W.P.

N.H. Coastal Resources
Management Program
First Year Report
Attachment B - 23

ARBITRARY EXCLUSIONS BY MUNICIPALITIES OF LAND AND WATER USES OF REGIONAL BENEFIT

Prepared by
Strafford Rockingham Regional Council

This report was financed by the Coastal Zone Management Act of 1972, administered by the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration.

15 September 1975

I. Uses With Regional Benefit

The following land and water uses tend to provide services of regional benefit:

A. Industrial uses that employ persons living outside the municipality where located, or provide a good or service consumed or used outside the locality;

B. Commercial and trade uses that are frequented by persons living outside the locality;

C. Residential uses for persons who work outside the locality;

D. Institutional uses that provide services for persons living outside the locality;

E. Recreational uses frequented by persons living outside the locality;

F. Transportation uses providing movement for persons living outside the locality.

In listing examples of each of these it is easier to find uses of regional benefit than it is to find uses whose benefits are exclusively local. Most factories, most commercial enterprises and many institutions, such as schools and hospitals, typically serve larger than local populationsin New Hampshire. Much of the population typically commutes to a point outside its home town to work, making much housing a use of regional benefit as well.

II. Method, standards, and criteria for determining when a local regulation arbitrarily excludes other communties from realizing the benefits of certain land and water uses

For a municipality to act so as to prevent other communities from realizing a benefit from a use it controls, the use must be:

1) a use which provides benefits outside the municipal boundaries where it is located;

2) a use which is subject to municipal control;

3) a use which, by its nature, depends upon location in and, rather than most other, muncipalities, usually because of dependance on a certain natural

municipality tended to exclude residents of other municipalities from uses which might be of regional benefit. These actions, however, are not so clearly arbitrary. There is certainly good and sufficient reason for the actions listed below in the minds of those who voted them. If indeed these actions were arbitrary, they were usually subject to challenge in court by those who might contest their reasonableness. None of the examples citied below have been challenged in court on this basis to the knowledge of the staff of the Strafford Rockingham Regional Council.

1) Industry. Almost all coastal municipalities exclude industrial uses from certain portions of their areas and exclude certain industrial uses altogether. In only two instances, in recent years, has a major industry attempting to locate a use in a particular municipality, been prevented by a local regulation, and been unable to find an alternative site in the region. The two instances are the Olympic Refineries proposal for Durham and the Sprague Refinery proposal for Newington. In neither instance, however, was it c lear to the voters that there was a net regional benefit to be derived, (ie. although there were some benefits, there were more detriments.) and, in neither case could the decision to exclude be called clearly arbitrary.

The Durham site for Olympic Refineries, for example, generally does not fall into the high development capability classification. The land capability classification shows it unsuitable for major development of any kind. There are, however, in the region other places with an excellent capability for industrial development. The use is therefore not "excluded" from the area by Durham's action.

The Newington site, on which the Sprague interests elected to build their refinery, is well suited for industrial development and is an area particularly suited for industrial development dependent on access to ocean transportation and has been so classified by this planning project. There are no other such sites in the area with the exceptionof several parcels in Portsmouth which are already densely built upon. The

justifed by local soil conditions. When without municipal sewer and water service such large lots are needed to protect well water supplies. The law in this field is currently in flux as is the thinking of the socialologists. Should communities be homgenious (a result of one zoning category throughout a town) or hetrogenious (a result of many)? The situation does not become "exclusive" to the detrement of the region unless so many municipalities act to exclude that there are few or no suitable places left to built low cost housing. In this region it does not appear that an "exclusion" which affects the regional housing supply has yet taken place. Dover, Exeter, Hampton and Portsmouth, within the secondary zone, all permit the construction of the least expensive type apartment structures--i.e. those meeting minimum building code specifications. Many municipalities allow mobile home parks and/or mobile homes on single lots -- another inexpensive housing mode.

Certain municipalities have been accused of discriminatory zoning practices. Almost all of these controversies have taken place where there is a public water supply but no public sewer system. In each case the large lot size requirement, or multifamily prohibition, has been based on a sewage disposal arguement, although, limitation or slowing growth has been mentioned as a reason.

In no instance however, does it appear that an "exclusion" takes place which affects use of coastal waters in any way. Residential properties along the shoreline reflect their desirable location by being priced much higher than comperable properties inland. They vary in style, age, price and quality, however, and no indications have been seen that discrimination is practiced.

4) Institutional Uses. No clear instance of insitutional exclusion has been found, although municipal chauvenism has lead to threats and promises along these lines. The most typical example is dissatisfaction with area high schools by the sending municipalities and dissatisfaction with "absorbing"

the student population of neighbors by the receiving municipalities. Effect on coastal waters of this kind of exclusion is tenuous at best.

More germane is the attitude of Portsmouth toward treating the sewage of adjacent municipalities. The staff of the Strafford Rockingham Regional Council has been involved in this minor controversy for some time -- Portsmouth does not want to treat neighbor's sewage for a number of reasons relating to competition for industry (if the neighboring towns have sewer service, industry would go there rather than Portsmouth). Economies of scale suggest that central treatment in Portsmouth is more economical. The effect on coastal waters, howevwr, has been only tangentially considered in this light to date, and may ultimately be the determining factor. Portsmouth cannot be said to have "excluded industry from other muncipalities" by refusing to treat their sewage since the other municipalities have the option of building their own sewers, private industry in Newington, in fact, having recently done so.

Opposition to the New Hampshire Port Authority's expansion in Portsmouth was not directed at the institution or function, per se, but rather at the current mode of operation. Expansion is scheduled, no exlusion has taken place.

5) Recreation. The closest thing the region has to an exclusion is in recreation where the town of Rye, although permitting anyone to use the beaches there, prohibits parking near three of them without a town permit, available only to the occupants of dwellings located in Rye. The parking restriction effectively limits the users to Rye residents and their tenants and guests. Rye defends this policy (and indeed no one has ever formally challenged it) by pointing out that Rye pays for the maintenance of the beach and pays the lifeguards. Since there are many miles of public beach with good access in New Hampshire, including several beaches in Rye, it is difficult to call this practice "arbitrary".

North Hampton has recently debated limiting parking along its roads near the shore but no action has been taken. Hampton and Seabrook likewise limit on-street parking, but in all cases it is justified on the basis of maintaining a sufficiently wide and uncongested right-of-way for emergency vehicles as well as normal traffic flow. Shorefront town parks in Portsmouth and Hampton are open to the public-at-large. Great Island Common in New Castle is open to non-residents on a differential fee basis. No other examples of municipal action relative to coastal recreation were found.

6) Transportation. On two occasions municipalities of the region have acted in a manner designed to inhibit transportation. In neither instance was the action arbitrary. Several municipalities have adopted a national standard pipeline construction code in the absence of any state regulations over the matter and Portsmouth has insisted that the Boston and Maine Railroad improve its tracks before LP gas be shipped over them. Neither action excludes an activity.

W.P.

N.H. Coastal Resources
Management Program
First Year Report
Attachment C - 1

07158

INVENTORY AND DESIGNATION OF GEOGRAPHIC AREAS OF PARTICULAR CONCERN

Prepared by
Strafford Rockingham Regional Council

This report was financed in part by the Coastal Zone Management Act of 1972, administered by the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration.

18 September 1975

AREAS OF PARTICULAR CONCERN

Introduction

The purpose of this inventory and designation is to identify specific geographic areas which are of particular concern and which deserve further management attention during development of the New Hampshire Coastal Zone Management plan.

These judgements are based on the information obtained during first year activities, applied to federal guidelines on area of particular concern designation.

It should be recognized that the inventory and designation of areas of particular concern is not a one-time effort. There will be continued changes in the perception of what constitutes an area of particular concern throughout the coastal zone as new issues arise, as human values change, and as technology creates new opportunities and problems with regard to the utilization of coastal resources.

The following considerations entered into the determinations of areas of particular concern:

1) The added impact, environmentally, economically and/or socially of increased or changed use on the designated areas.
2) The immediacy of a need for attention to these areas in order to protect coastal resources.
3) The irreversibility of commitments of such areas to one use as opposed to another. Once a particular use is established can the area be returned to its natural state?

Several other factors were also considered in making designations: the rate of change of the character in these areas; the probable future demand by New Hampshire residents and businesses for use of particular coastal resources; existing plans for the development of such resources; and the degree of public controversy surrounding the use of such resources.

A resource analysis approach, matching coastal uses with affected resources was attempted. This matrix approach, which identified geographic areas in which multiple use conflicts appeared as being of particular concern, was attempted in order to supplement the method outlined above. The value of this approach was limited, however, as multiple use conflicts appeared for almost every kind of resource under consideration throughout the coastal region, in fact making all coastal waters "areas of particular concern." Such blanket designation would run counter to the federal intention of using area designation to call attention to specific places.

Guidelines

Several guidelines as to designation of areas of particular concern are available.

They are contained in applicable federal guidelines for Coastal Zone Management program approval and the contract under which this report was written.

The FY 1975 contract between the New Hampshire Office of Comprehensive Planning and the Strafford Rockingham Regional Council (contract written before publication of federal guidelines referred to) indicates that areas of particular concern shall include:

1) areas of significant natural value or importance
2) transitional or intensely developed areas where reclamation, restoration, public access and other actions are especially needed (other actions to include preservation)
3) areas especially suited for intensive use or development

Further guidance is obtained from CZMPAR §932.13, which states that "the management program must show evidence that the state has made an inventory and designation of areas of particular concern within the coastal zone. Such designations shall be based upon a review of natural and man-made coastal resources and uses and upon consideration of state-established criteria which include, at a minimum, those factors contained in 15 CFR 920.13, namely:

1) Areas of unique, scarce, fragile, or vulnerable natural habitat, physical features, historical significance, cultural value, and scenic importance.
2) Areas of high natural productivity or essential habitat for living resources, including fish, wildlife and the various trophic levels in the food web critical to their well being.
3) Areas of substantial recreational value and/or opportunity.
4) Areas where developments and facilities are dependent upon the utilization of, or access to, coastal waters.
5) Areas of unique geologic or topographic significance to industrial or commercial development.
6) Areas of urban concentration where shoreline utilization and water uses are highly competitive.
7) Areas of significant hazard if developed, due to storms, slides, floods, erosion, settlement, etc.
8) Areas needed to protect, maintain, or replenish coastal lands or resources, including coastal flood plains, aquifer recharge areas, sand dunes, coral and other reefs, beaches, offshore sand deposits, and mangrove stands.

Method

Examination of these two sets of criteria reveal that two of the guidelines

presented in the FY 1975 contract are paralleled by the itemized criteria found in CZMPAR §923.13. These are "1) areas of significant natural value and importance," and "3) areas especially suited for intensive use or development." Since the federal guidelines are more detailed, and provide better guidance in designating those two categories of areas of particular concern, they were used. The remaining category identified in the contract: "2) Transitional or intensely developed areas where reclamation, restoration, public access, and other actions are especially needed," is listed here as #9.

The method of designation of areas of particular concern is relatively simple. Information compiled during the inventory phase of the project was cross-referenced to the eight classifications listed in CZMPAR 923.13, plus the "transitional or intensely developed" category listed in the FY 1975 contract, appropriate areas of particular concern (if any) being listed under each of the headings. The maps produced during the inventory phase were used to estimate locations of these areas of particular concern.

Types of areas of particular concern are first discussed generically. Discussions are followed in many instances by brief descriptions of particularly noteworthy examples. Areas are illustrated on the maps entitled, Areas of Particular Concern. Not all areas are illustrated for reasons of map clarity. Those areas not illustrated are noted in the text and reference is made to other maps produced under this contract, at the same scale, on which they are fully described.

(Note: Only areas under actual jurisdiction of the State of New Hampshire are included in these designations - additional information on water areas outside the three-mile limit was gathered and is available for future reference).

It should be noted that one place can qualify as an area of particular concern under more than one of the criteria listed. The Hampton-Seabrook estuary-marsh complex, for example, qualifies under criteria 1 (as a scarce and fragile natural habitat, and of scenic importance), criteria 2 (an area of high productivity), criteria 3 (an area of substantial recreational value), criteria 4 (an area where development is dependent on access to coastal waters), criteria 6 (an area where shoreline utilization and water use are highly competitive), criteria 7 (an area of significant hazard if developed), criteria 8 (an area needed to protect coastal lands or resources), and criteria 9 (an area where restoration is needed). In such cases a full description of the area is given in an appropriate section and reference is made to it in other sections.

1) AREAS OF UNIQUE, SCARCE, FRAGILE, OR VULNERABLE NATURAL HABITAT, PHYSICAL FEATURE, HISTORICAL SIGNIFICANCE, CULTURAL VALUE, AND SCENIC IMPORTANCE.

(The federal guidelines are in part redundant in this first instance at least as they apply to New Hampshire. Most areas listed as being of "unique, scarce fragile or vulnerable natural habitat" (criterion #1) are also areas of "high productivity or essential habitat." They are listed here under criterion #1 and referred to under criterion #2).

A. Tidal and Inland Wetlands

For purposes of this discussion tidal and freshwater wetlands were treated together. However, it is clear that while each type is of "concern", each have functions that differentiate them. Since the Coastal Zone Management Act specifically concerns itself with regulating coastal zone uses and their impacts on coastal waters, tidal wetlands are of greater significance. These areas have been identified and mapped by Breeding (1975). These wetlands have been mapped on the coastal zone "Areas of Particular Concern Maps".

While freshwater wetlands are of concern, they are not as crucial to protect as the tidal wetlands. Because of this, and in order to avoid confusion on the "Areas of Particular Concern Maps", only extensive, valuable freshwater wetlands were identified. Great Bog in Portsmouth is an example. See "Other Natural Areas" below. All freshwater wetlands have been identified and mapped by the Soil Conservation Service (1959 and 1967). All appear on the "Soils Condition Maps" and the "Land Use Capability Maps" prepared under this contract.

Wetlands are valuable, irreplaceable water resources that are beneficial for man with no cost to society. Protection of these resources should be an essential policy of any land use regulation program. Although there are many types of wetlands, they can best be categorized here as tidal and freshwater wetlands.

These areas are of concern because they perform the following functions:

Wildlife habitat - both tidal and freshwater wetlands serve as essential habitats and nurseries for certain species of birds, fish and wildlife. In tidal wetlands, particularly, a large proportion of fish and shellfish are commercially harvested, and a majority of the sport fish depend on the marine estuarine system at some point in their life cycle.

Timber harvest - some freshwater wetlands may serve as a source for valuable harvest timber.

Sediment and nutrient trap - wetlands serve as traps for silt and organic matter. In particular, tidal wetlands take up, convert, store and supply basic nutrients to the food web of the marsh-estuarine ecosystem. By trapping organic runoff and pollution, tidal wetlands also maintain water quality.

The tidal wetland habitat is defined as wetland areas where the emergent vegetation is composed of salt-tolerant grasses. Features also include salt pans, tidal creeks, and the subtidal areas of soft mud adjacent to the grass areas. They occur in protected waters as a result of mud deposition, shoaling and colonization by salt tolerant grasses. The physical extent of salt marshes in New Hampshire has been determined by Breeding, et. al. (1974) to be approximately 7,500 acres, primarily in the coastal towns of Seabrook, Hampton, Hampton Falls and Rye. Other areas of tidal marsh habitat are spread throughout the shores of Great Bay and its tributaries.

The tidal marsh is a time-built community and requires unrestricted entry of the tidal waters, as tides are the determining factor in marsh production. The marsh is a highly productive component for the estuary, with half of its plant tissue exported into the estuary. The habitat is widely accepted as contributing significantly to the food source of various species. TRIGOM (1973) reports that "the emergent marsh is highly productive, forming an important source of food . . . along the coast . . ." When the tide ebbs it carries nutrients out of the marsh and the nutrients are in turn utilized by shoreline and open ocean communities.

The marsh ecosystem is important as a spawning and nursery ground as well as a source of crustaceans and small fish for supplying larger predators. The annual value of food production for marine species has been estimated at $4,000.00 per acre. (Allan in Breeding, et. al., 1974) or an annual value in New Hampshire of around $30,000,000. Two-thirds of all fish and shellfish are dependent on the marsh-estuarine system some time in their life cycle (Clark, 1974). Twenty-six species of fish were reported as spending all or part of their lives in the Hampton-Seabrook estuary as a whole, attracted by the nutrients there. These fish range from cod, pollock and striped bass down to killfish and sand lance (Normandeau et. al. 1971).

Oxygen is produced and organic wastes are disposed of through primary nutrient production and are returned into the food chain. The marsh utilizes material that would ordinarily accumulate. Nutrient production of the marsh links the food chain among wildlife, fin and shellfish, vegetation and future food production. The grass in marshes such as Hampton-Seabrook (Spartina alterniflora and Spartina patens) used to be harvested as hay by early settlers.

The marsh and the adjacent mud flats supply an abundance of worms and mollusks for wintering waterfowl and shorebirds. Migrating geese and ducks rely on the marshes as resting and feeding grounds, and frequent them in their migrations, providing hunting as a population recreational sport. The birds are relatively safe from predators, and the tall marsh grasses and other flora offer protective coloration. If the birds nested in other regions, they would be more susceptible to attack.

The vegetation of the marsh is extremely important, for without it the loose sand and peat layers would automatically erode. The spilling of oil has a major effect on the vegetation. Oil can seep from the flats onto the salt marsh peat layers. There, it destroys the grasses underground root system (rhizomes) by preventing oxygen from diffusing to them (Thomas, 1973) Cooler regions are particularly sensitive to this type of marsh deterioration.

Of all the critters that inhabit the marsh, perhaps the most sensitive is the unique fiddler crab. They are the only major species which are known to be harmed by sewage waste disposal (Teal, et. al., 1974), and are also extremely sensitive to persistent pesticides. Besides the fiddler crab, blue and green crab as well as shrimp are also essential members of the marsh system.

Until recently, marshes were relatively safe from human intrusion. At present, marshes are being subjected to waste disposal, dredging and oil pollution as well as destruction for commercial uses or mosquito control. Dredging and filling is unquestionably the most destructive force of intrusion by man. Permanent marsh destruction is probable and predictable. It blocks the natural tidal flow, destroys the vegetation and results in anoxic conditions. Only anaerobic species are able to survive, which is an unhealthy situation exacerbated by the hydrogen sulfide elimination - the characteristic "rotten egg" smell.

Unhealthy or polluted marshes breed mosquitos, whereas normally their population is reasonably controlled by the birds and fish that are their natural predators. Industrial waste (as oppposed to sewage) is almost as detrimental as dredging, only the response is slower, and therefore less evident.

Important marshes include the Hampton-Seabrook marshes, the Plaice Cove marshes (Hampton), Philbrick Pond, Little River Swamp (North Hampton), Awcomin Swamp (Rye), and Foxhill Swamp to the west of Odiorne Point State Park (Rye). Other marsh areas, while either not named, or smaller in extent, are nonetheless similarly valuable as habitats.

B. Estuaries

An estuarine ecoystem is defined by Clark (1974) as any semi-enclosed coastal water body with an open connection to the sea and a measurable quantity of salt in its waters (greater than 0.5 ppt). Estuaries are strongly affected by tidal action, and within it sea water is mixed with fresh water from land drainage, thus forming three characteristic water types: low salinity, medium salinity and high salinity. The oligohaline (low salinity) estuarine system generally exists at the river mouth. The uni-directional river flow changes to circulational flow such as that found in a wide, shallow body of water. The point where the Squamscott River enters Great

Bay is one such example. The oligohaline areas gradually blend into into areas of medium salinity, so it is difficult to distinquish the two. According to Odum, et. al. (1974), there are no precise boundaries due to variations caused by tidal cycles, rainfall, circulation, evaporation and so forth.

The estuarine environment provides protection from wave action, allowing plants to root, clams to set, and the retention of suspended life and nutrients. Light penetration to the bottom enhances plant growth and tide flat biota. The fresh water inflow constitutes the top layer over the salty, heavier waters, permitting stratification and circulation. This enables transport for suspended life and nutrients which flow in under the salty layer and out via the surface. The tidal rhythm acts as a regulator of feeding, breeding, and other functions. The estuary is generally silty and variably turbid and is protected from predators due to the variable salinity and shallow water.

The estuarine ecosytem is a vital area with high value as a natural habitat. Varying levels of salinity provide primary support for a number of species that are dependent upon a particular saline concentration. Estuaries are required by invertebrates and marine fish for residence during part or all of their life cycle. Bluefish, menhaden, shrimp and fluke spawn in open sea and then migrate to the estuaries. Clams are abundant here, in lower salinity areas, and migrating species such as the striped bass, Atlantic mackerel, and Atlantic cod use this system at various times of the year

For recreational use, the clam flats present in Great Bay and Hampton-Seabrook are important, and there is a recognized striped bass and smelt fishery at various times of the year. Striped bass occur in the estuaries primarily from May through November and smelt from October through June. Areas of the Piscataqua River, Great Bay, and Hampton-Seabrook estuaries are also used as breeding-nursery areas by alewife, coho salmon and winter flounder. It is an accepted assumption that oceanic fishes in general are primarily dependent on the estuary (Clark, 1974).

The estuary is extremely productive, as it supports heavy beds of underwater vegetation. The photosynthetic processes of the vegetation convert energy to a useable food source, providing high food production. The grasses also produce oxygen, necessary for an aerobic system, and they stabilize the bottom sediment (Clark, 1974). Estuaries also serve as traps for nutrients, utilized by young migrating species for growth. The estuarine habitat also acts therefore as a route through which many pollutants pass to become concentrated elsewhere. A number of waterfowl might be added to indicate the significance of the estuary as a natural habitat. In Great Bay, Stevenson, et. al. (1974) determined that more than 27 species of

waterfowl use the area, with Canada Geese, Greater Scaup and Black Duck totalling 90 percent of the population. Their report goes on to state that during the fall the Great Bay area is used extensively for the hunting of these species.

Characteristics of estuarine systems to be noted include the presence of a plankton-based food chain. Herring-like fish eat the tiny plankton and are in turn eaten by larger fish or harvested by man. Coastal plankton exist between the estuary and the open ocean, and along with other migrating subsystems, link the two. The estuarine system is used as a breeding and nursery area, and migrating species provide visible indication of the interrelatedness of various ecological systems. The organic production of tidal marsh is exported to the estuary where species feed on it to convert otherwise unusable organic material into animal matter. Characteristically, estuaries are more productive than either the sea or freshwater.

Estuarine responses to man-induced stress have not been completely investigated. Odum, et. al. (1974) report that "by and large the popular impression that a general decline in the population of migrating organisms has occurred over the past several years is correct." Among the modifications of the estuary which affects migrating species are dam construction (present on each of the major rivers emptying into the Great Bay), dredging and filling of wetlands and waterways, and disposal of various chemical and organic wastes. All of these have occured to some extent in New Hampshire coastal waters.

Locally, Normandeau Associates (1970) indicate the following: "Historical evidence indicates that the Piscataqua River Estuary was noted for its richness of marine life. Salmon, shad, cod, lobster, clams and oyster were present in such abundance that they not only supplied the populace with a major supply of seafood, but were even used as food for domestic animals. A noticeable decline in these marine sources occurred after the beginning of local industrial development about 1800. This decline has been traced to destruction of bottom habitat through sedimentation, exclusion of fish and breeding grounds by dams on the rivers, and domestic and industrial pollution."

Hampton-Seabrook Estuary. The major portion of the area is in good to excellent condition (the shellfish are edible). The legislature, in getting water quality standards for this estuary, and in setting up RSA 483(a) which regulates the dredging and filling of saltmarsh has already recognized its high value if left in its natural state.

Great and Little Bay Estuarine System. This area includes Little and Great Bays and is contiguous with Atlantic Ocean. This is a protected estuary with mostly unconsolidated substrate, most of which is of high organic content. Very little sand exists but there is some in highly local areas. Vegetation is dominated by eelgrass. On an average tide of between 6-8 feet, the seawater ebb and flow approaches 40,500,000

cubic meters. This significant large estuary is of a type which is of crucial importance to all life systems in the sea.

. Worm - Clam Flat

Spreading virtually throughout the entire seacoast region is a general habitat known as the worm-clam flat. These areas are characterized as accumulations of silt and clay which, in the intertidal areas, form a low profile zone of particles sorted with fine fractions in the upper zone. The bottom material can be quite sandy and hence may overlap with the beach-sandy bottom category. Worm and clam flats are always in protected embayments. The flats are located in sheltered bays and estuaries, in regions of silt and detritus deposition and require a constant flow of organic matter to the sediment. New Hampshire worm-clam flats are extensively located adjacent to the Hampton-Seabrook and Rye Harbor marshes, and in tidal flat areas of the Great Bay/Little Bay estuary.

The worm-clam flat ecosystem requires benthic diatoms and dinoflagellates as the primary producers with phytoplankton and detritus contributing to the sources of energy (nutrient) flow. Nutrients pass out of the habitat as pelagic larvae, bird and fish food. Common intertidal species present in the flats include the important soft-shelled clam (Mya arenaria) and the pea clam (Gemma gemma). Typically, eelgrass and quahog clams (Mercenaria mercenaria) are found in substantial numbers. Also using worm-clam flat areas are various shore birds such as gulls, crow, sandpipers and ducks. Horseshoe crabs and flounders are also common here. Sandworms and bloodworms are also located in such regions, sandworms being dug commercially.

The clams activate the food web interaction by incorporating organic matter into food for birds, fish and crabs. A number of fish which utilize the estuary as a breeding and nursery area such as the striped bass, smelt and pollock obtain their food source from the clam flats. Other fish usually found here are mummichog, eel, codfish and winter flounder.

The organisms that inhabit this region have certain requirements necessary for life. If an intrusion by man upsets the nutrient balance and cycling by affecting one organism, adverse effects will extend everywhere. The result of oil infiltration into this habitat is long-lived. Oil sinks into the sediment, where the organisms live. Heavily oiled areas result in the mortality of clams and those that survive do not recover after one year observation (Sanders, et. al. 1972). Oil does not seem to concentrate in crabs, indicating that it isn't transmitted via biomagnification in the food chain. Most probably the filter feeders (clams) filter it out of the system, thereby suffering the most as they accumulate it in their systems.

Dredging causes the most serious damage, as it reduces worm and clam population drastically. (Sykes and Hall, 1970). An average sample in dredged bottoms produced 1.1 individuals and .6 species, as compared with 60.5 individuals and 3.8 species in undredged areas. The study was taken in Florida, and it was mentioned that such effects would be even more severe in northern regions, due to an initial lower diversity. The clam flat is situated in a precarious position, as it requires protection but also needs a constant flow of nutrients. A shift in either direction will be damaging. Salinity and sediment type are determining factors in the distribution of this habitat, and alterations affecting these factors will destroy it. This habitat can tolerate a limited input of waste but excessive quantitites cannot be dealt with.

Major clam flats are located in the Hampton-Seabrook estuary and in Great Bay and Little Bays. Lesser concentrations exist in Little Harbor and in other shallow water areas.

D. Oyster-Mussel Reefs

Mussel-oyster reefs are intertidal and subtidal communities based on and dominated by beds of mussels and/or oysters. They may overlap with the rocky shores community or be found among mud flat communities. A preliminary source of attachment (such as a small rock or boulder) allows initial settlement (Emery et. al., 1957). They may also be found attached to foreign objects such as pilings. Their intertidal location renders them relatively well protected from predators. In New Hampshire, locations of oyster-mussel reefs are not well documented. Some oyster reefs do existin the Great Bay area, the Oyster River and upper stretches of the Piscataqua River. Mussels exist throughout New Hampshire coastal areas. Generally, they are common throughout embayment regions.

Oysters and mussels are filter feeding bivalves, filtering organic matter and recycling nutrients primarily from other sources such as the salt marsh. The reefs are highly productive, and an acre of mussels is thought to strain its food from 2.0 to 22,000 metric tons of water per day (Anon, 1973). Their function as cleansers of the coastal system cannot be underestimated. They are most successful with a strong current to bring in food and carry out waste. Their waste products contain valuable nutrients for burrowing species, and they are also prey for birds, fish, man, and predatory scavengers such as crabs. The reproduction of an oyster-mussel reef is primarily affected by temperature.

The shells of dead mussels or oysters serve to attract other organisms, which are fed upon by crabs, etc. The species present are similar to those found in rocky shore areas. If the mussels (or oysters) are located on weed flats, species found in the flats would be interspersed among them as well, which emphasizes the degree

of interdependence between the various categories of ecotypes described here.

Oysters react to environmental stress by closing their valves (Laird, 1961). If conditions do not subside, they will die and the result will be the establishment of a community of bacteria and protozoa. Reefs may be smothered with silt or be scoured away when currents are altered (dredging, erection of jetties, establishment of marinas). Silt-laden waters constitute a harsh environment for their planktonic young stages, and layers of mud are an unsuitable substate. Even a thin layer of silt over an otherwise clean surface will prevent oyster larvae from attaching (Clark, 1974).

Oyster-mussel reefs are vulnerable to water-borne pollutants. Hydrocarbon pollution results in the formation of hard inclusions within the organism's body (Scattergood and Taylor, 1949). The oyster-mussel reefs are frequently located within an estuarine system. If estuarine water eutrophies, the composition of the phytoplankton is altered. The oysters are likely to be unable to utilize the emergent community of phytoplankton and will vanish. Since the oysters and mussels filter the water, the eutrophication process will worsen, and since the estuarine and open ocean systems are inter-related and interdependent, this will create the disruption of the entire coastal ecosystem. May concentrations of oysters are located in the Great Bay estuary system.

E. High Velocity Ecosystems

Odum, et. al. (1974) has defined an ecosystem termed "high velocity". It occurs in channels where water flows at speeds from 3 to 20 miles per hour. Stretches of the Piscataqua River flow at those speeds and detailed studies of the biology of this high velocity ecosystem have been accomplished by Normandeau Associates for the Public Service Company of New Hampshire (Normandeau et. al., 1970).

Odum, et. al. (1974) indicates that "very strong currents dominate the system and allow dense patterns of attached organisms . . . If the surface is within range of light, heavy algal growths develop . . ." This has been documented in the Piscataqua by Normandeau Associates. (An interested analogy is to currents in a cooling intake pipe using salt water cooling -- such as that proposed for the Seabrook Power Plant.) Also, fouling organisms on ships are characteristic of a high velocity ecosystem. Two species common to such ecosystems include the barnacle (Balanus balanoides) and the blue mussel (Mytilus edulis). Various species of marine algae also are found in this environment.

Odum, et. al. (1974) characterize these ecosystems as being "important to man as a concentrating mechanism for food (through the feeding of such species as the barnacle and mussels), sports, waste purification, and as problems in maintaining

ships, cooling pipes and inlets." No relative ranking in importance with other ecoystems has been offered, though this system does depend on other areas for its basic nutrients.

Disruption of this system would result from any alterations in current flow. Contaminants pass through this system quickly enough so that at low concentration minimal damage would be evident. As soon as the system transects another, the effects of pollution are not so predictable, as another system with its different properties may not react similarly.

High velocity ecosystems occur along the Piscataqua River from Portsmouth to Dover at the juncture of the river and Little Bay, and at the entrance to the Hampton-Seabrook estuary.

F. Coastal and Open Water Pelagic System

The plankton based pelagic habitat ranges in geographic location from the coastal esturaries to deep ocean areas beyond the Gulf of Maine. This makes the pelagic habitat the most widespread of habitats occurring in New Hampshire's coastal zone, as it is overlayed to a greater or lesser degree on all others present. In this coastal and open ocean habitat larvae of Atlantic herring, silver hake, and Atlantic salmon have been included in the selected species list (Moore et. al., 1974). Other fish that are found are menhaden, dogfish, smelt, bluefish, mackerel, tuna and (rarely) salmon. References to the Final Environmental Statement - Seabrook Units 1 and 2 reveals a number of planktonic forms of well known species existing in the Hampton-Seabrook area. Larvae of the softshelled clam, surf clam and pea clam have been reported. A wide range of fish larvae, including yellowtail flounder, mackerel, pollock and cod have been encountered by Normandeau, et. al. (1974) in their studies of the environmental impact of the Seabrook nuclear power plant.

The most important aspect of this ecotype is the photosynthetic production of the phytoplankton. The pelagic habitat has a relatively complicated food web. The coastal plankton system is the principal location of commercial and sport fishing and the plankton play a significant role in the food cycle of hake, cod, pollock, swordfish and herring. Phytoplankton form the the essential basis of the entire food chain, upon which everything else depends, converting energy to food and oxygenating the system. The open ocean supports migrating species which interrelate with the estuarine habitat in reproductive cycles. The open and coastal ocean also provides a "buffer" between deep systems and the highly productive estuaries.

Adaptions of this environment are less intense than in more variable coastal regions. Coastal and inland portions of this habitat are under stress primarily due to increasing encroachment by man. Activities which increase water turbidity

(dredging) are the greastest single threat to coastal waters, decreasing light penetration thereby decreasing oxygen concentration and photosynthesis. The entire food chain suffers.

Sensitivity to temperature changes is felt by fish larvae, zooplankton, and copepods (which are prey for fish). Hot water effluents can be extremely detrimental. The controversy over the effect of entrainment of clam larvae by the proposed Seabrook Power Plant typifies such problems. If the larvae killed are from the Hampton-Seabrook area alone, a decrease in clam population will be detectable locally. If the larvae are part of an essentially "infinite" system, there will be no noticeable decrease in clam population in the area.

The pelagic habitat, with its complicated food web, may escape moderate levels of contaimination. An excess of nutrient input is detrimental. The problem of encroachment enters as the highly productive marshes are under increasing pressure for development, incrementally reducing the extent of naturally productive areas. This can only contribute to a decrease in the vitality of the pelagic ecosystem (highly valuable as a good source). The problem is exacerbated by the fact that estuarine and marsh areas are <u>not</u> limitless either in New Hampshire or elsewhere. New coastal activities may have a serious effect on these systems either directly, if they are large enough, or through incremental changes in nutrient-producing areas of the coastal zone.

Effects of new activities on the coastal and nearshore open water systems are subject to debate, however, as the obviously limited estuaries are no longer the primary impact areas. The open water pelagic habitat is much more extensive and there appears to be a popular feeling that the resource is essentially infinite -- that no one action will have a noticeable effect, due to the extent of area affected and quantity of life it contains. Associations with the more vulnerable inland systems are incompletely known, however, and in selected cases the effects may manifest themselves much more noticeably than first thought, especially when one realizes that a number of migrating species use both coastal and inland habitats at various stages of their lives, or are carried back and forth by the current.

G. <u>Rocky Shores</u>

This habitat is defined as including intertidal and subtidal rock formations such as headlands, rocky ledges, outcroppings, boulders and pilings. All shores washed by saline waters or wetted by spray to 20 meters depth with a rock substrate can be considered rocky. In New Hampshire, such areas as Boar's Head, Little Boar's Head, Odiorne Point, Rye Ledge, and portions of the New Castle coast would be included in this category. Various submerged areas, particularly in the area between

Rye and the Isles of Shoals are included as well.

These areas are characterized as having high natural value. Dominating plants are kelp, irish moss and rockweed which attach to hard stationary surfaces. They are important because they are the producers which are exported to become the basis of the food chain in other habitats (pelagic, worm and clam flats, sandy shores). Rocky shores contribute to the production, consumption and cycling of estuary components. Species such as lobsters, crabs, mussels and periwinkles frequent this habitat, making it a productive source of food for people as well. It serves as a resource with potential for greater use of algal beds, mussels, crustaceans and fish trapping that move into these rock beds with the tide (Odum, et. al., 1974).

The rocky shore community is a unique one, with long-lived organisms, high competition and simple interactions. For example, urchins are destructive grazers of the kelp bed, and their population is controlled by lobsters that prey on them. Hence, the significance of the lobster and the consequence of drastically reducing its population. Symbiotic relationships exist between the sessile (attached) organisms. The barnacles with the sweeping motion of their feathery feet help to cleanse the systems by removing the particulates in the water. The sessile organisms eliminate nutrients which in turn are utilized by others as an important food source.

Sensitivities to man induced stress are relatively low in this environment, especially under minor disturbances. Minor oil concentrations are not entirely deleterious but heavily oiled sites are completely harmful. Sewage outfall in the immediate area results in total elimination of all the species there (Borowitzka, 1972). Removal or disruption of the rock formation would result in erosion of the land and elimination of the life that inhabit it. The disturbance inflicted, whether it be a pollutant or excessive foot traffic, will be felt as soon as the most sensitive organism responds, as one organism effects the entire food web. One of the principal destructive effects is that the sessile organisms lose the ability to attach themselves to the rocks, and fall off under pollutant invasion of the water, such as dredging spoils or oil spills. The effects of pollution are amplified by the fact that water borne contaminants may settle into the rock crannies and be ingested by the organisms to be passed into the food chain. See list following the next section on beaches and dunes (Section 3, D) for a listing of rocky shores.

H. Offshore Bottom Habitat

On a regional basis, the offshore bottom habitat is the most extensive, comprising an area greater than all other habitats combined, except for the pelagic habitat. Bottom characteristics are highly variable, but generally one can characterize topographic highs such as Jeffrey's Ledge as being of hard substrate, and adjacent lows such as Jeffrey's Basin or Scantum Basin of the softer muds and mud sand mixtures. Soft substrates (mostly sand) are also located adjacent to sandy beaches

and in pockets throughout the immediate nearshore area.

Two subdivisions of species exist: those that inhabit the surface and those that burrow into it. Data on community interrelationships in this system are sparse. Species may be grouped, however according to the bottom type in which they live. The following sediment types are thought to harbor different species:

Soft
1) Mud
2) Sand
3) Mixture of Mud, sand and shell

Hard
4) Gravel
5) Bedrock outcropping
6) Rocks and cobbles

The biota is dependent on debris and detritus originating outside the habitat. Species living on the soft-bottomed areas include the commercially important mahogany quahog, the surf clam, the sea scallop and the lobster. This habitat also supports a variety of detritavores which feed on organic material on the bottom as detritus and are in turn fed upon by haddock, cod, pollock and other commercially valuable groundfish. Hard bottom species are present over relatively large masses of favorable habitat or in such limited places as abandoned clam shells. Many of the species which live in this habitat are very tiny, and will often attach themselves to the bottom in what appears to be sheets. These species filter organic matter out of the water and are fed upon by larger and more easily recognizable types including starfish, lobster, and groundfish such as haddock and cod.

The chief importance of this ecosystem to man appears to lie in its support of commercially caught marine species, such as lobster, various species of groundfish, and a number of commercial shellfish. Many of the species dwelling in the level bottom habitat aid in the overall function of the marine environment by the recycling of organic matter, which would otherwise be lost, out of the food chain.

Phosphorous and nitrogen appear to be the limiting factors in this environment, as they are usually in a relatively low concentration (Hobbie, 1974). But increased quantitites have led to different species that adapt favorably to becoming the most significant members, out-competing commercially important species. An increase of phosphorus and nitrogen (household wastes and sewage) tends to lead to deep water anaerobic layers. Aerobic organisms die, and recycling slows down as excess matter accumulates. This is not a common occurrence to open ocean systems, however.

Heavy metal wastes would render the sediment containing the benthic organisms toxic to settling larvae, and would depress productivity. Sewage and dredging spoil increase the organic content of the sediment and would lower the oxygen supply of

overlying waters. Since most of the organisms in the habitat are bottom feeders, any alteration in the sediment population would be unfavorable. An increase in turbidity would alter the balance between suspension feeders and deposition feeders toward the latter in many communities, decreasing the bottom fish catch. Bottom feeders include cod, haddock, hake, flounder and scup.

Of concern are offshore spawning areas for cod, pollock and silver hake. Lobster spawning areas are also of concern and are located throughout New Hampshire coastal waters and estuarine waters. These waters provide habitat for numerous species and support beds of underwater habitats. They provide migration pathways for anadromous species. They are subject to rapid, often irreversible change in event of encroachment by man. Specific areas identified are the locations of anadromous fish runs, clam and oyster flats, and tidal marsh edges in Great and Little Bays and in the Hampton-Seabrook estuary.

I. Deer Yards

Deer yards are essentially a winter feeding area for deer. The deer disperse in the other parts of the year. Deer yards occur relatively rarely in nature because of the particular set of natural features required.

One important deer yard is located in Durham Point near Crommets Creek and Dame Road. A second is located in Newington on what is now Pease Air Force Base.

J. Other Natural Areas

Most of the following areas fit into one or another of the criteria listed here Their prominent feature, however, falls into the miscellaneous category. For example, Browns Mill Pond is listed as a wetland but it has a feature, a stand of Atlantic White Cedar, that sets it apart from wetlands in general, and so is noted here.

Lamprey Estuary (Newmarket)

One of the most highly productive estuarine areas in New Hampshire. Unprotected.

Johnson Creek Estuary (Durham, Madbury, Dover)

Johnson Creek begins in Dover on circuitous route south through Madbury into the Oyster River estuary. This natural area has waters ranging from nearly fresh to quite brackish with associated plants ranging from fresh water to marine. One of few remaining and unspoiled tidal estuarine areas in New Hampshire and close enough to UNH to allow for instructional and research programs. A rare pondweed, the horned pond wort,grows in the estuary, and ditch grass can be found in the pools and pannes of the marsh. Eelgrass grows at the mouth of the creek. Unprotected.

Packer Bog (Greenland, Portsmouth)

This flat swamp forest is traversed by Packer Brook and a branch of Haines Brook. The Sphagnum Bog displays a preponderance of coastal white cedar though black spruce, hemlock and larch are scattered throughout. Area was lumbered some time in the past but is again gown thick with a dense and healthy growth of the cedar. Excellent

variety of bog plants. Area bordered by 2 roads, forest land and a railroad bed. Conservation Commission owns small portion of Cedar Swamp but integrity of area is threatened by a transmission line from the proposed Seabrook nuclear plant.

Bellamy River Hardwoods (Madbury)

Seasonal stream erosion is cutting shallow ravines into the land which gently slopes toward the river. Area is covered with a hardwood forest of many diverse species, and on the forest floor is a particularly interesting community of spring and summer wildflowers and ferns. This type of forest and here association is of rare occurence in New Hampshire east of the Connecticut River Valley. The three species which are particularly rare in eastern N.H. are Mi ella Nuda, Blue Chosh and Spring Beauty. A more lengthy list of the unusual species has been prepared. Leighton Farm Campground owned in part by UNH but awaiting protected status. Two very rare species nest here, the Goshawk and the red shouldered hawk.

Little River Swamp (North Hampton)

This is a shallow marsh located between Little River and the ocean. As with all shallow marshes, its soil is waterlogged during the growing season. Grasses and sedges are the dominant vegetation. The marsh provides food and cover for an extremely wide variety of animal life. Birds are abundant and are dependent upon the community as a nesting and feeding area and include herons, egrets, ducks, geese, and terns. 24 of the acres are owned by a private individual who is intent upon keeping his area in a natural state despite town pressure to develop the marsh. As with all coastal marsh areas, of immeasurable significance to the ecological system.

Little Harbor (Portsmouth, New Castle, Rye)

Island studded bay with outstanding rocky uninhabited shores topped by a plant community of island pine, bayberry, blueberry, huckleberry and shadbush and exhibiting an outstanding display of colors both spring and fall. The Bay situated between the main stream of the Piscataqua River and the Atlantic Ocean, can be considered as part of the Piscataqua estuary or as an extension of the tidal inlet northwest of Little Harbor. The rocky islands and shores support heath and pines, the salt marshes support communities of spartinas and midlittoral marine algae; and the floor of the Bay and channels support Eelgrass and marine algae of lower littoral and sub-littoral. Area is habitat for finfish, shellfish, heron, loons, grebes, ducks, swans, buffleheads, goldeneyes, mergansers, Canada geese, the rare brant and an occasional seal. Most of the area is below mean high tide, thus state owned, but jurisdiction remains unclear and planning nonexistent. State control is desirable as other properties are adjacent. Area is fast being subjected to development pressures such as marinas, moored barges and other commercial activities which are causing oil slicks; and land fills are destroying the productive estuarine areas. Area has high recreational potential but is neither recognized nor protected.

Eel Pond (Rye)

This pond borders route 1A on the west side and is surrounded on the south, east and west by typical fresh water herbs, trees and shrubs. The level of this pond is carefully controlled by a dyke operated by the landowners who keep the pond smaller than a great pond. Its waters support a spectacular display of water lilies throughout the summer. In the spring and fall it serves as an important resting place for migrating waterfowl, and in

the winter it is kept open for ice skating. This outstanding beauty spot suffers from its close proximity to intensive recreation areas and urban developments, and from part-owners intent upon subdividing and selling their land for development.

White Cedar (Rye)

This stand was clearcut about 1925 in anticipation of a housing development, but those plans were abandoned and the cedar stand has grown back into a fine young forest, with trees reaching about a 6 inch diameter. Saltmarsh encroaches upon the stand from the northeast, but the stand itself is growing in a fresh water swamp which has a mineral base. This is a pure cedar growth of about 25 acres and is bordered on the west and south by a mixed stand of spruce, pine and hardwood. This stand was shown on the Rye map of 1805, which may be an indication that these are the living descendents of the cedar forest which grew at nearby Odiornes Point, the remains of which are sunken and measured to be about 4,000 years old. The border of the saltmarsh is in fine condition. Area can be viewed from the road. Stand is under constant threat from development pressures.

Seabrook Dunes (Seabrook)

Remarkably unspoiled dunes separated from Seabrook Beach by US Highway 1. Extensive saltmarshes flank the dunes on the west and north. At present the dunes are stabilized; the old blow-outs are well-filled with a rich variety of plants and the more exposed crests and ridges are mostly fixed by pioneer species of sand-binding vegetation. The abundance of established plant communities on the dunes are of considerable interest. The dune hollows support a wide variety of woody plants, some of which provide a deep, summer shade under which grow a variety of herbs. Red maple, black and pin cherry are common; on drier ridges and dune crests pitch-pine growns with its lower branches partly buried in the sand. Bayberry, wild rose, sweet pepperbuch, poison ivy, woodbine, and dusty miller demonstrate the diversity of the environment. Aristida Tuberculosa is an abundant grass isolated here at its northern limit. Area is in private ownership, is adjacent to an intensive recreation area, and is unprotected. A green heron was found nesting here in 1960, the time of the last inventory.

College Woods (Durham)

This is a diversified tract of old growth white pine and hemlock intermixed with an abundance of young mixed hardwood species which include black, yellow and paper birch, sugar and red maple, red, white and black oak, and several others. Until the 1938 hurricane the white pine and hemlock formed a spetacular grove. The majority of the big trees were blown down by hurricane winds but concentrations of them remain in favored sites. Tree ring counts show that the older trees are close to 300 years of age while the hardwood trees are probably between 30 and 50 years of age. The old white pines average more than 100 ft. tall with some having a 36 in. D.B.H. while others sport at 40 in.D.B.H. Some of the hemlocks have a D.B.H. of more than 30 in. The woodland is owned by U.N.H. and has protected area status. This tract is in the northern section of an extensive woodland known locally as the College Woods.

Meadow Pond (Hampton)

47.5 acre pond with lush growth of lilies, beach plum and cattails.

Durham, Exeter, Greenland, Newmarket Fresh Water Cattail Swamps

These fresh water swamps, including Meadow Pond, provide a relatively rare habitat for a select species of birds. They provide breeding and nesting areas for all of those listed below except possibly the Least bittern. Although these areas have been created by man through railroad or road building, they still represent unusual habitats of regional importance. The following species can be expected to inhabit these areas: American bittern, Least bittern, Common gallinule, Sora rail, Virginia rail, Long-billed marsh wren, Common Yellow-Throat.

Sand Spit (Seabrook, Hampton)

Northeasternmost station for the Least tern. A low, flattish sand-spit which has appeared to be increasing over the last 30 years. The main interest in this land centers around its use as a nesting site by the Least tern, appearing here at its most northeastern known station. Piping plovers and spotted sandpipers have also been observed here in the past. Botanically the area is interesting as representing a new and expanding area for plant invasion and colonization. Beach grass, dusty miller, sea-milkwort, beach-pea, sea rocket, cocklebur, yellow cress, seaside goldenrod, seaside spurge, ragweed and wild rose were the species observed there in 1960. Area is on the southern entrance of Hampton Harbor, is crossed by a road and is adjacent to a large and overused recreation area, all of which make it extremely vulnerable to ruination.

Tombolo at Great Boars Head (Hampton)

Bar of sand tying a drumlin island to the mainland. The retreating glacier and the subsequent rise in the sea level left a lone drumlin as an island at Great Boars Head. The east end and sides were eroded back into a high seacliff which still suffers damage from storms wherever the breakwaters are weak. The eroded remains of the drumlin have long since become tied to the mainland by a tombolo, a long bar of sands gathered by the wash of waves and currents in the lee of the island.

Odiornes Point State Park (Rye)

A complex ecological, geographical, archeological site: several unique features. From the uplands through the littoral zone, or from 12 feet above to 60 feet below mean low water level, are included the following habitats: intertidal zone tidal pool, tidal creek, mud flat, sand beach, pebble beach, salt water marsh, fresh water marsh, fresh water pond, woodland, open field, rock outcrop, Research complete to date has identified more than 80 species of fresh and salt water algae, 90 marine invertebrates, 339 species of vascular plants, 23 species of mosses, and 194 bird species, all combining to form an outstanding representation of Atlantic seacoast flora and fauna. This is the only mile of New Hampshire coastline which is simultaneously rockbound yet adjacent to salt marshes. The ancient white pine tree stumps, buried by high tides, are close to 4000 year old remnants of a forest growing on the shoreline which was later buried by the sea when it rose from the melting glacial ice. This was also the site of an indian village, of the first New Hampshire colonial settlement and of the oldest New Hampshire cemetery. Part of the land is state-owned and only low intensity use will preserve its delicate habitats. Also present are 460 million-year old rock formations. Area is subject to overuse and access should be controlled. Nine studies have been published and are available from state parks division or New Hampshire charitable fund.

Browns Mill Pond Atlantic White Cedar (Rye)

Largest specimens of Atlantic white cedar in New Hampshire. This is an old millpond whose waters are controlled in an attempt to limit recreational overuse. The draining of the pond in summer and the full water in winter and spring causes the area to vary in profile from open water to marsh around the various islands and peninsulas. Area is most important as a habitat for Atlantic white cedar believed to be some of the largest specimens in New Hampshire with measurements ranging from 18.2 inches to 22.5 inches D.B.H. The tall cedars are within 50 feet of the pond shore, the areas in between and on the islands covered with younger cedar, large swamp extends above the pond. The constant fluctuation in water level may be destroying the trees; many have dead tops. Area privately owned, but essentially protected except from public overuse. Wild, undisturbed character.

Burkes Pond Atlantic White Cedar (Rye)

Small millpond with specimens of large Atlantic white cedar. Near a residential area but surronded by a golf course, pine woodlands, a swamp and swamp woods. On the north shore of the pond and on a peninsula and along a stream on the west end are scattered specimens of cedar ranging up to 15.3 inches D.B.H. These are not pure stands but are mixed with hardwoods, hemlock and pine with and understory of black alder and other shrubby plants. The pond is drained every summer in an attempt to limit recreational overuse. The constant fluctuation in water level and the possible expansion of the golf course may ultimately destroy the trees.

Hunis Island (Seabrook)

Wildlife refuge owned by Audubon Society. Probably the largest island of high ground entirely surrounded by salt marsh in New Hampshire. Of interest botanically and apparently archaeologically (for indian relationships). Within circle that would be acquired by Public Service Company if nuclear power plant is built but hopefully would not be disturbed.

Majors Rock (Seabrook)

Large rock in Blackwater River Estuary - glacial remnant.

Cocheco River Falls Area (Dover)

Large, unspoiled river with numerous waterfalls and a rare plant. A scenic winding river with mostly steeply sloping, wooded banks. This river stretch has several waterfalls where dams and millsites were formerly located but which are now abandoned. The several falls drop a total of fifty feet, and between each one are long stretches of white water. The rapids and some of the falls are habitat for the rare aquatic flowering plant known as the riverweed. Excellent habitat for fish and birds. Highly scenic.

Huggans Sanctuary (Dover)

One of few protected estuarine forest areas in New Hampshire. This is a tract of flattish forest land bordered by coastal areas deeply indented with saltmarsh flats. Significant array of saltmarsh flora and a relatively large coastal frontage

due to the inlets. The area was cut over extensively in the past, but the forest is fast growing and may recover with relatively little traces of the cutting. This estuarine area lies at the mouth of the Bellamy River and is maintained by the Audubon Society as a preserve for birds and small mammals.

Crommet Creek Woodbank (Durham)

Estuary bordered by rich woodland exhibiting some rare plants. Area of interest occurs on west and east sides of Crommet Creek bridge on a steep slope facing south into the Great Bay Estuary. The saltmarsh and aquatic vegetation are fairly typical but the talus slope east of the bridge and the rich bit of woods west of the bridge support some rare flora including flowering dogwood and New Jersey Tea. Area appears to be safe for the present although it is not formally protected.

Maple-Oak-Hickory Forest (Durham)

Unique display of spring wildflowers along a stream amidst old hardwoods. Small hardwood forest on a gentle slope facing Little Bay and bordered by a small stream which has deeply cut the bedrock, and falls over the ledge into the bay waters. Shagbark hickory, sugar and red maple, red and white oak and hophornbeam inhabit the rich and rocky soil. The underlaying rock is kittery quartzite which forms much of the Durham shore of the Great Bay. Very large windthrown trees remain where they fell indicating the possibility that this may be a remnant of the forest that originally bordered much of Durham Point. A spectacular display of bloodroot and hepatica in early spring covers the forest floor with a colorful blanket. The cardinal flower, growing along the stream, gives color to the area during the summer months. Tract is privately owned and protected for the present though area is undergoing rapid urban development.

Spruce Hole (Durham)

Unique kettle hole, acid bog with open pond and diverse flora. A unique large 50 foot deep kettle hole, now an acid bog with a 60-80 foot pond occupying the center of a pronounced basin-like depression in a gravelly hill. A zone of pine and oak hardwood forest surround the pond beyond a fringe of leather leaf and sphagnum mixed with other typical bog plants. Dwarfed and picturesque black spruce trees form an irregular and interupted fringing border around the bog mat. Several species of shrubs occur with the black spruce including witherod, mountain holly, high bush, blueberry and maleberry. A peripheral border zone lies between the spruces and the steep sides of the basin. Formerly this was heavily vegetated but the pines were cut several years ago. The water level in the bog has since been higher. Temporarily protected.

Adams Point (Durham)

Great Bay Estuary with salt marsh and ledges with rare plant species. This is a saltmarsh extending from the neck southerly to the ledgey shore of the peninsula. This saltmarsh joins the isthmus to the mainland and is habitat for some rare saltmarsh species including bearberry, New Jersey Tea and marsh edler growing at its northern limit. Adams Point, an 80 acre peninsula serving as a division between Great and Little Bays, is managed by the state Fish and Game Department for intensive recreation including waterfowl hunting, oystering, fishing and clamming. It is otherwise protected. UNH maintains a research laboratory on the peninsula.

J. Areas of Historic Significance and for Cultural Value

These areas of particular concern are not just objects to be revered by passing tourists and academic people, but in fact represent valuable educational resources. By retaining these areas present day society can gain a better understanding about the ways and means by which past generations adapted their life styles to the environment and the changing times. Many of these add to the unique character of New Hampshire's coast. Historic districts are mapped, sites and individual properties on the National Register are not mapped on the Areas of Particular Concern map, but are portrayed on the map series which relates solely to this subject.

EXETER

1. FEDERAL REGISTER

Official: Congregational Church, 21 Front Street

Dudley House, 14 Front Street

Front Street Historic District

2. STATE HISTORIC SITES

Official: Exeter Town House, Court and Front Streets

3. HISTORIC DISTRICTS

Official: Front Street-Water Street-Pine Street-Spring Street

Suggested: Park Street Common

High Street and Hall Place, Franklin, River, Bow, Clifford and South Streets

GREENLAND

2. STATE HISTORIC SITES

Breakfast Hill

3. HISTORIC DISTRICT

Suggested: Town Center

HAMPTON

1. FEDERAL REGISTER

Weare, Gov. Neshech House, Route 88

2. STATE MARKERS...SITES

George Washington's Visit

3. HISTORIC DISTRICT

Lafayette Road; Brimmers Lane-Depot Road; and Kensington Road

NEW CASTLE

1. FEDERAL REGISTER

Fort Constitution (off Route 1B)

2. STATE HISTORIC SITE

Fort Constitution, William and Mary Raids

3. HISTORIC DISTRICT

Officially Proposed: Area between Portsmouth Bridge and Fort Constitution. Along 1B and including area between 1B and Water. (North)

NEWFIELDS

3. HISTORIC DISTRICT

Suggested: Town center along Route 85 and Piscassic Road

NORTH HAMPTON

3. HISTORIC DISTRICT

Suggested: Atlantic Avenue (101D) to beach

Intersection of Atlantic Avenue, Hobb's Road and Post Road

PORTSMOUTH

1. FEDERAL REGISTER

Official: Beck, Samuel House, 107 Deer Street

Benedict House, 30 Middle Street

Hart, Jerimiah House, 112 Deer Street

Hart, John House 63 Deer Street

Hart, Phoebe House 184 Deer Street

Hart-Rice House, 77 Deer Street

Jackson, Richard House, North West Street

Jones, John Paul House, Middle and State Streets

MacPheadris-Warner House, Chapel and Daniel

Hoffatt-Ladd House,, 154 Market Street

Neal, James House, 74 Deer Street

Nutter-Rymes House, 48 School Street

Pinkham, Daniel House, 190 Deer Street

Portsmouth Athenaeum, 9 Market Street

Portsmouth Parade Historic District

Portsmouth Public Library, 8 Islington Street

Shapley Town House, 454-456 Court Street

Sherburne, Henry House, 73 Deer Street

Smith, Simeon P., House, 94 Russell Street

Wentworth, Gov. John House, 346 Pleasant Street

Wentworth, Joshua House, Strawbery Banke

Wentworth-Gardner House, 140 Mechanic Street

Whidden-Ward House, 117 Deer Street

Officially Proposed: Strawbery Banke Historic District

2. STATE HISTORIC SITE

Official: Portsmouth Plains, N.H. 101, East of Junction of Route 95

3. HISTORIC DISTRICT

Official: Strawbery Banke Historic District

Vaughn Street Renewal Area (Deer Street)

Officially Proposed: Market Square

line, a near view of shipping or boating or human activity, and there are many places to stop and watch from.

Neither must the viewer remain stationary to enjoy a scenic view. The older parts of New Castle can be best enjoyed on foot or by bicycle. The "cottages" along the shore in North Hampton and Rye may be best enjoyed, by the public, from the window of a moving automobile.

Highest value views are those that many people seem to enjoy going to see on purpose, as an end destination of a recreation oriented trip. Something people find worth taking a picture of or even worth using as a model for a sketch or painting.

Medium value views generally consist of either a distant, stable, view or a short range active view, but not both. The viewer's interest is not held very long. A typical example is the view of the Atlantic from a sandy beach or the Great Bay from almost anywhere. Other than rather monotonous wave action and perhaps some bathers, or fishermen in season, nothing much happens. Yet people do stop and look, and do enjoy riding in an automobile past such places. Most of the major roads in Rye, many roads in other towns, and the beaches all along the coast fall into this category.

The final category, "some value" is just that -- a well trained, educated or peculiarly interested eye sees something worth viewing. The average man does not -- saltmarshes other than those at Hampton-Seabrook, and downtown Dover, are perhaps typical of this category.

Some views can be enhanced by <u>providing</u> the missing basic element:

1) a distant view can sometimes be provided or enhanced by cutting trees, removing signs, or by building an elevated view point;

2) a near view can be improved by providing a place to view from -- usually a place to park cars, or a place to sit, or an activity to watch. The various "parkways" in and around this country's metropolitan areas were originally constructed for the purpose of providing recreational driving for a scenic view, for example.

Although there are a great many scenic views, the following lists only those in which coastal waters play a role. The map illustrates many, but not all, of the areas classified as excellent as well as coastal promontories,such as Stratham Hill, in Stratham, Garrison Hill in Dover, Beech Hill and Hicks Hill in Madbury, Long Hill in Dover, Grapevine Hill and Great Hill in Newmarket.

COASTAL SCENIC AREAS

The View:

		From:
1.	an	Great Boar's Head - Hampton Little Boar's Head - Fox Point North Hampton Rye Ledge - Rye Rocky Shore North of Jenness Beach - (No public access) Ragged Rock Point - Rye Rye North Beach - Rye Concord Point - Rye Wallis Sands - Rocky shore north to Witch Creek - Rye Isles of Shoals - Rye
		Atlantic Ocean
	ɔr	Piscataqua River/Harbor Portsmouth shore
		Atlantic Ocean
		Piscataqua River, Little Harbor, Sagamore Creek
	Portsmouth	Portsmouth shore
	ıd	Atlantic Ocean
		Adams Point
		internal streets
		most internal streets
	ɔuth	internal streets
	State Park	internal streets and trails
		shoreland
		shoreland
		shoreland
2.		
	of Portsmouth, Rye and	Little Harbor
	ə	Piscataqua River

Of:	From:
Remainder of Atlantic shore	Atlantic Ocean
Great Bay	Stratham Hill (Public) Other high hills (Private)
Ports of Portsmouth and other municipalities	internal streets
Atlantic Ocean	area along Atlantic shore not listed above - primarily the beaches

3. SOME VALUE

Shore of Great Bay and tributaries to mill dams	Great Bay and tributaries
Shorefront cottages, other places	Great Bay and tributaries, Atlantic Ocean
Other parts of coastal towns	internal streets

Scenic Islands

The state has two groups of scenic islands: the Isles of Shoals and the Portsmouth Harbor Islands. The two groups are quite different.

The Harbor Islands are in an estuarine setting, and are surrounded on three sides by intensively developed mainland. The largest of the islands constitutes the major portion of the town of New Castle. New Castle is largely developed to medium residential densities and contains one rather grand old resort hotel which is visited by thousands each summer. Another island, Pierce, is used by the city of Portsmouth as a recreation area and sewage treatment plant location. Another, Goat, is an intermediate landing point for the bridges that connect Portsmouth to New Castle. Several others, notably Pest and Leach are essentially undeveloped.

As discussed in the section on scenic attractions they all have an important role in the scenery of the area, which in turn adds to the areas attractiveness to tourists and residents alike.

The Isles of Shoals are situated 6 miles offshore and are surrounded by open ocean. Water depths in the vicinity reach over 100 feet and so they provide a completely different kind of natural area from the harbor islands. The Isles of Shoals have importance from a natural and historical perspective as well. They provide a wildfowl habitat, again different from any located elsewhere in the state. Their shores are predominantly rocky although there is a small beach on Star Island.

2) AREAS OF HIGH NATURAL PRODUCTIVITY OR ESSENTIAL HABITAT FOR LIVING RESOURCES, INCLUDING FISH, WILDLIFE AND VARIOUS TROPHIC LEVELS IN THE FOOD WEB CRITICAL TO THEIR WELL BEING.

See previous sections:

1-A Tidal and Inland Wetlands
1-B Estuaries
1-C Worm-Clam Flats
1-D Oyster-Mussel Reefs
1-E High Velocity Ecosystems
1-F Coastal and Open Water Pelagic Systems
1-G Rocky Shores
1-H Offshore Bottom Habitats
1-I Deer Yards

3) AREAS OF SUBSTANTIAL RECREATIONAL VALUE AND OPPORTUNITY

A. Offshore waters (generally) - Offshore waters are generally of uniform value throughout for boating and recreational fishing, although there is some concentration of use in the vicinity of the Isles of Shoals, Great Boar's Head and near the mouth of Hampton Harbor. Beaches provide swimming areas for millions annually.

B. Estuarine waters (generally) - Waters in Great Bay, Little Bay, the vicinity of Portsmouth and Little Harbors, Rye Harbor, Hampton-Seabrook Harbor, and associated tributaries provide shoreside fishing spots and boat mooring areas, boating, recreational fishing and depending on water quality and bottom, swimming.

C. Fresh water rivers and streams, lakes and ponds - Any surface water body larger than 10 acres or permanent stream or river and the adjacent riparian lands up to 50 feet provide potential areas for recreational activity including fishing, boating and swimming.

D. Beaches - The following beaches provide substantial recreational opportunities:

POPULAR NAME AND TYPE OF SHOREFRONT	DUNE CONDITION-SIZE (LINEAR MEASURE)	OWNERSHIP AND ACCESS	PARKING
Back Beach (1)Sandy	N/A - .6 miles	Public	Free public including a parki lot.
Seabrook (1)Sandy	Good to excellent on southern half/no dunes on northern half - 1.4 miles.	Public	free parallel p ing along side streets.*

ptcn Beach Park (1)	Good, the entire length .3 miles	Public	public - pay
Hampton Beach (1)Sandy-rocky on the north end	Eliminated and/or built upon - concrete and/or steel seawall - 1. Mile	Public	public and commercial lots - pay and free parking on side streets.
Great Boars Head (5)Rocky	N/A - 1.3 miles	Private	No access to shoreline.
North Beach (1)	Eliminated and/or built upon concrete seawall along entire length - 1.4 miles	Public	pay public parall parking. Pay and free diagonal par
2/3 is rocky, no beach at high tide.			
Northern 1/3 is sandy.			
Hampton Bicentennial Park (3)Sandy	eliminated and/or built upon concrete seawall - .1 mile	Town of Hampton	straight in parking.
mson Park)Sandy	N/A -	Town of Hampton	None
Plaice Cove Point (1)Rocky-Sandy	Poor dunes - .4 miles	Public, 3 access pts.	public parallel parking
Plaice Cove (1)Sandy	Dunes built on southern half	Public, 1 access	1.4 miles of free parallel parking.
	Dunes leveled on northern half - .8 miles.		No public access in between.
Little Boars Head (5)Rocky	N/A - .9	Public, full access	No parking
Bass Beach (4)Gravel	Dunes eliminated, replaced by crushed rock embankment - .3 miles	Public, full access	No parking on southern half.

Rye Ledge (3)		Public	No parking
Rye Beach Club (3)Sandy	N/A - .2 miles Dunes eliminated and/or built upon, replaced by crushed rock embankment, concrete or steel sea-wall.	Private	Membership/permi parking only.
Jenness Beach (1)Sandy	N/A - .9 miles	Public, access	free public park ing lot. free st parallel parking
Straw's Point (5)Rocky	N/A - .9 miles	Private, one access point on the south side. No access to the Rye Harbor side.	public, free par llel street park
(Ragged Neck Point) Rye Harbor State Park (4)Rocks	N/A - .2 miles	Public	pay lot in park
Foss Beach (1)Sandy at lower tides	eliminated and/or built upon - .7 miles	Public	free public para llel parking
Rye North Beach/ Concord Point (5)Rocks	N/A - .8 miles	Public	5 car free lot on southern thir
Wallis Sands (2)Sandy	Dunes built on - .7 miles	Public, one access point, midway.	free, public par llel parking
Wallis Sands State Beach (1)Sandy	N/A - .1 mile	Public	pay lot
Seal Rocks Point (4)High Rocks	N/A - 1.3 miles	Public	2 small free lot (5) cars, free parallel parkin
Sandy Cove (1)	N/A - .1 mile	Public	10-car public lot
Odiorne's Point (4)Rocky	N/A - 1.8	Public	parking lot
New Castle (5) Rocky	N/A - 1.9	Private	No parking
Great Island Common	.1 mile	Municipal	Parking for free
	Total 18.2 miles of shoreline		

E. Scenic overlooks and drives - see above

F. Wetlands, tidal and freshwater, provide hunting and fishing opportunities as well as nature study areas.

4) AREAS WHERE DEVELOPMENTS AND FACILITIES ARE DEPENDENT UPON THE UTILIZATION OF, OR ACCESS TO, COASTAL WATERS

A. Hampton-Seabrook Harbor - Commercial and recreational development is dependent on the uniqueness of the shoreside location.

B. Rye Harbor - Commercial and recreational boating facilities and usage depend on the shoreside location.

C. Little Harbor-Sagamore Creek - Commercial and recreational boating and fishing facilities and usage depend on the shoreside location.

D. Piscataqua River - Commercial and recreational development and usage depend on the shoreside location. Shoreside industries needing ocean access for transportation and cooling water (powerplants) are located here.

E. Great Bay-Little Bay Area - Several marinas dependent on access for commercial and recreational uses are located here. Jackson Estuarine Laboratory is a university run research facility which depends upon a location near marine and estuarine waters.

F. Shoreside fishing locations - Scattered throughout coastal zone and dependent upon use of coastal waters, are shoreside fishing spots.

G. Hampton Beach commercial area is dependent on coastal waters for swimming.

H. Other coastal communities abutting coastal waters contain scattered businesses, such as hotels, restaurants, and seafood stores that depend on their ocean front location for their business strength.

5) AREAS OF UNIQUE GEOLOGIC OR TOPOGRAPHIC SIGNIFICANCE TO INDUSTRIAL OR COMMERCIAL DEVELOPMENT

A. Industry - Piscataqua River. The only land area in the state of New Hampshire at all suited for docking of ocean-going shipping is the coast of the Piscataqua River from a point in the vicinity of the Memorial Bridge in Portsmouth north to the General Sullivan Bridge in Newington-Dover. Although there are areas within this that may be of concern for environmental or other reasons, such as the North Mill Pond in Portsmouth, the overall capability of the land for industrial development is good and the capability of the water to accomodate ocean-going shipping is excellent. No where else in New Hampshire do these two features occur in combination.

Areas landward of the Piscataqua in Newington are very suited to industry. There are very few residences in the area east of the Spaulding Turnpike. Moreover, if Pease Air Force Base, already a giant industrial complex by most definitions, were to be closed and turned over to civilian use, it is very likely that industrial use would be proposed to replace it. Ocean-related industry should be given first consideration should this opportunity present itself.

B. Industry - Seabrook. An area of debateable suitability for further industrial use is in Seabrook in the vicinity of the proposed nuclear power station. Factors enhancing it as an industrial area are the availability of the Hampton-Seabrook Harbor for industrial barge traffic. Factors mitigating against further industrial use are the identification of the Hampton-Seabrook estuary as being of prime importance in the list of coastal natural areas.

C. Rockingham Junction at the border of Newmarket and Newfields at Route 108 represents a potentially important area for economic development. With good road and rail access (the junction of the N-S and E-W lines of the Boston and Maine Railroad) this is one of the few remaining areas in the coastal zone that represents an excellent opportunity for industrial and commercial growth.

D. Other areas suitable for industrial use are scattered throughout the seacoast. None, however, have direct connection to ocean or coastal waters and so are not discussed further in this section.

E. Tourism - Hampton. The barrier beach at Hampton is the most suited for further development as a commercial/recreational facility of all the New Hampshire beach areas. It has by far the best and widest sand beach, the best accessability by automobile from outside the coastal area, and would be least imposed upon by additional hotels, motels and restaurants.

F. Commercial Development - Portsmouth. Areas in Portsmouth in the vicinity of the Piscataqua River are the most suitable for commercial development assocated with the ocean, such as fishing and trade activities.

G. Offshore waters. The offshore waters are peculiarly suited to some industrial uses. Relatively low land prices, and great water depths, may combine here to make the construction of offshore islands for industrial use economically unfeasable (although perhaps very feasable in Long Island Sound, for example). But the waters off the New Hampshire coast are suitable for bringing an oil pipeline onshore, and may be suitable for locating a deepwater port. In <u>both</u> cases the decision needs to be a careful one since either may cause losses in other sectors of the coastal economy. An imput-output model which should help address these issues is now being developed under a Sea Grant funded program at the University of New Hampshire. The offshore waters also are a potential source of sand and gravel.

6) AREAS OF URBAN CONCENTRATION WHERE SHORELINE UTILIZATION AND WATER USES ARE HIGHLY COMPETITIVE

A. Hampton-Seabrook Estuary (generally) - The presence of highly developed recreational facilities is increasing pressure on natural systems and may result in resource depletion particularly of soft shelled clams. Pressure for expansion of recreation-oriented housing into marsh areas threatens highly valuable natural uses particularly nutrient production. The possibility of nuclear power plants in the Hampton-Seabrook estuary area will increase pressures and conflicts with wildlife and recreation uses. The immediacy of pressure for development focusses attention on this area.

B. Portsmouth-Newington Waterfront (generally) - The area is highly urbanized and industrialized. Industrial uses cause determination of the natural character of the river. Positive effects occur on employment and the availability of petroleum products. Conflicts occur with recreational fishing and boating, the preservation of historic areas and the homes of existing residents. The rapidity of industrial and urbanized development focuses attention on these areas.

C. Hampton Beach - A highly urbanized barrier beach is the occasion of some conflicts between the economic interests of the tourist industry and local residents"recreation needs. Conflicts between commercial interests and the dune line has been resolved in favor of commercial interests. Conflicts over use of continue as pressure mounts to extend commercial and residential uses westward over the tidal marshes.

7) AREAS OF SIGNIFICANT HAZARD IF DEVELOPED, DUE TO STORMS, SLIDES, FLOODS, EROSION, SETTLEMENT, ETC.

These areas are of concern because such natural features as floodplains represent areas in which natural phenomena present hazards to life and property. Inappropriate development in these areas may cause environmental damage and bring about unnecessary public and private costs for emergencies and protection of property. (These areas are mapped on the Areas of Particular Concern maps only when they occur in the primary zone since, when occurring elsewhere, although their extent is broad, their relation to coastal waters is often tenuous. They are mapped, however, on the natural resources inventory maps wherever they occur in the primary and secondary zones.)

A. Highly Erodible Soils

These are soils in marine clay deposits adjacent to tidal rivers. They consist of the Suffield soil series as defined by the Soil Conservation Service.

The Suffield soils are of concern because when wet there is an extremely high potential for erosion and sedimentation. These lead directly to stream pollution and the biological degradation of coastal waters. These impacts have serious aesthetic, recreation and economic implicationsthat are of regional significance.

B. Steep Slopes

Slopes that are greater than 15% directly adjacent to tidal rivers or the Great Bay estuaries are of concern because of the problem of erosion and sedimentation from inappropriate development. These areas should remain vegetated as part of the regional open space system.

C. Floodplains

These are areas, adjacent to waterways, that are subject to periodic flooding. The major function of floodplains is to provide temporary water storage during flood period. They represent a natural system of flood control. The delineation of the floodplain boundary depends upon the frequency of the flood. Thus, a 5-year flood boundary is much less extensive than the 100-year floodplain. For purposes of this study the 100-year floodplain has been designatated as an area of particular concern (one per cent chance of being flooded in any year). State and federal sources are used to make the boundary designations.

In the Great Bay-Piscataqua estuary complex and the Hampton-Seabrook estuary ten feet above mean sea level has been designated based on work by Hall (1975) and Hayden (1975). Along the Atlantic seacoast a boundary approximately 10 feet above mean sea level has also been delineated. This is based on Army Corps of Engineer data. Until better data is available the Department of Housing and Urban Development (HUD) Federal Flood Insurance Program designations are used on the fresh water portions of streams in the coastal zone. Where towns have successfully appealed the HUD designatioins, the latter boundaries apply.

Floodplains are of concern for numerous reasons. They:

1. absorb and dissipate the energy of floodwaters,
2. decrease the public cost for flood control structures, rescue and flood relief,
3. recharge groundwater supplies in appropriate areas,
4. act as sediment and nutrient traps to provide continual replenishment of fertile soils for agriculture, and
5. represent a hazard to human life, health and property when permanent habitable structures are constructed in them.

Permanent structures in floodplains may obstruct flood flow and add to flood heights and velocities. Where permanent, habitable structures exist in floodplains, man is exposed to extreme hazard. However, floodplains in some instance provide an opportunity for certain appropriate uses: recreation facilities, marinas, ports, and in some circumstances, or industry that is water-related or dependent on access to coastal waters.

All tidal wetlands are classified as floodplains.

D. Offshore sand and gravel deposits

Extraction within approximate 60 foot contour may result in beach erosion, alteration in patterns of littoral drift.

8) AREAS NEEDED TO PROTECT, MAINTAIN, OR REPLENISH COASTAL LANDS OR RESOURCES, INCLUDING COASTAL FLOODPLAINS, AQUIFER RECHARGE AREAS, SAND DUNES, CORAL AND OTHER REEFS, BEACHES, OFFSHORE SAND DEPOSITS, AND MANGROVE STANDS.

A. Offshore sand and gravel areas - Extraction within approximate 60 foot contour may remove sands needed for natural beach replenishment, may alter wave refraction patterns and result in loss of beach.

B. Tidal wetlands - The marsh is important in purifying the water by acting as an absorbant sediment trap. The marsh removes toxic materials and excess nutrients from the interacting estuarine waters. A 1,000 acre marsh may be capable of purifying nitrogenous wastes from a town of up to 20,000 people (Clark, 1974). A study by John Teal (1974), who terms the marsh the "living filter", indicates that sewage-derived fertilization of the marsh is beneficial in that animal and plant production increased with minimal change in the marsh. This substantiates the possibility of utilizing marshes for a limited sewage dumping ground. Teal also recognizes the marsh as a "valuable seafood producer, wildlife refuge and coastal fishery nursery area." The marsh, in mechanically and chemically removing sediment and other suspended matter, reduces sedimentation of navigation channels and shellfish beds. Tidal wetlands provide valuable protection in both flood and storm waters by storing excess floodwaters and also by serving as natural buffers that protect upland areas from storm tides and waves.

D. Beaches and Dunes

Seawalls and bulkheads do not provide the effective protection against inundation of seawater a natural dune system affords and, if improperly place, will often increase beach erosion with resultant collapse of shoreside buildings. Jetties cause accumulation of sand at one end of a beach and erosion at the other.

The beach front is a constantly changing environment and is by no means permanent, and permanent structures located there require consistent expenditures for protection and maintenance. Behind the shifting dunes are stable dunes which

consist of more permanent surroundings typified by deciduous growth. Buildings are relatively safe in this region and beyond.

The beach front is quite resistant to oil pollution and other contaminants. The most dangerous situation arises with destruction of the dune strand. Improperly located roadways lead to deterioration of the dunes, and should always run perpendicular rather than parallel to the shoreline.

Natural forces are unpredictable and uncontrollable. It makes sense to utilize nature's intrinsic means of conservation to allow long-term appreciation and benefit from the dynamic shore.

E. Rocky Shore

The rocky shore front provides protection for immediate upland areas by breaking the force of ocean waves.

F. Aquifers

Aquifers are extremely important sources of water and because of their susceptibility to contamination, should be designated as "areas of particular concern." They are defined as water bearing geologic strata or formations. More specifically they must hold water in the interstices (pores) and yield water to wells. An aquifer recharge area, on the other hand, is a surface area where water enters the ground either from precipitation or streams and percolates into the aquifer. (Pope, 1973).

Immediately under main recharge areas in the Seacoast region are ice-contact deposits and outwash and shore deposits. These areas are sufficiently permeable to allow infiltration of water and extensive enough to provide adequate storage for groundwater. Figures D1 and D2 illustrate these two types of aquifers.

According to Kasmann (1965), aquifers serve three functions in providing potable water: (1) the pipeline function, (2) the filter plant function, and (3) the reservoir function. The first function is the least valuable since man-made pipelines from surface reservoirs can be used, although at high expense. The reservoir function is more significant economically because underground water storage in aquifers: (1) prevents evaporation, (2) does not require development of potentially productive land, (3) avoids sedimentation, and (4) reduces the possibility of contamination.

Probably the most economically significant is the filter plant function. As water moves through an aquifer, silt, pathogenic bacteria, tastes, and odors are removed. It must be kept in mind, however, that this filtering process can only absorb a certain amount of contaminants. Haphazard or inappropriate development may either reduce the quantity of water percolating into the aquifer or impair the water quality of the aquifer through an increased discharge of effluent.

Under natural conditions about 10% of the total precipitation runs off the

surface and approximately 50% infiltrates into the ground. When paved surfaces and other development take place, surface runoff increases while evapotranspiration and, especially, infiltration decrease. (See Figure D3). This greatly reduces aquifer recharge, particularly if inappropriate development occurs in recharge areas. Another problem of increased development is heavy groundwater pumping. It must be stressed that withdrawal should never exceed recharge; otherwise the safe yield of the unit will be exceeded and the storage supply of the aquifer will become depleted. This results in inferior water quality and dry wells. By encouraging appropriate development, thereby allowing adequate recharge and controlling the withdrawal of water, safe yields of aquifers can be maintained.

In this region many of the aquifers are particularly susceptible to contamination since the permeable material comes in close, if not direct, contact with the surface. Thus, the aquifers are not protected by an overlying strata, as in the case of Figure D1. It can be argued that infiltration may not occur as readily where certain types of soils overlie the geologic deposits. For instance, permeable sandy-gravelly soils allow greater infiltration and recharge than the more impermeable clays. Where clay soils have developed over aquifers there may be less chance of groundwater contamination. However, this must be qualified. If there is sufficient pumping of the aquifer, even these soils may act as recharge areas that supply the aquifer with sufficient water to maintain pumping. Where inappropriate development occurs, in such areas, it may then contribute to groundwater problems.

Contamination of aquifers can result from the improper regulation of land use and other activities which might occur over or adjacent to aquifers. Factors which might be detrimental to groundwater quality and quantity include: (1) heavy industry, (2) septic tanks, (3) dumps or sanitary land fills and sewerage treatment plants, (4) de-icing salts, (5) agricultural runoff, (6) extractive industry where the water table is exposed, (7) atomic reactors, and (8) fuel storage.

The contamination of an aquifer may take many years and depends upon many variables. There may be an example of an aquifer area that has been developed with no substantial change in the water quality. If proper land use precautions have been taken, this siutation may continue indefinitely. However, where proper land use precautions have not been taken, there is a strong liklihood that the aquifer will become polluted. Groundwater contamination is a potential problem, though it is difficult to predict if and when this will occur for a given aquifer. One factor that has prevented contamination is the characteristically deep water table in sand and gravel deposits. Because of this, potential contaminants may be filtered out before reaching the water table. However, this factor cannot always be relied upon

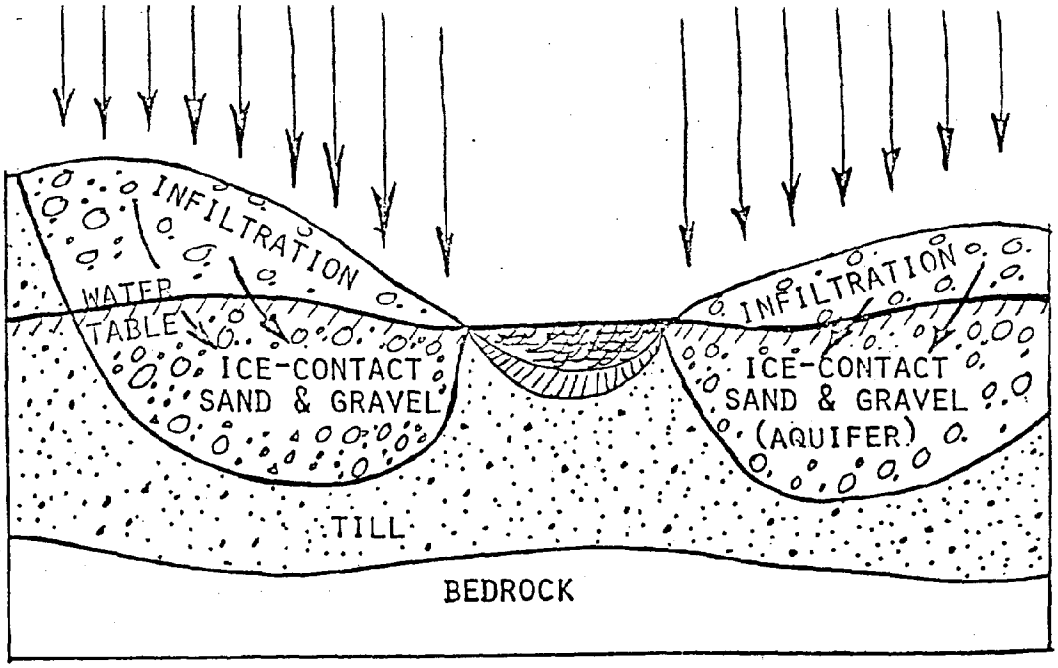


Figure D 1. Geological conditions similar to those found in the study Region. Precipitation infiltrates through the recharge area into the aquifer. The recharge area lies directly over

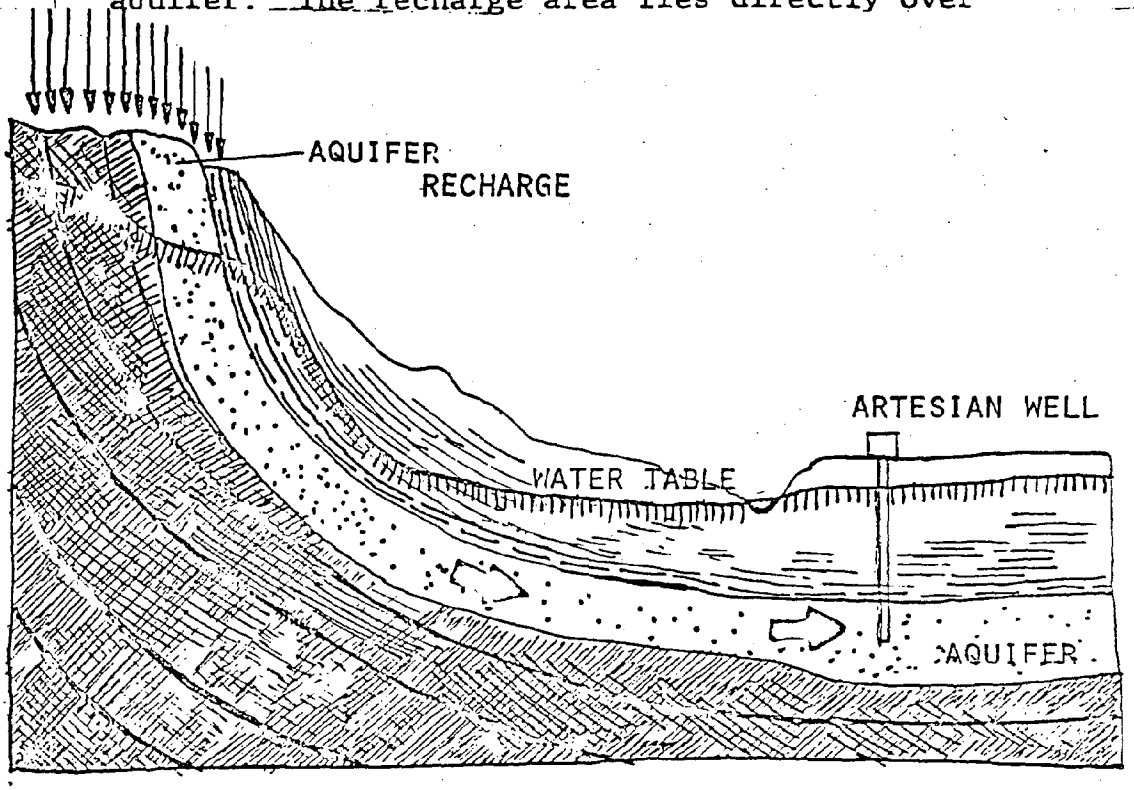


Figure D 2. Geological conditions that produce artesian flow. The water bearing geologic unit (aquifer) is exposed to intake of water (precipitation, run-off) at a high position (aquifer recharge area). Water flows deep underground where it is under great pressure. This pressure is sufficient to force water up to the surface in a drilled well.

Source: Strahler, A., 1966

RUNOFF AND INFILTRATION RATES FOR VARIOUS LAND USES

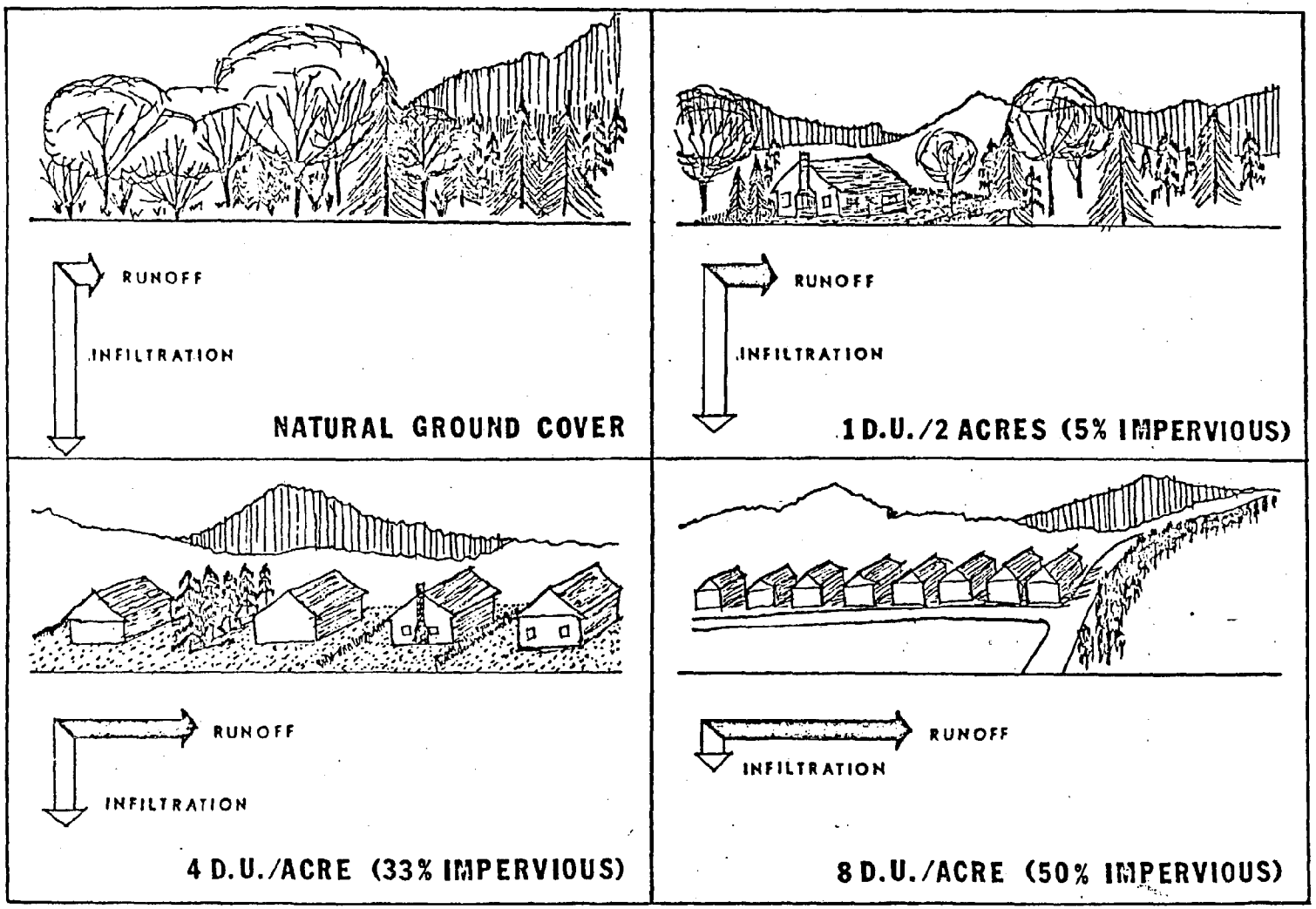


Figure D 3

as development becomes more intense and the possible type and quantity of contaminants increase. The concept of irreversibility in groundwater pollution is widely accepted. Once an aquifer has been polluted, it is difficult or infeasible to flush out the contaminants to restore the aquifer to its original quality.

In this area of New Hampshire, aquifers have generally been identified and mapped, but the recharge areas are a little more difficult to determine because of the complexity of sufficial materials. Until more accurate information is available, it can be assumed that aquifers and aquifer recharge areas generally coincide. Because these areas are so vulnerable to man's intrusion, they must be considered as "areas of particular concern". A cautious approach to development is recommended. Where recharge areas can be positively identified that recharge important groundwater reservoirs, open space and light recreation are the most appropriate uses. The only other use that might be considered is low density housing on sewers or very strictly controlled septic systems.

In general, development over the aquifer that does not coincide with a recharge area can be somewhat more dense. However, it should always be with sewers and strictly regulated to prevent too much impervious cover, which would reduce the amount of recharge. Certain land uses such as the ones mentioned previously (sewage treatment plants, heavy industry, etc.) should be prohibited. The use of de-icing salts over such areas during the winter months should be strictly limited or prohibited.

G. Water Supply Sources

These are reliable sources of potable water that are available from either surface or surbsurface sources. The area of concern would also include any adjacent areas which must be protected to insure the quality and quantity of this resource. This might be a watershed in the case of a surface source or of an aquifer, or aquifer recharge area for a subsurface source. Specifically, these areas include ground water sources from sand and gravel aquifers that supply numerous communities (see aquifer discussion in previous section) with water such as Dover and Exeter. Also included are reservoirs, such as the Bellamy which supplies Portsmouth with much of its water, and streams, such as Folletts Brook which supplies Newmarket.

Water supply sources are of particular concern, because they provide a dependable source of water for both municipal and private use. If such areas are not properly managed they will be exposed to numerous pollutants which will degrade water quality. Poor management may also deplete water quantity.

H. Prime Agricultural Lands

These areas are potentially the best soils for agricultural production. Not only can they be defended for their long-term economic benefit to the region, but

f. Soils that are not frequently flooded during the growing season (less often than once in 2 years).

g. A product of K (erodibility factor) x percent slope of less than 2.0.

h. A permability of at least 0.06 inches (0.15 cm) per hour in the upper 20 inches (50 cm).

i. A surface layer with less than 10 percent rock fragments coarser than 3 inches (7.6 cm).

With assistance from the State Soil Conservation Service the following soils types for both Strafford and Rockingham were designated as prime agricultural lands. Only areas that were 10 acres or larger were mapped.

Strafford County

Buxton silt loam, 3-8% slope
Charlton fine sandy loam, 3-8% slope
Elmwood fine sandy loam, 0-3% slope
Ondawa fine sandy loam
Paxton fine sandy loam, 0-8% slope
Podunk fine sandy loam
Sutton fine sandy loam 0-8% slope
Windsor loamy fine sandy, clay subsoil variant 0-8% slope
Woodbridge fine sandy loam 0-8% slope

Rockingham County

Brookfield sandy loam, 0-8% slope
Buxton silt loam, 0-3% slope
Charlton loam, 0-8% slope
Elmwood fine sandy loam, 0-8% slope
Melrose fine sandy loam, 0-8% slope
Paxton loam, 0-8% slope
Podunk fine sandy loam
Sutton-Woodbridge loams, 0-8% slope

Once again it is important to note that the Rockingham County Soil Survey is not as accurate or as detailed as the Strafford Soil Survey. However, above list of soils is the most authoritative approximation of prime agricultural soils to date.

There are also many areas in the coastal zone that are not prime farmland but are suitable for certain types of local specialty crops and products as orchards and sugar bushes for maple syrup. While it is beyond the scope of our present investigation of areas of critical concern, these farmlands ought to be classified in the future. Where appropriate such areas should be considered areas of particular concern.

I. Sand and Gravel Deposits

These economically valuable deposits are found in both the coastal waters and inland areas chiefly within the primary and secondary zones. The inland deposits have been identified from work by Stewart (1974-75) and Bradley (1964). The offshore deposits have been compiled by the Southeastern New Hampshire Regional Planning Commission of the Strafford Rockingham Regional Council using work done by Mills (March 1975), Normandeau Associates, Inc., (1973) and Tucholke, et. al. (1972).

Because the more valuable of these deposits are relatively rare and limited, they are essentially irreplacable resources. They should be protected in order to conserve existing and future supplies of sand and gravel.

The inland deposits should be controlled to prevent unwise use. With the demand for sand and gravel deposits of fill as well as for water supplies, these areas became potential areas of conflict. These should be maintained and managed to allow some excavation and still produce potable supplies of water. See the Geology and Groundwater sections of the natural factor inventory for a further discussion of sand and gravel.

J. Valuable Forest Areas

It is unclear whether or not these resources should be designated as areas of particular concern (OCP has recommended that they not be designated, because they are not a resource unique to the coastal zone). However, they are valuable resources that can be of significant social, environmental, and economic benefit to the coastal zone. Not only do they represent a biological resource supporting myriad species of plants and animals, but they are also a valuable scenic, recreation, and economic resource. Although a scale of commercial forest industry is not anticipated for the coastal area, proper management of these woodlands can yield forest products of some commercial value. Through proper multiple use management these timbered areas can provide a valuable asset. In keeping with the regional plan goal of encouraging the maintenance of forestry, it is recommended that these areas in substantial part be retained in forest.

Valuable forest areas may be defined as those areas in active woodlots as designated by the Extension Foresters or those areas designated by the publication Regional Planning: New Hampshire-Maine, Part 1, 1969. These areas represent lands that would likely be available for logging operations approximately 20 years from the date of that study. They are not mapped under this project but maps are available showing their location.

9) (From FY 1975 contract):
TRANSITIONAL OR INTENSELY DEVELOPED AREAS WHERE RECLAMATION, RESTORATION, PUBLIC ACCESS AND OTHER ACTIONS ARE ESPECIALLY NEEDED. (OTHER ACTIONS TO INCLUDE PRESERVATION).

A. Tidal Wetlands

i) Restoration - A casual investigation of the health of New Hampshire's marshes reveals many segments to be in need of restoration. In most cases, destruction of the marsh is the result of a blockage or restriction of natural channels through which tide ebbs and flows. Immediate response is desirable. The situation is reversible.

ii) Protection - Protection of tidal wetlands is desirable in order to maintain natural functions as nursery areas for marine species, flood protection, and natural cleansing of runoff among others.

B. Great Bay, Little Bay, Piscataqua River, and Associated Tributaries

i) Restoration - These areas have slowly deteriorated in quality over the last three hundred years, due primarily to contamination by industry and domestic sewage. The consequences of this deterioration, evidenced most directly by water quality, are losses in value as a wildlife habitat and as a recreation area. Restoration should be to levels compatable with marine organisms in Great and Little Bays. Concentrated areas of Class D (industrial use only), water which should be restored to levels consonant with public health include: Piscataqua River (north of Stacy Creek), Cocheco River, lower portion of Salmon Falls River, upper portions of Bellamy and Lamprey Rivers, and the Squamscot River above the B & M railroad bridge. Abatement projects are under way -- whether the current proposals will be sufficient is unknown.

ii) Preservation - Generally, the Great Bay estuarine complex provides valuable habitat for migrating birds and fish, soft-shelled clams, oysters, and various marine species. It is used as a recreation area, and has potential for more intensive use in that regard. In this sense, all of the area should be maintained in as high a state of natural preservation as possible. Specific candidate areas would include the waters of Crommet Creek and Johnson Creek estuaries in Durham and the Winnicut River in Greenland.

iii) Access - The waters of the Great Bay estuarine complex generally are underutilized. Strafford Rockingham Regional Council research has uncovered only four commercial marinas or boat launching ramps and five ramps available to the public (three of which are municipally run). The U.S. Army Corps of Engineers in 1969 refused a proposal to dredge channels in Great Bay for recreation use, citing lack of access to the public. The problem requires early attention. It is reversible.

C. Isles of Shoals

Preservation - A proposed historical landmark, they are culturally valuable as a religious convention center and highly visible from shore (aesthetics). They should be preserved.

D. Sand Dune Line. Much of the New Hampshire coast line development has taken place atop the sand dune lines. Other development has resulted in the erosion and leveling of the dune line with the consequence that seawalls have had to be built to protect development from ocean storms. The dune lines that remain should be protected against further deterioration and/or restored.

E. "The Sands" (Back Beach) in Seabrook. The "Sands" is , onthe one hand, a developable piece of real estate. On the other hand, it is the only natural area of its type in the state of New Hampshire. Present development consists of a dozen "cottages" and mobile homes most in delapitated condition and without town water. Water is obtained from a public tap adjacent to Route 1A. The "Sands" are so sparsely populated and so uniquely situated that they ought to be considered for purchase and restored as a natural area.

W.P.

07158

CHAPTER 7

PUBLIC PARTICIPATION

PUBLIC PARTICIPATION IN THE PLANNING PHASE

New Hampshire has contracted out to the coastal regional planning body a great portion of the first year's work. This body is made up of 58 citizens, some of whom are local officials and some of whom are not, but all of whom have a great deal of interest in the future of the New Hampshire coast. Many of these people sit on muniicipal planning boards and others are selectmen.

In the first instance, the state has guaranteed local citizen imput in delegating out a significant portion of its work program to a body made up of local officials and citizens.

A. The state has set up a series of work session meetings with local planning boards to take place during the second half of the first year planning program in order to explain what the program is all about. This meeting series will continue into the second year of the planning program.

It is recommended that a second set of meetings with muncipal planning boards be scheduled for the second planning year, at which previously circulated copies of the first year report would be discussed, criticized, corrected, and at which differences of opinion would be aired and, hopefully, resolved. Differences that are not resolvable would be laid out as clearly as possible for resolution at a later date.

B. The staff of the regional and state agencies have testified before both interim and standing legislative committees on the subject of coastal zone management. It is recommended that the staff of both regional and state agencies continue to offer their assistance to legislative committees studying coastal management problems.

PUBLIC PARTICIPATION IN THE MANAGEMENT PHASE

Whatever the form of the management phase it should insure the right of the public to be heard in the various decision-making processes. Because the structure of the management phase is so unclear as of this writing, it is difficult to speak in other than generalities, or at any great length. Some princples, however, should be adhered to:

1. The public should have access to the decision-making process. This is usually accomplished via the public hearing. Management laws should be written in a fashion which:a) mandates a public hearing or hearings, b) mandates that the hearings be held in the vicinity of the affected geography (at the least in the county affected if not in the municipality affected), c) notice of the hearings should be timely (at least 10 days before the hearings) and should be published in newspapers of general circulation in the area affected.

2. To the maximum extent possible,decision making should be delegated or delegatable to municipal officials who are,with very few exceptions, unpaid and therefore qualify as "citizens". If the state mandates new construction standards or controls, the state should permit (or require) local officials to enforce them. Coastal Zone Management funds should be awarded those municipalities which participate. In order to avoid confusion, all local notice and hearing requirements ought to be identical to those now in existance for local land use decision making. Existing bodies,(building inspectors, health officers, planning boards, zoning boards of adjustment,)ought to be assigned compatable duties rather than having the program set up any new local decision making,or enforcement,bodies.

3. State level decision making should be open to public scrutiny. Executive sessions and unposted meetings should be avoided. Any new state agencies should

C. Many presentations have been made before action groups during the planning phase. These groups have included the Portsmouth Area Chamber of Commerce, the Portsmouth Economic Commission, the Seacoast Anti Pollution League, the Citizen's Coalition (an environmental group), the Exeter Rotary Club, the New Hampshire Commercial Fishermen's Association, the Portsmouth Area Board of Realtors and Portsmouth, Exeter and Durham League of Women Voters. It is recommended that citizen group presentations be continued during the second year, to include a second appearance before the above bodies and a first appearance before the following additional groups: Exeter, Dover and Hampton Beach Chambers of Commerce, various Rotary, Lions, Kiwanis and other public service organizations, various environmental groups, other citizen organizations.

D. Use of the media. During the first year of the planning program a few press releases were issued and several in depth feature stories were written by local newspapers. The staff participated in several radio talk shows and many of the public meetings listed above were covered by the local press.

It is recommended that the second year program be explained to the public through the use of the media, that press releases on significant findings be issued, that report summaries be written for press use, that the press be invited to all public meetings and that the press be invited to write feature articles on the progress of the plan, and the findings of the planning stage. Appearances should be made on radio talk shows at the Portsmouth, Exeter and Dover radio stations, an attempt should be made to obtain newstime and feature time on the state's public television network and cable T.V. programming.

F. Newsletters and Brochures. The first year planning program has resulted in the production of a brochure giving a basic explanation of the purpose of and the need for the program.

The second year program should see wide distribution of the brochure, not only in the Seacoast but in the rest of the state where legislators must eventually understand the program. The Office of Comprehensive Planning, and the Strafford Rockingham Regional Council, both publish a newsletter. These newsletters ought to be used to explain the program to their recipients -- primarily local officials.

G. Public Hearings. It is recommended that formal public hearings on the program be held in Portsmouth, Hampton, Dover, and Exeter as well as in Concord. The public hearings should follow the second round of informal presentations. The format should be such that the bulk of the material to be heard, be it a piece of legislation, or a map, or both, is widely circulated well in advance of the hearing.

If the end product is a piece of legislation it should be advertised in full in the coastal newspapers. If the end product includes a map or series of maps, they should be printed as a supplement to the coastal newspapers, on newsprint, such as a food store insert is, in order to achieve the widest possible circulation.

The hearing format should allow for a very brief (15 minute) presentation of what the hearing is about, followed by comments and questions from the floor. It should not adjourn until all have had their say at least once and should, if necessary, be reconvened the following evening.

H. Surveys. Several surveys were taken during the first year. These included a random survey of seacoast residents on their attitude toward recreation, a survey of seacoast businessmen on their attitude toward development of various kinds, a survey of seacoast visitors as to their origins, spending, likes and dislikes, and two attitudinal surveys of seacoast leaders, one on their opinions about recreation opportunities, and a second on their opinions on the development of the seacoast.

Surveys ought to be continued during the second year of the planning program. They need not be funded by Coastal Zone moneys to be useful -- those listed above were funded in part by the Bureau of Outdoor Recreation, HUD 701 funds, and the Sea Grant program, as well as the Coastal Zone program.

Although the primary reason for doing a survey is to gain valuable information, any survey which does not alternate the interviewee prompts a good public image since the public realizes it is being listened to. The staff experience with the surveys taken here is generally that the expectations of the experiencedstaff about the answers are confirmed. On the other hand, occasionally,there is a surprising result that is important to the total effort.

I. Other Methods Considered. The following additional (and recently popular) methods of achieving citizen participation were considered and rejected for the reasons given.

1. Ad Hock citizen advisory committees. Citizen advisory committees were a feature of the HUD Model Cities programs of a decade ago. Although the concept sounds good at first and participants typically are enthusiastic, the eventual realization that they are advisory only, and are rountinely ignored by the elected decision-makers, leads to disenchantment, not only with the citizens advisory committee but with the program as a whole. A further problem occurs in the selection of members of the committee. Who chooses who, and how, is a difficult thing to resolve. The opportunities for "stacking" a committee are legion. It would appear that in this state, where each 2000 people have their own state legislator, and where municipal government is predominately made up of the citizenry, that citizen participation in the decision making process is democratically assured.

2. Nominal Group and Delphi Techniques. The nominal group process

E. Fremont:

Fremont has a zoning ordinance (adopted 1947, amended 1971, 1973, and 1975) and subdivision control regulations. The zoning ordinance provides two districts; a Mobile Home District and the rest of the town.

The Town District: Every use except mobile homes is permitted throughout the town. Minimum lot requirements are 150 feet frontage and one acre area.

Mobile Home District: Permitted uses are mobile homes singly or in parks. Other uses are not prohibited. Single mobile homes subject to same minimums as other buildings. Mobile Home parks are subject to special requirements: minimum size of 25 acres, development standards as set forth in Subdivision Controls must be followed; each mobile home site must have 20,000 sq. feet area, and no other dwellings or commercial establishments other than mobile homes are allowed in the park. Individual mobile home sites must be a minimum of one acre with 150 feet frontage.

The number of building permits to be issued during each calendar year is limited to 3% of the total number of dwellings in the town at the start of that calendar year. Not more than 3 building permits may be issued to a single developer or within a subdivision during a single calendar year.

F. Greenland:

Greenland has a zoning ordinance (adopted April 1952, amended 1958, 1962, 1971, 1972, 1974 and 1975) and building regulations. The zoning ordinance provides for three districts: Residential, Commercial, and Industrial.

Residential: Permitted uses are one and two family residential, farms, home professional offices, and churches. Minimum lot requirements are 60,000 sq. ft. and 200 ft. of frontage.

Commercial: Permitted uses are any use permitted in the Residential District, subject to the requirements of that district, plus retail establishments, business offices, hotels, restaurants and apartment houses. Minimum lot requirements are 100 ft. of frontage, 20,000 sq. ft. area with town water or 30,000 sq. ft. area without town water, and 10,000 sq. ft. area for each additional unit. Mobile home parks may be approved by the Board of Adjustment. Minimum lot sizes must be at least 7,500 sq. ft. area per site with an extra site, designated as a service lot, for every ten sites.

Industrial: Permitted industrial uses are unlimited providing they have no injurious or objectionable conditions associated with them. Residential uses are prohibited. The minimum lot size requirements is one acre.

G. Hampton:

Hampton has a zoning ordinance (adopted 1949 and amended almost annually since) and subdivision control regulations. The zoning ordinance provides for eight districts: Residence AA, Residence A, Residence B, Residence C Seasonal, Business, Seasonal Business, Industrial, and General.

Residence AA: Permitted uses are single family residence, farm buildings, churches, schools and municipal buildings. Minimum lot requirements are one acre and 200 feet of frontage.

ABSTRACT

TITLE: Zoning Summary

AUTHOR: Southeastern New Hampshire Regional Planning Commission

SUBJECT: Local Zoning Controls

LOCAL PLANNING AGENCY: Strafford Rockingham Regional Council

DATE: 1 July 1975

SOURCE OF COPIES: Southeastern New Hampshire Regional Planning Commission

HUD PROJECT NUMBER: CPA-NH-01-00-1001

NUMBER OF PAGES: 32

Abstract: Summaries of local zoning controls including potential population projections based on maximum buildup allowed by current zoning.

THE PREPARATION OF THIS REPORT WAS FINANCED IN PART THROUGH A COMPREHENSIVE PLANNING GRANT FROM THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT.

N.H. Coastal Resources
Management Program
First Year Report
Attachment E - 1

07158

W.P.

April 30, 1975

The New Hampshire Office of Comprehensive Planning is currently in the process of developing a coastal zone management plan. The plan is being developed in accordance with the rules and regulations adopted by the U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Coastal Zone Management for implementing PL 92-583 - the Coastal Zone Management Act of 1972. This Act was passed in response to the recognized need for a comprehensive approach toward solving the many problems facing the nation's coastal areas.

Management programs developed by each state must include the following elements:

- definition of the boundaries of the coastal zone
- list of permissible land and water uses having a direct and significant impact upon coastal waters
- broad guidelines on the priorities of uses
- designation of areas of particular concern
- designation of areas for preservation and restoration
- assurance that the national interest in the siting of facilities is considered
- assurance that uses of regional benefit are not arbitrarily excluded
- designation of a single management agency
- identification of the means to control land and water uses and to resolve conflicts, and assurance of the authorities for property acquisition
- coordination in program development with appropriate state, regional, interstate and federal agencies
- opportunity for public participation during planning

New Hampshire has opted for a two year planning period, the first year commencing in July 1974. One of the more important aspects in the preparation of the state program is the requirement for coordination during the development of program elements between the state agency and those Federal bodies with an interest in the coastal zone. At this point in time, the program is not sufficiently developed to present you with specific issues for comments and recommendations.

However, to assist us in making early planning decisions, I request a policy statement describing your agency's perception of the national interest in the New Hampshire coastal area. To be most helpful, accompanying the policy statement would be a summation of your short, mid and long range plans for property acquisition, construction or demonstration projects, or any other form of public investment, along with a tentative dollar value, for activities planned along the New Hampshire coast. Please also list the New Hampshire state agency or office with which you would coordinate any planned programs.

As our program develops further, we will remain in contact with you and will send you copies of pertinent elements of the proposed management plan for your review and recommendations. We would also hope to arrange for some discussions through the auspices of the New England River Basins Commission as Maine did during the development of their plan.

Enclosed is a map delineating the tentative boundaries of the New Hampshire coastal zone for your reference.

If I can provide you with any further information, please feel free to call me at (603) 271- 2155.

Sincerely,

John L. Dickey
Principal Planner

JLD:jr

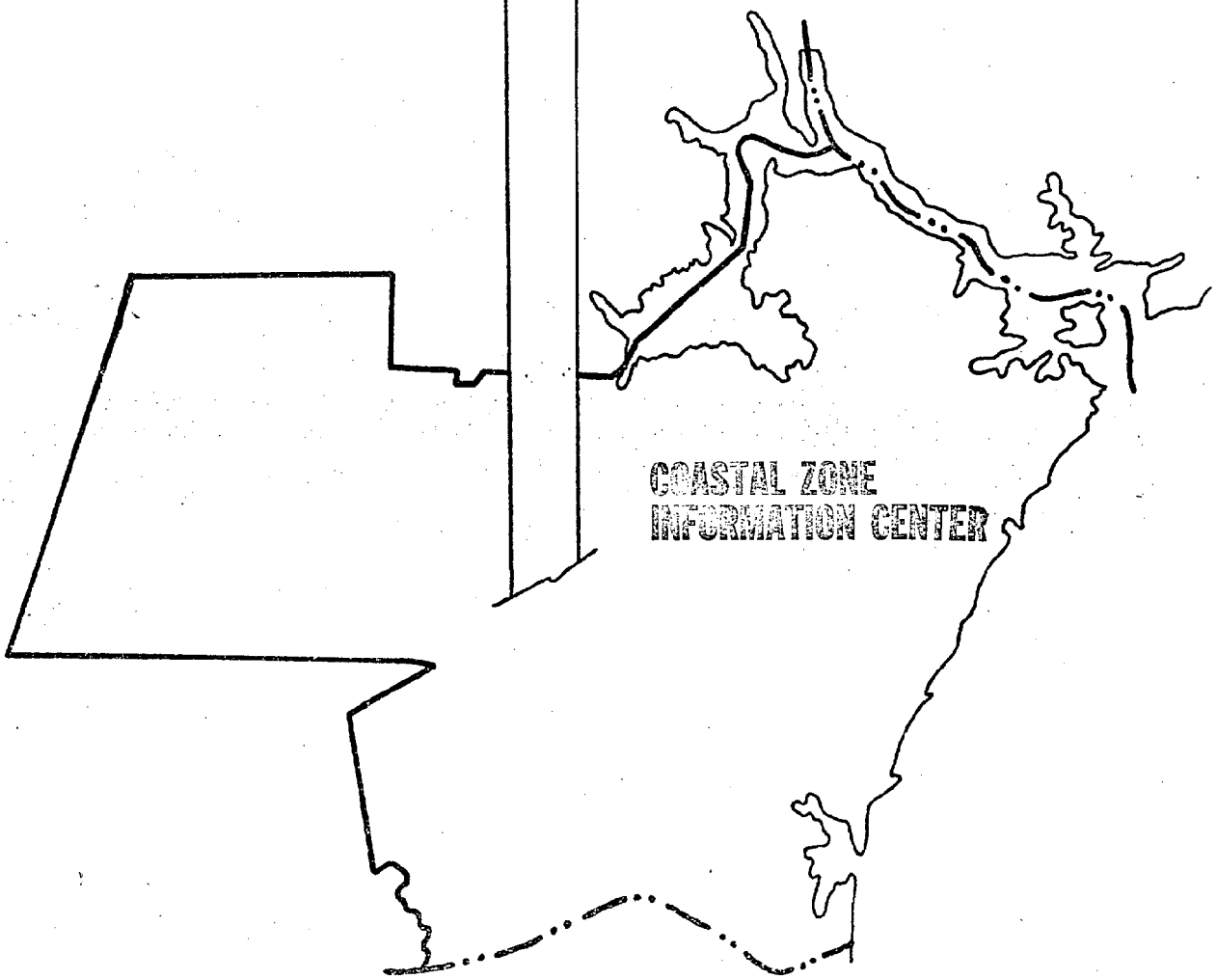
W.P.

07158

N.H. Coastal Resources
Management Program
First Year Report
Attachment G - 1

ZONING SUMMARY

3rd Edition As Of July 1, 1975



Southeastern New Hampshire Regional Planning Commission
3 Water Street · Exeter, New Hampshire · 03833

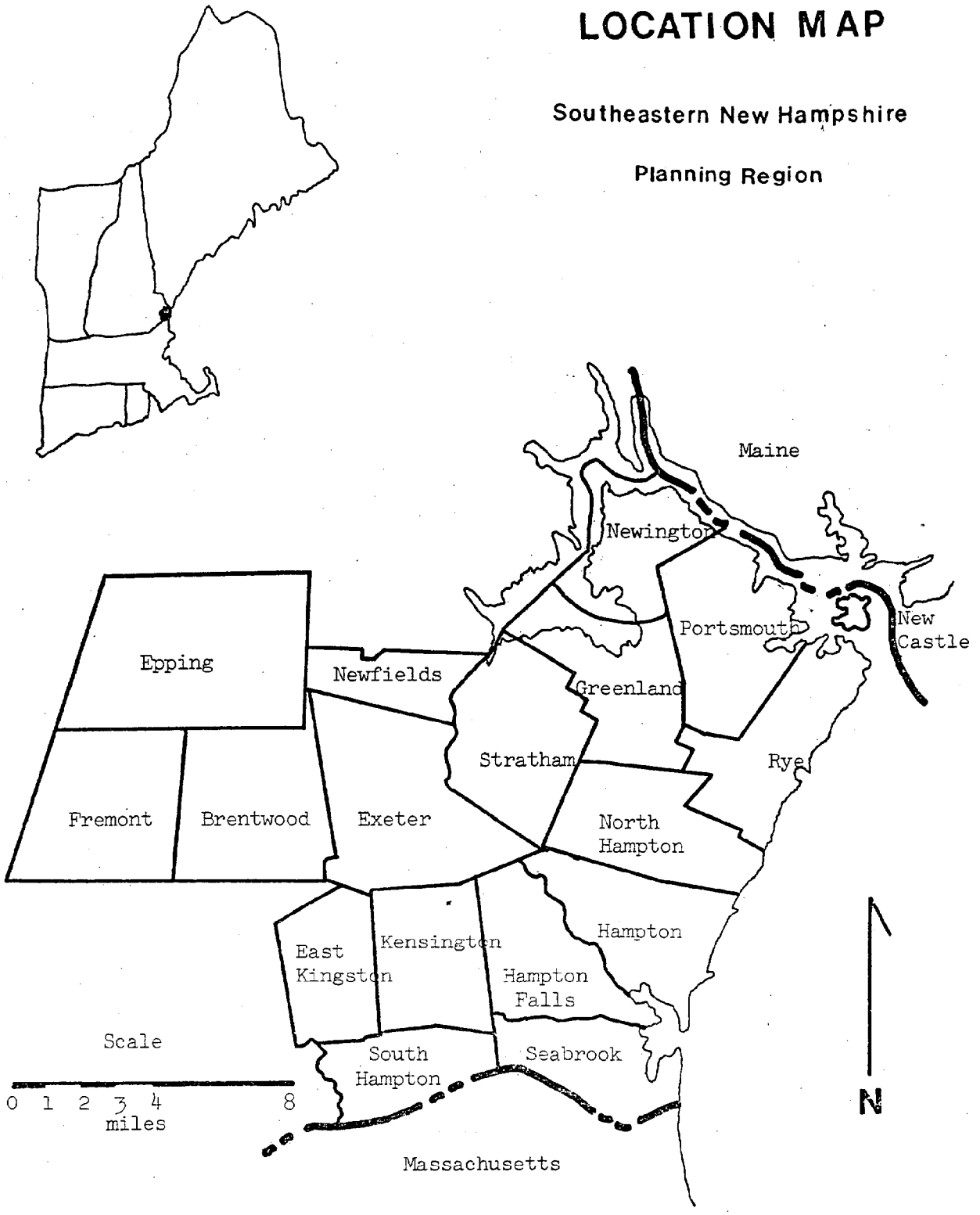
TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

LOCATION MAP

Southeastern New Hampshire

Planning Region



"The preparation of this map was financially aided through a Federal grant from the Department of Housing and Urban Development, under the Comprehensive Planning Assistance Program authorized by Section 701 of the Housing Act of 1954 as amended."

Prepared by:

Southeastern New Hampshire Regional Planning Commission

Exeter, New Hampshire

Introduction

Since 1972, the Southeastern New Hampshire Regional Planning Commission has published summaries of the municipal zoning ordinances of the eighteeen communities in the region. This report, too, contains summaries of each town's zoning ordinance and map. Comparison is again made of the existing zoning to the 1980 Land Use Plan as defined in the Future Land Use publication. And the report develops, for each town, potential population projections based upon maximum development allowed by each municipal zoning ordinance.

Also included in this report is a table of the action taken by the municipalities in the region concerning the National Flood Insurance Program.

With the exception of Epping, Fremont, Hampton, and Rye, the southeastern municipalities did not approve any regionally significant amendments to their zoning ordinances. Fremont has become the first town in this region to approve a per cent limit on new construction.

Although this report should be of general assistance in determining the zoning requirements of the southeastern municipalities, for accurate reference recourse should be made to the municipal clerks or planning boards.

DEVELOPMENT CONTROLS AS OF MARCH 1974

Each municipality in the region has municipal development controls. The zoning in Fremont, Kensington and East Kingston is minimal and allows mixed residential, commercial and industrial uses in all parts of the towns. Eleven towns allow residential uses in commercial districts. Brentwood, North Hampton and Seabrook allow residential uses in their industrial districts.

The Map, Composite Zoning, illustrates the zone boundaries.

A. Brentwood:

Brentwood has a zoning ordinance (adopted 1962, amended 1969, 1972) subdivision regulations and a building ordinance. The zoning ordinance provides for two districts, the Residential-Agricultural and Commercial-Industrial Districts.

Residential-Agricultural District: Permitted uses are single-family residences, single mobile homes, and farms. The minimum lot size requirement is 80,000 sq. ft. with 200 feet of frontage.

Commercial-Industrial District: Permitted uses include lodging-houses, retail establishments, offices, industry and any use permitted in the Residential-Agricultural District (except along Pine Road where all residential use is prohibited). Minimum lot requirements are 120,000 sq. ft. and 300 feet of frontage.

B. East Kingston:

East Kingston has subdivision regulations and a zoning ordinance (adopted 1972, amended 1973). The ordinance specifies that East Kingston is one zone. The minimum lot size is 2 acres, and the minimum frontage is 200 feet. Commercial and industrial uses are permitted throughout the town as special exceptions subject to minimum requirements.

C. Epping:

Epping has a zoning ordinance (adopted 1968, amended 1973) and subdivision regulations. The zoning ordinance provides for two areas, that part of Epping served by public sewer and that part not so served, an Industrial District and a Wetlands Conservation area.

Sewered Area: Any use is permitted except mobile homes. Minimum lot size requirements are 10,000 sq. ft. and 100 feet of frontage.

Non-sewered Area: Any use is permitted. Mobile home parks are permitted subject to specific restrictions including 7,500 sq. ft. minimum area per mobile home site, minimum site size is 100 feet by 75 feet. Parks must be at least ten acres in size. The minimum lot requirements for other residential development is 200 feet of frontage and 40,000 sq. ft.

Industrial: Permitted uses are light manufacturing and assembly plants, research laboratories, office buildings and warehouses. All other uses are prohibited. Minimum lot requirements are 3 acres area and other special restrictions.

Multiple-Unit Housing: Permitted anywhere subject to special provisions and site plan review by the Planning Board. Minimum lot requirements in the Sewered area are 10,890 sq. ft. per dwelling unit and 100 feet of frontage for the first dwelling unit with an additional 50 feet of frontage for each additional dwelling unit. Minimum lot requirements in the non-sewered area are 21,780 sq. ft. for each dwelling unit, 200 feet of frontage for the first dwelling unit with an additional 100 feet of frontage for each additional dwelling unit. In both areas 2 1/2 parking spaces and 600 square feet of usable open space are required for each dwelling unit.

Site Plan Review: Site plans for all non-residential development are subject to review by the Planning Board as authorized by RSA 36:19a.

Wetlands Conservation Area: Consists of that area 50 ft. to either side of the mean spring high water mark of the Lamprey, North, Pawtuckaway and Piscassic Rivers. Only structures necessary for legitimate use of the rivers are allowed.

D. Exeter:

Exeter has a zoning ordinance (adopted 1973, amended 1974), subdivision regulations and building code. The zoning ordinance provides for ten districts: RU Rural, R-I Low Density Residential, R-2 Single-Family Residential, R-3 Single-Family Residential, R-4 Multi-Family Residential, M-Mobile Home, C-1 Central Area Commercial, C-2 Highway Commercial, I-Industrial, L-C Land Conservation. Also included is an overlapping Historic District.

RU - Rural District: Permitted uses include single-family detached dwellings, home occupations or professional offices, farms and related buildings and roadside stands for the sale of produce. Special exceptions include community buildings, social halls, lodges, planned unit developments, private schools, golf courses, essential service, extraction of soil and stone, and conversion of single family dwellings to not more than four family units. Minimum lot requirements are 2 acres in area and 200 feet of frontage.

R-1 Low Density Residential District: Permitted uses include any in the Rural District plus churches, public schools, libraries, museums and public parks. Special exceptions include planned unit development, essential services, private schools, health care facilities and single family conversions as outlined in the Rural District. Minimum lot requirements with public water and sewer are 30,000 sq. ft. in area and 150' frontage; without public water and sewer, 1 acre in area and 150 feet frontage.

R-2 Single Family Residential District: Permitted uses include any in R-1 District except farms, related uses and operations. Special exceptions include any in R-1 District plus two-family dwellings. Minimum lot requirements with public water and sewer, 1 acre in area and 100 feet of frontage.

R-3 Single-Family Residential District: Permitted uses include any in R-2 District. Special exceptions include essential services, single-family conversions as outlined in the Rural District and conversions to rooming and boarding houses. Minimum lot requirements are 12,000 sq. ft. in area and 100 feet frontage.

Residence B: Permitted uses include those permitted in Residence A and AA Districts plus lodging houses, apartment houses and tourist accommodations. Minimum lot requirements are 7,500 sq. ft. and 75 feet of frontage.

Residence C Seasonal: Permitted uses are single or double family residence. Minimum lot requirements are 6,000 sq. ft. and 60 feet of frontage.

Business: Permitted uses include any use permitted in Residence B District, except single-family dwellings, plus shops, restaurants, offices, theaters, and building supply yards. Minimum requirements are 20 feet of frontage on street or public parking area.

Seasonal Business: Permitted uses include any use permitted in Business District plus general outdoor recreation. Minimum lot requirements are the same as for the Business District.

Industrial: Permitted uses include any use permitted in Business District, except multi-family dwellings, plus light manufacturing, machine shops, and heavy manufacturing provided the planning board approves. Minimum lot requirements are 20 feet of frontage on a street or public parking lot and building must be 30 feet back from right-of-way.

General: Permitted uses include any use permitted in the Business Districts plus light manufacturing, mobile homes and mobile home parks. Mobile home parks are subject to following minimum requirements: minimum park area 120,000 sq. ft., minimum site area 10,000 sq. ft. and 40 feet of frontage; parks must have at least 20 sites to be certified for occupancy. Transient parks have slightly different requirements.

H. HAMPTON FALLS:

Hampton Falls has a zoning ordinance (adopted 1963, amended 1966, 1970, 1971, 1972 and 1973), building regulations, and subdivision regulation. The zoning ordinance provides two districts; an Agricultural-Residential District and a Business District.

Agricultural-Residential: Permitted uses are one and two family dwellings, churches, public buildings, professional offices in home, private recreation area, farms, mobile homes or trailers, and industry on special exception. Minimum lot requirements are 87,120 sq. ft. and 250 feet of frontage.

Business District: Permitted uses include all those in Agricultural-Residential District plus wholesale-retail business, transient accommodations, restaurants and recreational establishments, and service stations.

I. KENSINGTON:

Kensington has a zoning ordinance (adopted May, 1959, amended or revised 1961, 1969, 1971, 1973) and subdivision regulations. The ordinance does not provide for special use districts in the town. Residential uses, including single mobile homes, and commercial, industrial uses are allowed throughout the town providing special conditions are met. A gravel ordinance, passed 1973, controls the excavation of sand & gravel by permit.

Residential minimum lot requirements are one acre and 150 feet of frontage. Single mobile homes may be placed on these lots. No mobile home parks are allowed. Multiple dwellings are allowed providing following minimum lot requirements are met: 2 acres for first unit, one additional acre for each additional dwelling unit and 250 feet of frontage for first unit and 100 feet of frontage for each additional unit, and off street parking for three automobiles for each unit.

Commercial: Minimum lot requirements two acres and 250 feet of frontage.

Industrial: Minimum lot requirements two acres and 250 feet of frontage.

J. NEW CASTLE:

New Castle has a zoning ordinance (adopted 1954) and subdivision control regulations. The zoning ordinance divides New Castle into three districts: Residential, Commercial, and Oceanside and Beach.

Residential: Permitted uses are one and two family dwellings, agriculture, and public functions buildings. No mobile homes are allowed. Minimum lot requirements are one acre and 150 feet of frontage.

Commercial: Permitted uses include those permitted in Residential District. Other buildings are subject to special minimum requirements. No building can occupy more than 50% of a lot or be closer than 25 feet to a street boundary or 10 feet to a lot boundary.

Oceanside and Beach: The same regulations governing the Residential District apply except that only single family dwellings are allowed.

K. NEWFIELDS:

Newfields has a zoning ordinance (adopted in 1959, revised 1973) a building ordinance, and subdivision control regulations. The zoning ordinance provides for five districts: Residential, Residential-Agricultural, Commercial, Industrial and Land Conservation. Sufficient off-street parking is required in all districts.

Residential: Permitted uses are single-family residential and two family residential by conversion only, church, home occupations, schools, etc. Minimum lot requirements are 2 acres and 200 feet of frontage.

Residential-Agricultural: Permitted uses include those permitted in Residential District, plus farming and single mobile homes. Minimum lot requirements are the same as for Residential Districts.

Commercial: Permitted uses include those in the Residential-Agricultural District under applicable restrictions, except two-family dwell ings & Rooming & Boarding houses, plus tourist accommodations, wholesale-retail establishments, and light industry as a special exception. Minimum land requirements are 2 acres and 50 feet of frontage.

Industrial: Permitted uses include those in the Commercial District, except all housing & most retail and service businesses are prohibited. As a special exception heavy industry is allowed. Minimum requirements are the same as Commercial.

E. Fremont:

Fremont has a zoning ordinance (adopted 1947, amended 1971, 1973, and 1975) and subdivision control regulations. The zoning ordinance provides two districts; a Mobile Home District and the rest of the town.

The Town District: Every use except mobile homes is permitted throughout the town. Minimum lot requirements are 150 feet frontage and one acre area.

Mobile Home District: Permitted uses are mobile homes singly or in parks. Other uses are not prohibited. Single mobile homes subject to same minimums as other buildings. Mobile Home parks are subject to special requirements: minimum size of 25 acres, development standards as set forth in Subdivision Controls must be followed; each mobile home site must have 20,000 sq. feet area, and no other dwellings or commercial establishments other than mobile homes are allowed in the park. Individual mobile home sites must be a minimum of one acre with 150 feet frontage.

The number of building permits to be issued during each calendar year is limited to 3% of the total number of dwellings in the town at the start of that calendar year. Not more than 3 building permits may be issued to a single developer or within a subdivision during a single calendar year.

F. Greenland:

Greenland has a zoning ordinance (adopted April 1952, amended 1958, 1962, 1971, 1972, 1974 and 1975) and building regulations. The zoning ordinance provides for three districts: Residential, Commercial, and Industrial.

Residential: Permitted uses are one and two family residential, farms, home professional offices, and churches. Minimum lot requirements are 60,000 sq. ft. and 200 ft. of frontage.

Commercial: Permitted uses are any use permitted in the Residential District, subject to the requirements of that district, plus retail establishments, business offices, hotels, restaurants and apartment houses. Minimum lot requirements are 100 ft. of frontage, 20,000 sq. ft. area with town water or 30,000 sq. ft. area without town water, and 10,000 sq. ft. area for each additional unit. Mobile home parks may be approved by the Board of Adjustment. Minimum lot sizes must be at least 7,500 sq. ft. area per site with an extra site, designated as a service lot, for every ten sites.

Industrial: Permitted industrial uses are unlimited providing they have no injurious or objectionable conditions associated with them. Residential uses are prohibited. The minimum lot size requirements is one acre.

G. Hampton:

Hampton has a zoning ordinance (adopted 1949 and amended almost annually since) and subdivision control regulations. The zoning ordinance provides for eight districts: Residence AA, Residence A, Residence B, Residence C Seasonal, Business, Seasonal Business, Industrial, and General.

Residence AA: Permitted uses are single family residence, farm buildings, churches, schools and municipal buildings. Minimum lot requirements are one acre and 200 feet of frontage.

Residence A: Permitted uses are the same as for the Residence AA District, Minimum lot requirements are 15,000 sq. ft. and 125 feet of frontage.

R-4 Multi-Family Residential District: Permitted uses include any in R-2 District. Special exceptions include community buildings, social halls, lodges, planned unit developments, private schools, health care facilities and conversions as outlined in the R-3 District. Minimum lot requirements are 100 feet frontage and an area of 12,000 sq. ft. detached single-dwelling 15,000 sq. ft. two family dwelling and 21,000 sq. ft. for 3 or more units.

M - Mobile Home District: Permitted uses are mobile home parks and associated public parks or playgrounds. Special exceptions include essential services and conversions as outlined in the Rural District. Minimum lot requirements are 10,000 sq. ft. in area and 100 feet frontage.

C-1 Central Area Commercial District: Permitted uses include retail and personal services establishments, professional offices, hotels, community buildings, social halls, lodges and essential services. Special exceptions include planned unit developments, rooming and boarding houses by conversion only. Minimum lot requirements are 5,000 sq. ft. in area and 50 feet frontage.

C-2 Highway Commercial District: Permitted uses include any in C-1 District plus outdoor amusement areas, wholesale establishments, animal hospital kennels, landscape nurseries, and automobile; new, use, repair and washing facilities. Special exceptions include any in C-1 District plus gasoline or service stations. Minimum lot requirements are 20,000 sq. ft. in area and 150 feet frontage.

I - Industrial District: Permitted uses include manufacturing and industrial operations, wholesale businesses, warehouses, truck terminals and distribution plants. Special exceptions include essential services, planned unit developments and bulk storage for flammable and explosive materials, subject to restrictions. Minimum lot requirements are 40,000 sq. ft. in area and 150 feet frontage.

LC - Land Conservation District: Permitted uses include forestry, flood control, wild life preserves, hunting and fishing clubs. Special exceptions include sewage facilities, farm operations, public golf courses, public boat marinas, public parks and atheletic fields. Minimum lot requirements are 4 acres in area and 200 feet frontage.

Historic District: Permitted uses and minimum lot requirements are those of the zoning district concerned. In addition, all new construction and any exterior changes to existing structures must meet the requirements of the Historic District Commission.

Planned Unit Development (PUD): A PUD is defined as a structure or group of structures operated and maintained as a unit by a single individual or legal control to that effect and which has certain facilities in common such as yards, open space, recreation areas, garages and parking areas. The purpose of Planned Unit Development regulations is to encourage flexibility in the design and development of land to encourage its most appropriate use. PUD's are subject to the granting of a Special Exception by the Board of Adjustment. Permitted uses are all uses permitted in the particular district within which the PUD lies. Minimum lot requirements are five acres area and 100 feet frontage. A minimum of 25% of the site area must be developed as open space. In the RU and R-1 Districts public sewer and water is optional for PUD's composed of single-family detached dwellings, in all other cases public sewer and water is required.

Land Conservation: Permitted uses are park and recreation facilities and farming as a special exception.

L. NEWINGTON:

Newington has a zoning ordinance (adopted 1966) building regulations, and subdivision control regulations. The zoning ordinance provides for five districts: Residential, Business, Industrial, Waterfront, Industrial and Commercial and Residential-Farming.

Residential: Permitted uses include single family dwelling, public facilities and agriculture. An existing structure may be converted to two family use with special exception. Minimum lot requirements are 45,000 sq. ft. and 200 feet of frontage.

Business: Permitted uses are retail sales, incidental manufacturing, public facilities and grounds, recreation facilities, and offices. Mobile home parks are permitted as a special exception. Minimum lot requirements are 100 feet of frontage and 20,000 sq. ft.

Industrial: Permitted uses include any non-obnoxious industry approved by Planning Board. Residential uses are specifically excluded. Minimum lot requirements are no building within 40 feet of right-of-way or 25 feet of lot lines.

Waterfront Industrial and Commercial: Permitted uses are industrial or commercial uses dependent upon the ocean. Residential uses specifically excluded. Minimum lot requirements are the same as for Industrial District.

Residence and Farming: Permitted uses include farming but not piggeries, single family residence, and golf courses. Minimum lot requirements are two acres and 300 feet of frontage.

M. NORTH HAMPTON:

North Hampton has a zoning ordinance (adopted 1946, amended 1955, 1956, 1961, 1962, 1963, 1968, 1970- 73 and 1975) and subdivision regulations. The zoning ordinance provides for four districts: R-1 High Density Residential, R-2 Medium Density Residential, R-3 Low Density Residential, and 1-B Industrial Business District.

High Density Residential: Permitted uses include agriculture, single family dwellings, and public facilities such as schools and churches. Special exceptions include, municipal buildings and hospitals. Minimum lot requirements are two acres and 175 feet of frontage.

Medium Density Residential: Permitted uses and special exception are the same as in the High Density Residential. Minimum lot requirements are two acres and 175 feet of frontage.

Low Density Residential: Permitted uses the same as for High Density Residential, except churches. Minimum lot requirements are two acres and 175 feet of frontage.

Industrial-Business District: Permitted uses include agriculture, motels, restaurants, Public Utility buildings, etc. Special exceptions include planned unit industrial and business projects and multiple-family dwellings. Single-family dwellings are prohibited. Minimum lot requirements are two acres and 250 feet of frontage.

Mobile homes are allowed only in existing parks. No new parks are allowed.

N. PORTSMOUTH:

The City of Portsmouth has a zoning ordinance (adopted 1966 and periodically amended), subdivision regulations and building code. The zoning ordinance provides for the following districts: Single Residence I, Single Residence II, General Residence, Garden Apartment, Apartment, Neighborhood Business, General Business, Central Business, Waterfront Business, Industrial, Mobile Home Park, Historic District and Conservation District.

Single Residence I: Permitted uses include single-family dwellings, PUD's and crop farms. Special exceptions allowed are: private non-profit institutions, public utilities buildings, hospitals, home occupations, landings, livestock farms, and golf courses. Minimum lot requirements for single-family dwellings are 150 feet frontage and 1 acre and 40,000 sq. ft. lot area per family and 100 feet of frontage for PUD's. Planned unit developments on non-sewered land are permitted in this district only.

Single Residence II: Permitted uses are the same as Single Residence I. Minimum lot requirements 20,000 sq. ft. and 100 feet of frontage. In PUD's 15,000 sq. ft. per unit and 100 feet of frontage are required.

General Residence: Permitted uses include those permitted in Single Residence II and two, three, and four family dwellings. Special exceptions may be made for old age housing and clubs and lodges not operated as businesses. Minimum lot requirements are 10,000 sq. ft. of land per family. For PUD's 7,500 sq. ft. land area per unit and 100 feet of frontage is required.

Garden Apartment: Permitted uses are PUD's and Garden Apartments of one or more dwellings with four or more units in each dwelling. Minimum lot requirements are 5 acres and 10,000 sq. ft. of land per family. For PUD's 7,500 sq. ft. land area per unit and 100 feet of frontage is required.

Apartment: Permitted uses include those permitted in General Residence District plus apartments for any number of families. Minimum lot requirements are 10,000 sq. ft. and 10,000 sq. ft. area per family. A 7,500 sq. ft. lot area per unit and 100 feet of frontage are required for PUD's.

Neighborhood Business: Permitted uses are retail establishments and consumer service establishments. Minimum lot requirements are 10,000 sq. ft. and 100 feet of frontage. Further limiting requirements are no buildings larger than 2,000 sq. ft. are allowed and establishments may not be open from 12 midnight to 6:00 a.m.

General Business: Permitted uses include religious institutions, municipal and public utility structures, retail stores, and consumer services. No single family or farm uses permitted. Minimum lot requirements are one acre area and 200 feet of frontage. Convents and other religious dwellings are subject to the minimum lot requirements in Single Residence I District. Any facility providing parking for over thirty cars is subject to Planned Development requirements.

Central Business: Permitted uses include all those, except monument works, allowed in the Neighborhood Business District without floor space limitation plus banks, department stores, radio and television broadcasting studios, bars and taverns, and government offices. 50% open space on each lot is required.

Waterfront Business: All uses subject to Site Review process. Permitted uses are Recreational Marinas, Landings for commercial fishing craft, and stores for the sale of marine goods associated with the boating facilities.

Industrial District: Permitted uses include all Commercial and Industrial uses, commercial and recreational docks and associated facilities, commercial radio and television services, and retail operations as part of a manufacturing establishment. Special exceptions include sanitary landfill, lumber yards, Drive-In-Theatres and junk yards. No residential uses allowed except that required for the safe operation of a business. Minimum lot requirements are two acres and 200 feet of frontage.

Mobile Home Park: Permitted uses include those in Single Residence I District plus mobile home parks. Minimum requirements for mobile home parks are 5 acres area and the park must be set back 500 feet from existing roads with a screen which prevents view from highway or neighboring land. Mobile home parks must meet the Planned Development requirements. Each mobile home lot must contain a minimum of 7,500 sq. ft., be at least 25 feet wide and shall abut on a roadway of not less than 30 feet width if off-street parking is provided, otherwise a 40 feet road width is required. Review process requires a hearing before Planning Board and City Council.

Historic Districts: All plans for construction, alteration, repair, moving or demolition of buildings located in an Historic District must be submitted to the Historic District Commission for approval.

Conservation District: Permitted uses include forestry, parks, playgrounds, riding trails and cemetaries. Special exceptions include golf courses, athletic fields, farms and agricultural operations providing that any structure be not more than 2500 sq. ft. or over 1% of the total land area which ever is smaller. The minimum lot requirement is two acres.

Site Review: By the Site Review Committee, is required on all land for development or use within the municipal boundaries except residential developments of not more than 4 units, residential conversions that will meet required dimensional requirements and commercial and industrial conversions that will not call for increased use of services or more intensive site use. A Planning Department publication Site Review Criteria sets forth submission and site plan criteria.

O. Rye:

Rye has a zoning ordinance (adopted 1969, amended 1974 and 1975), a building code and subdivision regulations. The zoning ordinance provides for eight districts: Single-Residence, General Residence, Historic Center, Business A, Business B, Commercial, Public Recreation and Industrial.

Single Residence District: Permitted uses include single-family dwellings, churches, farms, and home occupations. Minimum lot requirements are 44,000 sq. ft., 150 feet of frontage and 150 feet of depth.

General Residence District: Permitted uses include any use permitted in Single-Residence District plus two family dwellings. Single-family minimum lot requirements are 30,000 sq. ft., 150 feet of frontage and 150 feet of depth. Two family minimum lot requirements are 60,000 sq. ft., 200 feet of frontage and 200 feet of depth.

Business A District: Permitted uses include any use permitted in Residence Districts subject to applicable restrictions plus special exceptions as follows: grocery stores, drug stores, beauty shops, and other similar uses. Minimum lot requirements are 22,500 sq. ft. and 150 feet of frontage.

Business B. District: Permitted uses include any use permitted in Residence Districts subject to applicable restrictions plus special exceptions as follows: gift, novelty shops, restaurants, and tourist accommodations. Minimum lot requirements are the same as for Business A District.

Commercial District: Permitted uses include any use permitted in Residence Districts subject to applicable restrictions and any special exception in the Business Districts, plus retail auto sales, and professional offices. Minimum lot requirements are 15,000 sq. feet and 100 feet of footage.

Public Recreation District: Includes all land owned by public agencies which is reserved for recreational purposes.

Industrial District: Permitted uses include any use permitted in Commercial Districts except residence plus processing and disbursement establishments. Minimum lot requirements the same as in the Commercial District.

Mobile homes may only be located in parks. New parks may be located in any district subject to the regulations governing the construction of such parks.

Historic Center District: Permitted uses are the same as for Single Residence District. Construction and alteration must be approved by Historic District Commission.

P. Seabrook:

Seabrook has a zoning ordinance (adopted 1974) that provides for 5 districts: Zone 1, Residential; Zone 2, Residential-Retail; Zone 3, Commercial; Zone 4, Recreational; and Zone 5, Unrestricted.

Zone 1: Permitted uses include single and two family dwellings, resident-professional offices, public buildings, guest houses in which the owner is prime occupant, churches and schools.

Zone 2: Permitted uses include any in Zone 1 plus, agriculture and related buildings, home occupations, retail businesses, service stations, nursing homes, commercial recreation, theatres and halls, travel-trailer parks, hotels and motels, restaurants and lounges, and restricted manufacturing businesses.

Zone 3: Permitted uses include any permitted in Zones 1 and 2 plus, warehouses, storage and wholesaling establishments, and restricted manufacturing businesses.

Zone 4: Restricted to recreational use, no structures for any purpose are permitted.

Zone 5: Any use is permitted. However, Zone 5 consists primarily of salt-marsh land, and as such is controlled by state law. Currently, state policy is to prohibit development on marshland, and a state permit is required to do so.

Minimum lot requirements are, 12,500 sq. ft. area and 90 feet of frontage in all zones except Zone 4.

Q. SOUTH HAMPTON:

South Hampton has a zoning ordinance (adopted 1973, amended 1974), a building and safety ordinance, and subdivision regulations. The zoning ordinance provides for 5 districts: Rural Residential, Commercial, Industrial, Wetlands Conservation and Historic.

Rural-Residential: Area includes all of town except the area in commercial industrial and wetlands districts. Permitted uses include single family dwellings, farming and related agricultural uses, boarding of not more than three persons, customary home occupations. Minimum lot requirements are 200 feet of frontage on an existing town approved road and 2 acres.

Commercial: Includes area 1000 feet on either side of Route 150. Permitted uses include any use permitted in Rural-Residential District plus commercial businesses (wholesale and retail), mobile home parks and sales, stables and kennels. Minimum lot requirements are the same as the Rural-Residential District. Commercial structures and uses must be submitted to the Planning Board for approval.

Industrial: Any request for industrial use of a parcel of land must be submitted to the Planning Board which shall hold at least two public hearings on the re-zoning of that land for industrial use.

Wetlands-Conservation: This district includes those "areas delineated as poorly drained or very poorly drained soils identified in the Soil Survey Rockingham County New Hampshire issued August 1959 and revised for this ordinance by the USDA Soil Conservation District..." Permitted uses are any use that does not result in the erection of any structure or alter the surface configuration by the addition of fill and that is other-wise permitted by the ordinance.

Historic: Consists of that area known as the "Hill Top" area. Any changes to the exterior of existing buildings and any new construction must be approved by the Historic District Commission.

R. STRATHAM:

Stratham has a zoning ordinance(adopted 1967, amended 1972), a building ordinance, and subdivision regulations. The zoning ordinance provides for four districts: Residential-Agricultural, Industrial, Commercial, and Mobile Home.

Residential-Agricultural: Permitted uses include 1, 2, and 3 family residences, professional offices, agriculture and nursing homes. No mobile home permitted. Minimum lot requirements are one acre area and 150 feet of frontage.

Commercial: Permitted uses include those in the Residential-Agricultural Districts, except, dwelling units unless said dwelling units are attached to a building used for commercial purposes, plus retail establishments, recreation and office buildings. Minimum lot requirements are one acre area and 200 feet of frontage.

Industrial: Permitted uses are any industrial use. Residential uses permitted in Residential-Agricultural and Commercial Districts are excluded. Minimum lot requirements are that buildings shall be 60 feet from any right-of-way and 20 feet from lot lines. Sufficient parking space must be provided.

Mobile Home District: Permitted uses are those permitted in Residential-Agricultural District plus single mobile homes and mobile home parks. Minimum lot requirements are the same as in Residential-Agricultural District.

SUMMARY OF MOBILE HOME AND MULTIPLE DWELLING HOME DISTRICTS

Mobile Home:

Brentwood: Mobile homes are allowed in R.A. district providing that basic lot requirements are met.

East Kingston: Mobile homes are allowed anywhere subject to minimum lot requirements.

Epping: No mobile homes on public sewer. Mobile homes and parks allowed elsewhere in town subject to individual lot minimums and special park restrictions.

Exeter: Mobile homes are allowed in the M - Mobile Home District in parks only.

Fremont: Mobile homes are permitted only in mobile home area subject to special conditions in ordinance, in parks or on individual sites.

Greenland: Mobile homes are allowed in parks in commercial and industrial districts subject to special lot requirements.

Hampton: Mobile homes are allowed either singly or in parks in General District.

Hampton Falls: Mobile homes permitted throughout town on single lots meeting general lot minimum requirements.

Kensington: Mobile homes are allowed as single residences meeting minimum lot requirements anywhere in town.

New Castle: None allowed.

Newfields: Single mobile homes are permitted in the Residential-Agricultural and the Commercial District, provided they meet minimum lot requirements.

Newington: Mobile Home Parks permitted in business district subject to annual review by Building Inspector.

North Hampton: Mobile homes are allowed only in existing parks. No new parks may be constructed.

Portsmouth: Mobile homes are allowed only in parks in the Mobile Home Park District.

Rye: Mobile homes are permitted only in parks. New parks may be placed anywhere subject to special regulations governing their construction.

Seabrook: No new mobile homes or parks are permitted.

South Hampton: Mobile homes are allowed in parks in the commercial district. Parks must be at least 20 acres in size and have at least five occupied mobile homes in them.

Stratham: Mobile homes allowed only in Mobile Home District. Development subject to same lot restrictions as 1 or 2 family dwellings. Parks are allowed subject to same restrictions.

Multiple Dwelling:

Brentwood: Multiple unit dwellings are prohibited.

East Kingston: Multiple unit dwellings are prohibited.

Epping: Multiple unit dwellings are permitted anywhere in town providing that special minimum lot sizes and other special provisions are met.

Exeter: Single-family dwellings built before April, 1972 may be converted to not more than 4 family units or to rooming and boarding houses in the RU, R-1, R-2, R-3, R-4 and M Districts providing that public water and sewer are available and other dimensional and parking requirements are met. Planned unit developments are allowed in the RU, R-1, R-2, R-4, C-1, C-2, and I, providing special requirements are met.

Fremont: Multiple unit dwellings permitted anywhere in the town subject to minimum lot requirements, minimum space of 650 sq. ft., per dwelling unit inside measurement, and other special building restrictions.

Greenland: Two family dwellings allowed throughout town. Apartments allowed in Commercial District.

Hampton: Two family dwellings are allowed in Residential C District. Apartments are allowed in Residence B, Business, Seasonal Business and Recreation Districts.

Hampton Falls: Two family dwellings allowed throughout town, if constructed by adding to an existing dwelling and the owner occupies one of the family units.

Kensington: Multiple unit dwellings are permitted anywhere in town providing that special minimum lot sizes are met.

New Castle: Two family dwellings are allowed in Residential and Commercial Districts.

Newfields: New two family dwelling construction is prohibited. Existing buildings in the residential and residential-agricultural district may be remodelled to accomodate two families.

Newington: Two family residence permitted in residential only as special exception.

North Hampton: Multiple unit dwellings are allowed as special exceptions in the I-B Industrial Business District.

Portsmouth: Up to four family residences are allowed in the General Residence District. Apartments are allowed in the Garden Apartment and Apartment Districts. Planned unit developments are allowed in all residential and Apartment Districts.

Rye: Two family dwellings are permitted in the General Residence, Business and Commercial Districts.

Seabrook: Two dwelling units per 12,500 sq. ft. of lot area.

South Hampton: Multiple-unit dwellings are prohibited.

Stratham: Two and three family dwellings allowed in the Residential-Agricultural and the Mobile-Home Districts. They must meet the minimum lot requirements.

DEVELOPMENT CONTROLS COMPOSITE

District Definitions:

Each town in the Planning Region has devised its own system for controlling development. The ordinances which systemize the development are all designed to fulfill the particular goals of the towns-- within legal and practical limits. Thus the names and exact definitions of the various districts vary from town to town. It is necessary, however, for the purposes of this study to have a way of comparing districts across town boundaries. For this reason a unified set of definitions for the districts was devised and the individual town districts were fitted into one of these districts. In doing this, we tried to devise definitions that were general enough so that each of the town districts would fit one category, yet specific enough so that the boundaries had validity. In the case of a few towns some further explanation was necessary and is provided at the end of the list of definitions.

Residential:

R-A Residential-Agricultural. Essentially rural in character with farms and large lot (one or two acre) zoning for residential use.

R 1 Low Density Residential. Large lot zoning (one or two acres) in areas where soil conditions require elaborate private sewer systems and public systems are not presently available nor likely to be available in the future.

R 2 Medium Density Residential. Smaller lot ($\frac{1}{2}$ to 1 acre) residential area; often two or three family dwellings allowed in this area.

R 3 High Density Residential. Smaller lot zoning (less than $\frac{1}{2}$ acre). High density permitted because public sewer and water available or soil conditions are good for private septic systems. Multiple unit dwellings where planned for are allowed in this zone.

R 4 Seasonal Residential. Allows only houses occupied part time (summer) for recreation purposes.

Business and Commercial:

B Business. Areas zoned for business often allow one or more residential uses. Usually business are held to be those establishments which serve the needs of a neighborhood. Sometimes a distinction between neighborhood business and roadside business is made. Roadside business is that which serves a wider area than the neighborhood because its location on a major road.

CI Commercial-Industrial. Permits either commercial or industrial uses.

BI Business-Industrial. Same as CI.

C Commercial. Commercial areas allow such enterprises as restaurants, motels, professional offices and large retail outlets. The distinction between Commercial and Business especially Roadside Business is not always clear and the terms are often used interchangeably.

CBD Central Business District. Allows usual business uses without requirements for off street parking, etc.

Industrial:

I Industrial Zones permit uses which involve the manufacture and/or shipment of goods. Warehouses, freight depots, factories are located in Industrial Zones. In some cases a Business-Industrial zone is delineated.

LI Light Industry. This zone permits industries which contribute no effluents other than those generally expected from a residence. This includes sewage, air, and noise emissions. In these zones activities allowed under the Business, Commercial, or Industrial categories are allowed, though often subject to approval by Board of Adjustment.

Recreation:

Rc Areas which permit only recreational development of land. In most cases this land is already controlled by a public agency and used for recreation.

General:

G Hampton & Seabrook have a General District. Mobile homes, businesses and light industry are allowed. Seabrook allows any use in the General District, Zone 5.

Special Use Districts:

Some towns have designated special use areas for different reasons. The designation and use of these areas varies from town to town.

H Historic District.

Rye has designated a Historic Center which permits medium density residential use but emphasizes the preservation of the historic character of the area.

Portsmouth, Exeter and South Hampton have Historic Districts which are part of other zones. Building in this area requires the approval of the Historic District Commission on its appearance.

MH Mobile Home.

Four towns, Exeter, Stratham, Fremont, and Portsmouth have set aside special areas where mobile homes may be placed. In Fremont and Stratham single mobile homes must meet the minimum lot requirements for residential areas; all four allow mobile home parks.

North Hampton, Seabrook and East Kingston allow no new mobile homes except in already existing parks.

A Apartment. Portsmouth has two types of multiple dwelling districts, Apartment and Garden Apartments, both of which are combined into the Apartment District.

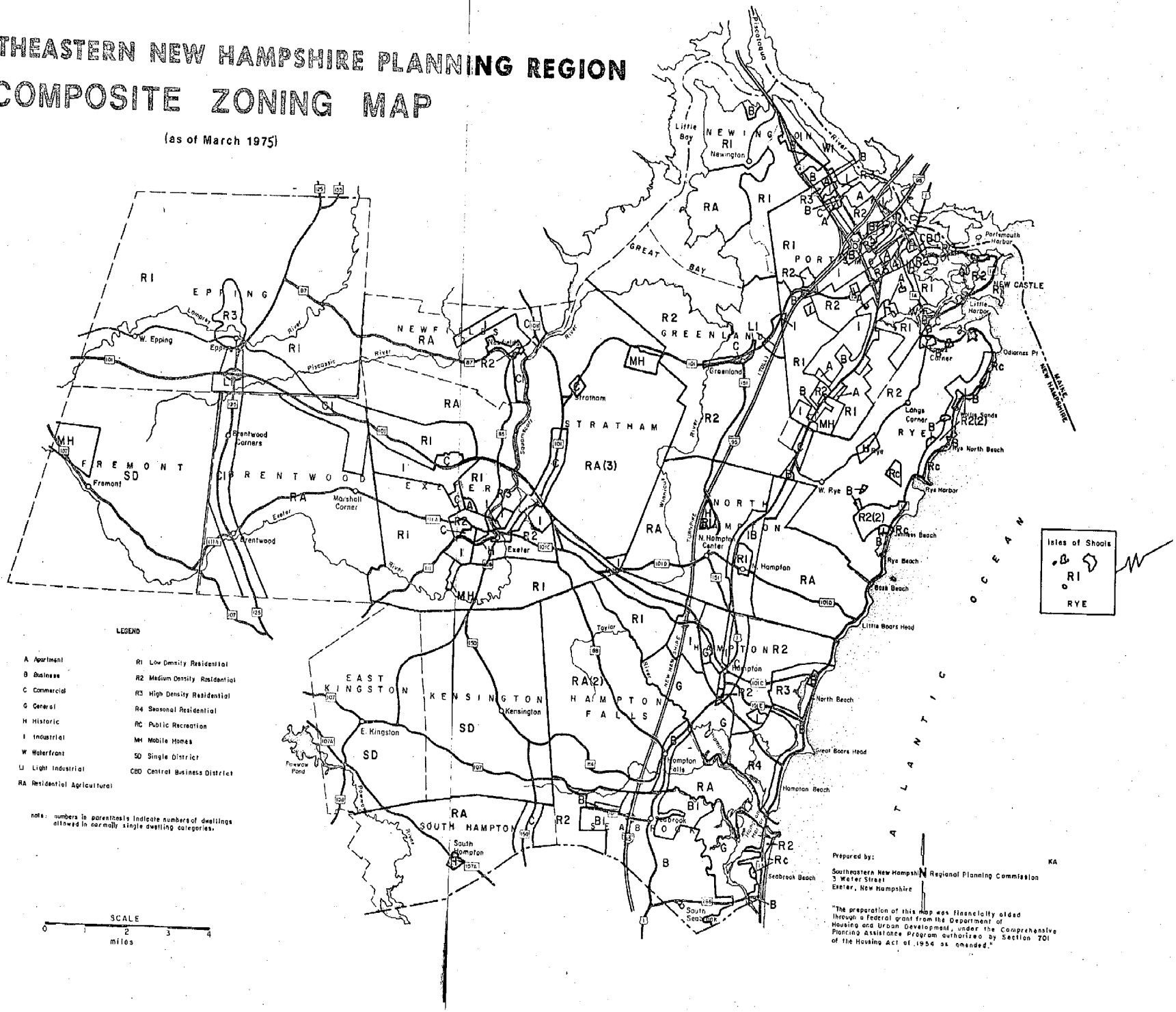
Sd Single District. The whole area of a town is zoned as one district.

W Waterfront. Waterfront industrial uses only.

SOUTHEASTERN NEW HAMPSHIRE PLANNING REGION

COMPOSITE ZONING MAP

(as of March 1975)



Comparison of Zoning Districts to the Regional Land Use Plan 1980

The Regional Land Use Plan, set forth in the Future Land Use Plans (Vol. 5), is designed to aid town Planning Boards in achieving a balance between community and regional goals. The Land Use Plan maps illustrate the development of the region in ten years increments from 1980 through 2000 and 2020.

In most areas the individual towns' zoning ordinances agree in theory with the Regional Plan, but there are areas of conflict.

The Plan calls for three industrial areas. The region's primary industrial area, Portsmouth, agrees with the Plan, excepting an area zoned industrial along Interstate 95 that is not called for by the Regional Plan. A second area in Seabrook, agrees completely with the Plan.

The third industrial area proposed stretches from the Epping-Brentwood border along Route 101 to the beginning of the Exeter Bypass. Brentwood has this land zoned industrial, agreeing with the Plan. Exeter, has an industrial zone parellel to and south of Route 101, the area bordering Route 101 is zoned low-density residential. The Plan is substantially compatible there.

The Regional Plan calls for Route 1, from Seabrook to Portsmouth, to continue as a commercial corridor. Town zoning agree with this plan with the exception of a low-density residential zone in North Hampton.

Newfields provision for a commercial-industrial zone in the general area of a junction of a proposed east-west highway and north-south Dover-Exeter expressway. This highway or proposed junction is not included in the Regional Plan.

Brentwood has zoned the land on both sides of Route 125 mixed industrial-commercial and the land on Pine Road (which is parallel to the Exeter-Brentwood border) as industrial. Neither of these two districts agree with the Land Use Plan.

Exeter has zoned industrial and commercial areas east and west of the town center. These areas do not appear as such in the Plan.

All of South Hampton, Kensington, and East Kingston, and most of Epping and Fremont are planned as Low-Density Residential. The town's zoning ordinances agrees with the Plan.

The land use shown in the Land Use Plan 1980 is dependent on the existing highway network. Development of new highways would alter the Plan as can be seen in Newfield's provision for a commercial-industrial zone.

Town Summary-Proposed Recommendations and the 1980 Land Use Plan

Brentwood:

The Land Use Plan does not agree with the zoning ordinance. The Plan does not call for Commercial-industrial use along Route 125 while the zoning ordinance does. Commercial establishments locating there are likely to be the roadside type dependent on through traffic. Given the projected increase in the use of Route 125, frequent turnings on and off the road would lead to the establishment of an alternate Route 125, thus diverting the market of the commercial establishments, creating the blight of a by-passed route. The more successful the roadside commercial zone becomes the less likely is its continued success. The Plan calls for medium-density residential development in the areas surrounding, Brentwood Corners, Marshall Corner and the intersection of Routes 125 and 111A, while town zoning has no density distinctions for these areas.

East Kingston:

East Kingston's zoning ordinance agrees closely with the Plan. However, the ordinance does allow the establishment of industrial and commercial uses anywhere in the town, subject only to the minimum lot restriction for residence. The Plan calls for residential and conservancy zones in East Kingston only. The purpose of the ordinance as stated in Article I is to "...preserve and improve the attractiveness of East Kingston as a residential and farming community...". This cannot be effectively done without controls on the location of industry and commerce.

Epping:

The Land Use Plan agrees with Epping's zoning ordinance. Both include an industrial zone around the intersection of Routes 125 and 101. However, Epping allows commercial uses in the residential zones, this could lead to further commercial development along Route 125 and create the same problems explained under Brentwood.

Exeter:

Exeter's zoning ordinance and the Plan do not agree. The basic source of incompatibility is the location of 4 industrial zones in areas planned for low-density residential by the Plan. The Land Use Plan calls for only one industrial zone located on either side of the eastern most segment of Route 101.

Fremont:

The Land Use Plan and Fremont's zoning ordinance agree quite closely. Both see Fremont as rural and low density housing. Fremont's ordinance, however, does state that industrial land use of certain types will be allowed. The ordinance makes no provision for a special area for industry where they might expect to receive the services, such as sewer and water, that they usually require.

Greenland:

Greenland's zoning ordinance agrees in part with the Land Use Plan. Both the Plan & town zoning call for low and medium density housing. The ordinance designates a commercial zone along Route 101. This zone is subject to the same development potentials as that in Brentwood along Route 125. The ordinance also allows fuel storage and residential uses in the same district-industrial.

Hampton:

Hampton's zoning ordinance and the Plan agree closely. The plan calls for Hampton to have Seasonal housing on the coast, high density and urban center stretching in from the coast to U. S. Route 1 with commercial and industrial uses along U. S. Route 1. The general districts to the west of Route 1 exist where the Plan calls for low-density residential use.

Hampton Falls:

Hampton Falls' zoning ordinance agrees with the Land Use Plan. The plan calls for a commercial zone along U. S. Route 1, town zoning establishes a business district along Route 1. The Plan indicates a small area of medium density residential use west of the Route 1 that is now zoned low-density residential.

Kensington:

The Land Use Plan calls for Kensington to be all rural-residential and conservancy, with medium-density residential surrounding the town center. The town's zoning ordinance, while it specifies no separate zones, allows both commercial and industrial uses. These uses may be located anywhere in the town as long as the minimum lot size requirements are observed.

New Castle:

New Castle's zoning ordinance agrees with the Land Use Plan. Both the Plan and the ordinance call for low density residential for the whole town. The ordinance does, however, make provision for two small commercial areas in the town, and two family dwellings in part of the town.

Newfields:

The Land Use Plan designates Newfields as low-density residential excepting that the area surrounding the town center be medium-density residential. Town zoning agrees with the Plan excepting 2 areas that are zoned Commercial-Industrial.

Newington:

The Land Use Plan and Newington's zoning basically agree on the character of Newington. However, Newington has the area either side of Route 4 zoned industrial and business, while the Plan calls for low-density residential development. The town zoning ordinance divides the town into residential, commercial, industrial and waterfront uses. These uses are all limited to areas already built up as such. The waterfront district (along the Piscataqua River) is an area of oil tank farms, and other industry dependent upon ocean transport. No residential construction is permitted in the industrial or waterfront districts.

North Hampton:

The Land Use Plan calls for a north-south oriented pattern of seasonal homes, medium density residential, industrial, medium density residential, and low density residential districts which change moving east to west. On the surface, the town zoning ordinance follows this same pattern almost exactly. However, permitted uses and minimum lot requirements are the same for the three residential density districts, in effect, North Hampton has one residential district.

Portsmouth:

The Portsmouth zoning ordinance agrees in part with the Land Use Plan. Both zone the area around Route 1 as separate Commercial and Industrial districts. The area zoned as urban corresponds fairly well with the Plan. The major area of conflict is an area south of Route 4 and east of Route 95. The Plan calls for low-density residential use while Portsmouth has the area zoned for industrial use.

In the event that the Air-Force vacates Pease, the Plan calls for that area to be zoned industrial. "Tails" of this district are indicated to extend to Greenland and Newington.

Rye:

The Land Use Plan calls for the same pattern of development in Rye as in North Hampton with the exception of the western residential districts. The town zoning ordinance is much more specific about districts with small business districts along Route 1-A and mini-commercial areas at important cross roads within the town. There is no strictly seasonal residential district in the town ordinance though seasonal businesses are restricted to districts in the beach area.

Seabrook:

Seabrook's zoning ordinance and the Land Use Plan essentially agree. The exception is a wide center strip that is now zoned business. The Plan indicates commercial use along Route 1, low-density residential use in the north and medium to high residential use in the south.

South Hampton:

Low-density housing is allowed. Industrial & Commercial uses are permitted along Route 150. The Land Use Plan calls for rural-residential throughout the town.

Stratham:

The Land Use Plan calls for commercial and low density residential uses. The town zoning ordinance zones an industrial district adjacent to the Exeter-Hampton Expressway in the extreme southern part of the town. The Plan calls for one medium density area around the Stratham traffic circle and town center that Stratham has not zoned for.

Zoning Regulations - Potential Population if Built to Maximum

Presently, all eighteen municipalities of this region have individual zoning ordinances. Since March, 1973, only Epping, Hampton and Rye have made zoning amendments that affect the potential population figures.

Epping approved a multiple-unit housing ordinance, which increased the potential population from 97,016 to 97,713 persons. The increase occurred because as of July 1974, the date of the last Zoning Summary Report, Epping had a moratorium on all multi-family buildings in effect. Before the moratorium went into effect, apartment construction was essentially uncontrolled and the potential population was 183,566 persons. The new ordinance reduces this figure by 88%.

Hampton rezoned a parcel of industrial land to general residential, effecting an increase in potential population from 63,397 to 63,911 persons.

Rye approved larger residential minimum lot requirements in all its residential districts, netting a reduction in potential population from 27,571 to 23,931 persons.

Although Fremont approved a 3% growth limit, it does not change the eventual potential population figure. It does slow the rate that the town will approach that figure.

The net effect of these changes was to reduce the maximum potential population for the region from 706,742 to 703,313 persons, a reduction of 3,429 persons.

The New Hampshire Office of State Planning has projected a 2010 A.D. population for this region of 200,600 persons. This projection is based upon a linear extrapolation of age-group survival-migration rates, a 20 to 30 year rise and fall in fertility rates (cyclical), and the effect of in-migration. This projection is not based on zoning controls.

Figure 1, Projected Population Growth, 1970-2010, illustrates this by town for the region.

Comparison of projected population growth to the maximum population potential of the individual municipalities demonstrates the capacities of each municipality's zoning ordinance. For example, North Hampton could reach the saturation point or maximum population potential about the year 2000.

Procedures:

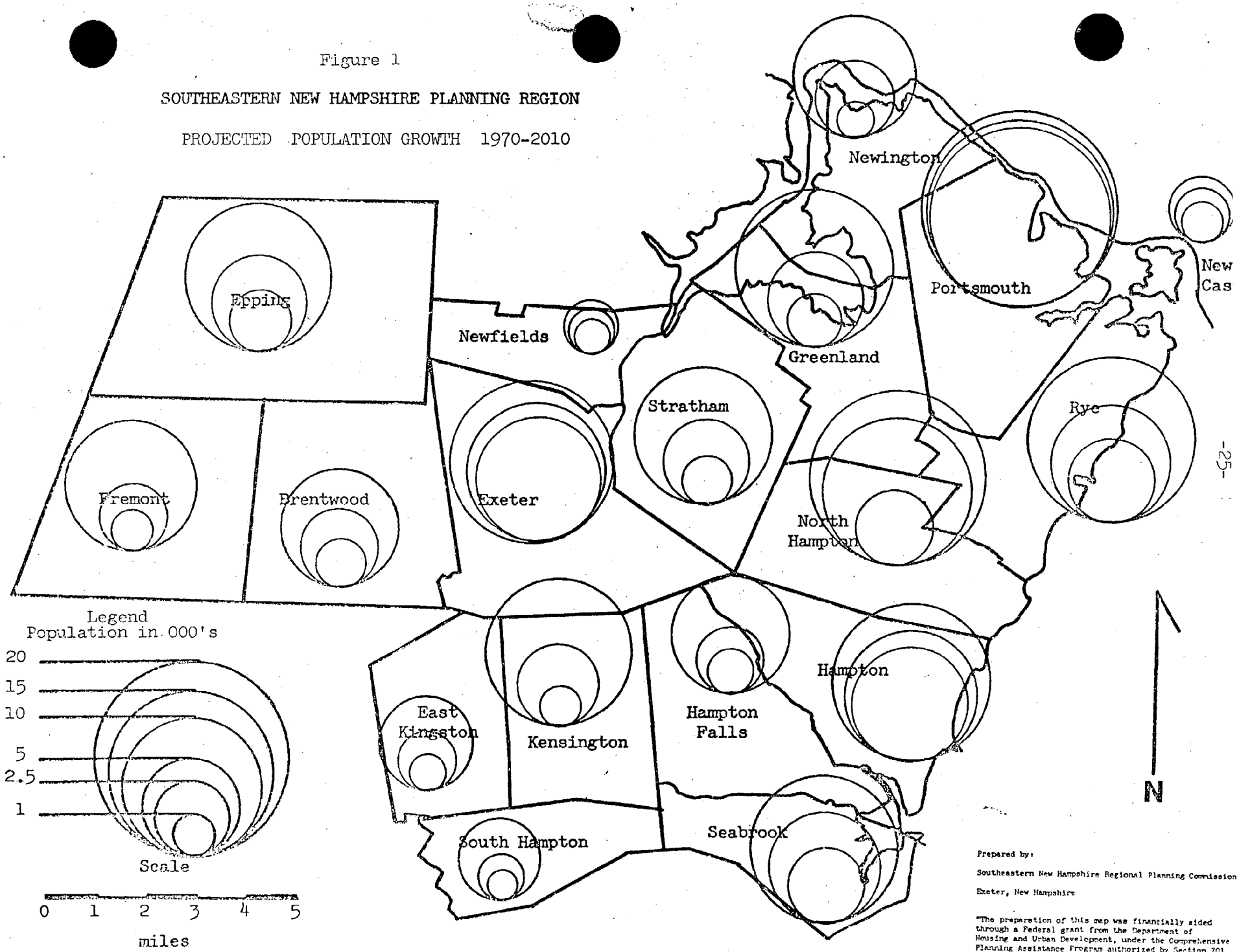
For this report only the three municipalities that have voted zoning amendments or adopted new ordinances that affect residential land were recalculated. The other fifteen towns are unchanged.

The appropriate residential density standard was related to the net buildable land in each zoning district permitting residential development and the population capacity calculated.

Figure 1

SOUTHEASTERN NEW HAMPSHIRE PLANNING REGION

PROJECTED POPULATION GROWTH 1970-2010



Prepared by:

Southeastern New Hampshire Regional Planning Commission

Exeter, New Hampshire

"The preparation of this map was financially aided through a Federal grant from the Department of Housing and Urban Development, under the Comprehensive Planning Assistance Program authorized by Section 701 of the Housing Act of 1954 as amended."

In all municipalities the MINIMUM population projection was based on residential development in residential zones only. The MAXIMUM potential population was based, in addition, on residential development in all districts where it was not prohibited, ie., commercial and industrial districts.

The first step consisted of map measurements of buildable (all acreage except water and land above a 15% grade) acreage in all zoning districts allowing residential development.

The buildable land was then reduced by the amount of land required for streets. A general formula was used to calculate the number of acres of buildable land required by streets. Acres of streets (50 ft. right of way) 25 ($\frac{1}{2}$ the right of way) times the frontage required per building lot X the number of building lots per acre all divided by the number of square feet in an acre gives the acres of streets per acre of residential construction. This figure multiplied by the buildable acres in a town give the total area of streets required for the whole town.

$$\text{Road (acres)} = \frac{25\text{x buildable x frontage x lots/acre}}{43{,}560}$$

The density standards in each zone were then related to the net buildable supply of land to produce the number of families that could be accomodated. This figure multiplied by the family size reported in the 1970 U.S. census for each town yields the population projection.

Table 1 shows, for a representative town, the steps in the calculation of the potential population. Lots per acre, dwelling (Du) per lot, and frontage were taken from the zoning ordinance district definitions. Persons per dwelling were taken from the United States Census. Acres of wetland were taken from the Natural Conditions map prepared by S.E.N.H. R.P.C. in August 1972. The acres of roads were calculated as previously explained.

Eleven towns allow residential development in commercial districts. Three of these towns also allow residential development in industrial districts, totaling over half of the land zoned commercial - industrial. Including this land in the population projection (MAXIMUM) raises the potential population by 108,110 persons or approximately $1\frac{1}{2}$ times the present 1974 regional population.

Table 2 summarizes for each town, and for the region, the present and the maximum and minimum potential populations.

The maximum potential population for the region is 703,313 or approximately 10 times the present population. The potential population increases for individual towns range from 20% for Portsmouth to 9,408% for Brentwood.

Figure 2, 1974 Maximum Potential Population illustrates the amount of growth current individual zoning allows for.

Table 1

Calculation of Minimum and Maximum Potential

Population under Present Zoning : Seabrook

1973 Population 3,436 - Persons per family 3.3

ZONE	R2	B	BI	Town Totals
lots/acre	3.48	3.48	3.48	
DU/lot	2	2	2	
Persons/DU	3.3	3.3	3.3	
Frontage	90	90	90	
Total Acres	896	2544	1032	4472
Acres Wetland	316	1400	592	2308
Acres Road*	141	596	186	923
Acres Buildable with Wetland	784	2544	1032	4860
Acres Buildable without wetland	1468	1144	440	2052
Potential Pop.**	14,768	45,201	19,431	79,400

minimum potential population R_2 = 14,768

maximum potential population $R_2 + B + BI$ = 79,400

* calculation for roads:

acres roads in $R_2 = \frac{896 \times 25 \times 90 \times 3.48}{43,560} = 141$

acres roads in $B = 2544 \times \frac{25 \times 90 \times 3.48}{43,560} = 596$

acres roads in $BI = 1032 \times \frac{25 \times 90 \times 3.38}{43,560} = 186$

** Calculation of potential population increase:
potential increase = buildable acres x DU per lot x lots per acre x persons per DU.

Table 2

Potential Population Allowed by Present Zoning

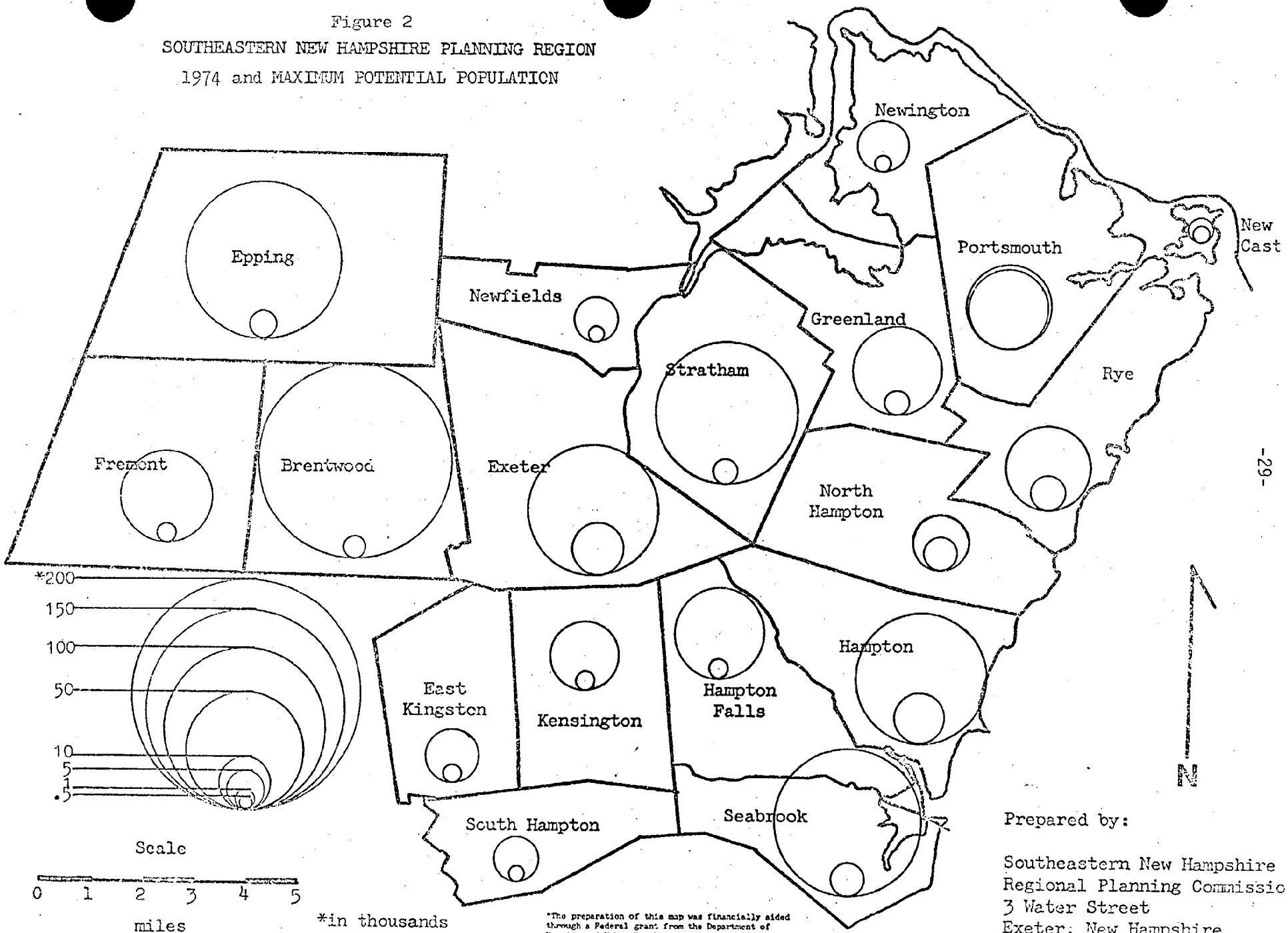
Community	1974 Pop.	Maximum Potential Pop.	Minimum Potential Pop.
Brentwood	1,630	139,580	108,112
East Kingston	976	10,472	10,472
Epping	2,447	97,731	97,731
Exeter	9,900	43,211	43,211
Fremont	1,040	25,762	25,762
Greenland	1,930	29,068	27,524
Hampton	9,264	63,911	63,911
Hampton Falls	1,452	32,782	32,652
Kensington	1,200	17,053	17,053
New Castle	907	1,926	1,740
Newfields	831	6,914	6,004
Newington	700	9,686	9,686
North Hampton	3,500	11,052	8,655
Portsmouth	22,651	27,524	27,524
Rye	4,355	23,931	18,484
Seabrook	3,690	79,400	14,768
South Hampton	611	6,622	6,314
Stratham	1,350	77,706	76,628
REGION	68,434	703,313	595,203

* Zoning as of March 1975.

Figure 2

SOUTHEASTERN NEW HAMPSHIRE PLANNING REGION

1974 and MAXIMUM POTENTIAL POPULATION



Scale

0 1 2 3 4 5

miles

*in thousands

"The preparation of this map was financially aided through a Federal grant from the Department of Housing and Urban Development, under the Comprehensive Planning Assistance Program authorized by Section 701 of the Housing Act of 1954, as amended."

Prepared by:

Southeastern New Hampshire
Regional Planning Commissio
3 Water Street
Exeter, New Hampshire

Table 3

National Flood Insurance Program

Community	Flood Prone	Date Eligible For Insurance	Deadline Date	Resolution Passed March 1975
Brentwood	Yes	June 10, 1975		Yes
East Kingston	Yes	No*	2/28/76	
Epping	Yes	No*	7/19/75	
Exeter	Yes	May 12, 1975		Yes
Fremont	Yes	No*	8/9/75	Yes
Greenland	Yes	No*	2/21/76	
Hampton	Yes	July 25, 1974		
Hampton Falls	Yes	No*	12/6/75	Yes
Kensington	Yes	No*	1/31/76	
New Castle+	Yes	No*	7/1/75	
Newfields+	Yes	No*	1/17/76	
Newington	Yes	No*	2/21/76	
North Hampton	Yes	Maps Not Issued Yet		
Portsmouth++	Yes	No*	7/19/75	
Rye	Yes	No*	7/1/75	Yes
Seabrook	Yes	No*	8/2/75	
South Hampton	Yes	No*	2/28/76	
Stratham	Yes	No*	2/28/76	

+ Requested map revision

++ Application correction being processed

* Not eligible as of June 12, 1975.

Conclusions

Every municipality in the region is being pressured to grow. Increased single-family construction applications, mounting proposals for apartment complexes, requests for industrial variances, etc., are testing the provisions of individual municipal zoning ordinances. In many instances adequate provisions for channeling growth are voted only after a problem develops and some damage is done. For example, Seabrook, has voted to prohibit multiple-unit dwellings of more than two units, only after the town had experienced a period of uncontrolled apartment construction throughout the town.

Areas of the region that agree only in theory with the 1980 Land Use Plan are areas that are likely to experience the problem mentioned above. For example, Kensington is zoned rural-residential, in agreement with the Land Use Plan. However, Kensington allows multiple-unit dwellings, commercial and industrial uses throughout the town as special exceptions. As growth pressure increases, Kensington may find itself in the same situation that Seabrook was in.

Nine towns that have commercial zones that appear to agree with the Plan are actually in conflict. These towns, Seabrook and North Hampton for example, allow residential uses within the commercial zones. Eventually, commercial and residential uses will conflict and the problem will have to be resolved with injury to either commercial or residential interests.

Most municipalities have yet to realize exactly the implications of their zoning ordinances. Considering that the population of the region is predicted to triple in the next three decades, municipalities should plan for uses three times as intense as the present. Potential conflicts, such as those mentioned above, will become actual problems, expensive or imposible to undo.

W.P.

DRAFT

USE CONSTRAINTS TO BE APPLIED TO AREAS OF PARTICULAR CONCERN

Prepared by
Strafford Rockingham Regional Council

This report was financed in part by the Coastal Zone Management Act of 1972, administered by the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration.

10 October 1975

The following use constraints for areas of particular concern assume their use follows an investigation of the permissbility of a use based on the capability and suitability analyses.

ESTUARINE WATERS (GENERALLY)

1) Proposals for usage of estuarine waters under control of the State of New Hampshire shall be reviewed to ensure that no significant net reduction occurs in the existing physical, biological, and chemical characteristics of estuarine waters, or on usage patterns by man and social and economic benefits derived therefrom. Secondary impacts on offshore waters and uses shall be considered as a part of this process.

2) Guidance for usage of estuarine waters should be obtained from the water use suitability analysis being developed as a portion of the New Hampshire Coastal Zone Management program.

3) Use constraints within specific areas of particular concern located within or adjacent to estuarine waters can be obtained by reference to the following information sheets:

a) Scenic views (oceans and estuaries)
b) Estuarine and offshore waters (for recreation)
c) Fish spawning and concentration areas
d) Tidal wetlands
e) Shellfish concentration areas
f) Rocky shores
g) Existing areas of public, private, and commercial access to coastal waters (for boating, fishing,and similar recreational purposes)
h) Potential industrial and commercial sites (depending on access to coastal waters)

OFFSHORE WATERS (GENERALLY)

1) Proposals for usage of offshore waters under control of the state of New Hampshire shall be reviewed by the management agency to ensure that no significant net reduction occurs in existing physical, biological, and chemical characteristics of offshore waters, or on usage patterns by man and social and economic benefits derived therefrom. Secondary impacts on estuarine waters shall be considered as a part of this process.

2) Guidance for usage of offshore waters shall be obtained from the water use suitability analysis being developed as a portion of the New Hampshire Coastal Zone Management program.

3) Use constraints within specific areas of particular concern located within or adjacent to waters can be obtained by reference to the following information sheets:

a) Offshore sand and gravel deposits
b) Scenic views (oceans and estuaries)
c) Estuarine and offshore waters (for recreation)
d) Fish spawning and concentration areas
e) Lobster concentration areas
f) Rocky shores
g) Existing areas of public, private and commercial access to coastal waters (for boating, fishing, and similar recreational purposes)
h) Potential industrial and commercial sites (depending on access to coastal waters)

TIDAL WETLANDS

1) Tidal wetlands shall be preserved wherever possible.

2) No filling, draining, canal development, or use for other than natural purposes is to be tolerated except when there is no feasible alternative to serve identified public needs. Displaceable uses are to be located in upland areas.

3) No raw industrial and domestic wastes, no oil or other toxic substances shall be permitted to encroach upon or be discharged upon tidal wetland areas.

4) Essential roadways and causeways are to be built on elevated structures rather than dikes. Essential boat docking facilities are to be built on pilings with parking and other ancillary facilties located in upland areas.

5) No alteration of natural drainage patterns shall be permitted within tidal wetlands. ?

6) No water withdrawal or impoundment shall be permitted in such areas.

7) No significant alteration of freshwater flow into tidal wetlands shall be permitted. Impacts of upland development, including runoff or the effects of upstream water impoundment and diversion projects, shall be kept to a minimum. Artificially induced runoff shall be treated to remove sediments and other pollutants.

8) Pest control: example of #2
   a) No indiscriminate ditching of tidal wetlands to be permitted
   b) Profligate use of pesticides shall not be permitted

9) Salt marsh haying or similar uses shall be permitted, subject to the above constraints.

INLAND WETLANDS

1. Inland wetlands should not be altered from their natural state.
2. Uses which would alter inland wetlands should be located elsewhere if possible.
3. Uses which alter wetlands and must be located there (such as road segments, power-line right-of-ways, etc.) should be placed on pilings rather than on diked fill.
4. Construction in areas near wetlands should be done in such a fashion as to not directly alter the water level of a wetland, thereby either draining or ponding it. (Activities which would alter inland wetlands are now regulated by RSA 483(a).)

HIGH VELOCITY ECOSYSTEMS

1) Maintain existing tidal flow and migratory pathways through existing high velocity ecosystem areas. No deviation from this requirement is permitted due to level and nature of impacts on estuarine systems which use these channels as the main link to the ocean environment.

ROCKY SHORES

1) Rocky shores are not to be altered except where there is no alternative location for a facility necessary to serve public needs. The following use constraints shall apply generally:

a) In order to retain high aesthetic value, obstructions of any type between Route 1A and the rocky shorefront are not to be permitted.

b) No destruction of natural rocky shorefront is to be permitted.

2) Protection from oil spills should be encouraged through maximum use of oil spill control equipment at oil unloading and transfer facilities.

3) Outfalls of raw domestic sewage should be eliminated.

FISH SPAWNING AND CONCENTRATION AREAS

1) Insofar as possible, identified fish spawning and concentration areas, nursery areas, and migration pathways will remain in as near to a natural state as possible.

2) Alteration of identified fish spawning and concentration areas shall be made only when no feasible alternative exists and there is a proven public need for the project. The following use constraints shall apply generally:

a) Infiltration of oil and other toxic substances, or untreated domestic and and industrial sewage shall be kept to an absolute minimum in such areas.

b) Dredging or filling in such areas is to be prohibited.

c) Thermal pollution of estuarine or oceanic waters is to be prohibited.

d) Impacts of upstream water control and diversion projects on estuarine spawning and concentration areas to be analyzed on a case by case basis to determine potential effects on identified species in those areas.

e) No water withdrawal from such areas; no significant alteration of freshwater flow into such areas.

f) Roads and/or causeways across estuarine areas are to be placed on elevated piling structures so as not to unduly impede flow patterns in confirmed areas.

g) Offshore spawning and concentration areas shall not be subject to damage from dredging, filling, blasting, or other activities associated with development of offshore waters.

h) Activities associated with utilization of living marine species (fishing, shellfishing) shall not be conducted during identified spawning times of those species except when no significant damage to the spawning process results.

LOBSTER CONCENTRATION AREAS

1) Annual catch not to exceed maximum sustainable yield. The following are possible actions to reach this goal:

a) increase in carapace length of legal-size lobsters

b) controlled entry into the lobster fishery

c) moratorium on lobster fishing at certain times of the year

(NOTE: These use constraints to be applied by New Hampshire Department of Fish and Game)

2) Reduction in multiple use conflicts between lobstering activities and other uses of coastal New Hampshire waters. The following are possible actions to reach this goal:

a) Establishment of "trap-free" areas where shipping or intensive recreation takes place

b) Restriction of commercial and sport fishing in areas of heaviest lobster trap concentration

SHELLFISH CONCENTRATION AREAS

1) Shellfish concentration areas, whether intertidal or subtidal, shall be maintained whenever possible for recreational and/or potential commercial use.

2) Dredging of channels for navigation and/or recreational and commercial boat usage, or for any other purposes, should not be done in identified shellfish concentration areas except when no feasible alternative exists and there is a proven public need for the project. Dredging of channels shall be conducted so that channels are as far removed from shellfish concentration areas as possible and will not result in significant change in the nature of such areas.

3) Excessive siltation from man-induced activities should be avoided in the vicinity of shellfish areas. Necessary dredging, erection of jetties, and the construction of marinas should be done with due regard for the alteration of current patterns which may result in excessive siltation.

4) No alteration of natural tidal flow is permissible.

5) No water withdrawal from shellfish concentration areas is permissible. No significant alteration of freshwater flow into such areas is permissible.

6) Impacts of upstream water control and diversion projects on shellfish concentrations shall be analyzed on a case by case basis to account for alteration in fresh water inflow.

7) Water-borne pollutants (oil, toxic wastes, domestic and industrial sewage, agricultural runoff, etc.) shall not be permitted to be discharged in order to promote optimum growth rate and reproductive capacity of shellfish. Human use vs. ecosystem impac

8) Thermal pollution of estuarine areas should be avoided.

9) Annual catch of shellfish shall not exceed maximum sustainable yield. (Estimated at 25 percent of standing crop for oysters. No estimate available for soft-shelled clams).

DEER YARDS

1. No human activity in the winter months, no human activity within sight or hearing distance, no alteration of natural features.

2. No trails or access roads should be cut which would provide easy human access or easy access by dog packs to recognized deer yards.

OTHER SPECIFIC NATURAL AREAS LISTED

The named natunal areas listed are each important for reasons peculiar to that area. In each case the only human activities that should be permitted are those which do not disturb or alter the natural feature or features of importance. Measures necessary to protect are reasonably obvious from the description of each area coupled with the protective devices recommended in the genetic descriptions.

VALUABLE FOREST AREAS

Valuable forest areas should not be clear cut, and devoted to other uses, but rather should be managed for maximum sustained timber yield.

SAND AND GRAVEL DEPOSITS OFFSHORE

1) Commercial mining of sand and gravel shall not generally be permitted in territorial waters of the State of New Hampshire, or within estuaries of the state.

2) Existing deposits within state control are to be protected from contamination by polluted dredged spoil or from the ocean dumping of sewage sludge or industrial waste products.

3) Removal of sand and gravel deposits within the 60-foot depth contour shall be prohibited under any circumstances.

SAND AND GRAVEL DEPOSITS - LAND

Controls ought to be exercised over the mining process to reduce impacts on neighboring properties and to insure that mined out areas are revegetated or otherwise reused.

1) No mining at or below seasonal high water table.
2) Projects in Primary and Secondary zones involving more than 2000 cubic yards will require special permit.
3) Side slopes shall not exceed a 1:3 rise and shall be stabilized.

WATER SUPPLY SOURCES

Water Supply Sources should be protected from contamination. Uses should be restricted depending on the particular circumstances, i.e. in some contamination is possible even from bird watchers, and in other extensive recreational, agricultural, forestry, or even residential, commercial, and some industrial uses may be appropriate.

A special permit should be required absent a state and locally agreed upon set of rules designed to protect a particular supply.

Alternative #1 - Present state standard

Alternative #2 - New standards which require a 1200' radius wherein polluting activities are prohibited

Alternative #3 - A special permit - based upon a site specific analysis which would include:

- Test well boring
- Approval of qualified hydrologist
- Seismic testing

PRIME AGRICULTURAL LANDS

Prime agricultural lands ought to be restricted to agricultural, forestry and recreational uses which do not alter the basic composition of the soil. Development and/or subdivision into small parcels which would make modern agricultural methods impractical should be prohibited.

Residential construction which locates dwellings on land of less agricultural suitability and leaves the prime agricultural land in common ownership so that it can be farmed now, or in the future, ought to be encouraged.

(A possible alternative is to allow no more than a certain percentage of prime agricultural soils to be developed for uses other than agriculture, i.e. 10% of any 100 acres.)

SAND AND GRAVEL DEPOSITS OFFSHORE

1) Commercial mining of sand and gravel shall not generally be permitted in territorial waters of the State of New Hampshire, or within estuaries of the state.

2) Existing deposits within state control are to be protected from contamination by polluted dredged spoil or from the ocean dumping of sewage sludge or industrial waste products.

3) Removal of sand and gravel deposits within the 60-foot depth contour shall be prohibited under any circumstances.

SAND AND GRAVEL DEPOSITS - LAND

Controls ought to be exercised over the mining process to reduce impacts on neighboring properties and to insure that mined out areas are revegetated or otherwise reused.

WATER SUPPLY SOURCES

Water Supply Sources should be protected from contamination. Uses should be restricted depending on the particular circumstances, i.e. in some contamination is possible even from bird watchers, and in other extensive recreational, agricultural, forestry, or even residential, commercial, and some industrial uses may be appropriate.

A special permit should be required absent a state and locally agreed upon set of rules designed to protect a particular supply.

PRIME AGRICULTURAL LANDS

Prime agricultural lands ought to be restricted to agricultural, forestry and recreational uses which do not alter the basic composition of the soil. Development and/or subdivision into small parcels which would make modern agricultural methods impractical should be prohibited.

Residential construction which locates dwellings on land of less agricultural suitability and leaves the prime agricultural land in common ownership so that it can be farmed now, or in the future, ought to be encouraged.

AREAS OF CULTURAL VALUE - EDUCATION

Natural areas which are utilized as teaching tools should be protected against alterations that would reduce their educational value.

Great Bay is used extensively by the University of New Hampshire as an example of an estuarine system in relatively good condition.

The waters surrounding the Isle of Shoals are used as an example of ocean habitat in nearly pristine condition.

Odiorne's Point State Park has great value because of species diversity, geologic diversity, and historical factors.

Activities which would reduce water quality, or air quality should be prohibited.

AREAS OF CULTURAL VALUE - RELIGION

Star Island, Isles of Shoals, religious conference center, relies on its location removed from the hub-bub of urban life for its religious atmosphere. Activities which would be visable and contrary to a "retreat" existance should be prohibited.

AREAS OF HISTORIC SIGNIFICANCE AND CULTURAL VALUE

Areas of historic signficance which are made up of physical objects, such as buildings, structures, or landscaped places should not be altered except to restore or reconstruct their appearance of the time of historic significance. Adjacent areas ought to be regulated so that construction there is visually compatable with the area of historic significance.

AREAS OF SCENIC IMPORTANCE, INCLUDING SCENIC ISLANDS

1) Insofar as possible, activities indigenous to the scenic area in question should be maintained. Such activities could include, for example, shipping, commercial fishing, recreational fishing and boating. Proposals for development including new activities of the same generic type should be given preference

2) Significant alteration of the established character of identified scenic areas shall be made only when no feasible alternative exists and there is a proven public need for the project. The following use constraints shall apply generally:

a) Developments offshore shall be conducted so as to minimize visual impact from shoreside scenic locations.

b) All development should be constrained by 1) above. Additionally, alteration of valuable natural systems which provide scenic value shall not be made. In this regard, refer to use constraints associated with other types of areas of particular concern for guidance.

AREAS OF RECREATIONAL IMPORTANCE

BEACHES AND DUNES

Beaches

Beaches should not be built upon.

In rare instances it may be appropriate to construct a pier across a beach for access to ships or boats.

Uses which could as well be located on dry land, such as restaurants and amusement arcades, should not be located on piers above otherwise usable beaches.

Certain facilities, such as ocean pipelines and cable lines, may be located beneath beaches in order to make landfall.

Discharge of liquid or solid wastes or pollutants shall not be permitted upcurrent of beaches, nor should uses which have a probability of spills or leakages be permitted upward of beaches.

Groins, jettees, bulkheads, seawalls and revetments shall only be built after comprehensive study of their total effects on neighboring shores and a finding that the sum of the total effects on the natural environment and man's uses is clearly beneficial (permits are now needed from the Corps of Engineers for such projects).

Dunes

Foredunes should not be altered by man's influences in such a fashion that the erosion will accelerate or that their buildup will accelerate to the detrement of other beaches or dunes.

In most instances, vehicular traffic should be prohibited and foot traffic should be so channeled as to preserve stabilizing vegetation.

Back dunes may be suitable for building on, or vehicular traffic (dune buggies), depending on the particular sand transport patterns of an area. Thorough, case by case review of all such proposals should be required.

ESTUARINE AND OFFSHORE WATERS
(For Recreation)

1) Offshore waters within the limits of New Hampshire jurisdiction (territorial sea) shall be given preference to recreational use, except in areas identified with shipping to and from Portsmouth Harbor, and areas used for commercial fishing. Within such areas, attention shall be given wherever possible to allowing for inclusion of recreational fishing and boating through measures designed to reduce multiple use conflicts. Such actions could include the following: a) restrict recreational access in concentrated areas of lobster trapping; b) restrict commercial dragging activities in areas which are heavily used for recreational purposes; c) in the event of significant increase in Portsmouth Harbor navigational traffic, establish a designated shipping lane (not seen necessary at the present time).

2) Existing recreational activities in estuarine areas (including shoreside fishing areas, mooring sites, and boating areas) shall be given preference when evaluating the advisability of proposals for development of such areas. Significant relation in existing recreational sites shall not generally be permissible, unless it can be established that no feasible alternative sites for the project exist, and there is a proven public need for the project.

FRESH WATER RIVERS AND STREAMS

Water quality should be maintained at B or above - see classification by New Hampshire Water Supply and Pollution Control Commission.

Barriers to small boat navigation, such as mill dams, should be constructed in such a fashion that provisions are made for the portage of canoes and the foot travel of fishermen.

EXISTING AREAS OF PUBLIC, PRIVATE, AND COMMERCIAL ACCESS TO COASTAL WATERS (FOR BOATING, FISHING & SIMILAR RECREATIONAL PURPOSES)

1) The preservation of existing areas of access open to the public shall be weighed heavily in the evaluation of development proposals in New Hampshire's Coastal Zone which would displace them, because of inadequate access to Great Bay and current 100 percent usage of state-operated mooring sites throughout the coastal area.

2) Additional access and related development may be sited in estuarine areas, subject to construction constraints applying to other kinds of areas of particular concern, such as the following:

a) Tidal wetland
b) Shellfish concentration areas
c) Scenic views
d) Estuarine and offshore waters, for recreation
e) Fish spawning and concentration areas

3) Water use suitabilities for estuarine areas shall be considered in developing potential access sites.

ACCESS TO BEACHES add

POTENTIAL INDUSTRIAL AND COMMERCIAL SITES
(DEPENDING ON ACCESS TO COASTAL WATERS)

1) Use of potential industrial sites (generally bordering the Piscataqua River) and commercial sites (recreation oriented and bordering numerous estuarine areas) should be restricted to development having direct dependence on coastal waters for transportation, resource extraction, or, in the case of recreational development, for amenities such as scenery, shellfish and finfish concentration areas, mooring facilities, and the like. New displaceable uses should be ~~moved to more~~ located in upland areas ~~except when no feasible alternative exists and there is a proven public need for the project~~.

2) The use of waters adjacent to such areas shall be restricted to those compatible with the value of the land for commercial or industrial development. For guidance, refer to list of permissible uses by water use suitability area.

3) Development of land for commercial and industrial use subject to local rules and reulations, except that due regard shall be given to use constraints associated with other identified areas of particular concern.

AREAS OF UNIQUE GEOLOGIC OR TOPOGRAPHIC SIGNIFICANCE TO INDUSTRIAL OR COMMERCIAL DEVELOPMENT

Such areas, where currently vacant or sparesly settled, should be reserved for industrial and commercial uses which demand direct access to coastal waters. Such uses include tourist facilities; docking, loading, and unloading facilities for fishermen, and ocean cargoes; and the manufacture of goods or provision of services with a direct relation to the marine field such as;shipbuilding, transoceanic cable manufacture, or bulk cargoes requiring barging for transport or manufacture of goods made out of bulk cargo imports.

Such areas should not be permitted to be built up with residential uses or institutional uses that could as well be located inland and/or which would generate a constituency which would oppose the introduction of eventual commercial or industrial neighbors.

AREAS OF URBAN CONCENTRATION WHERE SHORELINE UTILIZATION AND WATER USES ARE HIGHLY COMPETITIVE

Absent agreement by state and local officials on detailed zoning schemes for such areas, setting out with clarity, in advance, what ought to go where and what ought to have priority over what, any major use change, or any introduction of a major new use, ought to be subject to a special permit requirement which takes into account not only today's competing uses, but tomorrow's probable uses as well.

AREAS OF SIGNIFICANT HAZARD IF DEVELOPED

A) Highly erodible soils when adjacent to water bodies. Construction on such soils ought to be carefully regulated so as to prevent sedimentation, resulting pollution, and resulting alteration of life forms of water bodies.

Site plan review of projects should assure that erosion will be controlled through settling basins, check dams, hydromulch, and other devices appropriate to the location and the project.

B) Steep slopes adjacent to coastal waters should not be built upon, and should remain vegetated to prevent erosion and sedimentation. Where construction is necessary, such as when building docks and piers, construction should include erosion prevention measures both during construction and as a part of the final operating situation.

Vegetative cover, riptap, gabions, sheetpiling, and various other kinds of treatments may be appropriate. All such sites should be subject to a special permit review of the site plan.

C) Flood Plains. Buildings and structures that would be significantly damaged by flood waters or which are designed for human habitat should not be permitted in flood plains unless flood proofed.

Flood proofed buildings and structures should not be permitted on flood plains if the fact of their construction would a) restrict movement of water in the flood way thus increasing flooding upstream or b) occupy space otherwise used by flood waters with the consequence that flood levels are raised generally in the vicinity.

(Filling a portion of a flood plain so that it is above flood level may be permitted if the fill material is excavated from below flood level, nearby, so that the cubic footage available for flood waters remains the same).

D) Aquifers may be built upon provided that storm water runoff is so channeled or contained that it seeps into the soil at a rate which approximates the natural condition. For example, given a typical house on a one acre lot, the amount of impervious surface should

a) be as small as possible for example, use gravel driveways rather than asphalt
b) compensate for increased runoff by not directing such runoff to a storm drainage system which empties outside the aquifer, but rather to a holding pond which will gradually seep into the aquifer.

Uses which disperse pollutants into the ground either by design or by accident, and which pollutants are not likely to be filtered out by natural processes, should be prohibited. For example, the storage of bulk salt on an aquifer could be detremental in a place where the storage of sand would be permissible.

Relatively dense residential development, on sewers, might be acceptable (storm

water problems having been resolved) where low density residential development on septic tanks might be inadvisable.

Other uses that, depending on all the circumstances, ought be subject to a special permit are: 1) extractive industry where the water table is either exposed or nearly exposed so that the natural filtering process becomes inoperative. 2) heavy industry where various liquid wastes might seep into the ground water supply.

Caution should be exercised in the use of agricultural fertilizers, deicing salts, herbicides, insecticides and other agents which could seep into the ground water deposit.

Such activities should be reviewable by a special permit process in the event that a public official believes that the purity of a ground water source may be being threatened.

N.H. Coastal Resources
Management Program
First Year Report
Attachment D - 1

W.P.

07158

AN ASSESSMENT OF THE NEW HAMPSHIRE POLITICAL CLIMATE CONCERNING COASTAL ZONE MANAGEMENT ISSUES

by
David W. Moore

Sea Grant CZM Report
Department of Political Science
University of New Hampshire
February 1976

TABLE OF CONTENTS

LIST OF TABLES

Page

INTRODUCTION: PURPOSE AND DATA SOURCES

In the Summer of 1974, the State of New Hampshire began what is now a three year planning effort to develop a comprehensive plan for the management of marine and land resources in the Seacoast area. This planning effort is the result of Public Law 92-583, 86 Stat. 1280, referred to as the Coastal Zone Management Act of 1972, which encourages all states bordered by salt water to develop their own plans for the rational use of coastal zone resources.

As a part of New Hampshire's planning effort, a federally-funded survey was undertaken in the Spring of 1975 to discover the attitudes of various groups in New Hampshire about issues related to coastal zone management. The groups surveyed include a random sample of the general public of the Seacoast area; Seacoast political leaders (selectmen, city council members, mayors and town and city managers); selected business and environmental group representatives from the Seacoast; the New Hampshire General Court (both House and Senate); and selected members of the Executive Branch, to include members of the Bulk Power Site Evaluation Committee and the Special Board; plus all five members of the Governor's Executive Council. The study was funded through the University of New Hampshire Sea Grant Program, which is supported by the Sea Grant Office of the National

Oceanic and Atmospheric Administration (NOAA) of the Department of Commerce in Washington, D. C.

This report is divided into three sections. Section I reports on respondents' attitudes toward the establishment of a coastal zone management (CZM) agency which would plan for the use of resources in the coastal area. Section II analyzes respondents' attitudes on the possible responsibilities and limitations of such an agency. And Section III discusses the respondents' attitudes on a variety of issues that a CZM agency might face in planning for the use of coastal resources.

SECTION I

THE DESIRABILITY OF A COASTAL ZONE MANAGEMENT PLAN

As might be expected in the early stages of planning, knowledge about the Coastal Zone Management Act of 1972 and about New Hampshire's planning efforts is not very extensive. All respondents were first told that "the Federal Government recently passed a law encouraging states to establish a coastal zone management plan which would provide comprehensive planning for the use of resources in the Seacoast area." Each respondent was then asked, "Have you heard a great deal, some, or not much about this plan?" As the results

in Table 1 reveal, only a small percentage of the various groups (except for the environmental leaders who show over 80 percent) has heard a "great deal" about a CZM plan.

Though knowledge about CZM planning is not yet widely shared, there is significant support at all levels of government for the development of a CZM plan. Respondents were asked, "Would you favor or oppose the establishment of a management agency to plan for the use of resources in the Seacoast area?" and a majority of each group expressed support (Table 2). The Senate and general public are most in favor (92 percent and 71 percent respectively) while the Seacoast political leaders are least in favor (51 percent).

To explore these results further, selected Seacoast respondents[1] were asked why they opposed or supported the establishment of such an agency. Responses were grouped into categories shown in Tables 3 and 4.

Of the 29 political leaders included as non-supporters, over two-thirds expressed opposition to a CZM agency because of their fear that home rule would thereby be eroded (Table 3). Note also, that even among the political leaders who express <u>support</u>, 28 percent do so only with the understanding that home rule would be maintained (Table 4). Taken together, these figures mean that

---

[1]See Appendix I for a description of sampling procedure.

TABLE 1

KNOWLEDGE ABOUT CZM PLAN

Question: The Federal Government recently passed a law encouraging states to set up a Coastal Zone Management Plan which would provide comprehensive planning for the use of resources in the Seacoast area. Have you heard a great deal, some, or not much about this plan?

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives			Executive Branch
						Overall	Seacoast	Other	
great deal	3%	33%	33%	83%	33%	20%	46%	14%	32%
some	10	21	42	8	50	35	31	35	32
not much	79	44	25	8	17	39	23	42	36
DK/NA	9	1	0	0	0	7	0	9	0
TOTAL	101%*	99%*	100%	99%*	100%	101%*	100%	100%	100%
(number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

*Figures do not always total 100% because of rounding error.

TABLE 2

SUPPORT FOR CZM PLAN

Question: Would you favor or oppose the establishment of a management agency to plan for the use of resources in the Seacoast area?

	General Public	Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives			Executive Branch
						Overall	Seacoast	Other	
Favor	71%	51%	58%	67%	92%	62%	56%	64%	61%
Oppose	11	43	25	25	8	21	29	19	32
DK/NA	18	7	17	8	0	17	15	17	7
TOTAL	100%	101%*	100%	100%	100%	100%	100%	100%	100%
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

*Figures do not always total 100% because of rounding error.

TABLE 3

REASONS FOR NONSUPPORT OF CZM AGENCY*

	Political Leaders	Business and Environmental Leaders
Local autonomy/home rule	69%	25%
Sufficient (or too many) agencies already available	17	38
DK/NA	14	38
TOTAL	100%	101%
(Number of respondents)	(29)	(8)

*All respondents who either opposed or were divided about establishing a CZM agency. Environmental and business leaders are combined because of their small number.

TABLE 4

REASONS FOR SUPPORT OF CZM AGENCY*

	Political Leaders	Business and Environmental Leaders
Need coordination/planning	31%	47%
CZM agency OK if home rule maintained	28	20
CZM agency would serve as arbiter	10	0
Other	14	13
DK/NA	17	20
TOTAL	100%	100%
(Number of respondents)	(29)	(15)

*All respondents who favor establishment of a CZM agency.

almost one half (48 percent) of the political leaders expressed concern about the possible loss or erosion of home rule due to the establishment of a CZM agency (these composite figures are not shown in a table).

While the concern for the maintenance of home rule does limit the support of local political leaders for a CZM agency, it should be re-emphasized that this support still exceeds nonsupport by a substantial margin. These attitudes, of course, are general in nature and not related to a specific proposal, and it is likely that the final alignment for or against a CZM plan will shift somewhat, depending on the detailed provisions of such a plan. In the next section, we examine attitudes about some of those detailed responsibilities and limitations that could characterize a CZM agency.

SECTION II

POSSIBLE RESPONSIBILITIES AND LIMITATIONS OF A COASTAL ZONE MANAGEMENT AGENCY

Each respondent was asked questions about several specific provisions that might be included in a CZM plan. These questions are grouped under two categories: A) procedures for establishing

a CZM agency (the level at which major responsibility will be exercised, the role of regional planning groups in the agency, and selection of agency officials); and B) rules governing the agency's operation (specific responsibilities and appeal mechanisms).

A. Establishing a CZM agency.

After being asked whether or not the state should establish a CZM plan, respondents were asked at what level primary responsibility for carrying out the plan should be assigned, if indeed a CZM plan were adopted. The choices offered were State level, Seacoast region level, or local level, although some respondents combined two of the levels. The results are shown in Table 5.

Although differences among the groups can be noted, in each group a substantial majority prefers that major responsibility for carrying out a CZM plan be at the Seacoast regional level or lower, except for the Executive Branch respondents which favor State level. On the other hand, at least a majority of each group prefers that major responsibility be at the Seacoast regional level or higher. A plurality of the Seacoast general public, the environmental leaders, and the House (both the Seacoast Representatives and the rest of the State Representatives) favor the regional level; a plurality of the Senate and Executive Branch favor the State level; and a plurality of the Seacoast political leaders favor the local level. The business leaders are evenly split between the State and regional levels.

TABLE 5

PRIMARY RESPONSIBILITY FOR CZM PLAN
AT STATE, REGIONAL, OR LOCAL LEVEL

Question: If there is going to be such a Resources Management Plan for the Seacoast should primary responsibility for carrying out the plan be at the State level, Seacoast Regional level or the local level?

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives			Executive Branch
						Overall	Seacoast	Other	
State level	29%	9%	33%	0%	42%	30%	10%	34%	57%
Regional-State level	0	5	8	8	0	0	0	0	4
Regional level	33	35	33	58	25	41	60	36	11
Regional-local level	0	1	0	8	0	0	0	0	0
Local level	27	44	25	17	25	20	23	19	18
DK/NA	12	5	0	8	8	10	6	11	11
TOTAL	101%	99%	99%	99%	100%	101%	99%	100%	101%
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(12)

*Figures do not always total 100% because of rounding error.

Related to the level at which major responsibility for a CZM plan should be exercised is the question of selecting officials for a CZM agency. All those respondents who were interviewed in person were asked the open-ended question, "How should officials of such a coastal zone management agency be selected?" Answers were coded into one of six categories (Table 6). Note that a majority of the Seacoast political, business, and environmental leaders prefer the selection--whether appointed or elected--by local government. A plurality of the members of the Executive Branch, however, would opt for either State appointment or appointment through the State civil service.

Because the Seacoast Regional Planning Commissions (RPC's) already have a responsibility to help towns prepare for future development, respondents interviewed on a personal basis were asked about the role of RPC's in a CZM agency (Table 7). Only a small percentage of the respondents feel that the RPC's should either constitute a CZM agency or play no role at all. In between these two extremes is the majority, expressing the opinion that the RPC's should have some role, although whether a major or minor role is somewhat controversial.

Because the terms "major" and "minor" are somewhat ambiguous, these respondents were asked to explain why they chose one or the other category. Over one half of the political leaders, two thirds of the business and environmental leaders, and almost three quarters

TABLE 6

SELECTION OF CZM AGENCY OFFICIALS

Question: How should officials of such a CZM agency be selected?

	Seacoast Political Leaders		Business Leaders		Environ. Leaders		Executive Branch	
Local election	13%		0%		33%		7%	
Local appointment	28	56%	42	67%	25	58%	11	36%
Local election or appointment	15		25		0		18	
Local or State appointment	11		17		33		18	
State appointment	5		17		8		14	43%
State civil service	0		0		0		29	
DK/NA	28		0		0		4	
TOTAL	100%		101%*		99%*		101%*	
(Number of respondents)	(75)		(12)		(12)		(28)	

*Figures do not always total 100% because of rounding error.

TABLE 7

ROLE OF REGIONAL PLANNING COMMISSIONS IN CZM AGENCY

Question: What role, if any, should the Regional Planning Commissions in the Seacoast area play in such an agency?

	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Executive Branch
Should constitute agency	21%	17%	17%	4%
Major role	12	33	42	61
Minor role	27	25	25	25
No role	12	25	8	7
DK/NA	28	0	8	4
TOTAL	100%	100%	100%	101%*
(Number of respondents)	(75)	(12)	(12)	(28)

*Figures do not always total 100% because of rounding error.

of the Executive Branch representatives choosing the "minor" role for the RPC's stated that the RPC's should nevertheless have an information or advisory function. Many were careful to distinguish between an advisory or planning role, which they feel is appropriate for the RPC's, and a management or decision-making role, which they feel is appropriate for a political body only.

Recalculating percentages based on this analysis, we find that a substantial majority of all four groups of leaders want the RPC's to have at least an advisory role in the management agency, a position taken by 67 percent of the political and business leaders, 84 percent of the environmental leaders, and 86 percent of Executive Branch representatives (see Table 8). Only 19 percent of all political leaders, 8 percent of all interest group leaders and 4 percent of the Executive Branch oppose the RPC's because the latter are seen as incompetent.

In summary, there is much disagreement over the level at which major responsibility for carrying out a CZM plan should be exercised, although the Seacoast regional level appears the most likely area of compromise. Selection of agency officials by the local governments is strongly preferred by the Seacoast leaders, even when they also prefer a regional authority. The officials would thus act as representatives of the local governments, but under the regional concept they would also have some autonomous authority. The Executive Branch representatives are more inclined toward State appointment of agency officials, but their strong

TABLE 8

ROLE OF REGIONAL PLANNING COMMISSIONS IN CZM AGENCY--CLARIFIED

Question: What role, if any, should the Regional Planning Commissions in the Seacoast area play in such an agency?

	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Executive Branch
RPC's constitute agency	30%	17%	17%	4%
	67%	67%	84%	86%
RPC's to play major and/or advisory role	37	50	67	82
RPC's to play minor or no role because of incompetence	19	8	8	4
Other	15	25	8	11
TOTAL	101%*	100%	100%	101%*
(Number of respondents)	(54)	(12)	(12)	(28)

*Figures do not always total 100% because of rounding error.

support for the RPC's playing a major role in a CZM agency reflects their concern for local participation. Finally, most Seacoast leaders feel that the regional planning commissions should have at least an advisory role in a CZM agency, as do the Executive Branch members, although not the final authority.

It should be noted that the two questions about the selection of agency officials and role of the RPC's were open-ended questions asked only in the personal interviews and not the mail questionnaires. Thus, the attitudes of the General Court on these matters cannot be analyzed.

B. Operation of the Agency.

Several questions were asked about the general responsibilities and authority that a CZM agency might have. Two questions dealt specifically with the authority relationship between a CZM agency and local government.

The first of these questions asked whether "the management agency should have the authority to approve an industry rejected by local townspeople." As Table 9, reveals, respondents at all levels of government oppose such a stong "override" authority. This marked consensus reflects the very strong commitment to the home rule tradition that exists in New Hampshire.

Responses to the second question, however, reveal the limitations of this tradition. In the personal interviews with selectmen, and business and environmental leaders, respondents

TABLE 9

AUTHORITY OF CZM AGENCY TO OVERRIDE LOCAL COMMUNITIES

Question: The Management Agency should have the authority to approve an industry rejected by local townspeople.

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives			Executive Branch
						Overall	Seacoast	Other	
Agree	28%	5%	25%	0%	25%	26%	19%	27%	36%
Divided	4	3	0	0	0	0	2	0	0
Disagree	61	91	75	100	75	66	75	64	61
DK/NA	7	1	0	0	0	8	4	9	4
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	101%
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(245)	(48)	(206)	(28)

were asked whether "the management agency should have the authority to reject an industry approved by local townspeople if it does not meet environmental standards." The percentage in agreement was so high, it seemed that perhaps the question was unnecessarily narrow. Respondents of all the other groups, plus the city council members receiving the mail questionnaire, where therefore asked whether "the management agency should have the authority to reject an industry approved by local townspeople if the industry conflicted with regional planning goals." That question suggests more authority for the agency than the previous one.

As Table 10 reveals, the consensus of the groups is clearly one that would allow a CZM agency veto authority in certain cases. Among the general public, the House and Senate, and the Executive Branch, respondents favored a veto authority to foster regional planning goals. The Seacoast political leaders, however, are much less willing to allow a CZM agency to put regional priorities over local preferences, except in the case where environmental standards are involved. In Table 11, Seacoast political leaders' responses were separated according to the two questions asked: whether they would support CZM authority to reject local acceptance of industry for environmental reasons or for regional planning goals. Of the thirteen local political leaders who were asked the second question, five supported the veto authority (39%), while seven opposed that authority (54%). It would be questionable

TABLE 10

AUTHORITY OF CZM AGENCY TO VETO LOCAL COMMUNITIES

Question: The Management Agency should have the authority to reject an industry approved by local townspeople if the industry conflicted with regional planning goals.*

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives			Executive Branch
						Overall	Seacoast	Other	
Agree	58%	61%	75%	92%	50%	55%	65%	53%	61%
Divided	3	1	0	0	17	0	2	0	0
Disagree	29	35	8	8	33	35	34	35	36
DK/NA	10	3	17	0	0	10	0	12	4
TOTAL	100%	100%	100%	100%	100%	100%	101%+	100%	101%+
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

*For Seacoast leaders and business and environmental leaders, question was worded differently: After the word townspeople, the question continued "if the industry does not meet environmental standards." See text for fuller explanation.

+Figures do not always total 100% because of rounding error.

TABLE 11

AUTHORITY OF CZM AGENCY TO VETO LOCAL COMMUNITIES:
ENVIRONMENTAL STANDARDS VS. REGIONAL PLANNING GOALS

	Seacoast Political Leaders	
	Veto in case of low Environmental Standards	Veto in case of conflict with Regional Planning Goals
Agree	66%	39%
Disagree	31	54
DK/NA	3	8
TOTAL	100%	101%*
(Number of respondents)	(62)	(13)

*Figures do not always total 100% because of rounding error.

to generalize these specific results to the rest of the political leaders, because thirteen is such a small number. These results do suggest, however, that opposition among Seacoast political leaders would probably be greater to a veto authority that is used to foster regional goals than to a veto authority that is used to protect environmental standards.

Another possible responsibility for a CZM agency involves land use regulation. Respondents were first asked whether "the management agency should regulate land use within the Seacoast area." Those who disagreed were then asked whether the agency should regulate land use at least "in areas 500 feet from tidal waters." As Table 12 shows, some who oppose a general authority to regulate land use are nevertheless supportive of a more restricted authority. Adding the first two response categories together reveals that a majority of the environmental leaders, Executive Branch, and the House of Representatives support a land use regulation authority for a CZM agency within at least 500 feet of tidal waters; a plurality of general public, business leaders, and Senate support that authority; while a plurality of the Seacoast political leaders oppose that authority. Again, the strongest opposition to the diminution of local power comes from local representatives, while respondents from the other groups are generally more willing to invest a CZM agency with centralized authority.

TABLE 12

REGULATION OF LAND USE BY CZM AGENCY

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives Overall	House of Representatives Seacoast	House of Representatives Other	Executive Branch
Agree with regulation of land use in general	49%	27%	25%	50%	42%	48%	44%	49%	46%
Agree with regulation of land use within 500' of tidal marshes only	*	13	17	17	0	7	10	6	18
Disagree with regulation of land use at all by CZM Agency	36	49	33	33	33	33	31	33	32
DK/NA	15	11	25	0	25	13	15	12	4
TOTAL	100%	100%	100%	100%	100%	101%+	100%	100%	100%
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

*The general public was asked only the first question, whether the management agency should regulate land use in the Seacoast area, and not the subsequent question of whether the regulation would be acceptable if limited to 500' from tidal marshes.

+Figures do not always total 100% because of rounding error.

An important element in the authority of a CZM agency is the appeal process. How final should the decision of a CZM agency be? If the agency's decision is not final, to whom should an appeal be directed? No questions were asked in the survey about the desirability of allowing court appeals, because legal action of that sort is always possible. Two questions were asked, however, about the possibility of political appeals.

The first question asked whether "decisions of the management agency to reject an industry should be subject to appeal to the Governor and Executive Council." The second asked whether "decisions of the management agency to reject an industry should be subject to appeal to the State Legislature." The results of these two questions are shown in Tables 13 and 14.

Only the general public is supportive of both appeals procedures (and more supportive of an appeal to the State Legislature than the Governor and Executive Council). On the other hand, Seacoast political leaders, environmental leaders, House members from the Seacoast, and members of the Executive Branch are opposed to either appeal process. The House overall favors an appeal mechanism to the Legislature but not to the Governor and Executive Council, while the Senate curiously enough favors an appeal to the Governor and Executive Council but is divided about an appeal to the Legislature.

TABLE 14

APPEAL OF CZM AGENCY
TO STATE LEGISLATURE

Question: Decisions of the Management Agency to reject an industry should be subject to appeal to the State Legislature.

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives			Executive Branch
						Overall	Seacoast	Other	
Agree	68%	35%	8%	17%	42%	52%	44%	53%	36%
Divided	4	1	8	8	17	0	0	0	0
Disagree	20	59	83	75	42	40	46	38	54
DK/NA	9	5	0	0	0	9	10	8	11
TOTAL	101%	100%	99%	100%	101%	101%	100%	99%	101%
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

*Figures do not always total 100% because of rounding error.

In summary, there is substantial consensus about the outer limits of a CZM agency's authority. It should not be allowed, for example, to override local preferences about rejecting new industries. On the other hand, there is general consensus (with strongest reservations from the Seacoast political leaders) that the CZM agency should at least be able to veto new industries that fail to meet regional planning goals. Substantial controversy exists about granting the CZM agency authority to regulate land use, although reservations about this issue do decline somewhat if that authority is limited to 500 feet from tidal waters.

While these questions give a general indication of the authority limits that respondents feel should be imposed on a CZM agency, the attitudes may shift somewhat depending on the actual agency that is proposed. The greater the participation of local government in the decision-making process of the agency, the greater authority of the CZM agency that will be favored by the Seacoast leaders and people.

With respect to the appeals process, no general consensus among the various groups is evident. Clearly, any political appeal mechanism of the type examined in this study will create substantial political conflict.

SECTION III

DEVELOPMENT IN THE SEACOAST AREA

In the spring of 1975, the New Hampshire Seacoast, along with New Hampshire and the rest of the United States, was suffering from an economic recession. In spite of this trying situation, the residents of the New Hampshire Seacoast--at all levels of the community, including the Seacoast Representatives in the General Court, the local political leaders, the selected business and environmental interest groups, and the general public--identified various aspects of development more than economic conditions as the most important problems facing the Seacoast area. As Table 15 indicates, 38 percent of the general public identified development issues among the most important issues, compared to 26 percent specifying economic problems among the most important. The political and interest group leaders were even more emphatic, each with a majority identifying development problems as the most important in the Seacoast.

Although development is identified as the major problem area facing the Seacoast, this does not mean that an anti-development consensus has emerged in the Seacoast. When asked, for example,

TABLE 15

THE MOST IMPORTANT PROBLEM FACING THE SEACOAST REGION

PROBLEMS	General Public	Political Leaders	Business Leaders	Environmental Leaders
Development				
1. General	7%	31%	50%	50%
2. Energy Industries (oil refinery, nuclear power plant, etc.)	15	8	0	0
3. Land use	2	3	8	17
4. Overpopulation	4	9	0	0
5. Pollution	5	4	0	17
6. Environment	5	0	0	8
7. Water Supply	0	0	0	8
Subtotal	38%	55%	58%	100%
Economy				
8. General (inflation, unemployment, etc.)	14%	19%	42%	0%
9. Energy Problems	9	15	0	0
10. Taxes	3	0	0	0
Subtotal	26%	34%	42%	0%
Other	13%	8%	0%	0%
No answer	23%	4%	0%	0%
TOTAL	100%	100%	100%	100%
(Number of respondents)	(893)	(75)	(12)	(12)

whether "the management agency should place greater emphasis upon economic development or environmental concerns, or about equal emphasis on both," Seacoast respondents--along with respondents of the General Court and the Executive Branch--overwhelmingly chose equal emphasis (see Table 16). Those who did indicate a preference divided about equally between an emphasis on the economy and an emphasis on environmental concerns.

Two additional questions indicate even further the absence of an anti-development consensus in the Seacoast. In fact, contrary to an anti-development position, Tables 17 and 18 reveal very strong support among all groups of Seacoast respondents for development--both industrial and recreational.

Whether industrial or recreational development should receive greater or equal emphasis, however, is more controversial. As Table 19 reveals, business and environmental leaders express strongly opposed points of view--business leaders strongly preferring industrial development, environmental leaders strongly preferring recreational development. Except for these two groups, both at the Seacoast level, there is a distinctive trend from emphasis on industrial to emphasis on recreational development as one moves from the Seacoast to State level of government. The general public is slightly in favor of industrial development; the Seacoast political leaders are divided; the Seacoast Representatives to the House are slightly in favor of recreational development; and the other House

TABLE 16

ECONOMIC VS. ENVIRONMENTAL EMPHASIS

Question: Should the management agency place greater emphasis upon economic development or environmental concerns or about equal emphasis on both?

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives Overall	House of Representatives Seacoast	House of Representatives Other	Executive Branch
Economic	15%	12%	17%	0%	17%	17%	19%	17%	3%
Equal emphasis	62	73	75	75	67	54	48	56	82
Environmental	16	13	0	16	17	21	25	20	7
DK/NA	6	1	8	8	0	7	8	7	7
TOTAL	99%*	99%*	100%	99%*	101%*	99%*	100%	100%	99%*
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

*Figures do not always total 100% because of rounding error.

TABLE 17

SUPPORT FOR INDUSTRIAL DEVELOPMENT

Question: In general, industrial development should be encouraged in the Seacoast area.

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives			Executive Branch
						Overall	Seacoast	Other	
Agree	76%	72%	92%	25%	58%	51%	67%	48%	82%
Divided	3	12	0	50	0	0	0	0	7
Disagree	20	16	8	25	42	37	29	38	11
DK/NA	1	0	0	0	0	12	4	14	0
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

TABLE 18

SUPPORT FOR RECREATIONAL DEVELOPMENT

Question: In general, recreational development should be encouraged in the Seacoast area.

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives			Executive Branch
						Overall	Seacoast	Other	
Agree	84%	84%	75%	83%	92%	83%	83%	83%	89%
Divided	2	0	0	0	0	0	0	0	0
Disagree	13	16	8	17	8	9	10	9	7
DK/NA	1	0	17	0	0	8	6	8	4
TOTAL	100%	100%	100%	100%	100%	100%	99%*	100%	100%
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

*Figures do not always total 100% because of rounding error.

TABLE 19

INDUSTRIAL VS. RECREATIONAL DEVELOPMENT

Question: If development were going to occur in the Seacoast area, do you thing that industrial development should receive greater emphasis or that both should receive equal emphasis?

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives Overall	House of Representatives Seacoast	House of Representatives Other	Executive Branch
Industrial	35%	29%	50%	8%	8%	12%	25%	9%	11%
Equal	38	40	33	33	50	40	33	42	46
Recreational	23	28	8	58	42	40	35	41	39
DK/NA	4	3	8	0	0	8	6	9	4
TOTAL	100%	100%	99%*	99%*	100%	100%	99%*	101%*	100%
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

*Figures do not always total 100% because of rounding error.

TABLE 20

SEABROOK NUCLEAR POWER PLANT

Question: The State Government should support efforts to locate the nuclear power plant at Seabrook.

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives			Executive Branch
						Overall	Seacoast	Other	
Agree	59%	68%	83%	17%	58%	57%	50%	58%	75%
Divided	4	0	0	0	0	0	0	0	0
Disagree	24	29	17	83	25	33	42	32	14
DK/NA	13	3	0	0	17	10	8	10	11
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

TABLE 21

OIL REFINERY IN THE SEACOAST AREA

Question: An oil refinery should be built in the Seacoast area.

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives Overall	House of Representatives Seacoast	House of Representatives Other	Executive Branch
Agree	49%	33%	50%	0%	33%	42%	25%	46%	36%
Divided	6	9	17	0	0	0	0	0	7
Disagree	40	56	25	100	58	46	67	41	46
DK/NA	5	1	8	0	8	12	8	13	11
TOTAL	100%	100%	100%	100%	99%*	100%	100%	100%	100%
(Number of Respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

*Figures do not always total 100% because of rounding error.

It should be noted at this point that the slight preference of the general public for an oil refinery is strongly affected by whether the weighted or unweighted sample is used. The original (unweighted) sample of 893 respondents was overrepresentative of women and of people with higher education. Thus, a weighting procedure was used to correct for this misrepresentation.[2] For all results thus far reported, the weighted sample was used, although the results of the unweighted sample are virtually the same as the weighted sample. On the question of an oil refinery, however, substantial differences do exist between the two samples. As shown in Table 22, the unweighted sample shows 39 percent who agree and 49 percent who disagree with the oil refinery, while the weighted sample shows almost the reverse: 49 percent who agree and 40 percent who disagree.

Which sample is the most accurate reflection of the Seacoast population? At first, one might conclude that the weighted sample is more accurate because it corrects for a known bias (overrepresentation of higher educated people and women) in the sample. However, there are some untestable assumptions involved in using the weighting factor procedure which challenge (though not necessarily refute) the validity of the weighted sample. When the results from the two samples are similar, as they have been thus far, such

---

[2] See Appendix II for a fuller discussion of the weighting procedure.

TABLE 22

GENERAL PUBLIC AND THE OIL REFINERY ISSUE:
WEIGHTED AND UNWEIGHTED SAMPLES

	Weighted Sample	Unweighted Sample
Agree	49%	39%
Disagree	40	49
DK/NA	11	12
TOTAL	100%	100%
(Number of respondents)	(893)	(893)

validity questions do not arise. When the results differ, only an estimate can be made about which results should be accepted.

One additional factor is relevant here. Statistical tables show that for a sample size of about 900, the maximum probable error is plus or minus 3 percent. That means that for the unweighted sample, the true figures could be as high as 42 percent who agree and 46 percent who disagree, while the weighted sample could show 46 percent agree and 43 percent who disagree. On an issue as volatile as the oil refinery question, such differences are minimal.

In light of the foregoing discussion, it is reasonable to conclude that the general issue of building an oil refinery in the Seacoast area is not one on which the people in the Seacoast have expressed a clear position. Furthermore, this general question would be complicated by a specific oil refinery proposal for a designated town or city, and the results of this questionnaire cannot predict whether any given specific proposal would eventually be rejected or accepted by the general public. That there would be much political conflict is revealed not only by the survey, but by recent political history.

Two additional questions related to the oil refinery issue were asked. The first asked whether "port facilities able to service super-tankers should be built off the Portsmouth coast." As shown in Table 23, this question elicits conflicting responses.

TABLE 23

SUPERTANKER PORT FACILITIES
OFF THE PORTSMOUTH COAST

Question: Port facilities able to service supertankers should be built off the Portsmouth coast.

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives Overall	House of Representatives Seacoast	House of Representatives Other	Executive Branch
Agree	49%	39%	42%	0%	50%	48%	29%	53%	43%
Divided	5	1	0	8	0	0	0	0	4
Disagree	36	57	42	92	42	41	63	36	43
DK/NA	10	3	17	0	8	10	8	11	11
TOTAL	100%	100%	100%	100%	100%	99% *	100%	100%	100%
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

*Figures do not always total 100% because of rounding error.

The Seacoast political leaders and environmental leaders are firmly opposed, as are the Seacoast Representatives to the House. The general public, however, is in favor of the issue, as are the rest of the State Representatives. The Senate is slightly in favor, while the business leaders and Executive Branch are evenly split. In short, except for the general public, Seacoast respondents were either against or divided about the super-tanker port, while the strongest support comes from the House members outside the Seacoast.

With respect to the general public, the results are again influenced by whether the weighted or unweighted sample is used. The unweighted sample shows that the general public is divided on the issue, with 41 percent who agree and 43 percent who disagree. Compare these figures with 49 percent and 36 percent respectively from the weighted sample.

During the debate over one of the oil refinery proposals for the Seacoast, some reports indicated that a super-tanker port might be linked to, or operated in conjunction with, facilities located on the Isles of Shoals. Reaction to these reports focused on the historical importance of the Isles, and proposals were made to protect the Isles from any development. Thus, a second question related to the oil refinery issue asked whether "the Isles of Shoals should be made a natural preserve, thus forbidding all development of them."

As shown in Table 24, strong support for this proposal exists at all levels of government, except the Executive Branch, which is almost evenly divided on the issue (showing a little more support than opposition). Thus, although the issue seemed related to the oil refinery question, it is clear that even those groups of respondents wanting the oil refinery would still like to see the Isles of Shoals made a natural preserve.

In summary, development is seen as the greatest problem area facing the Seacoast. While all groups of respondents favor both industrial and recreational development, controversy exists over the relative emphasis that should be given these two types of development. With respect to specific development proposals, strong support has been shown at all levels of government for locating a nuclear power plant at Seabrook, although strong opposition exists among the environmental leaders. The proposal to build an oil refinery in the Seacoast, however, meets with much greater resistance--the public generally divided over the issue, while the Seacoast political leaders and House members from the Seacoast, along with the environmental leaders, strongly opposed. Reaction to the proposal to build a super-tanker port off the Portsmouth coast generally follows group opinions on the oil refinery--the general public and business leaders slightly in favor to divided, with the local political leaders, Seacoast House members, and environmental leaders all firmly opposed. The proposal

TABLE 24

PRESERVATION OF THE ISLES OF SHOALS

Question: The Isles of Shoals should be made a natural preserve, thus forbidding all development of them.

	General Public	Seacoast Political Leaders	Business Leaders	Environ. Leaders	Senate	House of Representatives Overall	House of Representatives Seacoast	House of Representatives Other	Executive Branch
Agree	69%	63%	67%	83%	50%	56%	73%	52%	43%
Divided	3	3	0	0	0	0	0	0	11
Disagree	17	32	17	8	25	29	21	31	39
DK/NA	10	3	17	8	25	15	6	17	8
TOTAL	99%*	101%*	101%*	99%*	100%	100%	100%	100%	101%*
(Number of respondents)	(893)	(75)	(12)	(12)	(12)	(254)	(48)	(206)	(28)

*Figures do not always total 100% because of rounding error.

to make the Isles of Shoals a natural preserve receives support at all levels of government, with all Seacoast groups favoring the proposal by a margin of two-to-one or more.