BOROUGH OF BEACHWOOD
OCEAN COUNTY, NEW JERSEY

WATERFRONT PARK RECREATION AREA ASSESSMENT AND IMPROVEMENT PLAN

MAYOR · WILLIAM T. HORNIDGE
COUNCIL PRESIDENT · PARKER LEACH
COUNCIL MEMBERS
JOHN McHALE · PATRICIA MORAN
DOMINICK GRIESI · GEORGE KRIP
NORMAN BROWN

JOHN S. TRUHAN ASSOCIATES
1101 RICHMOND AVENUE
POINT PLEASANT BEACH
NEW JERSEY

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By:

JOHN S. TRUHAN ASSOCIATES
Point Beach Professional Centre
1101 Richmond Avenue
Pt. Pleasant Beach, N.J. 08742

John S. Truhan, P.E.

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JOHN S. TRUHAN ASSOCIATES
ENGINEERS — PLANNERS — SURVEYORS

POINT BEACH PROFESSIONAL CENTRE
1101 RICHMOND AVENUE
POINT PLEASANT BEACH, N.J. 08742

PREFACE

The Borough of Beachwood has received funds for the preparation of a development Plan for its major waterfront recreation area fronting on the Toms River. This Plan provides a Feasibility Study incorporating preliminary engineering and architectural information in order to develop a final design scheme, along with a comprehensive Master development plan, for recreational facilities and open sapce. The funding for this study is being provided by the New Jersey Department of Environmental Protection, Division of Coastal Resources, Bureau of Coastal Planning and Development Local Coastal Grants program.

TELEPHONE — AREA (201) 892-3100

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INTRODUCTION

The Borough of Beachwood Waterfront Park Recreation Area Plan provides the community with an opportunity to participate in determining and planning for the needs and implementation of plans for public access to the waterfront and its recreational pursuits. The Plan is divided into two phases which include the following: 1.) The collection of base data, and 2.), a Planning Phase, which results in a conceptual plan derived from recommendations by John S. Truhan Associates and comments from the Mayor and Council of the Borough of Beachwood, the residents of Beachwood, the New Jersey Department of Environmental Protection, Bureau of Coastal Planning and Development, and other interested groups or citizens.

The Plan identifies the components of the existing recreation area and assesses the physical and environmental characteristics of the Project Area. The integration of the Borough owned properties along with an assessment of Borough facilities is the basis for the Master Plan for the improvement of the Project Area. All plans and improvements considered shall adhere to applicable Federal, State and local regulations and be consistent with and promote the policies of the Coastal Management Program. The goal of the plan is to promote the Coastal Resource and Development policies which encourage public access to the waterfront, natural water's edge preservation, beaches, recreational use, and public open space.

The preliminary plans will provide the Borough of Beachwood with a concept that is consistent with the community's use of the major waterfront recreation area. The waterfront area of Beachwood is a significant feature for the community because it provides recreational activities for its citizens. Therefore, the emphasis of the plan is to continue to strengthen the relationship of the waterfront recreation area and provide a coherent plan to guide proper development and activity of this special resource.

BRIEF HISTORY OF THE BOROUGH OF BEACHWOOD

The Borough of Beachwood is located along a portion of the south bank of the Toms River in Ocean County, New Jersey. The Borough is a predominantly residential community located approximately one (1) mile from the central business district of Toms River, which is the County Seat.

Beachwood is 2.6 square miles in area with a population of 7,687 (1980 census). The Toms River forms the Borough's northern boundary. Berkeley Township adjoins the Borough along its southerly boundary and a portion of its easterly boundary which it shares with the Borough of Pine Beach. The Borough of South Toms River is on the western boundary.

The settlement pattern of the Borough is typical of the development of the coastal region of the Jersey Shore. The shore area has always attracted settlers and visitors because of its abundant natural resources and temperate climate. Early Indians such as the Lenni-Lenapes were known to travel to this area for summer activities such as shellfish harvesting and gathering of food. When the early European explorers and colonists arrived, the Indians were driven westward and the coastal areas were developed primarily for forestry, farming and fishing. The coastal region experienced several economic changes from the days of the early settlers to its present populous. Industries such as ship building, glass making, charcoal production, cranberry harvesting and forestry have given way to other economic developments.

The arrival of the railroads by the late nineteenth century allowed easier access to the Jersey Shore and contributed to this area becomming more residential in character. The Borough of Beachwood during this time period was typical of a community that promised year round resort and recreation of all types for its residents. The economic base of the twentieth century is still tourism. There are a few major industries and service related businesses but most residents commute outside of the area for work.

The major impetus to the early development of the Borough of Beachwood initially was the railroad. The presence of the railroad resulted in development, primarily summer cottages for city dwellers. It was soon after the first railroad in Ocean County (1860) was developed that many other rail lines were created to serve and facilitate the developing recreational communities.

There were two (2) railroads that served the community during this time period: The Central Railroad of New Jersey and the Pennsylvania Railroad. The two rail lines crossed and formed a junction within the community and as such provided superior access for city dwellers from New York City and Philadelphia. The Central Railroad was the primary transportation link for the new residents of the Borough since the developers originated from New York City.

As the shore area developed, it consisted of many small parcels of land becoming independent local communities. The Borough, for example, originally part of Shrewsbury Township in Monmouth County became a part of Dover Township in 1768. By 1875 the area was transferred from Dover Township to Berkeley Township, and by 1917 it became politically autonomous as the Borough of Beachwood.

The Borough was developed during this time as part of a promotional scheme beginning in 1914 to solicit new six (6) month subscriptions for the New York Tribune. The concept, originated by the Promotion Chief of the newspaper, Betram C. Mayo, was to provide city dwellers of moderate income an opportunity to enjoy the pleasures and benefits of country life. Thus, with the financial backing of the New York Tribune, he was able to provide his goal of providing city dwellers suburban homes and recreation at low costs. The newspaper announced "subscribe for the New York Tribune and secure a lot at beautiful Beachwood. Greatest subscription premium ever offered by a newspaper - nothing equal to it was ever attempted in the United States. Act at once - secure your lot in this summer paradise now". The offer was for a 20' x 100' lot with the subscription for $19.60, but as with most promotional gimmicks, there was a catch - four lots were required to

build a dwelling.

The area of the Borough was known as the "Carpenter Tract" and was plotted in a rectangular grid pattern in 1914 by Civil Engineer Addison D. Nickerson. The early shoreline along the Toms River was set aside as a recreation area of the Borough and was developed as beaches, a yacht clubhouse, lodging, boathouse for the property owners of the community and administered by the Property Owner's Association. Betram Mayo moved to the Borough to personally control development. By 1917 the Borough of Beachwood was incorporated so to better provide for the taxpayer's interest. Before Mayo's death, he conveyed to the Borough his beaches, play fields and several lots for public use. His donation expanded the public open space along the waterfront and the park now bears his name as a tribute to the founder of Beachwood.

The development of the waterfront area of Beachwood coincided with the land development scheme of the community to attact new residents. It was essential that recreational opportunities be provided for the new residents as this was the enticement of the community. Therefore, the waterfront area became the community focus featuring the bathing beach with a bathhouse pavilion, the community's clubhouse and a private yacht clubhouse, (the Polyhue Yacht Club which is the forerunner of the present Beachwood Yacht Club). In addition, a promenade (boardwalk) was provided linking the yacht clubhouse with the bathhouse-pavilion which has tennis courts, a lodge, and also an auditorium which was later converted to Borough Hall. The waterfront area was intensively developed; however, it also preserved the wooded riverbanks which "...are still among the most beautiful in the Toms River Area, perpetuating the qualities which first attracted summer visitors" (from a 1919 Borough Board Resolution).

Today, remnants of these waterfront facilities remain. The community building was destroyed by fire and the boardwalk remains only as a dirt path in some places and an asphalt path in other areas. The bathing pavilion has been replaced with small park shelters, and the Polyhue Clubhouse is now a new contemporary

clubhouse for the Beachwood Yacht Club. The playing fields have been improved to contain softball fields, picnic areas, playgrounds and parking areas. A marina with a launching ramp for boats and a pier for recreation have been added to the waterfront. Two (2) piers have also been added to the area, one at the bathing beach and the other near the Yacht Club at the northern end of the marina. The waterfront area is still the same as when developed in the early 1920's; an area for recreation such as swimming, fishing and boating, as well as passive recreational pursuits.

EXISTING LAND USE

The existing land use development pattern in the Borough of Beachwood Waterfront Recreation Area provides insight into how future improvements to the waterfront recreation area can be developed. Historically, this area has been residential in nature and continues to be so.

The Project Area, as delineated on the Land Use Map, consists of the property located on portions of Cedar Street, Compass Avenue, Clubhouse Road and Bayside Avenue, all adjacent to the Toms River, and extending from the Borough boundary with South Toms River to the Borough boundary with Pine Beach. The referenced area contains approximately 6000 feet of shoreline consisting of 8.8 acres. Included are the upland parcels located south of the previously mentioned roadways which contain passive and active recreational facilities. These areas are considered an integral portion of the waterfront area of the Borough. Vacant parcels are scattered in the planning area and are for the greater part, portions of existing residential lots which are oversized lots that may be subdivided or sold as buildable lots if the homeowner desires.

The majority of the land uses adjacent to the Project Area are residential in character except for the institutional property which is the site of the Mormon Church located at the intersection of Spring Street and Compass Avenue. Also, the Beachwood Yacht Club is a significant institutional use located at the waterfront on Cedar Street. A wastewater pump station is also located in this area.

The Existing Land Use Map is a basis for the development and improvement of the waterfront area and indicates the pattern of existing and undeveloped land within the Project Area and delineated areas where potentially available land might be acquired for expansion of the park area, or indicates where conflicts might exist for future improvements to the park facility.

The information shown on the Existing Land Use Map was compiled from existing maps developed for the Beachwood Sewerage Authority Wastewater Collection System (1978), inspection of property ownership records and field checks by John S. Truhan Associates in July, 1982. The data was grouped into four (4) major categories for presentation purposes. All important uses and land areas have been identified and the Existing Land Use Map was prepared at a scale of 1" = 100'.

The Existing Land Use Map delineates the type and extent of use coverage, and the type of ownership for the purpose of identifying vacant parcels and occupied land areas. The majority of occupied land areas consist of residential dwellings on small lots (approximately 1/5 acre). The vacant lots are within residential zoning requirements, and as such represent limited land development potential.

Land Use Classification

The classification of land by use and function is important in order to correctly assess the impact of project improvements. The classification also dictates future patterns of development and the relationship of land uses that would be least likely to disrupt the community. The analysis was accomplished by utilizing the following definitions of uses and land area functions:

Land Use Classification	Description
Park and Open Space:	Public land devoted to recreational use and support of it or open space.
Residential Vacant:	All lands not developed within the planning area that lie within areas zoned Residential by Borough Ordinances. This includes vacant lots owned by persons residing on adjacent contiguous lots which could potentially be subdivided under Borough Ordinances. Note: There are no vacant lands which are designated wetlands or public lands within the Planning Area (State or Federal open space).

Land Use Classification	Description
Residential Occupied:	All residential land uses that have upon it an enclosed dwelling unit. A dwelling unit represents a household with the customary facilities required to accomodate one family. There were no attempts to distinguish multi-dwelling units within a building.
Institutional Property:	Buildings or areas of an organization or institution which is open to the public by a form of membership, association or affiliation.
Streets:	The rights of way for all existing developed streets. There are no undeveloped dedicated streets within the planning area.

SPECIAL AREAS AND WATER'S EDGE AREAS

The plan showing "Special Areas" and "Water's Edge Areas" includes the Special Areas (including Water's Edge Areas) as defined by the Coastal Resource and Development Policies (N.J. 7:7E-1.1 et. seq.). Also delineated on this Plan are the various facilities of the existing park complex with the topography of the area and the location of existing structures (dwellings and other buildings). New Jersey Coastal Resource and Development policies (incorporating amendments of September 26, 1980, June 4, 1981, January 12, 1982 and April 19, 1982) designate forty-five (45) categories of Special Areas which have been defined in the New Jersey Coastal Management Program (these are listed in Appendix I). Of these the following * are found in Beachwood Borough.

7:7E-3.17 Filled Water's Edge

Definition

Filled Water's Edge areas are existing filled areas lying between Wetlands or Water Areas, and either: (1) the upland limit of fill, or (2) the first public road or railroad landward of the adjacent Water Area, whichever is closer to the water. Some existing or former dredge spoil and excavation fill areas are Filled Water's Edge Area.

Rationale

Filled Water's Edge areas are of less environmental concern than undisturbed water's edge areas. The buffering functions of the water's edge have already been largely lost through excavation, filling and the construction of retaining structures. It is acceptable to allow certain kinds of development up to the limit of fill. Because the waterfront is a scarce resource, it is desireable to limit waterfront development in these areas to uses that are water dependent unless, because of their location, they do not have the potential to attract water dependent uses.

* For each area the Definition and Rationale (per N.J. 7:7E-1.1 et seq.) are given.

7:7E-3.17 Filled Water's Edge (continued)

Beachwood

This area in Beachwood comprises former existing low lying areas (above Mean High Water Level) which has required protection by the construction of a low water bulkhead built to a 3.5'± elevation (above normal storm tide elevation) and the upland side filled to that elevation. These areas are shown on the plan where bulkheading presently exists. It is anticipated that these areas will be enhanced by the construction of the proposed new community center, and the other planned improvements of boardwalks and lighting. A new community center would be the focal point of the waterfront area by providing public meeting and activities facilities. Replacing of the deteriorated existing bulkhead will significantly reduce the gradual erosion and stabilize this aesthetically pleasing public area. Boardwalk, trees, and lighting will be provided adjacent to these areas.

7:7E-3.19 Natural Water's Edge-Floodplains

Definition

Natural Water's Edge-Floodplains are the Flood Hazard Areas around rivers, creeks and streams as delineated by the Department of Environmental Protection under the Flood Hazard Area Control Act (N.J.S.A. 58:16A-50), or by the Federal Emergency Management Agency (FEMA); or the Flood Hazard Area around other coastal water bodies as defined by FEMA. Flood plains include the areas subject to both tidal and fluvial flooding. Where Flood Hazard Areas have been delineated by neither DEP nor FEMA, the 10' contour line shall be used as

7:7E-3.19 Natural Water's Edge-Floodplain (continued)

Definition (continued)

the inland boundary of the Floodplain. The seaward boundary shall be the mean high water line.

Rationale

The goal of this policy is to reduce losses of life and property resulting from unwise development of floodplains, but to allow uses compatible with periodic flooding -- agriculture and forestry, recreation, and fish and wildlife habitat -- and uses which require a Water's Edge location. This policy is consistent with national objectives as expressed in the President's Executive Order 11988 on Floodplain Management. It is also consistent with the State Waterfront Development Law's objective resources for the public's overall economic advantage. The policy will ensure that the state's waterfront is not pre-empted by uses which could function equally well at inland locations.

River Floodplains are subject to flooding in severe fluvial storms. They are also critical elements of the ecosystem, providing flood storage capacity, physical and biochemical water filtration, primary productivity and wildlife habitats. For these reasons, the preferred policy is to preserve these corridors in their natural state with native adapted forest vegetation, allowing limited exceptions for water dependent uses and uses for which there is no feasible alternate location.

This policy applies only to Floodplains which have not been disturbed by filling. Sites subject to this policy, therefore, tend to be in a more natural state than sites subject to the Filled Water's Edge Policy. Accordingly, this policy is more restrictive, discouraging development which has an alter-

7:7E-3.19 Natural Water's Edge-Floodplain (continued)

Rationale (continued)

nate feasible location or which would unnecessarily disturb vegetation, and requiring water dependency within 100 feet of a navigable water body.

By discouraging development which has a feasible alternate location, this policy will tend to be most restrictive in undeveloped parts of the state, where there will tend to be more alternate locations for proposed development. An alternate location will not be considered feasible if it conflicts with adopted State policy. For example, if downtown, which happens to be a Natural Water's Edge-Floodplain, a suburban location would not be considered a satisfactory feasible alternative. Development found acceptale in Floodplains would, of course, have to be found consistent with public safety objectives and would have to meet the floodproofing requirement of the Flood Hazard Area Resource Policy.

Beachwood

Those areas in Beachwood, in this category, are those waterfront adjacent to uplands areas where bulkheading has not been installed, adjacent to uplands where bathing activities occur and where protection from erosion was not paramount due to the high river bluffs, or where natural accretion (in lieu of erosive action) is generally experienced because of natural land forms.

These areas will remain in their natural state under this development plan and will contribute to the variety of different topographical features which

7:7E-3.19 Natural Water's Edge-Floodplain (continued)

Beachwood (continued)

make the area conducive to public activities. Pathways will be provided adjacent to the natural areas with lighting and park benches along the routes.

7:7E-3.21 Beaches

Definition

Beaches are gently sloping unvegetated areas of sand or other unconsolidated material that extend landward from the mean high water line to either; (1) the vegetation line, (2) a man-made feature generally parallel to the ocean, inlet, or bay waters such as a retaining structure, seawall, bulkhead, road or boardwalk, except that sandy areas that extend fully under and landward of an elevated boardwalk are considered to be beach areas, or (3) the seaward or bayward foot of dunes, whichever is closest to the bay, inlet or ocean waters.

Rationale

Undeveloped beaches are vital to the New Jersey resort economy. Unrestricted access for recreational purposes is desireable so that the beaches can be enjoyed by all residents and visitors of the state. Public access will be required for any beaches obtaining state funds for shore protection purposes. Beaches are subject to coastal storms and erosion from offshore currents. Public health and safety considerations require that structures be excluded from beaches to prevent or minimize loss of life or property from storms and floods, except for some shore protection structures and linear facilities, such as pipelines, when nonbeach locations are not

7:7E-3.21 Beaches (continued)

Rationale (continued)

prudent or feasible. Wet sand beaches have been designated a Geographic Area of Particular Concern (GAPC) by DEP under the federal Coastal Zone Management Act.

Beachwood

The present use of the Beach areas for recreational purposes in Beachwood would continue. The main "beach area" lies on the projecting accreted area noted earlier and will contribute significantly to the available public waterfront activities as a whole. The existing parking, adjacent to the beach, play area and rest room facilities are planned for improvements.

7:7E-3.26 Wetlands

Definition

Wetlands are areas where the substrate is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions which are subject to the Wetlands Act, or the Coastal Area Facilite Review Act (CAFRA) or the Waterfront Development Law. Under CAFRA, DEP regulates freshwater wetlands and forested wetlands such as white cedars on sites proposed for the major developments requiring a CAFRA permit.

Rationale

The environmental values, and fragility of coastal wetlands have been officlaly recognized in New Jersey since the passage of the Wetlands Act of 1970 (N.J.S.A. 13:9A-1 et seq.) Coastal wetlands are the most environmentally valuable land areas within the coastal zone.

7:7E-3.26 Wetlands (continued)
Rationale (continued)

Coastal wetlands contribute to the physical stability of the coastal zone by serving as: (i) a transitional area between the forces of the open sea and upland areas that absorb and dissipate wind-driven storm waves and storm surges, (ii) a flood water storage area, and, (iii) a sediment and pollution trap.

Also, wetlands naturally perform the wastewater treatment process of removing phosphorous and nitrogenous water pollutants, unless the wetlands are stressed.

The biological productivity of New Jersey's coastal wetlands is enormous and critical to the function of estuarine and marine ecosystems. The emergent cord grasses and associated algal mats covert inorganic nutrients into organic plant material through the process of photosynthesis. In this way, the primary base for estuarine and marine food webs is provided. The principal direct dietary beneficiaries of organic wetland detritus are bacteria and protozoan, which are in turn fed upon by larger invertebrates. Important finfish, shellfish, waterfowl, and other resources feed upon these invertebrates. New Jersey's Coastal Wetlands are prime wintering habitat annually for hundreds of thousands of migratory waterfowl. Approximately two-thirds of marine finfish and shellfish are known to be estuarine, and, therefore, wetlands-dependent.

7:7E-3.26 Wetlands (continued)

Rationale (continued)

Inland herbaceous wetlands, such as bogs, play an important role in regulating the quality of water in streams that flow to the estuaries. They retard runoff and store storm waters. They are important areas of primary productivity for estuarine systems. They are critical habitats for several species of plants and animals that are endangered or threatened. They are productive habitats for other game and non-game animals, such as deer. These wetlands also serve as fire breaks, and may limit the spread of forest, brush, or grass fires. They are inappropriate development sites due to poor drainage and load bearing capacity of the underlying soils.

Forested Wetlands play a critical role in coastal ecosystems. Roots and trunks stabilize shorelines and trap sediment. They are physical and biochemical water filter areas maintaining tidal stream water quality. They are critical habitats, breeding areas and movement corridors for many coastal species including rare and endangered species. High productivity, high water availability and high edge to area ratio make these areas especially productive wildlife areas.

White cedar stands, as well as other lowland swamp forests, play an important role in purifying water in coastal streams, retarding runoff, providing scenic value, and serving as a rich habitat for many and endangered plant animal species, as well

7:7E-3.26 Wetlands (continued)

Rationale (continued)

as game species, such as deer. White cedars also act as forest fire breaks. White cedar stands most commonly occur in flood plains and in the fringe areas of drainage ways and bogs, which are frequently underlain with saturated organic peat deposits. This material is particularly unsuited for development unless highly altered.

White cedar is New Jersey's most valuable timber species and grows in discrete stands. The wood has a long tradition of maritime and local craft uses. Unfortunately, white cedars have been elimated from much of their previous range in New Jersey.

Beachwood

There are no significant "wetlands" areas remaining in Beachwood Borough other than a small area northeast of Cedar and Starboard Streets which still support some "wetlands" type vegetation.

7:7E-3.4 Prime Fishing Areas

Definition

Prime Fishing Areas include tidal water areas and water's edge areas which have a demonstrable history of supporting a significant local quantity of recreational or commercial fishing activity. The area includes all coastal jetties and groins and public fishing piers or docks. Prime Fishing Areas also include all red line delineated features within the State of New Jersey's three mile territorial sea illustrated in: B.L. Freeman and L.A. Walford (1974) Angler's Guide to the United States Atlantic Coast Fish, Fishing Grounds and Fishing Facilities, Section III and IV. While this information source applies only to the Delaware Bay and Atlantic Ocean shorefronts, prime fishing areas do occur throughout the coastal zone.

Rationale

Natural bathymetric features, such as the Shrewsbury Rocks and important sand ridges, and artificial structures act as congregation areas for many species of finfish, shellfish, and a diversity of invertebrate species which are essential to marine ecosystem functioning. These areas are heavily utilized by recreational and commercial fishermen. Commercial fishing occurs primarily along the Delaware Bay and Atlantic Ocean. Over 2.7 million people annually participate in marine sport fishing and shellfishing in New Jersey. This represents the highest number of participants in any state, from Maine to Maryland. Of that total, 1.6 million reside in New Jersey, with the remaining number coming mostly from Pennsylvania and New York (792,000 and 300,000 respectively). The Mid-Atlantic Regional Fisheries Management Council manages fishing activities seaward of the State's coastal zone.

Beachwood

Areas offshore of the Borough in the Toms River support certain species of fish and shellfish. Although not heavily fished due to other more abundant areas in Barnegat Bay in this vicinity, nevertheless, fishing is an activity that exists to a certain extent.

The Prime Fishing Areas in the Toms River would not be adversely affected by any improvements in the Borough waterfront. Improved facilities and access proposed for the marina piers and bulkhead would be a boon to this activity creating more aesthetically pleasing fishing spots for the angler.

7:7E-3.5 Finfish Migratory Pathways

Definition

Waterways (rivers, streams, creeks, bays, inlets) which can be demonstrated to serve as passageways for diadromous fish to or from seasonal spawning areas, including juvenile anadromous fish which migrate in autumn and those listed by H.E. Zich (1977) "New Jersey Anadromous Fish Inventory" NJDEP Miscellaneous Report No. 41, and including those portions of the Hudson and Delaware Rivers within the coastal zone boundary are defined as Finfish Migratory Pathways. Species of concern include: alewife (river herring) (Alosa pseudoharengus), bluebach herring (Alosa aestivalis), American shad (Alosa sapidissima), stripped bass (Morone saxatilis), and American eel.

Rationale

Striped bass are one of New Jersey's most prized fish and are actively sought wherever they occur in New Jersey. This species spawns in the Delaware, Hudson and Maurice Rivers. American Shad, once much more numerous and formerly an important commercial species, continue to make an annual spawning run in the Delaware and Hudson Rivers, where there is an active sport fishery. A much reduced commercial fishery exists in the Delaware Bay and River. Herrings are important forage species and spawn annually in many of New Jersey's tidal tributaries including the Raritan and Hackensack Rivers. Herrings are fished during Spring runs, for direct human consumption, garden fertilizer and for use as bait.

7:7E-3.5 Finfish Migratory Pathways (continued)

Beachwood

Similarly, Finfish Migratory Pathways in the Toms River would not be seriously affected by the proposed changes along the Beachwood waterfront. Minor quantities of sewage from the Community Center and rest rooms enter the local sewer system and would not be discharged to these waters.

7:7E-3.7 Navigation Channels

Definition

Navigation channels include water areas in tidal rivers and bays presently maintained by DEP or the Army Corps of Engineers and marked by U.S. Coast Guard with buoys or stakes, as shown on NOAA/National Ocean Survey Charts: 12214, 12304, 12311, 12313, 12314, 12316, 12317, 12318, 12323, 12324, 12326, 12327, 12328, 12330, 12331, 12332, 12333, 12334, 12335, 12337, 12341, 12343, 12345, 12346, and 12363.

Navigation channels also include channels marked with buoys, dolphins, and stakes, and maintained by the State of New Jersey, and access channels and anchorages, Navigation channels are approximately parallel to the river bed. Access channels are spurs that connect a main navigation channel to a terminal. Anchorages are locations where vessels moor within water at or near the water's edge for awaiting high tide, better weather, or fuel and terminal availability.

Rationale

Navigation channels are essential for commercial and recreational surface water transportation, especially in New Jersey's back bays where water depths are very shallow. Channels play an important ecological role in providing estuarine

7:7E-3.7 Navigation Channels (continued)

Rationale (continued)

circulation and flushing routes, and migration pathways and wintering and feeding habitat for a wide diversity of finfish, shellfish, and waterfowl.

Navigational channels, access channels and anchorages form a network of areas that have a depth sufficient to enable marine trade to operate at the limiting depth of the channel. If one part of the system is not maintained, the entire system might be unable to function.

Beachwood

An existing navigation channel exists in the Toms River several hundred yards offshore. This plan will not significantly adversely impact local navigation routes by renovation of the Beachwood waterfront.

Navigational use of the Toms River would, of course, increase to a minor extent due to the proposed additional docking facilities and the more aesthetically pleasing waterfront.

7:7E-3.10 Marina Moorings

Definition

Marina moorings are areas of water that provide mooring and boat maneuvering room as well as access to land and navigational channels for recreational boats. Typically, maintenance dredging is required to preserve water depth.

7:7E-3.10 Marina Moorings (continued)

Rationale

Marinas are a key element in New Jersey's coastal resort economy. The maintenance of existing marina areas and the protection of these areas from competing uses which would detract from the recreational service they provide is, therefore, a high priority.

Beachwood

It is anticipated that the existing marina in Beachwood and other existing navigation facilities in the area will benefit from the proposed renovations. The proposed additional boat slips will enhance and increase the recreational use of the River. Present marina moorings are located opposite the Beachwood Yacht Club.

7:7E-3.39 Public Open Space

Definition

Public Open Space constitutes land areas owned and maintained by the state, federal, county and municipal agencies or non-profit private groups (such as conservation organizations and homeowner's associations) and dedicated to conservation of natural resources, public recreation, or wildlife protection or management. Public Open Space also includes State Forests, State Parks, and State Fish and Wildlife Management Areas and designated Natural Areas (N.J.S.A. 13:1B-15.12a et seq.) within DEP owned and managed land.

Rationale

As the rapid urbanization of New Jersey continues and leisure time increases, open space will play an increasingly important role in maintaining a desireable living environment for the residents of New Jersey. Even though the supply of open space has decreased under the growing pressure for development, the State's expanding population will require more public open space to satisfy its needs.

7:7E-3.39 Public Open Space (continued)

Not only is open space the basic resource for recreation facility development, it also performs other worthwhile functions. Open space can create public spaces in densely settled areas, shape urban growth, provide buffers for incompatible uses, retain contiguous farmland, insure the preservation of wildlife corridors, increase the economic value of adjacent land, and preserve distinct architectual, historic, and geologic sites.

The distribution of open space should not only be centered around the preservation of unique areas, but must also respond to the needs of people. Where possible, open spaces should be contiguous both visually and physically to promote a sense of continuity and to afford users continued movement through the public open spaces.

Beachwood

Present public open space exists along the Beachwood waterfront at various locations designated on the plan. The proposed improvements will further enhance this area and encourage full utilization of these facilities.

7:7E-3.30 Coastal Bluffs

Definition

A coastal bluff is a steep slope of consolidated (rock) or unconsolidated (sand, gravel) sediment that is formed by wind and water erosion forces, and which is adjacent to the shoreline or demonstrably associated with shoreline processes. A bluff is composed of three main features: 1) The toe or the interface of the beach or other bottom

7:7E-3.30 Coastal Bluffs (continued)

Definition (continued)

area (water); 2.) The face of the slope; and 3.) The crest of the top of the slope where the bluff becomes the flat tableland. The waterward limit of the bluff is the toe buffer, which extends 25' waterward of the toe of the bluff face. The inland limit is the first cultural feature, such as a road or structure. All steep slopes associated with shoreline processes, i.e. adjacent to the shoreline or contributing sediment to the system, will be coastal bluffs.

Rationale

Coastal bluffs are most prominent in New Jersey along the Delaware River at Roebling and Florence and along the Raritan Bay at Aberdeen Township and Atlantic Highlands. They have a significant function in storm damage prevention and flood control, by eroding in response to wave action and resisting erosion caused by wind and rain runoff. Bluff erosion is also an important source of beach sediment where the coastal bluff faces an open water body. Disturbance of coastal bluffs which undermines their natural resistance to wind and rain erosion increases the risk of their collapse and causes cuts in the bluff. This increases danger to structures at the top of the bluff and reduces the bluff's ability to buffer upland areas from coastal storms. Vegetation helps stabilize bluffs and can reduce the rate of erosion caused by wind and rain runoff. A minimum construction setback on the tableland is required to protect life and property, and reaffirms the setback requirement of the Erosion Hazard Area Policy (7:7E-3.24).

7:7E-3.30 Coastal Bluffs (continued)

Beachwood

The Coastal Bluffs in Beachwood will be stabilized where necessary to reduce erosion of the bluffs. This stabilization would consist of plantings which are indigenous to the area and would not adversely affect existing vegetation.

USE POLICIES

Defined within the New Jersey Coastal Management Program per the Coastal Resource and Development policies are definitions of policies for particilar uses of coastal resources. The development proposed must satisfy conditions of the policies governing the use. The following use policies have been excerpted and apply in Beachwood:

7:7E-7.3 Resort/Recreational Use

Resort/recreational uses include the wide range of small and large developments attacted to and often dependent upon locations along the coast. Some of the use that may apply in Beachwood are: marinas, boating facilities, parks and recreational structures such as bath houses, natural areas, open space for active and passive recreation, and linear parks for bicycling and jogging.

Furthermore, each municipality should contain at least one waterfront park on each body of water within the municipality to be eligible for Green Acres or Shore Protection Bond Funding. Resort/recreational uses have priority over all other uses with highest priority reserved for those uses that serve a greater rather than a lesser number of people, and those uses that provide facilities for people of all ages and for people with physical handicaps.

Specific uses such as marinas (new or expanded) for recreational boating must meet the following conditions: demonstrated regional demand for recreational boating facilities cannot be met by the upgrading or expansion of existing marinas; proposed marinas incorporate development of an appropriate mix of dry storage areas, public launching facilities, berthing spaces (dependent upon

7:7E-7.3 Resort/Recreational Use (continued)

site conditions), and adequate sewage pump-out stations per State and Federal Laws and Regulations provided. Furthermore, sailboat or oar boating facilities are preferred; non-water dependent uses to be limited that prevent support facilities for boating; public funded marinas to be designed as part of multiple use parks and recreational boating facilities do not conflict with the commercial boating industry.

The national and state interests in recreation are clearly indicated in the coastal economy and are essential for the quality of life. The coastal environment provides numerous opportunities for recreation which should be expanded by public policy and action, including priority setting.

7:7E-7.5 Transportation Use

New road construction shall be limited to situations where a clear need exists, provisions of bicycle and footpaths, coordination with public transport facilities (parking, shelters, etc.), visual and physical access to coastal waters maintained and no induced development that will cause conflicts with the objectives of the coastal program.

Public transportation will be encouraged to facilitate the denser living patterns as a result of concentration of development. Bus facilities and parking systems are appropriate ways to meet new transportation needs of users. Bicycle and foot paths will be encouraged along edges of all water bodies (providing no endangerment of special areas or hazard to user). Continuation of paths

7:7E-7.5 Transportation Use (continued)

into residential areas are encouraged.

Parking areas are acceptable in that it doesn't interfere with existing or planned mass transit services, paved surfaces are minimized, landscaped with indigenous or plant material, and satisfies resource policies of air, water runoff, and is compatible with its surroundings while satisfying location policies.

RESOURCE POLICIES

Designated within the New Jersey Coastal Management Program per the Coastal Resource and Development Policies is a process that reviews development in terms of its effects upon the resources of the built and natural environment of the coastal zone. These policies serve as standards to which proposed development must adhere. The following resource policies apply in Beachwood:

7:7E-8.13 Public Access to the Shorefront

The Public must be able to pass physically and visually to, from and along the ocean shore and waterfront. It must be to the maximum extent practicable provide perpendicular and linear access. A linear waterfront strip accessible to the public but not continuous along the waterfront must provide passage around the site to connect to other parts or potential parts of the waterfront path system in adjacent parcels. Municipalities or private developments that do not currently provide, or have active plans to provide, access to the water will not be eligible for Green Acres or Shore Protection Bond Funding.

7:7E-8.15 Buffers and Compatibility of Uses

Buffers are natural or man made areas, structures, or objects that serve to separate two distinct uses, while compatibility is the ability for uses to exist together without aesthetic or functional conflicts. It is preferred that development be compatible with adjacent land and water use to maximum extent practicable. Development that adversely affects adjacent areas (such as special areas, residential or recreational) is prohibited unless impact mitigated by an adequate buffer. Buffer type, width, degree with be determined on a case-by-case basis.

Furthermore, an assessment of the Project Area was completed to include other environmental parameters which includes soils, hydrology, flood hazard areas, conditions, visual analysis and vegetation inventories. The following is a brief inventory and assessment of these items:

Soils: The Ocean County Soil Survey Report by the Soil Conservation Service and the U.S.D.A. April 1980. (Refer to Appendix II, Soils Map).

The beach area (as mapped in the referenced Soil Survey Report) is composed of Fripp Fine Sand (Ftb), at two to ten percent slopes. It is excessively drained soil usually found and associated with beaches, tide flooded areas, and Atsion Sands. The permeability of the soil is rapid with very low available water capacity and low natural fertility and organic matter content. The soil is strongly acidic. Runoff is slow, and subject to severe erosion in unvegetated areas. A high water table is accompanied by this soil.

The land which is west of Brigantine Street along the waterfront area where the existing Beachwood Yacht Clubhouse and public boating facilities are located is Psamments soils (Po). This soil type consists of fill material over tidal flats and highly organic soils associated with wetlands. The characteristics of this soil is dependent upon the nature of the source of the fill materials used. At this location the soils are level, sandy/gravel and there is moderately well drainage. Its natural fertility and organic matter content is low and is strongly acidic. Investigation of soil borings performed for a proposed Community Center located within this waterfront area determined that: 1) a high water table exists (1½' from surface); 2) the depth of fill is approximately 2½' to 3'; 3) a layer of moderately to highly plastic organic clays or muck exist, varying in depth from the surface in a range of 3' to 8' and may extend to 20' below grade.

The remaining soils of the waterfront project area which includes the upland parcel of Mayo Park is Lakewood sand (Lwb) with zero to five percent slopes. An exception to this is in the vicinity of the coastal bluff which exhibits greater slopes than the cited zero to five percent, but is a Lakewood sand. The characteristics of this soil are nearly identical to the Fripps Fine Sand except that the water table is deeper, and the sand has larger size particles. It is yellow and brown in color, while the Fripps is white to gray.

The assessment of the soils within the project area requires that any development proposed must include proper stabilization procedures for disturbed soils, since it is subject to erosion. The variable nature of the Psamment soils require specific soil investigation prior to any proposed development. The limited data indicates that the Psamment soils will require design engineering techniques (such as piles, spread footings, etc.) to be used for construction of any substantial buildings. Additionally, the Psamment soils will require materials able to tolerate the highly

acidic and corrosive properties of the underlying soils. The high water table of the Fripps, Psamment and portions of the Lakewood soils indicate consideration of the high water table be provided by designs which mitigate this problem. Landscape planting should include measures that will provide for the low fertility and excessive permeability of the soils.

Hydrology and Flood Hazard Areas: The Ocean County Soil Survey Report by the Soil Conservation Service, April 1980, Flood Insurance Study - Borough of Beachwood, Preliminary Report by Federal Emergency Management Agency; Floodplain Information, Toms River - Department of Army Corps of Engineers, June 1972; Special Report 29 Geology and Ground Water Resource of Ocean County by U.S. Geology Survey, 1969.

Beachwood is located on the Atlantic Coastal plain which is a sedimentary deposit of soils. This coastal region consisting of many rivers and bays is identified as a "drowned" shoreline which are a result of rising waters creating the coastal features. It is interesting to note the early settler's of Beachwood did not consider the waterfront along the Toms River as part of the River, but rather an "arm" of Barnegat Bay. The Barnegat Bay influences the river's hydrology by it's tidal action, and tide changes (albeit not significant) can be observed at the Beachwood Waterfront. The land of the Toms River basin is characterized as a gently-undulating plain having low relief. The stream gradient is very slight, and combined with the low relief of the surrounding land the Toms River has formed a broad, poorly drained flood plain.

The Toms River basin is an area of 188 square miles with its headwaters in Millstone Township in Monmouth County. Beachwood's waterfront area is approximately 3½ miles from the mouth of the river. An estuarine environment is created in this area by the confluence of fresh water from the river's drainage basin and the tidal flow from the Atlantic Ocean via the Barnegat Inlet. The baseflow of the Toms River is derived from groundwater seepage into its tributaries. The groundwater flow from the underlying aquifers accounts for approximately three quarters of the streams' baseflow.

The majority of the basin area, including Beachwood, is underlaid by the Cohansey aquifer. Layers of other formations may be found above it, but they act as permeable receptors of precipitation for recharge to the zone of saturation (Cohansey aquifer). The effect of direct runoff from precipitation upon the river's basin will cause higher streamflows for an average of five (5) days from the day of the storm with its peak discharge occurring about 2½ days of the storm. The basins lowest flows occur from August to October.

The area around Beachwood's waterfront is intensively developed with residential and recreational uses with commercial activity limited to small stores, offices and marinas. The location of some of these uses occur upon parts of the floodplain of the river. The floodplain of the river is a relatively flat area adjoining the channel of the natural stream which has been or may be covered with flood water. Floodplains act to absorb and dissipate the energy of flood waters and act as a sediment trap for soil and debris carried by flood waters. Uses within floodplains are subject to flood hazards which are floating debris and high water. Also, development in floodplain may actually contribute to the flooding by accelerating runoff from impervious surfaces;

displacement of carrying capacity of floodplain causing the rising of flood elevation. The cause of flooding in the Beachwood waterfront area can be attributed to hurricanes, extra-tropical cyclones (Northeasters) and to a lesser extent, severe thunderstorms. Flooding problems are compounded when fluvial flooding combines with tidal flooding during high tide and wave action. It is possible to predict with some accuracy the extent and severity of flooding. The Army Corps of Engineers (1972) and the Federal Emergency Management Agency (FEMA-1982) study determined that the 100-year storm flood is the basis for establishment of flood plain management. The 100-year storm flood determines the boundary of the floodway of the stream channel which "must be kept free of encroachment in order that 100-year flood can be carried without substantial increase in flood heights". The study also identifies an area between the floodway and boundary of 100-year flood as the floodway fringe. The floodway fringe is "the portion of the flood plain that could be completely obstructed without increasing water surface elevation of 100-year flood by more than 0.2 feet at any point". The elevations for various storm flood frequencies per the FEMA study are (elevation based on 1929 National Geodetic Vertical Datum):

10 year	50 year	100 year	500 year
4.4	5.5	6.0	7.3

The Army Corps of Engineers' study verifies the FEMA study except that the 100 year storm elevation is 6.6 feet, the difference being attributed to different lengths of time the study chose. The Army Corps of Engineers' study defined the stages of flooding differently being that 1) floodway design flood (same as floodway) - no permanent structure or obstruction should be allowed; 2) flood hazard area (similar to flood fringe) - to accomodate a severe overflow "serious thought must be given in locating any structure or barriers within this area", 3) standard

project flood - outside of flood hazard area it should remain undeveloped to safeguard surrounding land and natural fluvial processes.

Surface runoff has been identified in the project area and no intermittent streams or streams have been identified. Areas of potential surface flows where surcharge may occur have been located. It is important to note that in areas of high groundwater, such as within parts of the Project Area, the groundwater will fluctuate greater than in areas of deeper groundwater. This effect, when combined with surface runoff, may cause some low level flooding at a time of high precipitation.

An assessment of the hydrology of the waterfront area determines that 1) uses must be located so as to minimize damages from flooding; 2) uses to be located so as to minimize risks of surface water runoff within flood hazard areas; 4) structures must be able to satisfy the requirements of the State for floodproofing, elevation, etc., if located in a flood hazard area.

Water Quality

The confluence of the Toms River and nearby Barnegat Bay create an estuarine environment. The baseflow of the Toms River is derived by groundwater seepage from the aquifer into its tributaries. This baseflow is characterized as being acidic (pH 4.4 to 6.7) and contains excessive iron and having a brownish color to the water.

The Department of Environmental Protection's publication on shellfish Growing Water Classification (1980) indicates that the water of the Toms River is condemned for harvesting shellfish. Many factors are involved in this classification which may relate to pollution or previous intensity of harvesting activities. The County Board of Health monitors the water quality at the bathing beach of the project area and has, at times, prohibited use of the

water for swimming due to high bacteria counts. Discussion with the County Board of Health regarding these conditions indicates that the bacteria levels may occur several times during the summer (or not at all) and are unpredictable. The cause of high bacteria counts may be attributed to the several factors such as the duck population, recent precipitation, extended heat waves, heavy boating use (illegal dumping of boats sewage) and a combination of any of these factors or other factors. The source of bacterial appears to be a non-point source and doesn't generally limit use of the waterfront for long extended time periods.

Assessment of the water quality indicates that the water quality levels are generally within acceptable limits for recreational purposes. The monitoring of water quality by the County Board of Health will ensure healthy conditions for the bathers.

Visual Analysis

An on-site observation was conducted by John S. Truhan Associates. The project area is located within a residential area of the Borough of Beachwood. The character of the residential dwellings are that of well maintained structures, with neatly landscaped grounds. There are no deteriorating, rundown or abandoned structures within the parks open space viewshed and as a result, eyesores or intrusions are non-existent. The dwellings are for the most park contemporary, being that of homes built to the homeowner's desires, and mostly colonial or traditional home designs that predominate throughout the Jersey Shore. It is a man-made landscape, but mitigated by extensive use of landscaping and shade trees.

Natural vegetation can be found along the bluffs of the project and provides an aesthetic corridor within a portion of the waterfront area. The vegetation has been a desirable feature of the development of the Borough Park area. Its importance was noted in a 1919 Borough Board Resolution while creating a Shade Tree Commission which said in part "... urged its members to do

everything possible for preservation, protection and increase of the pines ... certainly, the undeveloped wooded riverbanks of Beachwood are still among the most beautiful in the Toms River area, perpetuating the qualities which first attracted summer visitors". The preservation of natural vegetation is evident within playfields of Mayo Park where trees provide a canopy over picnic areas. The visual quality of the waterfront area, because of the abundance of natural vegetation, is an excellent example of integrating park uses within a natural setting.

The natural vegetation gives way to an open area in and around the existing marina and bathing beach areas, however even in these locations there is a background either upon public open space or private residences that is vegetated. The extent of the view is limited by dwellings inland along with the rise of topography from the shoreline. The view of the Toms River basin is uninterrupted in the area of the marina, and along the toe of the slope with no major structures. However, at the top of the slope, because of the density of vegetation, the view of the river basin is limited and interrupted. Glimpses of the waterfront can be found in breaks within the vegetation creating an exciting viewshed.

Compass Avenue and Club House Road adjoin and traverse through the waterfront area and afford an opportunity for views of the waterfront and park facilities. Small monument parks and a landscaped median island along with the curvilinear, undulating nature of the alignment of the roadway is a highly desirable visual asset, that enhances the naturalistic emotion of the project area. As Clubhouse Road becomes Bayside Avenue, the view becomes residential in character.

Highpoints for viewing the river can be found at Mayo Park (Clubhouse Drive). This is a significant viewing area, and the experiences of watching sailboats, water skiers, and other activities that occur upon the water contribute greatly to the highly scenic attributes of the shoreline. These viewpoints are popular

and have, as a result, been subject to heavy use which result in people traversing the hillside causing erosion and loss of vegetation, which is a negative visual impact.

The Project Area is satisfactorily maintained and litter, graffiti, or unpleasant odors are minimal. Assessing the visual qualities of the waterfront area indicates from an overall perspective that it is a highly desirable asset in terms of the tangible qualities it possesses (ie. sand, water, fresh air, topography, vegetation). However, a closer inspection reveals some areas of erosion and that maintenance of some public buildings and facilities need attention. If these are neglected, it can detract from the overall positive impressions. The pictorial composition of the waterfront area along the river provides a pleasant visual experience.

LOCATION MAP

A Location Map has been provided at a scale of 1" = 400' and delineates the project area in relation to the surrounding area, and the Borough of Beachwood. The Location Map identifies other available recreation areas in the immediate area that may be accessible to the community and is classified into four categories; the Project Area, public open space, institutional open space and private recreation facilities. Inclusion of this Location Map will provide an assessment of activities and is intended to guide development of the Project Area. The definition of the categories are:

Project Area: The planning unit of the proposed recreation improvement and assessment area.

Public Open Space: Lands owned by Governmental bodies such as the Borough, County, State or Federal agencies which allows public use, or contains recreation facilities for the public. It may also be vacant lands set aside for open space.

Institutional Open Space: Any building or area of an organization which is accessible to the public, but requires some form of membership, association or affiliation such as schools, churches, clubs, lodges, etc.

Private Recreation Facility: Areas devoted for commercial recreation use which a fee is charged for its use and is privately owned and controlled. These facilities include such facilities as golf courses, marinas, tennis clubs, etc.

Components of the identified areas are as follows:

Project Area: The entire shoreline along the Toms River, except possibly for the Beachwood Sewerage Authority Pump Station and a residence located at the westerly Borough boundary (Starboard and Cedar Streets), is public open space. The Beachwood Yacht Club is located on private land.

Specifically, an inventory of the Project Area consists of the following:

Area between Brigantine Street and Beachwood Boulevard adjacent to Compass Avenue:

Public marina consisting of 55 boat slips for pleasure/recreational boats (accomodating up to approximately 32 foot long boats) with a concrete boat ramp currently exists within the Project Area. Approximately 1,070 feet of shoreline has been bulkheaded with 17 catwalks servicing the boat slips. An asphalt parking area that has only partial parking stall designations is adjacent to the boat slips and it may permit up to 45± parking spaces. Uncontrolled parking occurs along Compass Avenue (adjacent to the bulkhead) and can accomodate 30 to 35 vehicles. The area is illuminated with street lights along the bulkhead. A fishing pier extending 110± feet into the river is located next to the boat slips, and two park benches are provided upon the pier. A portion of the land has had timber piles (4,500 square feet in area) driven to accomodate a future Community Center. Structures are limited to a small open rectangular park shelter set upon a concrete slab. The remains of a concrete walkway exist adjacent to the bulkhead originating behind the residence located at Beachwood Boulevard and Compass Drive and progressing 300' eastward where it terminates due to lack of bulkheading (which is deteriorated, and subsequently the walkway failed due to undermining or erosion). This walkway access is limited due to its poor condition (it is undermined and falling into the water in several places) and location of a fence across it by a homeowner preventing passage.

Area Between Marina and Bathing Beach:

Remains of a bulkhead consisting of deteriorated piles are located along the shoreline. This is a narrow open space area averaging approximately 50 feet in width with a steep bluff. The area near the bathing beach has concrete steps and a partial walkway which provides access to the shoreline from the uplands. These steps may have served a walkway at the top of the slope along the rear property line of the residences.

Bathing Beach Area: (central area of the waterfront)

A protected sandy beach area of approximately 1¼ acres is the primary feature of this part of the waterfront. It is located at the toe of the bluff and jots outward toward the river. Access to it is via a one-way road which has an entry and exit at opposite ends of this area. The beach contains a swimming pier extending 120 feet into the river with a small raft for swimmers near it. The bathing area is fenced along its perimeter with only two points of access. Within the beach area a small playground consisting of two sets of swings and a slide which are the only recreational apparatus located here. A one acre parking area is adjacent to the bathing beach and separated from the remaining park facilities by the bluff and natural vegetation and has room for approximately 120 vehicles. A walkway near the beach starts at the westerly end of the beach and terminates approximately 200 feet past the easterly end of the beach. The walkway is concrete at the bathing area and asphalt in other areas. Access is limited towards the east because the waterfront area is narrow between the marina and bathing beach zone. The structures located at the bathing beach are two open park shelters similar to the one located at the marina. The waterfront area is illuminated by street lighting. The remainder of this area is natural vegetation which is dense and sparse in various portions of the waterfront area.

Area East of Bathing Beach to Borough Boundary:

The remaining shoreline east of the bathing beach to the Borough's boundary is approximately 1,700 linear feet of which 870 feet is bulkhead. The bulkheading starts at Harpoon Street and extends to the Borough's boundary. The waterfront area from the bathing beach to Harpoon Street is about 150 feet in width, and contains a bluff with natural vegetation. The top of the bluff is sparsely vegetated with areas for uncontrolled parking. At the location of the bluff near the shoreline a set of steps lead down the slope to the shoreline. The shoreline is natural in this area except for the remains of old piles and several long sections of concrete which are the remains of the old walkway.

The rest of the shoreline, which is bulkheaded, is a narrow public open space ranging from 30' to 50' in width along the river. The open space abuts private residences and access to it is provided by the dead end streets of Harpoon and Larboard.

Upland Park Area: Mayo Park

An eight (8) acre multipurpose recreation park is located upland, across from the bathing beach. This park area, formed by Bayside Avenue, Clubhouse Road, Beacon Avenue and Harpoon Street is the site of softball fields (2), basketball courts (2), a tennis court, playground, comfort station and a park shelter. Also found here are picnic areas with grills, a horseshoe court, sitting benches, and drinking fountains, all situated under the canopy of the pine and oak trees. Vehicular parking consists of parking adjacent to some of the roads adjacent to the site. The parking arrangement is perpendicular parking off street but paralleling these roadways. The softball fields are lighted to permit night games with one field designated as a "little league" baseball field complete with storage areas, bleachers, scoreboard, etc. This park area also has a storage building that is used by the recreation department or Borough.

Open Spaces at Spring Street and Beachwood Boulevard at the Intersection of Clubhouse Road:

These two landscaped areas are small, irregular shape lots that are a monument park and a passive recreational area.

Other Public Open Space:

Other areas of open space are located away from the waterfront area and are not contiguous to it. The areas are delineated on the Location Map and include: softball fields and playground (Birch Avenue), tot lot and picnic area (near firehouse), soccer fields (Hickory Street and Berkeley Avenue), and a passive recreation area located at Beachwood and Atlantic City Boulevards.

Institutional Open Space:

At the waterfront the Beachwood Yacht Club has a clubhouse, parking area and storage area for sailboats. Other open space within the project area would be the site of the church property at Spring Street and Compass Avenue but it doesn't have any appreciable recreational facility except for the building itself.

Adjacent Communities:

The Borough of Pine Beach has a beach area with boat ramp and parking adjacent to the Borough boundary, which is known as Windy Cove. Located further east is the Pine Beach Borough beach with fishing piers and ancillary uses. The Borough of South Toms River has a waterfront area along the Toms River that is separated from Beachwood facilities by residences and commercial uses (marinas). The South Toms River public open space is bulkheaded and used primarily for fishing.

Private Recreational Facility:

Cedar Mar Marina in South Toms River adjacent to the Borough boundary is an extensive private marina which offers sales, service, dry storage, dockage, and fuel supplies. Another marina nearby is the Toms River Boatworks in Toms River, offering similar services.

ENGINEERING STUDY AND RECOMMENDATIONS

An analysis of the recreational and shoreline facilities or structures reveals that the following areas need attention:

Existing Marina: The bulkheading along the boat slips and terminating behind the residences has deteriorated. The sheet piling has deteriorated to a point where the backfill soil is exposed. The piles, however, are in fair condition. The bulkhead around the fishing pier is in good condition. An attempt to arrest the backfill erosion consisting of placing fiberglass corrugated sheets behind the bulkhead has temporarily stabilized the soils; however, it was noted that at least in two places the fiberglass sheets have failed, and the backfill is slipping into the water. The strength of the bulkhead has been reduced, and any heavy vehicles passing near the bulkhead may cause a surcharge that can result in collapse of the bulkhead. The concrete walkway in this area has failed and collapsed into the water.

It is recommended that new sheet piling and piles be installed to replace the deteriorated structures. As mentioned, not all of the piles are damaged or weakened; however, all of the sheet piling is. Steel sheet piling or timber piling could be utilized for replacement.

Other areas in the marina indicate that surface drainage be directed to avoid erosion of backfill of the bulkhead. The backfill should be replaced and provided with a seal to have surface runoff drain positively. The bulkhead return towards the shoreline of the Beachwood Yacht Club is eroded. Steps to rectify this erosion include placement of backfill and construction of a revetment to control future erosion.

The marina area has piles driven into the ground for a future Community Center. It is suggested that upgrading of the marina can be accomplished by extending water and electricity to the marina at the time of construction of the Community Center. A harbor-masters office should be included as a function room for operation of the marina.

The parking area that parallels the bulkhead is undefined and requires regrading to provide positive drainage. It is recommended that a porous surfacing with parking control devices (bollards, timber ties) should be added to this area if parking is allowed at this location.

Shade trees at the marina have exhibited damage from uncontrolled parking. If the above mentioned traffic control devices are installed, this condition will be rectified.

Water quality at the marina can be improved with strict attention to filtering of surface pollutents via oil traps installed in catch basins.

Bathing Beach Area: An area near the exit drive of the parking area is eroded. Surface drainage from the roadway is contributing to this condition. Replacement of the eroded soil with fill and subsequent stabilization with groundcover will stabilize the erosion. The surface drainage should be redirected by berms or curbing to avoid the same condition from occurring.

Techniques to stabilize the soil include: revegetating with sod, hydromulch or seed with mulch/binder. It will require fertilization and an addition of humus to satisfactorily produce a favorable growing environment for revegetation.

In addition, a part of the bluff overlooking the parking lot is eroded. Identification of methods to stabilize this erosion is described in the following section.

Shoreline and Coastal Bluff from Bathing Beach Area to Harpoon Street:

Several areas of the bluff have eroded and are noted on the enclosed Drawings. The erosion has stripped away the natural groundcover exposing the gravelly/sandy subsoil beneath. The subsoil is low in fertility and organic matter; and as a result, no natural revegetation can occur.

The cause of the erosion appears to be a result of people decending the slope to reach the waterline. Techniques used to stabilize the soil must include provisions to prevent uncontrolled climbing of the slope. A possible solution to deter people from doing so would be to plant poison ivy or other deterrent plantings, with adequate warning signs identifying the existance of same.

In order to revegetate the slope it will require that surface water which may be flowing over the bluff be temporarily redirected to a safe discharge area to prevent washout of stabilization techniques. The slope should receive a seeding mixture adapted for the soil conditions that exist, and be of a low maintenance variety.

The seeding application must include a binder to ensure it remains in place during germination. Straw mulch, hydromulch and jute or synthetic meshes are available that will hold the seed in place. Prior to seeding, identification of areas where the slope and functional requirements of providing access need to be located and a trail to permit passage to the waterline be constructed. The trail can zig-zag down the slope with several landings or be steps constructed of a durable material (ie. concrete, timbers, etc.). Fencing of the trail will ensure no uncontrolled access occurs. In addition to seeding the slopes the bluff should be planted with native vegetation such as blueberry, sweet-pepper bush, mountain laurel, birches, etc. (a complete list of suitable plants is included in Appendix II) to provide additional stability of the soil through the root system of these larger plants. This planting of shrubbery and trees is a key element to ensure the longevity of any slope stabilization. In areas where the slopes exceed 2½ to 1, it will be required that timber ties be installed to produce terraces so runoff generated by precipitation will not wash out stabilization techniques.

The top of the slope will require a fence and/or landscape planting of thorny bushes (rose, hawthorns, barberry, etc.) to prevent uncontrolled access upon the slopes. The toe of the slope will need a thorny landscape planting making it less likely for people to climb from the bottom to the top.

The shoreline itself has parts of an old walkway and breakwater structures (timber piles, bulkhead, concrete monolithic slabs). It is suggested that a revetment of concrete or riprap be placed along the shoreline and a walkway be constructed well above the anticipated wave height of the Toms River. Vertical bulkheads are not recommended since it will accelerate erosion and the structure itself is not long-lived since it is subjected to higher energy forces produced by wave action. The walkway alignment need not parallel the shoreline, but could meander to provide areas where pockets of natural vegetation could be planted or remain between it and the shoreline. Also the walkway may be constructed upon piles with a wood decking in some area to overcome slope limitation or other environmental constraints.

SUMMARY AND RECOMMENDATIONS

Identification of the existing environmental, land use, and recreation elements for the Project Area with an overall perspective of the community is accomplished by this report. The report inventories and provides a foundation for the subsequent Master Plan for recreational improvement and development.

The major items that will require attention in the Master Plan are:

1. Repairs and renovation are required at the existing public marina. What, if any, new facilities should be incorporated in the redevelopment program of the marina? How extensive (or intensive) should redevelopment of this area become?
2. A proposal to construct a Community Center adjacent to the marina is underway, and in fact pilings have been driven for the building itself. At this time, final plans for the Center have been formalized. The new Center will serve as a strong central focal point of the waterfront. In order to achieve this goal, provisions to integrate waterfront activities and the community activities to provide a multi-use facility have been considered. The architectural style selected will blend with the existing styles that are found at the site, and the new Center will reflect the character of the waterfront.
3. Insuring public access is provided along the waterfront.
4. Controlling erosion of soils and stabilization of disturbed soils.
5. Provision for combining the existing segmented public open space into a contiguous "linear type" park.

6. Investigation of recreation facilities that are needed by the residents.
7. Establishing a unifying theme that will direct the landscape component of improvements towards an identifiable recreation development.
8. Enhance the intrinsic beauty of the park area by providing skillfull landscaping, attention to viewing areas, investigation of re-routing of vehicular traffic and methods to reduce litter and vandal problems.

These categories are intended to provide a framework within which other topics may be discussed, and are intended to be consistent with the desires of the community and other participatory governmental bodies or agencies.

The Borough of Beachwood waterfront facility has significant available space and is unique in comparison to other community waterfront areas. The waterfront area, historically, has been an essential factor during the development of the Borough as a recreational community and continues to provide many of the recreational needs of its residents. This Master Plan will improve upon that history for the community development, consistent with the original intentions of the Borough's founders and in line with the needs of the present residents.

APPENDIX

APPENDIX I - SPECIAL AREAS

Policy	Special Areas	Application in Borough of Beachwood
7:7E-3.2	Shellfish Beds	Does Not Apply
7:7E-3.3	Surf Clam Areas	Does Not Apply
7:7E-3.4	Prime Fishing Areas	Applies
7:7E-3.5	Finfish Migratory Pathways	Applies
7:7E-3.6	Submerged Vegetation	Does Not Apply
7:7E-3.7	Navigation Channels	Applies
7:7E-3.8	Canals	Does Not Apply
7:7E-3.9	Inlets	Does Not Apply
7:7E-3.10	Marina Moorings	Applies
7:7E-3.11	Ports	Does Not Apply
7:7E-3.12	Submerged Infrastructure Routes	Applies
7:7E-3.13	Shipwrecks and Artificial Reefs	Does Not Apply
7:7E-3.14	Estuarine or Marine Sanctuary	Does Not Apply
7:7E-3.15	Wet Borrow Pits	Does Not Apply
7:7E-3.16	Intertidal Flats	Does Not Apply
7:7E-3.17	Filled Water's Edge	Applies
7:7E-3.18	Existing Lagoon Edge	Does Not Apply
7:7E-3.19	Natural Water's Edge - Floodplains	Applies
7:7E-3.20	Alluvial Flood Margins	Does Not Apply
7:7E-3.21	Beaches	Applies
7:7E-3.22	Dunes	Does Not Apply
7:7E-3.23	Overwash Fans	Does Not Apply
7:7E-3.24	Erosion Hazard Areas	Does Not Apply
7:7E-3.25	Central Barrier Island Corridor	Does Not Apply
7:7E-3.26	Wetlands	Applies
7:7E-3.27	Wetlands Buffer	Does Not Apply
7:7E-3.28	Cranberry Bogs	Does Not Apply
7:7E-3.29	Wet Borrow Pit Margins	Does Not Apply
7:7E-3.30	Coastal Bluffs	Applies
7:7E-3.31	Intermittent Stream Corridors	Applies
7:7E-3.32	Farmland Conservation Areas	Does Not Apply
7:7E-3.33	Steep Slopes	Does Not Apply
7:7E-3.34	Dry Borrow Pits	Does Not Apply
7:7E-3.35	Historic and Archaeological Resources	Does Not Apply
7:7E-3.36	Specimen Trees	Does Not Apply
7:7E-3.37	Endangered or Threatened Wildlife or Vegetation Species Species Habitat	Does Not Apply
7:7E-3.38	Critical Wildlife Habitats	Does Not Apply
7:7E-3.39	Public Open Space	Applies
7:7E-3.40	Special Hazards Areas	Does Not Apply
7:7E-3.41	Excluded Federal Lands	Does Not Apply

Policy	Special Areas	Application in Borough of Beachwood
7:7E-3.42	Special Urban Areas	Does Not Apply
7:7E-3.43	Pinelands National Reserve and Pinelands Protection Area	Does Not Apply
7:7E-3.44	Hackensack Meadowlands Districts	Does Not Apply
7:7E-3.45	Wild and Scenic River Corridors	Does Not Apply

APPENDIX II - PLANT SPECIES

The recommended plant species for the various uses are:

Shade Trees:

- Acer pseudoplatanus
- Acer rubrum
- Liquidamber styraciflua
- Pyrus calleryana "Bradford"
- Platanus occidentalis
- Quercus palustris
- Quercus coccinea
- Sassafras albiclum
- Sophora joponica

Shrubbery - (Filler plants, low-level palnts, accent plants):

- Aronia arbotifolia
- Clethra alnifolia
- Illex glabra
- Illex verticillata
- Myrica pensylvanica
- Vaceinium corymbosum
- Forsythia intermedia
- Kalmia latifolia
- Spiren bulmalda
- Juniperu conferta
- Juniperus pfitzeriance "Conferta"
- Juniperus sargenti
- Pinus mugho mughos
- Yucca filamentosa
- Deutzia gracilis
- Hydrangea otnska
- Lindera benzoin
- Prunus maritima

Specimen Plants:

- Illex opuca
- Vumperus virginiana
- Pinus thunborgii
- Pinus nigra
- Amelonchier canadensis
- Betula alba
- Elaeagnus augostifolia
- Cornus florida
- Magnolia virginu

Slope stabilization:

- Betula alba
- Acer rubrum
- Sassafras albidum
- Quercus palustris
- Juniperus virginiana
- Juniperus conferto
- Prunus maritima
- Pinus thunbergii
- Rosa wichuraina
- Myrica pensylvanica
- Kalmia latifolia
- Rosa rogosa
- Rosa nitida
- Yucca filamentosa
- Pinus nigra
- Illex opaca

APPENDIX III - SCOPE OF WORK

The Borough of Beachwood Waterfront Recreation Park Plan is divided into several work products. The work products will result in a final plan which will be the basis for the major waterfront recreation area. The waterfront area is a 6,000' long beach area along the Toms River encompassing land between the Borough of South Toms River and the Borough of Pine Beach.

The work products consist of:

1. Work Product 1:

   a.) Base Map: A set of base maps of the study area will be prepared at a scale of 1" = 100', based in part upon aerial photography and field investigations. All Special Areas as defined in the Coastal Resource and Development Policies (revised June 1981) and other pertinent cultural and natural features as indicated by existing documents such as the USDA Soil Survey, USGS Topographic Survey and available water quality data shall be delineated, as well as the Coastal Zone Boundary. Overlay maps shall indicate study area boundaries existing land use patterns, vegetation, hydrology, flood hazard areas, existing use of the site, and public and private land ownership. An overview map at a scale of 1" = 400' will be prepared to indicate existing access to the site from the surrounding area.

   b.) Report: A report shall be prepared to accompany the base maps, in which the information presented on the maps shall be discussed. This narrative will include a brief history of the use of the site. The differences between local and regional master plans shall be noted. Community needs will be outlined. Any maps of particular relevance to the report should be reduced in size included in the report.

c.) Engineering Study: Existing engineering problems at the waterfront will be determined by examining existing docks, bulkheads, and shoreline conditions. Solutions which will not negatively impact the environment will be identified and recommendations to repair these facilities will be included.

2. Work Product 2:

a.) The following studies shall be completed:
An evaluation of the possibility of reconstruction the former boardwalk along the shore area from the foot of Larboard Street to the bathing beach and from the bathing beach to the marina area at Beachwood Boulevard.

An evaluation of beach access problems along the cliff bank area from Larboard to Lookout Street. In particular, defoliation problems and severe erosion of the banks will be examined.

An evaluation of the feasibility of a passive park (sitting areas, pathway, picnic areas) along the top of the banks from Harpoon Street to Lookout Street and down to the bathing area, including a small unpaved parking area at Lookout Street.

Identification of potential alternatives for recreation at the marina and pier area including the old municipal/club site.

b.) Based upon the results of these studies, a draft concept plan and plan map at a scale of 1" = 100' shall be prepared. The plan will include landscaping and buffering recommendations, and general design recommendations.

c.) Solutions to beach access problems will be proposed. This will be based upon the evaluation completed in a (a) above. Access will be limited to restricted areas. In all areas where access is not permitted, design of suitable plantings (thorny bushes) along the bank to discourage access should be provided. The feasibility of providing access by constructing steps down the cliffs at Harpoon Street or at other available access points should be examined.

d.) Recommendations for vegetating of the banks and preventing authorized access shall be prepared.

e.) A discussion of consistency of the plan with Coastal Resource and Development Policies (N.J. A.C. 7:7E-1.1 et seq) with special attention to policies on shellfish beds (3.2) prime fishing areas (3.4), finfish migratory pathways (3.5), navigation channels (3.7), marina moorings (3.10), filled waters edge (3.17), natural waters edge floodplain (3.19), beaches (3.21), coastal bluffs (3.30), public open space (3.39), recreational use (7.3), transportation use (7.5), public access (8.13), and buffers and compatibility of uses.

f.) An inventory of local, state, regional and federal agencies which have approval authority shall be prepared. All potentially applicable shall be identified.

g.) A set of slides showing the present condition of the study area shall be submitted.

3. Meetings: The consultant shall meet with the Bureau of Coastal Planning and Development (BCPD) and the Bureau of Coastal Project Review (BCPR) staff following the preparation of the draft report to review the work products for consistency with contract requirements. This meeting will also serve as a pre-application conference for necessary DEP coastal permit applications.
4. Public Meeting: A public meeting will be held within one (1) month of completion of the draft plans. The time and location will be announced at least one (1) week prior to the meeting. The announcement will also provide a brief description of the project, a location map, and potential effects of completion of the project on the existing site. A press release shall be prepared for a local newspaper and radio station. All potentially interested citizens groups should be notified at least one (1) week prior to the meeting.

   In addition, the Consultant shall meet from time to time with other public groups during the course of the project as required by BCPD.
5. Work Product 3:
   a.) The final report shall be a narrative description of the recommended plans, including plan maps at a reduced scale.
   b.) Brochure: A short brochure for public distribution which illustrates major recommendation shall be prepared.
   c.) Cost estimates for construction of proposed facilities and landscaping shall be prepared. This should be divided into phases so parts of the project may be completed as money is available. If a Green Acres application will be prepared, estimates should be in the format that the Green Acres Program requires.

d.) Recommendations for implementation including all proposed funding sources shall be prepared.

6. Endorsement: A resolution from the municipality either accepting the plan and supporting implementation of its recommendations, or a statement of problems and deficiencies is required following the preparation of the final report. Final payment will be contigent upon receipt of this resolution or statement.

August 9, 1984

APPENDIX IV

PRELIMINARY COST ESTIMATE

BOROUGH OF BEACHWOOD

WATERFRONT MASTER PLAN

SECTION ONE

Marina Extension, River Walk

Timber Docks (10')	6,600 S.F.	25.00	$	165,000.00
Bulkhead Replacement	1,010 L.F.	61.00		61,610.00
Boat Slip Poles	116 EA.	220.00		25,520.00
Parking Area (gravel) with Railroad Tie Edging	5,600 S.F.	2.25		12,600.00
Boardwalk	4,250 S.F.	4.25		18,062.50
Shade Trees	32 EA.	88.00		2,816.00
Lighting	12 Ea.	1,650.00		19,800.00
		TOTAL:	$	305,408.50

SECTION TWO

Beachfront Development, Picnic Grove, Overlook Parking, Path System, Passive Park, River Walk

Restrooms	1 EA.		$	25,000.00
Parking (asphalt)	6,800 S.Y.	9.00		61,200.00
Eliminate Existing Drive	560 S.Y.	2.25		1,260.00
Picnic Tables	7 EA.	825.00		5,775.00
Playground Equipment				
Three Leg H.D. Swing Set	8 Unit			1,320.00
Mainliner Slide				1,820.00
Wave Slide				1,720.00
Platform Whirl				1,540.00
Timb "R" Scape				3,300.00
Bike Rack				440.00
Benches	20 EA.	440.00		8,800.00

SECTION TWO (continued)

Path System	3,650 L.F.	2.25	$ 8,212.50
Boardwalk	3,700 S.F.	4.25	15,725.00
Bluff Stabilization			
Terracing with Railroad Ties, if required, Slope Stabilization with Plantings, etc., Excavation			70,000.00
		TOTAL::	$ 206,112.50

SECTION THREE

Park Entrance, Passive Recreation, Active Recreation

Define Vehicular Access/Develop Park Entrance/Maps

Signs	2 EA.	2,750.00	5,500.00
Landscaping		LUMP SUM	7,000.00
			$ 12,500.00

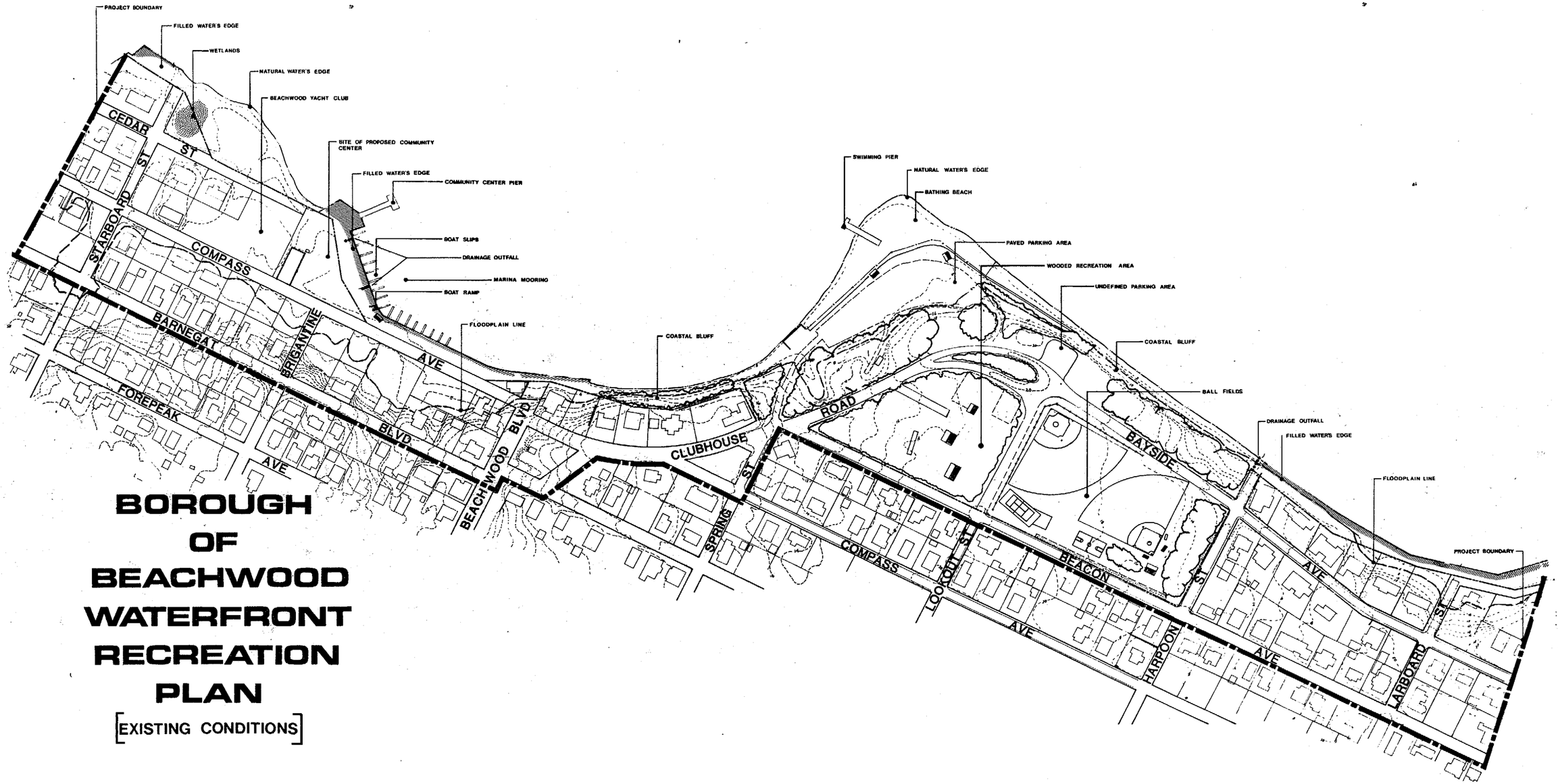
Passive Recreation

Parking	2,400 S.Y.	9.00	21,600.00
Picnic Tables	10 EA.	825.00	8,250.00
Benches	10 EA.	440.00	4,400.00
Restrooms	1 EA.	25,000.00	25,000.00
Swings (8 unit)	1 EA.	1,320.00	1,320.00
Mainliner Slide	1 EA.	1,825.00	1,825.00
Platform Whirl	1 EA.	1,550.00	1,550.00
Bike Rack	2 EA.	450.00	900.00
Trash Recepticles	10 EA.	225.00	2,250.00
			$ 67,095.00

SECTION THREE (continued)

Active Recreation

Parking	1,600 S.Y.	9.00	$	14,400.00
Ballfields	Existing			-
Tennis Courts	2 EA.			25,000.00
Basketball Courts (refurbish)	1 EA.			7,000.00
			$	46,400.00
		TOTAL	$	125,995.00
		SECTION ONE	$	305,408.50
		SECTION TWO	$	206,112.50
		SECTION THREE	$	125,995.00
			$	637,516.00
		Contingencies at 10%	$	63,752.00
		Professional fees at 15%	$	95,627.00
		TOTAL	$	796,895.00
		Say	$	800,000.00



BOROUGH OF BEACHWOOD WATERFRONT RECREATION PLAN

[EXISTING CONDITIONS]

PREPARED BY
JOHN S. TRUHAN ASSOCIATES
ENGINEERS SURVEYORS PLANNERS

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