. For vacationers using the lodging and dining facilities of the town, sanitation facilities and parking areas can be required of the commercial establishments. But the responsibility for "day-visitors", with the right to use the town's resources, is again a public responsibility, to be shared by State and Town government.

(3) There is concern on the part of resident and non-resident taxpayers alike that the visual quality of the Town be improved and that future development and the use of resources be carefully planned. But plans must be implemented, just as codes and ordinances must be enforced, and professionally trained personnel are required to do either job well. The establishment of a municipal body charged with coordination and implementation of future planning, permit issuance, and ordinance provision would help to insure adherence to the standards for future development that have been set by the taxpayers, but the benefits of such action extend far beyond the limits of the Town. The list of examples could cover each of the public facility issues. The fundamental issue is: Who pays.

OBJECTIVES AND STANDARDS FOR SURF CITY

The Coastal Area Management Act of 1974 requires local jurisdictions who choose to formulate land use plans under the Act to base those plans on publicly derived goals for future development.

The Town of Surf City mailed questionnaires to all taxpayers of the Town to ascertain their views on future development goals and standards. On July 29, a public meeting, sponsored jointly by Onslow County and the Towns of Surf City and Topsail Beach was held on Topsail Island. In this meeting, development alternatives for each jurisdiction, with the projected population expected to accompany each alternative, were submitted to the people in attendance. In a Planning Board-Advisory Council meeting held in Surf City on September 16, the tabulated results of the returned questionnaires were discussed in conjunction with the development alternatives. In its meeting on January 12, 1976, the Surf City Town Board and interested citizens reviewed the citizen questionnaire responses and comments received from the floor in public meetings. These activities have resulted in the following statement of Objectives and Standards for Surf City.

Objective: It is to be the policy of Surf City to encourage continued development of the Town as a family beach.

Standards:

1. Community services, including facilities for water supply and sewage treatment, road construction and maintenance, and police and fire protection will be planned for a peak summer population in 1985 of 6,570 and a year-round population of 960.

2. The development of a variety of commercial recreation and shopping facilities will be encouraged in the business district and along the causeway in order both to meet the demands of vacationing and permanent populations and to increase employment opportunities for permanent residents.

3. The construction of a variety of housing types limited to 3 stories from ground level (including single family, duplex, apartment, motel and condominium) will be encouraged, in order to accommodate residents and vacationers with differing economic resources and needs.

4. In order to meet the demand for increased shopping and recreational areas, the Town will consider annexation of land needed between the AIWW and US 17.

5. The Town will approve the establishment of a Chamber of Commerce to promote the Town as an enjoyable recreation center.

Objective: It will be the policy of Surf City to promote that quality of development which will offer the maximum reasonable enhancement of the natural and economic resources of the Town.

Standards: 1. The Town will require strict adherence to the zoning ordinance, the minimum standards of the State building code (with wind-storm) and will establish ordinances necessary to protect the esthetic and protective nature of the dune system.

2. In order to alleviate any possible pollution of estuarine or ground-waters, the Town will promote the development of a

regional public sewerage system and will require connection to the system upon its establishment.

3. In order to maximize the value of the maritime forest, special land use regulations such as a Planned Unit Development ordinance will be enacted for the forested parts of the Town.
4. The Town will seek assistance in defining the historic value of observation towers left from military activities and in developing one tower into an historic museum.
5. In order to alleviate traffic congestion and hazards, the N. C. Department of Transportation and the Corps of Engineers will be requested to establish regular intervals for opening the drawbridge.
6. Parking areas will be established along cross-island street rights-of-way and parking will be prohibited along NC 50.

Objective: It will be the policy of Surf City to promote the safe and enjoyable utilization of the Town's recreational resources.

Standards:

1. The Town favors establishment of a balanced recreational program for residents and vacationers. In order to promote recreational use of its waterways, the Town will seek development of boat launching ramps and a marina along the causeway. Other recreation needs will be met as feasible by developing a municipal park complex and an active recreation service program.
2. The use of motorized vehicles on the beach strand will be regulated by ordinance; the crossing of dunes by motor vehicles will be restricted to a specially constructed ramp.
3. Efforts will be made in road alignment and construction

to accommodate safe bicycle and pedestrian traffic particularly in the vicinity of recreation facilities.

4. The Town will make efforts to reduce the incidence of beach litter and will establish a beach clean-up program.

5. It will be a function of the Town to ensure that reasonable access to the ocean and sound waters of the Town be available to the public. The developers of new subdivisions will provide rights-of-way and adequate structural access to adjacent watercourses. Such structures and rights-of-way when acceptable to the Town, will thereafter be maintained by the Town, and designated as public accessways by appropriate signs. When the number of accessways becomes adequate to serve the public, public access will be restricted to those designated areas.

SECTION III

AREAS OF ENVIRONMENTAL CONCERN

INTRODUCTION

Section I of the Land Use Plan describes physical characteristics of the land and water in Surf City and specific areas of the Town in which many kinds of development would be either especially costly or likely to cause undesirable consequences. Some of these characteristics, such as the soils' high water table, susceptibility to flooding and low bearing strength, constrain development primarily because of the high costs involved in adapting the land for use. In many parts of the Town, intensive development, as for urban, transportation or recreational use, would not necessarily endanger the inherent value of the resource, but would require excessive public or private expenditures for construction, maintaining access, disposing of waste products, or assuring adequate drainage.

In some parts of the Town, however, the undesirable consequences that could result from uncontrolled or inappropriate development are not limited to monetary costs. In particularly valuable or fragile areas, misuse of the land or water can cause degradation of a site's biological, visual, or economic resource value. In particularly hazardous areas, poorly located, designed or constructed development can increase the risk of property loss or endanger the health and safety of people using it.

The Surf City Objectives and Standards cite the land use policies which will be used to guide the location and quality of development in the future in order to protect and manage the Town's resources and reduce service costs to municipal government. Private citizens are encouraged to solicit the professional advice offered by county, state, and federal land management agencies on methods of reducing private costs of land use. But for the particularly fragile and hazardous areas of the Town, stricter

control of land use activities is necessary in order to assure that development proceeds in a manner consistent with the capability of the land and water to sustain it. In these areas, designated Areas of Environmental Concern, the Town is establishing specific standards for use and development of each area category.

Ultimately, as required by the 1974 N. C. Coastal Area Management Act, the N. C. Coastal Resources Commission (CRC) will designate Areas of Environmental Concern throughout the coastal counties and will designate a permit letting authority to regulate land use within these areas. The following categories and standards are to serve both as guidelines for Town Plan implementation and as recommendations to the CRC for consideration as State Areas of Environmental Concern.

The Estuarine System

The estuarine waters, marshes and mudflats, as defined by G. S. 113-229 and G. S. 113-230, are of primary importance to the Town and the North Carolina coastal area because of their economic, scenic and recreational resource value. The tidal marshes and surrounding estuarine waters cover extensive areas of the municipal jurisdiction; serving as a primary food source for numerous fish and shellfish species, they contribute tremendously to the biological productivity of the area. As a scenic resource, the marshes are unsurpassed, supporting a diversity of waterfowl and subtle vegetation patterns characteristic of the coastal area. The waterways function as transportation corridors for commercial and sport boating activities and provide for hunting and fishing of a variety of wildlife.

The authority for regulating the use and modification of the estuarine resources has for a number of years rested with state and federal

permit letting agencies. But until recently, the degree of regulation exercised was slight and the criteria for permit letting did not include consideration of the ecological balance of the estuarine system. Approvals for marshland dredging and filling were often as not a mere formality and sometimes granted after the fact. The increasing awareness of the damage caused by these activities, however, has resulted in much stricter review now of permit applications.

The people of Pender County recognize the importance of the estuarine system and accept the regulation of its use and development as a necessity. Many in the immediate coastal area, however, are now being denied permits to maintain existing access canals. Because of siltation in both natural and artificial channels, access from the island out into the AIWW is severely limited; thus the use of some of the recreational resources people moved to the area to enjoy is impaired. For this reason, the Town will work with state and federal authorities in managing and, where necessary, preserving the natural state of the estuarine system, but will seek to have established and maintained sufficient public navigational channels to allow reasonable use and enjoyment of its water resources.

The only kinds of new development that can conceivably be justified in the estuary are those that require water access and cannot function anywhere else. Piers, docks and marinas, for instance, connecting water-oriented with upland activities, may be considered appropriate if their need in the area can be demonstrated and their specific location and design can be shown to be the most suitable alternative. The Town recognizes, however, that while a pier or dock itself does not necessarily cause degradation of the productivity of the estuary, the activities involved in

constructing it may. For that reason, the highest reasonable standards of construction will be required for any construction in the area.

Beach-Foredune System

The Atlantic shoreline of Surf City is characterized by wide and sandy beaches, backed by a moderately high foredune. The beaches are the primary attraction of the outer banks for the residents and thousands vacationers who visit in the summer. The foredunes are a valuable scenic attraction and a buffer to the erosive effects of storm-induced wind and waves. The dynamic nature of the beach-foredune complex, however, precludes safe structural development on it since that development and the construction activities involved endanger both the scenic and protective value of the resource and the roads and building situated inland.

Because, however, of the recreational use of the beaches and the necessity for adequate access to them, allowances will be made for the provision of structural accessways across the dune provided that utmost care is exercised in their location and construction to prevent damage to the dune and the vegetation growing on it. Allowances will also be made for the erection of safety facilities such as lifeguard chairs, and for necessarily water-oriented recreational structures such as fishing piers.

Hazard Areas

The estuarine system, ocean beaches and sand dunes, though inseparable from the rest of the Town, have been addressed separately because of their particularly fragile nature and high resource value. But the municipal jurisdiction as a whole is an area of environmental concern because of the importance of protecting the health, safety and rights of the people who live, visit and own property there.

The North Carolina outer banks, as a marketable piece of real estate, is the most valuable area of the coast, sought after for second homes, residences and vacation sites, and for business enterprises to support these uses. But the outer banks as a geologic feature is a dynamic, perhaps transient, land form. The same forces of wind, water and time which caused the creation of the banks' various features constantly modify these features both in location and extent. Problems are encountered when the man-made structures developed to accommodate their use and enjoyment are built to be static and permanent despite their location in an ever-changing environment.

Excessive Erosion Areas

The only realistic compromise between expensive, fruitless combat with the forces of nature and complete surrender to their supremacy is development of only the more stable parts of the whole in a manner which those parts can accommodate. For that reason, any new development in the particularly hazardous area of the Town will be strongly discouraged and, unless demonstrated to be directly in the public interest, will not be supported by public funds. In particular, oceanfront property with a high probability of incurring excessive erosion is an unsuitable location for the placement of structures used for housing, institutional purposes, transportation or commerce, and is considered of too high a risk to warrant public investments into roads, sewer and water lines and other such facilities.

Because of limited data and some inconsistencies in available data, the inland extent of areas subject to excessive erosion in Surf

City is unknown. For that reason, only a dynamic zone (referred to on AEC map as Ocean Erodible) can be established at this time to warn prospective buyers of oceanfront property of its hazardous location. All construction in this dynamic zone will be required to meet at least the minimum standards of the North Carolina Building Code and conform to the standards of the Federal Insurance Administration for coastal high hazard areas.

Coastal Flood Plains

Virtually all of the county's outer banks and some of the adjacent mainland are within a U. S. G. S. designated Flood Prone Area, susceptible to inundation during severe storms. However, in order to reduce both flood insurance, all construction in coastal flood prone areas will be required to meet the Federal Insurance Administration standards for coastal high hazard areas.

Public Trust Areas

Surf City supports the traditional public rights of access to and use of lands and waters designated Public Trust Areas for purposes including navigation, fishing and recreation. The Town both supports and encourages the development of commercial recreation facilities, especially those that promote the use and enjoyment of its waterways. But to the degree authorized by statute, the Town will require some provision for public access in new subdivisions in Public Trust Areas and will prohibit any development which unduly restricts public access to and use of these areas.

It is obvious from the outset that protection of Areas of Environmental Concern in the Town cannot be accomplished without some consideration of land uses in areas immediately adjacent. The estuarine system along the Surf City coast, for instance, is only part of the system

extending northward into Onslow County and southward into Topsail Beach. Surf City's regulatory authority to prevent pollution and siltation can be extended only throughout its political jurisdiction. Circulation patterns in the water that transports silt and pollution, however, function without regard to political boundaries.

Plate 2 delineates the approximate location of various categories of municipally designated Areas of Environmental Concern. It must be emphasized, however, that these delineations are not sufficient for most regulatory purposes because of the necessarily small map scale and because, in most cases, on-site evaluations will be necessary in order to determine the precise boundary of a particular category of land or water. But the Town encourages anyone involved in or contemplating a change in land use in the Town to use this map as a guideline for interpreting municipal and state policy and for predicting the possible effect of public policy on particular parcels of land.

SECTION IV

FUTURE LAND USE

THE DEMAND FOR LAND

The 1975 Surf City peak seasonal population was estimated to be 5,424; the year-round population was 729. The growth goal for the future calls for an ultimate peak population of 7,700 in 2000 with 1,200 permanent residents. The peak population expected to be reached in 1985 is 6,570 with 960 permanent residents.

Factors Influencing Growth

Projections for continued growth in Surf City over the next 25 years are based heavily on the rate of growth the town has incurred over the last 20 years. That growth, especially of seasonal population, resulted at least partially from nationwide affluence and increased disposable income. The long-term effects the current economic recession and the rising price of gasoline will have on the town's future development cannot be predicted at this time. An island-wide Chamber of Commerce has been established to attract tourists to the area; but it can be assumed that the general economic slowdown will at least temporarily continue to affect second home building and tourism in Surf City.

Surf City is not located in close enough proximity (by existing road mileage) to metropolitan growth centers to be strongly susceptible to suburban spillover in the near future; but the island's northern bridge in Onslow County links Surf City, if only loosely, with growth in the Jacksonville area. What is more, Pender County has initiated an economic development program which could promote more permanent residential development in the town if employment centers were developed nearby. The completion of the Penslow Health Clinic in Holly Ridge could encourage permanent location of more families and retired persons.

The primary limiting factor for continued growth in Surf City relates to the availability of sewage disposal facilities. The soils of the island have severe limitations for septic tanks which are currently the only method of sewage disposal utilized in the town. Shellfish waters adjacent to high density development in Surf City have been closed to harvesting, and ground water supplies in the area are contaminated from subsurface wastewater disposal systems' malfunctioning in supersaturated soils. Some of the problems can be attributed to sources of pollution outside Surf City, and there are parts of the town either undeveloped or developed at such low densities that they are not considered sources of pollution at this time.

Some of the major pollution problems occur where marshland was filled to accommodate residential development; the compaction of underlying soils created a layer of soil virtually impervious to the downward flow of water, including septic tank effluent. With downward flow impeded, effluent flowed laterally, draining almost directly into estuarine waters.

The major pollution problems are located in or adjacent to the most densely developed parts of the island, which are also the parts of the island furthest from an inlet. An inlet's strong water circulation patterns tend to diffuse contaminants and promote faster biological reduction; toward the center of the island, water circulation is reduced, allowing contaminants to build up beyond the water's inherent ability to reduce them.

With the above factors taken into account, it is conceivable, if not probable, that if the existing population of the area were distributed more sparsely on soils more suited for development using properly

installed and maintained septic tanks, the current pollution problems could have been avoided. The year-round population of the town (as well as the rest of the island) is low; peak seasonal use of the area is short. For these reasons, it is also possible that some additional growth held to sufficiently low densities in parts of the town could safely be accommodated with properly installed and maintained septic tanks.

The total amount of residential and commercial land use which could be distributed throughout Surf City and safely accommodated by septic tanks cannot realistically be determined at this time. In some parts of the town development already exceeds the capacity of the land and water resources to support it; remedies for the pollution in these areas have yet to be found. It can be assumed, however, that some of the anticipated growth could be accommodated in other parts of the town without causing further degradation of the quality of ground or surface waters, or extending the pollution beyond its present location. For these reasons, any increase in population in some parts of the town may temporarily have to be curtailed; in the rest of the town the density of development will have to be strictly controlled. Eventually, however, failure to find means to install an adequate sewerage system could not only delay but perhaps prohibit the rest of the growth which has been projected.

Accommodating Future Growth

Residential Land

The projected population increase by 1985 consists of both permanent residents and vacationers. There are currently (1975) 16 motels in the town with a total of 208 units. Housing is in the form of single family detached dwellings (50 percent), multifamily structures such as apartments

and duplexes (12 percent), and mobile homes (38 percent). In order to accommodate residents and vacationers with differing financial resources and needs, construction of a larger variety of housing types including condominiums will be encouraged. However, in order to remain within the capacity of firefighting equipment and to prevent one structure's blocking the view of another, the height of buildings will be limited to three stories from the ground level.

Approximately 86 percent of the 1975 peak summer population was housed in the (1113) non-motel units. Assuming that that percentage will remain constant in the future, there should be a demand for enough housing to accommodate approximately 5,650 people in 1985. At an average occupancy rate of 4.2 persons per unit, approximately 235 new housing units would be required.

There are 355 acres of developable land in the town zoned for residential use; of these 355 acres, approximately 230 are now actually in residential or other use, i.e., have structures on them. There are, therefore, approximately 125 acres of residential land in the town available for future development.

There are numerous lots which have not yet been built upon in existing residential subdivisions; but neither the total number of these lots remaining nor the number of them that have already been sold to prospective homebuilders is known. It can be assumed that the Zoning Ordinance's minimum lot size requirement[a] would allow for many of the additional residential

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[a]Minimum lot sizes vary from 800 ft^2/dwelling unit for 12 family structures to 5000 ft^2/dwelling unit for single family structures depending on the residential district; there are no minimum lot sizes for mobile homes in mobile home parks.

units to be constructed within existing subdivisions; but no reliable estimate of the number of units that could be constructed in any particular subdivision has been made at this time, since some subdivisions have deed restrictions attached to them with minimum lot size requirements which exceed those of the Zoning Ordinance.

The largest parcels of undeveloped residential land in Surf City are located in the maritime forest. The future development of the forestland is of particular concern to the townspeople because of the forest's special scenic value and its potential for high quality development. The town's zoning regulations were established partially for the purpose of regulating density so as to prevent the overcrowding of land and to facilitate adequate provision of public services. The traditional forms of regulation, though potentially effective means for limiting density and assuring that certain standards of quality are met, allow little flexibility in the design of subdivisions and tend to promote grid road patterns. For this reason, the town will attempt to amend its zoning and enact subdivision regulations to allow for Planned Unit Development (PUD)[a] in undeveloped parts of town. Overall density under PUD or other subdivision regulations will probably be lower than is now provided for in the zoning regulations; but the clustering of housing, more creative road alignment, common open spaces and the like will be encouraged in order to retain the maximum value of the forest and dune lands. The allowance of clustered housing in the future could also facilitate more economic installation of "package" sewage disposal systems, should such systems become necessary.

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[a]PUD is a method of controlling land use that is designed to work on a project by project basis, adjusting rigid regulations to the needs of a proposed development when such adjustment would be in the mutual interest of the town and developer.

Commercial and Public Institutional Land

While the existing motel units represent 16 percent of the total number of residential units, they accommodate, on the average, only 14 percent of the peak summer population. Assuming that that percentage too, will remain constant in the future, there should be a demand in 1985 for enough motel units to accommodate 920 people. At an average occupancy rate of 3.6 persons per unit, approximately 48 new motel units will be required.

It has not been determined at this time how much of the 181 acres (34 percent of the total developable land in the town) zoned for commercial uses is built upon to its fullest extent and how much remains developable. From aerial photography and ground work the number of business and public buildings (57 in 1975) can be counted. The amount of that land surrounding buildings that is already being used for business purposes (for parking, solid waste disposal, advertising, etc.), as opposed to the amount on which additional commercial structures could be built, however, has not yet been determined. There are no minimum lot or yard size requirements for commercial structures from which to estimate the "developed" status of land.

The town's property owners have stated a desire for more shopping facilities in the future. What is more, Surf City functions as the major shopping area on Topsail Island, with the island's only shopping center, bank, hardware store, gas station and the like. Some increase in commercial activity is being encouraged in the Onslow County portion of the island, but Topsail Beach's reliance on Surf City's commercial facilities will probably continue in the future.

The demand for increased shopping and commercial recreation facilities in the future probably involves a demand for more land. Because of the high demand on immediate beach area land for private and commercial housing and recreational use, the town is considering annexation of additional land west of the AIWW to supply the demand for general shopping areas. In order to determine the kinds of businesses to encourage to locate and the amount of land their location will require, the town will initiate in the future a commercial need study. The study will assess, as the same time, the need for additional governmental and institutional land; in particular, the town is seeking development of municipal government complex to house municipal offices and service facilities as appropriate. (A location for the planned sewage treatment facility has not yet been proposed but would likely be in the Surf City area.)

Public Recreational Land

The people of Surf City recognize the need for some publicly-owned and operated recreational areas, with adequate parking, sanitation and safety facilities. The high cost of beach area land, however, will limit the amount which the town will be able to purchase. In order to promote recreational use of its waterways, the town will seek development of boat launching ramps and a marina along the causeway. The town will coordinate its promotion of waterway recreational development with county efforts to maintain adequate access canals and to establish boat launching ramps on the mainland. The town will encourage the development of commercial recreation facilities to complement and support whatever public facilities can be established.

There are numerous structures in the town remaining from former military use of the island. Since the island was the forerunner to the

missile and rocket program relocated at Cape Kennedy, many of these structures may have historical significance. The town will seek assistance from the N. C. Department of Archives and History in defining the historic value of these structures and will study the feasibility of incorporating some of these structures, in particular an observation tower, into a municipal park complex.

LAND CLASSIFICATION SYSTEM

The North Carolina Land Policy Council has established a Land Classification System for localities to use to identify the most appropriate general uses of various kinds of land. The town's Land Classification Map (LCM) produced from the classification system will serve as a local government tool for informing state and federal authorities, as well as local residents and property owners, on where and at what density growth is desired, and of areas for which new or amended land use regulations will soon be established.

The Land Classification System categories would perhaps be more applicable to more urbanized places with more diverse land uses than Surf City. Moreover, the system was established to deal with projected increases in permanent population, rather than seasonal population which in Surf City is much higher. The population density needed to warrant the "Developed" or "Transitional" category, for instance, though applicable for the summer season, exceeds the highest densities found in the town in winter. Strict application of the defined criteria for each category, therefore, is impossible; but the system, when adapted to the town's needs, can be used for its intended purpose.

The Land Classification System includes the following five categories of land:

1. Developed - Lands where existing population density is moderate to high and where there is a variety of land uses which have the necessary public services.
2. Transitional - Lands where local government plans to accommodate moderate to high density development during the following ten-year period and where necessary public services will be provided to accommodate that growth.

3. Community - Lands where low density development is grouped in existing settlements or will occur in such settlements during the following ten-year period and will not require extensive public services now or in the future.
4. Rural - Lands whose highest use if for agriculture, forestry, mining, water supply, etc., based on their natural resource potential. Also, lands for future needs not currently recognized.
5. Conservation - Fragile, hazardous, and other lands necessary to maintain a healthy natural environment and necessary to provide for the public health, safety, and welfare.

The two categories of land most applicable to Surf City are Transitional and Conservation. The Conservation class includes the estuarine areas of the town and the beaches and foredunes; the Conservation designation indicates the municipal policy determination that services, including water and sewer lines and paved streets, will not be extended into Conservation areas.[a]

The Transitional class covers the remaining parts of the town where densities in the future are likely to necessitate public service extension, and appropriate development will be supported as necessary by public funds. Obviously, the key to the designation of this part of the town as Transitional lies in the assumption that public sewerage facilities will be available. Failure to obtain such facilities in the future may necessitate redesignation of the area as Community, with revision of land use ordinances to require sufficiently low densities that public sewerage will not be necessary.

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[a]Anywhere, however, that these services have already been extended into Conservation areas they may remain.

SECTION V

PLAN ADOPTION AND IMPLEMENTATION

PLAN ADOPTION

As authorized by the Town Board of Commissioners, the Surf City Land Use Plan was prepared by the Town with technical assistance provided by Coastal Zone Resources Corporation. Current economic, social, and environmental conditions in the town were assessed; the major land use issues were addressed; and alternative policy measures which could be used to solve existing and deter potential problems were studied. During this process, public opinion was solicited, obtained and evaluated, and used as a primary determinant of future objectives, standards and policies.

In order to ensure that the Surf City Plan would be compatible with provisions and policies of the Pender County Plan, activities of the respective planning groups were coordinated. The agenda for town planning meetings often included reports of planning progress in adjacent Topsail Beach and the county. On May 20, 1975, a meeting of elected officials and Planning Board members from each planning jurisdiction in the county was held in Burgaw to discuss mutual problems encountered. On October 30, 1975, a joint county-municipal Planning meeting was held in Burgaw in order for each jurisdiction to present to the others planning progress to date. On June 10, 1975, a meeting sponsored jointly by Onslow County, Surf City, and Topsail Beach was held in Surf City to coordinate 201 Plan and CAMA planning activities in the three jurisdictions. Representatives of planning firms involved and of the Cape Fear Council of Governments were in attendance at each of the three meetings.

The preliminary draft of the Land Use Plan, including recommended policies, was submitted in January 1975 to the Town Commissioners for review. The elected officials discussed at length the issues involved and their implications for future growth and land use in the town. From this review

session and further studies of alternatives, the proposed plan and policies for future development of the town were developed.

In order that the essential elements of the Plan, including its land use policies, objectives and standards, be available to all interested persons, a Synopsis of the Plan is being prepared. The Synopsis will include the Land Classification Map and examples of the Existing Land Use delineations, with an explanation of how additional information can be obtained upon request.

The sequence of events yet to come, before final adoption and implementation of the Plan, includes:

1. Municipal Public Hearing -- On May 9, 1976, the Town of Surf City will hold a public hearing in order to receive comments from residents and property owners on the proposed Land Use Plan and Synopsis. Comments and suggestions made in the public hearing will be carefully reviewed; necessary changes in the Plan and Synopsis will be made before their formal adoption by the town.
2. Joint City/County Public Hearing -- On May 10, 1976, a joint public hearing, in which the Pender County and all municipal plans will be presented and comments on them received, will be held in Burgaw. The purpose of the joint hearing is to assure compatibility among the various plans compiled within the county.
3. Transmission to the Coastal Resources Commission -- By May 21, 1976, a certified copy of the Adopted Plan will be sent to the Coastal Resources Commission for its review and approval.

At least 30 days before the town's public hearing, a copy of the completed Plan with maps will be placed in the Town Hall and the County

Courthouse for public review and inspection. Notice of both public hearings and of the availability of the Plan for review will be made in newspapers distributed locally.

Following adoption of the Plan and its approval by the Coastal Resources Commission, copies of the full Plan will be available for study in the Town Hall and County Courthouse. Copies of the Plan and/or of any of its maps can be obtained from the Town Hall, at cost, upon written request. The Synopsis will be mailed to all recorded property owners of the Town; additional copies of the Synopsis will be made available free of charge upon written request.

PLAN IMPLEMENTATION

The second phase of the CAMA planning process involves implementation of the Land Use Plan. The town's adoption of its Plan constitutes a formal declaration of land use policies; but many of the standards proposed for meeting objectives require either some revision of existing town ordinances or enactment of new ordinances in order to become effective. Related planning activities, as for a parks and recreation program, are also involved in plan implementation

The major elements of the implementation phase of the Land Use Planning process in Surf City are summarized as follows:

Revision and Enactment of Town Ordinances

In order to carry out policy objectives, some revision of the town's Zoning Ordinance and Building Code will be necessary. In addition, subdivision and septic tank regulations and a sand dune protection ordinance will be enacted. Specifically, provisions will be made for:

1. effectively regulating the density of development,
2. allowing a larger variety of subdivision designs including Planned Unit Development,
3. assuring that all construction will meet applicable Federal Insurance Administration standards,
4. assuring that development and construction activities will minimize damage to the town's natural and scenic resources,
5. establishing a method of advising prospective property buyers of the municipal policy of service provision to hazard areas and Conservation lands,
6. requiring connection to the town's water system (and sewer system if installed),

7. assuring provision of adequate structural accessways to Public Trust areas,

8. regulating the use of motor vehicles in the beach strand, and

9. restricting public parking to designated areas.

Coordination of Permit-Letting Authorities

The 1974 Coastal Area Management Act provides for local permit-letting agencies to be established for minor development[a] permits required in Areas of Environmental Concern (AEC's). In order to qualify for AEC permit-letting authority, a local jurisdiction must first declare its intent, then prepare a Local Management Plan acceptable to the Coastal Resources Commission (CRC). The CRC is currently establishing criteria for local implementation and enforcement programs including elements that will be required for approval of a Local Management Plan.

The CRC emphasizes the value of coordinating the activities of various local regulatory authorities, such as building and septic tank inspections, subdivision plat approvals, and sedimentation and erosion control program approvals, with the AEC minor development permit-letting authority. Such coordination could simplify the permit-letting process for both the jurisdiction and applicants involved and could reduce local governments costs of reviewing various kinds of applications. The CRC criteria being developed will also allow for City-County coordinated permit-letting

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[a]The term: "Minor Development" means any development other than a major development. The statutory definition of Major Development is "any development which requires permission, licensing, approval, certification or authorization in any form from the Environmental Management Commission, the Health Services Commission, the State Departments of Natural and Economic Resources or Conservation and Development, the State Department of Administration, the North Carolina Mining Commission, the North Carolina Pesticides Board, or the North Carolina Sedimentation Control Commission; or which occupies a land or water area in excess of 20 acres; or which contemplates drilling for or excavating natural resources on land or under water; or which occupies on a single parcel a structure or structures in excess of a ground area of 60,000 square feet."

authorities.

Therefore, part of the implementation phase of planning in Surf City will be development of the aforementioned Local Management Plan.

Related Planning Activities

As called for in the Objectives and Standards of the Plan, the Town will study the feasibility of establishing a municipal park and recreation program and municipal office complex, of developing bicycle lands especially in the vicinity of recreation facilities, and of annexing additional land west of the AIWW.

The town will augment its efforts (201 Plan) to have a regional sewage disposal facility established and to obtain adequate outside funding to alleviate excessive costs to the town and property owners.

Section 208 of the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500), as well as other sections of this law, is designed to achieve water quality which "provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water" by July 1, 1983. Section 208, more specifically, is designed to plan ways to reduce all types of pollution in specially designated areas to the 1983 level and to set up a management agency to guarantee achievement and maintenance of the 1983 water quality level. Areas in North Carolina having complex water quality control problems have been designated by the Governor as priority 208 Planning Areas.

The Pender County coastal area was included in the Governor's designations. Participation in the 208 Planning program, with adequate federal funds appropriated to the program, could allow Surf City a means for studying its water quality situation in conjunction with plans for the

public sewer system.

Periodic Review and Revision of the Plan

In order to make land use planning in Surf City an on-going, effective process, the Town Board, at its regular monthly meetings and at special meetings as needed, will consider orderly and prompt upgrading and revision of the Land Use Plan.

SECTION VI

REFERENCES CITED

REFERENCES CITED

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APPENDICES

APPENDIX A. PUBLIC PARTICIPATION PROGRAM.

The Surf City Planning Board, with the concurrence and support of Mayor D. E. Medlin and the Board of Town Commissioners, actively sought and utilized public views in preparing the land use plan. The planning process was open to all persons with an interest in Surf City.

The Public Participation program consisted of:

1) Appointing a Planning Board and an Advisory Committee representing the interests of the community. The Planning Board members are:

Herbert Williams, Chairman	Realtor
Lewis Williamson	Pier operator
George Thomas, Jr.	Tackleshop operator

The Advisory Committee members are:

(Mrs. Donald) Helms

Alva Ward

Roland Batts, Jr.

D. C. Lanier

Clifton Howard.

2) Conducting public information meetings.

A public information meeting, open to all property owners in Surf City, was held on May 7, 1975.

On June 10, 1975, Surf City, Topsail Beach and Onslow County jointly sponsored a public meeting on Topsail Island for the presentation and discussion of alternative growth and development models. The meeting

offered a unique opportunity for the public to choose a future population in keeping with their perception of a desirable life style. The descriptive material distributed at the meeting is part of Appendix B which is devoted to population forecasts and density of development.

Two public information meetings open to all persons interested in Surf City were sponsored by the Surf City Improvement Association on May 17, 1975 and September 20, 1975.

3) Distribution of questionnaires and tabulation of responses:

Significant issues to be addressed in the questionnaire were drawn from the May 17 public information meeting, the experience of the Planning Board and Advisory Committee, and the requirements of the CAMA. The issues were framed as questions with multiple option answers. (The questionnaire is Exhibit A-1.) The questionnaire was reproduced and mailed by the Town Clerk to the 815 taxpayers on record; 208 (26 percent) questionnaires were returned. The responses were tabulated by Mrs. Donald Helms of the Advisory Committee. The raw tabulations and a ranking of responses are shown as Exhibits A-2 and A-3.

Exhibit A-1.

SURF CITY CITIZENS QUESTIONNAIRE

The Surf City Planning Board and the City Commissioners are preparing the Coastal Area Management Plan for Surf City. Your Planning Board and Commissioners are vitally interested in the comments and suggestions you and other citizens have and are inviting you to become involved in preparing the plan. Your help will aid us in making a plan for Surf City's future which is based on your own goals and interests.

This questionnaire is the first step in the continuing process of getting the citizens involved. You will be kept informed of the progress we are making and will be invited to other meetings as they are scheduled.

Please take the time to fill out this brief questionnaire and hand it in at the end of the meeting or mail it to:

Herbert Williams
P. O. Box 566
Surf City, N. C.
328-8481

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1. What do you think are the four major problems in Surf City today? (Indicate priority by numbering 1, 2, 3, and 4.)

_____ Lack of housing, especially during the summer

_____ Poorly constructed housing

_____ Lack of year round employment opportunities

_____ Poor roads and traffic control facilities

_____ Lack of good shopping areas

_____ Inadequate educational opportunities

_____ Poor access to beaches

_____ Lack of public beach areas

_____ Lack of community recreational facilities (parks, golf courses, tennis courts, boat access points)

_____ Lack of cultural opportunities (drama, cultural arts, etc.)

_____ Problems with septic tanks

_____ Beach erosion

_____ Unsightly development

_____ Flooding or drainage

_____ Inadequate parking

_____ Other (explain)_____

_____

_____

2. What do you think are the four major advantages to living in Surf City today? (Indicate priority by numbering 1, 2, 3, and 4.)

_____ Good supply of quality housing

_____ Low taxes

_____ Good opportunities for business

_____ Lack of crowded living conditions

_____ Closeness to beaches

_____ Attractiveness of outdoor activities

_____ Good schools

_____ Low cost of living

_____ Clean air and water

_____ Tourist support economy

3. In the next 5 to 10 years would you prefer to see the permanent Surf City population? (Mark one)

_____ Increase rapidly

_____ Increase slowly

_____ Remain the same

_____ Slightly decline

_____ Decline significantly

4. In the next 5 to 10 years, would you like to see the tourist trade and seasonal residents (as measured by numbers of motels, restaurants, camping areas, recreation areas, and summer homes) to? (Mark one)

_____ Increase rapidly

_____ Increase slowly

_____ Remain the same

_____ Slightly decline

_____ Decline significantly

5. If the permanent and summer populations do increase, would you prefer the increase to be? (Mark one)

_____ Inside the existing town

_____ In new communities or subdivisions outside existing towns and communities

6. If the population of Surf City increases, there will be an increase in pressure for commercial areas. Do you think that this growth should be regulated? _____yes, _____ no. If yes, how_____

_____

7. What would you like Surf City to be like next year, five years from now, or 10 years from now?

_____

_____

_____

8. Please make any additional comments or suggestions which would help us to plan for the future of Surf City._____

_____

_____

Thank you

Herbert Williams

Surf City Planning Board

Exhibit A-2.

TABULATION OF RESPONSES TO TAXPAYER QUESTIONNAIRE.

Question #1: What do you think are the four major problems in Surf City today? (Indicate priority by numbering 1, 2, 3, and 4.)

Number of respondents ranking problems:

Problem	1st		2nd		3rd		4th	
	PR[a]	NPR[b]	PR	NPR	PR	NPR	PR	NPR
Lack of housing	10	5	4	2	4	1	12	9
Poor construction	1	16	3	13	2	4	3	6
Lack of employment	6	4	6	9	2	15	6	6
Poor roads & traffic		4	3	4	11	12	3	12
Lack of shopping areas	14	11	7	15	7	9	9	13
Education		1	6	3		2	8	3
Beach access	3	7	4	7	3	3	11	11
Public beach		2	1	1		4	3	7
Recreational facilities		5	3	5	4	13	11	20
Cultural opportunities							1	3
Septic tank problems	9	11	8	15	2	4	3	3
Beach erosion	1	4		5	7	6	3	6
Unsightly development	7	43	9	16	6	9	4	7
Flooding		1			1	8	2	5
Inadequate parking	1	2		4	1	5	5	6

Note: Other problems noted by respondents were: city government, beach litter, building and zoning codes, inadequate police protection, pollution, and lack of medical services.

[a] Permanent Resident Taxpayer.

[b] Non-Resident Taxpayer.

Exhibit A-2 (Continued)

Question #2: What do you think are the four major advantages to living in Surf City today? (Indicate priority by numbering 1, 2, 3, 4.)

Number of respondents ranking problems:

Advantage	1st		2nd		3rd		4th	
	PR[a]	NPR[b]	PR	NPR	PR	NPR	PR	NPR
Quality housing supply	2	1	1	2	2	3	1	4
Low taxes		11	2	3	2	7	4	11
Business opportunities	11	8	2	4	4	4	16	9
Living conditions	13	27	2	20	3	9	6	13
Beach closeness	20	27	24	43	7	16	8	16
Outdoor activities	2	3	16	7	7	26	6	16
Schools					3	1	1	
Low living cost	1	1		7	3	4	5	10
Clean air & water	4	22	8	16	15	22	15	23
Tourist economy	4	2	5	5	8	5	18	25

Note: Other comments noted by respondents were: no advantages, no answers, and family oriented.

[a]Permanent Resident Taxpayer.

[b]Non-Resident Taxpayer.

Question #3: In the next 5 to 10 years would you prefer to see the permanent Surf City population? (Mark one)

Rate	Choice by those answering the question		
	PR	NPR	Total
Increase rapidly	45	38	83
Increase slowly	21	60	81
Remain the same	8	13	21

Exhibit A-2 (Continued)

Question #3 (continued)

Rate	Choice by those answering the question		
	PR	NPR	Total
Slight decline	0	4	4
Significantly decline	2	1	3

Question #4: In the next 5 to 10 years, would you like to see the tourist trade and seasonal residents (as measured by numbers of motels, restaurants, camping areas, recreation areas, and summer homes) to? (Mark one)

Rate	Choice by those answering the question		
	PR	NPR	Total
Increase rapidly	52	40	92
Increase slowly	17	72	89
Remain the same	6	18	24
Slight decline	1	0	1
Significantly decline	1	3	4

Question #5: If the permanent and summer populations do increase, would you prefer the increase to be? (Mark one)

Location	Selected by those answering the question		
	PR	NPR	Total
Inside existing Town	24	52	76
Annexation	46	64	110
Both	9	8	17

Exhibit A-2 (Continued)

Question #6a: If the population of Surf City increases, there will be an increase in pressure for commercial areas. Do you think this growth should be regulated?

Choice	Selected by those answering the question		
	PR	NPR	Total
Yes	66	109	175
No	9	14	23

Question #6b: If yes, how?

Methods Offered

Building code

Zoning ordinances

Planning

Question #7: What would you like Surf City to be like next year, five years from now, or 10 years from now:

	PR	NPR	Total
1. Zoned & Planned Growth	25	45	70
2. Family Oriented	16	49	65
3. Tourist, Resort Area	15	37	52
4. Better Municipal Facilities			
a. Recreational	4	24	28
b. Water	5	30	35
c. Sewage	10	9	19
d. Educational	2	0	2

Exhibit A-2 (Continued)

Question #7 (Continued)

	PR	NPR	Total
e. Medical	1		3
f. Sanitation (general cleanup)	16	36	52
g. Police		3	3
5. Population Size			
a. Double		2	2
b. Triple		11	11
c. Myrtle Beach	4	1	5
d. Boom	6	2	8
e. Wrightsville Beach	1	1	2
6. Miscellaneous			
a. Better Shopping Area	10	11	21
b. Preserve Natural Environment	1	5	6
c. No Amusement Areas (Commercial)	4	4	8
d. Stop Beach Traffic		2	2
e. Growth	2		2

Question #8: Please make any additional comments or suggestions which would help us to plan for the future of Surf City.

	PR	NPR	Total
1. Better City Government	15	41	56
2. Building, Zoning, Planning Codes	7	38	45
3. Improved Municipal Facilities			
a. Recreation			
1. Beach Access	4	7	11

Exhibit A-2 (Continued)

Question #8 (Continued)

	PR	NPR	Total
2. Sound Access	2	1	3
3. Tennis Courts, Bike Trails, Swimming Pool	3	3	6
b. Water	6	2	8
c. Sewage	9	6	15
d. Sanitation			
1. General Cleanup-Fixup	1	7	8
2. Beach Cleanup	7	10	17
3. Trailer Cleanup-Fixup	6	11	17
e. Police	5	2	7
f. Taxation - Equalize & Collect Delinquent	1	2	3
g. Roads		3	3
4. Miscellaneous			
a. Improve Image (overall, fishing village bad publicity	7	10	17
b. Increase Tourist Trade		2	2
c. Retain Present Atmosphere		1	1
d. Grow	4		4
e. Public Coastal Hearings	2		2
f. Encourage Industrial Development	1		1

Exhibit A-3.

Weighted ranking of problems		Weighted ranking of advantages	
316	Unsightly Development	459	Beach Closeness
220	Lack of Shopping Areas	288	Clean Air & Water
167	Septic Tank Problem	269	Living Conditions
146	Poor Construction	177	Outdoor Activities
113	Beach Access	135	Business Opportunities
106	Lack of Employment	123	Tourist Economy
103	Recreation Facilities	58	Low Living Cost
98	Poor Roads and Traffic	56	Low Taxes
89	Lack of Housing	36	Adequate Housing
70	Beach Erosion	9	Schools
47	Inadequate Parking		
46	Education		
32	Public Beach		
29	Flooding		
12	Cultural Opportunities		

APPENDIX B: POPULATION AND DENSITY

1975 Survey

It became obvious early in the planning process that the limited population information available for towns with less than 2500 year-round residents was inadequate to describe the current population of Surf City. Accurate counts of both permanent and seasonal residents from which to project future populations were needed not only for the land use plan but for 201 facilities plans and regional Council of Government studies as well.

In June 1975, Coastal Zone Resources Corporation (CZRC), Henry von Oesen and Associates (von Oesen), and the Cape Fear Council of Governments (COG) cooperatively formulated a door-to-door survey of Topsail Island. The survey, a sampling of ten percent of all dwelling units, was conducted by COG employees between June 23 and June 29, 1975. The questionnaires used to obtain information are shown as Exhibit B-1 and B-2. Results of the survey in Surf City, tabulated by CZRC, are shown as Exhibit B-3.

Average summer figures in the tabulated results denote the number of people found (multiplied by 10) at the time of the survey. Peak summer figures were derived by allocating to units vacant at the time of the survey the appropriate number of persons per unit; i.e., peak summer counts assume full occupancy.

EXHIBIT B-1

COTTAGES

NAME OF TOWN	SECTION OF TOWN	DATE	APPROXIMATE TIME OF DAY	HOUSE VACANT ☐
_____	South ___ Center ___ North ___		A.M. ___ Afternoon ___ Evening ___	_____ Name of Surveyor

QUESTIONS

1. How many people are in the party presently occupying this cottage?

_____No. of Persons

2. Are you the owner of the cottage or are you renting it?

_____Own _____Rent

OWNER

Are you a resident of the town year round or are you here on vacation?

___ Year Round ___Vacation

1. What is the size of the family living here year round?

_____No. Persons

2. Are you employed in the town?

___ Yes ___ No

1. For how many weeks of the year is the cott- for rent?

___No. Weeks

RENTER

1. Where did you come here from?

_____ Town, State

2. Why did you choose this town for your vacation?

_____

_____

_____

3. How long is your intended visit here?

_____No. of Days

EXHIBIT B-2

MOTELS

NAME OF TOWN	SECTION OF TOWN	DATE	APPROXIMATE TIME OF DAY	
_____	South ___ Center ___ North ___		A.M. ___ Afternoon ___ Evening ___	_____ Name of Surveyor

QUESTIONS

1. How many people are presently registered in the motel?

   _____ No. of Persons

2. How many units are in the motel?

   _____ No. of Units

3. How many persons do you allow to occupy each unit?

   _____ No. of Persons

4. During what months is the motel open?

   From _____ To _____

   Day/Mo. Day/Mo.

Exhibit B-3. TABULATED SURVEY RESULTS: SURF CITY POPULATION 1975

Total Population	Population Makeup	Population Distribution	Occupancy Rates; Persons Per Unit
Average Summer 3767	Vacationers 3038	In Motels 312 (8%)	1.5
		In Non-motel Units[a] 2726 (72%)	4.2
	Permanent Residents 729	In Non-motel Units 729 (19%)	3.7
Peak Summer 5424	Combined Total 5424	In Motels 749 (14%)	3.6
		In Non-motel Units 4675 (86%)	4.2

[a]Includes single and multi-family units and mobile homes.

Growth Goals

The CRC guidelines emphasize that residents and property owners of municipal jurisdictions be allowed to voice opinions on what level of growth they desire. But terms such as "slow growth", "rapid growth", "low density", and "high density" mean different things to different people. In order to allow choices of more concrete growth alternatives to be made, five development models were formulated, with different ultimate population levels and densities. The models were based on the following assumptions:

1. Marshes, beaches, and foredunes are not developable.
2. The developable residential land (planimetered from the Town's zoning map) could be developed at various densities.
3. The new Division of Health Services septic tank regulations would allow, on the average, 3 dwelling units per acre for development with septic tanks.
4. Development at densities greater than 3 units per acre would require public sewerage facilities. (Thus, Model I below relates the residential population that could conceivably be supported with continued use of septic tanks).
5. The population associated with each model depicts the ultimate population to be achieved - that is, full development. The desired rate of growth toward full development is not in question here.
6. Low density = 3 dwelling units (DU's) per acre.

   Medium-low density = 5 DU's per acre

   Medium density = 10 DU's per acre

   Medium-high density = 15 DU's per acre

   High density = 30 DU's per acre

7. The number of motel units would remain a constant percentage (20 percent) of the total number of dwelling units.

The five development models (shown as Exhibit B-4) were submitted for public inspection at a meeting sponsored jointly by Onslow County, Surf City, and Topsail Beach on July 29, 1975[a]. The importance of the choice was emphasized, as the choice of ultimate population was to be used for all future planning in the Town, most immediately for the 201 facilities plan currently being compiled.

On February 16, 1976, after much discussion and review of the questionnaire returns, the Town Board chose Model III with an ultimate peak population of 7,716. The growth goal projects the peak population to occur in the year 2000. For the purpose of planning municipal services, the population projected for 1985 is 6,570; for 1990, 6,952; and for 1995, 7,334.

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[a]At the time of this meeting, only preliminary tabulations of the June survey were available. Final tabulations showed different population figures which resulted in different populations associated with each model. The models themselves and density alternatives submitted in July, however, are the same as appear in Exhibit B-4, submitted at subsequent Town meetings.

Exhibit B-4

SURF CITY

Existing Population

Peak Seasonal

Non-Motel Residential	4675
Motel	749
Total	5424
Year Round	729

Existing Land Use*

Residential	355 acres
Commercial	181 acres
Total Developable	536 acres
Total Developed Residential	230 acres
Total Developable Residential	125 acres

*From zoning Map

MODEL I

Peak Seasonal Development/Population

Residential 125 x 3 x 4.2 =	1575
Motel 375 x .16 x 3.6 =	216
Existing (from above)	4675
Total peak seasonal	6466

Non Seasonal Development/Population

Residential 375 x 3.7 per/unit x .19 =	264
Existing (from above) =	729
Total non-seasonal	993

MODEL II

Peak Seasonal Development/Population

Residential

low density - 125 ac x .75 x 3 un/ac x 4.2	=	1181
med-low 125 ac x .25 x 5 un/ac x 4.2	=	656
motels 437 un x .16 x 3.6	=	252
Existing		4675
Total peak seasonal		6764

Non Seasonal Development/Population

Residential

low density 281 x .19 x 3.7	198
med-low 156 x .19 x 3.7	110
Existing	729
Total non-seasonal	1037

MODEL III

Peak Seasonal Development/Population

Residential

low density 125 x .5 x 3 x 4.2	=	798
med low 125 x .25 x 5 x 4.2	=	656
med 125 x .25 x 10 x 3.9	=	1219
motels 657 x .16 x 3.6	=	378
Existing		4675
Total peak seasonal		7716

MODEL V

Peak Seasonal Development/Population

Residential		
low density	125 x .3 x 3 x 4.2	= 475
med-low	125 x .2 x 5 x 4.2	= 525
med	125 x .2 x 10 x 3.9	= 975
med-high	125 x .2 x 15 x 3.9	= 1463
high	125 x .1 x 30 x 3.6	= 1350
motels	1238 x .16 x 3.6	= 713
Existing		4675
Total peak seasonal		10176

Non-Seasonal Development/Population

Residential		
low density	113 x .19 x 3.7	= 79
med-low	125 x .19 x 3.7	= 88
med	250 x .19 x 3.7	= 176
med-high	375 x .19 x 3.1	= 221
high	375 x .19 x 2.6	= 185
Existing		729
		1478