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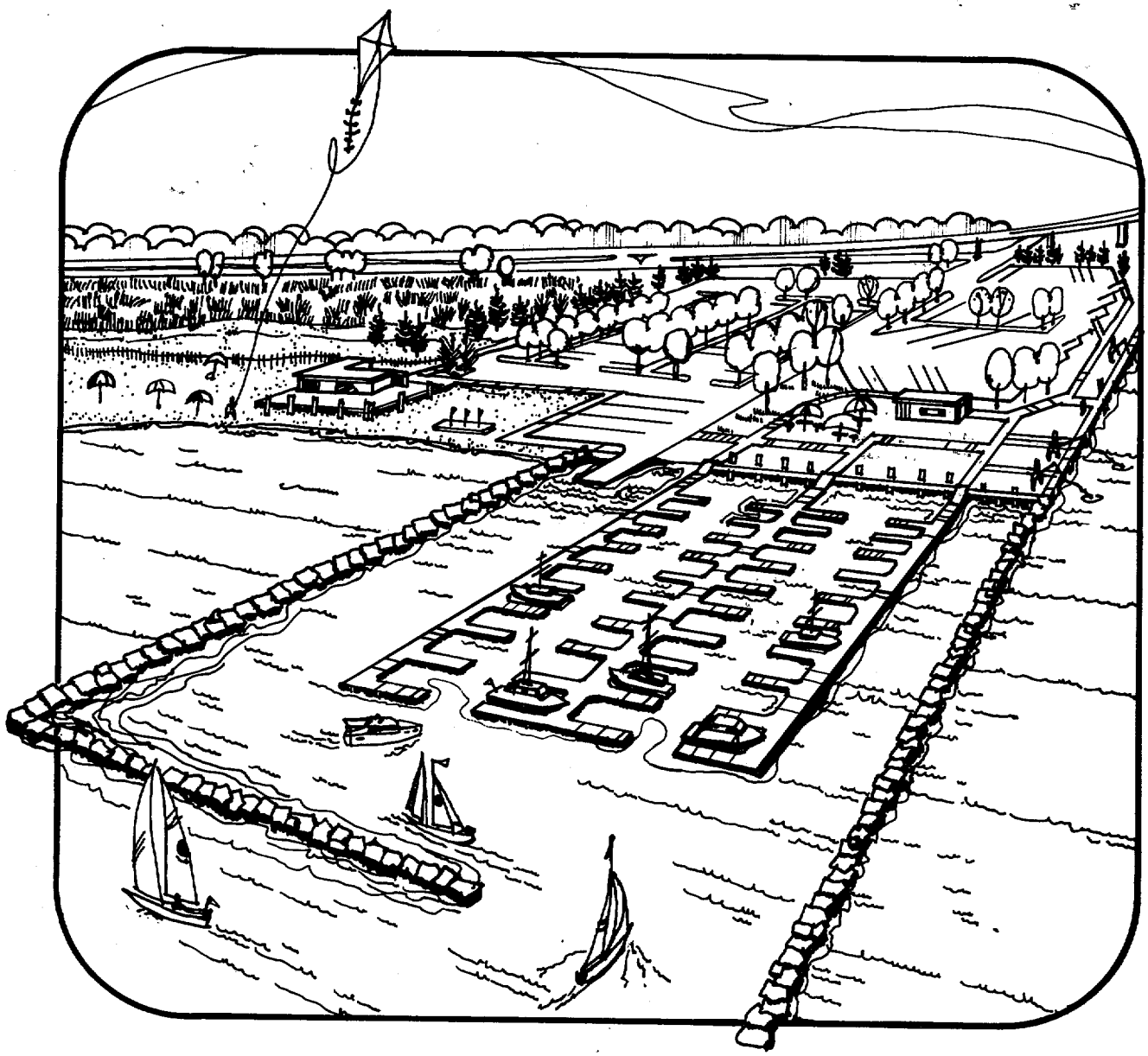
Attachment 4



OLD BRIDGE WATERFRONT REVITALIZATION PLAN

New Jersey Department of Environmental Protection

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New Jersey Department of Environmental Protection. W.P.
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OLD BRIDGE WATERFRONT REVITALIZATION PLAN

TOWNSHIP OF OLD BRIDGE

Middlesex County, New Jersey

U.S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
2234 SOUTH HOBSON AVENUE
CHARLESTON, SC 29405-2413

"This report was funded by a Local Coastal Grant from the New Jersey Department of Environmental Protection, Division of Coastal Resources, Bureau of Coastal Planing and Development. The grant was made possible by New Jersey's participation in the Federal Coastal Management Program administered by the National Oceanic Atmospheric Administration (NOAA), Office of Coastal Zone Management under the provisions of Section 306 of the Federal Coastal Zone Management Act (P.L. 92-583, as amended)."

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December, 1980

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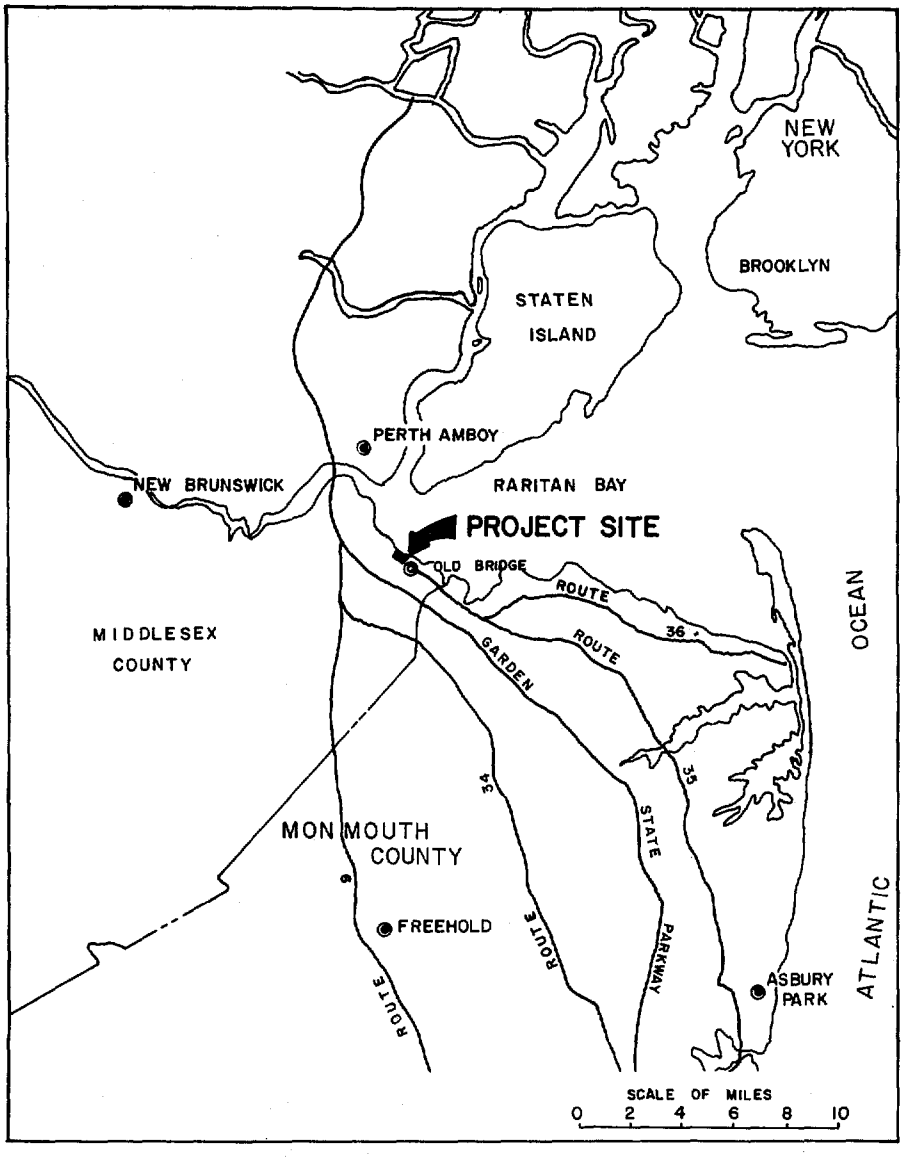
INTRODUCTION AND PROJECT DESCRIPTION

The Old Bridge Waterfront Revitalization Plan project site consists of approximately one hundred (100) acres of beachfront along the Raritan Bay in the northeastern portion of Old Bridge Township in southeastern Middlesex County. Linear in configuration, the two (2) mile long project site is bounded on the northwest by Cheesequake Creek, on the southwest by a spur of New Jersey State Highway #35 and local streets, on the southeast by Whale Creek, and on the northeast by Raritan Bay. The project site encompasses all of the beachfront lands in Old Bridge Township that fronts on the Raritan Bay.

The Old Bridge Waterfront Revitalization Plan consists of an overall Master Plan; an analysis of existing land uses and site characteristics; an environmental assessment; the relationship of the Plan to State, regional and area plans; and recommendations for Plan implementation. As part of the overall planning program, a detailed Beachfront Design Plan and a model were prepared for a seventeen (17) acre segment of the shorefront adjacent to Cheesequake Creek, commonly known as Morgan Beach.

The Old Bridge Waterfront Revitalization Plan was periodically reviewed by municipal, state, county and federal planning and regulatory agencies which provided invaluable input. The Plan also incorporates the input of residents of Old Bridge Township, including comments and recommendations obtained at a public hearing on the Plan. Invaluable assistance was provided throughout the Planning Program by H. Bud Goldie, P.E., Township Engineer; E. Fletcher Davis, Planning Director; Robert Shupin, Recreation Director, and their staffs.

This Plan was funded by a Local Coastal Grant from and administered by the New Jersey Department of Environmental Protection, Division of Coastal Resources, Bureau of Coastal Planning and Development. The grant was made possible by participation of the State of New Jersey in the Federal Coastal Management Program administered by the National Atmospheric Administration (NOAA), Office of National Coastal Zone Management. Assistance and guidance on this program was provided by the staff of the Bureau of Coastal Planning and Development and by other staff of the Division of Coastal Resources.



PROJECT LOCATOR MAP

HISTORICAL ANALYSIS OF THE OLD BRIDGE WATERFRONT

In order to fully understand the development proposed in the Old Bridge Waterfront Revitalization Plan, a brief historical perspective of the project area is helpful. Background data about the history of the Old Bridge waterfront area has been highlighted in a publication entitled At the Headwaters of Cheesequake Creek prepared in 1979 by the Madison Township Historical Society.* Additional sources of information include reference material cited in the bibliography of this publication, as well as discussions with Township historians, environmentalists, and other residents.

Ever since the Raritan Bay area was first inhabitated by the Lenni Lenape Indians, the Old Bridge Waterfront has been used for residential, commercial, navigational, and recreational purposes. Native flora and fauna have played a key part in the early use and development of the waterfront as the Lenni Lenape Indians regularly traveled to the Bay to harvest the then plentiful Chingarora Oysters and soft-shelled clams. Their campsites, including one adjacent to Cheesequake Creek near the present site of the Robert E. Lee Inn, and another adjacent to Whale Creek, near its present intersection with Route 35, have been documented by historians. It is safe to assume that the waters of the Bay were also used for fishing and recreational purposes by these early inhabitants.

The primary subdivision of the Lenni Lenape Indians residing in the area now known as Old Bridge was the Unami, or "people down the river." The Indians called the New Jersey area "Scheyichbi," "land of the shell wampum" or "land bordering the ocean." One of the tribes of Lenni Lenape was known as the "Raritans," which is probably the derivation of the name of the Raritan River and Raritan Bay.

When the Dutch and British began to settle the area in the early and mid-1600's the Raritan River and Bay were heavily utilized as water transportation and commercial trading routes. Sailing sloops in the 18th Century, replaced in the early part of the 19th Century by steamboats, carried farm produce, flour, wood,

* "Madison Township" is the former name of Old Bridge Township. The name change occurred on November 4, 1975.

shingles, and oysters to New York City and other eastern seaports, and to more distant lands such as Barbados and Ireland. Cheesequake Creek in particular was a busy, bustling navigational route, with inns, taverns, and a small village lining its banks. The rich beds of the Cheesequake Creek, first used by the Indians, led to the development of potteries near the headwaters of the Creek and subsequent thriving clay related industries in Middlesex County and New Jersey.

The coming of the railroads in the early and mid-1800's curtailed much of the commercial activity of the sailing ships and steamboats. By 1850, mills began to appear in the Old Bridge area, including three along the waterfront near Raritan Bay Beach, Seidler's Beach, and Morgan Beach. The mills manufactured paper products and gun powder, which were transported by railroad to industrial areas north and south of Old Bridge.

Another activity of economic importance which occurred along the Old Bridge waterfront was harvesting of salt hay. From about 1770 on, salt hay, which consisted of cordgrasses and reed grass, was regularly harvested, dried and used as a packing and insulating material. Photographs of the waterfront taken in the late 19th and early 20th Centuries reveal extensive stands of cordgrass along most of the two mile waterfront. The industrialization of many of the areas adjacent to Raritan Bay, and the resultant perturbation of the water, led to the decline of the salt water cordgrass stands to the present limited stands scattered along stream inlets.

Not only was the Old Bridge waterfront a scene of commerical and navigational activity, but the area was also well known and heavily used for recreational pursuits. The following is an excerpt from the Historical Society publication "At the Headwaters of Cheesequake Creek:"

> "ANOTHER RECREATION FOR THE FARMERS IN THE EARLY 1800'S AND PERHAPS BEFORE, WAS AN ANNUAL OUTING TO THE BAY SHORE. IT WAS CALLED "SALT WATER DAY" AND TOOK PLACE THE SECOND SATURDAY IN AUGUST. THE FIRST SATURDAY, THE NEGRO POPULATION OF THE AREA HAD THEIR DAY AT THE BEACH AND IN SOME PLACES IT WAS CALLED "BLACK SATURDAY."
>
> FOOD WAS PREPARED DAYS BEFORE AND ON THE APPOINTED DAY BEFORE SUNRISE, HUNDREDS OF LOADED WAGONS CAME FROM MILES AROUND AND HEADED FOR THE BEACH AT LAURENCE HARBOR AND CLIFFWOOD BEACH. IT WAS AN IMPORTANT FAMILY OUTING AND LOOKED FORWARD TO WITH GREAT ANTICIPATION BY YOUNG

AND OLD. MUCH VISITING, EXCHANGE AND SHARING OF FOOD AND GOSSIP TOOK PLACE. CHILDREN FROLICKED IN THE SAND AND WADED WITH BARE FEET; MEN, NO DOUBT, TALKED ABOUT THEIR CROPS AND THE STATE OF AFFAIRS. THE ENTIRE COMMUNITY JOINED IN THE MAMMOTH SIZE PICNIC. IN LATER YEARS, THEY TRAVELED MOSTLY IN CARRIAGES AND SURREYS. HORSES AND BUGGIES AND WAGONS, RICH AND POOR, ALL CROWDED TO THE BEACH. IN THE LATE 1880'S, SOME WENT BATHING AND THERE WERE PAVILIONS. DURING THE SUMMER, DANCING WAS ENJOYED IN THE AFTERNOON AND EVENING AT BARBOUR'S PAVILION, MONEY ISLAND (CLIFFWOOD BEACH). STILL LATER, IN THE 1920'S, THERE WAS ENTERTAINMENT AND DANCING AT "FARMER'S DAY" WHEN THE ACTIVITIES FOR THE DAY WERE PLANNED BY THE DEPARTMENT OF AGRICULTURE, NEW BRUNSWICK AND HELD AT SEIDLER'S BEACH. GAMES AND PICTURE TAKING WERE ENJOYED AND OTHER ACTIVITIES AS THE AUTOMOBILE BECAME POPULAR. WHEN IT BECAME MORE ORGANIZED, IT LOST ITS SPONTANEITY.

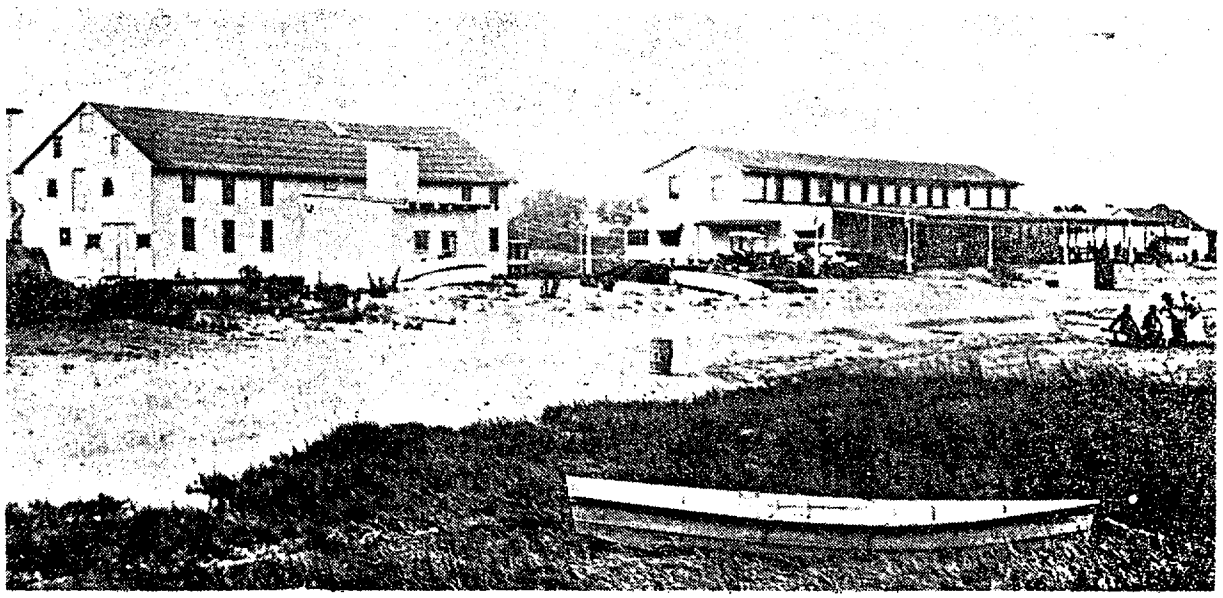
SALT WATER DAY MAY BE CONNECTED WITH THE OLD LAWS PROHIBITING THE GATHERING OF OYSTERS BETWEEN MAY AND AUGUST. DATING BACK, PERHAPS, TO THE TIME WHEN THE INDIANS MADE OUR BEACHES THEIR SUMMER CAMP AND ENJOYED FEASTING ON BAKED CLAMS AND CHINGARORA OYSTERS THAT IN LATER YEARS DREW THE FAMOUS OF NEW YORK CITY TO THE BAY FRONT.

THOUSANDS OF PEOPLE STILL FLOCK TO THE JERSEY SHORE EACH SUMMER TO CARRY ON AN EARLY TRADITION. THE SHORE IS STILL A HEALTY, HAPPY AND PLEASANT PLACE TO BE DURING THE HOT AND HUMID WEATHER."

From a historical perspective, it is evident that the Old Bridge waterfront has been a site of considerable commercial and recreational activity, even since the area was first inhabited by the Lenni Lenape. Much of this activity was directly attributable to the flora and fauna, natural bathing beaches, and access to the major navigational routes. A combination of the detrimental effects of water pollution on existing bayshore flora and fauna, storm damage and resultant beach erosion and building destruction, unsightly filling of the water's edge in some locations, and a general neglect of this valuable asset has led to a deterioration of the bay front area.

During the past decade the Township of Old Bridge initiated efforts to reverse this trend. Forty-seven (47) acres of waterfront land were acquired, and the first phase of the Laurence Harbor Park was developed. Additional plans for

groins, erosion control and recreational facilities were also initiated, some of which are contained in the proposed Plan. Hopefully, future historians will be able to look back with satisfaction and pride to the 1980's as a decade of renaissance for the Old Bridge Waterfront. Significantly, the State of New Jersey has established a policy of upgrading and enhancing the State's waterways in the 1980's. This policy evolved through continuing efforts in planning and regulating development in the coastal area which culminated in a Presidential directive that 1980 be designated as "The Year of the Coast."



Seidler's Beach, circa 1900.

EXISTING LAND USE

The Old Bridge Waterfront Revitalization Plan project area encompasses approximately one hundred (100) acres in the northeastern portion of the Township contiguous with the Raritan Bay. Extending approximately two (2) miles in a northwest-southeast direction, the study area includes all of the land within the Township that has frontage on Raritan Bay and the riparian areas along the beach and stream estuaries.

Analysis of existing land uses within the study areas reveals that of the approximately 100 total acres, 13 acres, or 13 percent, have been developed. The remaining 87 acres is undeveloped. This condition results from interrelated factors such as land ownership, historical developments, environmental conditions, and the developmental capacity of the land itself and is ideal for proposed revitalization of the waterfront. The Township, in conjunction with County, State and Federal agencies, has a unusual opportunity to protect and enhance the waterfront for active and passive recreational use.

Progressing from the northwest to the southeast, the area immediately south of Cheesequake Creek is known both as Morgan Beach and Paul's Beach. This area is undeveloped with the exception of the tavern. Within this seventeen acre segment of the waterfront is approximately 1,500 linear feet of sand and pebble beach along the Raritan Bay. Morgan Beach is currently used by residents and visitors for sunbathing, the launching of small sail and power boats, jogging, wading in the Bay, and fishing and crabbing in Cheesequake Creek. This segment also contains an extensive salt marsh area extending from the sandy beach westerly to Route 35. Unfortunately the salt marsh has been used illegally as a dumping site for construction debris.

The second segment of the waterfront, extending approximately 2,100 linear feet to Laurence Harbor Park, consists of approximately thirteen (13) acres of vacant land. This segment is owned by the Township of Old Bridge and was acquired in 1976 with the assistance of a matching grant from the New Jersey Department of Environmental Protection, Green Acres Program.

A sand and pebble beach, with an approximate width of fifty feet (50'), extends along the entire length of the waterfront in this area. Immediately landward of the beach is a beachsand and dune system averaging approximately one hundred fifty feet (150') in width. This portion of the waterfront is then bounded by a steep bluff of approximately twenty-five feet (25') in height above the beach. This bluff, with a gradient in excess of twenty-five percent (25%), is eroding in numerous locations. At the top of the embankment, and along the periphery of this segment of the project area is Shoreland Circle, which is part of a single-family residential area.

The next segment of the waterfront consists of the 3.4 acre Laurence Harbor Park. Developed in the mid-1970's with matching Green Acres Funds, this popular recreation area has a bathing beach with associated stone groin for shore protection, a boardwalk, two shelter buildings, court sports, and a parking area. It is currently the location of most of the waterfront activity in the Township.

The next segment of the waterfront extending from Laurence Harbor Park to Margaret's Creek, is a vacant and barren 17.22 acre parcel of land owned by the Sea-Land Development Company. The entire 2,200 linear feet of shoreline has been filled with unsightly rip-rap and construction debris. Much of the landward area was also filled with soil and gravel, evidently in anticipation of some form of construction by Sea-Land. The type and compacted nature of the soil has prevented a beach and dune system from becoming established in most locations. The filled area is bounded by a continuation of the steep sandy bluff extending from Laurence Harbor. Portions of the bluff are also eroding. Atop this embankment, and extending westerly from the study area, is Bayview Drive and another single family residential area.

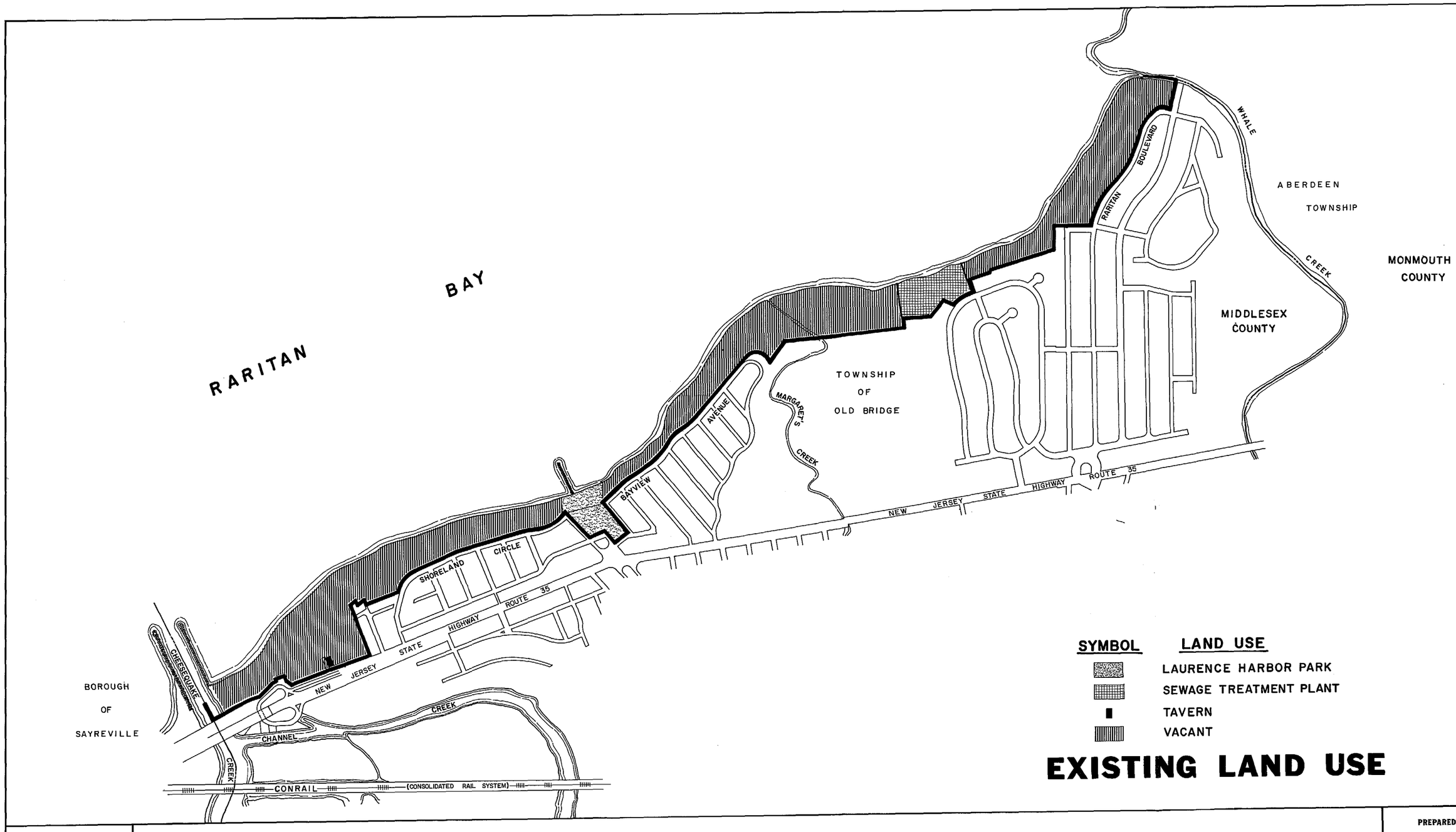
The next major segment of the waterfront, known as Seidler's Beach, consists of a 12.60 acre parcel of land extending 1,100 feet from Margaret's Creek to the Township Sewerage Treatment Plant. This tract, owned by the Township of Old Bridge, is partially within the floodplain of Margaret's Creek. The floodplain contains lowland and aquatic vegetation normally associated with bayfront estuaries. The area is best suited as a conservation and nature study area and has no development capabilities. The remainder of the site consists of a fine sand and pebble beach and a beach and dune system, plus the remains of wooden breakwaters, jutting into the Bay, and the foundations of pavilions that once existed here.

The next segment of the waterfront is a 4.95 acre tract owned by the Old Bridge Township Sewerage Authority and is the location for a sewage treatment plant. The remainder of the site consists of a continuation of the sand and pebble beach, and beach and dune system, at Seidler's Beach.

The remaining portion of the Old Bridge waterfront is known as Raritan Bay or Cliffwood Beach and consists of a 13.50 acre tract owned by the Township, plus numerous small lots in private ownership. This irregularly shaped segment terminates at Whale Creek. A portion of this area is within the floodplain of Whale Creek, and contains riparian vegetation similar to that found in the floodplain of Margaret's Creek. The Water's Edge portion of the area is a continuation of the sand and pebble beach and beach and dune system found along other segments of the study area. There are also significant stands of salt water cordgrass where Whale Creek discharges into Raritan Bay. The balance of the site consists of a sandy bluff with gradients in excess of fifty percent (50%) in some locations. Bank erosion is a persistent problem. Atop the embankment and westerly from the project site is Raritan Boulevard and a single-family residential area.

In summation, the Old Bridge waterfront study area encompasses approximately 100 acres of land area within Old Bridge Township from Cheesequake Creek to Whale Creek along the Raritan Bay. Existing land use consists primarily of undeveloped beachfront, floodplains of three (3) major streams, a municipal park, a sewage treatment facility, and adjacent residential development. The entire shoreline lies within the regulatory jurisdiction of the New Jersey Department of Environmental Protection, Bureau of Coastal Planning and Development, and also within the boundaries of the Coastal Area Facilities Review Act (CAFRA) requirements. A more detailed environmental inventory and assessment of the project site is contained in the next section of this report.

An Existing Land Use Map which depicts land uses within the study area is found on the following page.


RARITAN
BAY
WHALE
CREEK
ABERDEEN
TOWNSHIP
MONMOUTH
COUNTY
MIDDLESEX
COUNTY
RARITAN
BOULEVARD
TOWNSHIP
OF
OLD BRIDGE
MARGARET'S
CREEK
AVENUE
BAYVIEW
NEW JERSEY STATE HIGHWAY ROUTE 35
SHORELAND
CIRCLE
BOROUGH
OF
SAYREVILLE
CHEESEQUAKE
CREEK
CHANNEL
CREEK
CONRAIL (CONSOLIDATED RAIL SYSTEM)
SYMBOL
LAND USE
LAURENCE HARBOR PARK
SEWAGE TREATMENT PLANT
TAVERN
VACANT
EXISTING LAND USE
100 0 400 FEET 1000
20 0 100 METERS 300
NORTH
1 ACRE
OLD BRIDGE WATERFRONT REVITALIZATION PLAN
PREPARED BY
T&M ASSOCIATES
DECEMBER 1980

ENVIRONMENTAL ASSESSMENT

In 1975, the Environmental Commission of the Township of Old Bridge, along with its consultant, Dames & Moore, released a Natural Resource Inventory for the Township, which included the waterfront area. Numerous physiographic factors were analyzed, including aquifers, surface waters, erosion potential, etc., and synthesized into a Development Suitability Model designed as a guide for planning future development. The Old Bridge Waterfront Revitalization Plan incorporates the recommendations of this report, particularly conclusions regarding usage of the waterfront. The Natural Resource Inventory provides an overall environmental analysis of the Township and provides a framework for three (3) critical environmental factors which have a major influence on the proposed Waterfront Revitalization Plan, i.e. flora and fauna, climate, and visual aspects.

FLORA AND FAUNA

The flora and fauna of the Old Bridge waterfront study area are a result of numerous environmental factors, including soil types, geological conditions, surface hydrology, climatic conditions, human influence, and geographic proximity to the Raritan Bay. Within the 100 acre study area there is a rich diveristy of flora and fauna, due to the presence of three major floodplains, beach and dune areas, and the intertidal and aquatic areas associated with Raritan Bay.

Flora

Based upon a review of resource materials and numerous field surveys, three (3) distinct "vegetative types" were identified which cover specific areas of the waterfront site. These "vegetative types," defined by the plant species present, are: Marsh/wetlands, beach/dune systems, and successional areas. A description of each of these types, including prevalent plant materials, is described below.

1. Marsh/Wetlands

   This vegetative type is characterized by plants in the intertidal areas of Raritan Bay, and the floodplains of Cheesequake, Margaret's, and Whale Creeks.

1. Marsh/Wetlands (Continued)

All of the plants within this vegetative type require that their root systems be frequently inundated with water, as well as some or all of the plants themselves. These plants are dynamic in terms of reproductive capacity, photosynthetic ability, and the food and cover they provide for a rich variety of fauna. They are also a very valuable natural resource, in that they minimize the extent of flooding, maximize groundwater recharge, improve water quality, and help protect life and property. Nonetheless, these areas are also extremely sensitive and fragile environmentally, as the slightest disruption of their ecosystem can result in major plant loss.

Plant materials found in this vegetative type in the Old Bridge waterfront study area include the following:

Marsh/Wetlands Vegetation

Common Name	Botanical Name
Salt Marsh Cordgrass	Spartina alterniflora (high vigor)
Salt Marsh Cordgrass	Spartina alterniflora (low vigor)
Salt Meadow Grass	Spartina patens
Soldier's Rush	Juncus militaris
Olney's Bullrush	Scirpis olneyi
Spike Grass	Distichlis spicata
Reed Grass	Phragmites communis
Narrow-Leaved Cattail	Typha angustifolia
Black Grass	Juncus gerardi
Seaside Goldenrod	Solidago sempervirens
Arrowhead	Sagittaria letifolia
Sphagnum Moss	Sphagnum species
Switch Grass	Panicum virgatum
Panic Grass	Panicum longifolium
Marsh Elder	Iva frutescens
Salt Marsh Fleabane	Pluchea purpurascens
St. John's Wort	Hypericum perforatum

Marsh/Wetlands Vegetation (Continued)

Common Name	Botanical Name
Annual Salt Marsh Aster	Aster subulatus
Perennial Salt Marsh Aster	Aster tenuifolius
Nuttal's Lobelia	Lobelia nuttallii
Swamp Rose Mallow	Hibiscus palustris
Marsh Pink	Sabatia stellaris
Sedge	Cyperus polystachyos

2. Beach/Dune

Beach/dune vegetation is characterized by plants living in the thin coastal strip of land between the mean high water line of Raritan Bay and the embankment area paralleling much of the shoreline. As with the marsh/wetlands vegetative type, plants within the beach/dune area are well defined by environmental conditions, and are typical of those found elsewhere along much of the New Jersey coast. This ecosystem is also an extremely sensitive and fragile one. The plants found in this vegetative type significantly help to define the configuration and location of the surface soil and sand dunes.

Plant materials found in this vegetative type within the Old Bridge waterfront study area include the following:

Beach/Dune Vegetation

Common Name	Botanical Name
Dune Grass	Ammophila breviligulata
Beach Heather	Ericaceae species
Common Plantain	Plantago major
Queen Anne's Lace	Daucus carota
Seaside Goldenrod	Solidago sempervirens
Wild Chrysanthemum	Chrysanthemum species
Field Thistle	Cirsium discolor
Virginia Creeper	Parthenocissus quinquefolia
Prickly Pear Cactus	Opuntia humifusa
Heath-Like Hudsonia	Hudsonia ericoides
Heath Aster	Astem pilosus
Bayberry	Myrica pensylvanica

3. Successional Areas

The plant materials found in this vegetative type are primarily located on the embankments which exist between the sand and pebble beach areas and the adjacent upland residential developments. These areas are characterized by steep slopes and loose, unconsolidated sandy soils. All of these areas are successional, i.e. the plant material is involved in the transformational sequence from annual and perennial herbs and grasses to deciduous and evergreen trees and shrubs. At present, no species of plant is dominant, as soil erosion, climatic conditions, and the influence of man are constantly influencing and changing this ecosystem.

The principal plant materials found in this vegetative type within the Old Bridge waterfront study area include the following:

Successional Vegetation

Common Name	Botanical Name
Red Clover	Trifolium pratense
Wild Black Cherry	Prunus serotina
Catalpa	Catalpa bignanoides
Multiflora Rose	Rosa multiflora
Mulberry species	Morus species
Poplar species	Populus species
Willow species	Salix species
Sycamore species	Platanus species

As the waterfront area matures it can be expected that specific plant species will change somewhat, but the basic vegetation types will remain. Variations will occur when man-made landscapes are introduced in the waterfront area, but even in these limited cases, basic vegetation types will persist due to the sensitive ecological factors which occur within the study area.

Fauna

Wildlife is dependent upon its habitat to provide the food, water, and cover necessary for survival. Because of the variety of habitats and vegetative types found within the waterfront project site, resultant fauna is also broadly diversified.

A detailed survey spanning all four seasons would be necessary to fully document the presence, either seasonally or year-round, of all fauna listed in this report. For example, nocturnal species may be undetected in field surveys, despite their probable presence while some of the reptiles, amphibians, and mammals known to inhabit the study area were not confirmed by actual field sightings. Nonetheless, data was compiled from several field observations, discussions with members of the Old Bridge Township Environmental Commission, and numerous reference sources and environmental impact statements for related coastal sites.

Fauna known or presumed to inhabit the Old Bridge waterfront study area include the following:

Fauna

Common Name	Genus and Species Name
1. Birds	
Mockingbird	Minus polyglottos
Eastern Kingbird	Tyrannus tyrannus
Red-winged Blackbird	Agelaius phoeniceus
Catbird	Dumetella carolinensis
Song Sparrow	Melospiza melodia
Chipping Sparrow	Spizella passerina
Field Sparrow	Spizella pusilla
Red-tailed Hawk	Buteo jamaicensis borealia
Common Crow	Corvus brachyrhynchos
Starling	Sturnus vulgaris
Blue Jay	Cyanocitta cristata
Great Crested Flycatcher	Myiarchus crinitus
Mourning Dove	Zenaidura macroura
Common Grackle	Quiscalus quiscula
Carolina Chickadee	P. carolinensis
Carolina Wren	Thryothorus ludovicianus
American Robin	Turdus migratorius
Scarlet Tanager	Piranga olivacea
Eastern Phoebe	Sayornis phoebe
Clapper Rail	Rallus longirostris
Long-billed Marsh Wren	Telmatodytes palustris
Fish Crow	Corvus ossifragus

Fauna (Continued)

Common Name	Genus and Species Name
1. Birds	
Tree Swallow	Iridoprocne bicolor
Sharp-tailed Sparrow	Ammospiza caudacuta
Seaside Sparrow	Ammospiza maritima
Green Heron	Butorides virescens
Sharp-shinned Hawk	Accipiter striatus
Cardinal	Richmondena cardinalis
Red-eyed Vireo	Vireo olivaceus
Yellow Warbler	Dendroica petechia
Prothonotary Warbler	Prothonotaria citrea
Least Flycatcher	Empidonax minimus
Kingfisher	Megaceryle alcyon
Canada Goose	Branta canadensis
Osprey	Pandion haliaetus
Upland Sandpiper (Plover)	Bartramia longicauda
Common Tern	Sterna hirundo
Laughing Gull	Larus atricilla
Ruddy Duck	Oxyura jamaicensis
2. Mammals	
Gray Squirrel	Sciurus caroliniensis
Red Squirrel	Tamiasciurus hudsonicus
Large American Opossum	Didelphus marsupialis virginiana
Raccoon	Procyon lotor
Weasel	Mustela frenata
Eastern Mole	Scalopus aquaticus
White-footed Mouse	Peromyscus leucofus
Meadow Mouse	Microtus townsendii
Muskrat	Ondatra zibethicus
Woodchuck	Marmota monax
Meadow Vole	Microtus pennsylvanicus
Pine Vole	Pitymys pinetorum
Cottontail Rabbit	Sylvilagus floridonus
Eastern Chipmunk	Tamias striatus
Red Bat	Lasiurus borealis
Marsh Rice Rat	Oryzomys palustris
Shrew species	Sorex species

3. Amphibians

Carpenter Frog	Rana virgatipes
Green Frog	Rana clamitans melanota
Southern Leopard Frog	Rana pipiens
New Jersey Chorus Frog	Pseudacris trisereata kalmi
Spring Peeper	Hyla crucifer
Fowler's Toad	Bufo woodhousei fowleri
Red-backed Salamander	Plethodon cinereus
Marbled Salamander	Ambystoma opacum

4. Reptiles

Eastern Box Turtle	Terrapene carolina
Wood Turtle	Clemmys insculpta
Eastern Mud Turtle	Kinosternan subrubruns
Eastern Garter Snake	Thamnophis sirtalis sirtalis
Eastern Hog-nosed Snake	Heterodon platyrhinos
Northern Ringneck Snake	Diadophis punctatus edwardsi
Eastern Worm Snake	Carphophis amoenus amoenus
Eastern Smooth Earth Snake	Opheodrys vernalis vernalis
Northern Fence Lizard	Sceloporus undulatus

5. Fish

Northern Fluke	Paralichthys dentatus
Winter Flounder	Pseudopleuronectes americanus
Bluefish	Pomatomus saltatrix
White Perch	Marone americana
Northern Puffer	Sphoeroides maculatus
Whiting	Menticirrhus saxatilis
Atlantic Sturgeon	Acipenser oxyrhynchus
Rough Scad	Trachurus lathami
Mackerel	Scomeromorus sp.
Rainwater Killifish	Lucania parva
Weakfish	Cynoscion regalis
Mud Minnow	Umbra pygmaea
Sheepshead Minnow	Cyprinodon variegatus
Alewife	Alosa pseudoharengus
4-Spine Stickleback	Apeltes quadracus
9-Spine Stickleback	Pungitius pungitius
Eastern Pickerel	Esox reticulatus

6. Crustaceans

Grass Shrimp	Palaemonetes species
Fiddler Crab	Uca minax
Blue Claw Crab	Callinectes satidus
Horseshoe Crab	Limulus polyphemus
Oyster	Crassostrea virginica
Soft-shell Clam	Mya arenaria
Blue Mussel	Mytilus edulis

7. Insects

Greendarner Dragonfly	Axax junius
Greenhead Fly	Tabanus nigrovittas
Sand Fly	Phlebotomus species
Mosquito species	Culicidae species
Common Cricket	Gryllidae species
Grasshopper	Schistocerca americana
Monarch Butterfly	Danaus plexippus

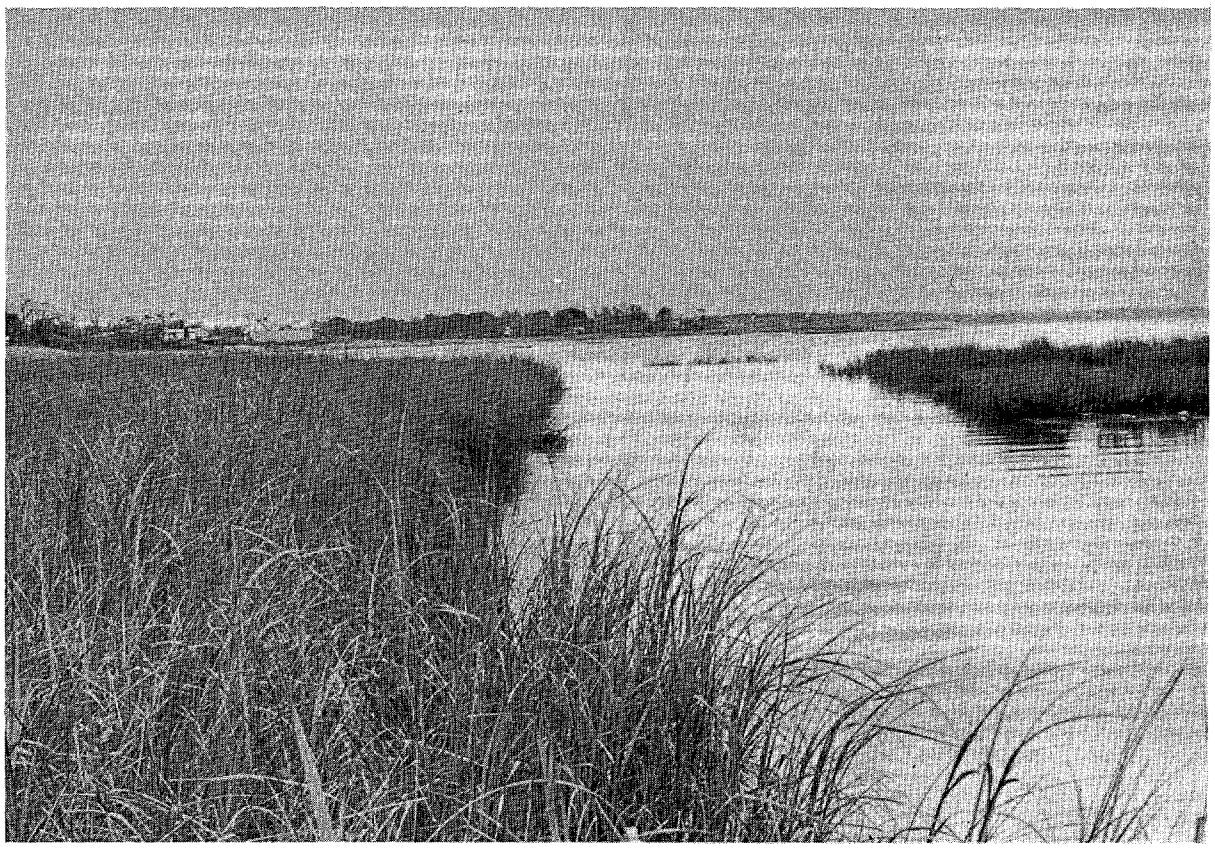
CLIMATE

The effects of past and present meteorological conditions have had a strong influence on the design of the Old Bridge Waterfront Revitalization Plan. Existing geological factors give clues to the current vulnerability of the waterfront to severe storms. For example, a review of aerial photographs reveals the pronounced presence of extensive swash bars along the entire length of the shoreline. These swash bars indicate that the dominant littoral drift is to the southwest. The presence of large pebbles deposited with sand at the Water's Edge is an indicator of high wave energy and activity. Strong northeast winds during storms, plus prevailing northwest (high pressure) winds at the project site creates bipolar movement of sediments. There is a west to east coriolis effect with suspended sediments, but this is less pronounced than the bipolar movement.

These meteorlogical dynamics, coupled with an absence of shore protection structures, have led to severe sand erosion along the Old Bridge waterfront, particularly in the Morgan Beach area. Much of the recent deposition of beachfill by the Army Corps of Engineers has washed out into Raritan Bay. During several northeast storms, the stone jetty on the Township side of Cheesequake Creek is completely inundated, posing a navigational hazard.

The Old Bridge waterfront has a history of storm damage. The pavilions and summer cottages that once dotted the Seidler's Beach area were destroyed in storms, as were the mills near the beachfront. In more recent years, hurricane damage has been extensive along the entire waterfront.

These factors, therefore, mandate that the Old Bridge Waterfront Revitalization Plan reflect an awareness of these strong meteorological influences. Structures should be kept to a minimum and, where possible, be elevated and easily removable. Shore protection methods, including the construction of additional groins and the deposition and stabilizing of beachfill, must be incorporated into the Plan. In short, the 100 acre waterfront project site must be designed with a respect for the natural processes and dynamics which occur on a daily basis, and not be in conflict with them.



Cordgrass adjacent to Whale Creek.

WATERFRONT REVITALIZATION PLAN
and
BEACHFRONT DESIGN PLAN

The Old Bridge Waterfront Revitalization Plan has been based primarily upon the results of a detailed environmental assessment and land use analysis of the site, an analysis of the Township's recreation goals and needs, numerous meetings with and reviews of preliminary concept plans by Federal, State and municipal agencies, and input gained from Township residents at the public meeting of December 22nd, 1980. The Plan for the entire waterfront is found on Page 24 and the Beachfront Design Plan for the Morgan Beach area of the waterfront is found on Page 25.

The Waterfront Revitalization Plan provides that the entire Old Bridge Waterfront area be used for recreation and conservation purposes, through the creation of a one hundred (100) acre, two (2) mile long Township park. Three (3) distinct nodes of recreational facilities and activities are to be created or expanded; the Morgan Beach Recreation Area, the Laurence Harbor Park, and the Raritan Bay Beach Recreation Area. The segments of shoreline connecting these activity areas are to be minimally developed through the deposition of beachfill above the mean high water line; reestablishment and protection of the beach dune system; stabilization of the steep slopes adjacent to Shoreline Circle; Bayview Avenue; and Raritan Boulevard; and a raised wooden plank walkway through the wetlands adjacent to Margaret's Creek.

Key design elements proposed to be constructed in each of the three (3) recreation areas are as follows:

1. Morgan Beach Recreation Area

   This seventeen (17) acre site adjacent to Cheesequake Creek, locally referred to as Paul's Beach, is to be developed with the following facilities:

   - A seasonal marina for approximately fifty (50) boats, utilizing a floating dock system.
   - A public boat launching ramp.

- A 1,000'± long bathing beach.
- A 600'± long stone groin, to protect the marina and bathing beach.
- A series of raised wooden fishing and crabbing decks adjacent to Cheesequake Creek.
- Parking for approximately one hundred (100) vehicles, including cars with boat trailers.
- Restroom and concession buildings, utilizing a removal trailer system design.
- Reestablishment of the beach/dune system.
- Expansion of the existing wetlands area near Pratt Avenue, and an eventual removal of Pratt Avenue and the Pratt Avenue Tavern.
- Landscaping and all support facilities, as required.

It is anticipated that the Morgan Beach Recreation Area will become the locus of water-oriented public recreation in the Township and in this area of the bayshore region, due to the installation of the marina and public boat launching ramp. It is also anticipated that fees would be charged for day use of these facilities, which could enable this recreation area to be financially self-supportive. Daily usage of all the facilities is projected for up to one thousand (1,000) residents or visitors in the summer months.

The estimated cost of construction of the Morgan Beach Recreation Area in 1981 is $1,980,000.00.

2. Laurence Harbor Park

This existing 3.4 acre recreation area is to be expanded via the construction of the following facilities:

- Deposition of additional beachfill to increase the size of the bathing beach.

- Extend the boardwalk a minimum of one hundred feet (100') to the northwest, and construct a gazebo at its terminus.

- Two (2) tennis courts.

- A revised parking lot, with landscaping and walkways.

- Senior citizens facilities.

It is anticipated that Laurence Harbor Park will continue to receive heavy usage in the summer months, due to the presence of the bathing beach. The upgrading of the parking area and the addition of new court sports and senior citizens facilities should increase and extend visitor usage into the spring and fall seasons.

The estimated cost of construction of the additions to Laurence Harbor Park (Cliffwood Beach) in 1981 is $235,000.00.

3. Raritan Bay Beach Recreation Area

This 13.5 acre recreation area adjacent to Whale Creek is to be created with the construction of the following facilities:

- Preserve and expand, via mechanical transplantation, the existing wetlands vegetation.

- Protect and expand the beach/dune system.

- Nature interpretation areas.

- A tot lot and two (2) platform tennis courts.

- A restroom/shelter building, utilizing the removable trailer concept.

- A limited parking facility for approximately thirty (30) vehicles.

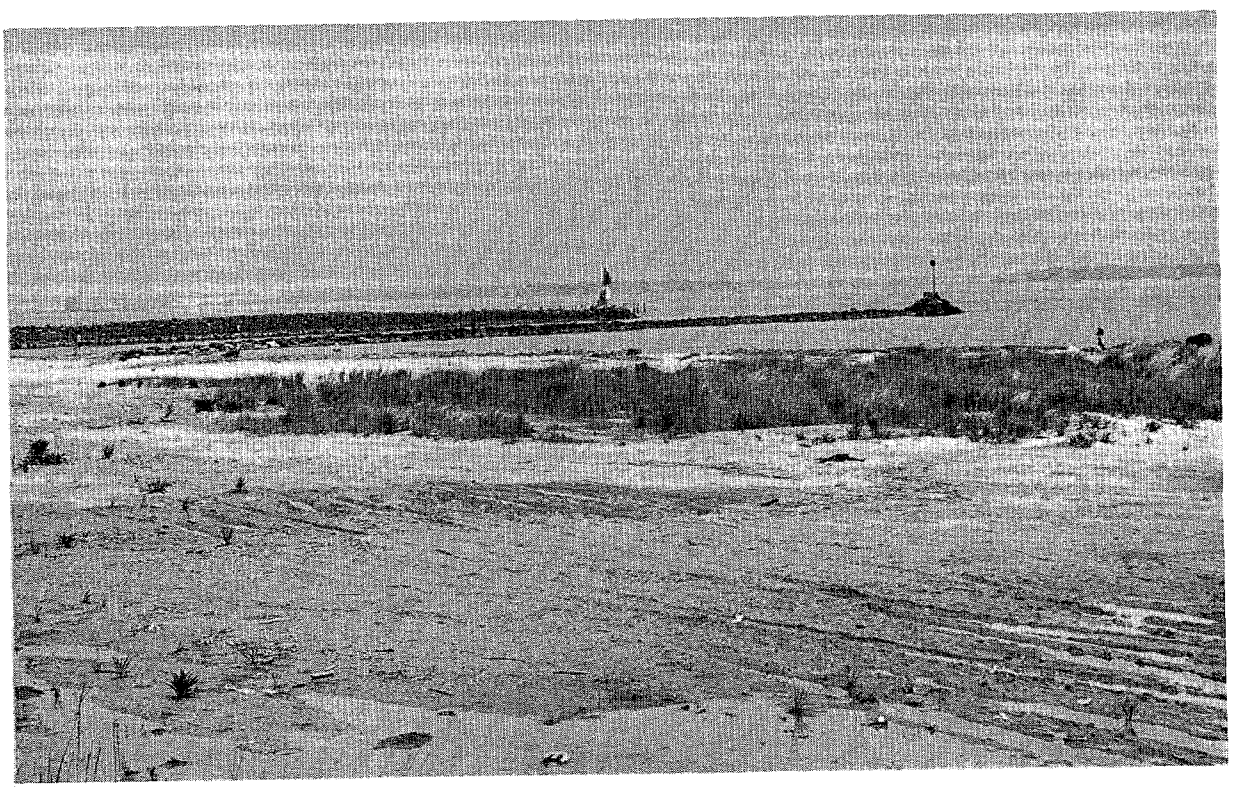
- Stabilization of the slopes adjacent to Raritan Boulevard through planting of indigenous vegetation.

It is anticipated that the Raritan Bay Beach Recreation Area will be used primarily for day use nature study purposes and limited active recreational use which will complement, rather than duplicate, the existing facilities at the Cliffwood Beach Recreation Area immediately to the east of the project site in Aberdeen Township.

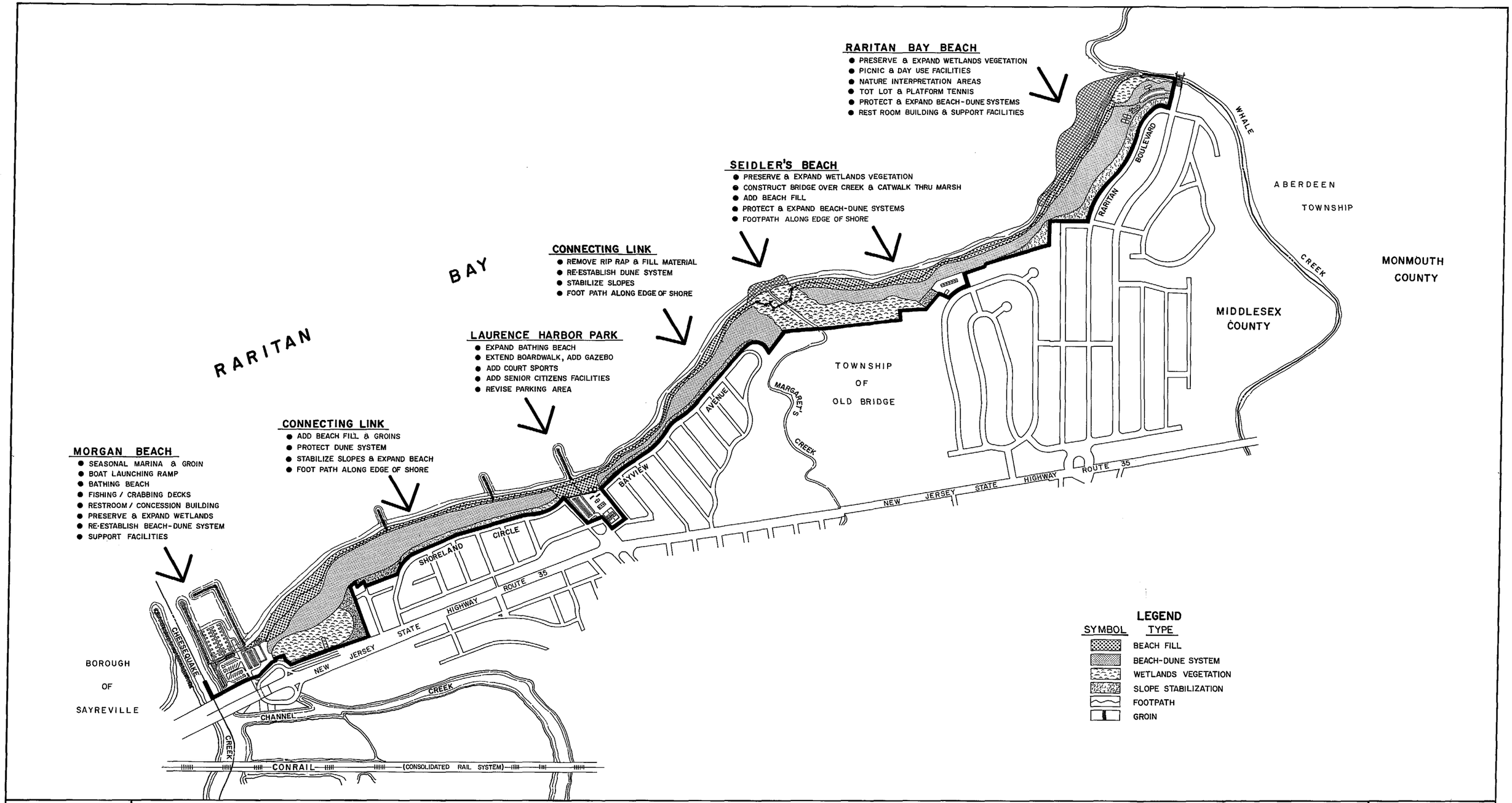
The estimated cost of construction of the Raritan Bay Beach Recreation Area in 1981 is $407,000.00.

Minimal development is proposed for the segments of the waterfront connecting the recreation nodes. Nonetheless, the cost of constructing the facilities (e.g. the stone groins) is considerable. The estimated cost of this construction in 1981 is $1,417,000.00

The estimated total cost of construction and development of all proposed facilities in the Old Bridge Waterfront Revitalization Plan in 1981 is $4,039,000.00. A detailed, itemized cost estimate for each of the recreation areas, and the connecting segment of shoreline, can be found in Appendix I of this report.

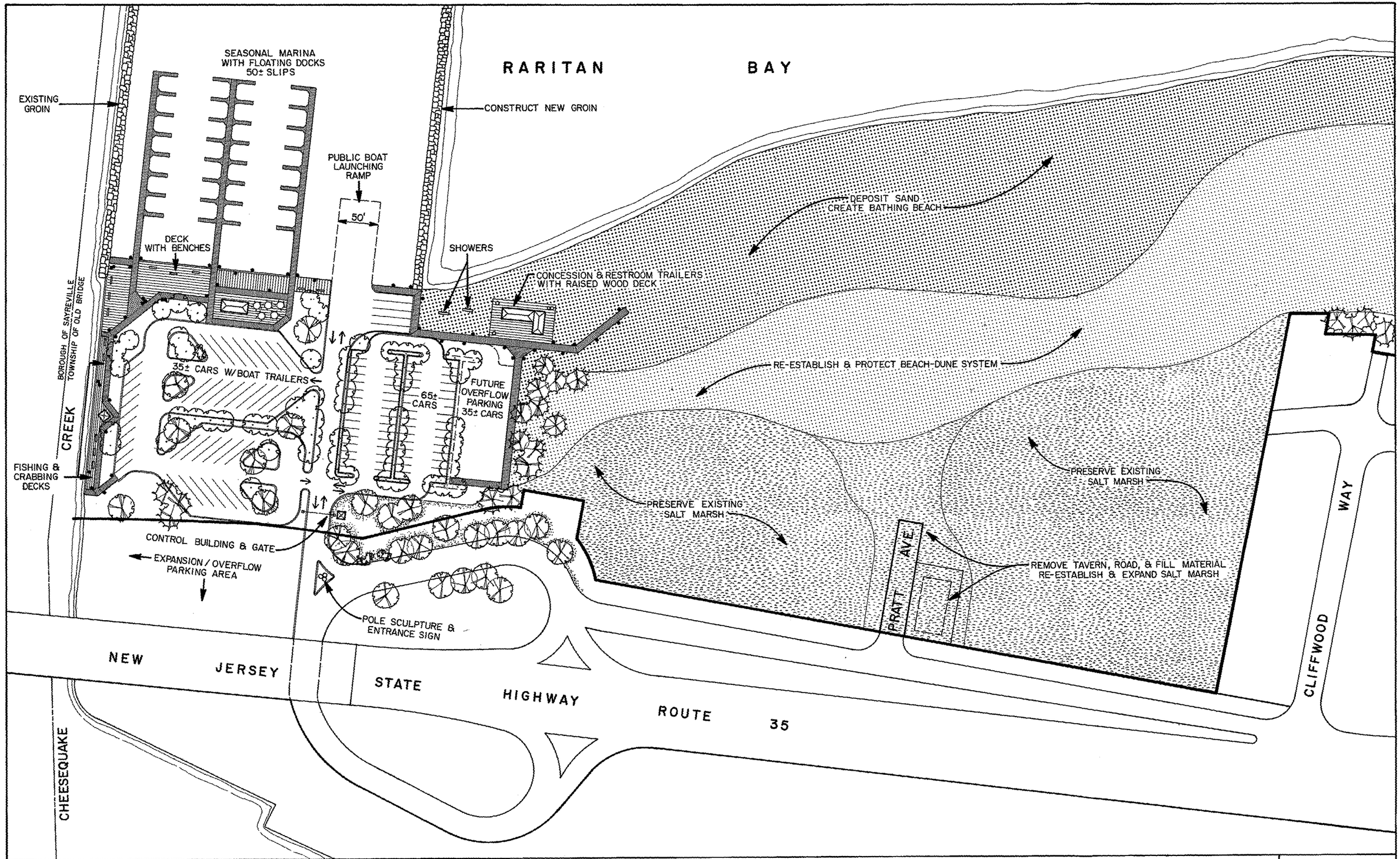


Morgan Beach, existing conditions.



OLD BRIDGE WATERFRONT REVITALIZATION PLAN

PREPARED BY
T&M ASSOCIATES
DECEMBER 1980



BEACHFRONT DESIGN PLAN

PREPARED BY
T&M ASSOCIATES
DECEMBER 1980

DEVELOPMENT SEQUENCE AND TIMETABLE

Obviously a project of this size and complexity will require a significant amount of design and site engineering, construction time, and funds. These factors necessitate that the development proposed in the Old Bridge Waterfront Revitalization Plan be phased. Specifically, three (3) major construction phases are proposed on the basis of the following development sequence of facilities:

1. Raritan Bay Beach Recreation Area - new facilities.

2. Morgan Beach Recreation Area - new facilities.

3. Laurence Harbor Park - additions.

A basic timetable for construction is contingent upon several factors including acquisition of all necessary permits and funding grants, which are described in detail in following sections of this report and final input and decision-making by the Township. The proposed sequence of development is designed to concentrate development in one location at a time along the waterfront, and meeting the recreational needs of Township residents in order of priority. Individual contracts could be let for specific construction items, e.g. stone groins, in addition to a general contract including grading, drainage facilities, installation of utilities, pavement, beachfill, structures, etc. The diveristy and type of facilities to be constructed, in conjunction with funding procedures and project development costs, also mandate that a minimum of five (5) years will be needed to complete all of the proposed development along the waterfront. A concerted, continuing effort on the part of the Township can, however, make the revitalization of the Old Bridge waterfront a realistic and attainable program which could be accomplished during the next 5-10 years.

NEW JERSEY COASTAL RESOURCE AND DEVELOPMENT POLICIES

The New Jersey Coastal Management Program as adopted in September, 1980, and approved by the U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Coastal Zone Management, provides substantive coastal policies to guide public decisions about significant proposed development and management of resources within the coastal zone of New Jersey.

Coastal policies for the Bay and Ocean Shore Segment, which apply to the Old Bridge Waterfront area, were adopted as New Jersey State Administrative Rules (N.J.A.C. 7:7E-1.1 et. seq.) effective September 28th, 1978. These policies were amended and extended to the entire coast effective September 26th, 1980.

The coastal policies are utilized as criteria for permit decisions by the N.J.D.E.P., Division of Coastal Resources, for permit decisions under CAFRA, the Wetlands Act and the Waterfront Development Act and are utilized as guides for N.J.D.E.P. recommendations to the Tidelands Resource Council and management actions anywhere in the coastal zone.

Coastal Resources and Development Policies have been reviewed in terms of the Old Bridge Waterfront Plan. General and specific policies which apply to the Plan include: Special Areas, General Water Areas, Water Quality and Runoff, Water Quality in the Raritan Bay, Soil Erosion and Sedimentation, Traffic Circulation and Vehicular Access.

SPECIAL AREAS

In order for a project which lies within the coastal area of New Jersey to receive approval for development from the Department of Environmental Protection, specific criteria must be satisfactorily addressed. In the New Jersey Coastal Management Program and Final Environmental Impact Statement August, 1980, forty-one (41) types of coastal areas "...which merit focused attention and special management policies" are identified. These "Special Areas" are listed below and those which are applicable to the Old Bridge waterfront study area are noted with an asterisk:

*7:7E-3.2	Shellfish Beds
7:7E-3.3	Surf Clam Areas
*7:7E-3.4	Prime Fishing Areas
*7:7E-3.5	Finfish Migratory Pathways
7:7E-3.6	Submerged Vegetation
*7:7E-3.7	Navigation Channels
7:7E-3.8	Canals
7:7E-3.9	Inlets
*7:7E-3.10	Marina Moorings
7:7E-3.11	Ports
*7:7E-3.12	Submerged Infrastructure Routes
7:7E-3.13	Shipwrecks and Artificial Reefs
7:7E-3.14	Estuarine or Marine Sanctuary
7:7E-3.15	Wet Borrow Pits
*7:7E-3.16	Intertidal Flats
*7:7E-3.17	Filled Water's Edge
7:7E-3.18	Existing Lagoon Edge
*7:7E-3.19	Natural Water's Edge - Floodplains
7:7E-3.20	Alluvial Flood Margins
*7:7E-3.21	Beach and Dune Systems
7:7E-3.22	Central Barrier Island Corridor
*7:7E-3.23	Wetlands
7:7E-3.24	Cranberry Bogs
7:7E-3.25	Wet Borrow Pit Margins
7:7E-3.26	Coastal Bluffs
7:7E-3.27	Intermittent Stream Corridors
7:7E-3.28	Farmland Conservation Areas
*7:7E-3.29	Steep Slopes
7:7E-3.30	Dry Borrow Pits

7:7E-3.31	Historic and Archaeological Resources
7:7E-3.32	Specimen Trees
*7:7E-3.33	Endangered or Threatened Wildlife or Vegetation Species Habitat
7:7E-3.34	Critical Wildlife Habitats
*7:7E-3.35	Public Open Space
7:7E-3.36	Special Hazards Areas
7:7E-3.37	Excluded Federal Lands
7:7E-3.38	Special Urban Areas
7:7E-3.39	Pinelands National Reserve and Pinelands Protection Area
7:7E-3.40	Hackensack Meadowlands District
7:7E-3.41	Wild and Scenic River Corridors

The Special Areas policies which affect the Old Bridge Waterfront Revitalization Plan area are described and analyzed in detail below. A map depicting the type and location of the Special Areas is presented on Page 42.

7:7E-3.2 Shellfish Beds - Shellfish Beds are defined as "estuarine, bay, or river bottoms (tidelands) that are productive for hard clams, soft clams, eastern oysters, bay scallops, or blue mussels. A productive bed is one which can be shown to have a history of natural recruitment for one or more of these species, or is leased by the State of New Jersey for shellfish culture, or is a State Shellfish Management Area."

Soft-shell clam (Mya arenaria), oyster and blue mussel beds are present at various locations along the two (2) mile waterfront. These beds, however, have been "non-productive" for several years as a result of State prohibitions on harvesting for sale necessitated by the very poor water quality of the Raritan Bay. The New Jersey Department of Environmental Protection changed the classification of these shellfish beds and their recruitment from approved to condemned in 1962. This classification has continued through 1980. Furthermore, a Tri-State Regional Planning Commission Report has projected that this condition will persist for an additional twenty (20) years. The proposed development in the Old Bridge Waterfront Revitalization Plan is not in conflict with this Special Area policy. Furthermore, with the exception of the dredging for the seasonal marina at Morgan Beach, adjacent to Cheesequake Creek, no disruption of the shellfish beds along the entire length of the Old Bridge waterfront will occur.

The Old Bridge Township waterfront along the Raritan Bay supports a variety of fish including bluefish, fluke, whiting, etc. At present, the existing land area and groin immediately to the east of Cheesequake Creek are extensively used as locations from which to fish and crab, as well as, to a lesser extent, the existing stone groin located at Laurence Harbor Park.

The development proposed as part of the Old Bridge Waterfront Revitalization Plan is not in conflict with this Special Area. In fact, recreational fishing and crabbing is a permissible use of Prime Fishing Areas. The development proposed in the Old Bridge Waterfront Revitalization Plan includes the construction of three (3) additional stone groins jutting out into the Bay, two (2) of which are primarily to be constructed for shore protection purposes. However, their use by recreational fisherman is definitely anticipated. Additionally, at the Morgan Beach recreation area a series of raised wooden decks is proposed for use by fishermen and also contemplated as part of this development. This location is at present the most popular site along the Old Bridge Waterfront for fishing and crabbing and the proposed development is anticipated to increase access to and enjoyment of these activities.

7:7E-3.5 Finfish Migratory Pathways - This Special Area is defined as "...waterways which can be demonstrated to serve as passageways for diadromous fish to or from seasonal spawning areas, including juvenile and anadromous fish."

There are no Finfish Migratory Pathways present at or immediately adjacent to the project site. However, in the New Jersey Department of Environmental Protection Miscellaneous Report No. 41, by H. E. Zich, entitled "Information on Anadromous Clupeib Spawning in New Jersey," Blueback Herring (Alosa aestivalis) are present at Hook's Creek Lake Dam on Cheesequake Creek about four (4) miles upstream from the Bay. Since no physical barriers to the movement of these fish will be constructed, and no development will affect the water quality upstream, the development proposed in the Old Bridge Waterfront Revitalization Plan is not in conflict with this Special Area policy.

7:7E-3.7 Navigation Channels - The New Jersey Coastal Management Program Report defines Navigation Channels as "...water areas in tidal rivers and bays presently maintained by D.E.P. or the Army Corps of Engineers." New or maintenance dredging of existing navigation channels is conditionally acceptable providing that the condition under the new or maintenance dredging policy is met.

At present, Cheesequake Creek is periodically maintained by the Army Corps of Engineers, and this policy is anticipated to continue. As part of the proposed development of the Old Bridge Waterfront Revitalization Plan, the seasonal marina immediately adjacent to Cheesequake Creek in the Morgan Beach area would also be periodically maintained by the Corps. Neither Margaret's Creek nor Whale Creek to the east will be dredged, nor is the creation of a navigation channel part of the proposed development. The development proposed in the Old Bridge Waterfront Revitalization Plan is, therefore, not in conflict with this Special Area policy.

7:7E-3.10 Marina Moorings - Marina Moorings are defined as "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."

One of the major proposed developments of the Old Bridge Waterfront Revitalization Plan is the creation of a "seasonal" marina in the Morgan Beach area. The marina would initially consist of three (3) docks jutting approximately two hundred fifty feet (250') into Raritan Bay, and having the capacity to moor approximately fifty (50) boats. Footings are not to be installed to support the timber docks; rather, they will be supported by a flotation system beneath each section. The docks would be used for a four (4) to five (5) month period (i.e. late spring through early fall as demand dictates) and then be removed from the site by Township employees and stored until the following season. The seasonal marina is proposed for day use by small craft, on a first come-first serve basis. In conjunction with the marina is a proposed public boat launching ramp one hundred feet (100') to the east, and an L-shaped groin extending approximately six hundred feet (600') into Raritan Bay.

In order to create the seasonal marina, it is anticipated that approximately 40,000 cubic yards of material would have to be excavated from this area. The spoils would initially be deposited on land in the Beachfront Design Area, and then distributed to other locations along the Old Brick Waterfront or at other project sites within the Township, as required. Periodic maintenance dredging, required to preserve water depth, could be performed in conjunction with the Corps' present maintenance program at Cheesequake Creek.

The marina mooring policy states that "...any use that would detract from existing or proposed recreational boating use in Marina Mooring areas is discouraged." The report further states "...maintenance dredging in the Marina Mooring and access channel is encouraged provided that turbidity is controlled and that there is an acceptable dredge spoil disposal site." The proposed creation of the seasonal marina is in harmony with these policies and, therefore, is an acceptable use for this Special Area.

7:7E-3.12 Submerged Infrastructure Routes - By definition, a Submerged Infrastructure Route is "...the corridor in which a pipe or cable runs on or below a submerged land surface." The policy for this Special Area states that "...any activity which would increase the liklihood of infrastructure damage or breakage, or interfere with maintenance operations, is prohibited."

Presently on-site there are three (3) infrastructure routes which must be addressed. The first is an outfall pipe extending approximately one hundred fifty feet (150') into Raritan Bay from the existing sewage treatment plant near Seidler's Beach. Since only limited development is proposed for this area, and since the outfall pipe will soon be removed, the proposed waterfront development is not in conflict with this existing infrastructure route.

The second infrastructure route is a reinforced concrete pipe that was constructed in conjunction with the stone groin in the Laurence Harbor Park area. This pipe extends about two hundred fifty feet (250') into Raritan Bay, but will not be affected by the proposed waterfront development.

The third infrastructure route is a thirty-six inch (36") corrugated metal pipe located two hundred feet (200') to the east of the Morgan Beach area. This pipe, which discharges storm water runoff and initially extended several hundred feet into Raritan Bay, now terminates approximately twenty-five feet (25') inland from the mean high water line. The balance of the pipe was severed and washed out to sea during previous storm activity.

The Township of Old Bridge has received permits from the Army Corps of Engineers and the New Jersey Department of Environmental Protection to construct two (2) pipes, in conjunction with new stone groins, to carry storm water runoff into Raritan Bay. The first pipe and groin are to be constructed at approximately the same location and will replace existing severed pipe, and the second is to be constructed 1,000 feet to the east, beginning near the intersection of Seaview Avenue and Shoreland Circle. As limited development is proposed in each of these areas, the construction of the groins and infrastructure routes meet the criteria for this Special Area.

Under the U.S.E.P.A. order, the existing Laurence Harbor Treatment Plant near Seidler's Beach is to be abandoned and replaced by a pumping station and a twenty inch (20") force main which would extend in a westerly direction along the entire length of the waterfront to a regional treatment system at the Borough of Sayreville near the intersection of New Jersey State Highway Route 35 and the Shore Line Branch of Conrail. The force main will traverse several acres of waterfront land purchased by Old Bridge Township with Green Acres assistance. A precise date for the commencement of construction had not been determined at the time of this report. Nonetheless, the installation of this force main must be carefully coordinated with the development of the Waterfront Plan to minimize any disruption and to assure that the criteria of this Special Area are met.

7:7E-3.16 Intertidal Flats - By definition, Intertidal Flats are "extensive areas between the mean high water line and mean low water line along tidal bay shores." One of the policies states that "development, filling, new dredging or other disturbance of intertidal flats is discouraged."

The intertidal flats area along the Old Bridge waterfront extends as much as six hundred feet (600') bayward. This fact has environmental implications as well as influencing the inclusion and placement of certain water-oriented recreation facilities. In the Raritan Bay Beach Recreation Area, the only proposed development in the intertidal flats area is the expansion of existing cordgrass beds. No development is proposed in the intertidal flats area of Lawrence Harbor Park.

In the Morgan Beach Recreation Area, however, the Beachfront Design Plan includes a proposal for the creation of a seasonal marina, the construction of which would involve the dredging of a 600' x 300' area within the intertidal flats segment of the waterfront. The shellfish beds in this area, however, are few in number and non-productive. There is also no sub-aqueous vegetation, nor is this area of the Old Bridge waterfront a critical forage area for migrant waterfowl. The Old Bridge Waterfront Revitalization Plan is therefore in basic compliance with the policies and recommendations for this Special Area.

7:7E-3.17 Filled Water's Edge - By 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." Filled Water's Edge areas are "...of less environmental concern than undisturbed water's edge areas," primarily because the natural buffering functions of the water's edge have "...already been largely lost through excavation, filling, and the construction of retaining structures."

There are three (3) Filled Water's Edge areas along the Old Bridge Township waterfront. The most significant area consists of approximately 2,200 linear feet of shoreline in conjunction with land owned by the Sea-Land Development Corporation southeast of Laurence Harbor Park. On this site rip-rap material, consisting primarily of construction debris, has been deposited, while the land area southwest of the shoreline has also been filled with topsoil and gravel, extending to the toe of the bluff adjacent to Bayview Avenue. The Old Bridge Waterfront Revitalization Plan calls for the removal of this rubble and fill material, leading to the re-creation of the natural water's edge.

A second Filled Water's Edge area is located in the Laurence Harbor Park area, where approximately one (1) acre of bathing beach has been created by the Laurence Harbor Park through the deposition of beachfill material.

The third Filled Water's Edge area consists of approximately 2,000 linear feet of shoreline intermittently extending west from the beach at Laurence Harbor Park to the Morgan Beach area. Several thousand square yards of beachfill were deposited from mean high water line inward, under the supervision of the Army Corps of Engineers. The intent of the fill was to stabilize this area and minimize possible beach erosion from storms. Due to the intensity of several storms during the past decade, however, concurrent with the absence of additional shore protection measures, much of this fill subsequently washed away. The Old Bridge Waterfront Development Plan proposes the re-deposition of beachfill material in all areas where such erosion has occurred, in conjunction with the construction of new stone groins and other shore protection methods. The fill material and construction debris which has been deposited between the shoreline and Route 35 in the Morgan Beach area is also to be removed from the site. Because such methods will stabilize the shoreline in numerous locations, and because this deposition has the potential to attract water dependent uses, the proposed development meets the criteria of this Special Area.

7:7E-3.19 Natural Water's Edge - Floodplains - Natural Water's Edge - Floodplains are defined as "...the flood hazard areas around rivers, creeks and streams as delineated by DEP under the Flood Hazard Area Control Act, or by the Federal Emergency Management Agency." These include areas that are subject to both fluvial and tidal flooding. The U. S. Army Corps of Engineers has also delineated tidal floodplains in most coastal zone municipalities, including Old Bridge Township. Policies for this Special Area prohibit development "...within 100 feet of a navigable water body, unless the use is water dependent."

Much of the Old Bridge waterfront has been delineated as a "flood prone" area by the U. S. Army Corps of Engineers on both the Keyport and South Amboy topographic quadrangle maps. Additionally, wetlands maps of the New Jersey Department of Environmental Protection, Division of Coastal Resources, delineate an extensive floodplain along Margaret's Creek.

The development proposed as part of the Old Bridge Waterfront Revitalization Plan is almost entirely water dependent, and not in conflict with the stated policies of this Special Area. For example, in the Morgan Beach area, the Plan proposes that support facility structures consist of trailers similar to those in use at Gateway National Recreation Area at Sandy Hook. They would be raised above the ground surface, and removed from the site in the off-season. With the exception of the proposed parking areas, all other proposed recreational development is water dependent and/or conservation oriented.

The largest flood prone area and floodplain is associated with Margaret's Creek, which bisects the project site and discharges into Raritan Bay in the Seidler's Beach area. The proposed "development" within the floodplain of Margaret's Creek designates a raised wooden plank "catwalk" approximately 400 feet in length, in association with a wooden footbridge across the Creek near its discharge point, an expansion by transplantation of the cordgrasses existing at that point, and a removal of the sedimentation and siltation which has accumulated within the creekbed over the past several years. These remedial actions will improve the flow and flushing action of Margaret's Creek, revitalize the health of the stagnant floodplain, increase nutrient flow, and permit the expansion of the cordgrasses.

Development proposed within or adjacent to the flood prone areas and floodplain of Whale's Creek at the eastern periphery of the project site includes the construction of a raised temporary support building, a small non-paved parking area, an expansion of the existing cordgrass beds, a tot lot and two (2) platform tennis courts, and a re-establishment and/or stabilization of dune vegetation.

The proposed development outlined above is in compliance with the criteria of this Special Area.

7:7E-3.21 Beach and Dune Systems - By definition, Beach and Dune Systems include five (5) components: "Beaches, dunes, high risk beach erosion areas, sand acretion areas, and overwash areas." Several landward portions of the Old Bridge waterfront exhibit one or more of these categories within this Special Area. Conditionally acceptable activities in the Beach and Dune System consist of the following:

1. Demolition and removal of paving and structures.

2. Sediment deposition to create new dunes.

3. Planting of adapted vegetation.

4. Development of limited unpaved pedestrian walkways through dunes and overwash areas to the beach.

5. Shore protection structures which meet the use conditions of structural shore protection policy.

The proposed development along the Old Bridge waterfront is in harmony with these conditionally acceptable use activities. The development proposed in the Old Bridge Waterfront Revitalization Plan includes the following:

1. An expansion of the existing bathing beach in the Laurence Harbor Park area, and the creation of a 1,000 foot long bathing beach in the Morgan Beach area. All beach fill will be placed above the mean high water line to assure its permanence on site.

2. The additional placement of beach fill above the mean high water line in numerous other locations along the waterfront to restore historical grade. This dune reestablishment will be augmented by the planting of Cape American Beachgrass and other vegetation natural to this ecosystem. Precise placement, amount of deposition, orientation, and grain size will be based upon such factors as littoral drift, areas that have historically been damaged by storms, prevailing winds, and the bipolar movement of sediments.

3. An unpaved pedestrian walkway extending the entire length of the waterfront.

4. Three (3) new groins in the Morgan Beach area to further protect the existing and reestablished dunes.

5. Increased public access to the beach areas. Public encroachment on the dunes, however, will be strictly prohibited.

As a result of 1. through 5. above, the development proposed in the Old Bridge Waterfront Revitalization Plan is in consonance with the criteria of this Special Area.

7:7E-3.23 Wetlands - By definition, "wetlands" are areas where "the substrat is inundated or saturated by surface or ground water 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 Facility Review Act (CAFRA) or the Waterfront Development Law." As such, all coastal wetlands situated in the Raritan Bay basin are subject to the Wetlands Act. In general, development of all kinds is prohibited in wetlands areas, as these are "the most environmentally valuable land areas within the coastal zone."

The Division of Coastal Resources of the New Jersey Department of Environmental Protection has mapped or designated wetlands existing within the limits of the project site on aerial photographs. These mapped or designated areas consist of an approximately fifty foot (50') wide strip along the entire waterfront, plus the extensive beds of cordgrass adjacent to Whale Creek and, to a lesser degree, Margaret's Creek. Additionally, although not designated on the Wetlands Maps, there are approximately three (3) acres of wetlands adjacent to Pratt Avenue and the tavern.

The Old Bridge Waterfront Revitalization Plan proposes the following development in these areas:

1. An expansion of the existing cordgrass beds through mechanical transplantation, in both the Raritan Bay Beach and Seidler's Beach areas. Additionally, all existing beds will be protected and incorporated into a nature interpretation area by the Township.

2. The existing unmapped wetlands adjacent to Pratt Avenue and the tavern, which presently support vigorous stands of Phragmites communis (Common reed grass), will not be encroached upon by any of the development proposed in the Beachfront Design Plan. Instead, this Plan proposes that the existing fill material at the terminus of Pratt Avenue be removed, and additional reed grass

be planted, thereby reestablishing this portion of the natural salt marsh. Long-range plans call for the purchase and removal of the tavern, and the complete reestablishment of this area with additional stands of reed grass.

3. No other development is proposed in areas where coastal wetlands vegetation is present.

Because of 1. through 3. above, the development proposed in the Old Bridge Waterfront Revitalization Plan meets the criteria for this Special Area.

7:7E-3.29 Steep Slopes - By definition, Steep Slopes are "...areas with slopes greater than fifteen percent (15%), which are not coastal bluffs." Although the project site does not contain the prominent coastal bluffs that are found to the southeast in Aberdeen Township, there are three (3) locations that possess the characteristics of steep slopes within the two (2) mile waterfront area. These are located adjacent to the Bay side of Raritan Boulevard, Bayview Avenue, and Shoreline Circle. Although the total difference in elevation is not significant - top to toe of slope elevations range from 34 to 14 feet above sea level - the gradient in these three locations often exceeds fifty percent (50%).

The policy for this Special Area states that "...development on steep slopes greater than twenty percent (20%) is prohibited."

The Old Bridge Waterfront Revitalization Plan proposes that these slopes be landscaped, where necessary, with indigenous vegetation to help stabilize them and prevent persistent bank erosion. No development is proposed on any slope areas and the Plan is in compliance with the criteria of this Special Area.

7:7E-3.33 Endangered or Threatened Wildlife or Vegetation Species Habitats - By definition, "...land, water's edge, or water areas known to be habitat of any wildlife (fauna) or vegetation (flora) identified as "endangered" or "threatened" species on official federal or state lists of endangered or threatened species, or under active consideration for state or federal listing, are considered Special Areas." Concurrently, any development that would adversely affect the habitats of endangered or threatened species is prohibited.

Maps of the Old Bridge waterfront have been reviewed by members of the N.J.D.E.P. Endangered and Non-Game Species Project to determine the possible presence of any endangered or threatened wildlife or vegetation. At present, there are no such species known to inhabit the project area. However, the Osprey (Pandion haliaetus), which breeds in New Jersey, could become a seasonal or permanent resident of the project site. Pairs of Ospreys have nested in Keansburg and Sandy Hook ten (10) miles to the east, and could conceivably nest in the Old Bridge waterfront area. There are no official State or federal lists of endangered or threatened vegetation species for New Jersey, although a 1975 U. S. Fish & Wildlife Service report identified seventeen (17) species of plants in New Jersey for consideration for adoption on federal lists. None of these are found within the limits of the project site although there have been unconfirmed sightings of isolated stands of eel grass (Zostera marina) in the Raritan Bay off the Raritan Bay Beach area.

The development proposed for the Old Bridge Waterfront Revitalization Plan will not remove any of the food or cover essential for the habitation of Ospreys, nor will any vegetation, especially in the wetlands and floodplains, be disturbed. Should eel grass indeed be found to be making a comeback in Raritan Bay, where it was prolific until a disease epidemic in the 1930's eliminated the stands, it will be protected. The proposed development is therefore in compliance with the criteria of this Special Area.

7:7E-3.35 Public Open Space - By definition, Public Open Space "...constitutes land areas owned and maintained by state, federal, county and municipal agencies for non-profit private groups and dedicated to the conservation of natural resources, public recreation, or wildlife protection or management."

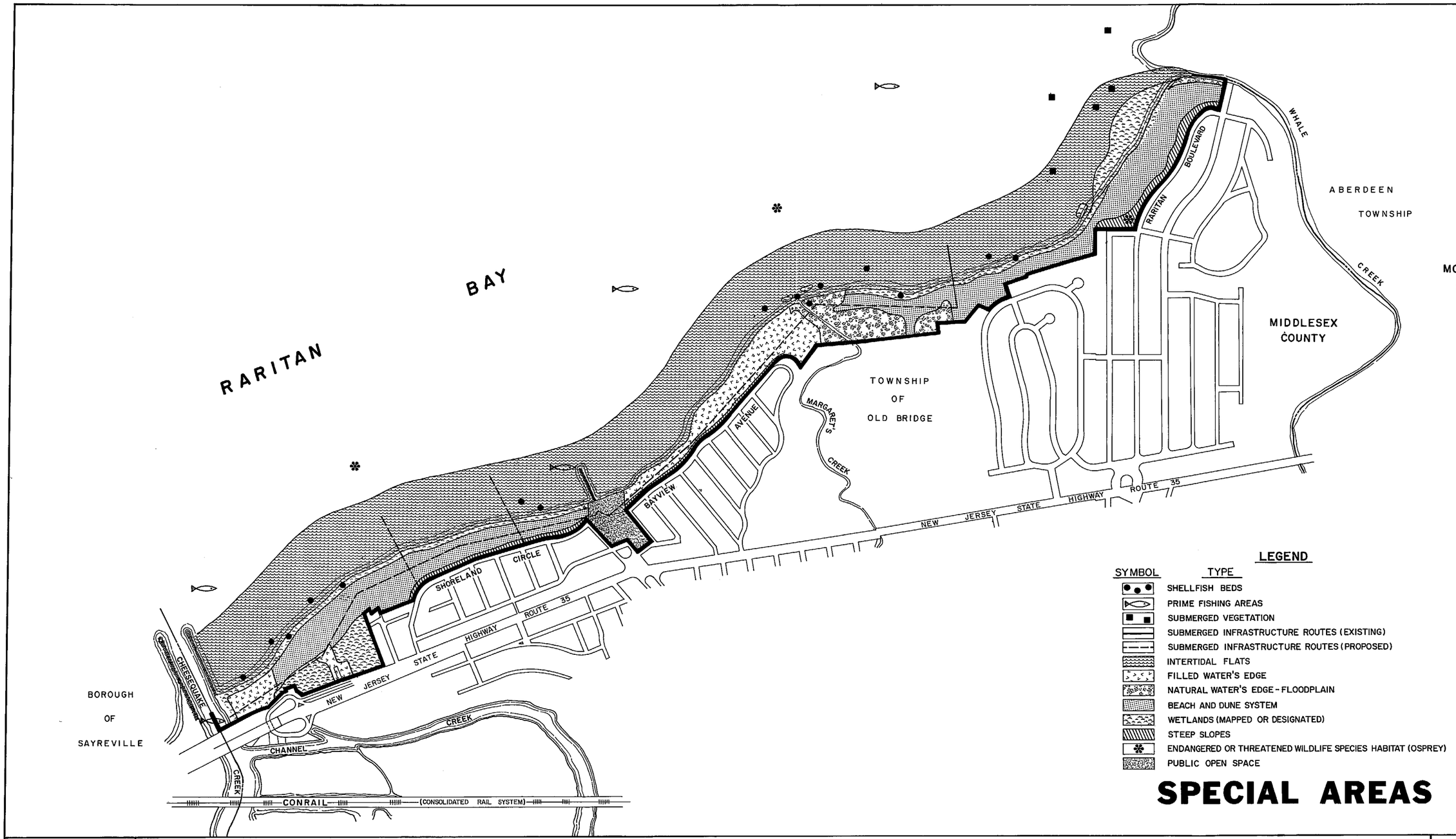
Within the limits of the project site is Laurence Harbor Park. This park presently contains a public bathing beach, a timber boardwalk, two (2) support buildings, and a handball and basketball court.

The Old Bridge Waterfront Revitalization Plan provides for the existing park site to be expanded by extension of the existing bathing beach and boardwalk, the construction of two (2) tennis courts, a gazebo, and supplemental landscaping. This expanded park will serve as one of the three major recreation nodes along the waterfront, will provide additional open space and recreational activities, and will also increase public access to the waterfront. As such, the proposed development meets the policy and criteria of this Special Area.

GENERAL WATER AREAS

General Water Areas are defined in the New Jersey Coastal Management Program and Final Environmental Impact Statement as areas which "...lie below either the mean high water line or the normal water level of non-tidal waters. Except at times of drought or extreme low tide, these areas are permanently inundated." General Water Areas are divided by volume and flushing rate into several types. Raritan Bay, including the Old Bridge waterfront intertidal zone, is classified as an Open Bay which has been defined as "...a large, somewhat confined estuary with a wide unrestricted inlet to the ocean and with a major river mouth discharging directly into its upper portion." Raritan Bay is one of the four representatives of this waterbody type in New Jersey. Open Bays provide "...critical nursery habitat for marine finfish and shellfish and provide organic nutrients for the marine/estuarine foodwebs, are extensively used for commerce and recreation purposes and exhibit strong surface wave action during severe storms and strong wind conditions."

Several uses of the intertidal zone of Raritan Bay are proposed as part of the Old Bridge Waterfront Revitalization Plan, primarily in the Morgan Beach area immediately adjacent to Cheesequake Creek. Major uses proposed include a small seasonal marina with slips for approximately fifty (50) boats, an associated public boat launching ramp, a stone groin extending approximately six hundred feet (600') into Raritan Bay, dredging for the construction of the proposed marina, extensive beachfill, and fishing and crabbing decks. The Water Area Policy Summary Table found in the New Jersey Coastal Management Program and Final Environmental Impact Statement lists the acceptability or non-acceptability of these and other uses.



LEGEND

SYMBOL	TYPE
	SHELLFISH BEDS
	PRIME FISHING AREAS
	SUBMERGED VEGETATION
	SUBMERGED INFRASTRUCTURE ROUTES (EXISTING)
	SUBMERGED INFRASTRUCTURE ROUTES (PROPOSED)
	INTERTIDAL FLATS
	FILLED WATER'S EDGE
	NATURAL WATER'S EDGE - FLOODPLAIN
	BEACH AND DUNE SYSTEM
	WETLANDS (MAPPED OR DESIGNATED)
	STEEP SLOPES
	ENDANGERED OR THREATENED WILDLIFE SPECIES HABITAT (OSPREY)
	PUBLIC OPEN SPACE

SPECIAL AREAS

100 0 400 FEET 1000
20 0 100 METERS 300
NORTH 1 ACRE

OLD BRIDGE WATERFRONT REVITALIZATION PLAN

PREPARED BY
T&M ASSOCIATES
DECEMBER 1980

Recreational docks and boat ramps are listed as conditionally acceptable uses for this water area. The proposed marina would be seasonal in nature, versus a permanent facility which would involve the installation of pilings and bulkheading. It would consist of modular boatslip units, supported by flotation systems, and would be in use at the project site from approximately mid-May through mid-October. At the end of the boating season the docks would be dismantled, removed from the site, and stored and maintained during the off-season by the Township. This type of marina also provides for easy removal prior to any anticipated severe storm, and has built-in expansion capacities should public demand increase.

In order to create the proposed seasonal marina, an area of approximately 600 feet by 300 feet would have to be dredged. Initial indications are that approximately 40,000 cubic yards of material would have to be removed from this intertidal segment of Raritan Bay.

The proposed seasonal marina and associated public boat launching ramp and groin were given conceptual approval following an initial review of schematic plans for the Beachfront Design Area by the New Jersey Department of Environmental Protection, Division of Coastal Resources, provided nine (9) criteria could be satisfied. The nine criteria are presented and addressed below:

1. There is a demonstrated need that cannot be satisfied by existing facilities.

   At present there are no public marinas in Old Bridge Township for a day-use basis. Nonetheless, throughout the summer there are several dozen boats which sail or are anchored offshore at the Morgan Beach recreation area on a daily basis. At present many of these enthusiasts gain access to the beachfront from Pratt Avenue, then back their vehicles to the edge of the Bay and launch their craft. Presently the nearest public boat launching ramps are located in Perth Amboy and Atlantic Highlands. The distance from the project site makes accessibility and use inconvenient to the boating enthusiasts of Old Bridge Township. The construction of the seasonal marina and boat launching ramp would also enable the Township to generate revenues by charging a fee for use of these facilities. Public demand for the construction and use of these facilities is anticipated to remain high. Studies indicate it will not have a detrimental effect on the business of the nearby private marinas.

2. The facilities served by the new dredging satisfy the location requirements for Special Water's Edge Areas.

The seasonal marina and public boat launching ramp satisfy the locational requirements for Special Water's Edge areas because the proposed dredging is not in conflict with any existing wetlands, or submerged vegetation, productive shellfish beds, floodplains, or any of the other designated Special Water's Edge types.

3. The adjacent areas are currently used for recreational boating, commercial fishing or shipping.

Cheesequake Creek, immediately adjacent to the proposed seasonal marina area, is currently used for recreational boating, fishing and crabbing.

4. The dredge area causes no significant disturbance to Special Water or Water's Edge Areas.

See 2. above.

5. The adverse environmental impacts are minimized to the maximum extent feasible.

The proposed location for the marina was specifically selected because the required dredging would have a minimal environmental impact, due to the absence of wetlands, floodplain vegetation, productive shellfish beds, and endangered species habitat. Also, maintenance dredging could be performed in conjunction with the Cheesequake Creek maintenance dredging program.

6. Dredging will have no adverse impacts on ground water resources.

The proposed dredging will have no adverse environmental impact on groundwater resources, because storm water runoff and associated pollutants will not increase. The natural on-site soil infiltration rate and natural drainage system will not be disrupted, nor will off-site storm water runoff exceed the quantity which currently exists under predevelopment conditions at the marina site.

7. An acceptable dredge spoil disposal site exists.

The presence of an acceptable dredge spoil disposal site was a prime consideration in the contemplated construction of the marina and a former clay pit located one and one-half (1½) miles inland from the proposed dredging location is available for deposition of the spoil material. The Township of Old Bridge has received permission through the receipt of a Soil Disturbance Permit to fill and reestablish natural topography at this site. All of the anticipated spoils could be disposed of here. The Township will also pursue alternate sites to receive the anticipated dredge spoils materials to assist in filling lands which meet N.J.D.E.P. requirements.

8. The dredged area is reduced to the minimum practical.

The dredged area has been reduced to the minimal area practical by studying special requirements of existing marinas possessing a similar number of boat slips, detailed information of existing water depths ascertained from U. S. Coast and Geodetic Survey Nautical Charts, and an examination of the maintenance dredging required in adjacent Cheesequake Creek.

9. Turbidity is controlled during the dredging operation using the best available technology (reference: U. S. Army Waterways Experiment Station, Dredged Material Research Program Report, TR D5-78-22).

Turbidity and other factors of concern would be controlled during the dredging operation, as per various technical reports and guidelines provided by the Army Corps of Engineers. Any dredging plans would be reviewed by the Army Corps and by the N.J.D.E.P. Division of Coastal Resources prior to issuance of any dredging permits.

The scope, frequency, and regulation of maintenance dredging of the marina area were also considered prior to its inclusion in the final Beachfront Design Plan. The U. S. Army Corps of Engineers currently performs periodic maintenance dredging in adjacent Cheesequake Creek. The proposed marinas proximity would, therefore, facilitate its maintenance in conjunction with exist-

ing dredging schedules for Cheesequake Creek. Included in this report is an interim determination by the Army Corps of Engineers regarding the feasibility of the proposed dredging and the creation of the seasonal marina and public boat launching ramp.

Recreational docks and piers, including marina groins, are also listed as conditionally acceptable uses by the N.J.D.E.P. Division of Coastal Resources provided that they meet five (5) criteria. These five (5) criteria are presented and addressed below:

1. There is a demonstrated need that cannot be satisfied by existing facilities.

   A demonstrated need for recreational boat docking facilities has been documented previously in this report.

2. The associated upland use satisfies the location policies for Water's Edge areas.

   The associated upland use satisfies the location policies for Water's Edge areas, because the parking lot associated with this development would be of a non-paved surface, would not prevent public access to, or use along, the water's edge, nor would it prevent any other potential water-dependent uses. Also, the disturbance to the intertidal flats associated with their construction would not be significant, as no sub-aqueous vegetation exists in this area, nor are the shellfish beds productive. No bulkheading is contemplated as part of the construction of the recreational docks or the nearby fishing and crabbing decks.

3. The construction minimizes adverse environmental impacts to the maximum extent possible.

   This criteria has been addressed previously in Item 5 of the nine criteria listed above.

4. The docks and piers are located so as not to hinder navigation or conflict with overhead transmission lines.

The recreational docks and marina groin have been situated so that they would not in any way hinder existing navigational patterns, nor would they in any way conflict with overhead or submerged infrastructure routes.

5. There is minimum feasible interruption of natural flow patterns.

   Actual alignment of the L-shaped groin would be such that there would be minimal interruption of the natural water and sediment flow patterns, as well as littoral drift, which is currently toward the southwest. Additionally, the groin could be constructed of materials which would permit limited flow-through action to further assure a minimal interruption of natural water patterns. The project also anticipates rehabilitating the existing stone groin on the Township's side of Cheesequake Creek, which was originally constructed in 1881.

Public boat launching ramps are listed as a conditionally acceptable use in Open Bays provided that the following three (3) criteria are met:

1. There is demonstrated need that cannot be met by existing facilities.

2. They cause minimum practicable disturbance to intertidal flats or sub-aqueous vegetation, and

3. They are constructed of environmentally acceptable materials such as concrete or oyster shell.

   Each of the first two criteria listed above have been documented previously in this report. The boat launching ramp would be constructed of concrete, at a suitable gradient to allow the safe launching of small motorized vessels and sailboats.

The construction of a new groins to serve as breakwaters and to retard long-shore transport is listed as an acceptable use if it meets the five (5) criteria. These criteria are presented and addressed below:

1. The structure is essential to protect water dependent uses or heavily used public recreation beach areas in danger from tidal waters or erosion.

   The 600± foot L-shaped groin is essential to protect the proposed boat launching ramp and seasonal marina from the effects of severe storms and resultant wave activity, as well as to retard sedimentation of the boating basin. Additionally, the proposed 1,000 foot long bathing beach in the Morgan Beach area would be protected from the historical pattern of erosion which continues to afflict this area, both by this groin and the two additional groins to the east which have already been given State approval.

2. The structure is designed to eliminate or mitigate adverse impacts on local shoreline sand supply.

   The groins would eliminate the above-referenced adverse impacts on the adjacent shoreline sand supply, which has significantly eroded during the past decade. Its presence would further assure the permanence of the proposed beach fill, all of which would be placed above the mean high water line.

3. The structure will not create net adverse shoreline sand movement conditions downdrift, including erosion and shoaling.

   The proposed alignment and possible semi-permeable construction of the groins would not adversely affect the existing bi-polar movement of sediments or littoral drift patterns.

4. The structure will cause minimum feasible adverse impact to living marine resources.

   This item has been documented previously in this report.

5. The structure is consistent with the State Shore Protection Master Plan.

   The proposed groins are consistent with the New Jersey Shore Protection Master Plan. The two groins to the east have received approval for construction.

In reviewing the Old Bridge Waterfront Revitalization Plan and the proposed Beachfront Design Plan for the Morgan Beach area, the New Jersey Department of Environmental Protection, Division of Coastal Resources, requested that a brief statement be included in this report addressing the impact on the Beachfront Design Plan development if the proposed seasonal marina and boat launching ramp facilities be deemed unacceptable. If these facilities were to be deleted from the proposed development, alternative facilities could include expansion of the fishing and crabbing decks, an increase and improvement of the bathing beach, an increase in the dune stabilization/re-establishment areas and a reduction in the size of the parking lot area. The Township, however, deems the seasonal marina and public boat launching facilities to be key recreational facilities for this area, and that the full success of the Beachfront Design Plan is contingent upon their inclusion and ultimate construction. Development of the seasonal marina and boat launching facilities would increase access to and diveristy of waterfront facilities for the general public. These facilities also differentiate the Morgan Beach Recreation area from the two other proposed recreational nodes. The need for these facilities along the bayshore in Old Bridge Township has been documented in this report, and anticipated use of these facilities is considerable. Their inclusion in the plan has received conditional approval from the U. S. Army Corps of Engineers, as well as from the N.J.D.E.P., Division of Fish, Game, and Shellfisheries, Bureau of Tidelands, and the Shore Protection Agency. Environmental disruption would be minimal; public use and enjoyment would be considerable.

No other uses of this Open Bay water body type are contemplated as part of the Old Bridge Waterfront Revitalization Plan.

WATER QUALITY AND RUNOFF

The intent of the water quality and runoff policy is to minimize off-site stormwater runoff and associated pollutants, increase on-site infiltration, and simulate natural drainage systems. The quantity of off-site stormwater runoff following construction of the proposed facilities should not exceed the quantity of runoff presently existing prior to development. State and federal water quality standards for point and non-point sources of pollution must also be addressed in accordance with the Middlesex County Water Management Plan, developed and certified under Section 208 of the Federal Clean Water Act Amendments of 1972.

Several existing and proposed conditions within the limits of the Old Bridge Waterfront Revitalization Plan indicate that planned development will not have a negative impact on stormwater runoff or water quality. These conditions include the following:

1. The on-site soils consist almost entirely of recent alluvial deposits composed of a sandy surface texture and a sandy to loamy sand subsurface layer. The porosity of the soil and resultant permeability enables a substantial amount of stormwater runoff to naturally percolate into the ground. The development proposed for the waterfront area, including the deposition of large quantities of beachfill, will not negatively alter this existing condition.

2. The Old Bridge Waterfront Revitalization Plan proposes that numerous areas within the 100 acre site be revegetated. For example, the steep slopes adjacent to Raritan Boulevard, Bayview Avenue, and Shoreline Circle will be revegetated with indigenous plant material to eliminate the persistent bank erosion and resultant sedimentation. In addition to this, existing dunes will be stabilized by the planting of Cape American Beachgrass and other native plant material. Dunes which have eroded will be reestablished with this replanting procedure. Dune stabilization will also help control stormwater runoff and erosion.

3. The extensive floodplain of Margaret's Creek will be revitalized by removing debris and sedimentation which have accumulated over the past several years. This remedial measure will improve the flushing capacity of the Creek and allow the dominant vegetative species, Phragmites communis (Common reed grass), to exert its beneficial capacity on improving the quality of the water in this area.

4. Concurrent with Item 3, in the Morgan Beach area the Beachfront Design Plan incorporates removal of fill material at the end of Pratt Avenue and expansion of the adjacent natural salt marsh. Directly diverting some of the stormwater runoff from the parking lots into this area will also be given consideration during final design.

5. The parking lots to be constructed in the Morgan Beach and Raritan Bay Beach Recreation Areas would utilize gravel, porous pavement or french drains for groundwater recharge and natural percolation, thereby not increasing stormwater runoff.

6. As mentioned previously in this report, the Township of Old Bridge, through the Shore Protection Program, has received permission from the New Jersey Department of Environmental Protection, Division of Coastal Resources, to construct two additional stone groins within the project site, between the Morgan Beach and Laurence Harbor Park areas. In conjunction with these two groins will be the construction of two 24" reinforced concrete stormwater outfall pipes which will tie into an existing Township collector system extending to New Jersey Route 35. This system will safely collect stormwater runoff from the residential developments adjacent to the waterfront project area, and discharge it in a controlled manner into Raritan Bay. This upgrading of the Township's stormwater runoff collector system will help alleviate existing persistent bank erosion on the Bay side of Shoreline Circle, and will significantly reduce off-site stormwater runoff and associated pollutants. This system could also be designed to enable some of the runoff to be directed into the natural salt marsh adjacent to the existing tavern, to enable the reed grass to flourish and improve the quality of the water being dispersed into Cheesequake Creek and Raritan Bay.

WATER QUALITY OF RARITAN BAY

A factor of significant importance to the success of the development proposed in the Old Bridge Waterfront Revitalization Plan is the water quality of Raritan Bay. Raritan Bay has been used as a commercial shipping lane to and from the harbors of New York and northern New Jersey for more than two hundred years. The New York petro-chemical industry is also dependent upon Raritan Bay and the Raritan River to provide access to the refineries and to storage facilities located in and around the Perth Amboy area to the north of the project site. Much of the land adjacent to Raritan Bay has been heavily urbanized and industrialized, and, until recently, there has been a lack of adequate storm runoff and sewage treatment facilities. These factors have led to the deposition of sewage, sludge, and sediments into the Bay. Consequently, the water quality of Raritan Bay has suffered from extensive human

perturbation with a resultant reduction in its value as a prime habitat for marine flora and fauna, as well as a source of organic nutrient production for marine/estuarine food chains, the commercial harvesting of fish and shellfish, and numerous water-oriented forms of recreation.

In order to determine if the water quality of Raritan Bay has been improving and/or if it might be anticipated to do so in the future, recent annual summary reports of the Interstate Sanitation Commission have been analyzed. In addition, the U. S. Environmental Protection Agency, the New Jersey Department of Environmental Protection, and the Middlesex County Planning Board were contacted to determine their opinions regarding the water quality of Raritan Bay. Based upon these sources of information, there appears to be grounds for cautious optimism regarding the improvement of the water quality of Raritan Bay.

Boat survey data for pollution monitoring, presented in the 1979 Interstate Sanitation Commission report, indicated an improvement in water quality compared to data contained in the 1975-1976 report. This improvement, although considered marginal, is anticipated to continue over a long period of time. Water quality improvement will be a slow and lengthy process because Raritan Bay is subject to pollution from Newark Bay and New York Harbor. New York City, for example, at present discharges untreated sewage into its harbor area, and several cities in northern New Jersey presently use combined sanitary/storm sewer systems which cause discharge of untreated sewage during storm conditions. The petro-chemical and industrial complexes adjacent to Newark Bay are also a source of chemical pollution, the effects of which are ultimately felt in the waters of Raritan Bay. A review of tidal current charts for the New York Harbor/Raritan Bay area shows that pollutants from Newark Bay and New York Harbor are carried directly into Raritan Bay during certain periods of tidal changes. In addition, flushing action in the Bay is somewhat hampered by the relatively slow-moving currents of the falling tides.

Several items planned for the immediate future should reduce these negative factors, however, and allow the water quality of Raritan Bay to continue its current trend of gradual improvement:

1. The primary sewage treatment facility adjacent to the Seidler's Beach area of the waterfront is to be abandoned in the next two to three years. The Township will join the Middlesex County Regional Sewage Authority, which provides secondary treatment of sewage. The Middlesex County Regional Sewerage Authority is also investigating alternatives to the ocean dumping of sludge.

2. Other Raritan Bay communities will be incorporated into the regional system. Communities in the vicinity of Newark Bay will also be tied into a new regional facility, and the Newark Bay industrial complexes, currently a source of chemical pollution, are under study by the New Jersey Department of Environmental Protection to devise methods to significantly reduce this source of pollution in Newark Bay and Raritan Bay.

3. The wastewater and sewage treatment facilities in the New York Harbor area will also be upgraded. Discharges of untreated sewage will be discontinued.

In summation, Raritan Bay is presently unsuitable for shellfish production and harvesting, marginally suitable for finfish production and harvesting, and unsuitable for swimming. The water quality of Raritan Bay, however, has marginally improved annually for the past several years, and should continue to do so over a long period of time as regionalization of sewage treatment facilities are implemented. As water quality continues to improve, the possibility of the reestablishment of productive shellfish beds, increased species and population in prime fishing areas, the reestablishment of subaqueous vegetation, and safe bathing and swimming, becomes more realistic.

SOIL EROSION AND SEDIMENTATION

Development within the coastal area is required to plan for and control soil erosion and sedimentation during the construction of any proposed facilities, including those for recreation, to the standards specified in the New Jersey Soil Erosion and Sediment Control Act. Additionally, the 1980 Amendments to the Act require that any project involving a land disturbance of more than 5,000 square feet will have to include a detailed Soil Erosion and Sediment Control Plan. Erosion and sedimentation are the cause of numerous adverse environmental impacts, such as the loss of productive soils, the destabilization of

slopes, an increase in flooding potential due to reduced capacities of storm sewers and natural drainage channels, the siltation of streams, and a decrease in the productivity of wetlands.

As areas in excess of 5,000 square feet will be disturbed for the construction of the recreational facilities, parking lots, and support facilities, a Soil Erosion and Sediment Control Plan will ultimately have to be prepared, submitted, and approved before any of the development proposed in the Old Bridge Waterfront Revitalization Plan can commence. Many of the development proposals in the Plan, however, will, upon construction, lead to a reduction of erosion and sedimentation from present levels. These items include, but are not limited to the following:

1. A revegetation of the steep slope areas with indigenous plant materials, to prevent persistent bank erosion.

2. Removal of the sediments at the discharge point of Margaret's Creek into Raritan Bay and a general revitalization of the creekbed to reduce siltation and increase the productivity of its floodplain and associated wetlands vegetation. A stabilization and re-establishment of the beach and dune system by deposition of beachfill and the planting of large areas with beach grass and other material native to this ecotone will also be implemented.

3. The construction of new groins, as part of Old Bridge Township's shore protection program, to further eliminate the persistent erosion of the waterfront beach areas.

4. An expansion of the existing marsh in the Morgans Beach area, by removing the fill material at the end of Pratt Avenue and transplanting large quantities of Phragmites communis (Common reed grass).

5. An expansion of the salt water cordgrass beds, by mechanical transplantation.

6. A minimization of excavation and grading necessary for the construction of the proposed recreational facilities, parking areas, and support buildings. All areas immediately adjacent to these facilities that are disturbed during the course of construction will be heavily revegetated with native plant material.

In summation, negative environmental impacts from the actual construction of the facilities proposed in the Old Bridge Waterfront Revitalization Plan will be minimal and of short duration, and, following completion, should have a significantly beneficial environmental impact in terms of the problems associated with soil erosion and sedimentation.

TRAFFIC CIRCULATION AND VEHICULAR ACCESS

A conservative estimate of the annual number of anticipated visitors to the Old Bridge waterfront area is 50,000. Many of these people will be boating enthusiasts, whose vehicles will have a boat and trailer in tow. Directional signs and ease of vehicular access are, therefore, of great importance to the successful use and enjoyment of the revitalized waterfront.

There will be three (3) vehicular access points to the waterfront. Direct access to the Raritan Bay Beach Recreation Area will be from existing Raritan Boulevard in the eastern segment of the project site. A short entrance drive off this road will bring visitors to a limited parking facility accommodating approximately thirty (30) cars. Raritan Boulevard will also provide a direct link to the Cliffwood Beach Recreation Area in Aberdeen Township, across Whale Creek. Direct access to Raritan Boulevard is possible from New Jersey State Highway 35, three-quarters of a mile to the southwest. Due to the limited parking area and proposed recreational facilities at the Raritan Bay Beach Recreation Area, visitor usage will be significantly less than at the other two recreationa nodes to the northwest, and anticipated vehicular traffic should not overburden existing traffic patterns on the adjacent residential streets.

Vehicular access to Laurence Harbor Park will remain from Laurence Parkway to the south.

This second recreation area presently has a parking lot which accommodates approximately seventy (70) cars. Ease of access to this popular recreation area is facilitated by Route 35, approximately 500 feet to the south. Improvements proposed for the expansion of this recreation area include a resurfacing and striping of the parking lot, and the inclusion of a landscaped island and access paths leading to the boardwalk and beach areas.

This recreation area is currently used by approximately people annually, primarily during the summer. Usage is anticipated to increase, yet will not interrupt existing traffic patterns in this area of the waterfront.

The Morgan Beach Recreation Area, site of the Beachfront Design Plan, is anticipated to generate the most traffic of the three recreation nodes along the waterfront. A review of the Beachfront Design Plan indicates that the proposed point of vehicular access is from the existing spur and jughandle of the north and southbound lanes of Route 35. A short park access drive will connect this spur with two parking lots, each clearly indicated by appropriate signage, directing boating and fishing enthusiasts to the lot to the left, and those visitors who intend to use the bathing beach to the right. The intersection of the park access drive and the existing spur might be signalized during peak season usage of this recreation area. Permission to construct the park access drive will have to be obtained from the New Jersey Department of Transportation, as some of its construction falls within the right-of-way of State Highway 35.

The proposed access point to the Morgan Beach Recreation Area provides excellent qualities from a vehicular traffic engineering and circulation standpoint. The ease of immediate access from Route 35 places this recreation area within a thirty minute drive of most bayshore municipalities. Furthermore, no residential areas need be travelled through to visit the site. Appropriate road signage on Route 35 could further designate its location and identify directional clarity. It is also in close proximity to a public bus transportation route. Should the Township decide to close this recreational area during the winter, a control gate and/or system of bollards at the intersection of the park drive and highway spur, or elsewhere, could restrict vehicular access.

Marine traffic, i.e., the movement of boats along a navigational route, must also be addressed in conjunction with the proposed development of the Morgan Beach Recreation Area. The proposed seasonal marina will accommodate approximately fifty (50) boats on a day-use basis. It will be separated from the Cheesequake Creek navigational channel by the existing 600± foot long stone jetty. The placement of the public boat launching ramp to the east of the marina will also eliminate any conflict or safety problems with existing boat traffic conditions in the creek.

In summation, the development proposed in the Old Bridge Waterfront Revitalization Plan will not cause any unacceptable congestion or safety problems from a vehicular or marine traffic standpoint. Vehicular access to the three proposed recreation areas consists of short, direct links from Route 35, with minimal or no disruption to local traffic patterns. Marine traffic patterns and navigational routes will not be adversely affected by the day-use of the proposed marina. Public access to the waterfront, however, will be significantly increased, which is one of the major objectives and policy statements of the New Jersey Coastal Management Program.

Dune grass near Seidler's Beach.

COMPLIANCE WITH OTHER PLANS

Several reports have preceded the Old Bridge Waterfront Revitalization Plan, in which recommendations for the usage of the waterfront have been made. Most significant among these reports are the following:

1. Natural Resource Inventory

   In December, 1975, the Environmental Commission of the Township of Old Bridge, in conjunction with its Consultant, Dames & Moore, completed a Natural Resource Inventory for the Township. One of the goals of the report was to prepare a development suitability model for the entire Township, based upon several criteria. The findings of the report relative to the waterfront project site were as follows:

   a. The alluvial soils have a frequent stream overflow hazard and shallow depth to seasonal high water table.

   b. The water-related habitats on site have "severe" limitations for development, based upon their environmental sensitivity.

   c. The floodplains along Township streams should be preserved, because of their environmental sensitivity.

   d. The waterfront soils have a "severe" suitability for the construction of septic tanks, a "moderate to severe" limitation on foundation capacities, and "severe" erosion potential.

   The Natural Resource Inventory report concluded that the waterfront area had severe limitations regarding its suitability for development. The Old Bridge Waterfront Revitalization Plan is, therefore, consistent with and in compliance with the conclusions of this report.

2. Old Bridge Township Master Plan

In 1978 the Old Bridge Township Planning Board prepared and approved the Old Bridge Township Master Plan. In the Land Use Plan incorporated in the report, nearly all of the waterfront area has been designated for conservation and recreation usage. Only a small area near Cheesequake Creek has been designated for another use, "marine commercial," where a marina and/or boatyard were proposed. In the Recreation and Open Space Plan incorporated in the report, the development of four (4) major community parks was proposed. One of these four was the "Raritan-Bayfront Park" embracing the entire 100 acre waterfront site.

The Old Bridge Waterfront Revitalization Plan and Beachfront Design Plan are therefore in complete compliance with the recommendations of the Old Bridge Township Master Plan.

3. New Jersey Statewide Comprehensive Outdoor Recreation Program (S.C.O.R.P.)

In 1977, the New Jersey Department of Environmental Protection, Green Acres Program, released the S.C.O.R.P. Report. Its purpose is to provide "a basis for making sound decisions concerning open space and recreation" in New Jersey. It included a major list of general findings and recommendations for the State.

Middlesex County is the third most heavily populated county in the State. Its municipalities, including Old Bridge Township, therefore experience one of the highest demands for close-to-home recreational facilities and activities. A deficit of such facilities as reported for Middlesex County, as well as all other counties in New Jersey exists. Municipal open space deficits in the County were listed as totaling 3,092 acres. The S.C.O.R.P. report also emphasized the need to acquire coastal waterfront locations for the development of major park and recreation areas, and to increase access to and enjoyment of these sites by the general public.

The Old Bridge Waterfront Revitalization Plan recommends utilizing the 100 acre shoreline site for the creation of a municipally-owned park, providing a wide range of water-oriented facilities while protecting environmentally sensitive areas. It is therefore in compliance with the goals and recommendations of the New Jersey Statewide Comprehensive Outdoor Recreation Plan.

4. New Jersey Shore Protection Master Plan

The preparation of this plan by the New Jersey Department of Environmental Protection and completed in 1980 is one of the major tasks resulting from the Beaches and Harbors Bond Issue approved by the voters of New Jersey in 1977. This plan, in conjunction with the 1977 report entitled "Coastal Geomorphology of New Jersey," indicates that the "shoreline is receding with an annual loss of sand from the New Jersey beaches of approximately 2,600,000 cubic yards." Numerous recommendations for remedial action to arrest shoreline erosion will be made.

The Old Bridge Waterfront Revitalization Plan proposes, among other developmental features, reestablishing the historical grade of the shoreline through the deposition of large quantities of beach fill, construction of additional groins, and the reestablishment of the beach and dune system along the waterfront to stabilize this deposition. The Old Bridge Waterfront Revitalization Plan is in compliance with the recommendations of the Shore Protection Master Plan.

5. 1970-1980 Middlesex County Interim Master Plan

The Regional Open Space Plan of the Middlesex County Interim Master Plan does not specifically address itself to the Old Bridge waterfront. Rather, it identifies this area as a municipal project and responsibility. Nonetheless, the goals listed in the report urge that open space; "... be utilized in all types of urban areas through the use of floodplains (and) shorelines," and that "...more parks, open space and/or recreational opportunities be made available." Additionally,

the Trend Pattern to the Year 2000 of the Middlesex County Comprehensive Master Plan projects that nearly all of the Old Bridge waterfront will be regional open space.

The development proposed in the Old Bridge Waterfront Revitalization Plan is, therefore, consistent with the Middlesex County Interim Master Plan.

6. New Jersey State Development Guide Plan (1980 Revised Draft)

The State Development Guide Plan is "...a broad-based policy guide which recommends where future development and conservation efforts in New Jersey should be concentrated." Under its Middlesex County section, the Plan recognizes that the coastal segment of Old Bridge Township is within the jurisdiction of the State's Coastal Management Program, and that the waterfront is included with the northern high growth area as defined by the New Jersey Coastal Management Program. The revised draft also recognizes the importance of controlling development in coastal areas in general, as well as floodplains and tidal wetlands. The development proposed in the Old Bridge Waterfront Revitalization Plan is, therefore, in compliance with the Revised Draft of the State Development Guide Plan.

7. Tri-State Regional Planning Commission Comprehensive Plan

The Tri-State Regional Planning Commission serves the New York metropolitan area in Connecticut, New York, and New Jersey, including Middlesex County and the Township of Old Bridge. In the Land Use Plan Element of the Regional Development Guide, 1977-2000, the Commission states that one of the three objectives on which the Plan is structured is to "...conserve critical lands," i.e. "inventoried vacant lands where environmental characteristics make it desirable either to prevent development or to provide special safeguards if development must occur." The Land Use Plan definition of critical lands encompasses wetlands, dunes, and areas subject to flooding. The Plan also states that developing recreation lands, including beaches and other

coastal edges, for private use "... is contrary to public recreational needs and a denial to the public of much natural heritage."

The Old Bridge Waterfront Revitalization Plan proposes that the area be used for conservation and recreation purposes only and is, therefore, in compliance with the goals and recommendations of the Regional Development Guide of the Tri-State Regional Planning Commission.

8. Borough of Sayreville - Master Plan

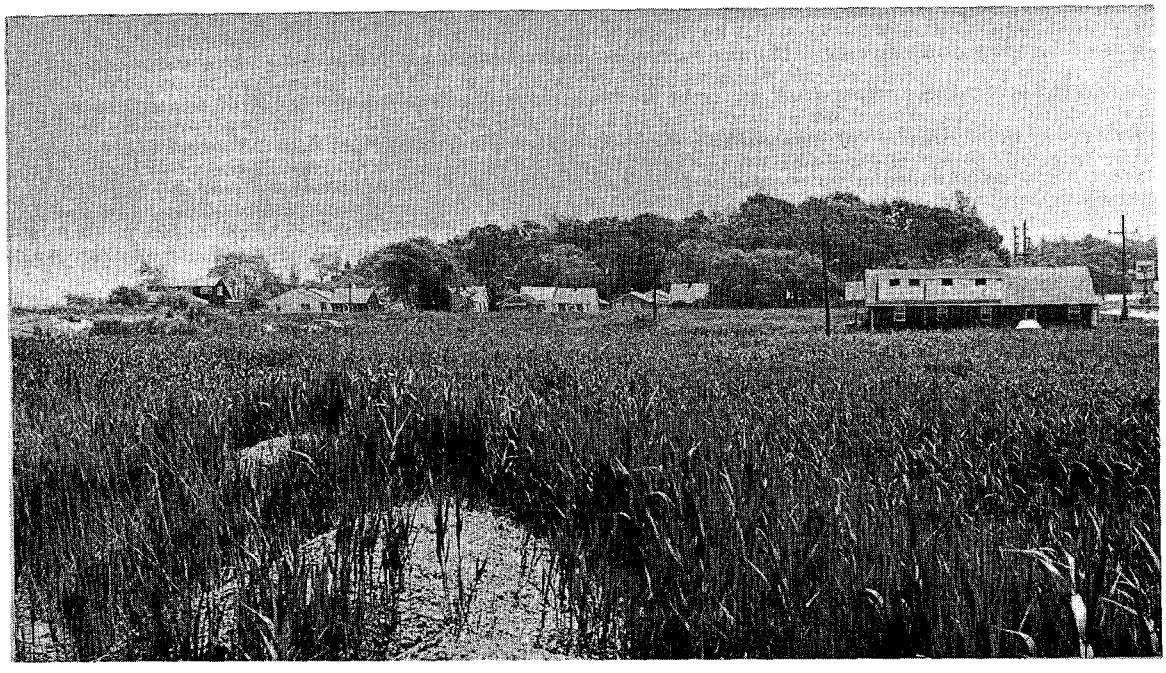
In the Land Use Element of the 1978 Sayreville Master Plan, the bulk of the land fronting on Raritan Bay is designated as "open space," to be used primarily for conservation and recreation purposes. Much of this land is owned by the Sewerage and Water Utility Authority of the Borough of Sayreville. The land on which the Robert E. Lee Inn is situated has been designated as a "commercial - general business" area. The balance of the land adjacent to Cheesequake Creek has either been designated as a "wetlands - conservation district" or as "marine commercial," to accommodate the existing marinas.

The development proposed in the Old Bridge Waterfront Revitalization Plan is, therefore, in harmony with the existing and proposed usage of the adjacent Sayreville waterfront.

9. Township of Aberdeen - Master Plan

Immediately to the east of Whale Creek is the existing Cliffwood Beach Shore Protection and Recreation Area Project in Aberdeen Township. This project involved the construction of a 1.3 mile long sand beach, a stone groin, tennis and basketball courts, a heavy-timber tot lot, senior citizens facilities, and a small shelter/restroom building. The project also involved the construction of a seawall and other shore protection measures to halt the erosion of the coastal bluffs. The shoreline is designated as a recreation and open space area on the Master Plan for Aberdeen Township, which is currently being revised. The development proposed in the Old Bridge Waterfront Re-

vitalization Plan, particularly at the Raritan Bay Beach Recreation Area, is therefore in harmony with the existing coastal land use in Aberdeen Township, and will enable the creation of a major bayfront recreation area extending more than three (3) miles in length along the waterfront of these two communities.



Reed grass adjacent to Morgan Beach.

IMPLEMENTATION OF THE OLD BRIDGE WATERFRONT REVITALIZATION PLAN

Implementation of the development proposed in the Old Bridge Waterfront Revitalization Plan will require a long-term program of coordination and cooperation between municipal, state and federal agencies in order for the Township to acquire the needed land and secure the required permits and financial grants available. Implementation of the Plan will be complex, due to the nature of the waterfront area and the constraints placed upon certain types of development within this coastal location. Nonetheless, with a concerted effort phased over the course of several years, the revitalization proposed for the Old Bridge Waterfront can indeed become a reality.

Land Acquisition

The first implementation step must be the acquisition of the land within the project site which is currently not in Township ownership. A review of the Existing Land Ownership Map found in the Land Use Section reveals that 75.08 of the 101.26 acres is already in municipal ownership. Since 1975, the Township has been vigorously implementing a policy of acquiring waterfront lands to the greatest extent possible. The balance of the land ownership is presented in the following table.

PRIVATELY OWNED LANDS AND 1980 ASSESSED VALUES
OLD BRIDGE WATERFRONT
(BLOCK 1)

OWNER	LOT	1980 ASSESSED VALUE
Daniel's Leasing Company	56A	$ 36,600.00
Deerin	63	1,000.00
Gerity	46	70,100.00
Glowacky	59	8,300.00
Handy	61	42,400.00
Jadele	58	49,700.00
Ludwig	53	5,000.00*
Maslankowski	57B	1,600.00
Olivera	57A	6,000.00
Sea-Land Development Co.	49	172,200.00
Sommer	47 & 48	64,800.00
	TOTAL ASSESSED VALUE	$457,700.00

* Projected value of portion of lot to be acquired.

The total 1980 assessed value of the 26.18 acres of land (and any improvements thereon) is $457,700.00. A more realistic purchase price of these parcels, based upon numerous factors, is closer to $700,000.00.

The Township is currently negotiating the purchase of some of the properties listed above and is planning on seeking State grant assistance for all or a portion of the necessary funds. This approach for purchasing the remaining waterfront land is encouraged to continue.

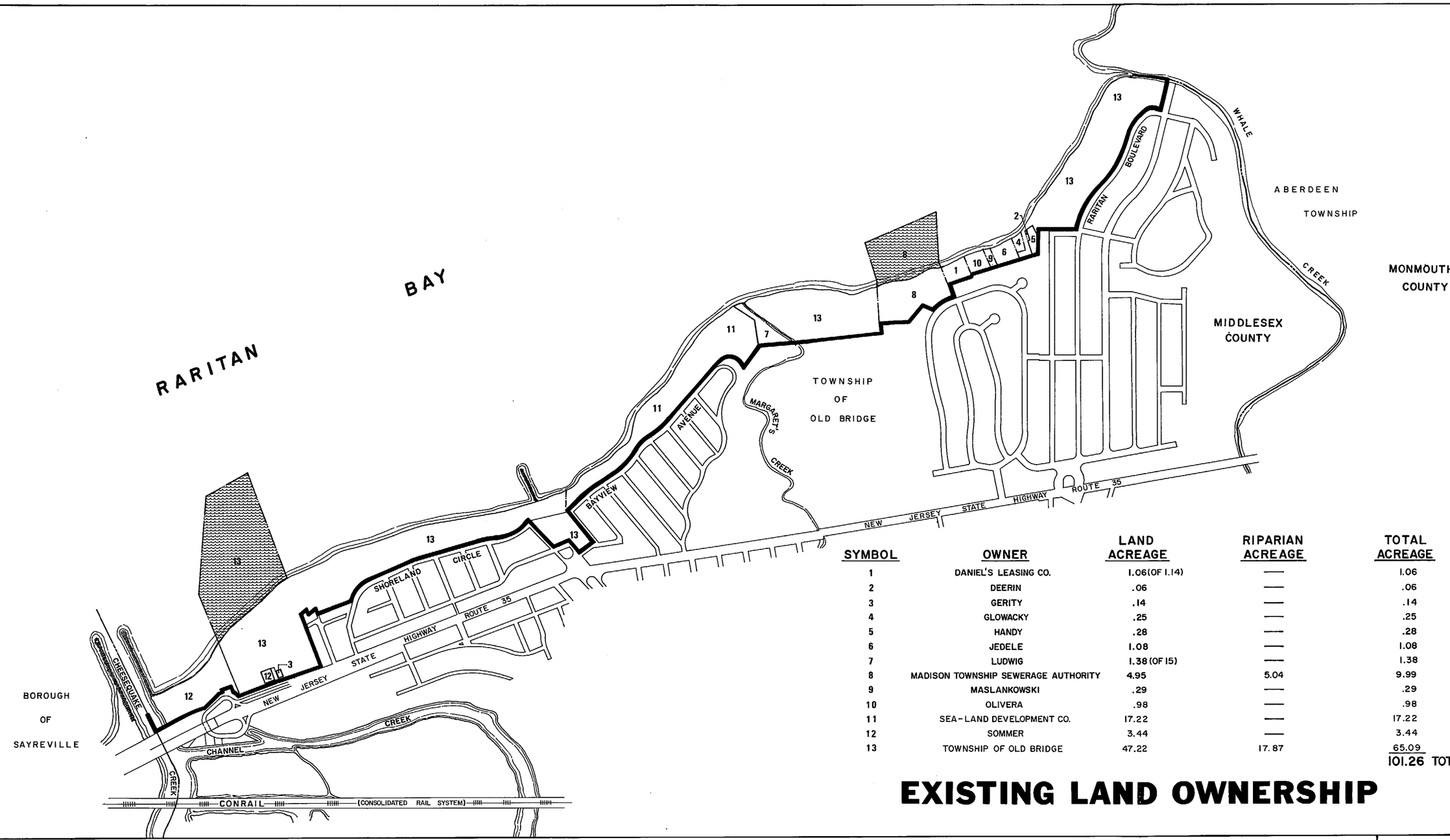
The Existing Land Ownership Map can be found on Page 66.

Permit Acquisition

The acquisition of numerous permits from several federal and state agencies will be required before any development proposed as part of the revitalization of the waterfront can begin. The key permits which must be acquired are listed below:

1. A Dredging Permit will be required from the U.S. Army Corps of Engineers to allow the construction of the seasonal marina, the public boat launching ramp, the placement of beachfill, and the construction of the additional groin. All of this proposed development can, however, be evaluated in one permit action by the Corps. As the proposed revitalization of the waterfront is in the same area as two federal projects, the Township section of the Raritan Bay Beach Erosion and Hurricane Project and the Cheesequake Creek Navigation Project, the integrity of these federal projects would have to be maintained. It is anticipated that the review and approval process for the acquisition of this Permit would take approximately eighteen (18) months.

2. A Wetlands Permit must be acquired from the Division of Coastal Resources to enable the proposed expansion of the salt water cordgrass stands and the existing salt marsh in the Beachfront Design Plan area. It is anticipated that the acquisition of the Wetlands Permit will take approximately three (3) months.



SYMBOL	OWNER	LAND ACREAGE	RIPARIAN ACREAGE	TOTAL ACREAGE
1	DANIEL'S LEASING CO.	1.06(OF 1.14)	—	1.06
2	DEERIN	.06	—	.06
3	GERITY	.14	—	.14
4	GLOWACKY	.25	—	.25
5	HANDY	.28	—	.28
6	JEDELE	1.08	—	1.08
7	LUDWIG	1.38(OF 15)	—	1.38
8	MADISON TOWNSHIP SEWERAGE AUTHORITY	4.95	5.04	9.99
9	MASLANKOWSKI	.29	—	.29
10	OLIVERA	.98	—	.98
11	SEA-LAND DEVELOPMENT CO.	17.22	—	17.22
12	SOMMER	3.44	—	3.44
13	TOWNSHIP OF OLD BRIDGE	47.22	17.87	65.09
				101.26 TOTAL

EXISTING LAND OWNERSHIP

100 0 400 FEET 1000
20 0 100 METERS 300
NORTH 1 ACRE

OLD BRIDGE WATERFRONT REVITALIZATION PLAN

PREPARED BY
T&M ASSOCIATES
DECEMBER 1980

3. A Stream Encroachment Permit must be acquired from the N.J.D.E.P., Division of Water Resources, to enable the construction of the catwalk through the floodplain of Margaret's Creek, as well as the construction of the wooden footbridge across the creek. It is anticipated that the acquisition of the Stream Encroachment Permit will take approximately three (3) months.

4. A Waterfront Development (Riparian) Permit must be acquired from the N.J.D.E.P., Division of Coastal Resources, to allow numerous proposed facilities to be constructed within the riparian areas of the project site, including the marina and its associated dredging. The Township has already secured a permit for the two (2) proposed groins east of Morgan Beach. It is estimated that the acquisition of the permit will take approximately three (3) months.

5. A Soil Erosion & Sediment Control Plan must be submitted to the Soil Conservation Service, U.S. Department of Interior, Middlesex County Office, to enable some of the proposed development in the Morgan Beach and Raritan Bay Beach areas. This plan must be submitted when any development is proposed which will disturb more than 5,000 square feet of soil. It is anticipated that the preparation of this plan and its approval by the Soil Conservation Service will take approximately two (2) months.

6. Approval must be granted from the New Jersey Department of Transportation, as a portion of the access road to the Morgan Beach Recreation Area is within their right-of-way, and is proposed to intersect with the existing off-ramp north of the abutment to the bridge spanning Cheesequake Creek. It is anticipated that the preparation of the engineering plans, and N.J.D.O.T. approval, will take approximately six (6) months.

7. Numerous County agencies must review and approve the proposed plans, including the Middlesex County Planning Board, Health Department, and Engineering Department. It is anticipated that the review by all of the required County agencies will take approximately three (3) months.

8. Numerous Township departments must review and approve the plans, including the Old Bridge Township Planning Board, Township Committee, Engineering and Planning Commission. It is anticipated that the review and approval by the required municipal departments will take approximately three (3) months.

Funding Sources

The projected cost for the land acquisition and development of the Old Bridge Waterfront Revitalization Plan is in excess of $3,350,000.00. Without outside sources of funds, the Township of Old Bridge would be unable to finance the waterfront development. There are, however, numerous federal and state programs which provide financial assistance for the acquisition and/or development of park and recreation areas, and shore protection projects. The principal funding agencies and programs are listed below:

1. New Jersey Department of Environmental Protection - Green Acres Program. Green Acres provides a matching fifty percent (50%) grant to fund the cost of both land acquisition and development of outdoor parks and recreation areas. The Township of Old Bridge has already acquired and developed a portion of its waterfront with the assistance of Green Acres funds. Green Acres will also fund a phased project, and, therefore, should be receptive to the proposed phasing of the development of the Old Bridge Waterfront Revitalization Plan.

2. Department of the Interior - Heritage Conservation & Recreation Service. This agency of the Federal government administers the distribution of Land and Water Conservation Fund monies, which are allocated to each state for state, county and municipal use. Grants are available up to fifty percent (50%) of the cost of land acquisition and outdoor recreation facility development. Grants are discretionary and highly competitive, and are based upon the merits of a project. Land and Water Conservation Fund Grants can be used to match Green Acres grants, thereby making the complete cost of the acquisition and development of the Old Bridge Waterfront Revitalization Plan a possibility, without the expenditure of any Township monies. In July of 1980, Old Bridge was added to the list of Urban Aid Communities, thereby entitling the Township to apply for and possibly receive such grants.

3. New Jersey Department of Environmental Protection - Shore Protection Grants. The New Jersey Department of Environmental Protection allocates 1977 Beaches and Harbors Bond Issue funds to municipalities for the construction of groins and jetties, the deposition of beachfill to reestablish historic grades, etc. The shore protection measures proposed in the Old Bridge Waterfront Revitalization Plan are expected to be eligible for funding under this program.

4. Department of Defense - Army Corps of Engineers - Small Harbors Program will fund up to fifty percent (50%) of the cost of creating general navigational facilities, including marinas and boat launching ramps. Additionally, the Small Beach Erosion Program and Small Recreation Program will each fund fifty percent (50%) of the cost of creating such recreational facilities as bathing beaches and support amenities. A section of the Erosion Control Program provides one hundred percent (100%) funding for the construction of groins and jetties, and the establishment and protection of dune/conservation areas.

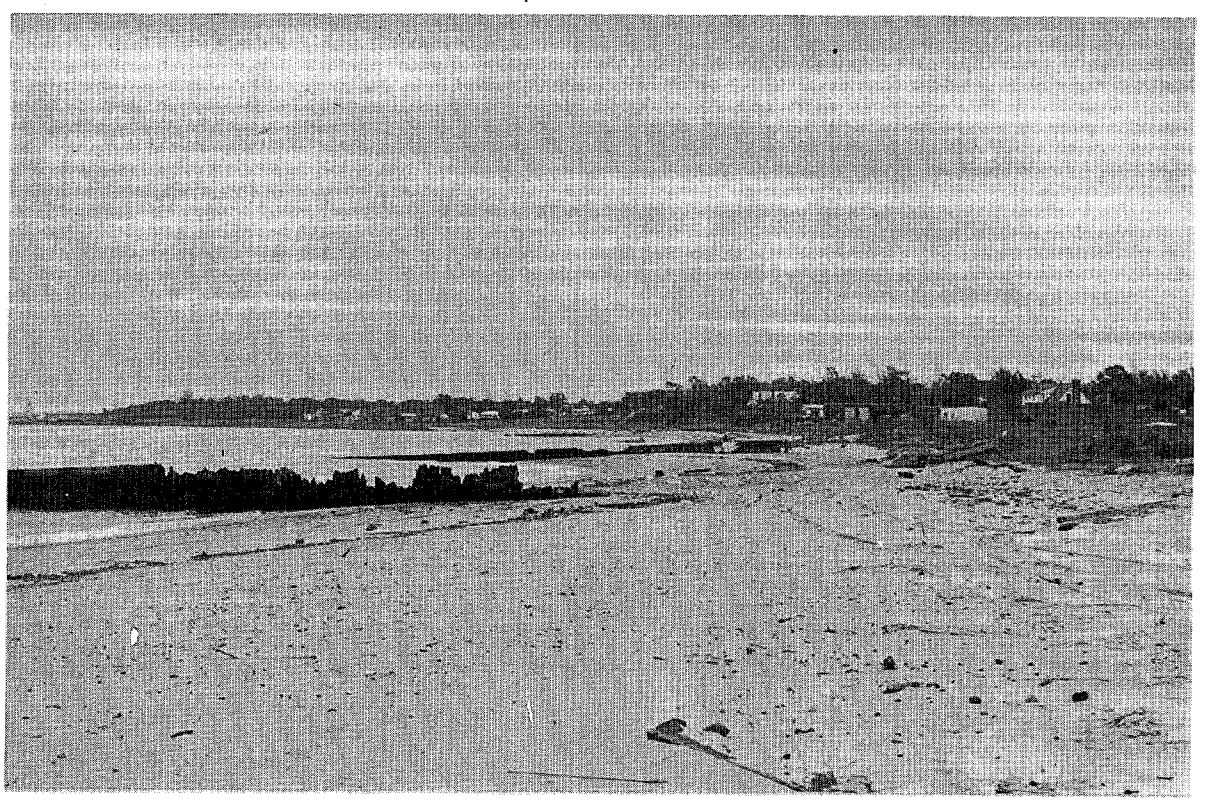
5. Department of Energy/H.U.D. - Solar Demonstration Grants. These grants, jointly administered by D.O.E. and H.U.D., can be used for the construction of solar powered buildings and other facilities utilizing solar power. The Department of Energy also provides grants for projects which demonstrate an innovative use of energy generation and/or conservation.

6. National Endowment for the Arts - Innovative Design Grants. Municipalities are eligible for grants up to $50,000.00 for creative, innovative aspects of design, including park and recreation facilities.

7. Environmental Protection Agency - Sewage Treatment Facility Grants - Within the project site is land owned by the Township which was purchased with the assistance of Green Acres funds. The Township will, therefore, be entitled to compensation to mitigate the impact of the construction and installation of the force main across this beachfront land, when the Old Bridge Township Sewerage Authority taps into the Regional System. The compensation must either be funds to be used for the proposed bayfront improvements, or an equal amount of land situated within or beyond the limits of the project site. The Sewerage Authority will in turn be reimbursed by the Federal Environmental Protection Agency.

It should be pointed out that in 1980 the Township of Old Bridge was classified as an "entitlement community" under revised H.U.D. guidelines. In so doing, its annual allocation of H.U.D. funds has increased, with the 1980 amount being $520,000. It is unlikely, however, that some or all of this allocation can be put toward funding the Old Bridge Waterfront Revitalization Plan, as H.U.D. Community Development funds cannot be utilized for "Township" facilities. Through the Department of Labor's CETA and Summer Youth Employment Programs, however, the Township of Old Bridge is eligible to acquire and employ maintenance personnel at no expense to the Township. Additional seasonal employees can be acquired through the Department of Agriculture's Youth Conservation Corps (Y.C.C.) and Young Adult Conservation Corps (Y.A.C.C.).

Through the judicious preparation and submission of grant applications to the above-listed agencies and programs, it is possible that much or all of the cost of the land acquisition and development of the Old Bridge Waterfront Revitalization Plan can be absorbed thereby minimizing the expenditure of municipal funds.



Seidler's Beach, existing conditions.

SUMMARY AND RECOMMENDATIONS

The purpose and goal of the Old Bridge Waterfront Revitalization Plan has been to prepare a report and design plan designating the appropriate land uses and development of the Township's one hundred (100) acre bayshore area. The project site location within the coastal area of New Jersey has mandated that numerous environmental regulations be strictly adhered to for approval of the Plan by various federal, state and municipal agencies. The report has also delineated measures to implement the plan, particularly regarding purchasing the land, acquiring the required permits, and obtaining funds through available grant programs.

The Old Bridge Waterfront Revitalization Plan, therefore, incorporates the following major recommendations to the Township of Old Bridge:

1. Acquire the balance of the waterfront land within the project site which is not presently in municipal ownership.

2. Develop and use the one hundred (100) acre site for recreation and conservation purposes only.

3. Develop the Morgan Beach, Laurence Harbor, and Raritan Bay Beach areas as the three (3) major recreation nodes along the waterfront, and provide a variety of active and passive recreational facilities at each location.

4. Adhere to all coastal resource management procedures and regulations with respect to the environmental sensitivity and aesthetic assets of the waterfront.

5. Implement all appropriate shore protection measures to protect and safeguard the waterfront and the proposed development along it.

6. Develop the waterfront in three (3) construction phases, completing one recreation area at a time, over a minimum period of five (5) years.

7. Promote a cooperative working relationship with all federal and state agencies throughout the entire process of revitalizing the waterfront.

8. Pursue a vigorous policy of grantsmanship to acquire all available non-municipal funds to implement the development of the Waterfront Master Plan. Closely coordinate and sequence grant applications, to maximize revenue acquisition and construction of recommended waterfront facilities.

9. Work in harmony with the adjacent bayshore communities to coordinate waterfront development plans and elimiate any conflict and duplicity of facilities.

10. Encourage continous input from the residents of the Township regarding the development, use, and maintenance of the waterfront area.

If the summary recommendations listed above and the more detailed procedures delineated previously in this report are followed, the revitalization of the Old Bridge Waterfront into an outstanding recreation and conservation area for the use and enjoyment of all can become a reality during the coming decade.

APPENDICES

APPENDIX I

PROJECT COST ESTIMATES

The cost estimates below are based upon projected 1981 construction prices. As much of the development proposed in the Old Bridge Waterfront Revitalization Plan will occur beyond that date, each recreation area project total and the entire waterfront development total should be increased by 10% - 15% for each year beyond 1981 until construction commences.

RARITAN BAY BEACH RECREATION AREA

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
1.	Site Preparation and Grading	Lump Sum	Lump Sum	15,000.00
2.	Drainage	Lump Sum	Lump Sum	15,000.00
3.	Gravel Parking Lot and Access Drive	2,000 SY	5.00	10,000.00
4.	Electrical Service & Hookups	500 LF	20.00	10,000.00
5.	Water Service and Fountains	300 LF 2 Units	7.00 1,500.00	2,100.00 3,000.00
6.	Restroom/Concession Building with Sanitary Waste Disposal System	Lump Sum	Lump Sum	40,000.00
7.	Platform Tennis Courts	2 Units	17,500.00	35,000.00
8.	Children's Play Area, Heavy Timber	Lump Sum	Lump Sum	17,500.00
9.	Beach Sand Deposition	1,000 CY	6.00	6,000.00
10.	Beach/Dune Restoration	40,000 SY	2.00	80,000.00
11.	Cord Grass Transplantation	Lump Sum	Lump Sum	20,000.00
12.	Landscaping and Slope Stabilization	Lump Sum	Lump Sum	40,000.00

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
13.	Gates, Fencing, Signage	Lump Sum	Lump Sum	25,000.00
14.	Park Furnishings and Appurtenances (benches, waste receptacles, bicycle racks, etc.)	Lump Sum	Lump Sum	20,000.00
	CONSTRUCTION TOTAL			$338,600.00
	CONTINGENCIES (7%)			23,702.00
	ARCHITECTURAL, ENGINEERING FEES AND PERMIT ACQUISITION (13%)			44,018.00
	PROJECT TOTAL			$406,320.00
	SAY			$407,000.00

MORGAN BEACH RECREATION AREA

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
1.	Site Preparation and Grading	Lump Sum	Lump Sum	30,000.00
2.	Drainage	Lump Sum	Lump Sum	35,000.00
3.	Parking Lots and Entrance Drive	Lump Sum	Lump Sum	72,500.00
4.	Groins:			
	1 New	1 Unit	400,000.00	400,000.00
	1 Reconstructed	1 Unit	100,000.00	100,000.00
5.	Lighting and Electrical Service	Lump Sum	Lump Sum	50,000.00
6.	Water Service, Fountains, and Showers	Lump Sum	Lump Sum	18,500.00
7.	Restroom/Concession Buildings with Sanitary Waste Disposal System	2 Units	40,000.00	80,000.00
8.	Marina Dredging	40,000 CY	10.00	400,000.00
9.	Marina/Floating Boat Docks and Appurtenances	Lump Sum	Lump Sum	150,000.00
10.	Fishing/Crabbing Decks and Walkways	500 LF	200.00	100,000.00
11.	Boat Launching Ramp	Lump Sum	Lump Sum	40,000.00
12.	Beach Sand Deposition	4,000 CY	6.00	24,000.00
13.	Beach/Dune Restoration	22,000 SY	2.00	44,000.00
14.	Marsh/Wetlands Restoration	6,000 SY	5.00	30,000.00
15.	Landscaping	Lump Sum	Lump Sum	25,000.00
16.	Gates, Fencing, Signage	Lump Sum	Lump Sum	25,000.00
17.	Park Furnishings and Appurtenances	Lump Sum	Lump Sum	25,000.00
	CONSTRUCTION TOTAL			$1,649,000.00
	CONTINGENCIES (7%)			115,430.00
	ARCHITECTURAL/ENGINEERING FEES & PERMIT ACQUISITION (13%)			214,370.00
	PROJECT TOTAL			$1,978,800.00
	SAY			$1,980,000.00

ADDITIONS TO LAURENCE HARBOR PARK

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
1.	Site Preparation and Grading	Lump Sum	Lump Sum	5,000.00
2.	Drainage	Lump Sum	Lump Sum	10,000.00
3.	Parking Lot Improvements	Lump Sum	Lump Sum	35,000.00
4.	Electrical Service and Water Service Extension	Lump Sum	Lump Sum	7,500.00
5.	Boardwalk Extension	100 LF	250.00	25,000.00
6.	Gazebo, 15' Diameter	Lump Sum	Lump Sum	15,000.00
7.	Tennis Courts with Lights	2 Units	30,000.00	60,000.00
8.	Bocci Courts	2 Units	3,500.00	7,000.00
9.	Shuffleboard Courts	2 Units	3,000.00	6,000.00
10.	Beach Sand Deposition	500 CY	6.00	3,000.00
11.	Landscaping	Lump Sum	Lump Sum	7,500.00
12.	Park Furnishings and Signage	Lump Sum	Lump Sum	15,000.00
		CONSTRUCTION TOTAL		$196,000.00
		CONTINGENCIES (7%)		13,720.00
		INGINEERING FEES AND PERMIT ACQUISITION (13%)		25,480.00
		PROJECT TOTAL		$235,200.00
		SAY		$235,000.00

SHORELINE CONNECTING LINKS

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
1.	Site Preparation and Grading	Lump Sum	Lump Sum	50,000.00
2.	Rip-rap and Fill Removal	Lump Sum	Lump Sum	100,000.00
3.	Groins	2 Units	250,000.00	500,000.00
4.	Beach Sand Deposition	6,800 CY	6.00	40,800.00
5.	Beach/Dune Restoration	125,000± SY	2.00	250,000.00
6.	Cord Grass Transplantation	Lump Sum	Lump Sum	25,000.00
7.	Landscaping and Slope Stabilization	Lump Sum	Lump Sum	100,000.00
8.	Margaret's Creek Cleanout	Lump Sum	Lump Sum	25,000.00
9.	Footbridge	1 Unit	25,000.00	25,000.00
10.	Catwalk Through Wetlands	600 LF	25.00	15,000.00
11.	Park Furnishings and Appurtenances	Lump Sum	Lump Sum	50,000.00
	CONSTRUCTION TOTAL			$1,180,800.00
	CONTINGENCIES (7%)			82,656.00
	ENGINEERING & PERMIT ACQUISITION (13%)			153,504.00
	PROJECT TOTAL			$1,416,960.00
	SAY			$1,417,000.00

OLD BRIDGE WATERFRONT DEVELOPMENT PLAN

1.	Raritan Bay Beach Recreation Area	$ 407,000.00
2.	Morgan Beach Recreation Area	1,980,000.00
3.	Laurence Harbor Park (additions)	235,000.00
4.	Shoreline Connecting Links	1,417,000.00
	COMPLETE PROJECT TOTAL	$4,039,000.00

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON

DIVISION OF COASTAL RESOURCES

September 10, 1980

Mr. Jeff Bottger
T & M Associates
26 Main Street
Toms River, New Jersey 08753

RE: Waterfront Development Master Plan
Old Bridge Township
Middlesex County, New Jersey

Dear Mr. Bottger:

Based on staff review of the information presented during the on-site inspection held on August 27, 1980, the Waterfront Development Plan has the following status in terms of the revised Rules on Coastal Resource and Development Policies which will become effective on September 26, 1980 (N.J.A.C. 7:7E-1 et seq.). Please understand that this analysis is intended as an aid to help the township along the design and development process. It is not a binding commitment to approve or deny any forthcoming permit application.

Project Description

The Township of Old Bridge proposes to revitalize approximately two miles of Water's Edge along Raritan Bay between Cheesequake and Whale Creeks. The project would encompass some 96 acres and is, for the most part, conservation and recreation oriented. It contemplates three active recreation areas, extensive beach fill, a seasonal small boat marina with associated ramp and groin, re-establishment of wetlands and dune vegetation, a restaurant, and numerous parking spaces.

To be consistent with the function of the August 27 site inspection the following analysis is focused primarily on the beachfront design plan. Other features of the overall design have already received preliminary conceptual approval.

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Location Policies

The entire site is comprised of either Special Areas or Water Areas.

Special Areas

There is a wide variety of Special Areas on site. These are to be mapped on the final site plan submitted to the Bureau of Coastal Planning and Development, and the applicant is to document how the proposed use, in each case, complies with applicable Coastal Resource and Development Policies.

The landward portion of the "Beachfront Design Plan Area" encompasses three Special Areas: a Beach and Dune System, Wetlands, and Filled Water's Edge.

1. Beach and Dune System - The following activities are conditionally acceptable in this Special Area.

   (i) Sediment deposition to create new dunes. Extensive quantities of beach fill are proposed to restore historical grade, provide a grain size suitable for a "bathing beach", and to protect the uplands during storm events. This filling is conditionally acceptable provided that all beach fill is placed above the mean high water line.

   (ii) Planting of adapted vegetation.

   (iii) Development of limited unpaved pedestrian walkways through dunes and overwash areas to the beach.

   The dune re-establishment concept is to be commended. However, the final design (placement, orientation, shape, etc.) should be based on an understanding of the dynamics of local natural forces, i.e., prevailing winds, littoral drift, and historical storm damage.

2. Wetlands - are areas where the substrate is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

   The low areas adjacent to the existing tavern support vigorous stands of Phragmites communis, the common reed grass, and are classified wetlands.

In general, development of all kinds is prohibited in wetlands, unless DEP can find that the proposed development meets all four conditions listed under N.J.A.C. 3.23(b)1. In this case, wetlands policy requires that the proposed restaurant parking area be prohibited. Further, the restaurant itself is highway oriented and inconsistent with the recreational and conservation objectives of the project as a whole. In addition, the applicant is advised at this time that Green Acres would not fund this aspect of the project.

3. Filled Water's Edge - areas are existing filled areas lying between Wetlands or Water Areas, and either: (a) 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.

The disturbed area adjacent to Cheesequake Creek is a Filled Water's Edge. The proposed parking lot that would serve the marina facility is a non-water dependent use. It is conditionally acceptable provided that (a) it would not preempt use of the waterfront portion of the Filled Water's Edge for potential water dependent uses, and (b) it would not prevent public access along the water's edge. A gravel or crushed shell surface appears to be particularly suited to this site. Due to the seasonal nature of this facility winter maintenance should not pose a problem. There is also concern that a macadam type structure could be broken up and/or washed away during a severe storm. The Resource Policies dealing with Runoff (7:7E-8.7) and Water Quality (7:7E-8.4) must be addressed in the final submittal.

The parking area adjacent to the "bathing" beach, however, is discouraged. It appears that portion of the site could easily be incorporated into, and may already be part of, the beach and dune system, as evidenced in the original beachfront design plan. If it is demonstrated that additional parking is required, alternate areas of the site should be explored, e.g., the overflow area.

Water Areas

The site is adjacent to Raritan Bay, Whale Creek and Cheesequake Creek. Margaret's Creek bisects the site. Each of the three creeks discharge into Raritan Bay. The Bay along this two mile reach is extremely shallow, extending some 400+ feet outshore of the mean high water line during spring low tide (the prevailing condition during site inspection).

Several uses of the intertidal zone of Raritan Bay, classified as an Open Bay, are proposed: a small boat marina with associated ramp and groin; dredging; beach fill; expansion of emergent vegetation; and possibly some bulkheading. Each use is discussed relative to the pertinent Coastal Resource and Development Policies.

1. Bulkheads are generally discouraged in Water Areas. The proposed decking on piles is the appropriate structure in this case.

2. As stated previously, all beach fill is to be placed above the mean high water line.

3. Expansion of littoral vegetation. For obvious aesthetic, ecological, and shore protection reasons, the applicant is encouraged to expand the scope (both area and species) of the vegetation reestablishment aspect of the project. Several isolated stands of Spartina alterniflora (saltmarsh cordgrass) and Zostera marina (eelgrass) are indicated on the site plan. The applicant's consultant stated during the site inspection that a historical overview of the area will be incorporated in the final submittal to the Bureau of Coastal Planning and Development. As part of this research, it would be worthwhile to ascertain the extent of eelgrass in this area prior to the 1930's when a disease epidemic virtually eliminated eelgrass from the eastern U.S. Atlantic Ocean. Perhaps existing energetics (wave dynamics) of this portion of the Bay preclude significant establishment of new eelgrass beds, but the feasibility of this idea should be explored. A list of pertinent articles is enclosed for your consideration; see specifically Philips, 1974.

4. New dredging in Bays is discouraged. However, given the recreational nature of the entire concept it may be conditionally acceptable for seasonal boat moorings provided that all of the following criteria are satisfied: (i) there is a demonstrated need that cannot be satisfied by existing facilities, (ii) the facilities served by the new dredging satisfy the location requirements for Special Water's Edge Areas, (iii) the adjacent areas are currently used for recreational boating, commercial fishing or shipping, (iv) the dredge area causes no significant disturbance to Special Water or Water's Edge Areas, (v) the adverse environmental impacts are minimized to the maximum extent feasible, (vi) dredging will have no adverse impacts on ground water resources, (vii) an acceptable dredge spoil disposal site exists, (viii) the

dredged area is reduced to the minimum practical and (ix) turbidity is controlled during the dredging operation using the best available technology (reference: U.S. Army Waterways Experiment Station, Dredged Material Research Program Report, TR D5-78-22).

Each of the above criteria are to be addressed in the final submittal to the Bureau of Coastal Planning and Development. In addition, coastal engineering studies should be performed for the proposed marina and boat ramp facilities to determine projected frequency of maintenance dredging. The applicant is instructed to include as part of the final submittal a Corps of Engineers determination regarding the proposed dredging.

The viability of the marina, ramp and protective groin are, of course, dependent upon acceptability of the proposed dredging.

5. Recreational docks and piers are conditioned acceptable provided that: (i) there is a demonstrated need that cannot be satisfied by existing facilities, (ii) the associated upland use satisfies the location policies for water's edge areas, (iii) the construction minimizes adverse environmental impact to the maximum extent feasible, (iv) the docks and piers are located so as not to hinder navigation or conflict with overhead transmission lines, and (v) there is minimum feasible interruption of natural flow patterns.

Specifically, marina groins and breakwaters should be designed to minimize maintenance dredging requirements as well as protect property. Marina plans should consist of on-site, initial and long term dredge material handling facilities. Plans should contain facilities for the proper handling of boat and site-generated sewage and refuse.

The final submittal should include a statement defining the status of the remainder of the project in the event the Division deems the marina-ramp facility unacceptable.

6. Public use boat ramps are conditionally acceptable in Open Bays provided that: (i) there is demonstrated need that cannot be met by existing facilities, (ii) they cause minimum practicable disturbance to intertidal flats or subaqueous vegetation, and (iii) they are constructed of environmentally acceptable materials such as concrete or oyster shell.

7. The consturction of a new groin to serve as a breakwater and to retard long-shore transport is acceptable only if it meets all of the following five policies: (i) the structure is essential to protect water dependent uses or heavily used public recreation beach areas in danger from tidal waters or erosion; (ii) the structure is designed to eliminate or mitigate adverse impacts on local shoreline sand supply; (iii) the structure will not create net adverse shoreline snad movement conditions downdrift, including erosion and shoalng, (iv) the structure will cause minimum feasible adverse impact to living marine resources; and (v) the structure is consistent with the State Shore Protection Master Plan.

   In addition, plans should be coordinated with the previously approved Shore Protection Project. Specifically, the applicant should explore the feasibility of accommodating the groin and storm outfall pipe proposed in Shore Protection Project within the marina facilities. As another alternative, it is suggested that the stormwater be directed into the naturally vegetated areas adjacent to the existing tavern. The ability of P. communis to improve water quality is well documented in the literature (see Tyrawski, 1977; excerpt of Masters Thesis is enclosed).

Resource Policies

The following resource policies must be addressed in the final submittal.

Water Quality and Runoff

It is the intent of these policies to minimize off-site stormwater runoff and associated pollutants, increase on-site infiltration and simulate natural drainage systems. The quantity of off-site stormwater runoff shall not exceed the quantity of runoff that would occur under the existing predevelopment conditions of the site.

Soil Erosion and Sedimentation

Traffic

Conclusion

Except for the restaurant parking area, the proposed project is conditionally acceptable with regard to Coastal Resource and Development Policies. The final submittal to the Bureau of Coastal Planning and Development should contain a section in which it is demonstrated how the proposed project complies with the aforementioned policies.

I hope this guidance provides you with a clearer understanding of the status of this project relative to Coastal Resource and Development Policies. If you have any questions, please do not hesitate to contact the Office at the above address or at (609) 292-0060.

Sincerely yours,

BUREAU OF COASTAL PROJECT REVIEW

/Robert G. Tudor

Robert Tudor
Senior Environmental Specialist

RT/vp
Enclosures
cc: Mr. William Andrews
Ms. Blanche Hoffman
Mr. Bernard Moore
Mr. James Johnson

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL
PROTECTION
TRENTON

DIVISION OF ~~MARINE SERVICES~~
COASTAL RESOURCES

BUREAU OF COASTAL ENGINEERING
1433 HOOPER AVENUE
TOMS RIVER, NEW JERSEY 08753

TEL. (201) 341-3986

September 24, 1980

MR. JEFF BOTTGER
T & M ASSOCIATES
26 MAIN STREET
TOMS RIVER, NJ 08753

RE: SMP - OLD BRIDGE TOWNSHIP

Dear Mr. Bottger:

Based on the information presented during the on-site inspection held on August 27, 1980, the Bureau of Coastal Engineering has the following comments regarding the re-vitalization of the Raritan Bay shorefront in Old Bridge Township.

The Master Plan, which calls for the adding of beachfill, stabilizing the slopes and existing dunes along the Raritan Bay shorefront, appears to be in conformity with the Corps of Engineers Hurricane Protection Project and also conforming to the proposed Shore Protection Master Plan for the State of New Jersey.

Because I am deeply involved with the Army Hurricane Protection Plan, I have directed my field crews to take cross-sections throughout the entire area. Once these cross-sections have been plotted, I will provide a copy of them to you to show the relationship between the Army Project and the existing conditions. The State of New Jersey and the Township of Old Bridge are obligated to maintain the Army Project for its useful life, which is approximately 50 years.

With regards to the proposed marina adjacent to Cheesequake Creek, I have mixed feelings. One, to provide quiet waters for the small boats to be moored at this marina, it will require the construction of a jetty just to the east of the proposed marina and that jetty should have an "L" facing in the westerly direction to provide the required quiet waters; otherwise, I believe the bay waters will be too choppy and the boats will be damaged. The other question that comes to mind is the dredging that must take place to create the marina and where that dredge material would be placed.

Several years ago, the New York District Corps of Engineers came out with a Public Notice on the maintenance dredging of Cheesequake Creek. That Public Notice stated that there was mercury and zinc in the material that was to be dredged. Because of this, the material could not be placed on a public beach for fear of some environmental harm to the public and to the surrounding areas. I would suggest that a test be made of this material and if it is toxic then it should be barged out to sea; if non-toxic, it should be placed on the beaches.

I can also recall that the area to be dredged is in the so called Intertidal Zone. From my experience with the Department of Interior, National Marine Fisheries and the New Jersey Fish and Game people, anything that would destroy the marine life in that intertidal area is unacceptable. If I understood correctly, the State Fish and Game kind of indicated to you verbally at the on-site inspection that the marina would be okay. This did not make much sense to me. It does not follow their policy which they have been advocating for the last several years.

I hope these comments will help you in developing the rest of your Master Plan. My office has a wealth of information regarding the Army Hurricane Protection Project, copies of the real estate maps, which show ownership in the area and other material that would be of interest to you. You are welcome to all of this information.

Very truly yours,
BUREAU OF COASTAL ENGINEERING

Bernard J. Moore
Chief

BJM/mz

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
26 FEDERAL PLAZA
NEW YORK, N.Y. 10007

NANEN-CJ

24 September 1980

Mr. Thomas A. Thomas, Vice President
T & M Associates
26 Main Street
Toms River, New Jersey 08753

Dear Mr. Thomas:

This is in reference to your letter of 22 August 1980 and a meeting held at Old Bridge Township with Mr. Bottger of your office, Township and State officials, and Mr. LaMoglia of this office concerning the Old Bridge Waterfront Revitalization Plan.

A Corps permit is required if you plan to locate a structure, excavate, or discharge dredged or fill material in waters of the United States or if you plan to transport dredged material for ocean disposal. A permit is therefore required for the marina and groin, and if final plans dictate for the fill and disposal. The entire project can be evaluated by one permit action.

Inclosed is the publication "U.S. Army Corps of Engineers Permit Program - A Guide for Applicants", Department of the Army permit application package, and New Jersey Standard Application Form CP#1 - Construction Related Permits. This material will provide guidance for preparation of a permit application. If you require additional information concerning the permit program, contact Mr. William Slezak, Chief, Construction Permits Section at (212) 264-0182.

The proposed project is in the same area as two federal projects, Madison (now Old Bridge) Township section of the Raritan Bay Beach Erosion and Hurricane Project and the Cheesequake Creek Navigation Project. The integrity of the federal projects would have to be maintained. It is suggested that this office be contacted during the actual design phase of the project.

If you require further information, contact Mr. Ralph LaMoglia at (212) 264-9086.

Sincerely,

P. A. DESCENZA
Chief, Engineering Division

Incl
As stated

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON

DIVISION OF COASTAL RESOURCES

PLEASE ADDRESS REPLY TO:
P. O. BOX 1889
TRENTON, N. J. 08625

January 14, 1981

Mr. Thomas A. Thomas, PP, AICP
Vice President - Planning
T & M Associates
26 Main Street
Toms River, New Jersey 08753

RE: Old Bridge Waterfront Plan

Dear Mr. Thomas:

Staff of the Bureau of Coastal Planning and Development and the Bureau of Coastal Project Review have completed their review of the draft final "Old Bridge Waterfront Revitalization Plan," December, 1980. The following are the Bureau's comments on the plan:

1. The proposed dredging for the seasonal marina near the mouth of Cheesequake Creek would be prohibited by Coastal Resource and Development Policies, if the area proposed for dredging has a history of natural shellfish recruitment (see N.J.A.C. 7:7E-3.2). If not, this area would still be one in which dredging would be discouraged under the Shellfisheries Resource Policy (7:7E-8.3). Although the text of the report states that this is not a Shellfish Bed Special Area because shellfishing is currently condemned, the Special Area Map indicates that the proposed marina site is a Shellfish Bed.

   If in fact, there is a history of natural recruitment of shellfish at this site, the marina plan should be changed to avoid impact on the resource. If it can be demonstrated that such is not the case, then there is no need to change the plan, but it should be noted that because of the presence of shellfish in that area, it is possible that either the required Army Corps of Engineers permit for dredging or the required Waterfront Development Permit would be denied because of this resource.

   If Old Bridge elects to apply for the necessary dredging permit despite this strong possibility of permit denial, further documentation would be needed in the application

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concerning the quantity, quality and history of shellfish resources in the affected area, and the need for the proposed marina as evidenced by occupancy rates and waiting lists at other Raritan Bay marinas. The application should also show the exact area to be dredged and the proposed depth of dredging. Copies of correspondence with the Army Corps of Engineers should be provided to substantiate their willingness to perform maintenance dredging, and an estimate should be made of the required frequency of maintenance dredging.

2. The map of Special Areas indicates the entire Raritan Bay shoreline adjacent to both Cheesequake Creek and Whale Creek to be an area of Wetlands. Although some wetlands may exist in these areas, I do not believe that the entire bayfront would be defined as a Wetland, as defined in N.J.A.C. 7:7E-3.23. More likely, the Beach and Dune System merges directly into Intertidal Flats, without a Wetland margin. Should the Special Area Map be correct that there is a significant wetland margin, this would preclude construction of the marina adjacent to Cheesequake Creek and beach nourishment and recreational development on Wetlands adjacent to Whale Creek.

3. The Special Area Map indicates that the area designated for a parking lot on the Waterfront Revitalization Plan map is part of the Beach and Dune System. If this is correct, then the parking lot would be unacceptable at this location, and the plan should be amended accordingly.

4. There is no key to the symbols on the Waterfront Revitalization Plan Map.

5. The cost estimates provided for Morgan Beach, Laurence Harbor Park and Raritan Bay Beach must be broken down into component costs. A cost estimate is also needed for improvements to take place between these three beach areas.

6. It should be noted whether the Township has obtained a Waterfront Development Permit for the two groins proposed to the east of Morgan Beach.

7. An alternative should be considered to allowing runoff to be carried into Raritan Bay via the two pipes proposed in conjunction with new stone groins. One alternative would be to allow the runoff to flow into the nearby Phragmites depression.

8. The discussion of Water Quality and Runoff mentions consideration of diverting stormwater runoff from the parking lots into natural salt marsh. If feasible, this plan would be encouraged.

9. The proposals for expansion of existing cord grass beds through mechanical transplantation and for protection of the stands of Phragmites communis near the tavern seem excellent.

10. The discussion of the consistency of the proposed plan with the master plans of Sayreville and Aberdeen is a helpful addition to the report.

11. Regarding required permits, the Wetlands permit would take less than 90 days to acquire once the application was complete. Because the proposal would enhance the wetlands, it is likely that it would be quickly approved. The Stream Encrochment Permit and Waterfront Development Permit also fall under the 90-Day Rule. The paragraph on the Waterfront Development Permit should mention that dredging is one of the activities which would require a Waterfront Development Permit.

12. The paragraph on Heritage Conservation and Recreation Service funding for waterfront development should be deleted. Land and Water Conservation Fund monies are available only to urban aid communities. For outdoor recreation facility development, they are available for only 40 percent of the project costs.

    Regarding item 3, "1978 Shore Protection Bond Issue funds", this should be a reference to the 1977 Beaches and Harbors Bond Issue funds.

    Local Coastal Grant funds should not be included on this list of potential funding sources, as this project should complete necessary planning for the site. The next step should be implementation funds not available under this program.

    It is possible that another funding source would be EPA funding for mitigation of impacts from force main construction on Green Acres purchased lands.

    The final paragraph on funding sources refers to "maximizing the expenditure of municipal funds." Isn't the goal to minimize the expenditure of Township funds?

13. The summary and recommendations should contain guidance concerning the timing of grant applications and implementation of individual waterfront segment improvements.

14. The listing of "Plannning and Regulatory Agencies" contains a number of errors and obsolete data. Attached is a revised listing of these agencies.

Please prepare a final report taking into consideration the changes required by these comments as well as comments received at the public meeting and on the record of the public meeting. Also, please send me your notes on the public meeting.

My staff would be pleased to meet with you and representatives of Old Bridge Township if you wish to discuss any of the points in this letter.

Sincerely,

John R. Weingart, Chief
Bureau of Coastal Planning
and Development

JRW:AC:ca
Attachment
cc: Mayor Russell Azzarello, Township of Old Bridge
Mr. H. Bud Goldie, Township of Old Bridge
Mr. E. Fletcher Davis, Township of Old Bridge
Councilwoman Sonja K. Fineberg, Township of Old Bridge
Mr. Jeff Bottger, T & M
Mr. Allan Campbell, DEP-BCPD
Mr. Robert Tudor, DEP-BCPR

APPENDIX III

PLANNING AND REGULATORY AGENCIES

Planning and regulatory agencies concerned with the Old Bridge Waterfront Revitalization Plan include:

- U. S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of Coastal Zone Management, responsible for implementation of the Federal Coastal Zone Management Act of 1972 (P.L. 92-583), and the CZMA Amendments of 1976 (P.L. 94-370).

- State of New Jersey, Department of Fnvironmental Protection, Division of Coastal Resources, responsible for implementation of:

    1) The Coastal Area Facility Review Act (CAFRA) (N.J.S.A. 13:19-1 et seq).

    2) Wetlands Act of 1970 (N.J.S.A. 13:9A-1 et seq.)

    3) Waterfront Development Act (N.J.S.A. 12:5-3).

    4) Various tide land real estate statutes.

    5) The Shore Protection Master Plan.

    6) The guidance of State funding decisions that affect coastal resources, including the Green Acres Program and the wastewater treatment facilities construction program.

- U. S. Army Corps of Fngineers, jurisdiction over water areas and wetlands under the Clean Water Act, Section 404, and the Rivers and Harbors Act (Section II).

- The United States Coast Guard, jurisdiction over water used for navigation.

- The National Flood Insurance Program, Federal Insurance Administration of the Federal Emergency Management Agency.

- D.E.P. - Division of Water Resources, Office of Floodplain Management, jurisdiction over floodplain areas.

- Middlesex County Board of Chosen Freeholders.
- Middlesex County Planning Board.
- Middlesex County Environmental Agency.
- Middlesex County Health Department, Environmental Health.
- Old Bridge Township Committee.
- Old Bridge Township Planning Board and Board of Adjustment.
- Old Bridge Township Board of Health.
- Old Bridge Township Environmental Commission.
- Old Bridge Township Planning, Engineering and Recreation Departments.

TM
ASSOCIATES

PROJECT STAFF

Thomas A. Thomas, P.P., Vice President - Planning

Jeff Bottger, A.S.L.A. - Landscape Architect

Alex Pendjurin, Engineering Technician

Virginia Stanley, Secretary

Colleen Bottazzi, Secretary

Reprographics and Printing - TAMA Services

Robert Baumgartner, Services Manager