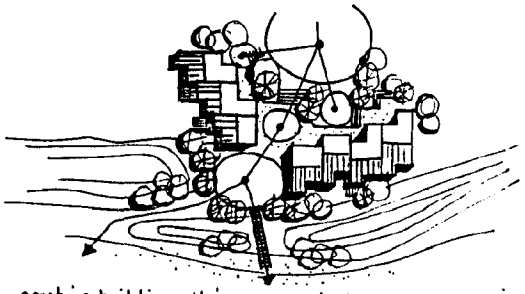
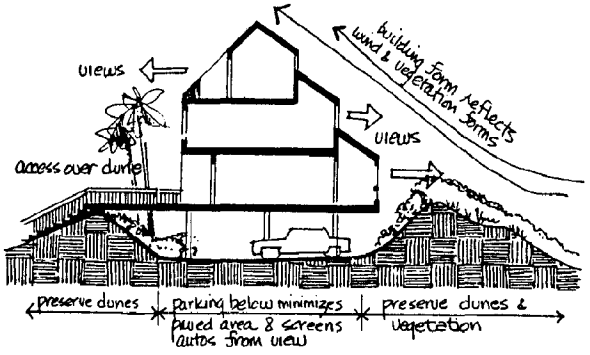
CONDOMINIUMS AND BARRIER ISLANDS

ISSUES
EFFECTS
GUIDES FOR DEVELOPMENT



creative building siting can protect dunes & vegetation while creating a variety of views & spatial experiences – pedestrian access is enhanced



JOHN J HOOTON AND ASSOCIATES

CONDOMINIUMS AND BARRIER ISLANDS

ISSUES
EFFECTS
DESIGN GUIDELINES

PREPARED FOR
ONSLOW COUNTY
AND
THE TOWN OF SURF CITY

PREPARED BY
JOHN J. HOOTON & ASSOCIATES
WILMINGTON, NORTH CAROLINA

DESIGN ASSISTANCE
BY
SYNTHESIS ARCHITECTS AND PLANNERS
WRIGHTSVILLE BEACH, NORTH CAROLINA

FINAL DRAFT JANUARY 31, 1984

THIS REPORT WAS FINANCED IN PART BY A GRANT FROM THE U.S. DEPARTMENT OF COMMERCE, OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT, AND FROM THE NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT, OFFICE OF COASTAL MANAGEMENT.

TABLE OF CONTENTS

PREFACE

The preparation of this report was a result of the increasing rate of development of condominium units within the jurisdiction of Onslow County and the Town of Surf City. Local officials and citizens became concerned that this might adversely affect the island's natural and esthetic values and requested a grant under the State's Coastal Area Management Act program to prepare guidelines for future condominium development. As various groups-public and private-with an interest in the future of Topsail Island and coastal development began to express their views the scope and content of this report gradually expanded to include many important issuses related to broader concerns generally categorized as growth management,land use planning and carrying capacity. In seeking to address as many as possible of these important questions, and provide at least a framework for future possible solutions, additional reference materials have been provided for assessment of condominium construction, site design and adequacy of community associations.

The report is structured so as to first, provide an overview of development problems associated with condominiums, and most importantly to give some perspective to the relationship between existing and needed regulations and potential future development on North Carolina's barrier islands. The second section of the report is intended to reflect and expand local land use planning goals for barrier island development primarily as it relates to condominiums as well as single family detached housing. The third section focuses on the effects of condominium development

on barrier islands and specifically the way that coastal ecosystem processes and their values might be affected. Based on the conclusions of this section conclusions, policies and recommendations are developed. The next section attempts to clear up past misconceptions concerning condominium development and point out possible opportunities that exist if adequate planning and design guidelines are followed. The last section explains how this report can be used by other local governments with jurisdiction and responsiblity for development of barrier islands.

The preparation of this report was financed in part by a grant provided by the North Carolina Coastal Area Management Program through funds provided by the Coastal Zone Management Act of 1972.

1.0 PERSPECTIVE

1.1 REPORT HISTORY

The initiative for this report originated with the Onslow County planning Department and the Town of Surf City, as both governmental bodies began to realize the potential for rapid large-scale development of the barrier islands within their jurisdiction. Sparked by a controversial development on Topsail Island's northernmost tip, at New River Inlet, some citizen groups began to acively oppose further development, particularly any that utilized the condominium form of ownership, on Topsail Island. The potential for additional development was significantly increased by the construction of the State's largest private waste disposal system, thus eliminating one of the most serious obstacles to development on the island.

Explosive development, all involving condominium ownership, at neighboring beaches--Carolina Beach, Atlantic Beach, Wrightsville Beach--prompted Onslow County and Surf City to apply for a grant from the North Carolina Office of Coastal Management to fund a study of the fiscal and environmental effects of condominium development on a barrier island. A part of the report would be to recommend ways to evaluate and mitigate these anticipated impacts. Methods to be considered would include location, design and maintenance guidelines and necessary amendments to local government land use plans and ordinances.

1.2 FACTORS INFLUENCING DEVELOPMENT ON BARRIER ISLANDS

Three major influences will determine the type, timing,

intensity and location of development on barrier islands, or for that matter in any location. These are legal restrictions, physical impediments(including water and sewer availability), and financial conditions(primarily construction and interest costs to the builder and prospective buyers). While each of these may play a more or less significant role in triggering development decisions, depending upon existing conditions, it is interesting to observce the experiences of two neighboring communities that have a history of condominium development.

The Town of Wrightsville Beach, prior to 1972, had few height limitations and adequate water and sewer capacity. Favorable interest rates and good general economic conditions prompted the development of three high-rise(10 story) condominium projects. Many residents objected to the projects, contending their scale and appearance was incongrous with the rest of the Town's land use. Many citizens also feared the "New Jerseyism" of the town. Consequently, strict zoning limitations were enacted not only reducing density but imposing height limitations to 40 feet in virtually all remaining developable areas. As the mid-70`s real estate recession set in, these restrictions combined with higher interest rates to greatly decrease new construction of condominiums. However, in the late 70's more favorable financing and vastly increased demand spurred a new "mini-boom" in condominium construction, although design was now of the low-rise townhouse style. Interest rates at Wrightsville Beach have been less important than in some other communities, since the desirability of the area has attracted persons in income levels who are capable of making unleveraged purchases.

The "mini-boom" once again caused some citizens to ask for greater density controls. During all this period, 1972-1982, water and sewage treatment, although a problem, could be surmounted by determined, well-financed developers who were willing to comply with the Town's requirement of providing 150 percent treatment capacity at the developer''s expense. But as available land became scarce, developers moved into "motel-miniums" and other time-share type projects.

In neighboring Carolina Beach, condominium development proceeded at a slow pace during all of the 1970's despite reasonable financing, lenient zoning restrictions and considerable developable land. Two factors contributed to this relatively slow pace-lack of sewage treatment capacity and a less favorable image. However, by 1980 a new central sewage treatment plant had been installed and with the lack of available land and zoning restrictions at neighboring Wrightsville Beach, major new condominium projects were announced.

In contrasting the experience of these two communities and identifying the forces most significant for Topsail Island's future, two factors stand out. First, there appears to be a continuing and increasingly strong demand for housing on North Carolina's coast. The market radius of this demand is geographically widespread and includes much of the northeastern United States; however, the large military populations in the area--Ft. Bragg, Camp LeJeune and Ft. Fisher Air Force Base--provide a natural local market for medium priced units. In addition, the relative proximity to the vast population in the Piedmont area of

North Carolina adds more market support. The second factor is that of the three basic determinants of development, it appears that the availability of sewage treatment facilities is the most important in creating rapid development, particularly high-rise designs. State regulations prohibit any discharge into the ocean or intra-coastal waterway, thus requiring either a central treatment plant or on-site treatment. Except for Wrightsville and Carolina Beaches, no other barrier island towns have treatment facilities, and on-site treatment systems often require valuable land area. In Wrightsville Beach, development continued, although at a different scale, as long as demand existed and treatment capacity was available. In Carolina Beach, an explosion in condominium growth occurred when treatment capacity became available.

These observations, although general in nature, are significant for Surf City and particularly for Onslow County. Both areas are well-positioned geographically in the radius of the potential local and regional markets; but even more significantly, sewage treatment may pose much less of a problem in these communities because of the presence of central treatment facilities and available land for on-site disposal. In the West Onslow Beach area, construction is nearly complete on a $3 million sewage treatment plant and pipeline. The private utility company(North Topsail Water and Sewer) has indicated plans to increase capacity from the current 1 million gallons per day to as much a 5 million. At the current capacity of 1 MGD, a population the size of Wrightsville Beach's peak population of 25,000 persons

could be served. At the maximum capacity of 5 MGD, five times that number, or 125,000 persons, could be served.

During the 1970's, most towns without the resident and tourist population of Wrightsville Beach and Carolina Beach looked to the federal government for assistance in constructing sewage treatment facilities under the "201" program. Without demand at the levels found in these two towns, developers did not consider it feasible to construct private systems other than on-site disposal systems for individual projects. Considering the expense involved in construction of the North Topsail system, it is evident that at least one developer believes that demand is at, or will soon reach, levels that make this type of facility feasible.

While it is unlikely that the maximum sewage treatment levels will be reached within the next 4 to 5 years, it seems apparent that external economic forces will continue to create a favorable development climate for condominium projects--with or without treatment facilities. Thus, local governments can no longer depend on high interest rates or relatively low demand levels to maintain low intensity single-family detached development patterns now prevalent. The last determinant of land use change, public restrictions, will be the major influence on future land use patterns on Topsail Island.

2.0 LAND USE PLANNING GOALS

Any set of development policies or standards will be much more effective in guiding future land use patterns if it is designed to promote broader community land use goals. The recently adopted land use plans of Surf City and Onslow County under the North Carolina Coastal Area Management Act should be the guides for setting policies and standards for condominium type developments in their respective jurisdictions.

2.1 SURF CITY LAND USE POLICIES

The Surf City Land Use Plan adopted by the Town Council on January 5, 1981, contains the following policies that are important for condominium owners and developers:

> GENERAL DEVELOPMENT OBJECTIVE It is the objective of the Town to adopt policies and ordinances and take appropriate actions to promote the growth and development of the Town as a predominantly single-family residential community with limited supporting retail services and tourist oriented used. The term "single-family residential" includes multi-family ownership units(for example, condominiums), provided such development is consistent with other Town policies and ordinances.

This land use objective of Surf City's specifically recognizes condominium development that is consistent with other Town policies and ordinances. Other applicable land use policies contained in the CAMA Land Use Plan are the following:

> AREAS OF LOCAL CONCERN It shall be the policy of the town to encourage the maintenance of the existing maritime forest by allowing only that development that will cause of the least practical disruption of the maritime forest cover. All uses currently permitted under the Town Zoning Ordinance will be allowed in areas with maritime forest, but only if consistent with the above policy.

IMPLEMENTATION The Town will adopt as a part of its zoning ordinance a standard for evaluation of multi-family dwellings that will require the avoidance of removal of any part of the maritime forest except that which is the absolute minimum to allow reasonable use of the site. The Town will adopt as a part of its procedures for administration of its building code requirements that plans submitted to the building inspector show maritime forest areas and construction procedures that will cause the least practicable disruption to these areas.

TIMING AND DENSITY OF DEVELOPMENT The timing of development shall be consistent with the Natural Resource Policies and the capacity of the Town to provide water and sewer services to additional projected development. Water and sewer facilities should not be expanded to a capacity greater than that required to accommodate projected permanent or peak populations; that is, no facility expansions should be provided to induce or promote growth beyond projected demands. The density of development shall be consistent with that allowable in the Town Zoning Ordinance.

CARRYING CAPACITY It shall be the policy of the Town to insure that all future development adheres to all applicable local and state regulations governing the operation, location and installation of on-site disposal systems. It shall further be the policy of the Town that any action by the Town that may result in an increase in density above that currently permitted under existing ordiances will consider the effects of such action on existing water quality; and should such effects be negative, the town will take whatever action is required to mitigate those effects.

BEACH ACCESS, PRESERVATION AND EROSION CONTROL 1) Renourishment, supplemented by land use controls, access control and vegetation maintenance, is the preferred alternative for erosion control; 2) since the dune and berm is a resource used by persons throughout the region and state, the cost of its maintenance should be distributed among its user-beneficiaries in equal proportion to the benefit received; 3) the expenditure of public funds for dune and berm protection must be complemented by provision of public access to the beach and shore; 4) to protect the dune system and its stabilizing vegetation by a) routing the flow of pedestrian traffic to central points of access to the water, and b) enforcing dune protection ordinances; 5) to implement the policies and recommendations of the Surf City Beach Access Plan.

2.2 ONSLOW COUNTY LAND USE POLICIES

The Onslow County Land Use Plan policies are less specific in addressing condominium type developments, probably reflecting the broader geographical area and more diverse housing types that had to be accounted for in a county-wide plan. The following policies, found in the 1981 plan, provide some guidance in establishing policies for condominium developments:

> GROWTH 1) allow growth to occur in an orderly manner; 2) permit intense development in those areas that are served or will be served with urban services.
>
> RESOURCE PROTECTION <u>OCEAN DUNES AND BEACHES</u> Uses shall be compatible with CAMA regulations and policies with highest priortiy given to preserving the dune system and access to the beach. Depending on the site and surrounding land uses, possible uses could include residential, commercial, public, semi-public or recreational uses. <u>ESTUARINE SHORELINES</u> Uses shall be consistent with CAMA regulations and policies and with nature and the values of the esturarine system. Permitted uses should consist of recreational uses and low density and commercial uses which will not greatly increase run-off into the esturary. <u>IMPLEMENTATION</u> Support the construction of central facilities where septic efflent is a contributor to water pollution and shellfish closing. Build permanent vehicle crossovers from the highway to the beach strand. Continue to require the donation of easements for public access in beach subdivisions as required in the Onslow County Subdivision Regulations or the donation of at least an equivalent amount of oceanfront property.
>
> ECONOMIC AND COMMUNITY DEVELOPMENT Encourage the development of various housing types(such as mobile home parks, planned unit developments, apartments, conventional single-family homes, etc.) in the proper locations.

Throughout both Surf City's and Onslow County's land use plan policies, several concerns are apparent. One is the desire to protect water quality by limiting the location and rate of growth to levels and areas that are consistent with the capacity of the areas' soils and water to absorb new development. Another concern appears to be that even if the rate and location of

growth is restricted to levels consistent with local and state health regulations, resulting densities may result in damage to water quality, thus making central sewage treatment an inevitable neceessity to protect water quality. Both communities show a particular concern for protecting existing beach access and insuring that additonal access is provided in the future. Finally,both land use plans recognize the Coastal Area Manangement Act Areas of Environmental Concern and make their policies consistent with the AECs. However, neither plan reflects any opposition to development using the condominium form of ownership, and both recognize it either specifically (Surf City) or by implication (Onslow County) as a form of desirable residential development.

3.0 ENVIRONMENTAL EFFECTS OF CONDOMINIUM DEVELOPMENT ON BARRIER ISLANDS

The following discussion gives an overview of the major components of the barrier island ecosystem. The emphasis is on the natural processes that represent values that should be considered in establishing policies for future development.

3.1 BARRIER ISLANDS-THEIR ROLE IN THE COASTAL ECOSYSTEM

BARRIER ISLAND DEVELOPMENT--Coastal geologists have debated for over 100 years about the genesis of barrier islands and the only conclusion reached is that their evolution is the result of multiple causes. Most likely the first barrier islands of North Carolina were formed in place on the continental shelf at a time of low sea level several thousand years ago. River sediments built up by wind and wave formed the typical mainland beach. As sealevel rose due to a worldwide warming trend with subsequent glacier melting, areas behing the mainland beach were flooded forming an ancestral barrier. The Outer Banks of North Carolina most likely resulted from migration of ancestral barriers and addition and extension of secondary barriers through spit elongation and offshore bar emergence. Most of North Carolina's are thought to be secondary barriers.

3.2 BEACH DYNAMICS

A barrier island is essentially a large littoral sand body consisting of a shoreface maintained by the prevailing hydraulic

regime(waves and currents) and washover fans that are modified by storms, wind, and human activities. A beaches profile is a function of the amount of work required to remove sand and the ability of the waves to do this work. This in turn is a function of grain size, i.e., the coarser the sediment the steeper the beach. Shingle beaches may reach slopes of 40 degrees while muddy shores may be flat. North Carolina`s sand beaches rarely exceed slopes of 10 degrees. For a given wave climate there is an equilibrium profile at which a particular beach will have no significant changes. The beach profile will change in response to a variation in wave energy with the critical factor being delivery of wave energy to the beach which is described in terms of wave steepness. Wave steepness varies with the seasons with a net result of variations in berm width and height during summer and winter. The critical factor in this process is that the berm acts as a temporary storage area between off shore bars and the dune field and provides the mechanism by which the beach zone can withstand high energy wave regimes.

3.3 DUNES

Dunes and dune fields are formed by the transport of sand by wind and the growth of dune vegetation. Lack of nutrients, instability and low soil moisture make colonization by most forms of plant life practically impossible. However, tidal litter left behind at the high watermark in strandlines provide the niche for the initiation of plant growth necessary for dune formation. Vegetation that can establish itself in a strandline(such as sea oats or American beachgrass) begins to accumulate sand by reduc-

ing the wind velocity at the surface. These two grasses develop extensive horizontal and vertical rhizome systems which capture rainfall and bind and stabilize sand surfaces.

Growth of a dune is initially parallel with the strandline but its position may vary depending upon the strength and persistence of onshore winds. The height of the dune is controlled by wind, rain and vegetation. They may shift and migrate position frequently through continuous windward erosion and leeward deposition and occasional dune "blowouts." The "ghost forests" of dead trees and stumps seen in barrier island dunes and beaches are evidence of their migratory nature.

Dunes are thus the result of a fragile environmental balance(many plants may be living at the extreme of environmental tolerances and are easily disrupted) and the ecology of the dune environment is affected by their relative orientation, stability, distance inland and topography.

3.4 INLETS

A tidal inlet consists of a channel, an ebb-tide delta, a flood tidal delta, the barrier island swash bars and shoals with most of its depositional structures and dynamic features changing in response to currents and waves. The barrier island boundaries on either side of the inlet are constantly being modified by erosion and deposition with one side building up while the other erodes. This causes one side to extned farther downdrift over the inlet entrance with the flood-tidal delta formed on the lagoon side by sediments carried in on the flood tide. This

offset may not be present, however, in the case of inlets which are at the mouth of a large river where currents are strong enough to maintain uniform channel width. Thus the two most important characteristics of an inlet are migration and stability. Migration tends to occur in the direction of dominant longshore currents and thus in North Carolian inlets generally migrate in a north-south direction. However, there are considerable exceptions to this generality as evidenced by damage to public roads and private residences in several beach communities.

3.5 MARITIME FORESTS

Basically a variant of the coastal evergreen forest a definition of maritime forests should include all forested areas occurring on relict sand dunes either on the Outer Banks or immediately adjacent to permanently salty sounds. However, even with this broad definition maritime forest is quite rare and it is virtually restricted to the wider portions of the barrier islands. The maritime forest is essentially the result of an adaptation to stress primarily caused by the effect of salt spray which destroys terminal buds thus reducing apical dominance. This reduction causes lateral branching and formation of a low, extremely dense crown cover.

The values of the maritime forest are several. The dense canopy provides a highly effective wind barrier which can withstand even hurricane force winds. However, despite the density of the crown cover, it is highly water permeable and thus one of its prime functions is water conservation. The maritime forest accomplishes this through 1) an outer heat shield and

reflector(the tight forest canopy), 2) a darkened dead air space(the open shaded zone betweeen canopy and the ground), 3) a layer of insulation(leaf litter and humus), and 4) a fine-grained absorptive bed which retains water by capillary action(sandy soil of the relict dune). The freshwater level is maintained at nearly constant levels because this freshwater "reservoir" rests on deeper brackish water. Because of limited primary production and low diversity the maritime forest is low in productivity when compared to the adjacent salt marsh. However, it does provide important nesting and shelter for many coastal species, including deer, ospreys, and piliated woodpeckers.

3.6 MID-SALINITY SYSTEMS

The North Carolina coast has one of the largest areas of estuarine water in the U.S. with approximately 3000 square miles in enclosed bays, sounds, and river mouths. By definition "mid-salinity" means that the salinity of the water is 8-30 parts per thousand but no clear line of demarcation can be drawn between mid-salinity systems and more upstream freshwater system.

Salinity within mid-salinity systems will vary both vertically and horizontally, decreasing in an upstream direction. However, because salt water is denser than fresh water it also decreases from bottom to surface. Sunlight is one of the most important components of the system in terms of energy production, and the degree and intensity with which it penetrates the water column will greatly influence primary production. Thus, water

clarity, seasonal light differences, and water depth will all affect productivity of the major base of the mid-salinity food chain--phytoplankton, eelgrass, and rooted aquatic plants. Chief predators are zooplankton and in the shallow North Carolina estuarine systems the major herbivores are benthic animals such as clams, oysters and mussels. In addition to being important consumers of phytoplankton these animals aid in recycling phosphorous(mussells), and in producing pseudofeces(oysters and scallops) which are colonized by bacteria and ingested by shrimp. Further, all of these animals help maintain nutrients in the water column by pumping large quantities of water. Thus, this trophic level not only are important because of their direct value as a food source for man but also because they are critical in maintaining the integrity of the mid-salinity systme for the larger more visible esturarine organisms such as fish, shrimp, and crabs. Indeed, much of the primary value of the mid-salinity system results from the fact that it serves as a nursery area or temporary home for such commercially important species as striped bass, shad, herring and alewife, shrimp, crabs, and menhaden.

3.7 OYSTER REEFS

Crassostrea virginica, or the eastern oyster, is one of the most dominant estuarine organisms found along the coast of North Carolina. Oysters are reef organisms which grow on their own substrate with other oysters attaching to the substrate until a reef or oyster bed is formed. The existence of oyster reefs and their continued productivity is dependent primarily upon a free exchange of water flowing at proper velocities. Oysters, being

sessile animals, depend on moving water to provide oxygen and food as well as to carry away the waste products of their metabolism. Ideal current conditions are a steady non-turbulent flow of water over the bed which not only brings food and eliminates waste but help to expand production by carrying oyster larvae to other substrate in the estuary. Other critical environmental factors are salinity, temperature, availability of food, and water quality.

3.8 SALT MARSHES

Salt marshes may generally be characterized as flat beds of salt-resistant vegetation alternately flooded and drained by salt or brackish water with the frequency, duration and salinity of these flood waters determining the plant species and characteristics of the marsh. North Carolin's salt marshes are usually divided into those that are flooded regularly and irregularly. Most of the marshes in Onslow and Pender County are of the regularly flooded variety and are dominated by Spartina alterniflora(salt marsh cordgrass) near the water, and Spartina patens(salt meadow hay), Distichlis spicata(spike grass), and Juncus roemerianus(black needlerush) toward higher land.

The variety of life is relatively low compared to other ecosystems because the marsh environment is difficult to adapt to and live in; and, in general, it is thought that fewer species inhabit the irregularly flooded marsh than inhabit the regularly flooded. However, despite this relatively low level of productivity and diversity the marsh serves as one of the most

important components of the coastal ecosystem since it provides habitat and nursery areas for many commercially important species.

3.9 PROCESSES/VALUES AND DEVELOPMENT EFFECTS

The preceding sections summarize the most important components of the barrier island ecosystem and their natural processes which represent significant values. However, there are other values--such as esthetic and recreational--which are equally important. These values and the ways they could be altered are outlined in the following paragraphs.

BEACHES,DUNES AND BERMS

One of the most important values represented in the dune and berm are those of storm protection. This function is made possible by the fact that the dunes and berms act as sand reservoirs and during periods of high storm activity help to dissipate wave energy and replenish eroded areas. Two natural processes are critical to maintaining the integrity of this system. The first is maintaining the stability of the dune system and its protective vegetation. The second is allowing the exchange of sand between the berm and beach and the offshore bars to occurr without interference with natural sediment budgets.

Of even greater importance, from the general public's view, are the recreational and esthetic values of the dunes and beaches. The importance of these values will be obvious to any potential purchaser of beach property who observes the relationship between property values and proximity to the ocean.

POTENTIAL DEVELOPMENT EFFECTS The most direct effect on the dune system will result from actual removal or destruction during construction. However, equally damaging effects may result from uncontrolled pedestrian or vehicular traffic which destroys the protective vegetation and root systems of the stabilizing vegetation. The net result of this type of traffic can be to create breaches in the dune line which eventually widen creating potentially dangerous areas in the event of storms or even of exceptionally high tides. Portions of public roads have been destroyed in some beach communities from this effect. Both the dune and berm system can be threatened through the installation of erosion control devices such as sea walls, jetties and groins. All of these can act to alter sand budgets and effectively increase erosion damage to other adjoining areas of the beach.

From the general public's view, that is non-property owners, the major value of the dunes and beach system is recreational and esthetic. The extent to which these values are protected are a direct function of the degree to which both physical and visual access can be maintained. Not only can development physically deny the public's use of the beach area but the right to see the beach can be severely restricted by structures of inappropriate scale and height.

INLETS

The inherent value of inlets is their function of providing a point of exchange between the estuarine system and the ocean. Inlets thus not only provide fresh salt water to the system but

allow flushing of waste. Inlets are also the conduit for the vast number of commercially important species which spend a part of their life cycle in the mid-salinity system. From a recreational standpoint inlets are one of the most productive areas for sport fishing and also serve as the point of ingress and egress for pleasure boating.In storm periods inlets function more as "outlets" for abnormally high storm waters. The esthetic value of inlets results from the fact that they offer a vantage point to see both ocean and marsh. However, these processes would most likely not be significantly affected by most forms of development,including condominium. It would be more accurate to say that condominium development would be affected by the inlets process of migration. Depending on the direction of the migration developments within the path of the historical range of the inlets movement will most likely be severely damaged, if not destroyed. This potential hazard is significantly increased during times of severe storms as inlets perform their function as "outlets" for storm water.

POTENTIAL DEVELOPMENT EFFECTS The effect of development near inlets is in many ways similar to development near the dune and berm system, although there is less likihood that the positive natural values would be altered. Recreational and esthetic values could be lost by denial of visual or physical access but as long as the inlet remained opened it would continue to perform its natural functions. The most important value that would be lost by development within the inlet zone of migration would be in essence a "negative" value--that is the value realized by avoiding hazardous building areas.

MARITIME FORESTS

The primary value of the maritime forest is its function in stabilizing a geologically unstable system. Direct benefits include 1) protection of loose sandy soils from wind erosion, 2) accumulation and storage of freswater, 3) mineral ion filtration, and 4) production of soil by trapping blowing sand and deposition of humus. The esthetic qualities of the maritime forest can be considered of direct economic importance since it not only enhances the beach experience for tourists but can significantly increase property value if it is preserved during construction.

POTENTIAL DEVELOPMENT EFFECTS Because of the fragile nature of the maritime forest and the length of time required for its development human distrubance is likely to be cumulative and largely irreversible. Excessive human demands on the freshwater lens could result in lowering the freshwater table, and clearing of the forest interferes with its basic functions of nitrogen-fixation, water retention and soil stabilization. Removal can destabilize relict dunes with subsequent damage to human structures from shifting sand dunes. Any removal or destruction will of course eliminate habitat of many animal species. An important but not fully explored factor, is the degree to which water can be pumped from forested dunes before they lose their vegetative cover and stability. If the stabilizing vegetative cover is lost through fire, salt damage or land-forming operations during development the deforested relict dunes may become active again and migrate over the the remaining forest.

OYSTER REEFS

The greatest value of oyster reefs is their direct economic value to the oyster harvesting industry. Retail sales to the general public by oyster fisherman provide many with their sole source of income. Indirect economic benefits are realized in other areas also. Oyster shell is collected and crushed and sold to the State as road bed material and has also been sold to chicken feed producers as an ingredient. Revenues are also realized through shucking houses, boat sales and equipment, gasoline, harvesting equipment, and transportation of oyster harvests throughout the state.

POTENTIAL DEVELOPMENT EFFECTS Although the gravest threat to oyster reefs is from overfishing, the most serious threat from condominium development will be from pollution of the water habitat. As applied to oysters, there are three types of pollution affecting reefs--domestic sewage, pesticides and trade wastes. The latter two will most likely have as their source some inland point or originate from overland run-off. It is the category of domestic sewage which poses the greatest threat. The discharge of untreated domestic waste has a threefold effect upon oyster reefs. It covers the bottom with sludge that smothers the oyster bed, affects normal funtions by decreasing the amounty of oxygen in the water and greatly increases the water's bacterial and viral content. In common with other water-filtering mollusks, oysters retain and accumulate these bacteria and viruses. This type of contaminantion eliminates the grounds as a commercial

fishery because it creates a health hazard to humans using oysters as a food source, although the growth and development of the oysters themselves may not be materially affected.

MID-SALINITY SYSTEM

Commercial fisheries in North Carolina are ultimately totally dependent on the welfare of the mid-salinity estuarine system. Of the 10 leading species in the commercial catch in 1980, all but one were estuarine-dependent species having a total value of almost 26 million dollars, which does not include the catch of sport fishermen and commerical species caught by private individuals who do not report their catch. Secondary benefits are revenues derived from operation and maintenance of equipment necessary for sport fisheries, marinas, boatyards and other repair and supply facilities and processing operations. There is considerable reliance by motel and restaurant operators on off-season months in which fishermen provide addition income. Recreational and esthetic values in the mid-salinity system stem from its use for swimming, water-skiing, sailing and these activities also generate additional income for coastal restaurant and motel owners.

POTENTIAL DEVELOPMENT EFFECTS Obviously the major effect on the mid-salinity system which has the potential to impair its recreational and economic value is pollution. Potential pollution sources fall into two categories--point source and non-point source. Through strict enforcement of water quality standards, the State of North Carolina, through the Division of Environmen-

tal Management and the Division of Health Services, have exercised considerable control over point-source discharges. However, at present little or no effective control exists over non-point discharges which originate primarily from two sources-overland flow from the mainland and flow from impermeable surfaces which may exist on the barrier island. It is the latter source that is the most concern in determining the effects of condominium development since the greater potential densities using condominium development could increase impermeable surfaces to the point where storm water runoff could pollute surrounding shellfishing waters.

SALT MARSHES

Salt marshes have little value if considered only under the definition of direct economic benefit. It does have direct benefit since it is important habitat for commercially important species such as muskrat,otter, mink and oyster. However, it is the indirect benefits of the marsh that provide significant value to man. The marsh serves as a nursery ground for commercially valuable species such as shrimp, mullet, menhaden and striped bass. The productivity of the mid-salinity system is supported by detritus and nutrients that are exported from the salt marsh and thus is a vital link in the estuarine food chain which in turn supports the vast number of commercially important species that spend part of their life cycle in the system. Because of the efficient nutrient recycling that occurs in the marsh, it is believed to act in a manner similar to a tertiary sewage treatment plant and the effects of sewage disposal are therefore

moderated. Marshes also act as sediment traps by slowing the water flowing over them and causing particulate matter to drop out of the water column. The uplands of the marsh also provide protection from flood damage and erosion. Salt marsh peats are not easily eroded by wave action and are believed to be capable of absorbing large amounts of water. Because the marsh forms a barrier between the estuary and the uplands, wave energies are first spent on them rather than on the upper land areas. Sometimes overlooked, because of the great ecological importance of the marsh, is its esthetic and recreational value. The marsh provides excellent views and opportunities for birdwatching. A final value is that is provides a sense of open space in some communities where development has reached higher levels.

POTENTIAL DEVELOPMENT EFFECTS The primary means by which the values of the marsh can be impaired are by man-made changes in water level or drainage patterns. Such destruction occurs because vegetation and the integrity of the functions of the system are largely controlled by the position of the water level relative to the marsh surface. Filling or bulkheading a marsh changes it to an upland area and the vital exchanges with the estuary are cut and the marsh can no longer serve as a habitat, nursery area or buffering zone. This type of alteration can destroy marsh vegetation thus eliminating an important source of nutrients and detritus for the esturary which can in turn lead to decreased estuarine production. A similar effect occurs when spoil is deposited on the marsh. Dredging to create marine or navigational routes is also destructive and deepening marsh

creeks may increase erosion as well as the sediment load of the creeks. Spoil deposition along stream banks stops water flow from the marsh surface to the creek and the elimination of water exchange encourages mosquito production and cuts off part of the marsh from interaction with the creek and ultimately the estuary. As with other components of the barrier island ecosystem recreational and esthetic values may be impaired by structures of such a size and scale that physical and visual access are lost.

3.10 SUMMARY OF POTENTIAL DEVELOPMENT EFFECTS

DIRECT VERSUS INDIRECT One method used to classify development impacts is direct and indirect. Direct effects are those that result in the immediate destruction of a components values, such as destruction of maritime forest, filling of a marsh, or leveling of a dune system. Indirect effects may be just as damaging or more so but generally occur after the direct impact and usually affect other components of the barrier island system. Examples of indirect effects are alteration of sand budgets because of construction of seawalls or jetties, loss in productivity of the mid-salinity system because of destruction of marsh or pollution from non-point sources, or erosion or pollution caused by storm water runoff from increased impermeable surfaces. While this classification system may be useful for purposes of explanation an even more important method of classifying development impacts is by the degree of regulation.

REGULATED VERSUS UNREGULATED One of the main purposes of this report has been to determine in what ways development of condominiums differs from conventional single-family homes, or

more specifically what are positive or negative impacts specifically associated with of condominium development, and then to recommend guidelines to encourage or discourage these effects. It should be obvious from the preceding section that many of the potential effects of condominium development are exactly the same as those that would occur if a development were single-family detached, or for that matter some form of commercial development. Since condominium development, at least at its present rate, is a relatively new phenomenon on the Carolina coast most of the previous environmental regulations were designed to protect barrier island ecosystem components from single-family developments. While most of these regulations are sufficient to protect these components from the direct effects of condominium development they are not sufficient to protect against all of the indirect(or secondary) effects. If local governments are to adequately address the effects of condominium development the unregulated adverse effects must be identified for development of policies for control and guidance.

Through the imposition of both State and Federal environmental laws most of the previously discussed barrier island components are subject to strict development standards. Barrier islands are thus effectively enclosed in a protective "envelope" which covers regulation of land use and pollution of surrounding estuarine water. Any condominium or single-family detached form of development will have to comply with these regulations all of which are intended to maintain the integrity of the ecosystem component and its significant values.Thus

working together these regulations are intended to maintain the entire barrier island ecosystem in a more stable condition. It is not the purpose of or within the scope of this report to comment on or attempt to evaluate the effectiveness of these regulations. For the purposes of this report they are assumed to be effectively designed and administered. The most important question is thus what are the component values that are not protected and should therefore be addressed by the local units of government through local land use policies.

4.0 SUMMARY OF CONCLUSIONS, POLICIES AND RECOMMENDATIONS

CONCLUSIONS

There are several conclusions to this report but one of the most significant is that at least part of the "problem" associated with condominium development stems, from a lack of understanding about the nature and form of this type of ownership. It should be helpful to review the history of condominium development and some of the definitions of the term condominium.

In spite of the long tradition of condominium and townhouse development beginning in the early 1800's on Boston's Beacon Hill, this form of real estate ownership has continually suffered an image problem in the United States. This image problem seems to have been created for several reasons. First, it always involves multi-unit structures which are not only different from the conventional single-family detached home, but are generally associated with rental units. Persons who rent, either through choice or because of financial necessity, are often unfairly, and snobbishly, considered to be inferior neighbors.

The second reason is that the condominium form of ownership has often been used to sell units in multi-family structures which, because of the cost savings in construction, were built to maximum densities and heights. A large part of this problem has resulted from antiquated zoning ordinances which include multi-family ownership in the same density and height classes as multi-family rental housing.

A final reason is that this form of construction and owner-

ship has frequentlty been used in resort areas, not only becasue of lower cost and higher profit possibilities for developers, but because of the attraction to second-home buyers and retirees afforded by low maintenance costs and conveniences provided by community associations. In order to maximize profits and take full advantage of the cyclical nature of the resort home market, many of these developments gave little consideration to site planning, natural features or exterior appearances. Condominium developments thus came to be associated with poorly planned and executed development. Often this conclusion was reinforced by dissatisfied unit owners whose community associations were poorly designed and incapable of managing the common areas and amenities included in their purchase price.

Two points should be kept in mind in forming policies for condominium developments. First, A condominium is simply a form of ownership of real property under the laws of the State of North Carolina. As such, it confers on the owner not only all the rights and responsibilities of any other property owner, but in most cases imposes additional financial and legal responsibilities through community associations.

Second, the construction of units for sale under the North Carolina Unit Ownership Act as condominiums will always involve at least two, and in most cases considerably more, units in one structure. This obvious fact is most often selected as the severest criticism of condominiums, since by sharing common walls and eliminating individual yard spaces, greater densities are possible than would be for most detached single-family residences on the same land area. Where communities have not taken steps to

insure reasonable height limitations and growth policies consistent with available services and facilities, developers have sought to maximize their return by constructing as many units as possible on the available land area. This situation has been the major reason for the perception by many that condominium developments are one or all of the following: too tall, unattractive, poorly planned, a threat to the natural environment, a safety hazard, or a burden on local government budgets. Indeed, one or all of these probably occurred in many areas of the country where local officials were slow to anticipate the rise in property values and construction costs that make condominium development an attractive alternative to detached single-family units. As a result, the general public places the responsibility for all land use change squarely on local officials.

This conclusion ignores some important forces which local officials may have been slow to recognize (at least slower than most developers), but over which they had little control. First, the State of North Carolina has provided easy access in the form of high level bridges and causeways to areas which were previously relatively inaccessible (the NC 210 bridge to West Onslow Beach). The federal government then underwrites any losses due to poorly located or constructed buildings through Federal Flood insurance. Finally, both federal and state governments subsidize construction of water and sewer facilities(e.g. Wrightsville and Carolina Beach). With access, water and sewer facilities, and most risk of loss eliminated, developers moved to quickly begin meeting the huge excess demand by retirees and investors residing

in the northeastern markets of the United States.

The condominium form of development provides an efficient and profitable vehicle for construction and marketing and has quickly come to be the most visible man-made land form on the coast. Many local citizens, fearing that previously unspoiled areas and lifestyles would be lost began to identify local officials as the sole culprits and demand accountability and change. Thus began some of the most heated zoning hearings ever heard on the coast.

The following conclusions form the basis for the policies and recommendations of this report.

1) A condominium is a form of ownership of real property which carries with it the same obligations and responsibilities as ownership of other real property.

2) Ownership of a condominium also carries with it responsibilities in addition to that imposed on most conventional single-family owners, because of the community association.

3) These two unique characteristics of condominium developments--required community associations and attached multi-unit buildings--offer local governments a form of development that can maximize open space, protect sensitive natural areas and minimize service cost.

4) The combination of market forces and facilities and subsidies from the state and federal governments will result in increasing pressure for additional development on Topsail Island and, because of construction and marketing efficiencies, developments will continue to be primarily condominiums.

5) Many of the environmental effects of condominium development are the same as those that would occur in single-family detached housing. These effects are controlled by state and federal regulations, primarily under the Coastal Area Management Act and the NC Division of Environmental Management's water quality laws, which provide an "envelope" of environmental protection around barrier islands. Control over these direct effects of development provide effective protection of most of the islands critial ecosystem components.

6) It is primarily secondary, or indirect effects, of condominium development that are different from the effects of development associated with single-family detached construction. These effects are destruction of maritime forest, loss of visual or physical access; pollution of ground or estuarine waters from stormwater runoff, and impairment of esthetic values.

7) The most practical and equitable method of mitigating these effects is through local policies and guidelines adopted by the local government as a part of its Coastal Area Management Act Land Use Plan and implemented through local land use regulations.

POLICIES

1) GENERAL ENVIRONMENTAL In recognition of the great values-economic,recreational and esthetic-represented in the components of the barrier island ecosystem to all citizens it shall be the policy of the County--

To protect the island's natural systems, including all Areas of Environmental Concern, the public's rights of physical and visual access to these systems, to maintain and preserve the maritime forests, to protect the estuarine waters from sources of pollution not regulated under state or federal laws; and to encourage development and design that is esthetically compatible with the scale and visual appeal of the barrier island landforms and environment.

2) PREDOMINANT LAND USE To maintain Topsail Island as a predominantly single-family residential community with supporting commercial and instututional uses appropriate for supporting both permanent residents and visitors. The term single-family is interpreted to include both detached housing units on individual lots, and attached units in one or more structures (condominiums and townhouses).

3) ZONING It is recognized that while single-family units constructed for sale under the North Carolina Unit Ownership Act may differ in construction and method of legal creation, ownership of such units confers on the owners the same rights and responsibilities as owners of single-family detached units.

In accord with the above policy, and in recognition of the fact that the nature of construction and legal creation and operation of condominiums offers local governments an opportunity to minimize the environmental and fiscal impacts of residential development, the following policies are adopted:

Land use policies, including zoning ordinances, subdivision regulations and land use plans, should not discriminate, downzone, or assign to inferior building locations areas for condominium developments because of the method of ownership.

Because of the potential for creative site planning which can preserve natural systems, protect maritime forest and other significant vegetation, preserve and establish existing and new open space, protect esthetic values and physical and visual access, and minimize service and facility costs to local government, the condominium form of development should be permitted at higher densities than single family detached developments where these potential positive effects can be achieved through better planning and design.

4) MITIGATION OF CONDOMINIUM IMPACTS It is also recognized that there are specific effects of condominium development that are different from single family development and that these effects can have a significant and detrimental impact on the surrounding Areas of Environmental Concern and on other recreational and esthetic values which are of great economic importance

to the County and the State. Accordingly the following policies are adopted to provide guidance to local officials in determining methods of implementation and to State agencies when reviewing CAMA permits:

MARITIME FOREST It is the policy of the local government to insure the maintenance of the existing maritime forest by allowing only that development that will cause the least possible destruction of forest cover or disruption of the ecological and esthetic values represented in the forest.

POLLUTION FROM STORMWATER RUNOFF Because of the potential of pollution of groundwater or estuarine water resources from excessive stormwater runoff that may result from the increases in impermeable surfaces resulting from condominium developments, it is the policy of the local government to insure that condominimum developments are designed to minimize this potential effect and any impact it might have on ground or surrounding surface waters.

ACCESS Access to public trust areas and other components of the barrier island ecosystem includes both physical and visual access. It is therefore the policy of the local government to insure that this access is provided at inlets and along both ocean and estuarine shorelines. Physical access should be provided at the same standards set out in the local governments beach access plan. Visual access should not be interpreted to mean the right to an unobstructed view of all portions of the island from any point but rather that the design and location of structures should not impair the considerable esthetic, and thus economic, value of the barrier island ecosystem components but should preserve to the greatest extent possible the public's rights to visual access without infringing on the reasonable use of an owner`s property.

ESTHETICS It has long been accepted that policies controlling esthetics are subjective matters, and that regulations based soley on these considerations are undesirable. However, there is a clear distinction between requiring esthetic consistency between man-made structures and requiring esthetic consistency between man-made structures and environmental features. It should be without question that the beauty and esthetic appeal of the components of the coastal ecosystem are of major economic importance to local governments and the State, and that the health and welfare of local governments and visitors will be enhanced by preserving these esthetic qualities to the greatest possible extent. Accordingly, the following policies are adopted as guides in determining the esthetic compatibility of proposed developments:

the scale of a structure should not dominate its surrounding natural landforms but should seek to be consistent with their height and mass

the location and orientation of structures should promote the maximum of visual access and sense of open space

the shape, texture and color of structures should be consistent with the surrounding natural landforms and should as nearly as possible minimize contrast with these landforms

RECOMMENDATIONS

1) The governing body of the local government should call for a public hearing for amendment of the local Coastal Area Management Act Land Use Plan to include all of the preceding policies.

2) The zoning ordinance should be amended to establish a coastal overlay zone which should include all area east of the Intracoastal Waterway. The purpose of establishing this zone is to recognize the unique processes and features of the barrier island ecosystem which have intrinsic values, and which should be preserved to the maximum extent possible in the interest of the public health, safety and welfare. Within this zone, policies and regulations different than those throughout the rest of the local government's jurisdiction may be required to preserve these values.

3) In order to encourage a scale of development appropriate for a barrier island, protect public rights of visual access and esthetic values, and to prevent unnecessary service and facility costs, as well as danger to life and property, a maximum height limitation of 50 feet for all structures measured from the base flood elevation to the highest point of a structure should be established in the coastal overlay zone.

4) In order to eliminate possible pollution from septic tanks installed in single-family developments, to maximize open space and visual access, the R-8 and R-5 zones within the coastal overlay zone should be eliminated for all unplatted property and rezoned to R-10.

5) In order to implement policies 2 and 3 for predominant land use and zoning, condominium development should be permitted in all residential zones at a maximum density of 4 units per acre. Additional units may be allowed in the areas previously zoned R-5 and R-8 up to a maximum of 15 units after review under the assessment methodology for granting density bonuses.

6) Adopt the Housing Development Ordinance(see Appendix) or similar ordinance requiring review of all condominium developments.

7) Adopt assessment methodology (Appendix) for granting additional condominium units under the Housing Development Ordinance.

5.0 DEFINITIONS AND DISTINCTIONS

The term condominium development is now used loosely to refer to any structure or attached structures which provide individual ownership of multiple dwelling units. This term is also extended to townhouse developments which may or may not differ in design and ownership characteristics. Condominium projects have often been referred to as vertical subdivisions since they are most ofter associated with high-rise developments; however, condominium projects may also be "horizontal" subdivisions, since condominium ownership in North Carolina may be created in a building of any number of stories by a declaration of intent under the North Carolina Unit Ownership Act, N.C. General Statutes, Chapter 47A.

5.1 THE NORTH CAROLINA UNIT OWNERSHIP ACT

This act has several key provisions for developers, owners and local governments. Section 47A-2 permits owners or co-owners of a building to create unit ownership by an express declaration of intent to submit the property to the provisions of the Unit Ownership Act. The declaration must then be recorded at the office of the register of deeds. The declaration is a detailed document and Section 47-13 states that it shall contain the following:

DECLARATION REQUIREMENTS

1) A description of the land, building and improvements;
2) A building description including the number of stories and units and construction materials;
3) A descriprtion of the individual units including location, number of rooms, and accessible common areas;

4) A description of the general and limited common areas and proportional interest of each unit;
5) A statement of the intended purpose and use of the building and each unit and any restrictions on use.

In addition to the above, two other important documents must be attached to the declaration--the building plans and a copy of the bylaws. Under Section 47A-15, there must be attached to the declaration an exact copy of the building plans, including layout, location, ceiling and floor elevations, unit numbers and dimensions, and location and accessibility of common areas. Section 47A-18 requires that a copy of the bylaws be attached not only to the declaration but to the first deed of each unit. The bylaws provide the minimum requirements for administration of the form and method of administration of the property.

Section 47A-18 generally requires the following:

CONTENTS OF BYLAWS

1) form of administration
2) method of summoning owners, definition of quorum
3) method of maintaining common areas
4) collection methods
5) method of adopting and administering administrative rules
6) restrictions on use and maintenance of units and common area not set forth in declaration
7) percentage of votes required to amend bylaws
8) a provision requiring owners to be bound by any amendments
9) personnel policies

Finally, Section 47A-10 requires the unit owners to strictly comply with the bylaws and with any administrative rules and regulations adopted pursuant thereto. Failure to so comply is made actionable by the manager or board of directors on behalf of the unit owners. These sections considered together, establish the method and responsibilities of owners and developers in creating, operating and enforcing unit ownership.

According to Section 47A-5, unit ownership vests in the holder exclusive ownership and possession, with all incidents of real property. A condominium unit may be leased, conveyed, encumbered, inherited, devised, or held by one or more persons in any manner recognized under North Carolina Law. A condominium unit is defined as ownership of a single unit in a multi-unit structure with common areas and facilities; and further, that it consists of one or more rooms occupying all or part of a floor in a building of one or more floors or stories, regardless of whether it is designed for residential, office, business, industrial, or any other independent use, and shall include accessory spaces specified in the declaration. Section 47A-1 establishes that each condominium unit and its proportion of common area facilities will be taxed separately, including advalorem taxes and any special district taxes.

The remainder of the act contains provisions fixing the rights and responsibilities of owners and the association. Perhaps the most important section from the stand point of local governments is Section 47A-27. This section states that a planning and zoning commission, whenever it deems proper, may adopt supplemental rules and regulations governing a condominium project. All of these provisions, when read together, seem to clearly indicate several conclusions with regard to condominium development:

1) The term condominium refers to a form of ownership of defined space, and this ownership carries with it the same rights and responsibilities as other real property.
2) Owners of condominium units are under an express obligation to provide for a form of administration and maintenance of their development.

3) Owners of condominium units, in addition to whatever charges they levy on themselves for project facilities and services, are still liable for general advalorem or other special taxes on their individual units and proportionate share of common areas.

4) In addition to the responsibilities of self-governance and maintenance imposed on condominium owners under the Unit Ownership Act, local governments may impose additional regulations through their planning and zoning powers.

5) Ownership of a condominium unit does not restrict its use to residential purposes but may include commercial, industrial or any other independent use.

6) condominium unit structures are multi-unit structures but may or may not be more than one story.

The significant general conclusion is that condominium developments not only have a responsibility for their own maintenance and control, but must also pay property taxes. And even more significant, local governments may limit or expand their degree of responsibility, as well as their design and location, through local planning and zoning laws.

5.2 THE COMMUNITY ASSOCIATION

Since the "association movement" began in the 1960's, the community association has more and more come to resemble a new local form of government. The basic premise upon which the modern day community association (CA) is fashioned is that through a formal compact, diverse owners of property within a defined area assure protection of each other's interests by reciprocal obligation imposed upon and subscribed to by all owners. In the U.S., the first association appears to have been established in 1844 at Louisburg Square in Boston, and this association still continues to function today.

If, then, people come together voluntarily and relinquish certain freedoms to set up a formal scheme of self-management, as in the typical CA, what results should be a form of local goverment. The typical CA has powers of assessment, levy and collection (taxation), common area or common elements, rules and regulations (legislation), and architectural and restrictive covenants (police power) and, in the context of the declaration and associated documents which establish and guarantee basic rights and obligations--a constitution.

There seems little doubt, therefore, that a modern CA is a form of local government, however limited in scope, and may even be a modern tribal council with legal accouterments. But clearly it is a representative democracy entered into voluntarily through real estate ownership by its constituents who look to it to protect, maintain, enhance and ensure the safety, health and welfare of the members. It is this characteristic of a local government that offers some of the greatest opportunities for condominium development--for owners, developers and municipalities. The basic definition of equity protection has been expanded to include many new purposes besides mere protection of structures and common areas, until the range of services may exceed those of some local governments. In addition to the obvious advantages to local governments of providing the opportunity to delegate some responsibilities, the CA has two distinct advantages to its members. First, it is more appropriate in size than larger public agencies in providing certain basic services, such as recreation and care of common use areas. Second, there are considerable psychological and social benefits to be realized as

members come to know each other on a face-to-face basis, thus providing a sense of community identity.

TYPES OF COMMUNITY ASSOCIATIONS

In dealing with development types that may require a community association, several are most likely to occur--homeowners' association, generally associated with a Planned Unit Development with single-family detached homes, and a condominium association for a development which falls within the scope of a state's condominium laws. These two associations are virtually identical with one exception--the unit boundary description in the condominium declaration. This description has special importance in the condominium CA, since it is intimately tied to the allocation of association expenses. Another basic difference is that the homeowners association owns the common property, while the condominium association simply administers the common property and services.

DESIGN, START-UP, TRANSITION, GOVERNANCE

design It is critical that the CA be drafted simultaneously with the physical planning of the project. If considered together, the CA will more realistically reflect the future needs and responsibilities of the developer and owners. Important questions that should be considered by both are:

1) Should the recreational package be part of the project to be maintained by the CA, or should it be placed in a voluntary club? Will such a voluntary club have financial strength to maintain the facilities?

2) Will the open space and natural amenities have a significant impact on the budget? Will they need and be accessible to maintenance? How much will it cost to retain their value? What is the potential for erosion or destruction? Are they important enough to justify their operation costs over the long run?

3) Are all the elements of the recreational package basic to the success of the project?
4) Have the long-term preservation, maintenance, replacement and improvement costs of structures been taken into consideration at the design stage?

The savings achieved in construction costs may doom the association to unmanageable operation and maintenance costs. A financial program should be set up to reserve funds for repair and replacement, and a monthly or quarterly predetermined amount earmarked for these future expenses based on the quality of construction and design life of the facilities. Included should be roads, underground utility services, parking areas, roofs, recreational facilities and open space.

start up Association start-up begins with the legal establishment of the association, before unit sales begin. During this period, prior design decisions and association operations will begin to be implemented, and, as sales are made and the owners begin to operate their units, the developer moves toward completion of the project and the association is brought to life. Three stages are involved with the start-up phase: initiation of the financial and administrative management of the CA, actual sales of the units, and performance of association services during the final phase of construction and early resident occup

The developer and his representative on the CA board must make a number of decisions during initiation:

fund the association as planned in the design phase and inaccordance with the prescribed lending requirements of the mortgagee;

acquire insurance for the common elements of the project;

arrange for the maintenance of the common areas and facilities

set management policies for the collection of assessments, bookeeping, maintenance and repair;

refine association operating management budgets;

maintain appropriate records and minutes of association related decisions made by the board of directors

The association's operational responsibilities and financial process begin as facilities are constructed and used by residents, the common areas begin to need maintenance and care, and the residents accupy their units and begin to pay assessments to the association.

transition During the transition phase, the owners are contributing assessments to the association and using facilities on a regular and consistent basis, and there are now enough people to support participation in some association activities. During this period the developer and owners will review such key documents as budgets, service contracts, and insurance policies. When sales are 50 to 80 percent complete the developer shifts control to the homeowners by assuming a minority position on the board.

governance The association reaches maturity with the election of an owner majority to the board. The entire operation of the association will be controlled by the owner-elected board; board members will set policies, let contracts, implement or change controls--in general, decide and shape the course of the association and the community. How well these elected representatives function on behalf of the association will in

part be determined by the previous actions and guidance of the developer, and in part by the homeowners' desire to maintain the value of their homes and common property.

6.0 DEMONSTRATION VALUE FOR OTHER COASTAL COMMUNITIES

One purpose of this report was to provide material that would be of use to other coastal North Carolina governments in addressing the issues associated with condominium development. To accomplish this objective this report has repeated several premises throughout that subsequent users should bear in mind.

The first is that condominiums are forms of ownership and because of their method of construction and operation can offer local governments an opportunity to increase their tax base more than would be realized under single-family detached development while still maintaining the important economic and esthetic values of the barrier island.

The second is that through a combination of state and federal environmental regulations most of the significant ecological components of the barrier island ecosystem are protected and that an attempt to restrict future condominium development on the basis of protection of these already protected components will most likely fail.

The third is that it must be accepted by local governments that the esthetic values represented in the barrier island environment has great economic value to the local governement and that if these values are not maintained the health and welfare of the loca, as well as the non-local, population will suffer.

The conclusion is that the major unregulated effects of condominium development on the barrier island ecosystem will have less to do with impairment of the physical components of the

ecoystem (assuming adequate enforcement of environmental regulations), but may greatly affect the values represented in esthetic appeal, visual access and open space. There is a reluctance among local officials to regulate actions which may affect these values since they are relatively subjective in nature. Actions which directly affect biological or physical systems can supposedly be measured scientifically, and a more direct cause/effect relationship established to demonstrate deterioration of the natural resource. However, the Coastal Area Management Act specifically states that two of its goals are 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
>
> establish policies, guidelines and standards for:
> i) protection, preservation, and conservation of natural resources including but not limited to water use, scenic vistas...

Thus there is adequate mandate for local official as well as state agencies to begin to recoginize and protect these values. There is a clear distinction between regulation of design to conform to other manmade structures (although this may be warranted in some areas,e.g. historic districts) and requiring that structures imposed in the barrier island environment not destroy or reduce the considerable economic value that is a direct result of the island's natural beauty.

In using the parts of this report local governments should find use of the coastal overlay zone concept useful in drafting

regulations that apply only to condominium construction on barrier islands. The assessment methodology and bonus density system, in combination with the condominium development ordinance, should provide a starting point to guide development into areas and to design at a scale that will not impair important barrier island values. These documents, in conjunction with the zoning changes proposed for Onslow County, suggest a policy whereby condominium developments, if adequatedly designed, should be allowed in the same zones with singles family detached housing but at no greated densities. And that certain areas will be reserved for higher densities if the development is planned so as to minimize its effect on important barrier island values.

ADDENDA

CONDOMINIUM REVIEW ORDINANCE

CONDOMINIUM ASSESSMENT METHODOLOGY

DESIGN GUIDELINES

CONDOMINIUM REVIEW ORDINANCE

Housing development. A group of two or more dwelling units on property designed for occupancy by separate families. Each dwelling structure shall consist of at least two residential units. Examples would be: cluster-type subdivisions; row houses; apartment courts, and housing projects, a project constructed for unit-ownership as permitted by the North Carolina Unit-Ownership Act, when approved under the requirements for group housing developments as set forth in the subdivision regulations of the town. Zero setback single family housing may be allowed provided they come under the conditional use standards and the setback at all other adjacent boundaries shall be double that required for the zone.

Housing developments as defined above are permitted in all zoning districts and at no greater densities than that permitted within the district for single family housing.

Cluster housing may be allowed in all districts provided such a project shall be subject to the conditions placed upon it by the review boards and that such housing shall allow a density no greater than the density the existing zoning would permit. This concept may allow a zero lot line setback on adjoining sides. The opposite line setback shall be double that required for the zone and all other setbacks shall be, at minimum, those required within the zone of proposed construction.

(A) Standards for conditional use permits:

(1) Purpose: There are certain land uses which, because of their unique characteristics, cannot be properly classified in any particular district, or districts, without consideration, in each case of the impact of those uses upon neighboring land uses and of the public need for the particular use in the particular location. The purpose of this section is to provide guidelines for the issuance of Conditional Use Permits.

(2) Initiation of conditional use: Any person with a real/legal fee interest in land within the zoning jurisdiction of _____ may file an application to use such land for one or more of the conditional uses provided for in this ordinance in the zoning district in which the land is located.

(3) Application for conditional use: An application for a conditional use shall be filed with the Building Inpsector on a form prescribed by the Building Inspector. The application shall be accompanied by such plans and data prescribed by the Planning Board and shall include a statement in writing by the applicant and adequate evidence that the proposed conditional use will conform to the standards set forth in subsection 6, hereinafter. The application and supporting documents shall be forwarded by the Building Inspector to the Planning Board for review. The Planning Board, after its review of the application and supporting documents, shall then send them with its written findings and recommendations to the local governing body for action.

(4) Hearing on Application. Upon receipt in proper form of the written recommendations referred to above, the local governing body shall hold at least one public hearing on the proposed conditional use. The public hearing shall consist of one notice in a newspaper of general local circulation as follows:

Public Hearing

hereby gives notice that on the _____ day of _____ a public hearing will be held to consider a conditional use application. The applicant proposes a development at _____ consisting of _____. Persons desiring to comment on the proposed application may do so at the public hearing or may submit written comments for consideration at the public hearing.

_____

Clerk

(Address)

Within 90 days of the public hearing the applicant shall be notified in writing by certified mail to his last known address of the Board's decision on the application.

In all cases approval will be contingent upon a majority of the full local governing body voting in favor of the proposed conditional use.

(5) Standards. No conditional use shall be recommended by the Planning Board unless such Board shall find:

a. That the establishment, maintenance, or operation of the conditional use will not be detrimental to or endanger the public health, safety, or general welfare.

b. That the conditional use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor diminish or impair property values within the neighborhood.

c. That the establishment of the conditional use will not impede the normal and orderly development and improvement of the surrounding property for uses permitted in the district.

d. That the exterior architectural appeal and functional plan of any proposed structure will not be so at variance with either the exterior architectural appeal and functional plan of the structures already constructed or in the course of construction in the immediate neighborhood or the character of the applicable district, as to cause a substantial depreciation in the property values within the neighborhood.

e. That adequate utilities, access roads, drainage and/or necessary facilities have been or are being provided.

f. That adequate measures have been or will be taken to provide ingress and egress so designed as to minimize traffic congestion in the public streets.

g. That the conditional use shall, in all other respects, conform to all the applicable regulations of the district in which it is located.

(6) Conditions and guarantees: Prior to the granting of any conditional use, the Planning Board may recommend, and the local governing body may require, such conditions and restrictions upon the establishment, location, construction, maintenance, and operation of the conditional use as is deemed necessary for the protection of the public interest and to secure compliance with the standards and requirements specified above. In all cases in which conditional uses are granted, the local governing body shall require such evidence and guarantees as it may deem necessary as proof that the conditions required in connection therewith are being and will be complied with.

(7) Effect of denial of a conditional use: No application for a conditional use, which has been denied wholly or in part by the local governing body, shall be resubmitted for a period of one year from the date of denial except on the grounds of new evidence or proof of change of conditions found to be valid by the Planning Board or the local governing body.

(B) Site Plan Review Requirements:

(1) General Provisions.

a. Application of requirements: A site plan shall be required for any construction or land development, in any instance where a zoning variance or conditional use permit is required, or when there is a change in the usage of a non-residential structure.

b. Waiver of requirements: Site plan approval requirements may not be waived by the Planning Board.

c. Legal Provisions:

1. Requirements for approval: The Planning Board shall not approve a site plan indicating any condition or improvement not specifically stated as being part of that particular site plan. Approval of a site plan shall not be granted for "future" conditions or improvements.

The proposed structure, improvement, or condition shall meet all requirements of all applicable codes, ordinances, and specifications of the municipality, county, state, or federal governments or other agencies having proper jurisdiction.

2. Issuance of building permit or certificate of occupancy: No building permit shall be issued until the site plan has been approved by the Planning Board and local governing body.

In the event of a failure to comply with any condition of site plan approval, the building inspector shall revoke all permits or the certificate of occupancy.

(2) Procedure for approval.

a. Filing and referral.

1. An applicant desiring to obtain site plan approval shall file with the Department of _____ fif-

en (15) copies of the site plan, together with a completed application form and a required fee of $25.00 ten (10) days prior to the regular Planning Board meeting date. The Department of _____ shall then transmit within three (3) days a copy of the site plan to the following officials: all Planning Board members and all appropriate department heads.

2. Those officials listed above shall submit their recommendations and comments at least five (5) days prior to the Planning Board meeting at which the site plan is to be considered. Failure to submit a written recommendation and comment shall be deemed as a favorable review of the site plan by these agencies and officials.

b. Planning Board Action:

1. The Planning Board shall consider the site plan initially at the next regular meeting by placing it on the agenda under requirements as set forth in Section (2)a.1 and 2.

2. At the next regular meeting of the Planning Board after the first consideration, or as soon thereafter as practicable, the Planning Board shall approve or disapprove the site plan.

3. If the Planning Board disapproves the site plan, reasons for such decision shall be set forth in the minutes of the Planning Board and a copy forwarded to the applicant and the Department of _____.

4. If the Planning Board requires substantial changes in the site plan, the applicant shall submit an amended

site plan which shall then follow the same procedures as in the original filing.

(3) Improvements.

The Planning Board may recommend improvements as set forth in the subdivision regulations. Prior to the issuance of a building permit, the Planning Board may recommend that the local governing body require the installation or construction of said improvements or the posting of a performance guarantee, as set forth in the subdivision regulations, adequate to cover the cost of all such improvements.

(4) Site Plan Requirements.

a. Information to be shown on site plan. The site plan shall be prepared by a professional engineer, registered land surveyor, or architect and shall be drawn to a scale of not less than one (1) inch equals thirty (30) feet. The site plan shall be basd on the latest tax map information and shall be of a size as required by each individual site plan. The site plan shall contain the following information:

1. A key map of the site with reference to surrounding areas and existing street locations.

2. The name and address of the owner and site plan applicant, together with the names of the owners of all contiguous land and of property directly across the street as shown by the most recent tax records.

3. Lot line dimensions.

4. Location of all structures, streets, entrances and exits on the site and on contiguous property directly across the street.

5. Location of all existing and proposed structures, including their outside dimensions and elevations.

6. Building setback, side line, and rear yard distances.

7. All existing physical features including streams, water courses, dunes, existing trees greater than one (1) inch in diameter measured six (6) feet above ground level, and significant soil conditions.

8. Topography showing existing and proposed contours at two (2) foot intervals. All reference bench marks shall be clearly designated.

9. Parking, loading, and unloading areas shall be indicated with dimensions, traffic patterns, access aisles and curb radii.

10. Improvements such as roads, curbs, bumpers, and sidewalks shall be indicated with cross sections, design details, and dimensions.

11. Location and design of existing and proposed storm water systems, sanitary waste disposal systems, water mains and appurtenances and method of refuse disposal and storage.

12. Landscaping and buffering plan showing what will remain and what will be planted, indicating names of plants, trees and dimensions, approximate time of planting, and maintenance plans.

13. Lighting details indicating type of standards, location, radius of light, and intensity in foot candles.

14. Location, dimensions and details of signs.

15. North arrow.

(5) Performance standards.

In reviewing any site plan, the Planning Board shall consider:

a. Pedestrian and vehicular traffic movement within and adjacent to the site with particular emphasis on the provision and layout of parking aras, off-street loading and unloading, movement of people, goods and vehicles from access roads, within the site, between buildings, and between buildings and vehicles.

The Planning Board shall ensure that all parking spaces are usable and are safely and conveniently arranged. Access to the site from adjacent roads shall be designed so as to interfere as little as possible with traffic flow on these roads and to permit vehicles a rapid and safe ingress and egress to the site.

b. The design and layout of buildings and parking areas shall be reviewed so as to provide an aesthetically pleasing design and efficient arrangement. Particular attention shall be given to safety and fire protection, impact of surrounding development and contiguous and adjacent buildings and lands.

c. Adequate lighting shall be provided to ensure safe movement of persons and vehicles and for security purposes. Lighting standards shall be a type approved by the Planning Board. Directional lights shall be arranged so as to minimize glare and reflection on adjacent properties.

d. Buffering shall be located around the perimeter of the site to minimize headlights of vehicles, noise, light from structures, the movement of people and vehicles, and to shield activities from adjacent properties when necessary. Buffering may consist of fencing, evergreens, shrubs, bushes, deciduous trees or combinations thereof to achieve the stated objectives. Buffering shall be required in any instance where industrial or commercial uses border on existing residential uses or residential districts as indicated on the zoning map, and in such instances the buffer depth shall be a minimum of twenty (20) feet and include three (3) staggered rows of plants at a minimum height of four (4) feet.

e. Landscaping shall be provided as part of the overall site plan design and integrated into building arrangements, topography, parking and buffering requirements.

f. Signs shall be designed so as to be aesthetically pleasing, harmonious with other signs on the site, and located so as to achieve their purpose without constituting hazards to vehicles and pedestrians.

g. Storm drainage, sanitary waste disposal, water supply and garbage disposal shall be reviewed and considered. Particular emphasis shall be given to the adequacy of existing systems, and the need for improvements, both on site and off-site, to adequately carry run-off and sewage, and to maintain an adequate supply of water at sufficient pressure.

h. Environmental elements relating to soil erosion, preservation of trees, protection of water courses, and resources, noise, topography, soil and animal life shall be

reviewed, and the design of the plan shall minizize any adverse impact on these elements. Particular reference shall be made to Areas of Environmental Concern as designated by the Coastal Area Management Act and the Coastal Resources Commission.

i) the olicies of the local governments CAMA Land Use Plan, particularly those pertaining to land use and condominiums.

j) in determining the maximum number of units allowable in those zones permiting condominium units in excess of the base density of 4 units per acre, the Planning Board will consider the " Condominium Assessment Methodology for Granting Additional Units Under the Housing Development Ordinance" prepared by the Onslow County Planning Department.

CONDOMINIUM ASSESSMENT METHODOLOGY

CONDOMINIUM ASSESSMENT METHODOLOGY FOR GRANTING ADDITIONAL UNITS UNDER THE CONDOMINIUM DEVELOPMENT ORDINANCE

The following "bonus system" is based on a maximum building height of 50 feet (measured from the highest point of the pilings) and a base density of four units to the acre, which can be increased to fifteen units to the acre through the bonus system. The ratio of bonus points to density per acre is set at 15 points for each additional density unit per acre. Thus to build at 5 units per acre, 15 bonus points must be earned; to build at 10 units per acre 90 bonus points would be required, and to build at the maximum density of 15 units per acre 165 points would be necessary.

BEACH ACCESS BEACH ACCESS MAY BE PROVIDED ANYWHERE WITHIN THE LOCAL GOVERNMENT'S JURISDICTION IN ACCORDANCE WITH THE STANDARDS OF THE LOCAL BEACH ACCESS PLAN

1 POINT PER DONATED PARKING SPACE
10 POINTS PER ACCESS AREA PROVIDED
10 POINTS PER ACCESS IMPROVED TO STANDARDS OF THE LOCAL BEACH ACCESS PLAN

SETBACKS BETWEEN STRUCTURES OF DIFFERING SCALE

PURPOSE--TO ENCOURAGE GREATER SETBACKS WHERE THE DIFFERENCE IN SCALE IS GREATER BY PROVIDING A HIGHER REWARD FOR SETBACKS BEYOND THE MINIMUM NECESSARY TO EARN TEN POINTS.
ASSUMPTIONS AND LIMITATIONS

1) WHERE THE ADJACENT LOT IS UNDEVELOPED A TWO-STORY STRUCTURE SHOULD BE ASSUMED FOR SETBACK PURPOSES

2) THIS PROVISION WILL APPLY ONLY TO SETBACKS FROM PROPERTY HELD BY SOMEONE ELSE OTHER THAN THE OWNER OF THE LAND PROPOSED FOR DEVELOPMENT

WHERE THE PROPOSED BUILDING SCALE EXCEEDS THAT OF EXISTING STRUCTURES ON IMMEDIATELY ADJACENT LOTS BY ONE OR MORE STORIES:

1 STORY DIFFERENCE: MINIMUM SIDE YARD SETBACK 10 FEET. EACH ADDITIONAL 10 FEET OF SETBACK EARNS 10 POINTS

2 STORY DIFFERENCE: MINIMUM SIDE YARD SETBACK 20 FEET. EACH ADDITIONAL 10 FEET EARNS 20 POINTS

3 STORY DIFFERENCE: MINIMUM SIDEYARD SETBACK 30 FEET. EACH ADDITIONAL 10 FEET EARNS 30 POINTS.

ESTHETIC APPEAL--PRESERVATION OF VISUAL ACCESS AND OPEN SPACE

FOR COMPLIANCE WITH THE FOLLOWING POLICIES	POINTS
THE SCALE OF A STRUCTURE SHOULD NOT DOMINATE ITS SURROUNDING NATURAL LANDFORMS BUT SHOULD SEEK TO BE CONSISTENT WITH THEIR HEIGHT AND MASS	10
THE LOCATION AND ORIENTATION OF STRUCTURES SHOULD PROMOTE THE MAXIMUM OF VISUAL ACCESS AND SENSE OF OPEN SPACE TO THE PUBLIC AND OWNERS	10
THE SHAPE, TEXTURE AND COLOR OF STRUCTURES SHOULD BE CONSISTENT WITH THE SURROUNDING NATURAL LAND-FORMS AND SHOULD AS NEARLY AS POSSIBLE MINIMIZE CONTRAST WITH THE LANDFORMS	10
SITE PLAN DEVELOPED BY A LICENSED ARCHITECT OR LANDSCAPE ARCHITECT	10

FOR BREAKS BETWEEN BUILDINGS FOR VISUAL ACCESS

INTERPRETATION BREAK DISTANCES SHOULD BE MEASURED FROM A CLEAR LINE OF SIGHT FROM THE ROAD, THAT IS, THERE SHOULD BE 10 FEET OF VISUAL BREAK. IF THE BREAK IS AT AN ANGLE, ACTUAL DISTANCE BETWEEN BUILDINGS MAY HAVE TO BE WIDER THAN 10 FEET IN ORDER TO EARN POINTS

10 FOOT BREAK FOR EVERY 100 LINEAR FEET OF BUILDING	10
10 FOOT BREAK FOR EVERY 75 LINEAR FEET OF BUILDING	20
10 FOOT BREAK FOR EVERY 50 LINEAR FEET OF BUILDING	30
5-10 FOOT BREAK FOR EVERY 25 LINEAR FEET OF BUILDING	40

COMMUNITY ASSOCIATION PLANS

FOR INCLUSION IN THE COMMUNITY ASSOCIATION ALL OF THE FOLLOWING PLANS 10 POINTS

1) HURRICANE EVACUATION PLAN
2) DUNE PROTECTION AND VEGETATION MAINTENANCE PLAN
3) COMMUNITY WATCH ASSOCIATION PLAN

PROTECTION OF MARITIME FOREST

PERCENT OF FOREST RETAINED	POINTS	X	FACTOR FOR % COVERED BY MARITIME FOREST	
			% COVERED	FACTOR
100	40		100	4
75	30		75	3
50	20		50	2
25	10		25	1

PRESERVATION OF OPEN SPACE

THE TERM "OPEN SPACE" SHALL INCLUDE ALL THOSE AREAS WITHIN THE BOUNDARIES OF THE SITE THAT ARE NOT COVERED BY MARITIME FOREST FOR WHICH POINTS HAVE ALREADY BEEN AWARDED, IMPERVIOUS SURFACES(E.G., PARKING LOTS, BUILDING ROOFS, TENNIS COURTS, SWIMMING POOLS, STREETS AND SIDEWALKS), MARSH AREA REGULATED UNDER THE COASTAL AREA MANAGEMENT ACT, OR ANY OTHER AREA HELD IN PUBLIC TRUST OR IN PUBLIC OWNERSHIP.

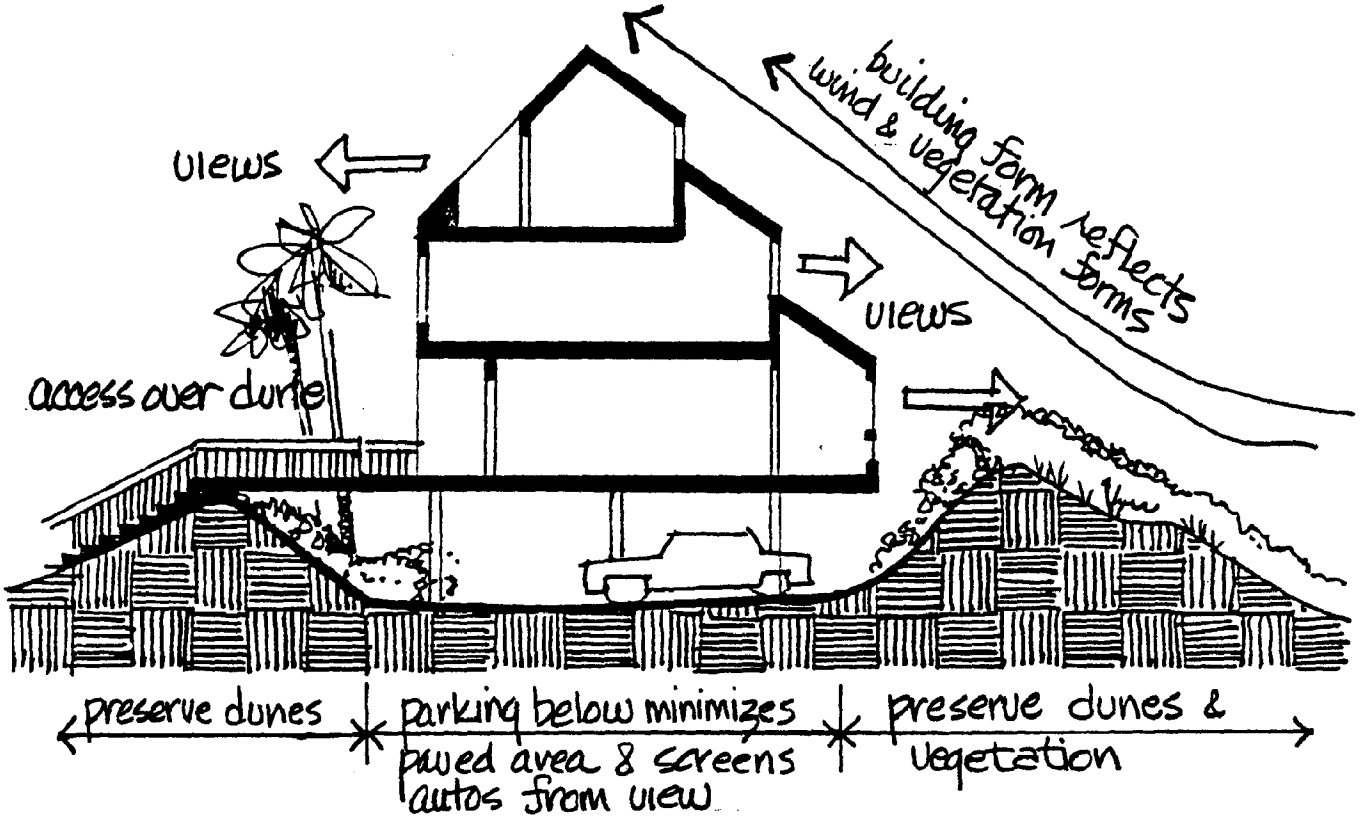
PERCENT OF SITE IN OPEN SPACE	POINTS
40	20
50	25
60	30
70	35
80+	40

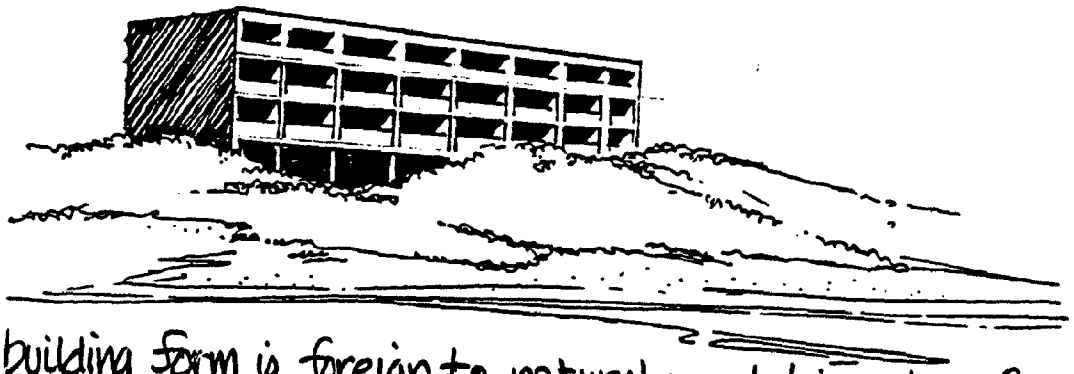
CONTROL OF STORMWATER RUNOFF

FOR SITE DESIGN AND CONSTRUCTION PRACTICES THAT MINIMIZE STORMWATER RUNOFF AND SUSEQUENT POTENTIAL FOR EROSION OR POLLUTION OF GROUND OR SURFACE WATERS 20 POINTS

THE TERM MINIMIZE SHALL MEAN ANY DESIGN OR CONSTRUCTION PRACTICE THAT REDUCES STORMWATER RUNOFF POTENTIAL BELOW LEVELS THAT WOULD OCCUR IF NO SUCH MEASURES WERE TAKEN.

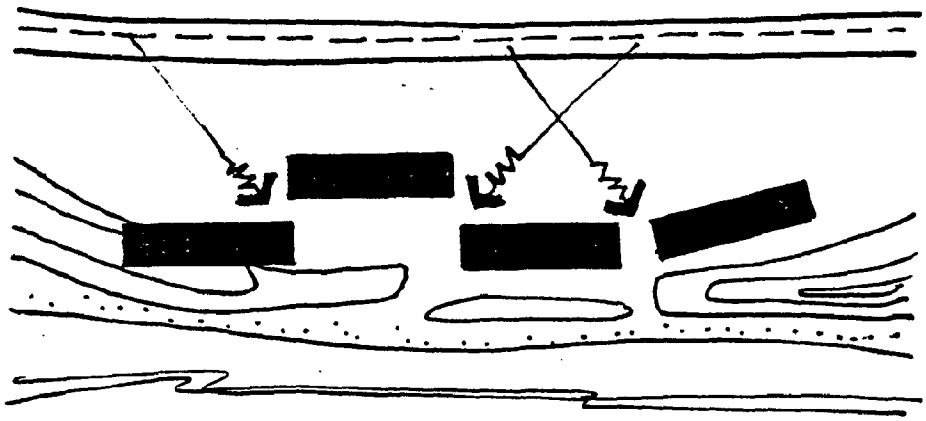
DESIGN GUIDELINES


building form reflects wind & vegetation forms
views
views
access over dune
preserve dunes
parking below minimizes paved area & screens autos from view
preserve dunes & vegetation

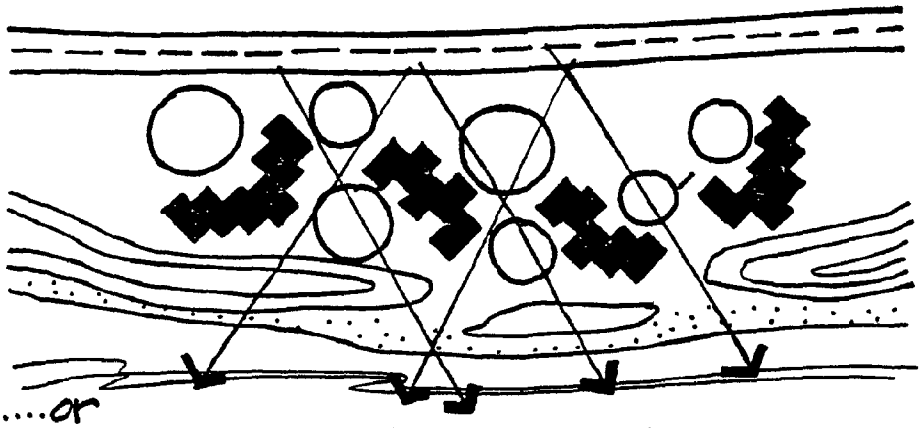


building form is foreign to natural vegetation & dune forms

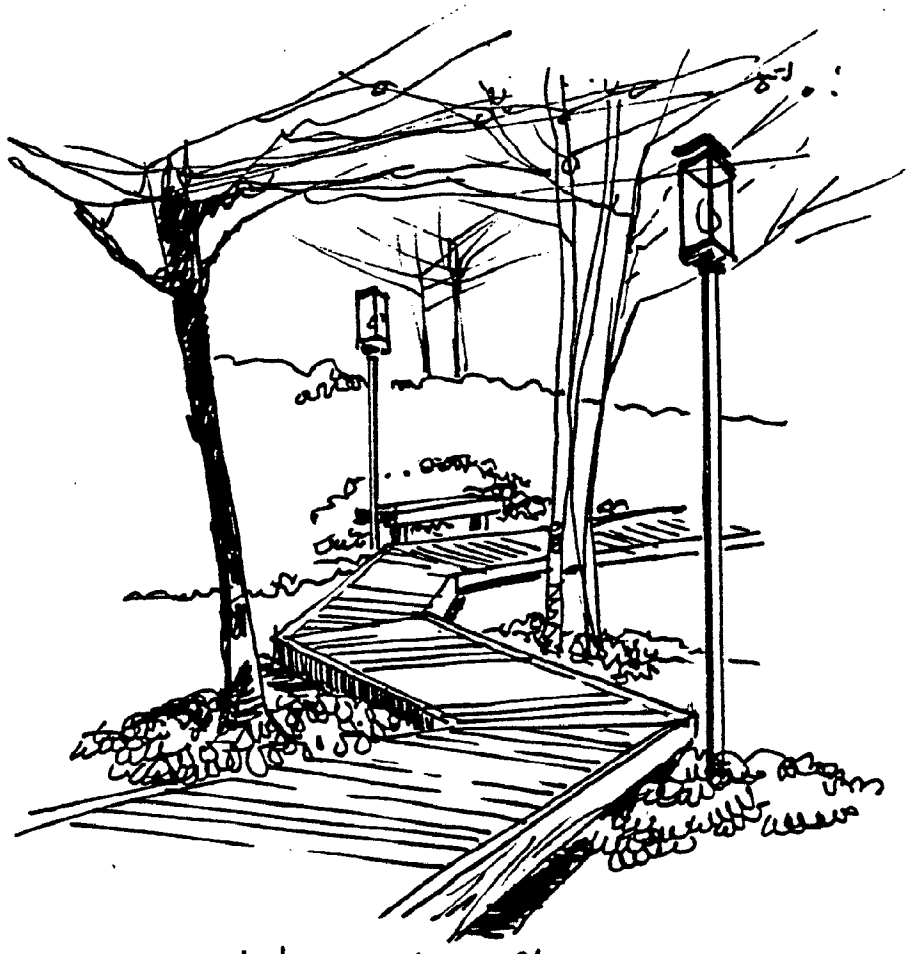
building forms can respond to and even enhance the predominent natural features



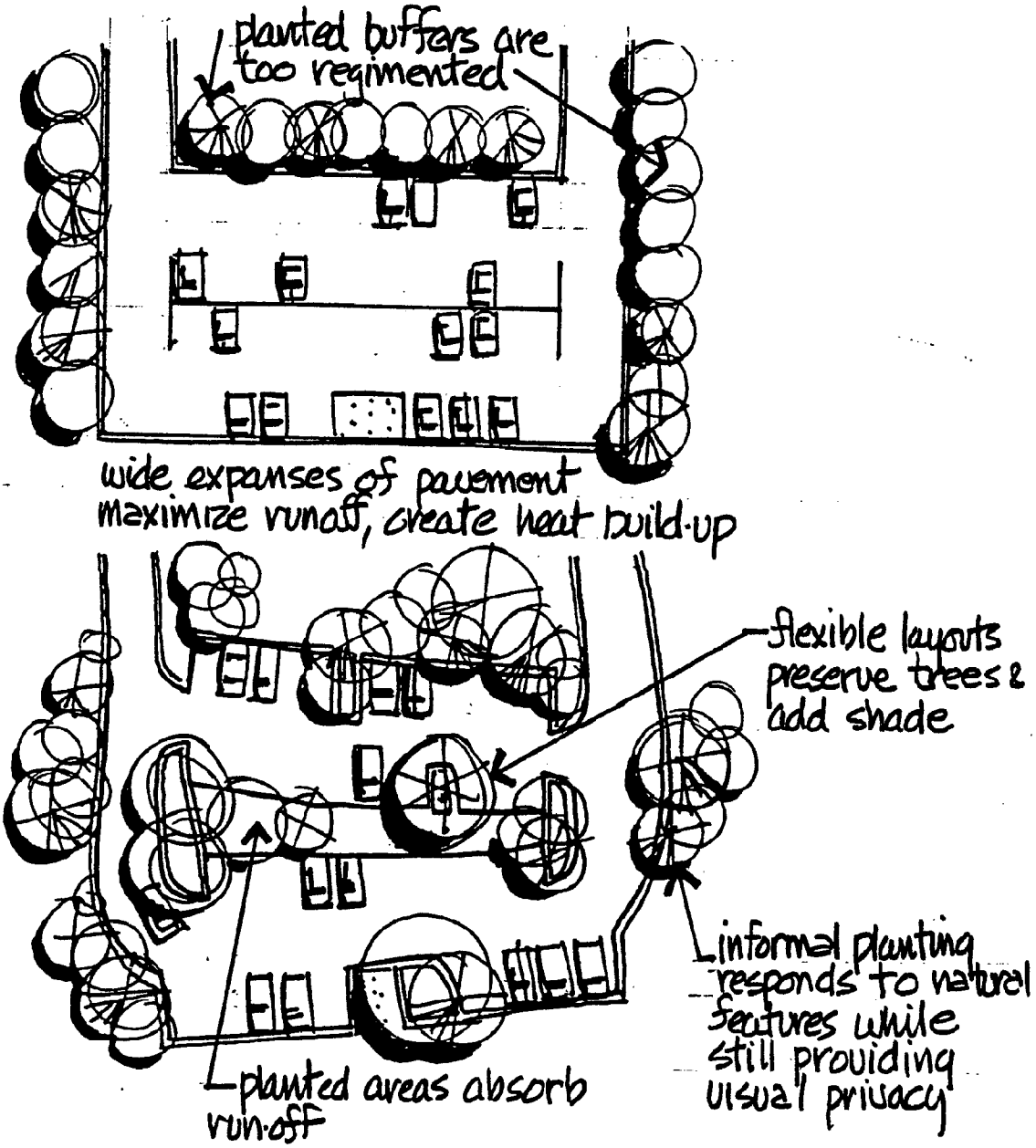
building placement can interrupt views & access.....

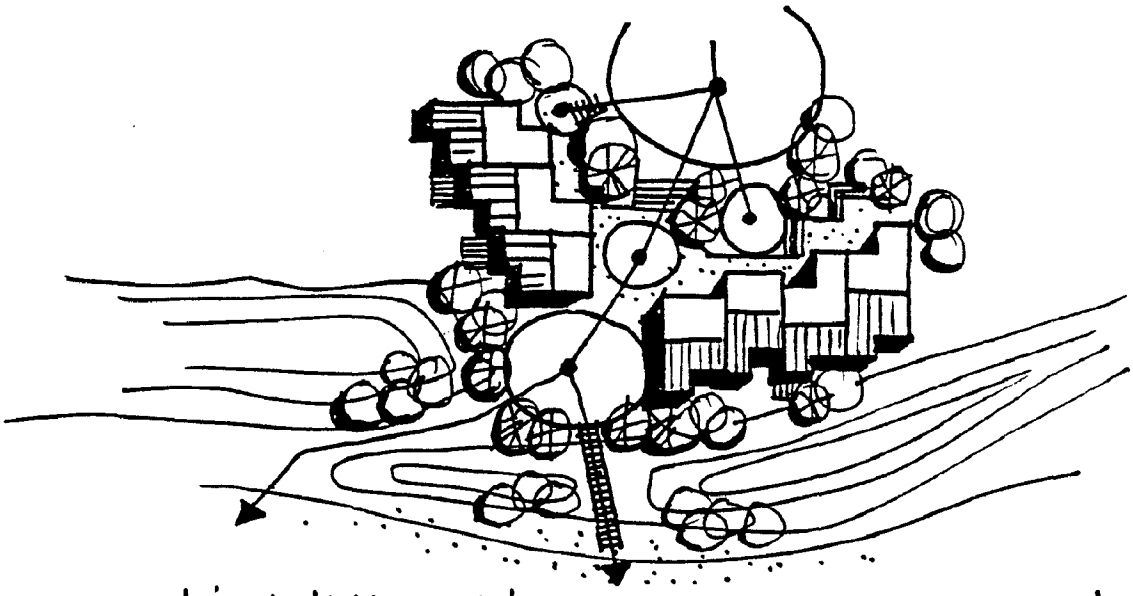


....or
alternate placement can maximize views
while creating a variety of semi-enclosed spaces



suspended wood walkways can respond to terrain, vegetation and allow natural drainage patterns to remain


planted buffers are too regimented
wide expanses of pavement maximize runoff, create heat build-up
flexible layouts preserve trees & add shade
informal planting responds to natural features while still prouiding visual privacy
planted areas absorb run-off



creative building siting can protect dunes & vegetation while creating a variety of views & spatial experiences – pedestrian access is enhanced