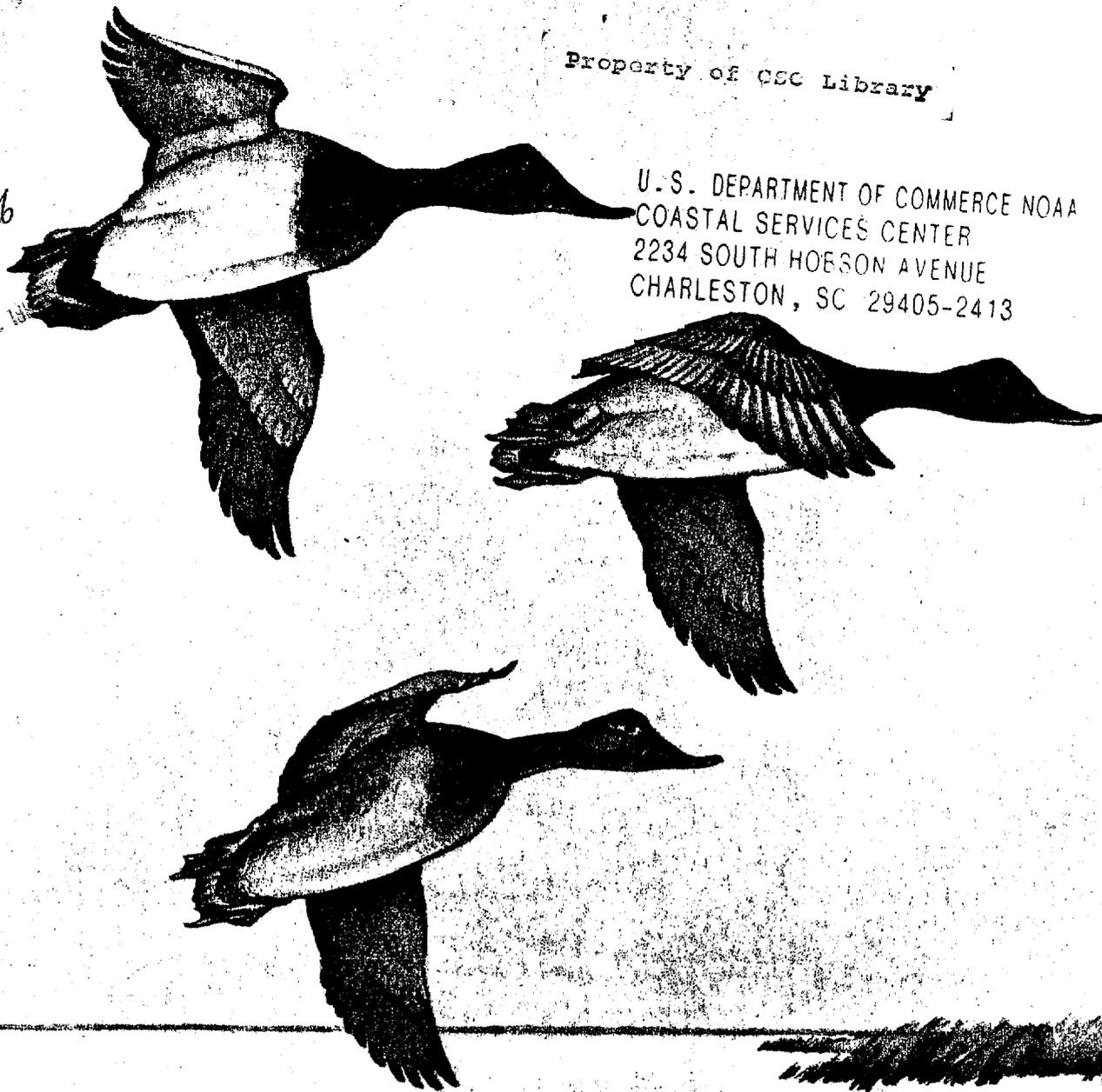


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**E LAND USE PLAN FOR  
THE KNOLL SHORES, N.C.**

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DURHAM, N.C.

THE LAND USE PLAN FOR PINE KNOLL SHORES, NORTH CAROLINA

MARCH 1976

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The preparation of this Plan 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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THE LAND USE PLAN FOR PINE KNOLL SHORES, N.C.I. INTRODUCTION

Bogue Island, on which Pine Knoll Shores is located, is one of the Outer Banks between the mainland of North Carolina and the Atlantic Ocean. Until fifty years ago, only a few widely scattered individuals lived on the Island making their way by taking fish from the sound and the ocean. These early settlers accommodated themselves to the dynamic natural forces affecting the Banks, building their modest homes in the protection of dunes and forests that abounded on the Island.

In their secure location, these early residents were little affected by the Island's slow movement toward the mainland, the overwash and flooding of low areas, the migration of inlets and the wind movement of the sand; the forces that are continuously changing the shape of the Island.

In the early part of this century, some small pavillions and a hotel were built on the east portion of the Island. During the "Boom" of the 1920's, a bridge was constructed across the wide sound to the mainland. A few cottages followed. These early developers did not move dunes or vegetation unnecessarily. In some cases because they respected the forces of nature affecting a barrier island, but mainly because the mule and dragpan system then used to move sand was very tedious. The bulldozer and power dredge had not yet arrived on the scene.

"Modern" development came to the Island following its "discovery" after World War II. Bulldozers and dredges were brought in to level large dunes, clear ancient maritime forests and fill in productive marshes in the manner of Florida development.

Alice Hoffman, a member of the "Teddy" Roosevelt family, owned most of Bogue Island between Atlantic Beach and Salter Path including all of what is now Pine Knoll Shores. She was considered an eccentric person. She even held back her land from development. Many of her so-called eccentricities would now be considered sound environmental protection.

In 1955, Alice Hoffman died. Her land went to the

Roosevelt heirs who began to develop it soon afterwards. Using the firm of Stone & Webster, they undertook the development of the area - primarily that section lying between the Iron Steamer Pier and the Morehead Ocean Pier. They laid out streets, dug the Waterway that now runs through the Town, dredged the Channel that parallels the north coast of the Island from one mouth of the Waterway to the other, created park areas and constructed boating facilities. During this period of development and sale of lots, two home owners associations assisted in resolving problems of general administration.

By early 1973, all of the land platted into residential lots had been sold and the Roosevelt interests were ready to surrender control of the associations to their members. This meant turning over matters of security, street maintenance, lighting, etc., to the residents. To fill the vacuum that would thus ensue, a committee of citizens was formed to investigate and make recommendations with respect to the possibility and practicability of incorporating as a town. In considering its boundaries, the golf course presented an obvious terminus for the eastern end of the town. As for the other boundary, the Roosevelts had previously presented to the State of North Carolina a large tract to the west of the developed area, and they expressed their willingness to have their remaining undeveloped property lying to the west also included in the proposed town.

The efforts of the Citizens Committee resulted in the passage by the North Carolina Legislature of an Act incorporating the town as a municipal corporation, subject only to a local referendum. That referendum showed a large preponderance of residents in favor of incorporation and the Town of Pine Knoll Shores was born August 1, 1973.

## II. IDENTIFICATION OF ISSUES AND PROBLEMS

The rapid and unplanned development of our country's coastal areas has, in many cases, caused an alarming degradation of the environment of these fragile zones. Concern over this prompted the Congress of the United States to pass legislation in 1972<sup>1</sup> to assist the States in providing for better planning and management of coastal areas. The 1974 session of the North Carolina Legislature passed the "Coastal Area Management Act" to provide State

<sup>1</sup> The Coastal Zone Management Act of 1972

assistance to match federal aid. Under this arrangement, \$7,000 was made available to Pine Knoll Shores to develop a land use plan. On April 29, 1975, the N.C. Department of Natural and Economic Resources, the Town of Pine Knoll Shores, and a planning consultant, Paul Foster, A.I.P., entered into an agreement to do this work.

### III. THE SURVEY

The first step was to go to the people and identify in a democratic manner what they wanted of their Town. To be valid, any land development plan for Pine Knoll Shores should incorporate the desires, needs and opinions of the majority of the permanent and seasonal residents and undeveloped residential lot owners. The Town Planning Board and the consultant met and discussed this situation at length. It was decided that a detailed questionnaire would be mailed to every lot owner on the Town tax rolls. During late May and early June, 1975, a three page questionnaire was mailed to 750 persons, some of whom own more than one lot. Usable responses were received from 410 or 55% of the people.

The questionnaire was designed so property owners could check off multiple choices and also write in personal observations. Tabulation was done by three categories: (1) permanent residents; (2) seasonal residents; and (3) undeveloped residential lot owners. Questionnaires were confidential and tabulated by the consultant at his office in Wilmington, N.C. They were destroyed after the tabulation.

The majority of respondents to the survey want to live in a coastal environment with its natural beauty protected from damage and commercialism. They want tight control of man-made development for environmental protection and esthetic harmony. They place a high value on privacy and a sense of community. Most want an increase in retail commercial and service activity but only to the point of providing for the need of permanent and seasonal residents. They dislike the intrusion of seasonal transients and want tight limits on expansion of resort commercial facilities.

The responses largely support the policies and plans of the Town Board of Commissioners as they have evolved during the short period since Pine Knoll Shores received its charter. A significant majority are satisfied with

the way the local government is functioning and with its rigid enforcement of zoning and other land development and use regulations.

Most are willing to pay additional local taxes for specified additional community services.

Following is a more detailed analysis of the survey beginning with a look at subjective opinions and followed by comments on the multiple choice questions. This analysis is arranged with responses in the order of their importance to land use planning. A numerical tabulation of these answers is also given in Table I.

#### IV. SUBJECTIVE OPINIONS

Seven spaces were provided among the 28 questions for respondents to write opinions. Only 19 of the owners did not take advantage of this opportunity. The comments ranged from one word to full use of the backs of all the pages of the questionnaire. This technique was used to provide for a latitude of response that could not be anticipated in the multiple choice type questions.

The analysis of these opinions was done by reading them all several times and tabulating recurring statements, ideas and themes.

Good Points of Pine Knoll Shores - The first and key opinion asked was: "What do you like most about Pine Knoll Shores?" Evidently because of the nature of this question and the fact that it gave those answering the first chance to add ideas, this question received the largest response.

The most frequently recurring theme in favor of Pine Knoll Shores was the preserved natural environment of this portion of the island, the beauty of the trees and other vegetation, the dunes and wild life. Rated almost as high was the residential nature of the Town and the lack of commercialism. Equally with this was quiet along with privacy and isolation, low density and room. Interestingly, the surrounding beach, ocean and sound were mentioned less frequently than the previous reasons; in fact, the friendly nature of the people received almost as much mention. The existence of restrictions, protective covenants and the Zoning Ordinance were considered a plus by many.

Dislikes - Less than a third as many people commented on what they liked the least about the community than what they liked the most. Obviously, this was a good indication of a positive attitude of satisfaction with Pine Knoll Shores. Most of the dissatisfaction expressed (about 3/4th of the comments) was directly related to commercial type beach activities attracting seasonal or transit tourists. Highest on the list were the traffic, commercial development, and litter along Salter Path Road. Thirty respondents cited the unsightliness and congestion of the most frequently used travel route to the mainland.

Town's Needs - Response to this narrative question was relatively good with most comments on the need for a restricted shopping area and fire protection, central sewer and better water. Other needs mentioned were more unity among residents, street lights, bike paths and more young people.

Zoning Ordinance - Only a relatively few (51) commented on zoning. Forty of these wanted either stricter enforcement, a tighter Ordinance, added environmental protectors or a prohibition of high buildings. Less strict enforcement of the Ordinance was wanted by 11 persons.

## V. MULTIPLE CHOICE ANSWERS

Type of Community Wanted - There was consistent agreement among a significant majority (68%) of all present and possible future residents that Pine Knoll Shores should be a "residential and retirement family resort with commercial development to serve the community only". No other of the five possible alternative choices received any significant vote with unrestricted development with tourist attractions receiving only 1% from all three categories of lot owners.

Future Growth Desires - It is manifestably evident that a sizable majority of all of the people concerned want Pine Knoll Shores to grow only moderately over the next 5, 10 and 25 years. Interestingly, the vacant lot owners were the most vehement with 74% wanting only slight increase in the next five years. The desires for no growth were in all cases substantially stronger than those for a great increase. The general concensus seemed to be for slow growth with a topping out in 25 years. In speaking of population growth, the consultant has assumed that respondents were speaking of new projects beyond land already subdivided and sold for residential development.

Present Development and Zoning - Permanent and seasonal residents (80% and 89%) seemed quite satisfied with the way the

Town is developing. 72% of the undeveloped lot owners also were satisfied with another 16% saying that they were undecided and only 12% expressing dissatisfaction.

Both types of residents were equally pleased (84%) with the Zoning Ordinance. Half of the vacant lot owners expressed satisfaction with 39% saying "don't know" and 11% against it.

Additional Community Services - Pine Knoll Shores started out as a residential subdivision of land. Now with homes on a fourth of the lots and some amenities, it is well on its way to becoming a viable residential community.

A good majority (57%) of all the respondents were willing to pay additional taxes for additional community services. Within the three groups, this willingness was highest (70%) among the permanent residents. It decreased to 57% with those owning seasonal homes and to 51% with vacant lot owners. In the last two groups, there were 39% and 42% against additional taxes with 4% and 7% answering "don't know".

The people, overall, gave the highest priority to improved fire protection. A bit down in second place was the desire for more police protection. Somewhat below this was about equal concern for municipal garbage collection and a central sewage system. There was also some evidence of dissatisfaction with the existing water supply.

There were interesting differences in priority assignments by groups. The permanent and seasonal residents agreed that additional fire protection was the most important. However, vacant residential lot owners gave their highest priority to police protection. Seasonal home owners gave police protection number two priority. This may have come from the fact that their unoccupied homes are more susceptible to robberies.

The undeveloped lot owners voted a tie between central sewage and fire protection for second priority with municipal garbage and better water both coming in third. Amid these preferences and including their first choice, there was only a small point spread.

Year-round residents gave municipal garbage collection and central sewage about equal place for second priority with garbage having a slight edge. The need for better police protection and better water was close for third priority with about a 10% lead for security.

Not much interest from any group was expressed in the other items available for choice: beach life guard; beach patrol;

or youth club and activities.

On an average, about 3/4th (74%) of the people were against the Town providing public parking areas, boat ramps or beach access. This response may have been conditioned by the fact that the two home owners associations already provide these facilities for their members.

Commercial Development - There was practically universal agreement (99%) that Pine Knoll Shores should not have any mobile homes. Sizable majorities (79% and 70%) wanted no more fishing piers or apartments. Smaller majorities (56% and 54%) were against marinas and condominiums. On the positive side, a slight majority (51%) wanted to see some additional commercial with 46% against any more. Only a fractional 3% favored unlimited commercial development.

Permanent and seasonal residents were more in favor of a few more commercial establishments (59% and 53%). Year-rounders were the only group to want a few more condominiums (61%). A majority of the seasonal residents (58%) expressed a desire for a marina.

Specific Wants for Shopping - The responses made it apparent that there was a desire and need for a shopping area of limited scope in Pine Knoll Shores. Desires were that it should be carefully controlled in both design and size.

Generally speaking, there was a strong desire in favor of a store selling food. The desire for a drug store, for all intents and purposes, was practically as strong. However, a drug store received its highest score (44%) in the second choice block while a food store received 82% of its points in the first choice block.

A post office and bank tied for third place with both getting most of their points (51% for post office and 39% for bank) in the first and then third choice blocks.

A gasoline station and a professional building ran up an equal number of points for the next priority of wants with first and fifth place taking 37% and 43% of the points respectively.

A hardware and ABC store came next with only 104 points difference, but with only a half of the point total as the first choices. 50% of the points given an ABC store were from being first and fifth choice while most of hardware's points came as fifth choice.

The other five choices received only an insignificant 20% of the total points allotted by the people.

An overwhelming 94% of those who answered the questionnaire wanted the Town to have control of the architecture of the Bridge Road business area.

Salter Path Road and a Third Bridge - There was a large majority of permanent residents (68%) against four-laning Salter Path Road. Only slightly less inclined were the seasonal residents (63%) and the undeveloped lot owners (58%). However, a clear majority definitely wanted improvement of the pavement quality and shoulders of the present two-lane road.

Of all the respondents, 78% did not want the proposed third bridge across Bogue Sound to come into Pine Knoll Shores. 36% of the permanent residents and 50% of both seasonal residents and vacant lot owners suggested a location west of Pine Knoll Shores. 3% of the answerers wanted no third bridge.

House Completion Dates and Lot Purchase - Residential construction did not begin in volume in Pine Knoll Shores until 1970. Only 17% of the dwellings were built before that time. Over half (59%) of all houses covered by this survey were built in the three year period of 1972 through 1974. The Town's building permits records indicate this volume of construction continues with single family detached housing starts for 1975 up 24% over 1974.

Detached single family homes generally range in value from \$30,000 to \$60,000. However, there are a few homes valued as little as \$10,000 and some as high as \$150,000. The condominium units are in the \$30,000 to \$45,000 bracket.

Of the 1038 subdivided residential lots in Pine Knoll Shores, only 252 had houses on them at the time of the survey. Obviously, knowledge of the wishes and plans of the undeveloped lot owners is a vital ingredient for preparing a proper land use plan. Surprisingly, 74% of the lot owners who responded gave the future construction of a home as the primary reason for buying a lot. This is surprising because these purchases were made at a time when most lot purchasers nationwide were buying lots as an investment of excess income. A minority of the undeveloped lot owners are investors who own more than one lot. Many of these lots are presently being advertised for resale.

Most of the lot owners (39%) bought with the idea of building a retirement home. Another 22% said that they planned to move to Pine Knoll Shores as permanent residents. Only 13% said that they planned to build a

seasonal or vacation house.

182 (81%) respondents plan to build on their lots. 27 of these said between now and 1980; 31 from 1980 to 1985; 19 after 1985; and 105 didn't know when. Using responses and Town records as a basis, it would be reasonable to assume that the actual housing construction that takes place in the presently subdivided land will continue at the high rate achieved in the 1972 through 1975 period.

Over half (53%) of the small minority of vacant lot owners who presently have no building plans said they will hold their lots. 39% said that they will sell while 8% were undecided what to do with their lots.

The survey indicated that the undeveloped lot owners who responded are most generally a stable group of property owners with only a few speculators in real estate among them. Consequently, their opinions and desires should receive consideration in the formulation of the land use plan.

Residence Plans - Among the seasonal home and vacant lot owners, 68% plan to eventually live in Pine Knoll Shores. 10% said that they might and the remaining 22% said they would not. A higher percentage of seasonal home owners (29%) said that they would not than undeveloped lot owners (18%). The largest number (59 respondents) plan to make the move between now and 1979. Another 53 plan to move to Pine Knoll Shores between 1980 and 1984.

Occupancy - 62% of the year-round homes have only two occupants and 34% have more. 4% of the permanent residents live alone.

Age Distribution - The majority in all categories of Pine Knoll Shores' property owners are older people. 64% of the total replying were over fifty years of age. This goes even higher among the permanent residents with 77% being over fifty. In fact, 60% of this group were over sixty. There is more evidence of youth among the undeveloped lot owners with only 56% being over fifty and only 18% being over sixty.

The largest age group among the responding permanent residents was in the sixty to sixty-nine bracket which was 54% of the total. Most seasonal house and vacant lot owners were a bit younger with the fifty to fifty-nine age group being the largest at 39% and 38% respectively.

A STATISTICAL EXCERPT FROM THE 1975 SURVEY OF  
RESIDENTIAL PROPERTY OWNERS IN PINE KNOLL SHORES

750 questionnaires mailed; 410 replies tabulated; 54.7%  
response

Pine Knoll Shores Should Be?

- 68% Residential and retirement family resort with commercial area to serve community only.
- 11% Same as above but with more general commercial activity
- 11% About equal division of condominiums, motel rooms and single family homes
- 9% Retirement community only
- 1% Unrestricted tourist growth

Future Population Desires Ten Years Hence?

- 71% Increase slightly
- 20% Stay the same
- 7% Increase greatly
- 2% Decrease

Satisfied with the Way the Town is developing?

- 87% Yes
- 13% No

Satisfied with Zoning?

- 64% Yes
- 23% Don't know
- 13% No

Willing to Pay Additional Taxes for More Community Services?

- 60% Yes
- 40% No

(Choices in order of priority)

- 1) Better fire protection

- 2) Increased police protection
- 3) Municipal garbage collection
- 4) Central sewage system

Additional Commercial Growth? No More A Few More Unlimited

Stores, PO, Bank, ABC, etc. %	46	51	3
Condominiums %	54	43	3
Marina %	56	42	2
Apartments %	70	29	1
Fishing Piers %	79	20	1
Mobile Homes %	98.7	0.8	0.5

Should Salter Path Road be Four Laned?

62% No

38% Yes

Age Distribution of Property Owners

20-29 yrs. 5%	40-49 yrs. 18%	60-69 yrs. 27%
30-39 yrs. 13%	50-59 yrs. 34%	Over: 70 3%

Annual Family Incomes

Under \$10,000 1%	\$20,000 to \$30,000 31%
\$10,000 to \$15,000 11%	\$30,000 to \$45,000 23%
\$15,000 to \$20,000 16%	Over \$45,000 18%

Income, Employment, and Cost of Living - Most of the family incomes (31%) are in the \$20,000 to \$30,000 range with the next largest group being in the \$30,000 to \$45,000 bracket (23%). 18% report incomes above \$45,000.

The most well-off of the three categories of property owners are those who have built vacation or seasonal homes at Pine Knoll Shores with 85% reporting incomes above \$20,000 and 43% in excess of \$45,000. Next in line are those who have not yet built on their lots, with 73% making over \$20,000 and 9% over \$45,000.

The permanent residents are the ones with the lowest incomes with a bit less than half (49%) making over \$20,000 and only 4% making over \$45,000.

At the Town's present state of growth, retired persons own most of the homes. 62% of the permanent residents and 66% of the seasonal residents are retired. Among the year-round group, 31% work full time and 7% part time. 19% of the seasonal home owners work full time and 15% part time.

The cost of living in Pine Knoll Shores evidently presents an attractive situation to those who have decided to retire there. 80% of the retired permanent residents answered the question on estimated basic cost of living. Most respondents (43%) reported a cost of living range of \$10,000 to \$12,000 with only 25% reporting a higher cost.

## VI. COMMERCIAL LAND OWNERS' SURVEY

A survey was also conducted of the owners and operators of commercial property. This covered motels, real estate, retail, and construction activities. Specific questions were asked to assist in providing land use, population, and economic data used in later sections of this report.

The same questions asked the residential property owners were also put to these business people. The responses, for all intents and purposes, were similar to those holding residential property with the following exceptions:

- 1) Between 18% and 27% wanted unlimited commercial development.
- 2) Over 55% wanted the Town to provide either public parking, boat ramps, or beach access.

- 3) 45% wanted a Town with equal numbers of motel rooms, condominiums and single family homes.
- 4) 90% expressed dissatisfaction with the zoning and other land use controls.
- 5) 45% wanted Salter Path Road four-laned and 67% wanted a new bridge to be located at Pine Knoll Shores.

## VII. EXISTING LAND USE ANALYSIS

General Setting - Pine Knoll Shores sits athwart Bogue Island at one of its widest points. It runs along the ocean beach for 4.53 miles with the ocean to sound width ranging from 1200 feet to 4000 feet to include a total area of 1430 acres. The land varies in elevation from below sea level to 24 feet above behind the frontal dune system. The frontal dunes occasionally top 30 feet. Undulating land forms are covered with bands of climax maritime forests running generally parallel to the ocean shore. These bands are interspersed with lower level scrub swamp and swamp forest and occasional fresh water ponds and high marsh. The Bogue Sound shore contains an interesting variety of salt marsh and maritime scrub thickets with some intervening sand beach. The whole area has been defined as fragile from an ecological viewpoint.

Residential Development - 48% or 684 acres (including streets and waterways) of the Town's area have been laid out in residential subdivisions containing 1038 lots. One fourth of these have houses on them. These subdivisions have generally been laid out in a modern manner with respect for the irregular land forms and the irreplaceable forest cover. Practically all streets have been paved. Water lines have been installed in a large portion of the development. Lots are large with none being less than 7500 square feet in area and the majority being over 10,000 square feet. Although some early house construction was done in the bulldoze, clear and build manner, present building practice is to fit the contour of the land and to cut a minimum of natural vegetation.

8100 feet of the total of 23,850 feet of ocean frontage is available exclusively for single family residential development. 3500 feet of the frontage has been built on. A problem exists where some of the earlier construction was carried out in a manner that damaged the frontal dune and destroyed protective vegetation. Most recent ocean front construction has been carried out with respect for and

understanding of the delicate balance of beach front environment. State, County and Town Ordinances protecting the frontal dune system are now being vigorously enforced.

Two condominium projects have a combined total of 223 proposed dwelling units on 11.7 acres of land. (176 of these units have been completed.) The resulting 19 dwelling units per acre is quite high when compared to the rest of the subdivided residential land in Pine Knoll Shores. The Zoning Ordinance enacted since these projects were initiated limits subsequent residential construction in commercially zoned areas to 10 units per acre.

Open Space and Recreation Areas - The Town is amply supplied with open space and recreational areas. In addition to the public beach, the residential areas have eight mini-parks providing access to the ocean, sound and the internal waterway. The internal waterway, which provides about 24 acres of openness, may be added to this account. Obviously, the golf course and the Roosevelt Natural Area are most important elements in the open space/recreation inventory. Also, a portion of the Town property on which the Town Hall is located may in the future be turned into a sound-side park. A tally of all these areas follows:

Roosevelt Natural Area	309 acres
Golf Course	93 acres
Town Hall Property	27 acres
Waterway	24 acres
Eight Mini-Parks	<u>13 acres</u>
	466 acres total

The above account would put about one third of Pine Knoll Shores' land in the open space and recreational category. In evaluating its adequacy, consideration must be given to the easy access by all to the openness and recreation provided by the beach, shores, and waters of the ocean and the sound. The predominance of large wooded residential lots and the absence of urban-type congestion are also a plus for this category of land use. It is evident that Pine Knoll Shores is amply endowed with open space and recreational land for now and for the future if present plans are carried out.

Resort Commercial Development - The seven motel complexes along the strand are occupying a total of 34 acres of land. Among these are presently 590 guest rooms. Assuming an average of three people to a room, 1770 transient persons are added to the Town's night-time population during peak tourist seasons.

There is available for this type of development an

additional 131 acres of ocean front land and 103 acres of sound front land. However, the Zoning Ordinance limits the density of development for this land to 10 accommodations units per acre. If this land were to be developed to maximum allowed densities, there would be 2340 additional accommodations units. At three persons per unit, this could add an additional 7020 persons to the transient population.

Additionally, there is extensive land available for retail commercial use. If all this additional land still available for development (127 acres) were put into resort accommodations at maximum densities, an additional 3810 transients would be counted for a total from all three above conditions of a maximum of 12,600 transient persons.

However, because of the density restrictions and the high cost of land, it is unlikely that much additional motel construction will occur on the above land. More probably, residential units (homes, condominiums, apartments, etc.) will be built. Developers may even agree to some even lower density zoning to overcome sewage restrictions.

Resort commercial development caused some major land use abuse before the incorporation of the Town of Pine Knoll Shores. The chief trouble came from the disregard of the fragile natural/physical balance of a barrier island by most of the ocean front motel builders. Only two motels are built well back of the protecting frontal dune with elevated walkways for access to the beach. One, but only one, is carefully sited to fit the contour of the secondary dune system and to disturb a minimum amount of the protective maritime scrub growth.

The construction of the five other motels and a condominium project generally began with bulldozers clearing away the covering growth and leveling the sand dunes for the full width of the property from Salter Path Road to from four to eight feet above the mean high water mark. In this process there was leveled or seriously damaged 2550 feet (10.7%) of the 23,850 feet of frontal dune protecting the Town from the incursions of the ocean during storms and hurricanes. Further, the leveling of the land has greatly increased the potential of flood erosion along Salter Path, the main access road to Pine Knoll Shores.

The seven motel complexes and the two condominium projects are using individual package plants for sewage treatment. Even the best of these are subject to malfunction and can cause pollution of ground and surface waters. Sizable

additional motel and condominium development would require an area-wide sewage collection and treatment system. This will be true even at the limited densities now required by the Zoning Ordinance.

Other Commercial - There are presently only six other commercial establishments in Pine Knoll Shores. 127 acres of land are available for more such development. In the survey, previously cited, an overwhelming majority of respondents wanted only retail and service businesses and professional services to support the needs of residents, both permanent and seasonal. If this preference is heeded, Pine Knoll Shores will need only two and one-half to five acres of land for well planned community shopping and services. Even with a low density, spread-out business area, ten acres should be more than adequate.

Industry and Manufacturing - There is no land used or zoned for industry or manufacturing in this predominately residential community nor is any such use contemplated in the foreseeable future.

Land Use Graphics

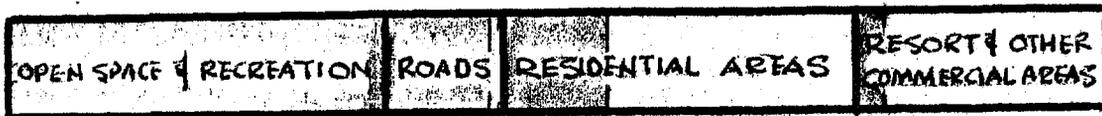
**AVAILABLE FOR DEVELOPMENT**



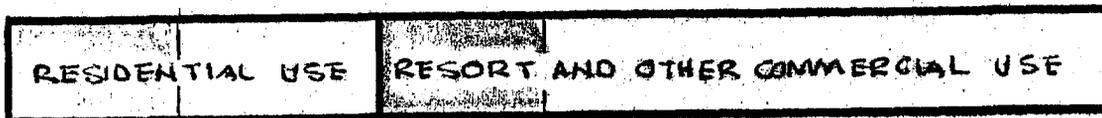
**ALREADY DEVELOPED**



**EXISTING LAND USE SITUATION**



**ATLANTIC OCEAN FRONT SITUATION**



Ground and Surface Water Pollution - In spite of the existence of an adequate central water supply, about half of the dwelling units in the Town have individual wells. All of the single family homes use septic tanks. The danger of septic tank effluent polluting these wells is omnipresent.

The March 9, 1976, "Carrying Capacity" report of the Coastal Resources Commission states that "up to a certain density .... the land is quite capable of absorbing human waste from onsite sewage disposal systems without detrimental effects on the quality of ground and surface waters". The low residential densities planned for Pine Knoll Shores may eliminate the need for a central sewage system. However, the N.C. Division of Health Service's new regulations (yet to be put into use) state that no portion of any residential septic tank absorption field may be closer than 100 feet to the mean high water mark.

36% (372) of the existing lots front either the ocean, sound or waterway. By putting the septic drainage field on the road side of a dwelling, it will be easy to meet this condition on all except 25 waterway lots.

At the present time, there is no indication that the development of homes on the sound shores has caused any noticeable deterioration in the quality of the waters of Bogue Sound. The Town officials are determined to do all in their power to keep the sound from becoming polluted.

Land Classification - The State of North Carolina has adopted a general classification system for dividing land into five types: Developed, Transitional, Community, Rural and Conservation. The limited area covered by Pine Knoll Shores includes only two of these classifications. Their designation did not assist in the preparation of a Land Use Plan.

Soil Capability - Most of the soils upon which development exists or is proposed under the Land Use Plan are the Fripp Sand and Corolla Sand series or a combination of the two. These are extremely permeable sands often overlaid with a layer of undecomposed plant material and usually containing a cover of native plants. These plants include Live Oak, Wax Myrtle, Bay, Pine and a number of grasses. These soils as they exist in Pine Knoll Shores are particularly well suited for accommodating properly designed individual septic tank sewage disposal systems. Water table level and building weight carrying capacity present no problems in these soils.

The previously mentioned lower level scrub swamp and swamp forest that lie between the higher maritime forests are composed of the Duckston Sand series. These soils are poorly drained and too wet for development. They will not accommodate septic tank sewage disposal.

The high and low marsh soils have been proposed for classification as areas of environmental concern with no development except access structures. The coastal beach and fore dune have been designated for similar restriction.

Present Land Use Regulations - The Roosevelt interests required rather rigid restrictive covenants to apply to all land sales or donations in the Pine Knoll Shores area. In 1973, the Town Government established a Planning Board and passed a Zoning Ordinance which in effect gave many of these private restrictions the additional force of local public law. The Town employs a full-time Building Inspector who enforces the following regulations affecting land use and environment:

1) PINE KNOLL SHORES' ZONING ORDINANCE. This regulation carries forth the Town Plan by providing for a low density residential and recreational community in a natural coastal setting with some low density resort accommodations. Minimum residential lot size is 7500 square feet. Except for retail sales, service and professional activity, no other uses are allowed. Resort and other business building are restricted to heights of 50 feet, shall not cover more than 25% of the land, and are required to leave no less than 35% of the land in its natural state. No such building shall be located closer than 50 feet to any public right-of-way line and shall not be nearer than 20 feet to side property lines or 30 feet on back lines. Maximum density for resort accommodations is 10 units per acre.

An approved plan must precede all land development designed in a manner to preserve a maximum of natural land form, trees and other vegetation. No building may be erected closer than 100 feet from the mean high water mark of the ocean and all required open spaces and buffer zones shall remain in their natural state regardless of elevation. No unnatural solid or liquid waste discharge is allowed into any waters.

2) BOAT SLIP REGULATION. Only docking facilities projecting into open water are allowed.

3) OUTER BANKS LAND PROTECTION ORDINANCE, and 4) SOIL SEDIMENTATION AND EROSION CONTROL LAW. The Building inspector assists the County and State in enforcing these.

5) PINE KNOLL SHORES' SUBDIVISION DEVELOPMENT ORDINANCE. Administered by the Town Planning Board.

6) NORTH CAROLINA STATE BUILDING CODE. Enforced by the Pine Knoll Shores Building Inspector.

7) SEPTIC TANK REGULATIONS. The Carteret County Board of Health requires a permit prior to installation of a septic tank system for individual dwellings. The North Carolina Division of Health Services regulations covering these systems are used. The Pine Knoll Shores Building Inspector assists in locating these systems in a manner to minimize disturbance of land forms and vegetation.

### VIII. THE LAND USE PLAN

Public Participation - Using the results of the survey of property owners' desires, needs, and judgements along with the existing land use survey, the Planning Board prepared a draft Goals and Objectives Statement. A public meeting was advertised for June 26, 1975, to discuss the results of the survey and the Statement. This open meeting was presided over by Mayor James W. Redfield. Mr. Stan Heckler, Staff Director of the Coastal Area Management Commission, explained the Coastal Area Management Act and the policies and activities of the Commission and its staff. The Town's Planning Consultant Paul Foster, A.I.P., presented the findings of the survey and distributed one hundred copies of a two page tabulation. Mr. Larry Jerome, Chairman of the Town Planning Board, discussed the proposed Statement of Goals and Objectives, copies of which had been distributed before the meeting. Chairman Jerome emphasized that this was a draft proposal and requested public input to refine the Statement. There was lively participation by the ninety-three persons who attended the meeting.

Long Range Goals - Over the ensuing weeks, the Town Planning Board incorporated additional ideas into the draft Statement and submitted it for approval. On August 14, 1975, the Town Board of Commissioners unanimously approved the following Official Statement of Goals and Objectives for the Town of Pine Knoll Shores:

#### Long Range Goals and Objectives of

#### The Town of Pine Knoll Shores

The following is a statement of policy concerning the Town's long range goals and objectives as developed by its Planning Board and approved by its duly elected Board of Commissioners on August 14, 1975. It attempts to reflect

to the extent practicable the desires of the Town's residents as expressed at various public meetings and in replies to a general questionnaire that was mailed to all residential property owners in May, 1975.

The purpose of this statement is to provide a foundation for planning and developing an outstanding town that meets the desires and aspirations of the majority of its residents.

Although the barrier islands of the coast of North Carolina are typically resort and summer vacation areas, there also is a need and demand in these areas for attractive and comfortable year around living facilities for moderate income families. The Town of Pine Knoll Shores was designed to fill this need. It is essentially a year around residential community, with a limited number of summer homes and commercial resort motels. Because of the Town's present population density restrictions, it is unlikely that there will be any substantial increase in the number of motels in the future. No industry is contemplated, other than the motels, one fishing pier, and a small business center to serve community needs.

At present, the Town is less than 20% developed and has about 680 full time residents. The majority are retired individuals and the rest are people who are employed in nearby communities. Peak summer population is substantially greater because of the many guests of residents and the influx into summer homes and motels.

Following are two projections of future population; one based on the answers to lot owners' questionnaires and the other based on the actual rate of growth to date. Both reflect peak season conditions because the Town must develop its services to meet peak population needs. At best, these computations are only rough approximations, but they do give some indication of the kind of growth the Town can expect, even with its existing zoning ordinances and population density limitations.

	<u>Present</u>	<u>1980</u>	<u>1985</u>	<u>2000</u>
<u>Lot owners' questionnaires</u>				
Residential	1,000	1,600	2,100	3,500
Motels	800	800	800	800
	<u>1,800</u>	<u>2,400</u>	<u>2,900</u>	<u>4,300</u>
<u>Projection of actual growth</u>				
Residential	1,000	3,000	4,100	7,800
Motels	800	800	800	800
	<u>1,800</u>	<u>3,800</u>	<u>4,900</u>	<u>7,800</u>

This projected population will be concentrated in about 1,350 of the Town's 1,780 acres. In addition to about 1,070 single family residences, there will be at least seven motels and several thousand multi-family residential units, such as condominiums, cooperatives, and apartments. It is anticipated that most of the Town's commercially zoned property will be developed with multi-family facilities in order to take advantage of the ten unit per acre density provision in the zoning ordinances.

In order to accommodate the needs of an estimated future peak population of between 4,300 and 7,800 people, the Town proposes to gradually expand its services as set forth below.

Police protection - The Town presently has its own police force. As the Town grows, this force will be enlarged to assure adequate police protection at all times. However, in view of the limited area of the Town and the probability that business development will be relatively small, it is unlikely that the police force will need to be increased at the same rate that the population increases.

Fire protection - The Town is presently negotiating with the Town of Atlantic Beach for fire protection services. Up till now, only the east end of the Town has had an arrangement with Atlantic Beach. The rest of the Town is dependent upon the good will of Atlantic Beach and Salter Path for help if the need arises. The Town itself has no fire fighting equipment. For the future, the Town has several alternatives, any one of which would be satisfactory: (1) continue its arrangement with Atlantic Beach, but add a substation within the Town in order to reduce fire insurance rates; (2) join a consolidated Bogue Banks Fire District if one is established; or (3) form an independent Volunteer Fire Department, a costly and long drawn out process. These options will be continuously evaluated as the Town grows. Another factor in improving the Town's fire fighting capability will be the erection of an elevated water storage tank, discussed in more detail under Water Service below.

Water service - Present plans are to have Carolina Water Service, Inc., continue to provide the Town's water needs. Part of the eastern end of the Town depends upon individual wells on each property. However, if this source should become unsatisfactory, the water company can extend its lines to serve the area. As the system expands, it will be necessary to erect an elevated water storage tank to assure adequate pressure during peak consumption periods. A side benefit of such a tank is a surer source of water for fire fighting purposes with a commensurate reduction in fire insurance rates.

If at any time it should appear advantageous to do so, the Town will consider purchasing the water system and operating it as a municipal facility.

Sewerage Disposal - For the present, the Town will continue to rely upon private septic tank systems, built and installed in compliance with strict State and County standards. For the future, however, the Town is tentatively committed to participation in a district sewer system, most of the cost of which will be paid for out of Federal and State funds, with the remainder to be financed by local revenue bonds. The preliminary plans for the treatment and disposal plant have already been developed and approved, but it will probably be several years before the necessary local referendums are completed and actual construction is started. It is generally agreed that the Town is limited as to the number of septic systems it can have without causing contamination of the surrounding waters, and ultimately the Town's fresh water sources.

Garbage and Trash Collection - The Town plans to be responsible for all general trash and garbage collection, except for motels and businesses. On a trial basis, it has entered into a six-month contract with Atlantic Disposal Co., the cost to be met out of tax revenues. If this arrangement proves successful, it will be continued. When the Town's growth merits it, consideration will be given to a municipally operated sanitation service.

Electric Service - The Town will continue to rely upon the Carteret-Craven Electric Membership Corp. to supply its electric power needs. No foreseeable problems of supply are anticipated.

Gas Service - The Town has no intention of installing a natural or manufactured gas distribution system. All energy requirements will be met with electricity and oil.

Recreation Facilities - The Town is well endowed with outdoor recreational facilities. In addition to about five miles of ocean beach, it has eight small parks that are operated by the property owners associations (3 on the ocean, 2 on the sound, and 3 on Pine Knoll Waterway.) Also, within the Town limits, the State operates a 300 acre park containing a marine science center and museum. The Pine Knoll Shores Golf and Country Club is located in the Town, with an 18 hole golf course, a large clubhouse, a swimming pool, and four tennis courts. Finally, the Town itself owns a tract of 27 acres, some of which will

probably be developed into public parkland in the future.

Schools and Education - The Town comes under the Carteret County school system and, therefore, need provide no schools of its own. At present, the children are bussed to schools in Morehead City. Post high school courses and adult education are available at Carteret Technical Institute, also in Morehead City. The Town does not plan to supplement presently available educational facilities.

Roads and Bridges - The Town will maintain all roads and bridges that are dedicated to it. Generally, all new roads and bridges will be constructed by subdivision developers at their cost. The Town will support any effort to have the State improve Salter Path Road as the principal traffic artery through the Town, provided it is continued as a two-lane highway. If a third bridge is built across Bogue Sound from the mainland, the Town will support the majority views of its residents as to the bridge's preferred location.

Public Transportation - The Town does not intend to establish any public transportation system, but it will give serious consideration to any effort by the County or a private enterprise to establish a Bogue Banks Busline along Salter Path Road - in the light of the threatened future energy crisis.

Other Capital Improvements - Included in the Town's long range plans are a new community center to include town offices, police headquarters, a fire station or sub-station, and a meeting hall. Also, as the Town becomes larger, it will need some maintenance equipment and a place to house it. These facilities will be located on the Town's property on Bridge Road.

Coastal Land Management - Recognizing that much of the Town lies within fragile areas of environmental concern, the Town will strive through its ordinances, regulations, and decisions of elected and appointed officials to maintain and protect the natural terrain and environment to the extent possible. In particular, it will protect the ocean and sound shorelines, the frontal dunes, the salt marshes, and the maritime forests. It will also take necessary measures to protect the quality of the water along the sound and ocean fronts and in the Town's internal waterways. It will abide by all applicable rules and regulations promulgated by the Coastal Resources Commission.

The foregoing objectives are considered valid for the foreseeable future. However, they will be reviewed periodically and, where appropriate, modifications will be proposed for the Town's consideration.

Notes on Goals - It has been subsequently determined that the acreage figures given in the Goals were overstated. The acreages given in the text of the land use analysis are to be considered more accurate.

In computing the population projections, a figure of 400 motel rooms with a peak occupancy of two persons per room was used. The actual number of rooms is 590 and three persons per room is deemed as a more correct peak occupancy.

Since the Goals were adopted, two steps toward achievement have been taken: 1) An agreement has been made for adjacent Atlantic Beach to provide fire protection for the whole Town of Pine Knoll Shores; and 2) the Town Board of Commissioners has passed a resolution to cooperate with all of the area local government units in working to provide sewage collection and treatment on a regional basis. This involved approval of the EPA (Section 201) Regional Plan.

On water quantity, the existing deep well system can pump one million gallons of water per day without aquifer draw down. This is adequate for a population of 10,000.

The Planning Advisor is convinced that making Salter Path Road a high capacity facility would harm the Town by creating a barrier to north-south traffic and pedestrian movement and by causing general congestion.

(CONTINUATION OF THE LAND USE PLAN)

Population and Economy - In contrast to most communities, Pine Knoll Shores' existing and future population has little relation to local job markets or birth rates. The employment and population factors affecting this settlement are scattered throughout the urban areas of the whole United States. The majority of residents are retired and living on previously earned income. Those whose source of income is the transient or seasonal resident are importing money earned in other parts of the country. If the nation's economy is good, this leisure industry prospers. If not, it diminishes. This is particularly true of the motel and condominium activity. On the other hand, the construction of houses on purchased vacant lots may be expected to continue at a good pace.

Additional Public Services - As Pine Knoll Shores grows, an increased tax base will make it possible to provide additional community services. That there is a desire for these is evident in the returns of the survey. The Town now has an adequate local street system for future residential needs. Power and water are supplied by out-of-town companies that appear to be able to adequately take care of growing needs. There are only two large public works projects that the Town may have to contend with. These are sewage collection and treatment and extension of the potable water system. Fire and police protection along with garbage collection are covered in the Goals and Objectives Statement.

Allocation of Future Land Uses - Map #2 shows how future land use is planned for. Barring an economic collapse, war or other catastrophe, the land allocated to residential use, which has already been subdivided, should continue to be filled in with homes at a regular rate. As this takes place, market demand should cause the establishment of a community shopping area. Community recreation and open space for residents is already adequately provided for. All of the above allocations are well defined in the Private Covenants running with the land and integrated into a comprehensive Land Use Plan through the Zoning Ordinance.

The Land Use Plan prescribes a rather low average development density for the Town. This is necessary to preserve the quality of the fragile land and waters. This recognizes the limited capacity of this environment to absorb development.

The past problems caused by the unregulated overloading of ocean front property by resort commercial facilities has already been discussed. The land allocated for this type of activity is limited to ten accommodations per acre. At this density, it will be possible to preserve a maximum of maritime forest and protect the dune and beach grass formations. This may be accomplished by either concentrating allowed accommodations in one part of a property or through scattering them in clusters on the land. In either case, the remainder of the land is left in its natural state. This will make it possible to preserve a maximum amount of maritime forest and to protect the vital dune formations and the stabilizing grasses that cover them.

## IX. DESIGNATION OF AREAS OF ENVIRONMENTAL CONCERN

Background - The Coastal Area Management Act requires that local land use plans shall give special attention to the protection and appropriate development of Areas of Environmental Concern. The developers of Pine Knoll Shores had taken measures for protection and appropriate development well before State legislation was passed. One of the first acts of the local government after its creation in 1973 was to set up stringent guides for environmental protection through a Zoning Ordinance. The local administrative and planning officials are heartened to see that the State government has joined with them in this effort. Strong State technical and enforcement assistance will greatly enhance the Town's efforts to protect Areas of Environmental Concern.

Totality of the Problem - It is interesting that the whole of Pine Knoll Shores was recommended as an Interim Area of Environmental Concern by the CAMC staff in maps issued in December, 1974. Local officials consider it so. The Zoning Ordinance was their first step toward assuring appropriate development. Following are the recommended areas for environmental concern.

Coastal Wetland - All low tidal (*Spartina Alternaflora*) and high marsh (*Spartina Patens*) should be kept in their natural state with no building (except docks) and no filling or effluent discharge and with buffer strip protection from adjoining development. These wetlands exist intermittently with maritime scrub thickets and maritime forests along the whole of the Bogue Sound shore. Particular attention should be given to protecting the endangered American Alligator which probably breeds on the edges of these marshes.

Natural Resource Area - The whole of the Roosevelt Natural Area (309 acres), containing the Carteret Marine Resources Center, should be kept in its natural state as a preserve for present and future generations. Intensive public access should be restricted to small portions close to the existing entrance road and Center Complex or other specifically designated areas where access can be well controlled. Access should only be permitted in a manner that will have minimum deleterious effect on the ecological balance, by using elevated walks and providing guides. New building should be limited and only be allowed as expansion of the existing Center.

Primary Dune System and Ocean Beach - No building should be allowed on the total length of ocean beach or the primary dune system behind it except for elevated access walkways designed to cause minimum harm to these formations.

Flood Plain - Building in the flood plain, as recently defined by the Federal Insurance Administration, should be restricted to residential structures with habitable portions of the building elevated above the 100 year frequency flood level.

Climax Maritime Forests (Complex Natural Areas)- It has been previously mentioned that bands of relatively high forests parallel the coast along the total length of the Town. Dr. Eugene P. Odum, the eminent ecologist, has said that recent studies indicate that at least 1000 years may be required for the development of a climax forest from the beginnings of a bare dune.<sup>1</sup> Yet a few days of bulldozing operation can return this land to unstable sand inviting wind and water erosion and eventual flooding. Anyone familiar with North Carolina's coastal areas knows how little of this type of forest is left in the State.

Dr. John Clark, noted marine ecologist, has stated that "dense (barrier) island forest areas may be ecologically suited for human use .... and little ecological damage need result .... if proper constraints are invoked."<sup>2</sup>

Any development in the Climax Maritime Forests should be carefully controlled. Residential and resort commercial accommodations that are allowed should not exceed densities of 10 units per acre as required by the Pine Knoll Shores Zoning Ordinance. These should be concentrated or clustered within a project in a manner to preserve a maximum of trees and shrubs. Accessory facilities should be limited to those that serve residents or overnight guests only. Vehicular access should be designed to destroy an absolute minimum of trees. No other land uses should be allowed.

<sup>1</sup>ODUM, EUGENE P. 1963 ECOLOGY, Holt, Rinehart & Winston, New York p. 87

<sup>2</sup>CLARK, JOHN 1974 COASTAL ECOSYSTEMS, Conservation Foundation, Washington, D.C. p. 78

## X. FOLLOW-UP AND COORDINATION

Implementation of the Plan - The elected officials will continue to take vigorous action to provide for orderly development of Pine Knoll Shores consistent with the well expressed desires of the citizens. The people have spoken for low density residential emphasis and minimum damage to the unique coastal environment. A synopsis of this Plan will be put into the hands of every property owner.

Review and Revision - A new survey of residential property owners is expected to be repeated in five to seven years by the Town Planning Board. A tabulation will be made to determine the citizens' appraisal of the 1976 Plan and any changes will be incorporated in a revised Plan.

Coordination With Carteret County Planning - Coordination with the Carteret County Planning Department was continuous during the Pine Knoll Shores' planning work. This was to assure that these plans are an integral part of the County Plan.

On February 24, 1976, a joint meeting and public hearing was held to discuss planning underway by Carteret County and the municipal corporations in this area. Many of the population projections of the municipalities were in excess of the limited carrying capacity of Bogue Island. Steps are being taken to correct this problem. However, Pine Knoll Shores' population projections were considered reasonable.

Official Status - This Land Use Plan for Pine Knoll Shores was officially adopted by the Town Board of Commissioners on May 19, 1976, immediately following the required Public Hearing.