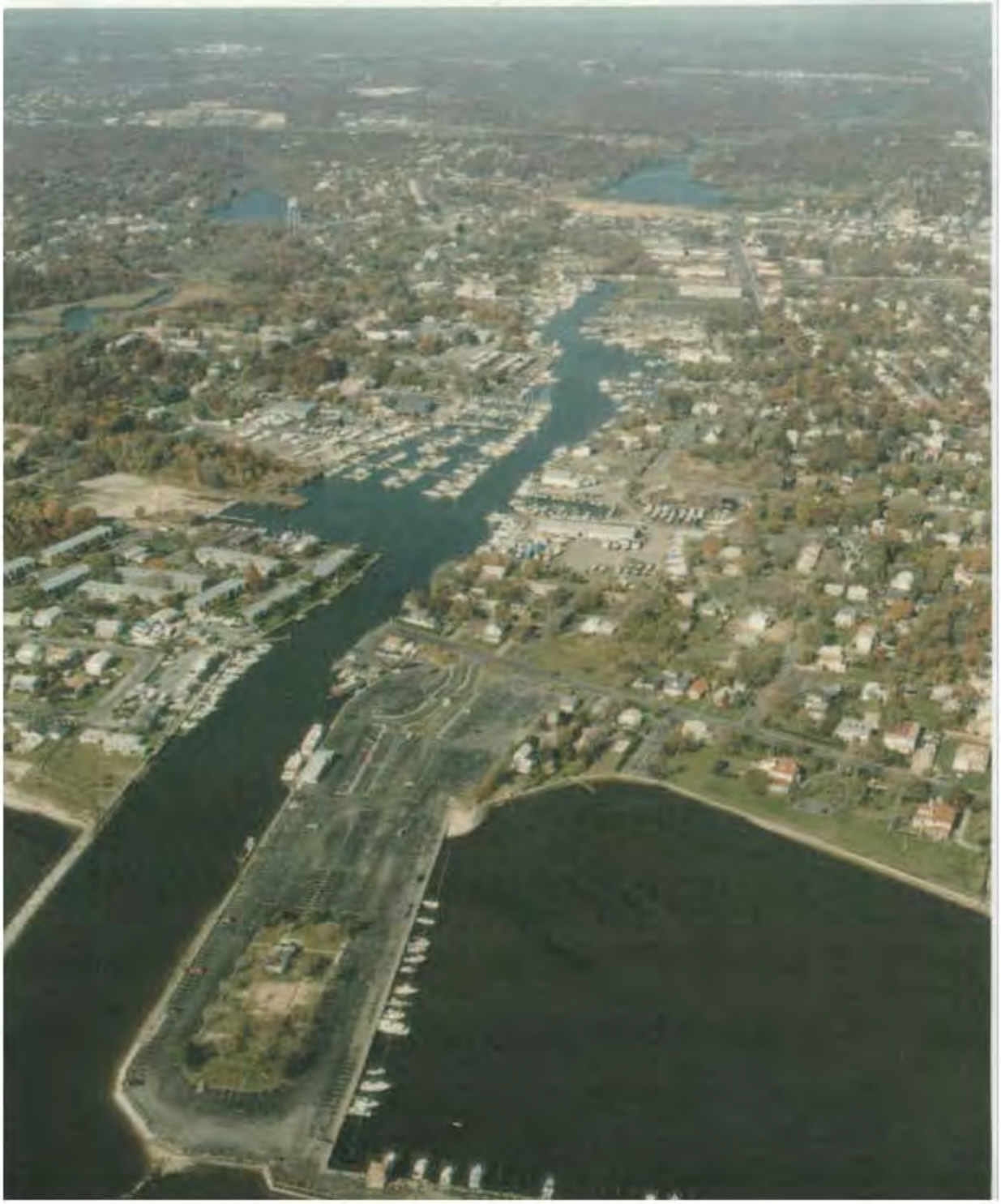
PATCHOGUE RIVER MARITIME CENTER PLAN



November
1999

Prepared by:
Suffolk County Planning Department

PATCHOGUE RIVER MARITIME CENTER PLAN

Village of Patchogue
14 Baker Street
P.O. Box 719
Patchogue, NY 11772

Stephen E. Keegan, Mayor

David M. Kennedy, Commissioner - Village Waterways

Board of Trustees

Edward A. Ihne, Deputy Mayor
Lynn A. Davis
Roy J. Donato
David M. Kennedy
Elisabeth McGuire
Peter A. Mosco

Mary Pontieri, Village Clerk

November 1999

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PATCHOGUE RIVER MARITIME CENTER PLAN

Study Participants

Suffolk County Department of Planning
P.O. Box 6100
Hauppauge, NY 11788-0099

Stephen M. Jones, A.I.C.P.
Director

Environmental Analysis & Research Divisions

DeWitt S. Davies, Ph.D.
Lauretta R. Fischer
Peter K. Lambert
Ronald Verbarg

Cartographic & GIS Division

James A. Daly
Thomas Frisenda
Vincent LeoGrande
Carl G. Lind

Planning Interns

Aidan Mallamo
James Montagna

Support Staff

Dotty Sonnichsen

Patchogue Riverfront Advisory Committee

David M. Kennedy, Chairman

Diane Abell
Richard Blakeslee
Steve Buglino
Arthur Coleman
Jeffrey Fullmer
Edward Halverson
Steen Melby
Raymond Muller
Lee Snead
Arthur Volkman

ex officio
Peter P. Walsh

PATCHOGUE RIVER MARITIME CENTER PLAN

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INTRODUCTION

The Village of Patchogue has been identified as one of six major maritime centers in the 70-mile long South Shore Estuary Reserve (SSER) area, which extends from Hempstead Bay on the west to Shinnecock Bay on the east (New York State Dept. of State Division of Coastal Resources and Waterfront Revitalization 1998a; Steadman 1999). A *maritime center* is defined as an area where commercial *water-dependent* and *water-enhanced uses* are concentrated.[1] (See Photograph 1.) Several characteristics of the Village of Patchogue met the criteria for this designation:

- The Village is host to a mix of maritime uses, including ferry service.
- A large area along the shoreline of the Village has been historically used for traditional maritime activities.
- The Patchogue River provides deep water access to Great South Bay.
- The River is the Gateway to Fire Island National Seashore.
- The area is a destination as a provider of ferry service to Fire Island communities.
- The Village encompasses a central business district.
- Recreational use of the shore is intense at several public waterfront parks and piers.
- The development pattern is such that conflicts with natural resources are minimal.

As part of the effort to complete the Comprehensive Management Plan for the estuary, the SSER Council has recommended that techniques be identified to support traditional maritime uses, and that partnerships be established to encourage desired growth and redevelopment in maritime centers (New York State Dept. of State Division of Coastal Resources and Waterfront Revitalization 1998c). Subsequently, the Village of Patchogue was awarded a grant under the New York State Environmental Protection Fund for a maritime center study of the Patchogue River area, and the Suffolk County Planning Department was selected by the Village to conduct the work under a contract. The Village also appointed the Patchogue Riverfront Advisory Committee to oversee the study. This ***Patchogue River Maritime Center Plan*** is the final product of the contract.

[1] *Water-dependent Use*: A water dependent use is an activity which can only be conducted on, in, over, or adjacent to the water, and which involves, as an integral part of such activity, direct access to and use of coastal waters. Water dependent uses can take the form of a commercial business or a public facility. Examples include: marinas; yacht clubs; boat yards; commercial fishing vessel facilities; coastal aquaculture; charter and party boat operations and associated support facilities; petroleum unloading facilities; waterborne commerce; ferry service; marine construction; marine fuel sales; marine education or laboratory facilities; and bathing beaches.

Water-enhanced Use: A water-enhanced use does not require a waterfront location in order to function, but is often essential to the efficient functioning of water dependent uses and can be an essential contributing factor to their economic viability. Further, water-enhanced uses often increase the public's enjoyment of the waterfront. A water-enhanced use can take the form of a commercial business or a public facility. Examples include: marine services; boat repair; bait and tackle shops; water view restaurants; and waterfront parks.

Photograph 1 - Marinas and boatyards are major water-dependent uses on the Patchogue River.

The ***Regional Setting*** map shows the south shore of Suffolk County from Fire Island Inlet to Moriches Inlet, and the general location of study area. The mouth of the Patchogue River is located about 18.0 miles from the Robert Moses Causeway Bridge in the throat of Fire Island Inlet via the Great South Bay Navigation Channel; and about 17.5 miles from the channel leading south to Moriches Inlet via the Long Island Intracoastal Waterway channel. The Fire Island community of Davis Park is located 4.1 miles south of the River; the Fire Island National Seashore (FINS) Watch Hill marina is about 0.9 miles to the east of Davis Park.

The land area within the jurisdiction of the Village of Patchogue is 2.3 square miles, or 1,472 acres. The Village is home to more than 500 businesses. The population of Patchogue Village was estimated to be 11,282 in 1998, and is essentially unchanged for the past 20 years.

Study Goals

The purpose of this study is to prepare a plan for the Patchogue River Maritime Center that will identify actions targeted to the following goals:

- Maintain and protect the viability of existing water-dependent and water-enhanced uses along the waterfront.
- Provide for the expansion of compatible water-dependent and water-enhanced uses at sites and locations that are available and suitable for such development.
- Ensure prudent protection of the environment, while accommodating desired change.
- Improve the overall condition and attractiveness of the area for the enjoyment and advantage of Village residents, water-related business activities and visitors alike.

Implementation of the recommended actions by the Village of Patchogue, its citizens, the private sector and other levels of government will:

- Revitalize the Patchogue River waterfront.
- Improve the economic base of the Village by creating jobs and expanding the tax base.
- Enhance different forms of public access to the Patchogue River, Patchogue Bay, Great South Bay and Fire Island.


PATCHOGUE RIVER
MARITIME CENTER PLAN
TOWN OF BABYLON
TOWN OF ISLIP
TOWN OF BROOKHAVEN
Babylon
Bayshore
Oakdale
Sayville
Patchogue River Maritime Center
Patchogue
Bellport
Center Moriches
Shirley
Great Cove
Robert Moses Causeway
Connetquot River
Nicoll Bay
Patchogue River
Patchogue Bay
Carmans River
Forge River
Bellport Bay
Moriches Bay
GREAT SOUTH BAY
Fire Island Inlet
Ocean Beach
Democrat Point
Fire Island Lighthouse
Fire Island Pines
Davis Park
Watch Hill
Smith Point Bridge
Narrow Bay
Moriches Inlet
FIRE ISLAND
Atlantic Ocean
scale
MILES 0 3.5
LOCATION MAP
N.Y.
CT.
N.J
SUFFOLK COUNTY
Planning
NEW YORK
STEPHEN M. JONES
April 14, 1999
REGIONAL SETTING
Village of Patchogue
Town of Brookhaven
Suffolk County, New York

- Prevent and/or mitigate degradation of marine environmental quality.

- Increase the value of Patchogue River and Bay shoreline areas as commercial and recreational assets.

Study Area

The boundary of the study area was established by the Patchogue Riverfront Advisory Committee during the initial phase of the study. The Patchogue River Maritime Center (henceforth referred to as the PRMC in this report) study area includes the Patchogue River corridor extending from Division St. on the north to Patchogue Bay on the south; and from River Ave. on the west to Cedar Ave. on the east. The study area also includes the shoreline of Patchogue Bay from Cedar St. on the west to Bay Ave. on the east, south of Maiden Lane and Smith St. The southern boundary of the study area corresponds to the jurisdictional boundary of the Village of Patchogue in Patchogue Bay. The boundary of the study area is shown on the ***Study Area*** map. The base for this map was prepared using Suffolk County Real Property Tax Map parcel boundaries. The study area encompasses 362.4 acres in the Village of Patchogue, of which 234.7 acres are upland property; the remaining 127.7 acres are surface waters.

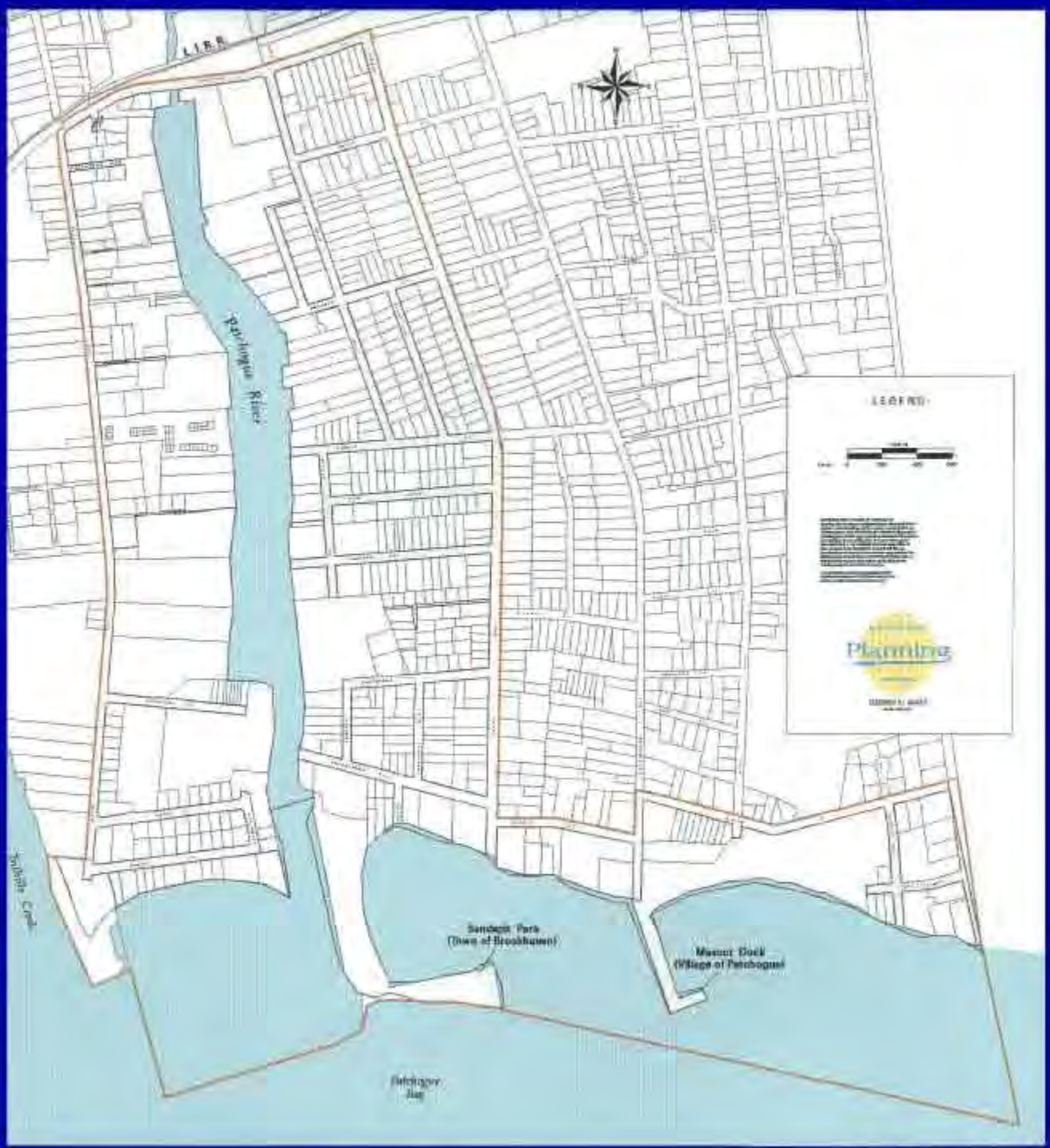
To the maximum extent feasible, inventory data and information characterizing the study area have been stored in the Suffolk County Planning Department's Geographic Information System (GIS), which is spatially referenced to the parcel-specific base map referred to above. This base has been used to portray data/information collected in the study and present analysis results. Small scale versions of all maps are included in this plan report. Large scale (1 inch equals 200 feet) maps have been prepared for use in public presentations.

Plan Report Organization

The organization of this report generally follows the steps employed to conduct the work, i.e., analysis of historical trends of important water-related activities; inventory of existing conditions in the PRMC study area; consideration of viewpoints of those that work and live there; and the development of recommendations to achieve plan goals. The report begins with an overview of land use and activity changes in the study area over the last century. More recent trends in waterborne commerce, boating facility usage, and ferry passenger activity are then discussed.

The description of existing conditions in the study area includes detailed inventories of land use, water-dependent and water-enhanced businesses and activities, zoning, land available for development, infrastructure (e.g., channel dredging, shoreline hardening structures, sewage treatment facilities, etc.) and environmental resources. This characterization work is then followed by a section on the views of business operators whose establishments are in the PRMC, and the concerns expressed by neighborhood residents.

PATCHOGUE RIVER MARITIME CENTER PLAN



STUDY AREA

Village of Patchogue
Town of Brookhaven
Suffolk County, New York

April 12, 1999

This plan concludes with a section on recommendations that address the goals stated earlier, and that are designed to achieve a new vision for the PRMC. The recommendations include:

- Use of publicly owned and privately owned parcels in the northeast portion of the study area to accommodate tourism interests, expand water-related activities, and provide a focal point for connection with the central business district.

- Use of vacant and/or underutilized parcels along both sides of the River for boating-related activities and other water-related uses.

- Actions that are needed to maintain/improve different modes of access to and along the waterfront of the River and Patchogue Bay.

- Enhanced use of Town of Brookhaven and Village of Patchogue park facilities located in the study area.

- Required infrastructure improvements.

- Implementation mechanisms.

While reflecting the analysis undertaken in the current project, these recommendations were developed with an awareness of the content of previous planning studies, which are reviewed in the following section.

Previous Planning Studies

A survey of previous planning studies involving the Village of Patchogue was undertaken by the Planning Department in order to gain an understanding of present conditions in the PRMC study area with a perspective of the past. Six studies are discussed below. Recommendations and views have changed over the last 40 years. Many initiatives were proposed, but never implemented.

Master Plan - Village of Patchogue, New York - In 1959 a three volume Master Plan was prepared by Edwin S. Voorhis & Son, Inc. for the Village of Patchogue. Volume I discusses the population trends, economic base and land use conditions in the Village. Volume II is devoted to traffic circulation and vehicular parking needs. Volume III contains a utilities study, which describes the sanitary sewerage, water supply and storm drainage systems existing within the Village. The following points are relevant to the PRMC study area.

- A proposed sewage treatment plant situated on Village property south of Smith St. and west of DeWitt Ave. is shown on the Drainage Map.

- Existing and proposed recreational facilities are discussed in the community facilities section of Volume III. The plan indicates that the 700 foot man-made beach at the Brookhaven Town

Sandspit Park can accommodate 4,000 people and provides residents with excellent bathing facilities. Volume III states that the future plans indicate that the River Ave. Park site would be developed into a beach area with adequate playground, parking and restroom facilities. The master plan also calls for the creation of a 3.1 acre neighborhood park (Argyle Park) situated next to the Patchogue River between Pine Blvd. and Campbell St.

- Among the zoning recommendations discussed in Volume III, the proposal having most significance for PRMC study area is the suggested modification of the Industrial E category. The recommendation was made to eliminate the Industrial E category and create Industrial I-1 (Limited Industrial District) and Industrial I-2 (General Industrial District) categories. It is shown on the Recommended Zoning Use District Map that the area then zoned Industrial E be changed to the more restrictive Industrial I-1 (Limited Industrial District) category, and that the industrial classification placed on properties between Mulford St. and Campbell St. be changed to residential.

Patchogue Village Planning Study - The Suffolk County Planning Department and the Suffolk County Department of Transportation jointly prepared the Patchogue Village Planning Study, dated February 1979. The study was the result of a request made by the Village to update the 1959 Master Plan. The first half of the report discusses existing conditions with regard to land use, demographics, historic and architectural resources, housing, the central business district, transportation and public transit, recreation and existing zoning. The second half of the report contains recommendations on the above topics.

The following observations and recommendations from the report focus on the Patchogue River corridor:

- The location of the FINS headquarters and terminal on the Patchogue River changes the entire concept of the use of the River from one that was oriented towards industrial use to one that will allow greater public access.

- The central business district lacks any orientation to the waterways in the Village. Providing pedestrian links to Patchogue Lake and Patchogue River is one method of rejuvenating the west end of Main St.

- The Patchogue River, up to Division St., is extensively used by commercial marinas and industrial uses, and public access is very limited. Aesthetically, and as a site for recreation, Patchogue River leaves much to be desired.

- The entire zoning ordinance does not reflect the land uses that presently exist within the Village. A revision of the ordinance should reflect existing conditions that are likely to remain along with realistic changes that are likely to occur based on plan and economic considerations.

- Action should be taken to halt shoreline erosion at Shorefront Park.

- The existing sewage treatment plant at the head of the River will have to be upgraded and should be expanded to serve the entire Village.

- A cluster of substandard housing (formerly seasonal cottages) on Hollow Walk, Pine Walk and Cedar Walk, is recommended as the target for future rehabilitation funding.

- Since FINS will attract the maximum number of visitors on weekends and LIRR commuter parking is at peak on weekdays, it is recommended that the Village reach an agreement with Federal officials wherein parking facilities will be shared on days of maximum need.

- The proposed network improvement plan includes a new roadway bordering the eastern edge of the Patchogue River to afford access to the land uses proposed for this area. This can be accomplished by connecting existing segments of roads in the area.

- A proposed bikeway system is shown on the recreation map. The heart of this system is the lower loop which ties together the ferry terminals, bay front, all southern parks, two schools, the central business district and Patchogue's largest residential area.

- The town land at the end of River Ave. should be acquired for Village use since it does not seem large enough for town-wide recreational purposes.

- Commercial and recreational boating activity has had a long and important history for Patchogue. Marine uses should be given primary consideration on Patchogue's extensive waterfront.

- Since FINS ferries are relocating, the Sandspit Park has a potential for expanding boating facilities. Better and more boat ramps should be encouraged here.

- There are a few major land uses in the Village that should be recognized by special zoning categories. The waterfront area, the downtown business district and the large amount of multi-family housing units are the most important.

- The waterfront requires a special category to encourage the maximum development of marine-related and water-dependent uses. A C-3 marine commercial district is recommended for most of the frontage on the Patchogue River. This would discourage uses that have no relationship to the valuable water frontage.

- The industrial uses, such as oil storage and equipment storage on the River, are expected to be phased out. Marine commercial zoning could be used to encourage this turnover at an early date.

Industrial Location Analyses - In 1980 the Long Island Regional Planning Board prepared a report analyzing industrial land use and industrially zoned land in Nassau and Suffolk Counties, New York. A portion of that report discussed changes in industrial land use. The Patchogue River was used as an example of such a change in industrial land use where the waterfront was once an industrial site. Demand for residential, recreational, and marine commercial uses has caused industrial uses on the waterfront to be replaced.

In the report, a 1977 land use map showed a series of industrial clusters on both sides of the Patchogue River. The report stated that industrial uses, such as oil storage, will be gradually phased out, and eventually the entire navigable portion of the River will be converted to non-industrial uses. A plan map for the Patchogue River area showed that an industrial concentration at the head of the River north of Division St. should be retained. The report stated that this area can continue to be used for industrial purposes without having an adverse effect on the River. Valuable waterfront land currently used for industrial purposes is expected to be redeveloped for additional multiple housing units, recreation activities, and marine related commercial uses.

The plan map in the report proposed that much of the immediate area surrounding the Patchogue River be developed with commercial-recreation uses. In addition, the map showed that the plan for the area includes expanded commercial development on the south side of Division St. between River Ave. and the Patchogue River, and between West Ave. and Cedar Ave. The map also proposed that multi-family residential development occur in the area of Bransford St. between River Ave. and the River. In addition, the map showed a small new road connecting West Ave. to Argyle Lane, which itself would connect directly to Beach St. Land uses proposed for the west side of this road are predominantly commercial-recreation, and to the east of this road, single family residential.

Draft Village of Patchogue Local Waterfront Revitalization Program **(LWRP)** - The draft LWRP for the Village of Patchogue, which appears to have been written in 1989, has not been adopted by the Village or approved by NYS Dept. of State. The draft is divided into six sections. Sections II (Inventory and Analysis) and IV (Proposed Land and Water Uses and Proposed Projects) have information/recommendations pertaining to the study area covered in the PRMC Plan. The following information is from Sections II and IV:

- It was estimated that 500 people use the ferry to Watch Hill on a typical summer weekend day. Approximately 1,000 people use the Davis Park ferry on an average summer weekend day. Holidays and “good weather” weekend days draw even more people.

- Based on field investigations and a waterfront questionnaire that was distributed to commercial, industrial and public land use owners adjacent to the Patchogue River and Tuthills Creek during the development phase of the LWRP, it was estimated that about 600 boats were docked along the Patchogue River. Most marina owners, contacted through the waterfront survey, expressed interest in expanding their facilities.

- A Waterfront Development zoning district and a General Waterfront zoning district were added to the Village Zoning Ordinance in June of 1983, but have not been applied to any parcels.

- It was recommended that the FINS ferry terminal property be zoned General Waterfront.

- The former Hess oil terminal site should be redeveloped for water-dependent uses, such as a marina/boatyard, or since the piers at this site are still intact, a commercial vessel loading and unloading area.

- The Village will request that the Army Corps of Engineers undertake the periodic maintenance dredging of the channel in the Patchogue River to a depth of 12 feet, as well as "spurs" dredged off the main channel to service private enterprises. If the Corps cannot maintain the channel, some maintenance dredging should be performed by Suffolk County.

Village of Patchogue Study - This 1990 study was initiated by the Village of Patchogue Chamber of Commerce. It discussed issues concerning the vitality of the business district on Main St. in Patchogue and the immediate surrounding area. The study also examined housing, historic districts, transportation, and land use changes and related zoning matters for the entire Village. The study highlighted the strengths and weaknesses of the Village, and offered suggestions for preserving the Village's strengths while modifying or eliminating its weaknesses. The study mentioned the Patchogue River several times. The report stated that:

- FINS offers a potential that has not even begun to be tapped in terms of benefits to the Village, and that the opening up of the Patchogue River as a recreational gateway to the waterfront would provide the Village of Patchogue with some of the amenities currently existing in the Village of Port Jefferson as the result of the revitalization of Port Jefferson harbor.

- Removal of the bowling alley would allow the expansion of tourist opportunities. A walkway system around the River from the FINS terminal would then be possible.

- The portion of the Patchogue River at Division St. offers the best opportunity for new tourist facilities, such as waterfront restaurants. Long-term redevelopment plans should include additional restaurants plus some shops just west of the River. The view of the ferry and other boating activities makes the waterfront attractive to visitors.

- Several of the industrial parcels that occur along the Patchogue River could be converted to condominium usage. The waterfront property is obviously extremely desirable and has amenities that should make such facilities commercially viable. The ultimate removal of the oil storage tanks creates a site for waterfront condominiums that would be compatible with surrounding uses.

- Redevelopment of the area containing the Village sewage treatment plant and marginal residential and business uses would provide a larger buffer for the plant and allow some commercial activities and public access to the River.

- A redevelopment of the southwest corner of Main St. and River Ave. would permit a direct connection from Waverly Ave. to River Ave. This would improve the traffic flow on Main St. and allow direct access to the waterfront and the parking areas south of Main St. New retail uses at West Ave. and Main St. can increase tourist activity in the Village, since they will be closer to a revitalized waterfront zone around the FINS terminal.

Village of Patchogue River Corridor Study - The Suffolk County Planning Department prepared this report at the request of the Village of Patchogue. A draft of this report dated January 1998 was circulated for comment, but the final version of the study report has not been completed.

The geographic scope of this study included the Patchogue River corridor from Patchogue Bay on the south to the jurisdictional boundary of the Village on the north. Recommendations to revitalize the area; enhance housing opportunities; capitalize on Patchogue River and Patchogue Lake resources for recreation and tourism; and improve traffic, parking and pedestrian access were made. The study area was divided into four sections: Upper Lake area, the Patchogue Lake and Lace Mill site, the Central River section between Main St. and Division St., and the River Harbor south of Division St. Major recommendations in the draft report are summarized below Upper Lake:

- Evaluate vacant parcels for acquisition in order to regain public access to the lake.

- Establish a bikeway starting at St. Joseph's College that would follow attractive routes to the central business district, both sides of the river corridor and Patchogue Bay parks.

- Enhance recreational fishing opportunities at Patchogue Lake.

Patchogue Lake and Lace Mill Site:

- Create a strip park along the shoreline of the lake by reconstruction of Patchogue-Holbrook Rd.; improve bicycle and pedestrian access facilities along the shore and to the proposed commercial center to the south; improve the lake spillway; add landscaping and amenities.

- Develop the Lace Mill site for assisted living housing (west side) and as a commercial center (east side) with parking in between; open up and improve the channel of the River on the site.

Central River Section:

- Create a river walk park along the west side of the river between Main St. and Division St. through obtaining easements and/or acquisition of property; provide necessary bulkheading, security fencing, suitable vegetation buffers and footbridge access.

- Utilize the Village parking lot on West Ave. for access to the river walk park, and for parking and a shuttle service to the FINS ferry terminal.

- Upgrade and improve the area west of the river walk park and south of the new commercial center by encouraging compatible uses. (Large structures housing industrial uses, storage, etc. are currently located on four parcels.) Relocating the bowling alley now at the intersection of Division St. and West Ave. to this area "could have merit."

River Harbor Section:

- Enhance visitation to the FINS ferry terminal area by docking a coastal schooner or other appropriate vessel(s) at the site; and establishing a display or museum with maritime/nautical themes, with the latter in concert with the Long Island Maritime Museum in West Sayville. "A functional ferry shuttle and/or water taxi ... with a historic flair could also become an attraction."

- Acquire the bowling alley property and relocate this business to a more suitable area; utilize this parcel for FINS or Village activities.

- Establish public access via acquisition of right-of-ways and easements and construction of a walkway, preferably along the River shoreline, that would connect the FINS ferry terminal with park facilities on Patchogue Bay. Apply a similar approach along the west shoreline of the River.

- Examine sites along the River for additional housing. Private ownership or "high-end rental with direct boating access would be appropriate and marketable" at the former Patchogue Oil Terminal site.

The draft report also contained several generic/miscellaneous recommendations.

- Establish a historic tour of buildings and locations in the Village, starting at the proposed museum at the FINS terminal area.

- Remove debris, repair/replace deteriorated bulkheads, and remove vegetation where needed along the shoreline of the River corridor.

- Monitor and remediate stormwater runoff to surface waters in the corridor.

- Improve traffic flow along River Ave. by extending Waverly Ave. across Main St. to intersect with River Ave. north of the elementary school.

- Improve traffic flow via a direct road connection between Lake St. and Oak St. that crosses North Ocean Ave.

- Extend West Ave. south from its terminus at Laurel St. At the Village's request, the possibility of a more direct route from West Ave. to the Great South Bay was explored. The first option would extend West Ave. to meet up with Beach Ave. The second alternative would extend West Ave. to meet with Roosevelt Ave. The cost of relocation, acquisition and demolition will need to be weighed against the benefits of a more direct route from the downtown to the waterfront.

- In cooperation with the Suffolk County Water Authority, establish recreational uses, such as a nature trail or hiking trail, on the 13 acre parcel south of Main St. that is owned by the Authority and adjacent to Tuthills Creek.

STUDY AREA TRENDS

Land Use and Activity Trends

A retrospective on changes in land use and activities in the PRMC study area was conducted primarily through analysis of sequential aerial photographs, supplemented by other sources of information identified below and available for inspection at the Suffolk County Planning Department, as well as site visits.

1. A 1906 print showing an oblique rendition of the Village of Patchogue (Hughes & Bailey 1906).
2. June 1930 aerial photo, black and white contact prints, Airmap Corp. of America, Brooklyn, NY., 1"=1320'.
3. May 17, 1961 aerial photo, black and white print, 1"=660'.
4. March 1961 set of land use maps prepared by the Sanborn Map Co.
5. March 27, 1970 aerial photo, black and white print, 1"=2000'.
6. April 10, 1976 aerial photo, black and white print, 1"=1000'.
7. March 23, 1980 aerial photo, black and white print, 1"=2000'.
8. March 8, 1987 aerial photo, black and white print, 1"=1000'.
9. April 15, 1996 aerial photo, color prints, 1"=1200'.
10. Suffolk County Multi-unit Housing Complexes Data Base.
11. Existing land use inventory field work - August 1998.
12. A survey of the shoreline conducted by boat on August 14, 1998 with the assistance of Mr. Paul F. Felice, Village of Patchogue.

The reader is referred to the **Great South Bay Federal Navigation Project** section of this report for an overview of U.S. Army Corps of Engineers channel dredging and related activities that commenced in the PRMC during the 1890s.

1906 - The northeast section of study area between Division St. and Mulford St. shows intense industrial development (lumber mill - E. Bailey and Sons Lumber Yard; and ship building - G.M. Smith). Use of the east side of the river was limited between Laurel St. down to the bay. Shipyard activity was present along the northern third of the west side of the river. Limited use occurred along the west side of the river south of Weeks St. Resort hotel buildings were apparent at the end of Ocean Ave., and a boat basin was located to the east of the Mascot Dock. Piers extended into the bay in the vicinity of Bay Ave. Waterborne commerce in the Patchogue River during this time period was dominated by transport of coal, lumber, brick/crushed stone, oysters, clams and fish.

1930 - The northern third of the river shorelines - both east and west - is intensively used. Boat berths are prevalent along the river north of Mulford St. on the east and Bransford St. on the west. Boats are moored offshore in the river south of the Frank M. Weeks Boatyard. Filling of shoreline areas is apparent on the east side of the river between Laurel St. and Brightwood St., and bulkheads are in

place. The same can be said for the area on the west side of the river south of Crescent St., which is mostly vacant. Two jetties buttress the entrance to the river, but the entrance to Tuthills Creek is not controlled by any structures. Only the southern terminus of the Sandspit is bulkheaded. The area south of Brightwood St. and Maiden Lane is developed and the shoreline bulkheaded. A large, relatively undisturbed wetland and freshwater drainage way is present north of Smith St. between Rider Ave. and Bay Ave.

The *Report of Chief of Engineers, U.S. Army, 1938* for the New York District indicates that 13 terminals with 5,000 feet of wharfage were located on the Patchogue River. The facilities consisted of a lumber yard with rail connection, 7 boat building yards, 2 fuel oil terminals, a coal yard and 2 wharves open to the public. (A Corps of Engineers 1936 survey of the river shows that the Patchogue Oil Terminal Corp. facility was in place on the west side of the river north of Crescent St.)

1961 - Heavy industrial usage of the river is evident in the time period of this photo. Two large petroleum product tank farms are located on the west side of the river (17 tanks at the Patchogue Oil Terminal; and 12 tanks at the Rite Fuel Corp. located directly to the south of the present-day U.S. Tape industrial plant); and one is located at the end of Mulford St. on the east side (4 tanks at W. R. Marrans Sons). The South Shore Dredging Co. staging area on the east side is located at Patchogue St. A bowling alley building is in-place at the intersection of Division St. and West Ave. More marine commercial activity is apparent along the northern half of the east side of the river, and in the area to the north of the Patchogue Oil Terminal on the west side, where several large piers for recreational boats extend into the river. Roads have been constructed in the area south of the Patchogue Oil Terminal, and some residences have been built in the area. The entrance to Tuthills Creek has been dredged and stabilized; the "T" extension on the Sandspit dock is present; and the wetland complex in the vicinity of Smith St. has been ditched. The boat basin located in the western portion of current-day Shorefront Park has also been filled, baseball field and other improvements at the park have been constructed, and the village swimming pool facility on Maiden Lane is operational.

1970 - Minor changes occurred in the study area since 1961, such as residential infill to the south of Crescent St. on the west side of the river, and more improvements at Shorefront Park. The wetland to the north of Smith St. (out of the PRMC study area) has been filled to accommodate baseball fields and artificial ponds. Two apartment complexes are shown adjacent to the study area on the west side of River Ave.

1976 - This photo shows the addition of two high density residential developments on the west shore of the river. Around 1972, the Watergate Garden Apartments (132 units) were constructed on a 6.1 acre vacant parcel south of Crescent St. (In the 1980s, ownership changed to Fairfield on the Bay.) To the north, a 79 unit apartment complex was constructed around 1973 on 3.4 acres of vacant land directly south of the Rite Fuel Corp. oil terminal. (In 1988, these apartments were converted to condominium ownership - The Landings at Patchogue.) An additional marina was operational on the east side of the river on Campbell St. (current location of Pier East Marina), and paved parking facilities had been added to the Sandspit Park adjacent to the bathing beach.

1980 - By the time this photo was taken, the accessory buildings and storage tanks at the Rite Fuel Corp. facility had been removed and the site was vacant. This marked the beginning of a trend that saw the demise of oil transport by tanker to terminals on the river. (Petroleum product deliveries in the region are now made to marine terminals at Port Jefferson Harbor with transport via pipeline to inland storage facilities.) Upland boat storage facilities had been expanded at the present-day site of Leeward Cove South Marina. In the eastern portion of the study area, a large structure had been razed at a site just to the east of the intersection of Maiden Lane and South Ocean Ave. in what is now Shorefront Park.

1987 - This photo shows that many site and use changes had occurred in the northeast corner of the study area by the establishment of the FINS Watch Hill ferry terminal and maintenance facility. The proliferation of recreational boating facilities is apparent on both sides of the river, principally by the expansion of docks at the current site of Leeward Cove South Marina and at Frank M. Weeks Boatyard, and the intensification of facilities on-site at Island View Marina on the west side; and on the east by dock expansion north of Laurel St. (Sun-Dek Marina). The parking lot at Sandspit Park was expanded and improved, and bulkheading had been constructed along the bay at Shorefront Park.

1996 - By this time, all of the large petroleum product storage tanks at the two remaining terminals that received shipments by tanker had been removed. The Patchogue Oil Terminal site owned by the Hess Corp. is now vacant, but remnant structures, such as concrete retaining walls and deteriorated piers remain. The former Rite Fuel Corp. property is now the location of the Leeward Cove Marina. On the east side of the river, the Marran Oil company remains in operation, primarily as a fuel oil truck depot. Recreational boating activity increased on the east side of the river by the conversion of a dredging company operation into a marina with a dredged basin (South Shore Boatyard). However, activity levels at some marine commercial areas have apparently declined over the years, such as in the area north of Thomas Marine, where the abandoned “Connelly” and former “Brown’s Marina” structures are found. General commercial uses have expanded/upgraded in the northwest segment of the study area (south of the intersection of Division St. and River Ave.); the same can be said for restaurants found along the east side of the river (e.g., On the Waterfront Restaurant) and on the bay (Louis XVI). Minor improvements for public access and recreation had occurred at the terminus of Mascot Dock, and the FINS Watch Hill ferry terminal had been enhanced by additional paved area and the creation of a retention pond for drainage.

The current distribution of land uses is discussed in the **Existing Land Use** section of this report. Suffice it to say that the following trends are apparent from the analysis above.

- There has been a dramatic increase in the acreage devoted to marinas and related businesses along both shores of the river.

- Public access facilities along the bayfront have been provided for both general recreation and water-related activities, and for ferry access to Fire Island destinations.

- Heavy industrial activities have decreased along the waterfront of the river. Boatyard and boat building businesses remain an important activity with historical ties to the past.

- High density residential use has increased along the west shore of the river.

The extensive changes in use that have occurred in the study area for well over a century have also resulted in dramatic modifications to natural resources. A primary example of such modification is the impact on vegetated tidal wetlands. The *Harbor Lines for Patchogue* River, N.Y. map prepared by the War Department (January 17, 1894) shows the configuration of the shoreline of the Patchogue River, and the location of shoals and wetlands after the construction of the west jetty in 1891 (Sharon N. Remmer pers. comm.). At that time, the mouth of the river was much wider than it is today, and there were extensive wetlands in the area south of Weeks St. and east of River Ave. on the west side of the river; and also in the area on the east side of the river, from south of the present-day location of Pine Blvd. southeast to Cedar Ave. on the bay. Large scale wetland filling, shoreline straightening and bulkhead construction over the ensuing years created the shoreline configuration of today, and the total absence of vegetated tidal wetlands as discussed in the **Wetlands** section of this report.

Waterborne Commerce Trends

Movements of commercial vessels and tonnage of commodities transported to selected ports via authorized federal navigation channels are tracked by the U.S. Army Corps of Engineers. The recent history of waterborne commerce in the Patchogue River has been dominated by the delivery of petroleum products by 1,000 dead weight ton coastal tankers to the three oil terminals that were located on the Patchogue River (Nassau-Suffolk Regional Planning Board 1970; Long Island Regional Planning Board 1979). Waterborne commerce in the River has dramatically declined as a result of the phase-out of petroleum product deliveries by tankers to terminal storage tanks in the 1970s/80s.

During the 1950s and ‘60s, Patchogue River was one of four major seaports in Suffolk County, due to the magnitude of petroleum product deliveries to its terminals. Waterborne commerce ranged from a low of 191,214 tons in 1957 to a high of 302,827 tons in 1965 during the period from 1956 to 1966. More than 4,000 vessel trips were reported for the river in 1966. In that year, 98 % of the 296,842 tons of commerce reported for the Great South Bay waterway as a whole included product destined for Patchogue River (Nassau-Suffolk Regional Planning Board 1970).

Petroleum product deliveries began to decline by the early 1970s. During the five year period from 1970 to 1974, an average of about 151,000 tons of petroleum product per year were delivered to Patchogue River terminals (U.S. Army Corps of Engineers New York District 1975). By 1986, no waterborne petroleum product commerce for Patchogue River was reported.

Land use changes in the PRMC, i.e., the closure of petroleum terminals and abandonment of storage tanks, have reduced the presence of industrial activities on the River. No waterborne commerce was reported for the Patchogue River in 1995, and oil tankers no longer arrive or depart from the area. It is noted that the waterborne commerce statistics of the U.S. do not include cargo

carried on general ferries. Therefore, the freight carried by Davis Park Ferry Co., Inc. vessels on trips to Fire Island destinations is not reflected in the Corps' data. In 1995, a total of 10,000 tons of commodity traffic was reported for the Great South Bay waterway. Principal commodities included manufactured equipment, machinery and products; and waste/scrap, all of which arrived or was shipped from locations other than the Patchogue River (U.S. Army Corps of Engineers Water Resources Support Center 1997).

Marinas and Boat Usage Trends

Existing sources of information on the marina industry were reviewed to ascertain recent trends in the number of marinas and boating-related facilities located in the PRMC study area, and in the Great South Bay region along the north shore of the bay from Robert Moses Bridge on the west to Smith Point Bridge on the east (bridge to bridge area).The nature and extent of the inventory reports available have limited the utility of this inquiry to only a broad depiction of trends, as opposed to a clear understanding based on quantitative data. The analysis also involved the creation of a data base for the inventory of water-dependent and water-enhanced establishments located in the PRMC study area that includes a detailed accounting of boating facilities and level of usage at the present time.

To establish a notion of boating facility trends, a single source had to be used to assure consistency of the methods used to acquire data, thus enabling the data to be compared for different base years. In this case, reliance was placed on issues of the *Boating Almanac* published in 1970 and 1997 (Ryan 1970; Citeno 1997). For each base year the total number of marinas (public and private), boat yards, yacht clubs and restaurants (with boat facilities) was tabulated, as was the total number of boat slips at these facilities. Table 1 indicates that during the period from 1970 to 1997, there was a small decrease in the number of boating-related facilities in the PRMC and the region as a whole. However, the number of boat slips at these facilities changed more dramatically, with a 20 % increase in the PRMC, and over 80% increase in the bridge to bridge region. (Note: the accuracy of these data is subject to question. It is difficult to assemble complete and accurate information from surveys of marina operations, and changes in facility ownership and management have occurred over time. Indeed, only those facility operators that responded to the annual update inquiries from *Boating Almanac* are included in the inventory; those that did not respond are "missed." This source also did not account in all cases for slips available at publicly owned facilities. Other kinds of facilities that provide boat dockage are also not typically included.)

The draft Local Waterfront Revitalization Program (LWRP) document for the Village of Patchogue prepared circa 1989 states that about 600 recreational boats were docked along Patchogue River. This estimate was based on field investigations and a questionnaire distributed to waterfront owners (Village of Patchogue 1989). This same estimate was repeated in New York State Dept. of State (1998a).

Table 1 - NUMBER OF BOATING FACILITIES AND SLIPS IN 1970 AND 1997.*

Area	Number of Boating Facilities			Number of Slips		
	1970	1997	% Change	1970	1997	% Change
Bridge to Bridge**	65	64	-2%	2,322	4,204	81%
Patchogue River Maritime Center	13	11	-15%	481	575	20%

***Sources:** Ryan (1970) and Citeno (1997).
****Area along the north shore of Great South Bay from Robert Moses Causeway on the west to Smith Point Bridge on the east.

The recreational boating facility inventory prepared by New York Sea Grant in 1997 in support of the South Shore Estuary Reserve contains aggregated data for the Great South Bay subarea (from the Babylon/Islip town line on the west to the Smith Point Bridge on the east, including the south shore of the bay along Fire Island) and the Patchogue River (Tanski 1997). (Data from this report are included in Steadman [1997].) According to this inventory, 90 recreational boating facilities were identified in the Great south Bay subarea, of which 76 facilities provided a total of 6,232 boat slips; 2 facilities had a total of 200 dry stack spaces for boats. Included in theses figures above are the 15 boating facilities located along the Patchogue River; 13 of these facilities provided a total of 754 slips. One facility had 150 dry stack spaces. Hence, according to data in Tanski (1997), the 904 slips and dry stack spaces found at facilities on the Patchogue River amounted to 14 % of the total (6,432) found in the Great South Bay subarea.

The analysis of water-dependent and water-enhanced uses in the PRMC as of the summer of 1998 led to further examination of boating facilities along the river and bay shorelines. Additional sources of information on marinas were reviewed to determine the level of boat dockage/usage in the study area. (The *New York State Marina Guide* compiled by the NYS Dept. of Environmental Conservation, New York Sea Grant Program and Empire State Marine Trades Assoc. contained data on only five commercial marinas and one public marina in the PRMC study area [New York Sea Grant 1998].) It was decided that the data base would be created by using the 1997 issue of *Boating Almanac*, field visits, interviews and input from members of the Patchogue Riverfront Advisory Committee. The discussion of this data base as it pertains to businesses and other establishments in the PRMC study area is found in the **Water-dependent/Water-enhanced Uses** section of this report.

To ascertain the magnitude of boating-related activity occurring at the present time in the study area, the number of boat slips and dry stack storage spaces associated with various land use categories was determined from the data base, which is included in the Appendix to this report as Table A1 and Table A2. The aggregated data are shown in Table 2. In the commercial use category, three marinas, six marina/boatyards and two restaurants offer a total of 658 boat slips and 260 dry stack storage spaces. Industrial uses (two boatyards and one "other" industrial use) have a total of 18 slips. The two publicly owned marinas in the study area, classified as open space and recreation, provide 172 boat slips, while there are an estimated 43 slips associated with private recreation and open space uses (boat club, small shoreline access parcels associated with a condominium, and parcels used for boat dockage and access only). An estimated 33 boat slips are found on parcels that are used for residential purposes. Sites with abandoned and/or deteriorated structures and evidence of boating activity had an estimated 20 slips.

The total number of slips and dry stack storage spaces in the study area is estimated at 1,204. Other uses on the river, e.g., transportation (ferry), institutional (Fire Island National Seashore), and industrial, also provide access facilities for various types of boats/vessels. Assuming that all boat slips and storage spaces are occupied, one can say that about 1,250 boats of various types use facilities located along the shores of Patchogue River and Patchogue Bay in the study area on a regular basis. This finding is significant, since this level of boating usage is two times more than that cited in the 1989 draft Village of Patchogue LWRP. The large number of boats that are berthed/located in the study area points to the importance of the PRMC as a major component of the recreation-oriented economy that is intimately linked with the waterfront along the south shore.

What is the estimated value of boats in the PRMC? An attempt was made to answer this question in an order of magnitude fashion. The National Marine Manufacturers Assoc. has prepared the following 1997 average unit costs for new recreational boats of various types:

Class A. Outboard boats and motors - $13,750
Class B. Inboard boats/runabouts - $22,362
Class C. Stern drive boats - $22,484
Class D. Inboard boats/cruisers - $264,937

If the distribution of boats by size class and category was known for the PRMC, then a reliable estimate of replacement value could be calculated. Given the absence of this key information, an order of magnitude estimate was determined by assuming that the average recreational boat in the study area had a weighted unit replacement value of $43,000. (This value was calculated given the additional assumption of the following percentage distribution by class of the number of boats in the PRMC: Class A - 40 %; Class B - 25 %; Class C - 25 %; Class D - 10 %.) The current replacement value for 1,204 recreational boats in the PRMC is about $52 million.

Table 2 - BOAT SLIPS AND LAUNCH-ON-DEMAND DRY STACK STORAGE IN PATCHOGUE RIVER MARITIME CENTER.*

Land Use Category	Number of Slips	Launch-On-Demand Dry Stack Storage
Commercial		
Marina	71	160
Marina/boatyard	522	100
Restaurant	65	0
Industrial		
Boatyard and "other"	18	0
Open Space and Recreation		
Private	43	0
Public	172	0
Residential		
All categories	33	0
Other		
Includes Sites with abandoned structures, etc.	20	0
Total	**944**	**260**

*This table does not include facilities used by: marine contractors; the Davis Park Ferry Co., Inc., which has five ferries on the River; and FINS for berthing and maintenance of its fleet of 26 boats.

Ferry Passenger Trends

Six ferry companies provide service to Fire Island from four locations on the south shore, namely, Bay Shore, Sayville, Patchogue and Bellport. The number of ferry passengers utilizing these companies for transit across Great South Bay is one measure of the level of visitation to the communities on the mainland as an interim stop to their final destinations.

There are two ferry terminals on the Patchogue River. The Davis Park Ferry Co. Inc. has operated its fleet of ferries providing service to Davis Park/Leja Beach/Ocean Ridge for about half a century from its terminal located in the Town of Brookhaven Sandspit Park, which has parking space for about 729 vehicles. This terminal, at the end of Brightwood St., is about one mile south of the Long Island Railroad Station in the Village on Division St. The other terminal, owned and operated by the U.S. Dept. of the Interior, Fire Island National Seashore (FINS), is located at the head of navigation on the east shore of the Patchogue River diagonally across West Ave. from the railroad station parking lot. This terminal, which has been in operation since the early 1980s, has free parking for 191 vehicles. The Davis Park Ferry Co. provides ferry service to Watch Hill from this terminal under contract with FINS (Suffolk County Planning Dept. 1984).

During the period from 1963 to 1974, the total annual number of ferry passengers for Great South Bay as a whole ranged from a low of 986,539 in 1967 to a high of 1,382,972 in 1974. (The passenger counts reflect one-way fares to or from a destination, not round-trips.) For Patchogue River during this time, a peak of 103,124 passengers was recorded in 1973, while the lowest number - 36,284 - occurred in 1963 (U.S. Army Corps of Engineers New York District 1975). In 1982, the Davis Park Ferry Co. had 104,835 passengers, or about 7.6 % of all Great South Bay passengers (1,369,439) during this year (Suffolk County Planning Dept. 1984).

It has been difficult to obtain more recent data specific to Patchogue River. The U.S. Army Corps of Engineers has indicated that the last published total for Patchogue River was 166,940 passengers in 1984. (While passenger data for more recent years have been provided to the Corps, this agency cannot release these data for an individual port for breach of privacy reasons, unless there are at least three operators in the port. There are only two operators listed for Patchogue River.) According to the Corps, there were 3,139,840 passengers in 1990 and 2,589,487 passengers in 1996 for all of Great South Bay (Charlotte Cook pers. comm.). The Davis Park Ferry Co. has reported to FINS that 17,000 passengers used the Watch Hill ferry in 1997 (Jean Blakeslee pers. comm.). More stringent reporting requirements may document the actual number of passengers utilizing the Watch Hill terminal in the future.

Given the importance of ferry passenger traffic in the PRMC, an attempt has been made to provide an estimate of the number of passengers utilizing the Patchogue River on an annual basis. If total ferry passengers for the Great South Bay range between 2.5 to 3.0 million per year, and it is assumed that 10 % of these passengers use ferry service located on the river, then the number of ferry passengers for Patchogue River would be on the order of 250,000 to 300,000 per year.

Those ferry passengers arriving by private vehicles utilize the parking facilities at the two terminals. The Watch Hill terminal parking lot has filled to capacity on summer holidays and weekends with good weather conditions (Diane Abell pers. comm.). The same can be said for the parking facility adjacent to the Davis Park Ferry terminal, but the parking demands here are more severe.

On weekends (Friday - Sunday), multiple use conflicts at the Town of Brookhaven Sandspit Park are apparent. An acute parking problem exists, due to the large number of ferry passengers traveling to Davis Park that arrive at the terminal by car and park in the town lot. There is no room to expand parking on-site. Cars parked illegally are towed, etc. The beach near the dock is also a popular spot on weekends, adding to the parking demand. Boaters with slips at the town marina complain that they can not park near their boats on weekends. They wanted the town to dedicate 85 parking slips along marina on the east side of the dock for their exclusive use, but this has not been done (Daniel Kimlicka pers. comm.).

The demand for parking by those traveling to Davis Park has been met in-part by the South Shore Boatyard, which advertises parking for a fee at its lot located a short distance to the north of the Sandspit ferry terminal. FINS also reports that the Watch Hill ferry terminal lot is used by Davis Park visitors for long-term parking. There are no residency restrictions or fees in effect for parking in this lot (Diane Abell pers. comm.).

The parking problem at the Sandspit Park is not a recent phenomena. In 1971, the Town was issued a permit by the U.S. Army Corps of Engineers to extend the existing bulkhead along the east side of Patchogue River 1,150 feet to the south, and then 1,400 feet to the east, thus enclosing an area of about 37 acres. This area would then be filled with material to be dredged from the bay bottom located east of the existing town dock to beyond the Mascot Dock, creating a depth of 10 feet mlw. The purpose of this project was to provide a ferry terminal parking facility; recreational fishing piers were also part of the design (U.S. Army Corps of Engineers New York District Public Notice No.7974 issued January 29, 1975). This project was not implemented by the town.

Great South Bay Hard Clam Fishery Trends

The decline of the Great South Bay hard clam fishery has had an effect on activities in the PRMC. This effect is primarily in the level of support activities associated with the shellfish industry that occurred in the area given the central location of Patchogue with respect to productive clam beds in eastern Great South Bay and Bellport Bay.

Hard clam harvests from Great South Bay as a whole peaked in 1976, when over 700,000 bushels were harvested from waters in the Towns of Babylon, Islip and Brookhaven (Suffolk County Planning Dept. 1987). Of this total, harvests in Town of Brookhaven waters in Great South Bay amounted to 221,018 bushels. The industry declined dramatically in the ensuing 21 years. Total harvests from the bay were reduced to 33,757 bushels in 1997, of which Town of Brookhaven harvests amounted to 28,225 bushels. The remaining 5,532 bushels were harvested from Babylon and

Islip town waters (Jeffrey Kassner pers. comm.). The Great South Bay hard clam fishery has virtually collapsed!

Recent hard clam census survey data collected by the Town of Brookhaven reflect the decline in harvests. During the period from 1986 to 1991, the mean abundance of hard clams (greater than 20 mm in shell length) for 76 stations in the bay (that historically had high abundance as compared to all bay bottom stations sampled) ranged from a low of 8.4 clams per square meter of bottom in 1988 to a high of 10.34 in 1989. By 1997 and 1998, mean abundance had decreased to 2.26 and 3.03 clams per square meter, respectively (Jeffrey Kassner pers. comm.).

Concomitant with the decline in hard clam harvests is the decrease in the number of shellfish permits issued by the Town of Brookhaven, and hence, the decrease in the number of commercial baymen participating in the fishery. At the peak of the fishery in 1976, a total of 1,461 shellfish permits were issued by the town, and perhaps 90 % of these permit holders harvested clams from the bay. In 1997, 246 permits were issued; of this total, about 175 permits were held by baymen participating in the Great South Bay hard clam fishery (Jeffrey Kassner pers. comm.).

The decline in the hard clam fishery and number of baymen has reduced the extent of traditional fishery related activities in the PRMC. In a relative sense, anecdotal information suggests that the number of clam boats berthed in the Patchogue River has declined as compared to such usage in Corey Creek to the west and Swan River to the east. Staging activity for clammers and clam buyers used to be high and frequent on the Patchogue River, especially at the Sandspit Park, where baymen would off-load their catch for sale and shipment to market. This no longer occurs. Subsequently, contact of the public with this aspect of the hard clam fishery also does not occur in the PRMC to the extent that it did in the past (Jeffrey Kassner pers. comm.).

LAND USE

Existing Land Use

The land use inventory conducted for the Patchogue River Maritime Center Plan was prepared on a Suffolk County Real Property Tax Map base and field verified in 1998. The Suffolk County Planning Department's Geographic Information System (GIS) was employed to link land use data with parcels shown on the tax map. The GIS enabled the staff to rapidly develop and plot the existing land use map for the study area showing 13 categories of land use and to generate acreage figures associated with each of those categories.

Use of land use data from previous studies performed by the Planning Department for the Village of Patchogue and tax assessor code data expedited the land use inventory process. These data sets were available in electronic format and keyed to tax map parcels. They provided a starting point for the land use inventory work. The existing land use for each parcel was then field verified and corrections to the GIS data base were made as needed.

Tax assessor codes are assigned to parcels for the purpose of raising revenue through real property taxation. There are literally scores of codes assigned to ratable property. To facilitate interpretation, the land use methodology grouped these codes under the following 13 general land use categories that are commonly used for regional planning purposes: low density residential, medium density residential, high density residential, commercial, industrial, institutional, recreation and open space, agriculture, vacant, transportation, utilities, waste handling and management, and surface waters. The 13 general land use categories are suitable for characterizing community layout and function, determining land available for development, estimating future population levels and preparing master plans. Each and every parcel on the tax map was assigned one (and only one) of the general land use categories. When more than one use was found to occur on a single parcel, the primary use of that parcel was determined and assigned to that parcel. Primary use is based on the relative intensity of the use in comparison with that of the other use(s) in question, with consideration also given to the areal extent of the use on the parcel.

Table 3 shows the number of parcels and the sum of the acreage contained in each land use category. The entire study area covers 362.4 acres. Over one third of the study area acreage (127.7 acres) comprises the surface waters of Patchogue River and Patchogue Bay. The underwater land in Patchogue River and Patchogue Bay that is within the Village boundary is owned by the Town of Brookhaven as described in the Nicoll/Dongan Patent issued by England prior to the American Revolution. The upland study area acreage (234.7 acres) contains 536 tax map parcels.

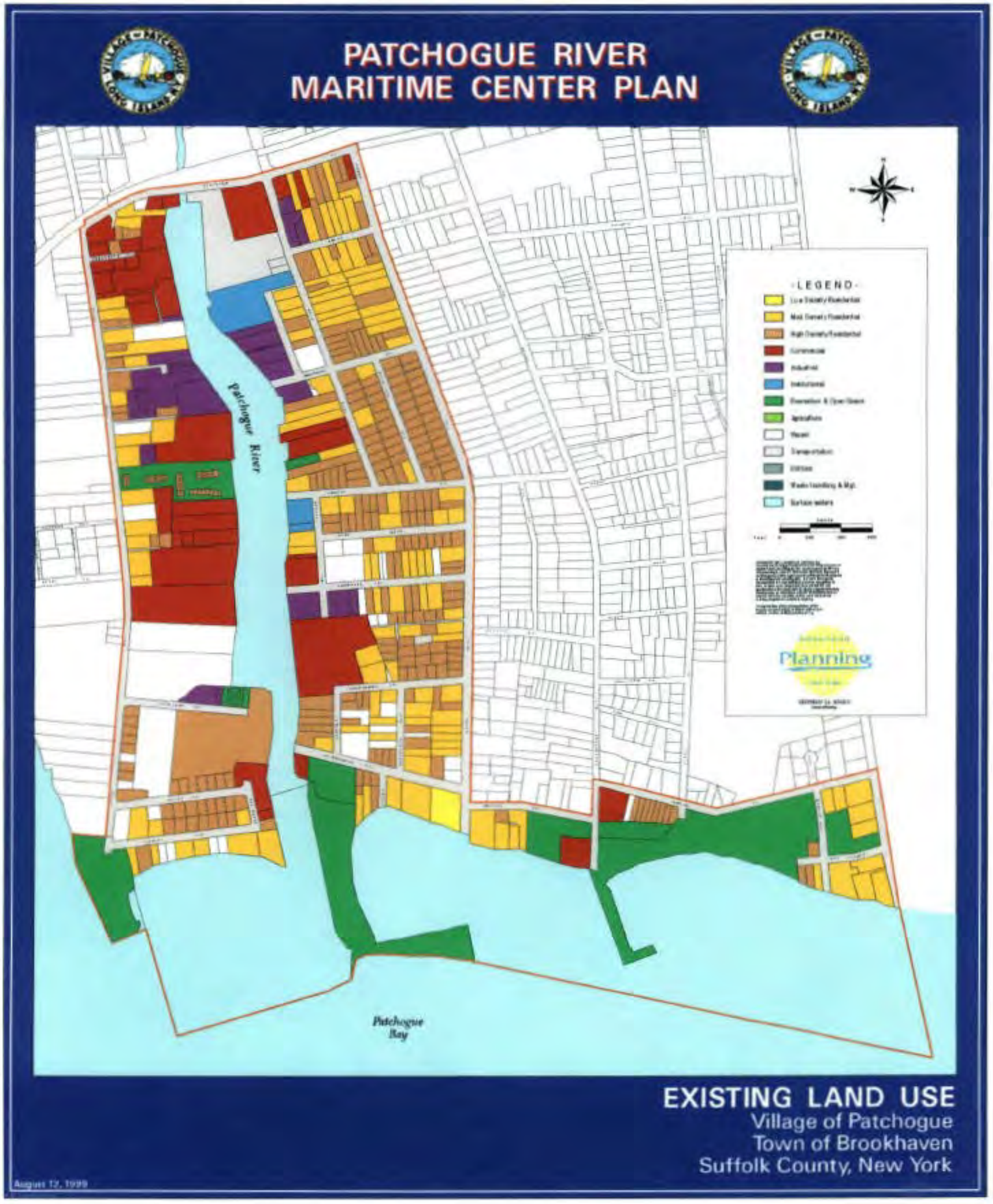
A full color, computer generated ***Existing Land Use*** map at a scale of one inch equals 200 feet was prepared for display purposes and a smaller scale version accompanies this report. Inspection of the map reveals that the bulk of the commercially and industrially used properties (34.3 acres and 10.7 acres, respectively) within the study area are located adjacent to the mid and upper reaches of the Patchogue River. The majority of the waterfront parcels on the Patchogue River are

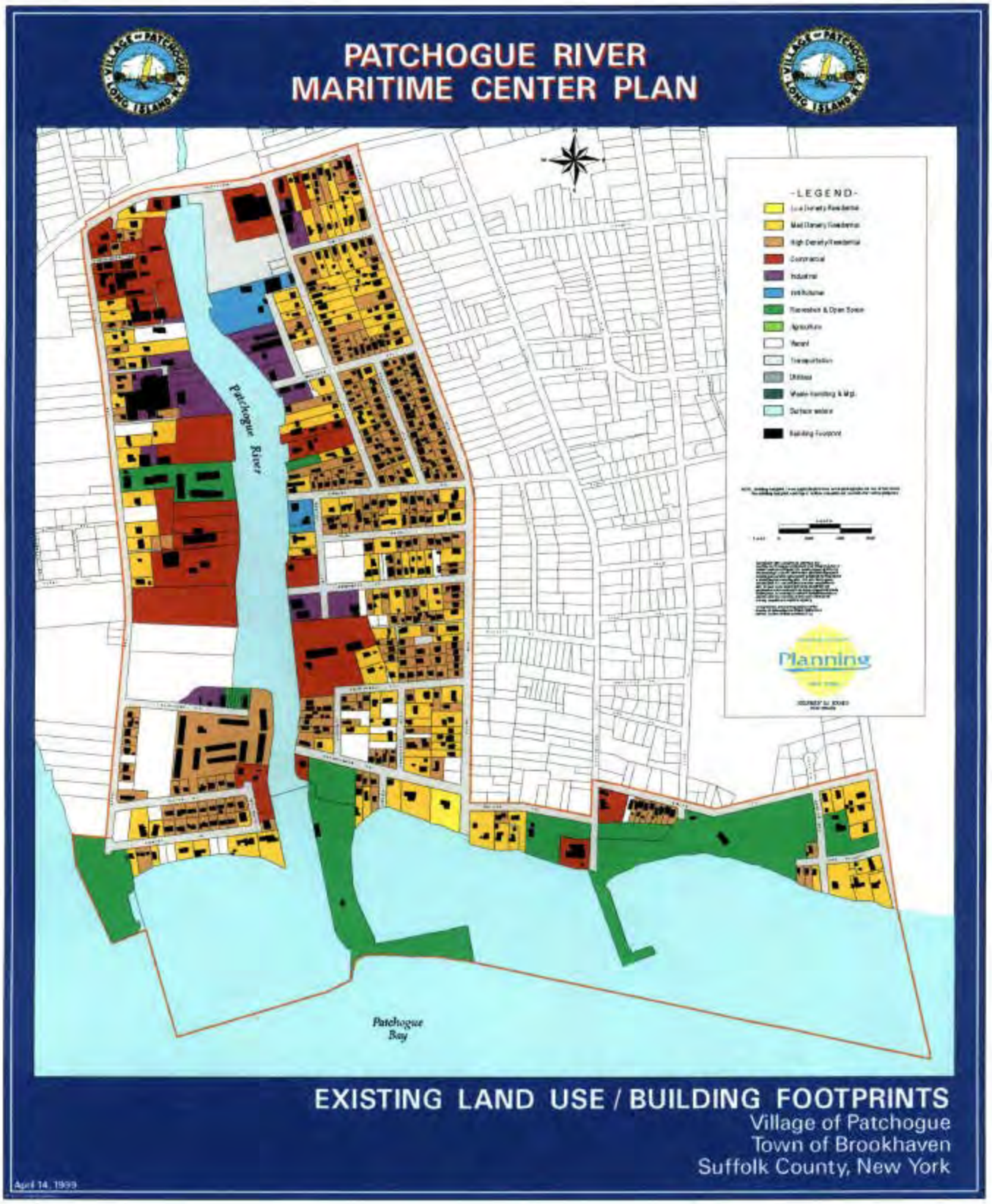
Table 3 - EXISTING LAND USE - 1998.

Land Use Category	Number of Parcels	Acreage
Low Density Residential	1	1.1
Medium Density Residential	127	43.0
High Density Residential	278	46.9
Commercial	40	34.3
Industrial	24	10.7
Institutional	3	3.6
Recreation & Open Space	16	32.2
Vacant	37	19.3
Transportation	10	43.6
Surface Waters	3	127.7
TOTAL	**539**	**362.4**

commercially/industrially used. Most of the acreage in the recreation and open space category (32.2 acres) is owned by either the Town of Brookhaven or the Village of Patchogue and located along Patchogue Bay. Residential use (91.0 acres) comprises nearly 40% of the upland acreage of the study area. The transportation category, which consists of road right-of-ways and the FINS ferry terminal, contains 43.6 acres. Currently vacant properties (19.3 acres) account for approximately 8% of the upland study area acreage.

The physical layout and location of buildings within the study area were superimposed on the existing land use coverage to create a new map entitled, ***Existing Land Use/Building Footprints.*** The building footprints do not include paved parking areas. Aerial photography from April 1996 was used to approximate the location of the building footprints. It should be noted that the building footprint coverage is neither complete nor accurate for survey purposes.


PATCHOGUE RIVER
MARITIME CENTER PLAN
Patchogue River
Patchogue Bay
- LEGEND -
Planning
EXISTING LAND USE
Village of Patchogue
Town of Brookhaven
Suffolk County, New York
August 12, 1999


PATCHOGUE RIVER
MARITIME CENTER PLAN
-LEGEND-
Patchogue River
Patchogue Bay
Planning
EXISTING LAND USE / BUILDING FOOTPRINTS
Village of Patchogue
Town of Brookhaven
Suffolk County, New York
April 14, 1999

The Long Island reference section of the Patchogue Library was consulted to determine if any buildings of historic significance were located in the PRMC study area. It was found that no buildings in the study area were listed in Federal or New York State registers.

Water-dependent/Water-enhanced Uses

Given the focus of this study, it was necessary to prepare a more detailed analysis of existing land use in order to identify and locate water-dependent/water-enhanced uses. (Water-dependent/water-enhanced uses will occasionally be referred to as water-related uses for the sake of brevity in this report.) A separate parcel-specific data base was created, based in-part on field verification in 1998, that includes establishment name, address, etc. The type of business use(s) or activity(ies) associated with a particular parcel (or parcels, in the case of an establishment occupying more than one parcel) was noted, and a determination was made as to whether or not the principal use of that parcel was water-related. The results are included herein in both graphic and tabular form.

The ***Water-dependent/Water-enhanced Uses*** map highlights those parcels in the study area that were assigned an existing land use category other than residential or vacant. The use category of these parcels was then further subdivided to include a more descriptive use. For example, commercial uses were broken down into marinas, marinas/boatyards (where the principal use of the parcel was a marina, but boat repairs, etc. were also carried out on-site), restaurants (some have marina facilities), etc. - all of which are water-related. By default, all other commercial uses were assigned to the non-water-dependent/water-enhanced use classification. The same process was used for industrial parcels. Boatyards are included in this category when the principal activity is boat construction and/or repair. "Other" water-related industrial includes parcels used by marine contractors. Open space and recreation parcels were divided into public and private ownership classes.

The highlighted parcels on the ***Water-dependent/Water-enhanced Uses*** map have been given a number, which is cross-referenced in Table 4. The 56 entries in the table identify the name of the *principal* business or establishment associated with each of the numbers on the map. (Some entries in the table contain more than one business activity. For example, three separate businesses are listed under number 10 - Leeward Cove South marina/boatyard.) Of the 56 entries, 39 are for water-related uses. Within these, there are 4 marinas, 6 marina/boatyards, 3 restaurants, 2 boatyards, 2 public parks with marinas and 9 "other" industrial and commercial uses. Institutional, transportation, and open space and recreation uses identified on the map were all water-related. (Additional information on each of the businesses and establishments is contained in Appendix Table A1 and Table A2.)

Table 5 gives a breakdown of the water-related use acreage by category in the study area. Of the 234.7 acres that comprise the upland portion of the study area, water-related uses occupy 73.7 acres (31.4 percent); the remaining non-water-related commercial and industrial uses are found on a total of 12 acres. Nearly 26 acres are used for marina and marina/boatyard. Water-related industrial uses are found on slightly less than half of the 10.6 acres of industrial land in the study area. Over

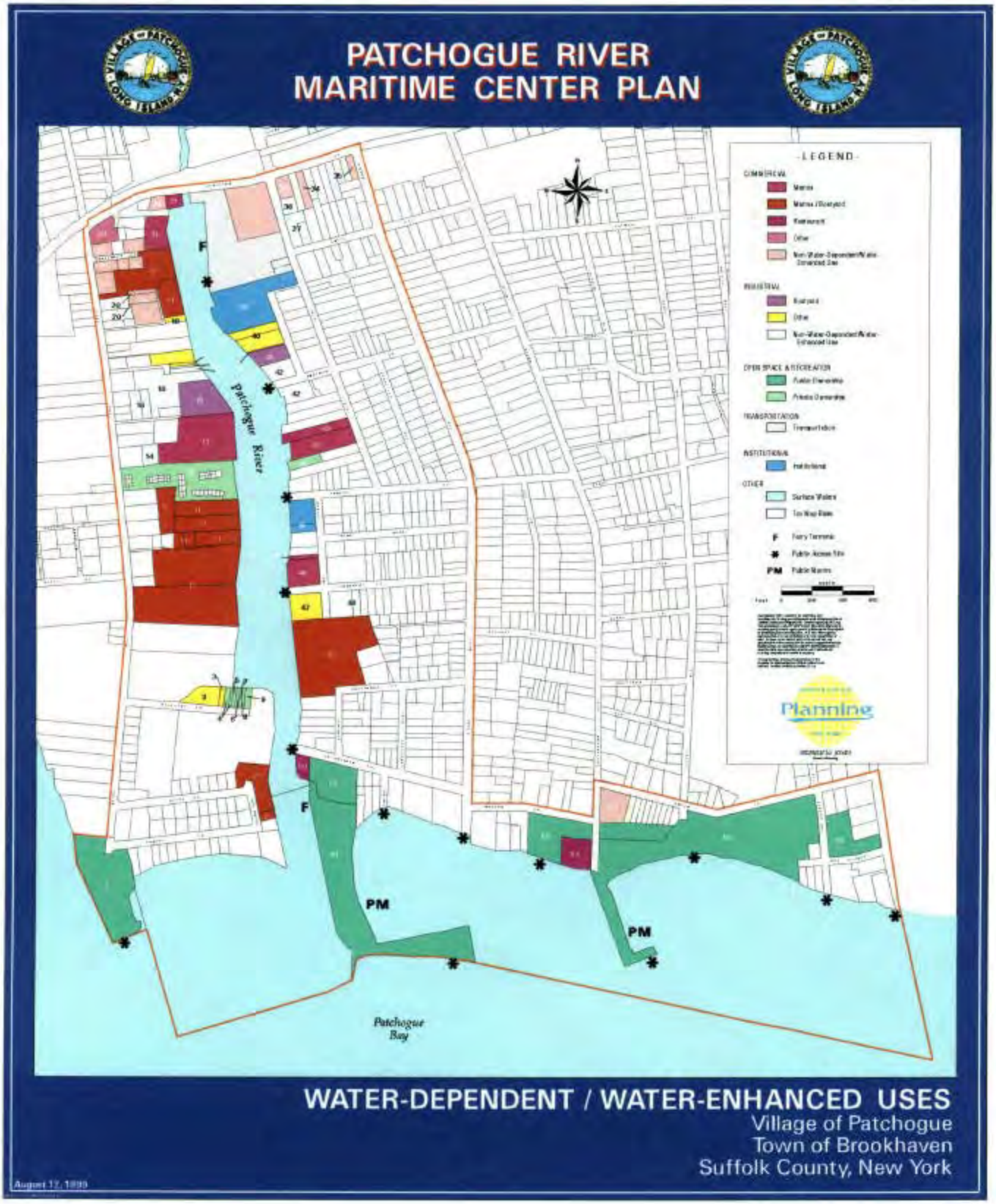

PATCHOGUE RIVER
MARITIME CENTER PLAN
- LEGEND -
Planning
Patchogue River
Patchogue Bay
F
PM
PM
WATER-DEPENDENT / WATER-ENHANCED USES
Village of Patchogue
Town of Brookhaven
Suffolk County, New York
August 12, 1999

Table 4 - LIST OF ESTABLISHMENTS AND FACILITIES LOCATED IN THE PRMC - 1998.

Map #	Name of Establishment or Facility
1.	Town of Brookhaven-undeveloped park
2.	Island View Marina\Steve's Marine Service
3.	Davis Bros. Engineering
4.	Suffolk Boat Club
5.	boat slip (private)
6.	boat slip (private)
7.	boat slip (private)
8.	boat slip (private)
9.	boat slip (private)
10.	Leeward Cove South formerly known as Patchogue Marine or Pier 66/Dublin Deck Restaurant/Marine Mechanic /Harbor Boatworks
11.	Frank M. Weeks Boat Yard
12.	The Landings at Patchogue Condos
13.	Leeward Cove Marina/Discount Marine Upholstery
14.	East Egg Women's Fashion Apparel Manufacturing
15.	Thomas Marine
16.	U.S. Tape
17.	Anything Marine
18.	Abandoned boatyard/marina - former Connelly site. 3 structures/buildings: new bldg - auto repair; others - unknown
19.	Rant Contracting
20.	Rowaldal Realty/ Flag Oil/Boiler Room Specialists/Brookhaven Energy Systems/East Coast Driver Training /Raycirco - boat/marine carpenter/Tower Assoc.- computer sales/accessory use - boat storage
21.	Marina - (no name)/Al's Marine Service/Medford Upholstery
22.	South Bay Boat Repair/Island Fire Prot.& Supply
23.	The Tire Store/Blue Point Brewing Co.
24.	Ad Apparel Factory Direct Screen Printing and Embroidery
25.	Auto World - car repair
26.	-This lot has merged w/#25-private fuel oil storage/gasoline tank
27.	Auto repair - (no name). Small, 1-story building.
28.	Dr. Jones, Chiropractor
29.	Marine repair - (no name)/residential apartment. Small, 1-story building/1 occupancy.
30.	Riverside Inn/hotel
31.	Steamers Restaurant/Marina/Sunset Sales
32.	Patchogue 40 Lanes Bowling Center
33.	Kappler's Hotel, Bar & Grill
34.	Lal's Auto Radiator
35.	M&D Auto Repairs

Table 4 - (page 2 of 2)

Map #	**Name of Establishment or Facility**
36.	Wm. Spadaro Wood Designs
37.	Interstate Battery System of LI
38.	Fire Island National Seashore/Ferry Terminal for Watch Hill, Fire Island.
39.	Fire Island National Seashore/Boatyard
40.	J.P. Miller, Inc/Steen Melby Boat Restorations /American Boatworks Inc./ Perry's Auto & Marine Upholstery/Tops Marine Repair Service
41.	Davis Park Ferry Co.
42.	Marran Oil
43.	Sun-Dek Marina/The Oar House Restaurant
44.	boat slips (private)
45.	Fire Island National Seashore/Headquarters
46.	Pier East Marina
47.	Ke-per Enterprises -marine upholstery
48.	Bonel Contracting Corp -equipment rental
49.	South Shore Boat Yard/Alpha Yachts/ Blue Water Marine/Great South Bay Excursions
50.	On The Waterfront Restaurant
51.	Town of Brookhaven Sandspit Marina and Beach/Davis Park Ferry Co.- Ferry Terminal for Davis Park, Fire Island
52.	Village of Patchogue Pool &Beach Club/Nancy's Crab Shack
53.	Louis XVI Restaurant
54.	Two Bros. Deli
55.	Village of Patchogue Mascot Dock/Shorefront Park
56.	Village of Patchogue Michael Reilly Fireman's Memorial Park

Table 5 - WATER-DEPENDENT/WATER-ENHANCED USES - 1998.

Use Category		Number of Parcels		Acreage	
Commercial					
	Marina	6		6.4	
	Marina/boatyard	14		19.5	
	Restaurant	3		1.4	
	Other	1		0.6	
	Non-water-dependent/ water-enhanced use	16		6.5	
Industrial					
	Boatyard	3		2.0	
	Other	8		3.1	
	Non-water-dependent/water-enhanced use	13		5.5	
Open Space and Recreation					
	Public	7		28.5	
	Private	9		3.7	
Transportation		3		4.9	
Institutional		3		6	
	Total	**86**	**parcels**	**85.7**	**acres**

32 acres are used for water-related open space and recreation; and 8.5 acres are water-related transportation and institutional uses (FINS Ferry Terminal and maintenance/headquarters facilities, respectively).

The following observations are based on the ***Water-dependent/Water-enhanced Uses*** map.

- Water-related uses are predominant along both shorelines of the Patchogue River. The shoreline along Patchogue Bay is shared about equally by both water-related and non-water-related uses.

- There are no non-water-related commercial uses directly on the waterfront of the river and bay. Most of these uses are located in the northern part of the study area on Division St. and on/near River Ave.

- Non-water related industrial uses are located both on the shore and inland. Two parcels that abut Mulford St. on the east side of the river were formerly water-dependent when the Marran Oil Co. received product by oil tanker. Three parcels owned by U.S. Tape have frontage on the west side of the river.

- Private open space and recreation parcels are located on the river. There are no public access points located on the west side of the river. On the east side of the river, public access is available at the FINS Ferry Terminal; and limited public access is available at four street ends (Mulford St., Laurel St., Campbell St. and Brightwood St.).

- Public access along Patchogue Bay is available at the two Town of Brookhaven parks (the undeveloped park at the terminus of River Ave. and the Sandspit Beach/marina, which is also used by the public for ferry access to Fire Island) and three Village of Patchogue facilities (Pool and Beach Club; Mascot Dock, which also includes a marina; and Shorefront Park). Limited access also occurs at two street ends (Dock St. and Cedar Ave.). Barriers restrict access to the shore at two other street right-of-ways (DeWitt Ave. and Bay Ave.).

Aside from the establishments listed in Table 4, there are other business entities outside the study area that are related to the Patchogue River area. Within the Village of Patchogue, water-related businesses include Bargain Bilge Inc. on the northeast corner of Main St. and West Ave., and Barton's Auto Seat Covers & Convertible Tops on Main St. near West Lake. In addition, Baycrafters Canvas is located on Hammond St. outside the study area boundary, as is Costanza Marine Contractors on River Ave. between Division St. and Montauk Ave.

ZONING

The Board of Trustees of the Village of Patchogue adopted a municipal zoning code on 31 March 1925. Village zoning maps - dated 1930, 1939, 1953 and 1998 - were reviewed. Analysis of the maps reveals that little change has occurred over the past almost 75 years in zoning classification and boundaries on land adjacent to the Patchogue River south of Division St.

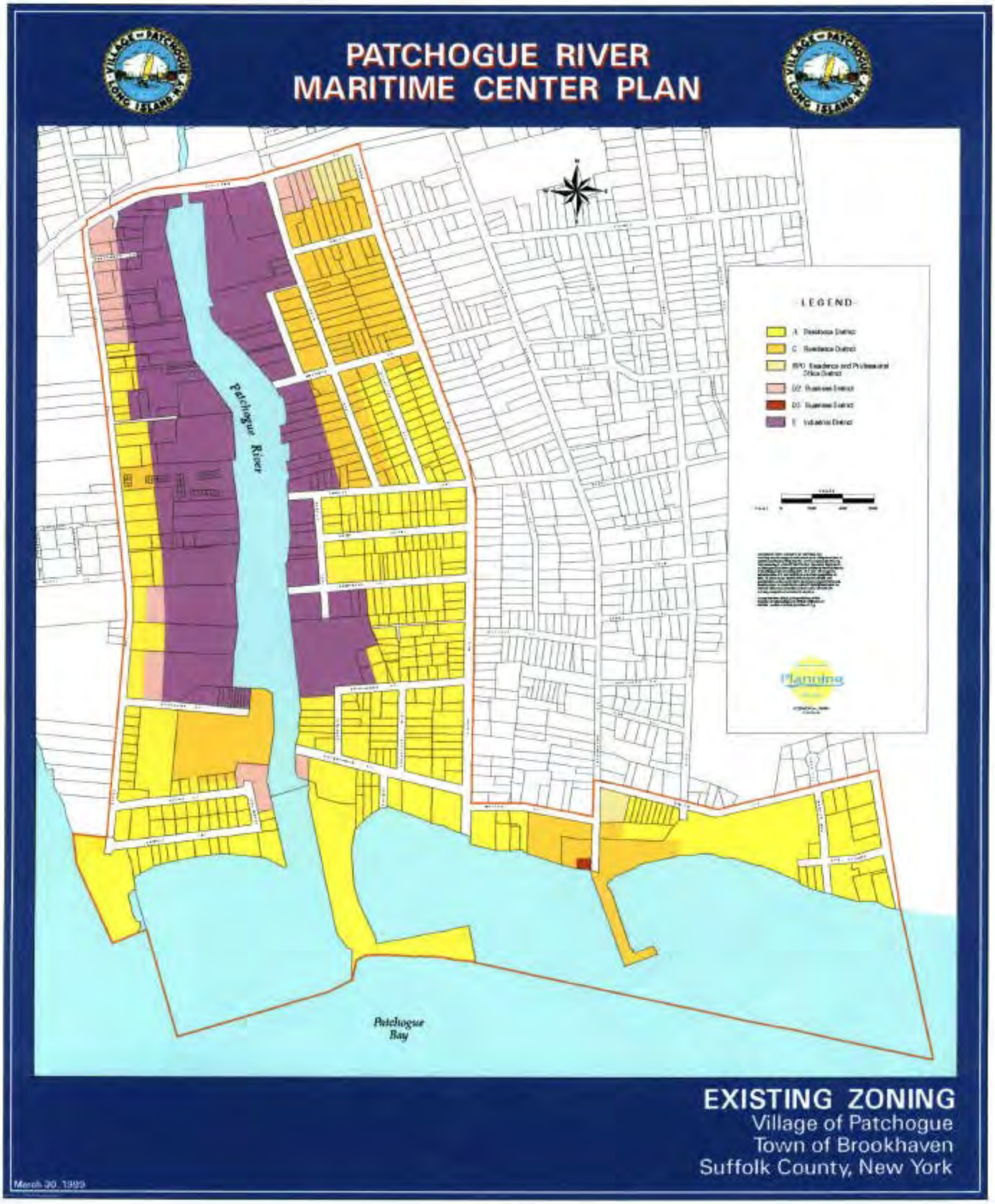
The Building Zone Map dated 28 October 1930 lists only four zoning categories for the entire Village - Residence, Business A, Business B, and Industrial. The Industrial District included land on both sides of the Patchogue River from Division St. to Crescent St. (on the west bank) and to a point half way between Mulford St. and Laurel Streets (on the east bank). Almost all of the remaining study area is zoned Residential, except for commercially zoned property at the intersections of Division and River, Division and West, and at the foot of South Ocean Ave.

The same four zoning categories listed above are shown on the Building Zone Map dated 6 March 1939. The Industrial District on the east bank of the Patchogue River expanded southward to Patchogue St. No change was made in the boundaries of the Industrial District on the west bank. The extent of the residential and commercial zoning categories appears unchanged.

The legend on the Building Zone Map dated 3 August 1953 shows a total of six zoning categories. The Residence category had been expanded to include an A Residence, B Residence and C Residence category. Business A and B were replaced by D1 and D2 Business. The Industrial category was renamed E Industrial. The property zoned for industrial use is similar to that shown on the 1939 map, except for an expansion of the industrial zoning south of Crescent St. (covering a portion of the site now occupied by Fairfield on the Bay apartments). With the exception of the conversion of the commercially zoned property along South Ocean Ave. to C Residence, only minor boundary changes occurred with the commercial zoning categories.

The ***Existing Zoning*** Map with a revision date of 30 April 1998 now contains 12 zoning categories. The map lists five residential categories, six commercial categories and one industrial category. With the exception of the area south of Crescent St. rezoned from E Industrial to C Residence and the area east of Argyle St. between Laurel and Campbell Streets rezoned from E Industrial to A Residence, the boundaries of the E Industrial category are the same as in 1953. Some minor boundary adjustments were made with the residential and commercial zoning categories. The sites occupied by On The Waterfront Restaurant and Island View Marina were changed from A Residence to D2 Business, and the site occupied by Louis XVI Restaurant was changed from C Residence to D5 Business. The Fairfield on the Bay apartments location was rezoned from A Residential and E Industrial to C Residential, and the road frontage portion of The Landings at Patchogue condos was rezoned from A Residence to C Residence.

There are several zoning categories that have been added to and are described in the Village Code (Zoning - Chapter 93) but have not yet been applied to any parcel of land within the Village. The WD Waterfront Development District and the GW General Waterfront District are two such


PATCHOGUE RIVER
MARITIME CENTER PLAN
LEGEND
Patchogue River
Patchogue Bay
EXISTING ZONING
Village of Patchogue
Town of Brookhaven
Suffolk County, New York
March 20, 1989

categories that are listed in the Village Code but do not appear on the Zoning Map. Both zoning districts were added to the Village Code, on 27 June 1983 by local law no. 16, 1983.

According to the zoning code, uses permitted in the WD Waterfront Development District should enhance the waterfront's recreational, historic, scenic, cultural, residential and commercial values. It is intended that water-dependent and water-enhanced uses are not preempted by non-water-related uses. Development in this district should encourage design features and views that best capture the relationship between waterfront and upland and that create opportunities for pedestrian access to and along the waterfront. Uses permitted in this district include:

- restaurants other than drive-in restaurants, hotels and motels.
- marinas, cruise piers, commercial boathouses, yacht basins and boat repair yards that are incidental to other permitted uses in this district.
- facilities for sightseeing, excursion party and fishing boats.
- membership boating and yacht clubs.
- water-related or water-enhanced shops, stores and other facilities for the sale of goods and services at wholesale and/or retail when allowed as a special exception by the Board of Appeals.
- one-family dwellings.
- other customary accessory uses and buildings (including boat storage in boat racks when authorized by special permit from the Board of Appeals), provided that such uses are incidental to the principal use.

The intent of the GW General Waterfront District is to provide for a range of industrial and/or wholesale activities that conform to a high level of performance standards and are dependent on or particularly benefit from a waterfront location. The following uses, in addition to all of the uses permitted in the WD Waterfront Development District, are allowed in the GW General Waterfront District:

- wholesale distribution of fish and seafood products.
- ship and boat building and repairing.
- marine cargo handling.
- marinas, boatyards and commercial boathouses.
- barge and ferry operations.
- light manufacturing activities when clearly ancillary to boating activities and when authorized by the Board of Appeals as a special exception.
- boat storage in boat racks when authorized by special permit from the Board of Appeals.

The bulk of the land available for development or re-use along the Patchogue River south of Division St. is in the zoning district E Industrial. Any lawful business or industrial use that is not injurious, hazardous, noxious or offensive to the surrounding area is permitted in the E Industrial District. The zoning code lists over three pages of uses that are prohibited in the E Industrial District

ranging from abattoirs (slaughterhouses) to yeast plants. The following uses are among the prohibited activities that could be considered as desirable in the Patchogue River Maritime Plan:

- boat storage in boat racks except when authorized by special permit from the Board of Appeals.
- commercial center except when authorized by special permit from the Board of Trustees.
- motel.
- personal service shops and stores and shops for the sale at retail of consumer merchandise or services, or both, except when authorized by special permit from the Board of Trustees,
- places of amusement and recreation area, except when authorized by special permit from the Board of Trustees.
- shops and stores for the wholesale or retail sale of merchandise or services and offices, except when authorized by special permit from the Board of Trustees.

Any use permitted in the H Business District is prohibited in the E Industrial District. H Business allows rental dwellings which include residence hotels, boardinghouses, lodging houses, rooming houses and motels. Residential purposes of any kind, including all types of dwellings and housing, are prohibited from the E Industrial District except when authorized by special permit from the Board of Trustees.

A small portion of the land available for development or re-use along the Patchogue River within the study area is zoned A Residence. This zoning district allows for one-family dwellings on lots that are at least 10,000 square feet in size. Other uses permitted in the A Residence District include places of worship, public parks, elementary or high school, accredited colleges or universities, and private detached garage as an accessory building.

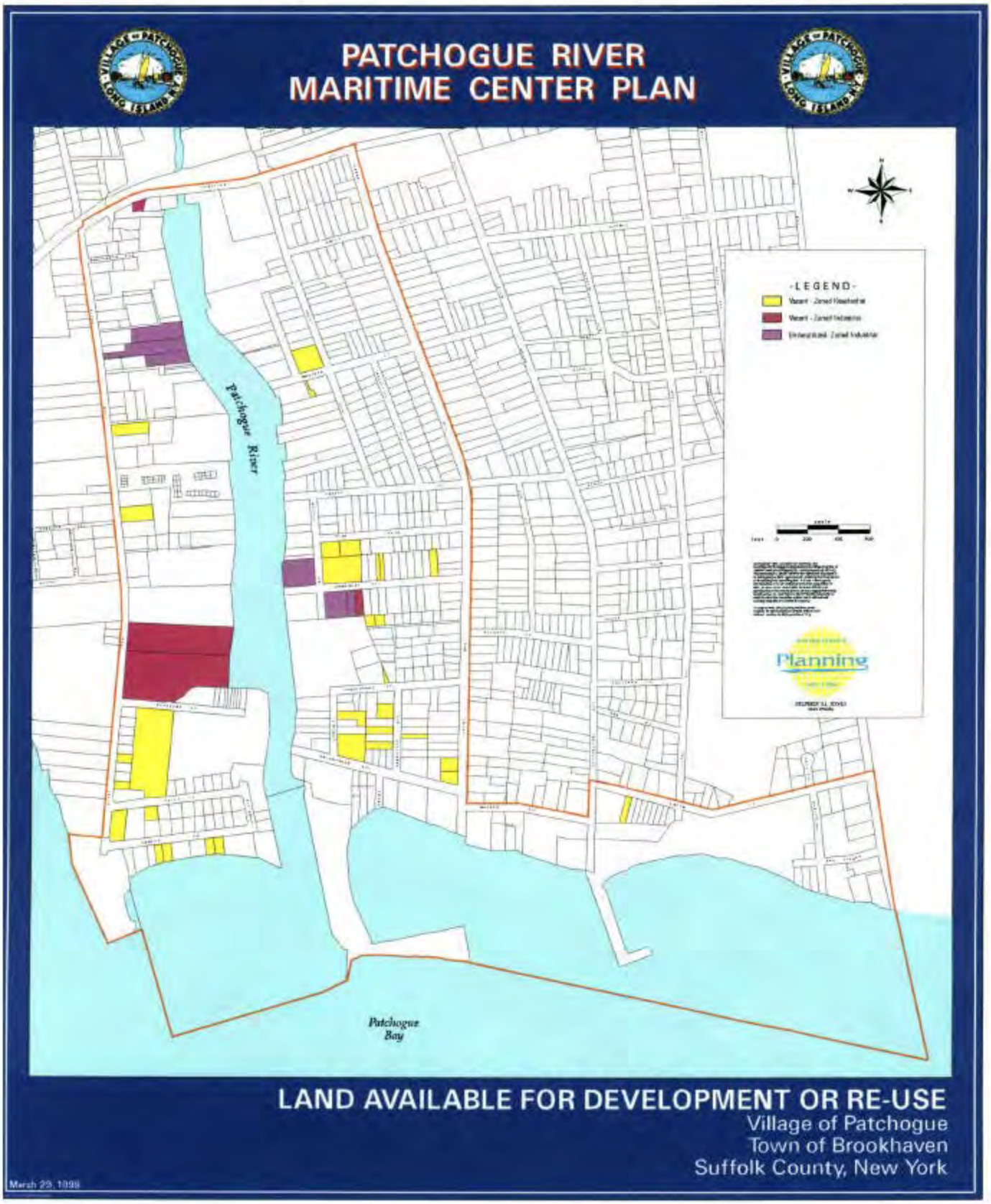
LAND AVAILABLE FOR DEVELOPMENT OR RE-USE

The methodology discussed below was used to identify, map and quantify the land available for development in the PRMC study area at tax map scale, using the ***Existing Land Use*** map and the ***Existing Zoning*** map. For purposes of this study, land available for development or re-use is defined as vacant land, or industrially or commercially used property that has not been developed to the maximum extent as permitted by municipal zoning law. Vacant parcels that are residentially zoned; vacant parcels that are industrially zoned; and underutilized industrial parcels with or without deteriorated structures were considered as land available for development or re-use. No vacant or underutilized parcels that are commercially zoned exist in the study area.

The methodology used for land available for development assumes that every parcel so designated will be residentially, commercially or industrially developed to the fullest extent according to village zoning regulations. In all cases, the projected use of a parcel available for development is determined by the existing zoning classification of that particular parcel. Designating a parcel of land available for development does not connote that the parcel should necessarily be developed. It simply states that under current zoning regulations, that parcel can be developed, or the existing use occurring on the parcel can be intensified. Current zoning serves as a blueprint for the type and intensity of future development one can expect within a municipality, and it is used as a planning tool to assist in the identification, mapping and quantification of the land available for development within the study area.

The methodology employed to analyze land available for development first requires an accurate, parcel-specific GIS tax map base and GIS coverages depicting parcel-specific land use and municipal zoning. Each parcel of land shown on the Suffolk County Real Property Tax Map base was assigned one land use classification attribute and one zoning classification attribute. When a single parcel is covered by two or more zoning districts, the primary zoning classification was determined and assigned to that parcel. This is the same process that was used when multiple land uses occurred on individual parcels, i.e., the principal use was assigned to the parcel in the existing land use inventory.

Land available for residential and industrial development in the study area was inventoried. Acreage and the number of tax map parcels were quantified for both residentially and industrially zoned land available for development or reuse. The ***Land Available for Development or Re-use*** map illustrates that within the study area there are 29 parcels totaling approximately 10.7 acres that are vacant and zoned A Residence. Based on the minimum lot size required in the A Residence zoning category (10,000 square feet), 42 additional dwelling units could potentially be erected. Only 2 vacant parcels containing approximately 0.7 acres are within the C Residence zoning category. Four additional dwelling units could be constructed on the C Residence parcels. Nine parcels comprising 10.8 acres are zoned E Industrial and are either vacant or underutilized with or without deteriorated structures. Four of the parcels (7.0 acres) are vacant and 5 of the parcels (3.8 acres) are classified as underutilized.


PATCHOGUE RIVER
MARITIME CENTER PLAN
-LEGEND-
Patchogue River
Patchogue Bay
Planning
LAND AVAILABLE FOR DEVELOPMENT OR RE-USE
Village of Patchogue
Town of Brookhaven
Suffolk County, New York
March 29, 1999

Land available for development or re-use in the study area appears to cluster around three sites. The largest site available for development is the former Patchogue Oil Terminal, which is located on two parcels at the northeast corner of River Ave. and Crescent St. The two vacant E Industrial zoned parcels are 6.7 acres in size and owned by the Amerada Hess Corporation. Immediately south of the Hess site is the largest residentially zoned vacant parcel in the study area. The A residence site contains 3.2 acres.

The second site consists of three contiguous parcels under single ownership, zoned E Industrial, and located south of Noxon St. between River Ave. and the Patchogue River. Although the 2.2 acre site was developed as a boatyard/marina, it has not been used for a number of years and appears derelict.

Four E Industrial zoned parcels (1.8 acres) and one A Residence zoned parcel (1.0 acres) comprise the third site, which is located at the intersection Argyle Lane and Campbell St. Three of the four industrial parcels are considered to be underutilized and the fourth parcel is vacant. The Bonel Contracting Corporation stores construction equipment and vehicles on two of the parcels and the Pier East marina is located on the other. The residentially zoned parcel is vacant and owned by the owners of Pier East marina.

The remaining vacant parcels are scattered throughout the study area. Almost all of these parcels are residentially zoned and not capable of further subdivision. According to existing zoning, most appear suitable for residential development.

The land available for development or re-use analysis is based on existing land use conditions and current municipal zoning regulations. The type and amount of land available for development or re-use may change should either of the above factors be altered. Opportunities and/or recommendations for redevelopment are not limited solely to parcels indicated as vacant or available for re-use. Future public and private actions associated with parcels in the study area that are not identified on the ***Land Available for Development or Re-use*** map will invariably upgrade existing residential structures and business operations, or modify current land uses.

INFRASTRUCTURE

Great South Bay Federal Navigation Project

Description and Status of Authorized Project - The navigation channel in the Patchogue River has been periodically dredged by the U.S. Army Corps of Engineers New York District for over a century. This channel is part of the Federally-authorized Great South Bay, N.Y. Navigation Project. The location and various details of the current project (adopted June 13, 1902 pursuant to House Document 103, 56th Congress, 2nd Session; and with modification approved October 19, 1970 via Section 201, Flood Control Act of 1965, adopted October 27, 1965) are shown in the ***Great South Bay***, ***N.Y***. map (U.S. Army Corps of Engineers New York District 1975b). The September 30, 1986 "Condition of Improvement" statement describes the project as follows (John F. Tavolaro pers. comm.):

> A channel , 10 ft. deep, 200 ft. wide from Fire Island Inlet to the Central Basin in Great South Bay opposite Patchogue, thence 100 ft. wide to mile 18.9 in the Patchogue River with a turning basin at the upper end at a depth of 11 ft., thence 8 ft. deep to the upstream limit of the project. Length about 19.1 miles. A stone jetty 1,700 ft. long on the west side of the Patchogue River.

The "Condition ..." statement assessment on progress in implementing the authorized project is reproduced below:

> The project is about 55% complete. The work remaining to be done consists of deepening the channel in the Patchogue River to 10 ft. and the completion of the turning basin to project dimensions. A reconnaissance report on Operation and Maintenance prepared in July 1979 concluded that no maintenance dredging is justified below 8 ft. mlw for the entire channel length. It further recommended that due to declining commerce on the Patchogue River, another reconnaissance study be undertaken to determine if maintenance dredging is economically justified.

Information on Corps of Engineers dredging activity involving the Patchogue River is included in this section to emphasize the role that the Corps has had in providing navigational access to the PRMC, and how this role may be affected by various issues in the future. (An overview of historical dredging activity in the River by private parties is not included herein, given the lack of readily available data on this subject.)

Past Channel Dredging Activity in Patchogue River - The U.S. Army Corps of Engineers constructed various harbor and navigation improvements in the Patchogue River prior to the authorized project that is currently in force. According to the *Report of Chief of Engineers, U.S. Army, 1915*, the mouth of the River was obstructed by a sand bar at a depth of 1.5 feet at mlw prior to these improvements. Freight traffic over water and the movements of the oyster and fishing fleet


24
INSERT
PATCHOGUE RIVER
PATCHOGUE
DIVISION ST.
PROJECT DEPTH 6 FT.
MILFORD ST
LOWER LIMIT OF 8 FT. PROJECT
UPPER LIMIT OF 10 FT. PROJECT
TURNING BASIN
PROJECT DEPTH 11 FT.
PROJECT DEPTH 10 FT.
BRIGHTWOOD ST
MARINA
PATCHOGUE BAY
SCALE OF FEET
FOR PATCHOGUE RIVER SEE INSERT
LONG ISLAND
PATCHOGUE L.I.R.R.
TO OAKDALE
TO MONTAUK
BAY SHORE
EAST ISLIP
WEST SAYVILLE
SAYVILLE
BAYPORT
PROJECT DEPTH 10 FT
GREAT RIVER
BROWN PT.
GREEN PT.
NICOLL BAY
CENTRAL BASIN
PROJECT DEPTH 10 FT
TO NEW YORK
BABYLON
WEST
GREAT COVE
NICOLL PT.
CONKLIN PT.
HECKSCHER STATE PARK
GREAT SOUTH BAY
CAPTREE STATE PARK
FIRE ISLANDS
PROJECT DEPTH 10 FT.
WEST I.
EAST I.
OAK BEACH
FIRE ISLAND INLET
ROBERT MOSES STATE PARK
SAILTAIRE
POINT O' WOODS
GREAT SOUTH BEACH
NATIONAL SEASHORE
FIRE ISLAND
ATLANTIC OCEAN
LEGEND
NEW WORK REMAINING TO BE DONE
DATUM PLANES
M.L.W. (FIRE ISLAND INLET) = 1.2 FT. BELOW M.S.L.
M.L.W. (F. I. INLET TO PATCHOGUE RIVER) = 1.2 TO 0.31 FT. BELOW M.S.L.
GREAT SOUTH BAY, N. Y.
30 JUNE 1975
SCALE OF FEET
DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
NEW YORK, NEW YORK

at Patchogue was severely restricted. The Corps began construction of the stone jetty at the west side of the mouth of the River pursuant to the original project adopted by the River and Harbor Act of September 19, 1890, and it was completed to a length of 1,700 ft. by 1897. Initial channel dredging by the COE began in 1891; a channel 6 feet deep by 60 feet wide with a turning basin at the head of navigation was completed by 1897.

Portions of the entrance channel were later dredged to depths of 8 to 20 feet mlw and 125 feet wide to provide fill for the construction of a sand spit along the east side of the channel, as described in the *Report of the Chief of Engineers, U.S. Army, 1916.* The design called for the sand spit to be 1,000 feet long and 125 feet wide at the top. The southern end of the sand spit was to be extended by a 400 foot riprap jetty. By 1916, 700 feet of the sand spit was partially completed. (This sand spit eventually became the existing Town of Brookhaven Sandspit Park at the foot of Brightwood St.)

By the end of fiscal year 1917, the sand spit and 330 feet of riprap extension were completed with a total length of 1,230 feet, according to the *Report of the Chief of Engineers, U.S. Army, 1917.* The channel extended from the head of navigation to the Central Basin in Great South Bay a distance of 9,000 feet; it was 100 feet wide, 8 feet deep with a turning basin 450 feet long at the head of navigation. Prior to this, the west jetty had been repaired in 1914, i.e., capped with concrete.

More recent Corps dredging activities in Patchogue River and the channel extending to the Central Basin in Great South Bay are summarized in Table 6. The channel in the River was dredged four times since 1928. (One project in 1937 also included the channel to the Central Basin.) The most recent channel dredging by the Corps occurred in 1967. The depth at that time was 10 feet. The other projects listed in the table occurred in the channel south of the jetties at the entrance of the River. (It is noted that other sections of the Great South Bay Navigation Project located a long distance to the west of the PRMC have been periodically dredged by the Corps., with the most recent maintenance work occurring in 1992 [John F. Tavolaro pers. comm.]).

Past Spoil Disposal Activity - While the available record on spoil disposal is not complete, a number of options have been utilized to dispose of the hundreds of thousands of cubic yards of material removed from the Patchogue River channel and immediate environs. As previously mentioned, the Town of Brookhaven Sandspit Park was created with fill obtained from the adjacent channel. In 1913, local residents furnished privately-owned areas suitable for disposal of dredged material to the Corps. A March 10, 1937 Corps of Engineers survey map (*Great South Bay, N.Y. Patchogue River Disposal Areas*) shows the location of several sites that were identified as "disposal areas," apparently for material dredged from the River. These included several privately-owned, upland properties located along the east side of the River in the area north of Brightwood St., south of Pine St. and in the vicinity of Argyle Lane); as well as areas south of Weeks St. on both sides of Tuthills Creek to the west of the River.

Table 6 shows that other upland sites along the coast were used over the years to dispose of material dredged from the River and adjacent channel. The area at the western side of the mouth of Swan Creek has been used at least twice, and the area between Swan Creek and Roe Ave. to the east

Table 6 - DREDGING OF THE FEDERALLY-AUTHORIZED NAVIGATION CHANNEL IN PATCHOGUE RIVER AND VICINITY.*

Dredging Dates (depth)	Quantity cubic yards	Spoil Disposal Location
Patchogue River Projects		
Nov.-Dec. 1928 (7 feet)	25,702	?
June-July 1958 (8 feet)	50,076	Upland west of Swan Lake
Aug.-Sept. 1967 (10 feet)	59,078	Upland west of Swan Lake
Other Projects from the Mouth of Patchogue River Extending Various Lengths to the Central Basin in Great South Bay		
June-Nov. 1937**	96,048	?
Oct.-Nov. 1949	64,492 east of channel	Offshore in Patchogue Bay
Oct. 1954-Feb. 1955	64,860 east of channel	Offshore in Patchogue Bay
Mar.-Apr. 1963	74,584 east of channel	Offshore in Patchogue Bay

*Sources: Tavolaro, John F., pers. comm.
U.S. Army Corps of Engineers New York District (1975a).

**This project extended from the 8 foot depth contour in Great South Bay to the head of navigation in Patchogue River. In 1973, a portion of the Great South Bay navigation channel (200 ft. wide) located to the southeast of Blue Point was dredged; 141,064 cubic yards of spoil were placed at an upland location to the east of Swan Creek.

has also been used. (Portions of the latter area have been residentially developed, and are no longer available for future spoil disposal.) Offshore disposal has been employed three times in the past, where the sediment removed from the channel was discharged along the adjacent bottom of Great South Bay as dredging progressed. (This mode of disposal would probably not be viable today, given the more stringent environmental protection standards in effect now.)

Existing Condition of the Patchogue River Channel - The U.S. Army Corps of Engineers New York District provided a digital file containing the results of a survey of depths in the Patchogue River channel made June 17-22, 1998 (David N. Rackmales pers. comm.). The ***Condition Survey - Great South Bay Federal Navigation Project Vicinity of Patchogue*** map shows the boundaries of the channel and various depth contours related to mean low water datum overlaid on a color aerial photograph (April 15, 1996) base map showing the River corridor. The following observations are based on this map:

- Depth data are available for the immediate area encompassing the boundary of the channel. The depth of water along the shoreline outside the channel, which includes marina dock facilities, is not shown. (Note: the large rectangular structure located in the channel adjacent to the South Shore Boat Yard is a barge that was used to transport a building constructed at the site to Davis Park on Fire Island.)

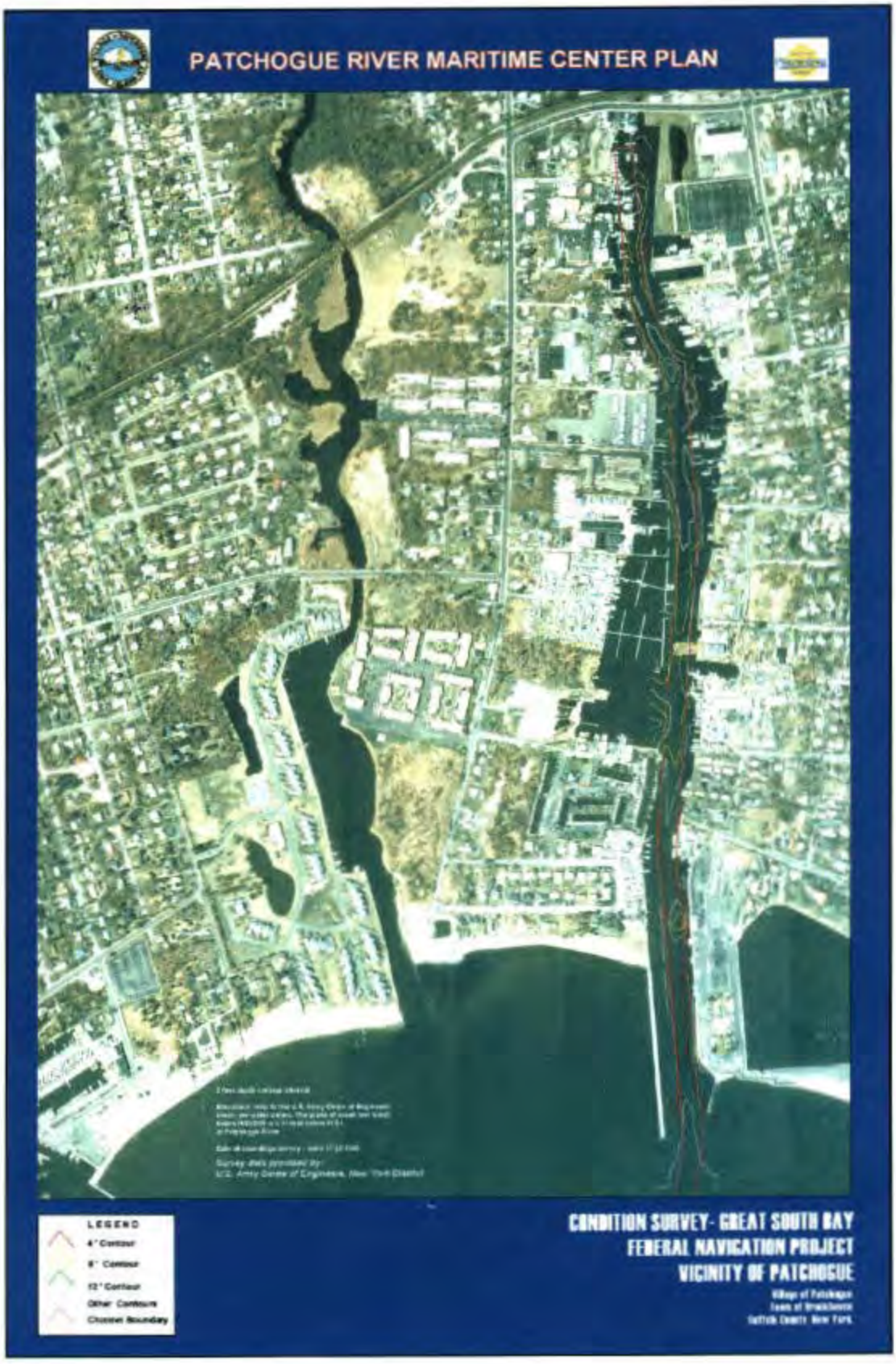
- Channel depth is at least 8 feet within most of the channel from the area adjacent to the FINS Watch Hill ferry terminal south to the area where the width of the River is reduced to the east of Crescent St. A small area with 8 feet of water is located near the Davis Park Ferry Co. terminal.

- Water depths of greater than 12 feet are found in the river to the north and northeast of Leeward Cove Marina, and the area east of the Hess Oil Co. property north of Crescent St. These deep areas are adjacent to sites previously used for the tanker delivery and storage of petroleum products. (A 1933 Corps survey map shows that the depth in the latter area had been dredged to 26 feet.)

- Most of the shoal water in the channel, with depths greater than 4 but less than 6 feet, occurs in the general area west of Brightwood St. south to the entrance of the River between the two jetties.

- Channel depths outside the entrance of the River are over 6 feet.

It is concluded that considerable shoaling has occurred in the southern third of the River channel since it was last dredged to a depth of 10 feet in 1967. This area, which extends from Brightwood St. south to the channel entrance, should be considered as the “bottleneck” to navigation in the channel, since deeper water currently exists to the north and south. No depth data are available to assess if a navigation problem exists outside the boundaries of the authorized channel.


PATCHOGUE RIVER MARITIME CENTER PLAN
LEGEND
4' Contour
8' Contour
12' Contour
Other Contours
Chosen Boundary
CONDITION SURVEY- GREAT SOUTH BAY
FEDERAL NAVIGATION PROJECT
VICINITY OF PATCHOGUE

Status of Future Dredging Work - The Corps is in the planning process for the next maintenance dredging of the Great South Bay channel, including the Patchogue River. Work tentatively scheduled to be conducted in Federal Fiscal Year (FFY) 1999, which extends from October 1, 1998 to September 30, 1999, includes sediment testing, engineering/design and permit acquisition. Construction is scheduled to occur during FFY 2000; the timing of dredging would be limited by the specific dredging window applicable to this project. **The earliest that dredging could occur is during the spring of the year 2000.** The selection of areas in the channel requiring dredging has not been finalized (David N. Rackmales pers. comm.).

Suffolk County Dredging Projects

No channel dredging projects were conducted by the Suffolk County Dept. of Public Works in the PRMC study area prior to 1985 (Suffolk County Planning Dept. 1985). Since that time, the County has completed one dredging project at Tuthills Creek. The entrance channel to this creek was dredged in February 1996, and 8,500 cubic yards of material were placed on Town of Brookhaven property located to the immediate east of the creek entrance (Edmund Lynch pers. comm.).

The Town of Brookhaven has requested that Suffolk County dredge a new navigation channel servicing the Sandspit Park marina. This proposed channel project is described in U.S. Army Corps of Engineers Public Notice No. 96-13470- L6 issued December 27, 1996, which states that about 20,000 cubic yards of material would be dredged from a 1,600 foot long by 200 foot wide channel to a depth of 6 feet below mlw. The channel would extend from the eastern end of the "L" terminus of the Sandspit Park dock southward into Patchogue Bay. The purpose of the project is to improve navigation in Patchogue Bay. The dredged material would be used to nourish the Town bathing beach to the immediate west of the project site. Funding for this project has been allocated, and the project is under review in the permit process. Pending issuance of permits, the earliest that the project could be started is during the dredging season that begins in the fall of 1999 and extends to the spring of 2000 (Edmund Lynch pers. comm.).

Town of Brookhaven Dredging Projects

Review of U.S. Army Corps of Engineers public notices indicates that the Town of Brookhaven has dredged the area in the immediate vicinity of the bulkhead at the eastern end of the "L" terminus of the Town Sandspit Park dock on a recurring basis over the last 20 or so years. Typically, an irregular shaped area along the bulkhead was dredged to a depth of 2 to 4 feet mlw, with the material removed (+/-1,200 to 4,300 cubic yards) deposited on the adjacent bathing beach as nourishment.

In the fall of 1998, the Town of Brookhaven constructed a steel sheet pile jetty at the eastern side of the entrance channel to Tuthills Creek. A project is underway to repair/replace the existing bulkhead along the east side of the creek (about 970 linear feet). Use of the Town upland parcel adjacent to the creek entrance will remain passive; no on-site parking facilities will be constructed.

A previous plan to construct a boat launching ramp and parking area protected by the placement of 300 feet of riprap along the east bank of the Tuthills Creek shoreline, as described in U.S. Army Corps of Engineers Public Notice No. 13634-89-189-L6 issued April 10, 1989 has been scrapped (Daniel Kimlicka pers. comm.).

Inventory of Shoreline Hardening Structures

On November 13, 1998, the Suffolk County Planning Department conducted an inventory of shoreline hardening structures along the Patchogue River with the help of the Fire Island National Seashore (Diane Abell and Paul Czachor), which provided a boat/crew to enable inspection of the shoreline from the water at or around the time of low tide (1:29 pm). The New York Sea Grant Extension Program (Jay Tanski) also participated in the survey and provided technical assistance. The bay shoreline in the study area was traversed by foot. Data on the various descriptors listed below were collected.

Structure Type - bulkhead, groin, jetty, seawall, solid fill pier, retaining wall.

Construction Material - concrete, rock, steel, wood. (Although other materials, such as plastic, are used to build shoreline structures, they were not found in the study area.)

Condition - The following three qualitative ratings were assigned to the various types of shoreline hardening structures encountered in the field based on a visual inspection above the waterline:

good - The integrity of the structure is sound, and it is in-place; no deterioration was detected.

fair- No structural members are missing, and the structure is tight, i.e., piles fit together. Some signs of deterioration were present; examples include borer damage, rot at the top of the structure, misalignment.

poor - Structural members are completely deteriorated or missing.

Function - Structures designated as in poor condition were classified as either functional or non-functional, depending on whether or not the structure was performing its intended function or purpose.

Results of the inventory are summarized on the ***Shoreline Hardening Structures*** map, which shows the location of the structures by type and where the shoreline is "natural," i.e., where shore parallel structures have not been built. (Data on structure material, condition and function are on file.) The March 1996 aerial photo base for this map also shows the location of the numerous boat docks along the shore of the study area. During this survey, the location of any tide gates, culverts, sluiceways and discharge pipes along the shoreline was noted for use in the **Stormwater Runoff Discharge** section of this plan.


PATCHOGUE RIVER
MARITIME CENTER PLAN
—LEGEND—
BULKHEAD
GROINS
JETTY
SEAWALL
SOLID FILL PIER
SHORELINE HARDENING STRUCTURES
Village of Patchogue
Town of Brookhaven
Suffolk County, New York

An overview of the results of the shoreline hardening structure inventory is presented below. The discussion will focus first on the bay shoreline extending from the foot of River Ave. on the west to Bay Ave. on the east, followed by the description of the extent of bulkheads, etc. located along the west and east sides of Patchogue River, respectively.

A steel sheet pile jetty was recently constructed at the east side of the entrance channel to Tuthills Creek. A wood bulkhead in poor condition is located to the north of the jetty along the creek. Five groins are found to the east of the Town of Brookhaven parcel. The first two groins, constructed of wood and concrete, respectively, are in poor condition and classified as non-functional. The remaining three groins, which are shorter than the first two, are all made of wood, are in poor condition, but still functional. No structures were found along the remaining stretch of bay shoreline to the west jetty at the entrance to Patchogue River. No bulkheads were detected from the jetty at Tuthills Creek to the mouth of the River, thus this stretch of shore is in a relatively "natural" condition. All told, about 23 percent of the 0.3 miles of shoreline along this area is hardened by shoreline structures.

The large rock jetty at the west side of the Patchogue River is maintained by the U.S. Army Corps of Engineers, and is in good condition. The smaller rock jetty at the eastern side of the navigation channel is in fair condition. All of the bulkheads along the Town of Brookhaven Sandspit Park, which has been classified as a solid fill pier, are constructed of wood, and are in good condition. The wood, solid fill pier at the eastern end of the Sandspit bathing beach ranges in condition from poor (seaward end) to fair, but remains functional. The total shoreline length at this park is 0.66 miles.

About 17 percent of the 0.32 mile bay shoreline between the northern end of Sandspit Park on the west to Mascot Dock on the east is unprotected, including a small area where the east bulkhead of the Sandspit intersects the shoreline, and properties in the vicinity of the municipal pool. Wood bulkheads have been constructed along the remaining portion of this stretch. All of these bulkheads are functional, but they range in condition from good to poor, with the structures that are apparently older being in the latter category.

The Mascot Dock is a solid fill pier with 0.3 miles of wood bulkheads that are all in good condition. Roughly 87 percent of the 0.38 mile shoreline from Mascot Dock to Bay Ave. on the east is hardened with wood bulkheads. The largest contiguous bulkhead was constructed by the Village of Patchogue along Shorefront Park. This structure is in good condition. To the immediate east of the bulkhead return, a drainage way with no shore protection structures exists. This drainage way provides an outlet for water that collects behind the Shorefront Park bulkhead as a result of freshwater ponding during storms and wave run-up over the face of the bulkhead when onshore winds occur. A wood groin in fair condition exists near the east boundary of the Village property. There are no shoreline structures in front of the residential properties to the south and west of DeWitt Ave. Residential properties from this point east to the terminus of Bay Ave. have been hardened with wood bulkheads. One of these bulkheads is non-functional, and a retaining wall has been built landward of the shore.

The discussion will now shift to the west side of the Patchogue River, which has a shoreline length of 1.27 miles. A concrete seawall in poor condition extends north from the terminus of the west jetty to the vicinity of Island View Marina, where there is a wood bulkhead with riprap in poor condition; both of these structures remain functional. The bulkhead to the east and north of Crescent St. is in good condition.

Proceeding north, the wood bulkhead to the south of the Hess Corp. pier is no longer functioning; the bulkheads at the old oil terminal site are in poor condition, but functional, and the structures along the vacant/wooded parcel south of Leeward Cove South have completely deteriorated.

The bulkheads along the shore from Leeward Cove South north to the boat launching area at Leeward Cove Marina are all in good condition. The northern portion of the Leeward Cove bulkhead is in fair condition. There is no structure present in the vicinity of the property boundary shared with Thomas Marine, which has bulkheads is both fair and good condition.

All of the bulkheads along the shore from the U.S. Tape parcel north to the site of the derelict Brown's Marina are in poor condition, and for the most part, non-functional. Old deteriorated structures and docks are prevalent along this segment. From this point north to the Steamers Restaurant/Marina, the wood bulkheads vary from good to fair condition. The bulkhead on the west side of the river just to the south of Division St. bridge is poor, but functional.

In summary, virtually 100 percent of the west side of the river has been modified by the construction of bulkheads and other structures.

Proceeding to the east side of the River, the wood and concrete bulkheads at the northern end of the FINS parcel near Division St. are in poor condition; the bulkhead that abuts the bridge is non-functional. The bulkheads that front the ferry terminal are in good condition; those at the FINS maintenance facility range from good to poor. The bulkheads in the intensively used area south to Mulford St. vary in condition, but are all functional.

South of Marran Oil to Laurel St., the bulkheading along the older residential structures is primarily in poor condition, but functional. The wood bulkhead at Sun-Dek Marina is in good condition, but the structure at the terminus of Laurel St. is in poor condition. South of Laurel St., the FINS headquarters property bulkhead is in fair condition (an old boat house bulkhead on-site is poor), as is the structure fronting the adjacent residential property. The bulkhead at Pier East Marina is in fair to good condition.

The bulkhead at Bonel Contracting Corp. south of Campbell St. is in good condition, and for the most part, so is the bulkhead at the South Shore Boat Yard. The only location on the east side of Patchogue River where there is no bulkhead is found at the eastern end of the boat basin that was dredged on the South Shore Boat Yard parcel. The length of this unprotected segment is about 75 feet.

The bulkheads along the five residential parcels west of Beach St. are generally in fair condition (one is in poor condition, but functional), but the bulkhead at the end of Brightwood St. is poor. On The Waterfront Restaurant bulkheads are all in good condition.

The inventory has shown that nearly 99 percent of the 1.24 miles of shore along the east side of the River has been hardened by bulkhead construction.

The following findings are based on the survey of shoreline structures.

- The total length of the shoreline in the study area is 4.5 miles, including that of the two large solid fill piers. About 4.1 miles of this shoreline has been hardened by bulkhead and seawall construction. (These figures do not include any of the "shoreline" created by the three jetties and seven groins constructed perpendicular to the coast in the study area.) This leaves 0.4 miles of shoreline in a relatively natural condition, i.e., without shore parallel structures.

- The 0.3 mile shoreline from the Town of Brookhaven park parcel on River Ave. east to the west jetty at Patchogue River is primarily in a natural condition. An old groin with fencing that extends into the water to the east of the park parcel inhibits access along this section of shore.

- Bulkheads at the Town of Brookhaven Sandspit Park and Village of Patchogue Mascot Dock solid fill piers are generally in good condition.

- Only 17 percent of the 0.32 mile shoreline between the Sandspit Dock and the Mascot Dock has not been bulkheaded.

- Bulkheads harden about 87 percent of the 0.38 mile shore segment from Mascot Dock east to Bay Ave.

- The west and east shores of the Patchogue River (measured from the north end of the west jetty to the north end of the Sandspit pier) have a total length of 2.51 miles. Over 99 percent of the River shoreline has been hardened with bulkheads. For all intents and purposes, there is no natural shoreline along the River. The entire shoreline has been subject to bulkhead construction or dredge and fill activity. The limited areas where natural vegetation is found at the shoreline, including vacant parcels that are no longer actively used on the west side of the River, are in locations where bulkheads constructed in the past have deteriorated.

- The majority of the bulkheads in the study area are in good to fair condition. Shoreline structures in poor condition are typically found in locations that are no longer actively used; that abut residential structures built in the early part of this century; or that have been subject to re-development. The bulkheads located directly south of the Division St. bridge and at the ends of Laurel St. and Brightwood St. are also in poor condition. As time goes on, these structures will be subject to failure, and will not perform their intended function.

Sewage Treatment

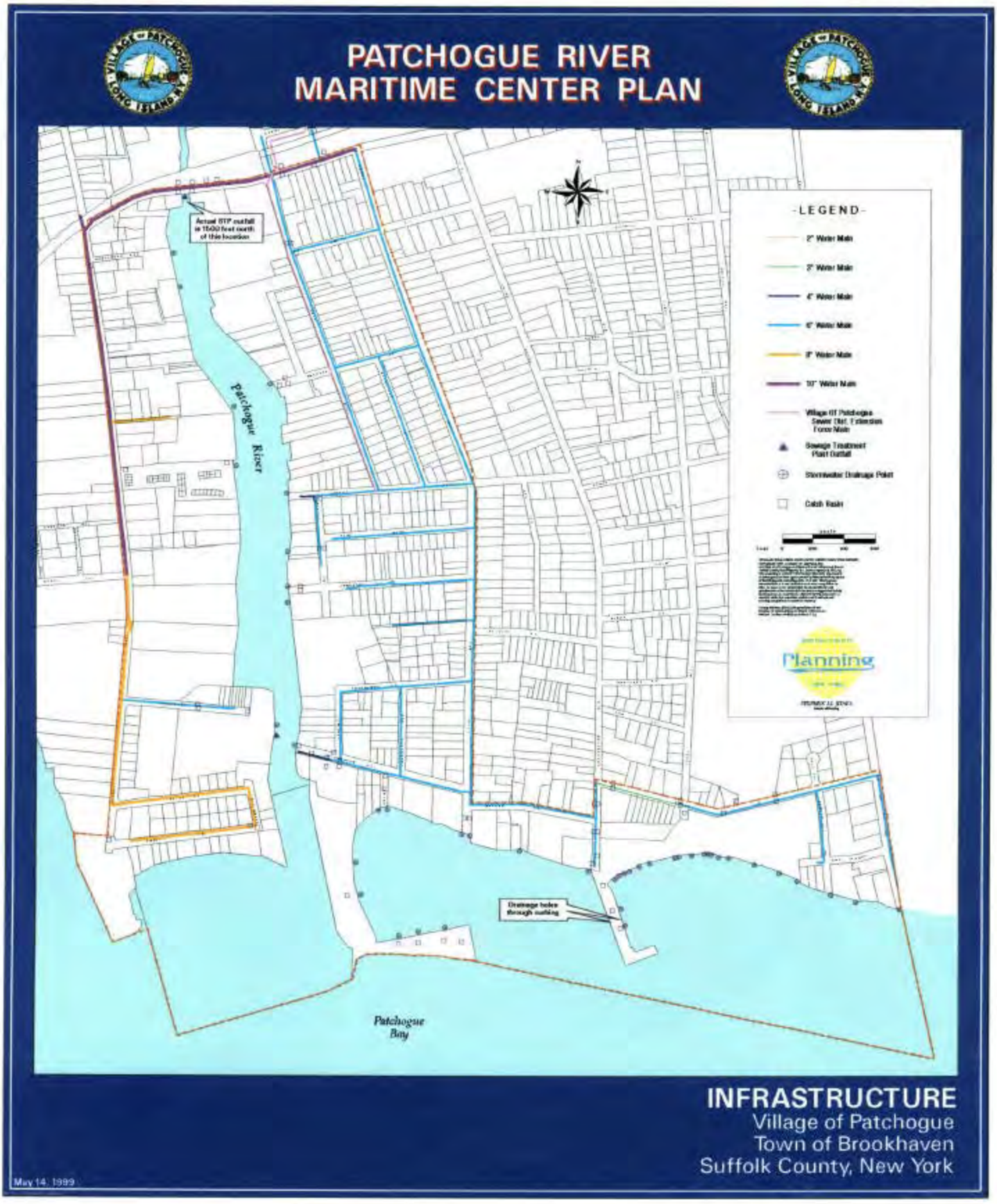
There are two sewage treatment plants (STPs) that discharge treated effluent to Patchogue River surface waters. The Village of Patchogue STP is located on Hammond St. north of Division St. and its outfall discharges into the river adjacent to the plant. This portion of Patchogue River is influenced minimally by the tides, with exceptions occurring during storm events. The other STP serves the 132 units in the Fairfield on the Bay apartment complex located south of Crescent St.; it is located near the tennis courts at the complex. The outfall from this plant is located about 1,500 feet north of the mouth of the River at the eastern side of the complex. (See the ***Infrastructure*** map for location.)

The first Village of Patchogue sanitary sewer collection system was constructed circa 1907 and discharged directly into the Patchogue River. A treatment plant was constructed at the Hammond St. location in 1926. Various extensions to collection sewers occurred over the years, and the primary treatment plant was improved in the early 1950s. The design capacity of the STP at that time was increased to 500,000 gallons per day (gpd). In 1959, the maximum rate of flow to the STP was about 120,000 gpd (Edwin S. Voorhis & Son, Inc. 1959).

In response to an enforcement action, the Village had to upgrade the treatment process at the plant from primary treatment to secondary treatment. The improvements to the STP were successfully implemented, and were on-line as of January 29, 1987 (Frank M. Russo pers. comm.). Secondary treatment removes most of the organic matter together with the corresponding oxygen demand that would have impact on receiving surface waters. This level of treatment also removes suspended solids and kills virus and bacteria via chlorination prior to discharge.

During the mid-1980s, an emergency action taken by the NYS Dept. of Environmental Conservation resulted in a dramatic increase in the area uncertified for shellfishing in Great South Bay south of Patchogue River and east of Blue Point. The exact cause for the elevation of coliform levels was not known. Streams that emptied into the bay and the Patchogue STP effluent were potential sources, but relative contributions by source were not established in an overall coliform budget. After the upgrade of the STP, water quality monitoring during the late 1980s showed improved water quality, and this reduced the area closed to shellfishing. The STP upgrade is believed to have contributed to this result (Charles DeQuillfeldt pers. comm.). Effluent from the plant now has very low fecal and total coliform counts (Frank M. Russo pers. comm.).

The Patchogue Village STP operates under State Pollutant Discharge Elimination System (SPDES) discharge permit number NY-0023922, which expires January 1, 2004, and is then subject to renewal by the NYS Dept. of Environmental Conservation. The permitted flow is 500,000 gpd, which is the same as the STP's design flow. As of September 1998, the average daily flow to the STP was 325,000 gpd. The STP receives influent from primarily the commercial areas along Main St. in the central business district. The boundary of the service area is shown on the ***Village of Patchogue Sewer District*** map. After secondary treatment, the effluent is discharged via a 12 inch pipe to the Patchogue River. The flow contributed by the STP was calculated to be about 2.5 percent


PATCHOGUE RIVER
MARITIME CENTER PLAN
-LEGEND-
Patchogue River
Patchogue Bay
Planning
INFRASTRUCTURE
Village of Patchogue
Town of Brookhaven
Suffolk County, New York
May 14, 1999


PATCHOGUE RIVER
MARITIME CENTER PLAN
EXISTING SEWER DISTRICT BOUNDARY
WEST AVENUE SEWER DISTRICT EXTENSION
Line work courtesy of
H2MGROUP
Holzmacher, Mclendon, & Murrell, P.C.
Melville, New York
Map not to Scale
Planning
VILLAGE OF PATCHOGUE SEWER DISTRICT
Village of Patchogue
Town of Brookhaven
Suffolk County, New York

of the average freshwater flow of the river, which has been determined to be 20.4 cubic feet per second over a long period of record (U.S. Geological Survey 1977).

The Suffolk County Dept. of Health Services inspects STPs in Suffolk County and reviews discharge monitoring reports to ensure that they are operating effectively, and their discharges are in accord with SPDES permit effluent limits established for five day biological oxygen demand (BOD), suspended solids, pH, total coliform and chlorine residual. The Patchogue Village STP is performing its intended function well (Walter J. Hilbert pers.comm.). The latest available inspection report states that "This facility is in satisfactory condition. However, missing grating and guard rails must be addressed." In 1997, the average discharge of BOD was 9.0 mg/l; that of suspended solids was 23 mg/l; and the average total coliform concentration in the effluent was 11 mpn/100 ml (Suffolk County Dept. of Health Services 1998b).

The Patchogue sewer district was recently expanded to include the area along West Ave. from Division St. on the north to Laurel St. on the south. The required force main and pump station have been constructed, and are expected to be on-line by May 1999. No STP modifications are needed to accommodate the extension area, which is shown on the ***Village of Patchogue Sewer District*** map. Projected flow from existing and potential uses in the extension area is 47,300 gpd. This additional flow, as well as future in-district connections, e.g., retail use at the Lace Mill site, still leaves a reserve capacity at the STP of over 100,000 gpd (Frank M. Russo pers. comm.).

The Fairfield on the Bay STP (SPDES permit number NY-008-7300 was originally designed for discharge to a tile field on-site during low groundwater conditions, as well as for discharge to surface waters in the Patchogue River during periods of high groundwater (Walter J. Hilbert pers.comm.). The tile field is no longer functional, so all of the flow from this treatment facility - an average of 17,000 gpd - is discharged to the River. The SCDHS inspection report for 1997 states that "This facility is in marginal condition with some signs of rust and general repair work needed." The average discharge of BOD was 11.5 mg/l; that of suspended solids was 24.5 mg/l; and the average total coliform concentration in the effluent was 1.0 mpn/100 ml (Suffolk County Dept. of Health Services 1998b).

At this time, there is no NYSDEC requirement to upgrade either of the two STPs discussed above to include tertiary treatment that would remove nitrogen from the discharge to surface waters. (STPs that discharge to groundwater must achieve a tertiary level of treatment.) The effluent from secondary treatment contains about the same level of total nitrogen (consisting of organic nitrogen, ammonia, nitrate and nitrite) as that contained in the influent to the STP; only the form of the nitrogen changes (Walter J Hilbert pers. comm.). If it assumed that the influent to the Patchogue STP contains a total nitrogen concentration of 25 mg/l, which is typical of sanitary waste, then under the existing flow volume, the STP discharges about 68 pounds of total nitrogen to the River each day. This, in turn, is about one percent of the total nitrogen loading to Great South Bay per day (Long Island Regional Planning Board 1978).

Nitrogen loadings have been deemed to be of major significance to water quality in the Peconic Estuary Program (Suffolk County Dept. of Health Services 1998a), and past studies have shown that they are also of similar importance to water quality in the south shore bays, especially along the north shore of the Great South Bay in those locations near the mouths of tributary streams (Long Island Regional Planning Board 1978). The upgrade of STP processes to include nutrient removal, and the expansion of sewer districts in intensively used coastal areas should be part of any strategy for improving water quality in the South Shore Estuary Reserve (SSER). The former would reduce nutrient loadings from existing STP flows. The latter would reduce non-point nutrient and other pollution to bay surface waters by eliminating loadings to base streamflow and groundwater from on-site septic systems currently servicing intensive development located near the shoreline.

Improvements over the long-term in the treatment of sanitary waste are an important component in a program to maintain and enhance water-dependent and water-related uses in the PRMC. The Village of Patchogue has recently sought funding under the New York Clean Water/Clean Air Bond Act to expand its sewer district by constructing sewerage facilities that would serve the area on River Ave. south of Division St.; an area along a portion of South Ocean Ave.; and the area on River Ave. north of Division St. According to the October 1997 application submitted by the village, such an expansion of the service area would also require an upgrade of the STP by 400,000 gpd. The addition of tertiary treatment for nitrogen removal would require more STP modifications and additional land area (Frank M. Russo pers.comm.).

Water Supply

The location and diameter size of the SCWA water supply mains servicing the study area are shown on the ***Infrastructure*** map. A 10" water main runs along River Ave. and all the roads east of Patchogue River are serviced by 6" water mains.

Two well fields located outside of the study area supply water to the study area, according to Mr. Herman J. Miller, P.E., Deputy CEO for Operations at SCWA. The closest well field, the Waterworks Road well field, is located west of River Ave. between Montauk Highway and the LIRR tracks. The water from this well field is high in iron and, therefore, is pumped only during periods of high demand, such as in the summer. The primary source of water for the study area is from the Barton Ave. well field, which is situated north of Sunrise Highway and east of Route 112. He indicated that the quality of the water from this field is excellent.

It is Mr. Miller's opinion that the existing SCWA infrastructure servicing the study area is more than adequate to accommodate expansion of water related commercial uses, such as restaurants and marinas.

Stormwater Runoff Discharge

Topography controls local drainage in the study area. Elevations (as determined from 1 inch = 200 feet, 5 foot contour maps prepared by Bowe, Albertson & Assoc. for Suffolk County) are higher and slopes steeper along the west side of the River as compared to those on the east. The

elevations range from 16 feet above sea level in the northwest portion east of River Ave., down to between 5 to 10 feet at the Amerada Hess properties, and then 5 feet or less along bay shoreline areas. On the east side, elevations range from 5 to 9 feet at the bowling alley parking area, and 7 feet along West Ave. down to about 5 feet at Campbell St. Upland areas along Patchogue Bay are generally around 5 feet above sea level.

The inventory of catch basins, discharge pipes, sluiceway, tide gates and culverts related to the discharge of stormwater runoff to marine surface waters was based on field visits to the study area made by boat, car and foot in the fall and winter of 1998/1999; and three published sources described below.

- The 1959 Village *Master Plan* report includes a drainage map that shows the extent of the storm sewer drainage pipe system in the Village (Edwin S. Voorhis & Son, Inc. 1959). The catch basins on Division St. channel local stormwater flow into the Patchogue River; this system also connects to storm sewer pipe extending along Division St., Baker St., north along Rider Ave. to Main St. in the vicinity of the U.S. Post Office. Hence, areas located beyond the boundaries of the PRMC study area discharge stormwater into the river. Other positive drainage pipe systems discharge urban runoff flows to the River and lake system north of Division St. In the eastern portion of the study area, storm sewers collect runoff along portions of Carmen St., Rider Ave., and Park St., with discharge to the freshwater wetland and creek north of Shorefront Park. The *Master Plan* also noted that four areas with poor drainage existed in the study area: 1. at the southern end of River Ave. near Sunset Lane and Price St.; 2. at Campbell St. near the intersection with Argyle Lane; 3. the area bounded by Brightwood St., Beach Ave., Patchogue St. and Roosevelt St.; and 4. the area surrounding the Smith St./Rider Ave. intersection extending to the bayfront. Street and drainage improvements were recently constructed in this latter area during 1998.

- The *Shoreline Sanitary Survey of Patchogue* Bay report contains historical information on the location and description of discharge pipes found along the shoreline of Patchogue Bay (Carrano 1988).

- The *Schematic Design Report Street End Improvement Plan* identifies street ends in the Village of Patchogue where improvement projects could be implemented to enhance access to the waterfront and mitigate impacts of stormwater runoff (Bienstock, Lucchesi, & Associates. P.C. 1989). This report also stated that east/west trending streets provide drainage to Patchogue River from upland areas by surface overflow, since there are no major drainage structures or systems in-place.

The locations of catch basins and stormwater drainage points are shown on the **Infrastructure** map. One can generally assume that the catch basins located near the shoreline are connected by pipes that connect to the drainage points shown on the map, but some may drain directly to groundwater. The following observations are based on the map and field inspection.

- Five pipes discharge directly to the west side of Patchogue River; two of these are adjacent to the paved parking areas associated with high density residential use.

- The 10 catch basins along Division St. are part of the drainage system that extends to the Central Businees District, as mentioned above. Discharge occurs into the River at the culvert under Division St.

- The six discharge pipes along the east side of the River are located at the ends of east/west trending streets. According to the *Master Plan*, an additional pipe connects to the basins at the West Ave./Amity St. intersection. (This pipe is not shown on the map since it was not observed in the field.)

- The parking lot of the bowling alley property at the intersection of Division St. and West Ave. was observed to drain into a swale near the River owned by the FINS; given a large volume of runoff, this swale could fill, over-top the bulkhead and discharge directly into the head of the River.

- The parking lot at the FINS ferry terminal facility drains into a bermed retention area located to the west of the bowling alley property, and south of the swale mentioned above. Depending upon precipitation patterns, standing water can remain in this area, creating a pond. Any overflow from the pond is directed north to the swale.

- Parking lot runoff from the Town Sandspit Park and the Village Mascot Dock is discharged to the bay via five pipes, and two pipes, respectively. There are six discharge points to the bay between the two parks.

- Seventeen of the 20 stormwater drainage points that discharge to the bay between the Mascot Dock and Bay Ave. are located along Shorefront Park. Three of these are culverts for the creek that drains the freshwater wetland area to the north of Smith St. Many of the remaining structures return ponded seawater that results from wave overtopping of the bulkhead during storms and periods of strong on-shore winds.

Parking Facilities

The provision of adequate vehicular parking facilities is an essential element of any proposal relating to the location/relocation of mainland ferry terminals servicing Fire Island destinations. An inventory of existing parking lot capacities was undertaken for both the ferry terminal servicing Davis Park located at the Sandspit and the FINS facility servicing Watch Hill. Additional existing and potential public parking facilities within walking distance of these two ferry terminals were also inventoried and are discussed below.

The 8.0 acre Town of Brookhaven Sandspit facility contains a total of 729 automobile parking spaces. Of the 729 parking spaces at the Sandspit, 703 spaces are for public parking, 10 spaces are reserved for the crew of the Davis Park ferry, 12 spaces are reserved for the handicapped and 4

spaces are reserved for night fisherman. The Town of Brookhaven has 104 numbered boat slips at the Sandspit, but a few of these slips are unusable due to shoaling. None of the parking spaces at the Sandspit are reserved for boaters or bathers. The On The Waterfront restaurant, located adjacent to the Sandspit, has 28 parking spaces for restaurant customers.

The FINS ferry terminal facility on West Ave. contains a total of 191 automobile parking spaces. Five of those spaces are designated for handicapped parking.

A total of 318 parking spaces exist in the main parking lot on Division St. servicing the LIRR. Of the 318 spaces, 11 are for reserved for LIRR employees, 9 are reserved for the handicapped and 16 are reserved for 20 minute parking. The Sephton St. parking lot is just north of the station and contains 44 parking spaces. Both parking lots are owned by the Village of Patchogue.

The Suffolk County-owned District Court parking lot located on West Ave. has a total of 171 parking spaces. Four of those spaces are designated for handicapped parking. The District Court parking lot is approximately 0.4 miles north of the LIRR tracks.

There are 132 parking spaces in the 1.1 acre Village parking lot located on West Ave. immediately north of the old Grossmans Lumber building (now used as a warehouse by Swezeys). Although this parking lot serves as an auxiliary parking lot for LIRR commuters, it is currently unused.

The above mentioned parcel containing Swezeys warehouse is 2.5 acres in size. If the building was demolished and the lot used for automobile parking spaces, approximately 250 parking spaces could be created.

Main St. and the Village of Patchogue CBD are located about one-half mile north of the railroad tracks. Village-owned parking lots servicing the CBD are located on both sides of Main St. Almost 10 acres of Village-owned parking fields exist immediately south of Main St. between Railroad Ave. and Rider Ave.

The Village of Patchogue Mascot Dock contains 44 automobile parking spaces, of which three are designated for handicapped parking. Approximately 65 boat slips are available at Mascot Dock for Village residents. Located immediately north of Mascot Dock on the east side of South Ocean Ave. is a 50 car Village parking lot for users of Mascot Dock. The Village-owned Patchogue Beach Club, located on the southwest corner of Maiden Lane and South Ocean Ave., has parking for approximately 50 cars.

The Village of Patchogue has parking lots servicing the three Village-owned parks that are situated immediately east of Mascot Dock. Firemans Memorial Park has perpendicular parking spaces on DeWitt Ave. for about 25 automobiles. Shorefront Park and Rider Ave. Park are served by four parking lots. The Village parking lots located on the north side of Smith St. between Rider Ave. and Gale Ct. and on the northwest corner of Smith St. and Rider Ave. contain 36 and 30 parking spaces, respectively, and are used by visitors of either park. An unpaved parking area that can accommodate

approximately 50 cars exists at Shorefront Park on the southwest corner of Smith St. and DeWitt Ave. The Rider Ave. Park also has a 30 car parking lot accessible from Bay Ave.

Recent Road Improvements

The Suffolk County Dept. of Public Works has executed a contract for improvements to County Road 65 (Middle Road) from Atlantic Ave. east along Weeks St. to River Ave., along River Ave. north to Division St., and east on Division St. to West Ave. The work, which is expected to be completed by mid-summer 1999, involves miscellaneous drainage, curb and sidewalk improvements, pavement repair and resurfacing.

As mentioned in the **Sewage Treatment** section of this report, the Village of Patchogue has proposed the extension of sewerage along River Ave. from Division St. on the north down to the bay on the south. Any eventual construction of sewer mains, etc. in the right-of-way of County Road 65 subject to the improvements mentioned above, will require that the road be properly patched and re-surfaced in its entirety. A Suffolk County Dept. of Public Works Highway Work Permit will be required prior to the installation of sewer mains within the County road right-of-way (Richard J. LaValle pers. comm.).

ENVIRONMENTAL RESOURCES

Wetlands

Tidal wetlands are natural habitats that provide high primary productivity; fish and shellfish nursery grounds; and breeding/feeding grounds for waterfowl and other wildlife, including rare and endangered species. They also perform valuable functions, such as wave/erosion protection; flood control; and pollution reduction.

Freshwater wetlands include streams, lakes, ponds, marshes and bogs, as well as wet woods and areas that are intermittently wet and sustain freshwater wetland vegetation. Their values and functions are similar to tidal wetland habitats, noted above.

Tidal wetland boundary maps prepared pursuant to the Tidal Wetlands Act (Article 25 of the New York State Environmental Conservation Law) were consulted to ascertain the existence of any tidal wetlands in the PRMC study area. According to this source, and as confirmed by NYSDEC Region 1 staff, **there are no upland vegetated tidal wetlands, i.e., intertidal marsh, high marsh, coastal freshwater marsh or formerly connected tidal wetlands, in the study area** (Frederick Mushacke pers. comm.). The area does contain coastal shoals, bars and mud flats below mean high water along the shoreline of Patchogue Bay, as well as littoral zone areas in Patchogue River and deeper portions of the bay.

The New York State Freshwater Wetlands Act map series (Article 24 of the New York State Environmental Conservation Law) finalized as of May 26, 1993, was reviewed to identify the location and boundaries of any freshwater wetlands, i.e., coastal freshwater marsh, emergent freshwater marsh or flooded deciduous marsh, in the study area. It was determined that **there are no freshwater wetlands in the study area.** Freshwater wetlands are, however, located north of Smith St. in the watershed of the creek that traverses Shorefront Park and discharges to Patchogue Bay; and also along Patchogue River, north of Division St.

Tidal Floodplain

The 100-year tidal floodplain boundary delineates the area that would be inundated by a 100-year flood; a flood which is likely to occur on the average once every 100 years. The 100-year flood has been adopted by the Federal Emergency Management Agency (FEMA) as the base flood for floodplain management purposes. Flood Insurance Rate Maps (FIRMs) prepared for communities by FEMA show the 100-year floodplain boundary that includes both V and A Zones. The V Zone is that area immediately adjacent to the shore which extends landward to the point where the 100-year flood depth is insufficient to support a 3 foot breaking wave. The A Zone is located landward of the V Zone to the inland boundary of the 100-year flood. In the V Zone, new construction must be elevated by piles or piers above the base flood level. Basements and first floors of new construction in the A Zone must also be elevated above the level of the base flood, but in this case, fill can be used beneath the structure to attain the desired elevation.

Base flood elevations for the V Zone in the PRMC study area have been calculated to be 8 feet above NGVD; this includes a 100-year still water flood elevation of 5.6 feet plus a maximum wave crest height. For the A Zone, the base flood ranges from +6 to +7 feet NGVD (Federal Emergency Management Agency 1998).

The extent of the V and A Zones in the PRMC study area is shown on the ***Environmental Conditions*** map, as determined from the latest FIRMS for the area encompassing the Village of Patchogue (FIRM nos. 36103C0694 G and 36103C0907 G, effective May 4, 1998). The entire shoreline area along the bay and River corridor is within the 100-year floodplain. The V Zone, however, is limited to a narrow band along the immediate bay shoreline from Tuthills Creek on the west to the west jetty at the entrance to Patchogue River. The rest of the 100-year floodplain is in the A Zone. The base flood elevations for the A Zone vary from +7 feet NGVD in the more exposed areas along the bay from Cedar Ave. to Bay Ave.; to +6 feet further inland and along both sides of the River.

Tidal Circulation

The impact of human activities on Patchogue River and Patchogue Bay is a function of land use type, location, pollutant loading rate, and magnitude of water circulation and exchange. Contaminants are transported into the River and bay via stream flow, stormwater runoff and groundwater flow. Some dissolved and particulate pollutants may be transformed and/or trapped in the bottom sediments. Pollutants that dissolve in water, i.e., miscible pollutants, will eventually be removed from the River and bay by tidal currents after obtaining a steady state concentration.

Water circulation in Patchogue River, Patchogue Bay and Great South Bay is the result of currents that are created by the interplay of:

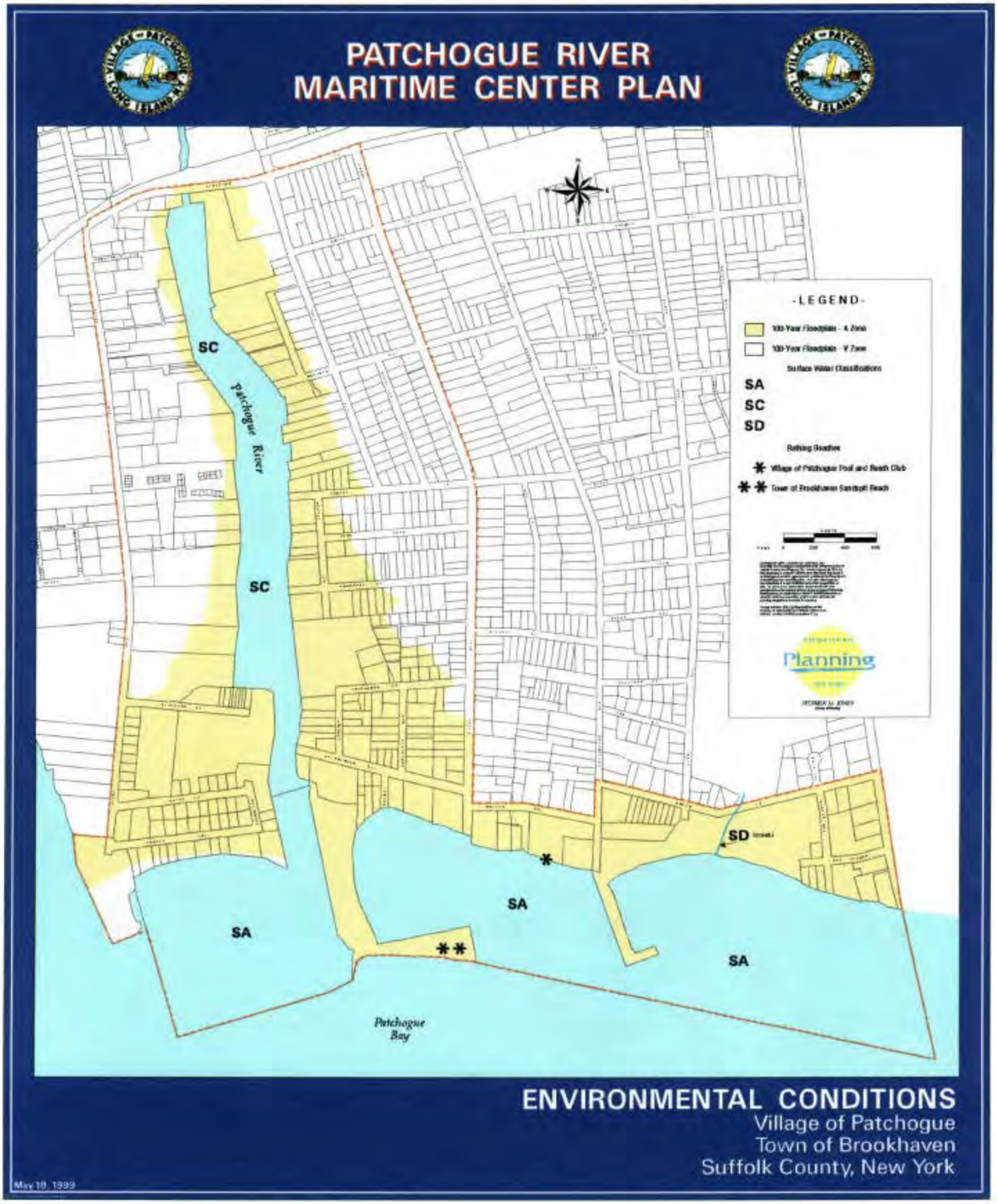
1. The daily rise and fall of the semi-diurnal tides.

2. Coastal sea level fluctuations in the Atlantic Ocean caused by low frequency, large scale meteorological events, i.e., the passage of high and low pressure weather systems.

3. Direct local wind stress on the surface of the bays.

4. Density differences in sea water caused by fresh water inflow (Wilson, Wong and Carter 1991).

Under typical conditions water circulation is dominated by the tides. The range of the mean tide in the Atlantic Ocean at the entrance to Fire Island Inlet is 4.0 feet. This range decreases as one proceeds through the inlet and into the back bay areas. In the throat of Fire Island Inlet, at the entrance to Great South Bay, the mean range of the tide is 1.0 feet. At the entrance to Patchogue River the range is 0.7 feet. In general, those locations in the Great South Bay that are more distant


PATCHOGUE RIVER
MARITIME CENTER PLAN
-LEGEND-
100-Year Floodplain - A Zone
100-Year Floodplain - V Zone
Surface Water Classifications
SA
SC
SD
Bathing Beaches
Village of Patchogue Pool and Beach Club
Town of Brookhaven Sandpit Beach
Planning
SC
Patchogue River
SC
SD
SA
SA
SA
Patchogue Bay
ENVIRONMENTAL CONDITIONS
Village of Patchogue
Town of Brookhaven
Suffolk County, New York
May 18, 1999

from Fire Island Inlet and have smaller tidal ranges, will have longer flushing times than those locations closer to the ocean.

Water circulation in Patchogue Bay is dominated by factors one, two and three above. Fresh water discharge, which includes tributary flow and groundwater seepage, is small compared to the volume of water in the bay. The same can be said for the Patchogue River, but the influence of freshwater inflow via River discharge is detectable within the confines of the estuarine portion of the River. Here, there is evidence of a weak, two layer circulation pattern where lower salinity water flows toward the bay near the surface, and denser, saltier water flows up the River at depth.

Severe storm events can dramatically increase water levels along the coast and cause tidal flooding of low-lying areas along the bay and River shorelines in the PRMC. Such events can enhance water exchange and flushing rates well beyond those that are typical.

No detailed analysis of circulation in the Patchogue River is available. However, the amount of time required to flush a dissolved substance from the River can be estimated in a first order sense by dividing the volume of water in the River by the tidal prism. (The tidal prism of the River is equal to the high tide volume minus the low tide volume; this volume is exchanged between the River and adjacent bay every tidal period, which is 12.4 hours in duration.) The result is the tidal residence time of salt water in the River, i.e., the salt water flushing time.

The salt water flushing time of the River was estimated using the tidal prism method and the following assumptions:

1. The water surface area of Patchogue River from Division Street south to the entrance of the River between the jetties is 38 acres.

2. The average depth of the River is equal to 6 feet.

Given the above, the salt water flushing time was calculated to be about four and a half days. This estimate does not adequately assess the flushing capacity of isolated portions of the River, i.e., those at the head of navigation, and in any deep holes in the bed of the River created by past dredging activity, which would have longer flushing times.

The rather obvious movement of water due to tidal action in the River can be deceptive in that the removal of pollutant inputs can take a significantly longer period of time than reflected by the tidal prism method, given the fact that a portion of the volume of water discharged from the River to the bay in the ebb tide returns to the River on the next flood tide. This leads to the condition where a pollutant would be flushed back and forth with the tides, rather than completely removed.

Given the restricted nature of circulation, dilution of pollutant inputs still does occur. A dye study conducted in 1985 demonstrated that the effluent from the Patchogue Village STP was diluted in Patchogue Bay by a factor of 1,250 after two to three days (Nuzzi 1985).

A parameter called Pollution Susceptibility has been used to quantify the relationship between discharge rates of conservative, miscible pollutants and resultant concentrations in tidal receiving waters (Nassau-Suffolk Regional Planning Board 1976). Steady State Pollution Susceptibility (SSPS) values indicate the pollutant concentrations that would result from a discharge rate of one ton per day of a conservative pollutant at various shoreline locations after steady state conditions are attained. Lower SSPS values reflect more effective flushing action. The SSPS value calculated for the entrance to Fire Island Inlet is 10. This compares to a value of greater than 1000 for the middle of Patchogue Bay, making the bay very poorly flushed in comparison, i.e., the flushing at the inlet is 100 times more efficient than the flushing at Patchogue Bay. As a consequence, pollutants and fine grained materials would tend to be retained or trapped in the bay, and River as well.

Marine Surface Water Quality

The quality of surface waters in the PRMC study area - the tidal portion of the Patchogue River and Patchogue Bay - is the result of land uses and activities and their associated pollutant loadings that occur in a much broader geographical context, as well as the large scale circulation pattern of the Great South Bay (as discussed in the **Tidal Circulation** section). The 234.7 acres of upland in the PRMC study area constitute a small area in comparison to the 8,642 acres in the Patchogue River watershed north of Main St. in Patchogue (U.S. Geological Survey 1977). Similarly, Patchogue Bay is influenced by land uses, etc. occurring along the shore from Blue Point east to Bellport Bay.

No detailed analysis of the Patchogue River watershed has been conducted with respect to the location and relative magnitude of all sources of pollution to groundwater and surface waters. Water quality monitoring data are also limited, especially for the tidal portion of the River south of Division St. Despite these shortfalls, some general observations can be made on the basis of regional studies and monitoring programs. This section will conclude with a discussion of how the surface waters have been classified under different water quality criteria.

Great South Bay Pollutant Budgets - Regional pollutant loading budgets for total coliform bacteria, total nitrogen and other constituents have been calculated for Great South Bay as part of the "208"study (Long Island Regional Planning Board 1978). These budgets point out the relative magnitude of the various sources of different types of pollutants that discharge to the bay system. For total coliform, about 90 percent of the total loadings to the bay are from stormwater runoff, which consists of urban runoff channeled directly to streams, and overland flow to marine surface waters. The remaining 10 percent is primarily from base streamflow (i.e., streamflow under dry weather conditions).

The budget for total nitrogen shows a loading rate of about 6,600 pounds per day to the bay, as of the mid-1970s. The relative magnitude of the sources is as follows: base streamflow - 39 percent; groundwater underflow - 16 percent; direct rainfall - 26 percent; storm runoff - 17 percent; point sources - 2 percent.

It is reasonable to assume that a similar breakdown of the significance of the various sources of total coliform and total nitrogen would be applicable to the marine surface waters in the PRMC area. However, no estimate of the loading or flux of contaminants from the sources within the watershed to surface waters is available, with perhaps the exception of the two point sources discussed previously in the **Sewage Treatment** section of this report.

Surface Water Quality Monitoring - With respect to marine surface water quality, the SCDHS has conducted a long-term monitoring program at 21 stations in/near the Great South Bay since 1977. Data on a total of 23 physical, chemical and biological measurements have been taken numerous times at each station, each year. This impressive data set has been provided to the SSER Program (Suffolk County Dept. of Health Services 1998c). The SCDHS is in the process of preparing a trends analysis report for the SSER, which will include observations pertaining to the Southwest Sewer District # 3, and how sanitary sewer hook-ups have influenced water quality since the district went on-line in 1981 (Robert Nuzzi pers. comm.).

SCDHS water quality station # 130 is located at the N “2" buoy in the middle of Patchogue Bay, about 0.8 miles south of the entrance to Patchogue River. The average values for all years at this station for ammonia nitrogen and nitrate/nitrite nitrogen are 0.02 mg/l, and 0.034 mg/l, respectively. The long-term mean coliform concentration at station # 130 is 71 mpn/100ml. Comparison of these values to those levels found in various sources can elucidate the significance of these inputs.

Influence of Groundwater - Camp Dresser & McKee has constructed and applied a groundwater model to simulate aquifer conditions and conduct analyses of water supply issues in Suffolk County for the Suffolk County Dept. of Health Services. Some of the work completed under the “Water Quality Model Phase III” project currently underway is applicable to the PRMC study area. The groundwater table in the study area is only a few feet above sea level (Busciolano, Monti and Chu 1998), and groundwater moves laterally toward the coast at a rate of 1.5 to 2 feet/day (Sy Robbins pers. comm.). The long-term mean annual precipitation at Patchogue is 47.23 inches, about half of which recharges the water table.

Precipitation, urban runoff to interior drainage systems, and wastewater from individual septic systems recharge the glacial aquifer in the study area. Recharge can carry soluble contaminants, e.g., nitrates from septic systems and fertilizer application, into the aquifer and subsequently into surface waters. Camp Dresser & McKee utilized flow and contaminant transport models to calculate the time it will take for recharge to travel from the water table through the
aquifer to ultimate discharge as groundwater underflow to surface waters. All locations in the study area are proximate to the shoreline, i.e., they are 1,200 feet or less from either the shore of Patchogue River or Patchogue Bay. Map outputs show that it will take a time of two years or less for recharge in the study area to discharge as underflow to marine surface waters (Mary Anne Taylor pers. comm.). This transit time also applies to dissolved contaminants in the underflow.

Groundwater observation well # S48759, located near the intersection of Austin Ave. and North Ocean Ave. about 1.25 miles to the northest of the PRMC study area, is the closest well to the study area where water quality is monitored by the SCDHS. The typical concentration of total inorganic nitrogen in the groundwater of the upper glacial aquifer at this well is on the order of 6 mg/l (Edward Olsen pers. comm.). It is expected that similar levels of total nitrogen would be found in the groundwater table beneath the study area (Sy Robbins pers. comm.).

Patchogue River Streamflow - Coliform bacteria and nutrients are contributed to the tidal portion of the Patchogue River by streamflow. The quality of streamflow as measured at the site of the stream gauging station located just south of Montauk Highway can be used to indicate the relative magnitude of the freshwater flow as a source of coliforms and nitrogen to the bay. Historic data for the River show a summer season, baseflow total coliform concentration of 9,650 mpn/100ml (Long Island Regional Planning Board 1982). (This value would be much higher during a significant rainfall event.) In comparison, the long-term mean coliform concentration at station # 130 in Patchogue Bay is 71 mpn/100ml. Hence, the freshwater has a concentration of coliform that is more than two orders of magnitude greater than that at station # 130.

The relationship of streamflow as a source to the bay also holds for nitrogen. Water quality measurements made at the stream gauging station between October 1994 and August 1995 show that the mean concentration of ammonia nitrogen was 0.2 mg/l, and that of nitrate nitrogen was 2.4 mg/l (U.S. Geological Survey 1996). These values are 10 times the long-term mean concentration of ammonia at station # 130 in Patchogue Bay, and 70 times the mean concentration of nitrate/nitrite at this station, respectively.

The tributary that drains the freshwater wetland area to the north of the Village Shorefront Park and discharges through the park bulkhead is another freshwater source of various substances to the bay. No data are available on the quality of this discharge, but it would be reasonable to assume that it has high coliform and nutrient levels.

Non-point sources of contaminants also include direct urban runoff from streets and paved surfaces located adjacent to the tidal portion of the River and along the bayfront. Overland flow during rainfall events is another non-point source affecting marine surface water quality to some degree. The extent of any potential illegal dumping or discharge activity to Patchogue River and Patchogue Bay is unknown.

New Source of Water Quality Data - The National Park Service is conducting a project (Monitoring Estuarine Wetland Habitat) that includes water quality sampling at various locations near several of its park holdings, including Fire Island National Seashore. One of the sampling stations in Great South Bay is located about 200 meters south of the entrance to the Patchogue River. Samples have been taken monthly at this station since June 1998, and are analyzed for nutrients, turbidity, dissolved oxygen, etc. One objective is to document the annual cycle of changes (James Ebert pers. comm.). A report on this project should be available by the end of 1999 (Charles N. Farris pers. comm.); it should help fill a gap in the water quality data base mentioned at the beginning of this section.

South Shore Estuary Reserve - The South Shore Estuary Reserve Council is preparing a Comprehensive Management Plan for the SSER. One of the goals of this plan is to maintain and improve water quality. Various efforts are underway to develop the necessary data and information bases required to design water quality improvement strategies that will address priority problem areas throughout the estuary, especially those related to non-point sources of pollution (NYS Dept. of State 1998c). One such effort, involving the development of an estuary-wide water quality monitoring strategy, will help target resources in the design of cost-effective solutions at specific locations (Elizabeth C. Moran pers. comm.). Any action to address surface water quality improvement in the PRMC study area should be viewed within the context of SSER plan recommendations when they are formulated, and potential SSER funding sources.

Surface Water Classifications - The NYSDEC has classified the marine and fresh waters of the State as to their potential best usage and has adopted water quality standards for each classification (6 NYCRR Part 922 Section 922.4 - Table 1). Patchogue River is divided into tidal and fresh portions. The tidal portion, which extends from the mouth of the River north a distance of 0.8 miles to the LIRR track adjacent to Division St., is classified **SC**, as shown on the ***Environmental Conditions*** map. Best usage of waters in this class include fishing, fish propagation, primary and secondary contact recreation (although factors may limit use for such recreation). Primary contact recreation includes activities where the human body may come in direct contact with raw water to the point of complete body submergence (swimming, diving, water skiing, skin diving, surfing). Secondary contact recreation includes activities where contact with water is minimal and where ingestion of water is not probable (includes but is not limited to fishing and boating).

The freshwater portion of the River extends from Division St. north to Patchogue Lake. From the mouth of Patchogue Lake the river then extends north to Sunrise Highway. North of Sunrise Highway, Patchogue River forks in two directions. The western fork extends in a northwesterly direction along West and East Shore Rd., for approximately one-half mile. The eastern fork extends northward for approximately one-half mile to Canaan Lake. It extends another one mile north to its source. The stream portions of the River are classified as **C**. These waters are best suitable for fishing and fish propagation as well as for primary and secondary contact recreation even though other factors may limit the use for that purpose. Both Patchogue Lake and Canaan Lake on the east fork of the River are classified as **B**. Best usage of waters in this class is primary contact recreation and any other use except as a source of water supply for drinking, culinary or food processing purposes.

The small, tidal creek that flows through the Village properties, east of Rider Ave., to Patchogue Bay via culvert pipes draining from the bulkhead of the Village of Patchogue Shorefront Park, is classified as **SD**. This classification applies to waters used **not** primarily for recreational purposes, shellfish culture or the development of fishlife. The waters in this classification cannot meet the requirements of these uses because of natural or man-made conditions.

All of Patchogue Bay is classified as **SA.** Best usage under this classification includes shellfishing for market purposes and primary and secondary contact recreation.

Bathing Beach Certification - The SCDHS samples various bathing beach waters throughout the County for fecal coliform and total coliform to determine whether the bathing beach waters are suitable for swimming activities. The determination for closure is based on total and fecal coliform standards in Part 6 of the New York State Sanitary Code. According to SCDHS records for the period from 1980 to 1998, the Town of Brookhaven Sandspit Beach on Patchogue Bay was closed once in 1988 for bathing during the summer swimming season. In 1988, SCDHS used the fecal coliform standard found in the NYS Sanitary Code (fecal coliform log average of 200 mpn/100ml for a series of at least five samples collected within a 30-day period). In all other years, SCDHS used the total coliform standard from the State Code (log average of 2,400 mpn/100ml for a series of at least five samples collected within a 30-day period) and, also closed beaches if the fecal coliform log average exceeded 400 mpn/100ml (which corresponds more closely to a total coliform log average of 2,400 mpn/100ml). The local permit issuing official (Suffolk County Health Commissioner) may use either the 2,400 mpn/100ml total coliform standard, or the 200 mpn/100ml fecal coliform standard. Suffolk County uses the total standard (Robert Nuzzi pers. comm.).

The Village of Patchogue Pool and Beach Club facility, at the corner of Maiden Lane and South Ocean Ave., provides a swimming area at its beach on Patchogue Bay. To date, this bay swimming area has not been monitored by SCDHS; no operating permit has been issued. Therefore, no bathing beach water quality samples have been taken by SCDHS at this site.

Shellfish Harvest Area Certification - The NYSDEC monitors marine surface waters of the State to certify areas where shellfish harvesting can occur. Areas are closed to shellfishing if water quality monitoring detects total coliform levels above the standard of 70 mpn/100 ml.

Patchogue Bay has long been closed to shellfishing. A map for the year 1910 shows that the area closed at that time is larger than the area closed today. While the offshore boundary of the closure area has been moved over the years in response to various factors, the threat posed by tributary flow and sewage discharges has always kept the area in the vicinity of the shoreline closed (Dennison, Koppelman and Nuzzi 1991). Indeed, the upland runoff to the freshwater portions of the tributaries (Corey Creek, Tuthills Creek, Patchogue River, Swan River, Mud Creek, etc.), and overland runoff that enters the bay directly or via the tidal portions of the tributaries are, by a vast margin, the largest sources of coliform loadings to the bay (Long Island Regional Planning Board 1982).

All of Patchogue Bay north of the boundary line that extends from Blue Point on the west to a location in the vicinity of Dunton Ave. on the east is currently closed to shellfishing. A conditional harvesting program can be implemented under certain dry weather conditions during the winter months in the southern portion of the uncertified area. This program is not applicable to the marine surface waters in the PRMC study area, which remain closed to shellfishing at all times (Maureen Davidson pers. comm.).

Habitat Resources

As can be ascertained from previous sections of this report, the PRMC study area has been subject to intense use, significant physical change and development over the last century. As a result and for all intents and purposes, habitat resources are minimal in the study area. While the expanse of Great South Bay is of high habitat value, the New York State Dept. of State specifically excluded the marine surface waters under the jurisdiction of the Village of Patchogue from the 32,000 acre area designated as the Great South Bay - East Significant Fish and Wildlife Habitat (New York State Dept. of State 1987). Hence, **no portion of the study area is considered of special significance from a habitat point of view.**

The area does, however, provide significant natural resource values that should be protected. Beach shoreline areas along Patchogue Bay have obvious open space and recreational attributes. Recreational fishing for "snappers" and blue claw crabs from road ends and piers is an important natural resource-based activity during the summer and fall seasons. The River and bay environments support a variety of water-related and water-enhanced activities, as previously discussed. Indeed, maintenance of water quality is a prerequisite for the long-term viability of these activities. The water column in the River is also of importance in terms of its impact on water quality in Great South Bay as a whole.

Oil Spill Remediation

Major oil spills have occurred in the PRMC study area as a result of past petroleum product delivery and storage at terminals located on the Patchogue River. The New York State Dept. of Environmental Conservation (NYSDEC) is responsible for removal and cleanup of petroleum spills pursuant to Article 12 of the Navigation Law and Article 17 of the Environmental Conservation Law. The NYSDEC oil spill program was started in March 1978, and this agency has no records for spills occurring prior to this date. The general steps in the procedures under this program are summarized as follows:

1. Document oil spill problem.

2. Investigate and determine if remediation is needed.

3. If remediation is needed, execute a Stipulation Agreement between the responsible party and NYSDEC.

4. Responsible party conducts site investigations and prepares a Corrective Action Plan with oversight by NYSDEC.

5. Responsible party implements the Corrective Action Plan with oversight by NYSDEC.

Staff of the NYSDEC Division of Spill Management were contacted to obtain an overview of the status of any significant oil spills in the study area (Walter Parrish pers. comm.). Two major spills are worthy of specific mention in this study: Spill # 88-06510 - Amerada Hess Corp. (Patchogue Oil Terminal formerly owned by Paragon Oil, a subsidiary of Texaco); and Spill # 97-08446 - Marran Oil Co.

In November 1988, seepage of petroleum product through the bulkhead to surface waters was detected at the site of the former Patchogue Oil Terminal, a major oil storage facility, that is now owned by Amerada Hess (SCTM # 0204-019.00-01.00-004.000; 4.2 acres). Subsequent investigation has revealed soil and groundwater contamination on-site, i.e., there is floating petroleum product inside the bulkhead in groundwater. (It is noted that Amerada Hess also owns the 2.5 acre vacant, wooded parcel [SCTM # 0204-019.00-01.00-003.000] to the north of the now vacant, but disturbed parcel used in the past for petroleum storage.) Monitoring is underway to determine the extent of any contamination that may have migrated off-site to the parcel owned by Davis Bros. Engineering Corp.

A Stipulation Agreement between NYSDEC and Amerada Hess is in force, and this firm has assumed the responsibility to cleanup and remove the discharge of petroleum in accord with a Corrective Action Plan. No estimate of the amount of product spilled was available, nor was a time schedule for site clean-up. Foster Wheeler is the consultant responsible for remediation. A bioventing system is being used for free product recovery in the soil. (Additional information on the status of Amerada Hess spill remediation activities is found in the **Southwest River Segment Recommendations** section of this report). Monitoring and recovery will continue until petroleum product is no longer encountered; termination of cleanup operations must be approved by the NYSDEC.

Seepage of oil into the Patchogue River at low tide was detected in 1997 from the former petroleum tank storage facility located at the Marran Oil Co. properties on the east side of the River. The extent of soil and groundwater contamination from petroleum products has been determined on company parcels located on both the north side (SCTM # 0204-016.00-03.00-007.000) and south side (SCTM # 0204-016.00-06.00-001.002) of Mulford St. per subsurface investigations conducted as recently as July 1998.

Marran Oil has accepted responsibility for remedial cleanup activities, and a Stipulation Agreement with NYSDEC is in place. The remedial construction plan has been prepared by Vertex Engineering Services and is under review by NYSDEC. Action to cleanup contamination will begin after approval of plan. It is anticipated that remediation of subsurface soil and groundwater at the site will occur through installation and temporary operation of a dewatering/groundwater pump and treatment system and excavation of impacted subsurface soil. It is anticipated that there will be no significant risk to human health or the environment at the site upon completion of remedial actions (Vertex Engineering Services 1998).

Other minor spills have occurred in study area, some of which are the result of "housekeeping activities." Contaminated soil has been found at Leeward Cove Marina where boats are stored. This company plans to remove contaminated soil. NYSDEC does not know if significant petroleum contamination exists at this site, which was the location of the Rite Fuel Oil Terminal in the past.

Soil contamination has been found at the Leeward Cove South marina site (formerly the Pier 66 Marina) as a result of an underground storage tank removal operation. The status of this spill according to NYSDEC is that it is an open action under investigation; no stipulation agreement is in force and no remediation has occurred.

Storage Tank Control

The Suffolk County Dept. of Health Services (SCDHS) administers a toxic and hazardous materials handling, storage and control program in Suffolk County to prevent the contamination of surface and groundwaters from leaking above ground and underground storage tanks and other storage facilities. Article 12 of the Suffolk County Sanitary Code (Toxic and Hazardous Materials Storage and Handling Controls) requires that owners of storage facilities containing any toxic and hazardous liquid that could pollute water resources in Suffolk County register such storage facilities with the County. As part of its implementing the law, the SCDHS also reviews engineering plans and documents for the installation and upgrading of these storage facilities and inspects tank removals and installations. Since the enactment of this program in 1980, thousands of old, substandard tanks throughout the County have been removed from service. The new tanks that replaced many of the older tanks, are fabricated from corrosion resistant materials and fitted with leak detection and overfill prevention alarm systems. Other features of new tank installations, such as double walled construction for tanks and associated piping, dispenser pans beneath motor fuel dispensers and fill spill containment insure that the best practical technology is employed to protect the water resources of Suffolk County.

The SCDHS maintains a data base that contains information on properly registered tank abandonment, removal and permitted installation activities occurring since 1980. A query of this data base for all non-residential parcels located within the PRMC study area was conducted in the fall of 1998. The results indicate that 79 storage tanks (43 located underground, and 36 above ground) with an aggregate volume of about 5.2 million gallons have been removed. These tanks were primarily used for storage of # 2 fuel oil; gasoline, diesel fuel, industrial waste and waste oil were also stored. Fifteen new tanks have been permitted in the area; they have a total volume of 21,150 gallons (Alexander Santino pers. comm.).

The results above do not include any tank removals in the study area that occurred prior to 1980, such as the removal of the large fuel oil storage facilities at the former Rite Fuel Corp. They also do not include tanks that could exist in the study area and are not properly registered. However, the significance of the trend is that the potential threat of spills to ground and surface waters from storage facilities in the study area has been dramatically reduced.

PLANS AND CONCERNS OF ESTABLISHMENTS

Methodology

In order to identify plans for water-dependent and water-enhanced business expansion and facility improvements in the PRMC, the Suffolk County Planning Department communicated with the various businesses and other establishments (both public and private) within the study area. A telephone survey of marine-related businesses was conducted in July 1998. This survey produced information with respect to facilities and services present, plans for expansion, and complaints and constraints. Personal interviews with several business owners were conducted in August through November 1998, to obtain similar information. The information obtained through these communications with establishments was arranged in a database.

The Suffolk County Planning Department developed a questionnaire through which it could obtain information on the establishment's ideas for the future of the Patchogue River waterfront as well as the establishment's own plans and concerns. A complete mailing list was created by using the Department's database of existing businesses in the PRMC. A questionnaire was developed and mailed to 45 businesses and other establishments located within the PRMC on December 28, 1998. A sample of the questionnaire and its cover letter is shown in Appendix Table A3, Cover Letter and Questionnaire.

To increase response rate, postage-paid envelopes were provided with the questionnaires. A total of twelve questionnaires were returned, which represents a 27% response rate. This response rate was higher than expected for such a mail survey. The survey results were added to the database. Appendix Table A4, Plans and Concerns of Establishments, presents the complete information on the plans and concerns of establishments that was obtained in all communications with establishments in the PRMC.

Plans for Facility Expansion and Modification

Several concerns of the business and recreational establishments in the PRMC emerged. Most establishments did not have plans for facility expansions or modifications. Several businesses mentioned that they simply would continue to upgrade and maintain their facilities. These upgrades included paving of parking lots or interior roadways, new storage racks, general upkeep, or to make better use of a riverfront location.

A few businesses had more specific major plans. These plans included the possibility of adding a restaurant (mentioned by two businesses), constructing a dock facility for a paddle-wheel excursion boat (now completed), and adding boat sales to the current business. In addition, the FINS has been considering a redesign of its site, relocating its headquarters facility, and building a year-round visitor center.

Complaints and Constraints

Many establishments that responded listed at least one complaint or constraint to operations. The most common complaint was that the Patchogue River needs to be dredged. This problem was mentioned by numerous establishments. Village of Patchogue staff mentioned that a wave screen could protect boats from damage at the Mascot Dock. A few establishments mentioned the NYS DEC as an inhibitor of expansion due to potential environmental impact of any expansion. However, one business complained that stricter enforcement of environmental and other regulations is needed to keep businesses and the River clean. Permits, high taxes, and difficulty hiring qualified workers were also mentioned as constraints to expansion.

The FINS has stated that its present headquarters building is inadequate, but that it would need authorization from Congress to build a building, purchase or trade property. The Town of Brookhaven mentioned that parking is insufficient at Sandspit Park for Davis Park ferry users and others. One business mentioned that the business had limited visibility on West Ave., and a sign to increase public awareness of businesses was needed. Other constraints and complaints were mentioned by individual businesses, and are detailed in Appendix Table A4.

Activities that Should Be Encouraged

Establishments in the PRMC were asked to describe businesses or other activities that they think should be encouraged on and around the Patchogue River. Repeated mention was made that marine-related businesses in general should be encouraged. In particular, several establishments mentioned that transient marina space is needed on the River. Respondents also stated that additional marinas, yacht clubs, and yacht sales should be encouraged. One business mentioned that the village should encourage private investment and become more business-friendly.

Several establishments mentioned that additional restaurants should be encouraged to locate in the Patchogue River area. A few respondents stated that boatels are needed and one establishment mentioned that there is a need for small apartments for local residents and for vacationers. Other water-enhanced or related uses that establishments stated should be encouraged include parks, a maritime or other museum, and marine-related and specialty shops. One respondent mentioned that ferry and water taxi service to Fire Island should be expanded.

Uses to be encouraged that are not necessarily water-enhanced or related were also mentioned by establishments. In particular, these included a coffee shop franchise, and a children's learning center and amusements. One establishment mentioned providing a trolley service from the public parking areas to West Ave. in the PRMC.

The Future of the Patchogue River Waterfront

To obtain input from the businesses and recreational community in the Patchogue River area on the future of the Patchogue River waterfront area, establishments were asked for their thoughts on how they see the future of the area and how those ideas might be implemented. Respondents felt that the Patchogue riverfront area could become more of a travel destination itself. Several establishments stated that an attraction along the river, such as a museum, an aquarium or a park, could draw people to the area, and the addition of more marine and recreational uses would benefit the area as well.

Respondents mentioned some methods that might foster their ideas for the future of the Patchogue River area. Establishments stated that the river should be dredged and cleaned to allow increased usage and to promote tourism. One establishment mentioned that run down properties should be cleaned up. One business stated that the village should adopt a uniform waterfront development zone along the River, and should more specifically define permitted uses.

Specific responses from establishments are contained in Appendix Table A4.

Concerns of Residents

The results of the mail survey to establishments in the PRMC were released in a meeting of the Village of Patchogue Riverfront Advisory Committee. After the release of these results, *residents* in the PRMC expressed an interest in being surveyed as well. At the request of the chairman of the Village of Patchogue Riverfront Advisory Committee, an additional mail questionnaire was sent out to residential addresses in the PRMC in the spring of 1999.

A total of 24 written responses were received from residents of the PRMC. These responses identified a wide variety of problems within the Village of Patchogue, and included many suggestions for the future of Patchogue. The Suffolk County Planning Department has attempted to highlight those relevant comments which relate to the PRMC study area, and which were mentioned most frequently.

In response to the question "*what do you feel are some current problems facing the area around the Patchogue River?*" the following responses were received:

- People outside of Patchogue do not know about its waterfront.
- Too many old industrial buildings and abandoned empty lots along the river.
- The area has a run-down look.
- Houses and buildings in very poor condition.
- Too many multi-family, low income houses.
- Poor first impression of area at Division St.
- Poor quality of streets.
- Lack of curbing and sidewalks along streets.
- Need for more trees along streets.

- Local street flooding.
- Speeding vehicles.
- Lack of road signs directing drivers.
- Insufficient parking facilities.
- Loud music.
- Lack of public access and parks on the River.
- Old sinking boats in the River.
- The River is polluted.
- The River needs to be dredged.
- The main River channel is getting narrower due to docks and pilings.

Several respondents also mentioned that there are still many empty stores in the Patchogue Main Street business district, and that this problem should be addressed before significant additional building takes place near the Patchogue River.

Residents were then asked "*what ideas do you have for the future of the waterfront in Patchogue?*" and "*what types of businesses or activities would you like to see encouraged on or near the Patchogue River waterfront?*" The following responses were received:

- Create an atmosphere of culture -- Port Jefferson is an example of a charming atmosphere.
- Follow the example of Sayville and Bellport – craft fairs, art shows, antique fairs.
- Visitor center, Patchogue museum, or nautical museum (at bowling alley site).
- Small upscale gift and retail shops (art, fudge, books, ice cream, crafts, antiques).
- Floating restaurant.
- Seafood restaurant (Hess site, which has adequate land for parking).
- Boatel.
- Major new boat dealership.
- Boat ramp with parking for trailers.
- Walking/biking/scenic walkway through Shorefront Park.
- Larger beach area.
- Playground park at the beach at the end of River Ave.
- Install benches and lighting to provide vistas, provide picnic areas.
- Bicycle rentals.
- Sightseeing boat.
- Charter fishing vessel.
- Relocate Davis Park Ferry terminal to share the Watch Hill facility.
- Create a boardwalk all along the River.
- Install bulkheading.
- Encourage businesses to locate in business areas, not residential areas.
- No new apartments.
- No West Ave. extension.

In response to the question "*how might these ideas be implemented?,*" residents of the PRMC answered in the following manner:

- Local citizen advisory committee.
- Grants.
- Village subsidies.
- Tax and utility abatements.
- Donations, fund-raisers.
- Implement a waterfront development zone, outlining the permitted uses.
- More nighttime police action.
- Strict code enforcement.
- Strict parking controls, but allow residents and their guests to park.
- Encourage marinas to clean up and improve their facilities.
- Encourage expansion of marinas.
- Encourage businesses such as boat building or marine supply that do not create excessive parking needs.
- Relocate bowling alley.
- Purchase a small right-of-way along the River for a boardwalk.
- Encourage parking near the railroad station, and create a shuttle from the station.
- Survey residents to best locate a new park or playground.

PRMC PLAN RECOMMENDATIONS

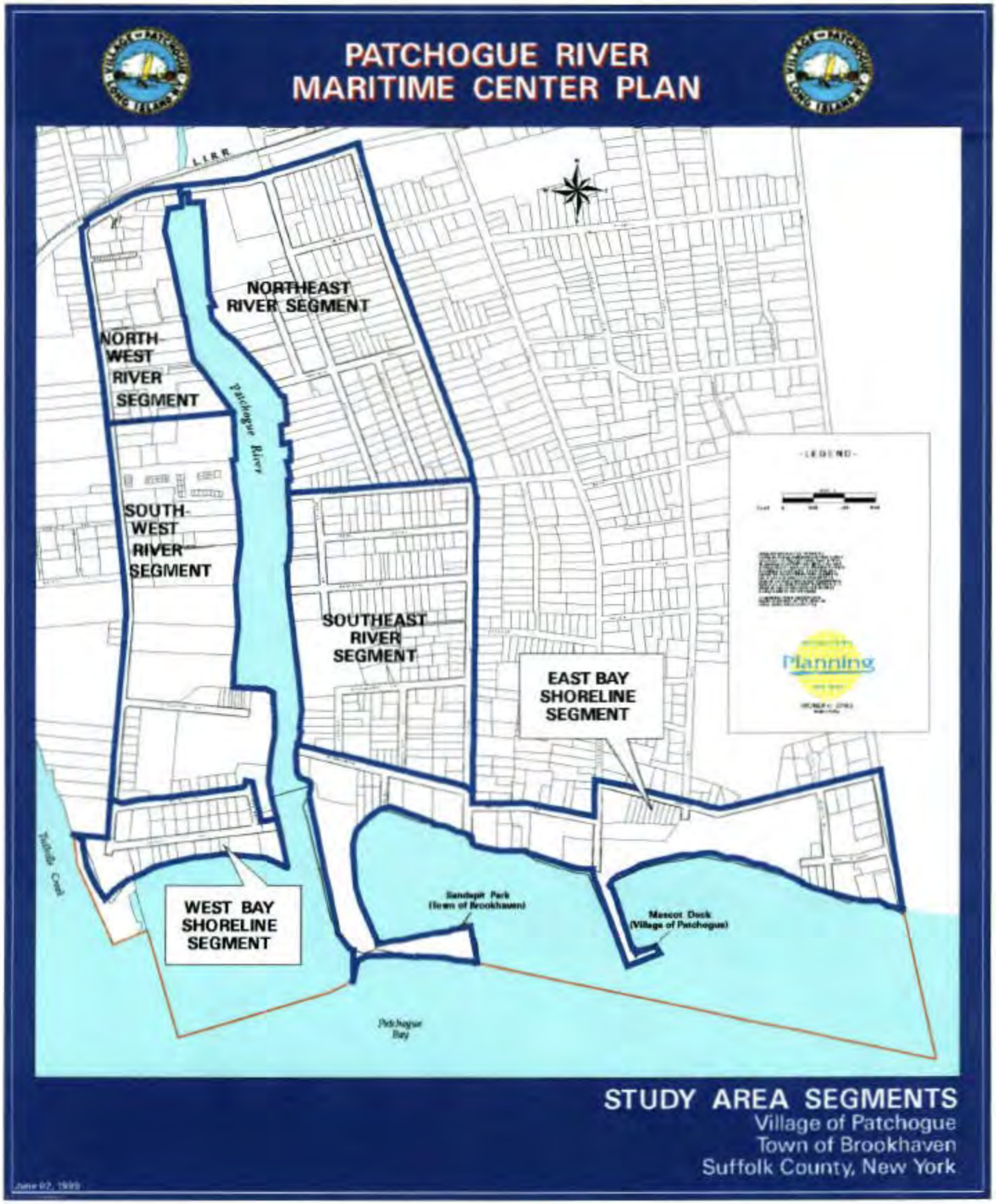
Background and Presentation Format

Utilizing the data, information and analyses that characterized the study area, and the input received at eight meetings of the Patchogue Riverfront Advisory Committee held between August 18, 1998 and June 17, 1999 from both Committee members and interested citizens, the Suffolk County Planning Department prepared a *draft* ***Patchogue River Maritime Center Plan*** report. This draft report, which included recommendations that addressed the various goals of the study, was distributed to the Committee at its ninth meeting on August 19, 1999. Initial comments from the Committee and public on the recommendations were received at the meeting, and the Committee Chairman established a deadline of September 30, 1999 for receipt of all remaining comments on the draft report from the Committee and other interested parties. Copies of the draft report were made available for inspection at the Patchogue Village Hall and public library. The Suffolk County Planning Department presented a revision of the ***Plan*** recommendations at the tenth meeting of the Committee on October 14, 1999, and responded to the comments received by the established deadline. Utilizing the guidance received at this meeting, the Planning Department then prepared the *final* ***Patchogue River Maritime Center Plan***, and submitted copies of this contract study report to the Patchogue Riverfront Advisory Committee for consideration and subsequent action by Village officials.

The ***Patchogue River Maritime Center Plan*** is a vehicle for discussion and coordination of public interests, as engendered by the actions of the Village of Patchogue, Town of Brookhaven, Suffolk County and the State and Federal governments; with private sector interests, as manifested by actions taken by business and residential landowners within the study area. This interplay is part of the long-term planning process for attaining the vision for the waterfront in the PRMC that is, in essence, reflected in this ***Plan***. The details of this vision are defined by the ***Plan*** recommendations.

There are 216.7 acres of land in the study area located landward of the shoreline of the River and bay, which has a total length of 4.3 miles. The water surface area of the Patchogue River from Division St. south to the entrance at the jetties is 37.7 acres. [2]The study area has been divided into segments for the purpose of targeting the discussion of ***Plan*** recommendations. The six segments from west to east are: West Bay Shoreline Segment, Southwest River Segment, Northwest River Segment, Northeast River Segment, Southeast River Segment and East Bay Shoreline Segment, as shown on the ***Study Area Segments*** map. The recommendations are either specific to locations within study area segments, or are more generally applicable to broader portions of the study area, or the Patchogue River itself. This is reflected in the presentation format.

[2] These estimates were calculated from March 1996 orthophotos using Arc View software. They differ from those in the **Existing Land Use** section, which reflect tax parcel boundaries; such boundaries may or may not be coincident with the location of the shoreline.


PATCHOGUE RIVER
MARITIME CENTER PLAN
LIRR
NORTHEAST
RIVER SEGMENT
NORTH-
WEST
RIVER
SEGMENT
Patchogue River
SOUTH-
WEST
RIVER
SEGMENT
SOUTHEAST
RIVER
SEGMENT
EAST BAY
SHORELINE
SEGMENT
WEST BAY
SHORELINE
SEGMENT
Terrells Creek
Sandspit Park
(Town of Brookhaven)
Mascot Dock
(Village of Patchogue)
Patchogue
Bay
- LEGEND -
Planning
STUDY AREA SEGMENTS
Village of Patchogue
Town of Brookhaven
Suffolk County, New York
June 07, 1995

The discussion of each area or segment includes a summary of the existing use pattern and the ***Plan*** vision for that area/segment, followed by the specific recommendations (with explanations) that should be implemented to achieve the vision. The ***Recommendation Highlights*** map shows an overview of ***Plan*** recommendations by segment; targets recommendations by number to specific parcels or areas in the segments; and provides a geographic reference for accompanying photographs. Figures illustrating potential design concepts associated with some of the recommendations are also included.

There are 36 major recommendations in this ***Plan***. The discussions for the recommendations are both detailed and complex. Given this situation, it is useful to begin with an overview for each area or segment of the ***Plan*** that includes a brief vision statement and listing of the associated recommendations. Since maintaining water access to the Patchogue River is of fundamental significance to the PRMC, the **Recommendation Overview** section starts with the suite of recommendations pertaining to River navigation channel dredging. This section will then be followed by sections that contain full discussion statements.

Recommendation Overview

PATCHOGUE RIVER DREDGING:

In the future, the PRMC will attract and retain water-dependent/water-related businesses of regional significance because of the the availability of an adequate navigation channel that provides deep water access to the entire River, and the enhanced reputation of the PRMC as a provider of essential services. Shoaling that has caused unsafe conditions for ferry operations, boatyard and recreational boating activities in the past, is no longer a constraint, as the navigation channel in Patchogue River will be maintained on a regular basis by the U.S. Army Corps of Engineers.

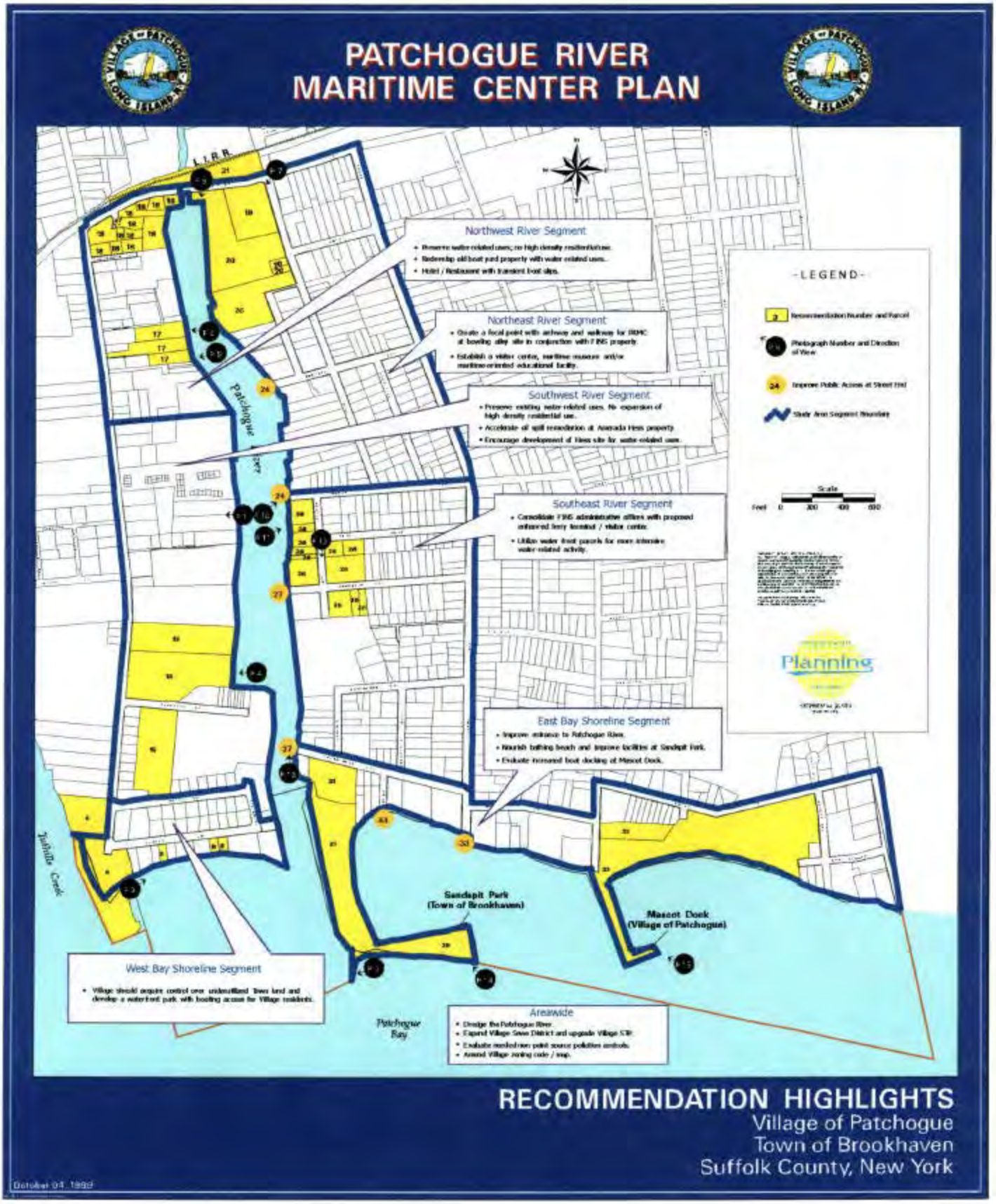
Recommendation No. 1 - The Village of Patchogue, Town of Brookhaven, Suffolk County and State of New York agencies should work cooperatively with the U.S. Army Corps of Engineers in its effort to implement required maintenance dredging activity as soon as possible to improve the navigation channel in the Patchogue River under the federally-authorized Great South Bay Navigation Project.

Recommendation No. 2 - Evaluate all options for the disposal of sediment dredged from the River.

Recommendation No. 3 - All interested parties should work to assure that the Corps of Engineers continues to assume responsibility for maintaining the Patchogue River spur of the Great South Bay Navigation Project in the future.

Recommendation No. 4 - Determine the need for additional dredging in the Patchogue River to provide access to existing and proposed water-related uses.

Recommendation No. 5 - Determine the regulatory significance of the historic Corps of Engineers pier/bulkhead line in Patchogue River.


PATCHOGUE RIVER
MARITIME CENTER PLAN
L.I.R.R.
Patchogue River
Northwest River Segment
Northeast River Segment
Southwest River Segment
Southeast River Segment
East Bay Shoreline Segment
West Bay Shoreline Segment
Areawide
-LEGEND-
Scale
Planning
Sandspit Park
(Town of Brookhaven)
Mascot Dock
(Village of Patchogue)
Patchogue Bay
Tuthills Creek
RECOMMENDATION HIGHLIGHTS
Village of Patchogue
Town of Brookhaven
Suffolk County, New York
October 04, 1999

WEST BAY SHORELINE SEGMENT:

The West Bay Shoreline Segment includes that portion of the study area along Patchogue Bay from River Ave. on the west to the entrance of the Patchogue River on the east; and the area south of Price St. Medium and high density residential use is dominate in this segment. The Town of Brookhaven owns two undeveloped park parcels at the end of River Ave. with frontage on Tuthills Creek.

The future vision for this segment incorporates continued residential use, coupled with enhanced recreational opportunity and public infrastructure upgrade. The Village of Patchogue should establish a waterfront park on the underutilized Town parcels that includes off-street parking, landscaping and a boat ramp on Tuthills Creek. Limited passive use of the immediate shoreline area along Patchogue Bay can be accommodated via access from the proposed Village park. Use of vacant parcels owned by Suffolk County for stormwater recharge will reduce street flooding and ultimate buildout density along the shore. Transient boaters, visitors and local residents will be greeted by a new lighthouse navigation aid on the west jetty as they enter the Patchogue River from the south.

Recommendation No. 6 - The Village of Patchogue should acquire control over the underutilized Town of Brookhaven parcels at the foot of River Ave. and develop a waterfront park with boating access facilities for Village residents.

Recommendation No. 7 - Nourish the beach and immediate shoreline area along Patchogue Bay between Tuthills Creek and the entrance to Patchogue River.

Recommendation No. 8 - Remove existing impediments to beach access.

Recommendation No. 9 - Utilize Suffolk County-owned waterfront parcels for stormwater runoff retention and open space purposes.

Recommendation No. 10 - Improve the entrance to Patchogue River.

SOUTHWEST RIVER SEGMENT:

The Southwest River Segment includes the area along the west side of the River generally from Price St. on the south to Brandsford St. on the north. There are five major boating-related uses and two high density multi-family residential complexes in the segment. The two vacant parcels owned by the Amerada Hess Corp. (6.7 acres) present a major opportunity site for the expansion of water-dependent/water-enhanced use on the River. An oil spill on one of the parcels is a constraint to development.

Future land use priorities in this segment include the expansion of water-related uses north of Crescent St.; the preservation of existing water-related uses; and the encouragement of large lot upscale residential development south of Crescent St. More focus by the State of New York and the

Amerada Hess Corp. is needed to complete remediation of the oil spill. The Village should take an active role in planning and controlling the development of the Hess properties, which could accommodate a marina/water-related retail complex; a boatel/resort marina complex; and/or a marine transportation center. Amendments to the Village zoning code will help to achieve the vision for this segment.

Recommendation No. 11 - The Village of Patchogue should take action to preserve existing water-dependent/water-enhanced uses and encourage the expansion of such uses on available property. There should be no increase or expansion of high density multi-family residential use in this segment.

Recommendation No. 12 - Accelerate the remediation of the oil spill at the Amerada Hess terminal property.

Recommendation No. 13 - The Amerada Hess properties should be developed for water-dependent/water-enhanced uses.

Recommendation No. 14 - If the Village of Patchogue can not obtain access to Town of Brookhaven property at the end of River Ave. for park development, then it should construct a boat ramp on the Patchogue River.

Recommendation No. 15 - The Village of Patchogue should encourage the development of large lot, low density residential use on available land located south of Crescent St.

NORTHWEST RIVER SEGMENT:

The Northwest River Segment includes the area along the west side of the Patchogue River to River Ave on the west and from Division St. on the north to Bransford St. on the south. The segment is characterized by a variety of both water-related and non-water-related commercial uses, as well as an assortment of residential homes and a major industrial use, U.S. Tape. Dilapidated buildings and deteriorated shoreline structures are found along a portion of the shoreline.

It is envisioned that revitalization efforts in the PRMC will result in the removal of decayed docks and piers, etc. in this segment, and the establishment of new water-related uses on a 2.2 acre site that is currently underutilized. Amendments to the Village zoning code will encourage the re-development of the area along Division St. to capitalize on the increased tourism-related visitation to the PRMC. This redevelopment includes a hotel with restaurant and transient boating facilities.

Recommendation No. 16 - The Village of Patchogue should take action to preserve existing water-dependent/water-enhanced uses and encourage the expansion of such uses on available property. There should be no new high density multi-family residential development in this segment.

Recommendation No. 17 - Encourage redevelopment of deteriorated/underutilized former boatyard and marina properties.

Recommendation No. 18 - Encourage resort hotel/restaurant use with transient boating facilities in the area along Division St., possibly through land assemblage from the River west to River Ave., and south to Underwood St.

NORTHEAST RIVER SEGMENT:

The Northeast River Segment includes the area along the east side of the River from Division St. on the north to Laurel St. on the south. It is bordered to the east by Cedar Ave. The predominant, water-dependent are: the FINS ferry terminal and maintenance facility; a number of small water-related businesses located south of the FINS complex; a private ferry maintenance facility; and a marina with a restaurant. One non-water dependent industrial use is located on the River (fuel oil distributor). Other uses include single family residential and six commercial/industrial uses along Division St. and West Ave., one being a bowling alley at the intersection of these two roadways.

The future will see an increased level of activity in this segment. Inter-governmental cooperation with the private sector will result in the creation of a focal point for the entrance to the PRMC that includes a new visitor center and ferry terminal for FINS, and a maritime museum/educational facility for the public to enjoy at the site now occupied by the bowling alley. Visual and physical connections to the River will be enhanced by design elements that include relocation of non-water-related activities to inland locations, a riverfront walkway and public piers at appropriate street-ends, and a River jitney. Use of available public parking facilities to the north of Division St. and a land shuttle service will limit transient vehicle traffic in the PRMC and alleviate parking problems at the Sandspit Park. Sidewalk and signage improvements will also enhance pedestrian safety and traffic flow to and through the PRMC.

Recommendation No. 19 - Encourage FINS and/or other public or private entities to acquire the bowling alley parcel to create a focal point for the Patchogue River Maritime Center concept.

Recommendation No. 20 - Establish a visitor center and maritime-oriented educational facility at the former bowling alley site and/or the two existing FINS properties near the corner of Division St. and West Ave. with the potential for an excursion sailboat enterprise. Consolidate the FINS ferry, maintenance and administrative operations at this area.

Recommendation No. 21 - Improve the appearance of the LIRR track maintenance yard located on Division St.; encourage the MTA to relocate it in the future.

Recommendation No. 22 - Alleviate the parking problem associated with Davis Park ferry use at Sandspit Park by utilizing various parking lot locations along West Ave. north of Division St. Promote a land shuttle service and river jitney to move people between the parking areas, FINS visitation center/ferry terminal and the existing Davis Park ferry terminal at Sandspit Park.

Recommendation No. 23 - Consider establishing a riverfront walkway on the FINS property with potential linkage to the Southeast River Segment.

Recommendation No. 24 - Improve public access to the River by constructing piers located at street-end right-of-ways (Mulford St. and Laurel St.). Couple this improvement with any needed bulkhead repair and stormwater runoff controls.

Recommendation No. 25 - Improve/add signs (logo, colors, image); extend sidewalks; and control parking for better traffic flow and safety to the ferries south of Division St., and to other facilities in the PRMC.

SOUTHEAST RIVER SEGMENT:

The Southeast River Segment includes the area from the east bank of the Patchogue River to Cedar Ave. on the east and from Laurel St. on the north to Brightwood St. on the south. Most of the shoreline in this segment is occupied by the following water-related uses: administrative offices of FINS, a marine upholstery business and two marinas. Residential use exists throughout the rest of the segment with the exception of a contractors equipment yard and 18 vacant residentially zoned parcels.

Implementation of the PRMC Plan recommendations will result in more intensive water-related use along the shore from Laurel St. to Campbell St. The relocation of the FINS administrative office to the Northeast segment will provide an opportunity for private development on a site with 200 feet of shoreline that appears ideal for a restaurant with transient docking. Parcels to the immediate south should also be devoted to more intensive water-related uses with off-street parking on vacant and/or industrial parcels. Public access to the river will be provided by a pier at Campbell St. and a small park at the terminus of Brightwood St.

Recommendation No. 26 - Promote the location of water-related uses on waterfront parcels from Laurel St. to Campbell St.

Recommendation No. 27 - Improve public access to the River at street-ends.

Recommendation No. 28 - In this segment discourage the use of private commercial property for parking lots to accommodate users of the Davis Park ferry.

EAST BAY SHORELINE SEGMENT:

Recreation and open space is predominant in the East Bay Shoreline Segment, which includes the area along the bay south of Brightwood St., Maiden Lane and Smith St. from the Town of Brookhaven Sandspit Park on the west to Bay Ave. on the east. The level of activity associated with this use is intense. The Sandspit Park provides access to and parking for the Davis Park ferry terminal, and also includes a bathing beach and public marina. Village of Patchogue parks include a

bathing beach/swimming pool facility; the Mascot Dock and marina; and Shorefront Park (ball fields and band shell). Two water-related restaurants are located in this segment.

The vision for this segment focuses on the provision of enhanced facilities for public enjoyment and access to the waterfront. In the future, the Sandspit Park bathing beach will attract more users since the capacity of the beach will be enhanced by periodic sand nourishment. Structures to be built at/near the mouth of the Patchogue River (a lighthouse aid to navigation structure on the east jetty, which in itself should be reconstructed; and a sand retention structure) will provide both appearance and functional benefits to the south entrance of the PRMC. More amenities for Sandspit Park will be possible in the future when available parking facilities near the gateway to the PRMC in the Northeast River Segment are connected with the ferry terminal by a shuttle service. Street-end piers are also envisioned as points of interest for people moving between the Sandspit Park and Village parks to the east. It is also foreseeable that a structural solution to reduce wave action will enable the capacity of the Mascot Dock marina to be increased, and the construction of access facilities along the immediate waterfront at Shorefront Park.

Recommendation No. 29 - Improve the bathing beach at Sandspit Park.

Recommendation No. 30 - Improve the entrance to Patchogue River.

Recommendation No. 31 - Alleviate the vehicle parking problem and change the use pattern at Sandspit Park.

Recommendation No. 32 - Evaluate the feasibility of increasing boat docking capacity at Mascot Dock.

Recommendation No. 33 - Improve public access to Patchogue Bay at street-ends and at Shorefront Park.

AREAWIDE SURFACE WATER QUALITY:

Protection of marine surface water quality in the Patchogue River and Patchogue Bay is a prerequisite for attaining the potential of the PRMC as a provider of water-dependent/water-enhanced economic activity and recreational opportunity in the South Shore Estuary Reserve. Having waterways that are swimmable, fishable and aesthetically pleasing is essential to any revitalization effort.

The provision of sanitary sewer service with advanced treatment capability throughout the entire PRMC is the priority recommendation pertaining to environmental quality in this ***Plan***. This action will remove constraints to future expansion of water-related uses in the Southeast, Northeast, Northwest and Southwest River Segments, and accommodate increased usage of facilities along the bayfront. It will also relieve a burden on area homeowners now serviced by on-site sanitary systems. With the added benefit of mitigating non-point sources of pollution at priority locations through implementation of Best Management Practices (BMPs), pollutant loadings to surface waters will be

reduced over time, and aquatic habitat improvements will accrue to the broader Great South Bay region.

Recommendation No 34 - Expand the Village of Patchogue Sewer District to include the PRMC, and upgrade the Village STP to tertiary treatment.

Recommendation No. 35 - Determine the magnitude of various non-point sources of contamination to the Patchogue River and adjacent bay, and formulate a response plan to reduce contaminant loadings at priority locations.

ZONING:

The type, intensity and location of future development in a municipality is determined by its zoning code and map. Recommendations have been proposed in this ***Plan*** for coordinated site development, maintaining existing water-related uses and encouraging the addition of new water-related development on both vacant and developed parcels. Amendments to the Village of Patchogue zoning code and map with specific reference to the Industrial E zoning category in the study area are needed to assist in the implementation of these recommendations.

Recommendation No. 36 - Amend the Village of Patchogue zoning code and map, as appropriate, to preserve existing water-related uses, attract new water-related development and prevent the expansion of high density residential use along/near the waterfront in the PRMC.

Patchogue River Navigation Channel Dredging Recommendations

The viability of navigation in the Patchogue River is imperilled by shoaling that has occurred over a period of more than 30 years. Inadequate depths in portions of the channel have caused unsafe conditions for waterborne commerce (ferry operations, freight and waste haulage, boatyard vessel repair) and recreational boating interests. The ability of the PRMC to attract and retain water-dependent/water-related uses of regional significance rests upon the availability of adequate navigation infrastructure, i.e., a navigation channel that provides deep water access to the head of navigation in the River.

What is the vision for navigation interests embodied in the PRMC Plan? This vision reflects conditions that would result from the implementation of the recommendations described in this section. In the future, the navigation channel in Patchogue River is adequately maintained on a regular basis by the Federal Government/U.S. Army Corps of Engineers under the authorized Great South Bay Navigation Project. Within limits determined by technical and environmental constraints, dredged material from channel maintenance is used in a productive fashion to fill upland sites for private water-related development and public facility improvement, and to nourish beach and shoreline areas at appropriate locations. Water-related businesses are attracted to the PRMC, given this assured deep water access, and the enhanced reputation of the PRMC as a provider of essential services. To achieve economies of scale, private dredging activity at facilities along the River is conducted in coordination with the large scale maintenance dredging conducted periodically by the Corps of Engineers.

Recommendation No. 1 - The Village of Patchogue, Town of Brookhaven, Suffolk County and State of New York agencies should work cooperatively with the U.S. Army Corps of Engineers in its effort to implement required maintenance dredging activity as soon as possible to improve the navigation channel in the Patchogue River under the federally-authorized Great South Bay Navigation Project.

The Patchogue River channel was last dredged by the Corps in 1967, as described in the **Infrastructure - Great South Bay Federal Navigation Project** section of this report. Significant shoaling has occurred over the last three decades, which is now imperiling navigation. **The long-term viability of the PRMC as a focal point for water-dependent/water-enhanced activity in the SSER depends upon the availability of a safe and adequate channel in Patchogue River that provides access to business and recreational interests along the shore.**

Oil tanker traffic to terminals on the Patchogue River in the past has been cited as a justification for Federal participation in channel maintenance (U.S. Army Corps of Engineers New York District 1975). This traffic no longer occurs. Uses of the river have changed over the years. Today, the river is the focal point of the PRMC, and adequate channel depths are a necessity for the support of numerous water-dependent/water-enhanced uses located there, including two ferry terminals, over a dozen boatyards/marinas, restaurants, marine contractors, the Fire Island National Seashore, etc. (See the **Existing Land Use** and **Water-dependent and Water-enhanced Uses** sections of this report.) **It has been determined in this plan that on the order of 1,250 boats of**

various types use facilities in the study area, and that the ferries provide service for 250,000 to 300,000 passengers each year.

The earliest that the Corps of Engineers could dredge the River is during the spring of the year 2000. This timeframe depends upon the successful resolution of dredging design and environmental constraint issues.

Recommendation No. 2 - Evaluate all options for the disposal of sediment dredged from the River.

Dredging of the navigation channel in Patchogue River will require resolution of the issue of dredged material disposal. The method and location for disposal will be subject to investigation by the New York District in 1999, and will ultimately be determined based on analysis of the volume and quality (grain size distribution and chemical constituents) of the material to be dredged. (Preliminary estimates indicate that maintenance dredging will remove 80,000 cubic yards of material from the channel. As a general rule of thumb, a dredged material disposal site of 10 acres would be required to accommodate this volume, if filled to a depth of 8 feet [David N. Rackmales pers. comm.]). In this regard, **the potential use of dredged material as fill at sites along the river that could be subject to development or re-use should be evaluated**. **The feasibility of placing fill on the properties owned by Amerada Hess should be investigated. (**Hess has indicated that it is willing to discuss the potential fill of its property, if such action could enhance the value of same [John Rockwell pers. comm.]).**There is also the possibility that the deep area adjacent to the former oil terminal property could be filled to a more shallow depth, thus providing a potential benefit to water quality by improving circulation in the River.** A survey of water depth in this area would be needed to determine its capacity for receiving fill. The existence of deep water here could act as a constraint to the construction of new bulkhead and dock facilities in conjunction with re-development of the adjacent upland site.

Other sites along Patchogue Bay offer potential for the placement of dredged sediment. These **include the Town of Brookhaven undeveloped park parcels at the foot of River Ave., the beach and shoreline area between River Ave. and the west jetty at the entrance of the River; and the bathing beach located in the Town of Brookhaven Sandspit park.** The feasibility and availability of using these sites remains to be determined.

Recommendation No. 3 - All interested parties should work to assure that the Corps of Engineers continues to assume responsibility for maintaining the Patchogue River spur of the Great South Bay Navigation Project in the future.

The Village of Patchogue should not be placed in a situation similar to that of the Village of Sag Harbor. In this village, the main navigation channel that was originally constructed by the Corps of Engineers in 1937 was de-authorized in 1992 as a Corps' responsibility (New York State Dept.

of State Division of Coastal Resources and Waterfront Revitalization 1998b). De-authorization means that some other party is now responsible for dredging the Sag Harbor channel in the future. To avoid this type of impact on the PRMC, **the entire Great South Bay Navigation Project, including the channel in Patchogue River, should remain an authorized Federal project.**

Recommendation No. 4 - Determine the need for additional dredging in the Patchogue River to provide access to existing and proposed water-related uses.

A more detailed condition survey of the existing depths in the River will be conducted by the Corps of Engineers as part of the process now underway to develop the specifications of the pending dredging project. This survey may provide additional coverage of those areas in the River that are outside the boundaries of the authorized channel. Other surveys in areas occupied by boating-related facilities will be required to determine the need for any additional dredging necessary to access existing river-side facilities, and any future development as proposed in this plan.

To the extent that scheduling allows, any necessary small dredging projects associated with operation of private marinas and boatyards, and public facilities as well, should be coordinated with the conduct of Patchogue River channel dredging by the Corps of Engineers. Possible economies of scale can be realized in terms of surveys, sediment testing, dredging and material placement if these efforts are coordinated with each entity paying its own share.

Recommendation No. 5 - Determine the regulatory significance of the historic Corps of Engineers pier/bulkhead line in Patchogue River.

In response to a question raised at the October 15, 1998 Patchogue Riverfront Advisory Committee meeting, the staff of the Suffolk County Dept. of Planning asked the U.S. Army Corps of Engineers New York District to determine whether or not a pier/bulkhead line had been established for the Patchogue River. In response to this request, the New York District provided copies of sections from several historical surveys that show the authorized boundaries of the navigation channel, water depths, shoreline features, etc. (David N. Rackmales pers. comm.). The survey maps from 1915, 1933, 1936 and 1960 show the boundaries of a pierhead and bulkhead line that is located relatively close to the east and west shorelines of the River. It appears that this line was approved on July 16, 1921. Survey maps dated 1987 and 1989 do not show the pierhead and bulkhead line. However, scores of survey maps for specific parcels of property located on both sides of the River show the pier/bulkhead line in relation to existing bulkheads and parcel boundaries (Sharon N. Remmer pers. comm.).

The question of the regulatory relevance of any established pier/bulkhead line in the Patchogue River remains open. It appears that some dock structures built along the shores of the River during the last 20 to 30 years are located seaward/beyond the boundary of the pierhead and bulkhead line that is shown on the historical surveys. Does this historical pier/bulkhead line, or perhaps any recent amendment to it, have regulatory significance today? **More research and a policy**

determination from the U.S. Army Corps of Engineers are needed to resolve this question with respect to **how any established pier/bulkhead line impacts the location of future dock, pier and bulkhead construction in the River under Federal permit authority.**

West Bay Shoreline Segment Recommendations

The West Bay Shoreline Segment includes that portion of the study area along Patchogue Bay from River Ave. on the west to the west jetty at the entrance of the Patchogue River on the east; and the area south of Price St., but excluding the commercial marina parcels on the River. The area of this segment is 13.0 acres, and it has 0.38 miles of shoreline along the bay and river. Medium and high density residential use is dominate in this segment. There are six small vacant parcels located here, three of which are owned by Suffolk County. The Town of Brookhaven owns two undeveloped park parcels at the end of River Ave. along the east shore of Tuthills Creek.

The future vision for this segment incorporates continued residential use, public infrastructure upgrade and enhanced recreational opportunity. The Village of Patchogue should acquire access to the Town parcels and establish/operate a waterfront park accessible from River Ave. that includes off-street parking and a boat ramp on Tuthills Creek. Suitable material from channel maintenance activity could be used to nourish the beach along the shoreline of Patchogue Bay, and thus limit the potential for flood damage to upland structures. Limited passive use of the immediate shoreline area of this beach can be accommodated via access from the proposed Village park. Local street flooding could be reduced in the future if stormwater can be recharged on shorefront properties that the Village should acquire from Suffolk County for this purpose. It is also envisioned that the appearance of the entire waterfront in this segment should be upgraded by landscaping at the Village park, and by the construction of a lighthouse navigation aid located on the west jetty, which would greet transient boaters, visitors and local residents as they enter the PRMC.

Recommendation No. 6 - The Village of Patchogue should acquire control over the underutilized Town of Brookhaven parcels at the foot of River Ave. and develop a waterfront park with boating access facilities for Village residents.

The Town of Brookhaven has two underutilized parcels located near the foot of River Ave. along the east bank of Tuthills Creek. The northernmost parcel (SCTM# 0204-018.00-01.00-008.008) is 1.9 acres, and has frontage on the west side of River Ave. The parcel to the south (SCTM# 0204-021.00-01.00-001.000) is 4.5 acres, and is located at the mouth of Tuthills Creek south of the River Ave./Sunset Lane intersection. About half of this latter parcel consists of underwater land in Patchogue Bay. **These parcels should be improved and administered as a park facility for Village of Patchogue residents.** To accomplish this, ownership of the parcels could be transferred from the Town to the Village, or the Village could enter into a long-term management agreement with the Town, under which the Village would be responsible for site improvements, maintenance, operation and security.

Site improvements could include a **boat ramp** on Tuthills Creek with accompanying **vehicle/trailer parking, aesthetic enhancements**, and **off-street vehicle parking** to accommodate access to the Patchogue Bay waterfront for passive recreational activity. Any site plan for this proposed Village park must incorporate **on-site stormwater retention**, appropriate shoreline **setbacks** and adequate **buffers** for nearby residences. The soils map for Suffolk County shows that

the parcels have been previously disturbed by filling with dredged material (U.S. Dept. of Agriculture 1975). The 1996 aerial photograph used for the base of the ***Condition Survey - Great South Bay Federal Navigation Project Vicinity of Patchogue*** map shows recent use of the area for the disposal of dredged material within a temporary sand dyke structure.

Recommendation No. 7 - Nourish the beach and immediate shoreline area along Patchogue Bay between Tuthills Creek and the entrance to Patchogue River.

The Corps of Engineers has indicated that on the order of 80,000 cubic yards of sediment may be dredged from a portion of the Great South Bay Navigation Project channel that is located seaward of the entrance to the Patchogue River. If found to be of suitable grain size, etc., this material could be used to nourish the beach and immediate shoreline area from the entrance to Tuthills Creek east to the River. The development of the proposed Village park mentioned above could benefit from fill placement and re-grading in accord with the improvement plan for the site.

As indicated in the **Environmental Resources - Tidal Floodplain** section of this study, the shoreline area along Patchogue Bay is in the FIRM V Zone, where the flood elevation of 8 feet above NGVD associated with a 100-year storm event is sufficient to support breaking waves and floodwaters with high velocity. **Beach elevation and width** along properties to the east of the park **could be increased by nourishment**, thus **mitigating the potential flood hazard to residential properties** to the north of the beach during severe storm events. (There is also the potential for flood insurance premium rate reductions.) Prior to conduct of any beach nourishment project, an attempt should be made to ascertain sediment transport rates and pathways in this area to determine if placement of material will have adverse impacts on the navigation channels in the River and Tuthills Creek.

Recommendation No. 8 - Remove existing impediments to beach access.

As indicated in the **Inventory of Shoreline Hardening Structures** section of this study, no shore parallel structures, e.g., bulkheads, were detected along the shoreline between the jetty at Tuthills Creek and the entrance to Patchogue River. This 1,200 foot shoreline along Patchogue Bay is primarily in a natural condition, in contrast to the stabilized shore found along most of the PRMC study area.

Public access to and along the bay shoreline below mean high water should be encouraged in this study area segment. Access is currently restricted by a fence along the boundary between the southernmost Town of Brookhaven parcel and the residentially developed parcel to the immediate east. This **fence**, which is shown in Photograph 2, extends beyond the intertidal zone out into the water. This **obstruction should be removed**. (It is noted that fencing along residential property boundaries further to the east does not extend into the water, hence access along this portion

Photograph 2 - Fence that impedes access along the shore of Patchogue Bay.

of the shore is not obstructed.)

Recommendation No. 9 - Utilize Suffolk County-owned waterfront parcels for stormwater runoff retention and open space purposes.

Suffolk County owns three vacant parcels with frontage on Sunset Lane. These three waterfront parcels (SCTM# 0204-022.00-01.00-004.000: 0.20 acres; 0204-022.00-01.00-010.000: 0.25 acres; and 0204-022.00-01.00-014.001: 0.26 acres) were obtained through tax lien procedures. Suffolk County should **transfer ownership** of these parcels **to the Village** of Patchogue in accordance with Section 72-h of New York State General Municipal Law. **Use** of these parcels should be **restricted to the provision of stormwater runoff retention/recharge** to alleviate street flooding problems in the vicinity of River Ave., Sunset Lane and Mapes Ave., and **open space**.

Recommendation No. 10 - Improve the entrance to Patchogue River.

The entrance to the Patchogue River is shown in Photograph 3. The west jetty at the entrance is maintained by the Corps of Engineers and is in good condition. The aide to navigation on the west jetty consists of a green flashing light at 21 feet above mean high water on a steel frame rectangular structure. This aid to navigation is maintained by the U.S. Coast Guard (Jeffrey Kassner pers. comm.). **A more prominent and attractive aid to navigation at the west jetty/entrance to Patchogue River should be constructed.** A **small lighthouse** or similar structure **could provide a visual point of reference to the River and PRMC** for local boaters and transient visitors alike. Figures 1 and 2 show suggested improvements, and a potential design concept, respectively. (See East Bay Shoreline Segment Recommendation No. 30 pertaining to the east jetty.)

The appearance of the River in this segment can also be improved by removing shoreline debris. A pile of concrete rubble exists on and adjacent to the rock seawall, i.e., landward extension of the west jetty, diagonally opposite the Davis Park ferry terminal. This **concrete rubble**, which abuts a private residential property, **should be removed**. The responsible party(ies) to implement this recommendation remains to be determined.

Photograph 3 - Jetties and aid to navigation structures at the entrance to Patchogue River.

Figure 1 - Suggested improvements to entrance of the Patchogue River

Figure 2 - Detailed design concept for aid to navigation structure

Southwest River Segment Recommendations

The Southwest River Segment includes the 41.8 acres along the west side of the River north of the West Bay Shoreline Segment to Brandsford St. The River shoreline in this segment is 0.7 miles long, and the majority of it is intensively used. There are five major boating-related uses and two high density multi-family residential complexes in the segment. Three large vacant parcels constitute a significant portion of the land available for development in the entire PRMC study area. Two of these parcels with a total area of 6.7 acres and 401 feet of frontage on the River, are owned by the Amerada Hess Corp. They present a major opportunity location for the expansion of water-dependent/water-enhanced use on the River. An oil spill on one of the parcels presents an obstacle that must be resolved for development to proceed.

There are three priorities for the future in this segment: 1. the expansion of water-related uses north of Crescent St.; 2. the preservation of existing water-related uses; and 3. the encouragement of large lot upscale residential development in the area south of Crescent St. To achieve these priorities, there should be an increased focus by the State of New York and the Amerada Hess Corp. to complete remediation of the oil spill. The Village should take an active role in achieving this end, and in promoting, planning and controlling the development of the entire 6.7 acre site for water-related use. Any attempt to increase high density multi-family residential use in the Southwest River Segment should be thwarted by the Village through amendment of its zoning code.

Recommendation No. 11 - The Village of Patchogue should take action to preserve existing water-dependent/water-enhanced uses and encourage the expansion of such uses on available property. There should be no increase or expansion of high density multi-family residential use in this segment.

In accord with the goals of this plan, the Village of Patchogue should make it a **high priority to maintain the existing water-related use pattern** in the segment, and **encourage the development of new water-related uses** on two parcels of vacant land owned by the Amerada Hess Corp. north of Crescent St. Appropriate **changes** in the Village **zoning code** should be made to achieve these goals, and to **prevent any expansion of high density multi-family residential use** either through the re-development of parcels now used for water-related uses, or the development of vacant land, including the large vacant parcel south of Crescent St. These changes are discussed in the **Zoning Recommendations** section. Over the long-term, residential density in the area south of Crescent St. should be reduced.

Recommendation No. 12 - Accelerate the remediation of the oil spill at the Amerada Hess terminal property.

As discussed in the **Land Available for Development or Re-use** section of this report, the two vacant parcels (SCTM# 0204-019.00-01.00-004.000: 4.2 acres; and 0204-019.00-01.00-003.000: 2.5 acres) owned by Amerada Hess Corp. along the waterfront of the west side of Patchogue River offer great potential for future water-dependent/water-enhanced use. They are

significant because of their size and location given the limited scope of other sites suitable for development/re-use that are proximate to the shore in the study area. As discussed in the **Oil Spill Remediation** section, an oil spill at the 4.2 acre site, which is shown in Photograph 4, is a constraint to potential future use. Given this significance and situation, additional information on oil spill history and status of remediation to cleanup residual contamination, as obtained from NYSDEC Region 1, Division of Spill Management, is included below (Nick Acampora pers. comm.).

- Operations at the former Patchogue Oil Terminal ended in September 1981. All of the storage tanks at the terminal were legally abandoned and removed as of January 1, 1985.

- In November 1988, seepage of petroleum product through the bulkhead at the terminal site to surface waters was detected (NYSDEC spill # 88-06510). Residues of No. 2 oil and/or diesel fuel are present dissolved in groundwater and floating on the water table as liquid phase hydrocarbons (LPH).

- Amerada Hess has been recovering hydrocarbons at the site since June 1993 (45.75 gallons of LPH recovered, as of November 1998).

- Hess installed a slurry wall (excavation filled with clay) to keep product from migrating off-site.

- Hess entered into a Stipulation Agreement with NYSDEC to remediate the spill, effective December 2, 1997. Hess has not provided, nor is it required to provide, an estimate of the cost and time frame needed to remediate the spill to NYSDEC. The Corrective Action Plan referred to in the Stipulation Agreement is not a single document; it has undergone change based on experience at the site, and will be subject to additional amendments.

- Hess proposed use of a bioventing system in 1995. This system was later installed and was on-line as of December 15, 1997. The bioventing system, which pulls air into the soil via a system of lateral pipes (30 inches below grade) connected to a blower, is designed to enhance the biological degradation of hydrocarbons in the soil and at the surface of the water table.

- Monthly monitoring of the bioventing system and wells is required now. If the bioventing system goes off-line, due to movement of groundwater table, then it has to be turned back on manually. Manual bailing of LPH from monitoring wells occurs monthly; absorbents are also used.

- According to the March 1, 1999 semi-annual sampling report, LPH was found at 3 wells on-site; the maximum thickness of floating product was observed to be 0.51 feet. From July - December, 1998, 6.6 gallons of product were recovered by manual dipping from wells.

- No LPH has been detected off-site. No contamination has been detected on the wooded

Photograph 4 - Former oil terminal property owned by Amerada Hess Corporation in the Southwest River Segment.

parcel adjacent and to the north of the terminal parcel.

- According to the March 19, 1999 report evaluating the bioventing system, migration of dissolved product in groundwater off-site to the south has been minimal. The bioventing system has not functioned well because of fluctuations of the water table caused by tidal effects (some pipes have filled with water). "Concentrations of hydrocarbons dissolved in water show no clear improvement since monitoring began in 1993."

- Hess is planning to conduct tests of enhanced fluid recovery (EFR) technology (use of a vacuum truck) to remove LPH. The effectiveness of EFR at this site remains to be determined. If it is not effective, other technology can be used to augment natural attenuation "depending on intentions for land use."

- According to NYSDEC staff, the Hess site is not near closure at this time. Given current technology and continuation of activities, clean-up of the site could conceivably occur in a 3 to 5 year time frame. Restrictions on future use of site, if any, have not been determined. Future development of the site could occur so long as it does not impede implementation of the clean-up plan (Nick Acampora pers. comm.).

The Amerada Hess Corp. was contacted by Suffolk County Planning Department staff to determine if it had any plans for development or disposal of the parcels. On April 9, 1999 a verbal response was received from Mr. John Rockwell (Real Estate Division, Amerada Hess Corporation, 1 Hess Plaza, Woodbridge, NJ 07095-0961; phone # 732.750.6346). Amerada Hess has no development plans for the former Patchogue Oil Terminal properties, and is going to initiate an active marketing campaign to sell the parcels. No price for the properties was made available, as a new appraisal will be obtained. The bulk of the site is zoned E Industrial, but portions are also zoned A Residence and D2 Business. According to Hess, development of the site for residential purposes may maximize the sale price for the parcels (John Rockwell pers. comm.).

Hess will market the site "as is." In the contract for sale of the properties, Hess will indemnify the buyer with respect to remediation of the oil spill. Hess will remain responsible for spill remediation actions after any sale, and as such, the sale contract will contain provisions to allow access for clean-up activities. Infrastructure on-site for clean-up will be re-designed as necessary to accommodate new development.

It is in the interest of the Village of Patchogue and the PRMC to accelerate the pace of oil spill remediation at the Hess terminal site. The **Village should encourage** the **NYSDEC** to **devote resources to achieve this end** as it negotiates with Amerada Hess and monitors implementation of the Stipulation Agreement. If the rate of progress is unacceptable, the **Village should investigate and consider** the option of **acquiring the properties** and **pursuing mitigation under the NYSDEC Brownfields Program**. Funding is available to municipalities under the Clean Water/Clean Air Bond Act of 1996 to remediate brownfield properties in accord with NYSDEC regulations (6 NYCRR Subpart 375.4 - Environmental Restoration Projects). Under this option, the

Village would assume temporary control of both sites. **After spill clean-up, the Village should sell the properties for private development** in accord with the two recommendations that follow.

Recommendation No. 13 - The Amerada Hess properties should be developed for water-dependent/water-enhanced uses.

The **two vacant parcels** (SCTM# 0204-019.00-01.00-004.000: 4.2 acres; and 0204-019.00-01.00-003.000: 2.5 acres) owned by Amerada Hess **should be developed in a coordinated fashion for water-dependent/water-enhanced use**. The combined **6.7 acres** of property with **401 feet of waterfront** on Patchogue River and **deep water access could accommodate:** 1. a **marina/water-related retail complex** (transient boat slips/facilities; boat slip rental; restaurant; water-related retail/boutiques; boat storage; parking); 2. a **boatel/resort marina complex,** such as illustrated in Figure 3; **and/or** 3. a **marine transportation center** (transient boat slips/facilities; ferry/water taxi/excursion boat; parking).

Currently, two zoning categories apply to the wooded 2.5 acre parcel (A Residence and E Industrial); and three categories apply to the 4.2 acre former terminal parcel (A Residence, D2 Business and E Industrial) as shown on the ***Existing Zoning*** map. As the first step in implementing this recommendation, the **Village** of Patchogue **should amend the zoning of these parcels so that one category applies to both in their entirety**. This category could be either GW General Waterfront or Industrial E as amended, and as described in the **Zoning Recommendations** section.

Recommendation No. 14 - If the Village of Patchogue can not obtain access to Town of Brookhaven property at the end of River Ave. for park development, then it should construct a boat ramp on the Patchogue River.

The primary option for establishing a Village boat ramp facility was described in a recommendation for the West Bay Shoreline Segment. Should the Town of Brookhaven park parcels not become available for the proposed Village park and boat ramp at Tuthills Creek, then, **as a second option, the Village should acquire a small portion** (+/- 10 %) of the **Amerada Hess property** and **construct a boat ramp facility** that provides access to the Patchogue River.

Recommendation No. 15 - The Village of Patchogue should encourage the development of large lot, low density residential use on available land located south of Crescent St.

At the present time, there are five vacant parcels located east of River Ave. between Crescent St. and Sunset Lane available for residential development. One of these parcels (SCTM# 0204-019.00-02.00-012.001) is 3.2 acres. Over time, **it would be desirable to see up-scale, large lot residential use** in the area **along the east side of River Ave. south of Crescent St.**

Figure 3 - Conceptual illustration of a boatel/resort marina complex for the Hess properties

Northwest River Segment

The Northwest River Segment includes the land area along the west side of the Patchogue River to River Ave on the west and from Division St. on the north to Bransford St. on the south. This segment is 17.8 acres in area and has 0.49 miles of shoreline. The segment is characterized by a variety of both water-related and non-water-related commercial uses, as well as an assortment of residential homes and a major industrial use, U.S. Tape. There is little vacant land in this segment.

The vision for this segment does not entail any major changes in the existing land use pattern, but focuses on enhancing existing underutilized parcels. This area should contain primarily water-related uses. Existing water-related uses should be maintained, while deteriorated or underutilized properties should be redeveloped for water-related uses. Along Division St. a small hotel with restaurant and boat slips would be appropriate, as there is good vehicular access and waterfront property.

Recommendation No. 16 - The Village of Patchogue should take action to preserve existing water-dependent/water-enhanced uses and encourage the expansion of such uses on available property. There should be no new high density multi-family residential development in this segment.

This study area segment contains a variety of both water-related and non-water-related commercial uses, as well as an assortment of residential homes and a major industrial use (U.S. Tape). There is little vacant land in this segment. However, in the future, some redevelopment of the residential and non-water-related commercial parcels may occur. In accord with the goals of this plan, the Village of Patchogue should make it a **high priority to maintain the existing water-related uses, and encourage the development of new water-related uses** in this segment if redevelopment occurs. Appropriate **changes** in the Village **zoning code** should be made to achieve these goals, and to **prevent any new construction of high density multi-family residential**. These changes are discussed in the **Zoning Recommendations** section.

Recommendation No. 17 - Encourage redevelopment of deteriorated/underutilized former boatyard and marina properties.

Three contiguous parcels located south of Noxon St. between River Ave. and the Patchogue River offer an opportunity for water-related development. The three parcels (SCTM# 0204-016.00-01.00-014.000; 0204-016.00-01.00-018.002; and 0204-016.00-01.00-018.003) that comprise the site total approximately 2.2 acres and are under common ownership. The site is zoned Industrial E.

The U.S. Tape Company, which manufactures specialty tape measures, is located immediately south of the subject site. A marina and a variety of commercial uses lie directly north of the site. Residential properties exist between River Ave. and the site. Vehicles can gain access to the site either from River Ave. or from the narrow side streets (Noxon St. and Baker Place) that connect with River Ave.

The site is currently underutilized and contains deteriorated buildings. Although the site was developed as a boatyard/marina, it has not been used for a number of years and now appears derelict. The bulkheading and boatyard buildings, including a large sail loft building, have not been maintained. Photograph 5 shows the former Connelly boatyard building, which is located on the southernmost parcel. A metal building that may be used for repairing automobiles is also situated on this parcel. The sail loft (formerly Brown's Marina) on the northernmost parcel is shown in Photograph 6. The parcel in the middle of the site contains an older residential structure. Several boats in poor condition are tied up to the bulkheading.

In the past, the Village has removed some sunken boats in the River and attached liens on properties for the cost of removal, if boat owners fail to act after proper notification. Such efforts should be continued. **The Village should strive to eliminate the waterfront eyesores associated with this site,** such as sunken boats, rotted pilings and debris. The site has easy access from River Ave., and **the Village should encourage the redevelopment of the site as a marina, marina/boatyard, and/or restaurant**.

Recommendation No. 18 - Encourage resort hotel/restaurant use with transient boating facilities in the area along Division St., possibly through land assemblage from the River west to River Ave., and south to Underwood St.

In response to a more attractive waterfront, improvements to the FINS terminal and other progress, tourism in the PRMC may increase. For this reason, there will be a greater need for lodging facilities near the Patchogue River. In 1998, the Suffolk County Planning Commission released a report titled *Analysis of Hotels and Motels, Suffolk County, New York.* One of the conclusions of this report stated that "**communities with harbors and downtown districts which lack nearby accommodations might also benefit from small new lodging facilities**. Examples of such communities include ... Patchogue." **The construction of an additional lodging facility in the PRMC should be encouraged**.

The Suffolk County Planning Commission report also stated that "communities with good harbors and extensive facilities for boaters and fishers require some overnight accommodations." The nearest adequate lodging facilities to the PRMC are the nine room Blue Point Motor Lodge at 167 Middle Road in Blue Point, and the 23 room Econolodge at 479 W. Main Street in Patchogue. Neither of these establishments are close enough to the Patchogue River to **serve boaters who might use the Patchogue River**.

Division St. west of the River is a logical location for a new restaurant and new lodging in the area. This area is adjacent to the River, making it **accessible to boaters and marine-recreation tourists**. This area at the northern boundary of the study area is also **easily accessible from major roads** such as West Main St. (state route 27A) and Patchogue-Holbrook Road (county road 19). The area is also close to the FINS terminal, and the proposed visitor center at the FINS

Photograph 5 - Deteriorated Connelly boatyard facility on site having water-related development potential.

Photograph 6 - Old sail loft structure at the former Brown's Marina north of Connelly boatyard.

site. In order to accommodate a new lodging facility in this segment, **the zoning of the twelve parcels** located between River Ave. and the Patchogue River from Division St. south to Underwood St. **should be changed to either General Waterfront or Industrial E as amended**, and as described in the **Zoning Recommendations** section. The following SCTM parcels are affected by this recommendation: 0204-012.00-08.00-020.003; 0204-012.00-08.00-021.000; 0204-012.00-08.00-022.001; 0204-013.00-08.00-001.001; 0204-013.00-08.00-002.001; 0204-013.00-08.00-003.001; 0204-013.00-08.00-004.001; 0204-013.0008.00-005.000; 0204-013.00-08.00-006.000; 0204-013.00-08.00-007.001; 0204-013.00-08.00-008.000; and 0204-013.00-08.00-009.000.

Northeast River Segment Recommendations

The Northeast River Segment includes the area along the east side of the River from Division St. on the north to Laurel St. on the south. It is bordered to the east by Cedar Ave. The size of this segment is 54.5 acres and its shoreline length is 0.61 miles. The predominant, water-dependent shoreline uses are: the FINS ferry terminal and maintenance facility; a number of small water-related businesses sharing three buildings located south of the FINS complex; a private ferry maintenance facility; and a marina with a restaurant. One non-water dependent industrial use is located on the River (fuel oil distributor). There are five residential structures along the River. Other uses in this segment include single family residential and six commercial/industrial uses along Division St. and West Ave., one being a bowling alley at the corner of these two roadways.

The Northeast River Segment is strategically located at the corner of Division St. and West Ave. where the "entrance" to the PRMC begins. The bowling alley site is an important focal point to the River, and thereby its future use is critical to the creation of a visual gateway to the riverfront in association with the FINS properties.

The Village of Patchogue Sewer District was recently expanded to include the area along West Ave., north of Laurel St. This is important to the growth of water-dependent uses in this segment, especially the establishment of a visitor center and maritime museum at the bowling alley site and the FINS ferry facility. A visual connection to the River at this location with related maritime activities will draw attention to Patchogue River as an important maritime center on Long Island.

Recommendation No. 19 - Encourage FINS and/or other public or private entities to acquire the bowling alley parcel to create a focal point for the Patchogue River Maritime Center concept.

This site is strategically located at the corner of Division St. and West Ave. where the "entrance" to the Patchogue River Maritime Center begins. **It is ideal to locate an archway at this site in order to establish a visual connection to the River.** In addition, **incorporation of a walkway from the LIRR station (to the east) along Division St. through the archway to the FINS ferry terminal area would be an ideal pedestrian access way to the riverfront.** The "bowling alley" property (SCTM# 0204-013.00-09.00-001.001; 2.2 acres), shown in Photograph 7, should be developed into a complex which **both enhances the River's northeastern access point and compliments the various maritime activities that are or will be located at the FINS properties.** A proposed archway and walkway for this site are shown in Figure 4.

A recent report entitled, *A Gateway for Fire Island National Seashore - Development Concepts for the Patchogue Ferry Terminal Site,* was prepared for the National Parks Service Boston Support Office and Fire Island National Seashore (Bargmann Hendrie +Archetype, Inc. 1999). It discusses various alternatives to the best use of its operations at the Ferry Terminal site. Alternative 3 under the Alternatives for Enhanced National Park Service/Fire Island National Seashore Facilities

Photograph 7 - Bowling alley on the southwest corner of the Division St./West Ave. intersection.

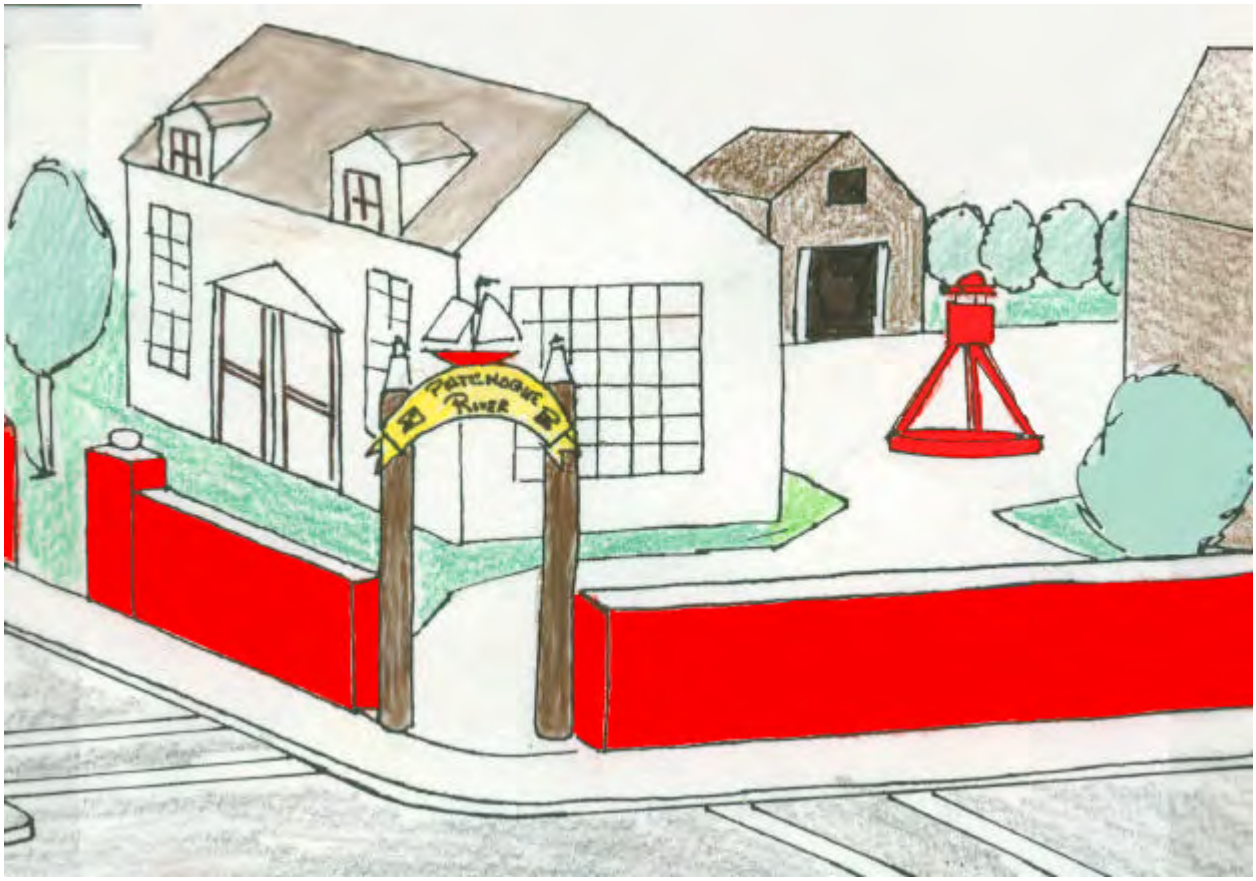


Figure 4 - Proposed archway for the PRMC at the bowlilng alley site and walk way to the FINS terminal and maritime museum

section, **discusses the scenario of acquiring the "bowling alley" site, razing the building and adapting the site for National Park Service use.** The concept of creating a gateway to the riverfront to utilize the full potential of all the FINS properties in this segment of the study area is in concert with the goals of the above-mentioned plan.

Recommendation No. 20 - Establish a visitor center and maritime-oriented educational facility at the former bowling alley site and/or the two existing FINS properties near the corner of Division St. and West Ave. with the potential for an excursion sailboat enterprise. Consolidate the FINS ferry, maintenance and administrative operations at this area.

The best uses for this gateway site would be a maritime museum, such as an extension of the Long Island Maritime Museum, which is presently located in West Sayville**; and a visitor center and educational facility that would further ecological and historic studies of the Patchogue River, the Great South Bay and Fire Island**. In addition, this site offers the potential for an excursion sailboat/boat enterprise with direct access to Patchogue River. All of the components of the gateway to the PRMC are shown in Figure 5.

The need to provide a visitor center has been a long-time goal of FINS for over 20 years and was identified again in Bargmann Hendrie +Archetype, Inc. (1999). "**Without appropriate facility development, existing and future management objectives for visitors, park service and local interests will not be achieved**." It was indicated that SUNY at Stony Brook has expressed interest in providing educational facilities at this site for ecological studies. These uses would bolster the attempts of both FINS and the Village of Patchogue to enhance and beautify the Patchogue River at this focal point. In addition, the site could also be an appropriate location for the headquarters of the South Shore Estuary Reserve Program.

Alternative 2 under the Alternatives for Enhanced National Park Service/Fire Island National Seashore Facilities section, discusses the scenario of **acquiring the Interstate Battery Building site across West Ave. to accommodate maintenance/vehicle repair that is presently being conducted on the FINS waterfront site.** This would help to alleviate non-water dependent uses on the FINS waterfront site and **pave the way to reorganizing FINS's operational facilities to better accommodate other uses, such as the visitor center and a maritime museum, as well as reconstructing/redesign of its ferry terminal**. "The FINS Ferry Terminal site is the primary operational and transportation center on Long Island for FINS."

According to Bargmann Hendrie +Archetype, Inc. (1999), all three alternatives assume that the new visitor center and ferry terminal complex will be built in the vicinity of the current ferry terminal, and could possibly include: a lobby, information desk, merchandise sales, ferry ticket sales, restrooms, ferry waiting area, multi-purpose rooms and cafe/restaurant.

Reorganizing the layout of the boat maintenance operations and warehouse with the existing configuration of the boat slips is also an important aspect of the improved use of this site. Moving

Figure 5 - Oblique view of the proposed gateway to the PRMC

FINS headquarters from the Laurel St. location and consolidating its administrative offices to the FINS Ferry Terminal site is also being strongly considered (Constantine J. Dillon pers. comm.).

The museum, possibly as an annex of the Long Island Maritime Museum, **could consist of a couple of relocated historic structures moved on site, such as a turn-of-the-century private home, a late-19th century boat/storage house, etc., which would provide for an architectural interpretation of what the Patchogue River area looked like at the turn of the century.** These structures would be joined by a brick courtyard which would feature static displays of nautical technology. This could also be connected to the riverfront walkway and the pedestrian access way from the entrance archway.

Recommendation No. 21 - Improve the appearance of the LIRR track maintenance yard located on Division St.; encourage the MTA to relocate it in the future.

Across the street, north of the "bowling alley" property is a maintenance yard for the LIRR. It is located at the northwest corner of Division St. and West Ave. and continues west to Patchogue River. **Its appearance distracts from the concept of a gateway to the Patchogue River Maritime Center. Perhaps the MTA would be interested in exploring increased, attractive parking facilities, in addition to providing public access to the River at this location, and moving its maintenance yard to a less visible location**. This location is very important to the first visual connection to the River. Utilizing this site for additional parking would be of benefit to the LIRR station needs to the east, and auxiliary parking for the visitor center, maritime museum and the FINS ferry terminal to the south of this site across Division St. The MTA has recently been involved in improving the appearance and better use of its train stations at various locations on Long Island. Dialog between the Village and the MTA should be strongly encouraged.

Recommendation No. 22 - Alleviate the parking problem associated with Davis Park ferry use at Sandspit Park by utilizing various parking lot locations along West Ave. north of Division St. Promote a land shuttle service and river jitney to move people between the parking areas, FINS visitation center/ferry terminal and the existing Davis Park ferry terminal at Sandspit Park.

The following locations should be considered for additional parking: the Village parking lot north of Division St.; the Village parking lots adjacent to the LIRR station on weekends; and the parking area on the Swezey's warehouse parcel on weekends (via an agreement with the Village). **(**See the **Parking Facilities** section of this report for parking capacity discussion.) **If a visitor center and maritime museum come to fruition on the FINS properties and the bowling alley property, additional parking will be in high demand for these uses and special events.** In addition, the Suffolk County Court building parking lot located at the corner of West Ave. and Main St. could also be considered as a link between the Main St. commercial corridor and the Patchogue River commercial corridor. **A crucial part of this expanded parking scheme is the need for a shuttle**

service that would provide a connection between the various parking lots and the ferry terminals at FINS and Sandspit Park and the visitor/museum site.

Another interesting concept is the use of a river jitney, possibly running from the FINS dock to various sites up and down the River and beyond into the Great South Bay. In the early 1900s such a river boat was in existence. Presently the Long Island Maritime Museum is restoring the *Alice V.*, a river ferry built on the Patchogue River and used to shuttle visitors to hotels along the bay shoreline and over to Fire Island until 1925 (R. Douglas Shaw pers. comm.). **This ferry boat,** shown in Photograph 8, **or a boat similar to it, would be an attraction that would bring people to various destinations along the Patchogue River and beyond.**

Recommendation No. 23 - Consider establishing a riverfront walkway on the FINS property with potential linkage to the Southeast River Segment.

A riverfront walkway could be constructed on the FINS property (shown in Photograph 9) **along the River from Division St. south past the ferry terminal and visitor center to the corner of the FINS maintenance dock.** At this point a walkway could be directed inland to the unimproved right-of-way behind the FINS maintenance operations area where it could then be directed south. According to Bargmann Hendrie +Archetype, Inc. (1999), **the FINS maintenance/trans-shipment area "is busy with barge loading and heavy trucking during the peak summer hours, and it is not possible to designate a 'public path' to future development parcels through some portion of the site without compromising safe visitor access.** Relocation of the trans-shipping function is not a viable option for the NPS (National Park Service) because of the lack of available suitable ship berths and the relative disadvantage of moving their operation to a more remote location."

Coordination of the riverfront walkway from the end of the right-a-way at Mulford St. south to the Southeast River Segment would require significant cooperation from waterfront property owners. An alternative would be to bring the walkway east to West Ave., then south to Laurel St. and then west to the River again.

Recommendation No. 24 - Improve public access to the River by constructing piers located at street-end right-of-ways (Mulford St. and Laurel St.). Couple this improvement with any needed bulkhead repair and stormwater runoff controls.

Throughout the PRMC study area there are four street-ends that could be used to provide better access to the River. **The design for these street-ends should be based on the concept of bringing visitors to the River in a safe, environmentally compatible and user-friendly fashion**. In the Northeast River Segment, public access to the River for fishing activities and other passive uses could be provided at the ends of Mulford and Laurel Streets, the latter of which is shown in Photograph 10. These facilities will primarily serve local residents since vehicular parking will be limited at these sites. A potential design concept for street-end access includes a timber dock

Photograph 8 - The *Alice V.* undergoing restoration.

Photograph 9 - The FINS ferry terminal at the head of Patchogue River.

Photograph 10 - The end of Laurel St. as it appears from the River.

extending from the street-end out into the River, as shown in Figure 6. The width of the dock would be limited so that it would not infringe on water access to adjacent private properties. **The design also includes fixtures for the dock, such as security lighting with alarms available for calling for emergency assistance, and benches. At the end of the street, trees could be planted in brick asphalt-type planters to enhance the appearance of the access way while cutting down on street noise. Along the sides of the street, hedges could be planted to give the visitor the idea of being in a small, park-like surrounding**. New security lighting should be directed away from any nearby residences so as not to adversely impact them.

An evaluation of bulkhead conditions was conducted for this study. (See the **Inventory of Shoreline Hardening Structures** section.) This information should be helpful in identifying those street-end sites that need bulkhead improvements. **In addition to addressing any necessary bulkhead improvements, the design of these access ways should also take into account improving stormwater runoff controls, where necessary, and should incorporate these structures into the design and reconstruction of these street-ends.** Presently, some of these street-end sites allow stormwater runoff to flow directly into the River. The contribution of this non-point source of pollution to the River should be evaluated and adequately addressed on a site-by-site basis. (See Areawide Surface Water Quality Recommendation No. 35.)

Recommendation No. 25 - Improve/add signs (logo, colors, image); extend sidewalks; and control parking for better traffic flow and safety to the ferries south of Division St., and to other facilities in the PRMC.

A logo for the PRMC should be designed commemorating the significance of the Patchogue River through a nautical theme, such as a lighthouse design, nautical flags, etc. The signage should first be located off-site at the corner of Sunrise Highway and Waverly Ave. depicting the logo in a large-scale size and directional arrow. The second signage location should be as you are curving to the east, south of Patchogue Lake. The next signage location should be located at the corner of Main St. and West Ave. Then, as you approach the corner of West Ave. and Division St., where an archway is proposed at the corner of the "bowling alley" site (See Recommendation No. 19.), a sign should be located to direct traffic down West Ave. to the FINS Watch Hill ferry terminal. In conjunction with this sign should be an arrow sign directing traffic to Cedar Ave. for the Davis Park ferry and Sandspit Park. At this point traffic will be directed to the corner of Division St. and Cedar Ave. where a smaller logo and arrow sign will be located to route traffic south on Cedar Ave. At the end of Cedar Ave., at Brightwood St., a smaller arrow sign should be erected for the Davis Park ferry terminal and Sandspit Park.

As traffic travels south on West Ave. to its end, there should be a smaller logo and arrow sign for the Davis Park ferry terminal and Sandspit Park at Laurel St. At the corner of Laurel and Cedar Streets, a smaller logo and arrow sign should be erected for the Davis Park ferry terminal. Picking up the signage along Cedar Ave., as described above, should now bring the traffic south on Cedar Ave. to the Davis Park ferry terminal and Sandspit Park.

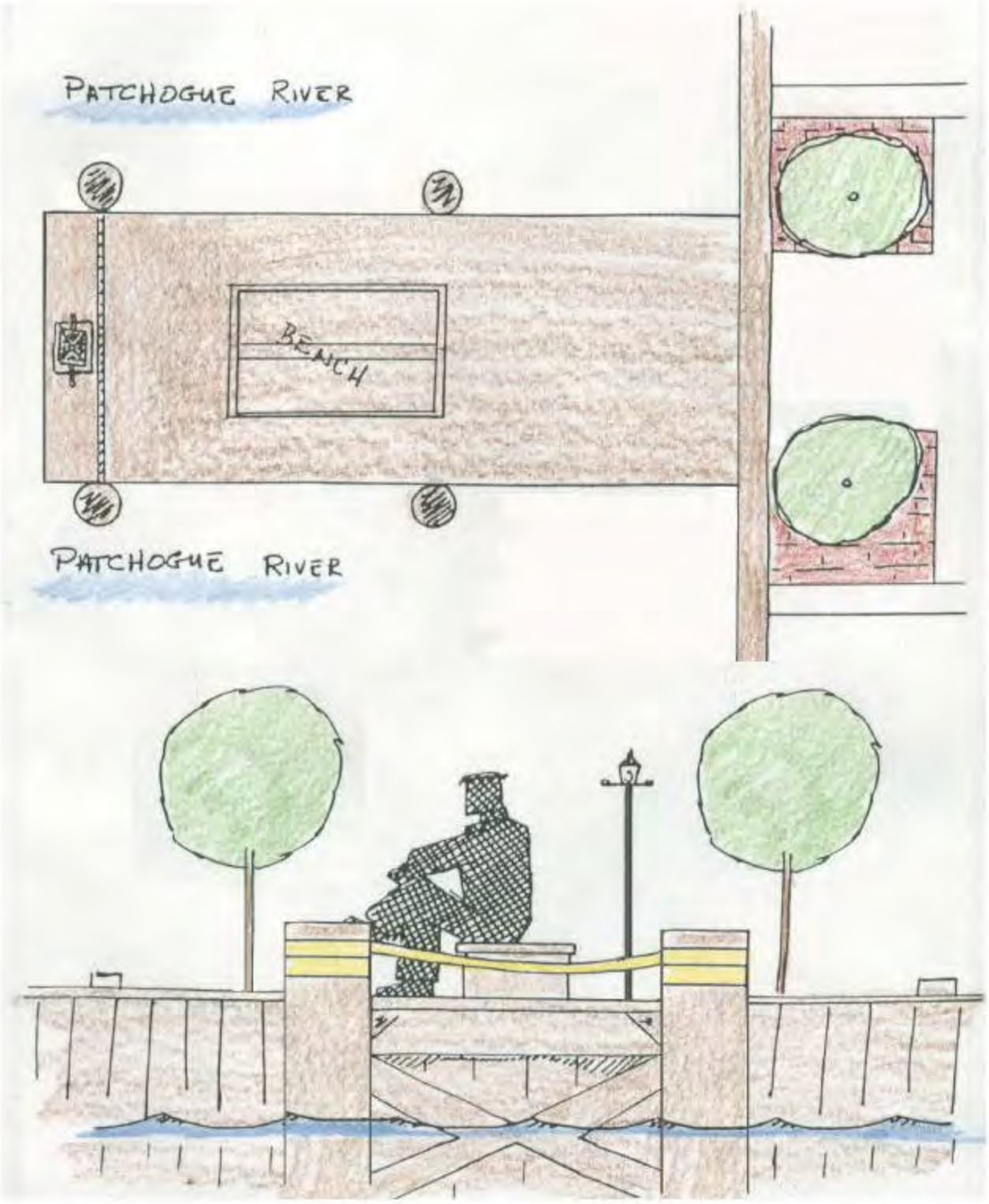


Figure 6 - Conceptual illustration for a typical street-end improvement

The creation of this signage at these locations will go far to increase awareness of the Patchogue River and all its amenities. It will also significantly alleviate the lack of direction to the ferry terminals at FINS and Sandspit Park.

In addition, improving pedestrian access within the PRMC is also important for traffic flow and public safety. In conjunction with the recommended signage improvements, sidewalks should be constructed by the Village on both sides of Cedar Ave. from Division St. to Sandspit Park, including Brightwood St.; as well as along both sides of West Ave. from Division St. to Laurel St. and then east along Laurel St. to Cedar Ave.

It is not anticipated that on-street parking associated with the use of future street-end piers will irritate local residents. The small scale and local nature of the proposed piers are designed to attract Village residents. However, should the piers draw more people and cars than envisioned, the Village may want to consider enacting parking regulations in adjacent residential areas to limit on-street parking to Village residents. Existing and future commercial establishments along the River should have sufficient off-street parking to accommodate all of their customers. If, for some reason, customers are not utilizing the off-street parking, the Village may also want to consider restricting on-street parking in certain areas to Village residents and their guests in order to alleviate potential on-street parking conflicts between local residents and customers of commercial establishments.

Southeast River Segment Recommendations

The Southeast River Segment includes the land area from the east bank of the Patchogue River to Cedar Ave. on the east and from Laurel St. on the north to Brightwood St. on the south. The area of the segment is 46.4 acres and the shoreline length is 0.44 miles. Most of the shoreline within this segment is occupied by the following water-related uses: administrative offices of FINS, a marine upholstery business and two marinas. Single family residential use exists throughout the rest of the segment with the exception of a contractors equipment yard, 18 vacant residentially zoned parcels, and five waterfront parcels north of Brightwood St. each containing multiple residential structures.

The waterfront parcels located in the northern half of this segment from Laurel to Campbell Streets have good vehicular access via West Ave. but appear underutilized. The Village of Patchogue Sewer District was recently expanded to include the area along West Ave. north of Laurel St. The Areawide Surface Water Quality recommendation to expand the Patchogue sewer district to include these parcels south of Laurel St. as well as other waterfront parcels will serve as a catalyst to revitalize the riverfront. It is envisioned that a more intensive water-related use that may generate higher volumes of sanitary wastewater, such as a restaurant, could be accommodated once this area is connected to the STP. A number of vacant parcels, as well as a contractors equipment yard, are adjacent to the waterfront parcels and could serve as additional parking area for future waterfront establishments. The panoramic view of the River, good vehicular access, ample area for parking, future potential linkage with the STP, and possible relocation of the administrative offices of FINS make this area ideally suited for more intensive water-related activities.

Recommendation No. 26 - Promote the location of water-related uses on waterfront parcels from Laurel St. to Campbell St.

Six waterfront parcels lie between Laurel and Campbell Streets west of Argyle Lane. The two northern parcels house the administrative offices of FINS. The Pier East Marina is located on the southern two parcels and residential structures are situated on the middle two parcels. Residential properties lie to the north of Laurel St. and to the east of Argyle Lane. A marine upholstery business, a large marina/boat yard and contractors equipment yard are located south of Campbell St.

The FINS administrative offices should be consolidated with the proposed refurbished/enhanced ferry terminal and visitor center near Division St. If the proposed structure were erected, there would be no need to retain the site currently housing the FINS administrative offices. The site comprises two parcels (SCTM# 0204-016.00-09.00-001.000 and 0204-016.00-09.00-028.000) that total 0.75 acres in size with over 200 feet of bulkheaded shorefront along the Patchogue River suitable for boat dockage. **FINS should sell these two small but valuable waterfront parcels and use the proceeds to help offset the costs associated with the construction of the proposed FINS visitor center/ferry terminal/administrative offices. The current FINS administrative offices site** has a commanding view of the nautical activity occurring on the River and, as such, **is an ideal location for a water-related use such as a restaurant with transient docking.** See Photograph 11.

The waterfront parcels between the FINS administrative offices site and Campbell St. appear underutilized and are suitable for more intensive water-related activity. These parcels along with the FINS site will be able to accommodate more intensive water-related activity in the future, if the Village of Patchogue Sewer District is extended to provide service to the area. (See Areawide Surface Water Quality Recommendation No. 34.)

The most direct vehicular access route to this waterfront location is via the newly paved West Ave. **Additional parking for future waterfront establishments located between Laurel and Campbell Streets could be located on nearby vacant parcels** (SCTM# 0204-019.00-04.00-003.000; 0204-016.00-09.00-031.001; and 0204-016.00-09.00-032.001) **or underutilized industrial parcels** (SCTM# 0204-019.00-04.00-002.000; 0204-019.00-04.00-036.002; 0204-019.00-04.00-037.000; and 0204-019.00-04.00-038.000) that are shown in Photograph 12. The zoning classification for these potential overflow parking areas **should be changed to either General Waterfront or Industrial E as amended** (and as described in the **Zoning Recommendations** section), and adequately buffered from the existing residential neighborhood. The waterfront strip from Laurel St. to Campbell St. is currently zoned Industrial E.

Recommendation No. 27 - Improve public access to the River at street-ends.

Public access to the River should be enhanced by constructing a pier located at the end of the Campbell St. right-of-way, and by constructing a small park at the end of Brightwood St. (Bienstock, Lucchesi & Assoc. 1989). The Village should couple these improvements with any needed bulkhead repair and stormwater runoff controls. It is envisioned that these facilities will primarily serve the needs of local residents since vehicular parking will be very limited. **The enhanced appearance of the street-ends will serve as public access focal points along the River that could eventually be linked through the construction of a combination of sidewalks and riverfront boardwalks.**

The pier should not interfere with the riparian rights of adjacent landowners. The extension of the pier into the River must also not pose a hazard to navigation. (See Northeast River Segment Recommendation No. 24 for more details on street-end access improvement.) A small shore-parallel park or boardwalk is more suitable at the end of Brightwood St., which is shown in Photograph 13, due to the narrow width of the River at this location. Figure 7 depicts a design concept for this street-end.

It is suggested that the Village consider the Campbell St. site as the first location for the construction of a public access pier. Commercial/industrial land uses are adjacent to this street-end site. Of all the sites proposed for street-end access improvement, a public pier at the end of Campbell St. would have the least intrusive impact on nearby residences. Also, vehicular parking at this site appears to be less of potential conflict with nearby residences.

Photograph 11 - The FINS headquarters facility on Patchogue River - an ideal location for water-related development.

Photograph 12 - View along Argyle Lane looking south towards Campbell St.

Photograph 13 - View at end of Brightwood St. looking north along the River.

Figure 7 - Conceptual illustration for a street-end improvement at Brightwood St.

Recommendation No. 28 - In this segment discourage the use of private commercial property for parking lots to accommodate users of the Davis Park ferry.

The Village should discourage private commercial parking activity in this area by providing additional ferry parking facilities in/near the Northeast River Segment with shuttle service to move people between the parking areas and the Davis Park ferry terminal, as described in the recommendations for the Northeast River Segment. Use of the Village parking lot north of Division St., the Village parking lots adjacent to the LIRR station on weekends, and the parking area on the Swezey's Warehouse parcel on weekends (via an agreement with the Village) would alleviate traffic congestion on local streets and the parking problem associated with Davis Park ferry use at the Sandspit Park.

East Bay Shoreline Segment Recommendations

Recreation and open space is the predominant land use in the East Bay Shoreline Segment, which includes the 43.2 acre area along the bay south of Brightwood St., Maiden Lane and Smith St. from the Sandspit Park on the west to Bay Ave. on the east. The level of activity associated with this use is intense. The Town of Brookhaven Sandspit Park provides access to and parking for the Davis Park ferry terminal, and also includes a bathing beach and public marina. Three Village of Patchogue parks provide a bathing beach/swimming pool facility; a pier and public marina (Mascot Dock); and ballfields and a band shell (Shorefront Park) for public events. Two water-related restaurants are located in this segment, which contains only one small parcel of vacant land. The total shoreline length in this segment is 1.71 miles.

The vision for this segment does not entail any changes in the existing land use pattern, but rather focuses on the provision of enhanced facilities for improving public enjoyment and access to the waterfront. The Sandspit Park bathing beach should receive periodic nourishment with suitable dredged material, and an appropriate structural approach should be devised to protect the beach from erosion. The construction of a lighthouse aid to navigation structure on the east jetty (which in itself should be reconstructed) would enhance the entrance to the River.

Reduced user conflicts and more amenities for Sandspit Park will be possible in the future should the existing parking problem be resolved via utilization of available parking facilities near the gateway to the PRMC in the Northeast River Segment with transit connection to the ferry terminal. Street-end piers are also envisioned as points of interest for people walking or biking between the Sandspit Park and Village parks to the east. Boat dockage capacity at Mascot Dock could be increased, and public access facilities to the immediate waterfront at Shorefront Park could be provided if an appropriate structural solution is devised to reduce wave action in the area.

Recommendation No. 29 - Improve the bathing beach at Sandspit Park.

The **bathing beach at the Town of Brookhaven Sandspit Park has been severely impacted by the depletion of sand**, and as a result, its user capacity has been dramatically reduced. (See Photograph 14.) This beach is not a natural beach, since it was created by extension of the Sandspit Park pier, and subsequently filled with dredged material from various maintenance dredging projects over the years. There is no source of sand that replenishes this beach on a continual basis. **It is** therefore **necessary to periodically nourish this beach** with material **in order to preserve its viability as a recreational facility**.

Two pending dredging projects have potential for providing suitable material for nourishing this bathing beach. The project to dredge a new navigation channel to the Sandspit Park marina includes the placement of about 20,000 cubic yards on the bathing beach. (See the **Suffolk County Dredging Projects** section of this report.) The bathing beach is also under evaluation as a disposal location for material dredged by the U.S. Army Corps of Engineers in the **Great South Bay Navigation Project**. The **Sandspit Park beach should be nourished with sand from one or both of these projects, once permitting and technical issues are resolved.** (Sediment transport rates and pathways along this beach should be investigated to determine if nourishment will pose any adverse impact on the Patchogue River navigation channel.)

Photograph 14 - The bathing beach at the Town of Brookhaven Sandspit Park.

The retention of sand on the bathing beach is a concern that should be addressed. The feasibility of constructing a short groin(s) and/or reconstructing the east jetty at the entrance to the River (change in height, width and length; alignment to the centerline of the River channel; and location) to help preserve the length, width and elevation of the beach should be evaluated. The use of segmented offshore breakwaters to retain sand at the beach should also be considered. (These structures have been used successfully in many areas to curtail erosion and provide the necessary conditions for bathing beaches in areas that would not be suitable otherwise [Jay Tanski pers. comm.]).

Recommendation No. 30 - Improve the entrance to Patchogue River.

The small rock jetty at the eastern side of the entrance to the River is in fair condition. The aide to navigation on the east jetty consists of a red flashing light at an elevation of 18 feet above mean high water on a cement cylindrical structure. This navigation aid and the jetty are maintained by the Town of Brookhaven (Jeffrey Kassner pers. comm.). **A more prominent and attractive aid to navigation at the east jetty/entrance to Patchogue River should be constructed.** A **small lighthouse** or similar structure **could provide a visual point of reference to the River and PRMC** for local boaters and transient visitors alike. (See West Bay Shoreline Segment Recommendation No. 10 pertaining to the west jetty.) The **reconstruction of the east jetty should be considered a component of this improvement**, as well as the previous recommendation dealing with beach protection.

Recommendation No. 31 - Alleviate the vehicle parking problem and change the use pattern at Sandspit Park.

The weekend multiple use conflicts and acute ferry parking problem at the Town of Brookhaven Sandspit Park are discussed in the **Ferry Passenger Trends** section of this plan,
If the ferry parking problem at the Sandspit Park is alleviated by use of the Village parking lots/Swezey's Warehouse parcel for vehicle parking at peak times, coupled with provision of a shuttle service to the Davis Park ferry terminal as recommended in the Northeast River Segment, **then the existing use pattern** at Sandspit Park **could be changed**. Large areas now used primarily for ferry parking would no longer be required, **and more amenities** for Town residents (for example, designated marina parking, beach-related facility, fishing access, etc.) **could be provided.**

Recommendation No. 32 - Evaluate the feasibility of increasing boat docking capacity at Mascot Dock.

Use of the water surface area to the east of the Mascot Dock for additional boat dockage in the Village marina is limited due to rough water conditions when onshore winds occur. The immediate shoreline area along the bulkhead at Shorefront Park is also subject to wave run-up over

the face of the bulkhead and ponding of water beyond it. Demand for slips at the Mascot Dock marina would rise if the area protected from wave action could be increased. The Village of Patchogue should **evaluate the feasibility of increasing boat docking capacity by construction of a wave attenuation structure** to the east of the docks located along the east side of the pier. (See Photograph 15.) This structure would also provide better protection for boats utilizing the existing slips. (The specific type and location of the structure should be evaluated in terms of wave climate, shoaling patterns and bottom conditions encountered.) An **alternative** approach consisting of **extending the length of the spur at the end of the pier** to the east should also be assessed. This alternative would also provide space for more recreational activity on the pier itself.

Recommendation No. 33 - Improve public access to Patchogue Bay at street-ends and at Shorefront Park.

Pedestrian **access to Patchogue** Bay should be **enhanced by constructing piers located at** the **ends of Dock St. and Cedar Ave**., within the width of the street-right-of-ways. The Village should couple these improvements with any needed bulkhead repair and stormwater runoff controls. Vehicle parking should be limited in proximity to these piers, which would provide points of interest for people walking or biking between Sandspit Park and Shorefront Park.

Use of the immediate shoreline area along the bulkhead at Shorefront Park is severely limited during times of rough water conditions. If a structural solution is determined to be feasible and cost-effective for creating an enlarged safe harbor area for the Mascot Dock marina, the additional benefit of **calmer waters along Shorefront Park** may also be realized. This would lead to the **possibility of constructing a boardwalk** along the bulkhead **and a pier** that extends into the bay for public access.

Photograph 15 - Boat slips at Village of Patchogue Mascot Dock marina.

Areawide Surface Water Quality Recommendations

Marine surface water quality in the Patchogue River and Patchogue Bay is of importance in terms of being able to swim in Patchogue Bay and fish in local waters, as well as fulfilling the expectations of those participating in the boating and tourism industries for aesthetically pleasing waterways. The provision of sanitary sewer service with advanced treatment capability throughout the entire PRMC in the future will not only remove constraints to expansion of water-dependent uses, but will also relieve the burden on homeowners of maintaining, upgrading and replacing on-site sanitary systems. Pollutant loadings to surface waters and associated impacts will be reduced over time. With the added benefit of mitigating non-point sources of pollution at priority locations along the River and bay shorelines through implementation of Best Management Practices (BMPs), incremental water quality and aquatic habitat improvements will also accrue to the broader Great South Bay region as a whole.

Recommendation No 34 - Expand the Village of Patchogue Sewer District to include the PRMC, and upgrade the Village STP to tertiary treatment.

The ability to revitalize the waterfront in the PRMC through maintaining existing water-dependent/water-enhanced uses and attracting new water-related uses will depend in-part on the availability of sewage treatment infrastructure. As discussed in the **Sewage Treatment** section of this study, the Patchogue Sewer District was recently expanded to include the area along West Ave. from Division St. on the north to Laurel St. on the south. The required force main and pump station have been constructed, and are expected to be on-line soon. This expansion provides the capability to treat sanitary waste from existing and proposed uses in the Northeast Segment of the study area. The **Village** of Patchogue **should work to extend the boundaries of the sewer district to encompass** the remaining **areas along both sides of the River, starting with the area between Laurel St. on the north to Sandspit Park on the south; and along the Bay shoreline** as well.

The Village has **recently sought funding** under the New York Clean Water/Clean Air Bond Act **to expand** its **sewer district** by constructing sewerage facilities that would serve the area on River Ave. south of Division St.; an area along a portion of South Ocean Ave.; and the area on River Ave. north of Division St. **Such efforts should be continued and encouraged.** Indeed, **expansion of the District** to include the area along the west side of River Ave. south of Division St. **would enable the collection of sewage from the 132 unit Fairfield on the Bay apartment complex, and subsequent closure of its STP**. The apartment STP currently discharges 17,000 gpd of treated effluent into the Patchogue River at the eastern side of the complex.

Future expansions of the district will ultimately exceed the available capacity of the Village STP. Hence, the **Village will also have to increase the capacity, or design flow, of the STP**. **Given the importance of reducing nitrogen loadings to the Great South Bay**, especially in those locations near the mouths of tributary streams, **the effort of the Village to expand the sewer district and increase the treatment capacity of the STP should also be accompanied by the**

addition of tertiary treatment for nitrogen removal. These upgrades of the STP would require modifications to the STP and additional land area.

The expansion of the sewer district and the upgrade of the STP are the priority recommendations pertaining to environmental quality in this plan. The former will provide treatment for sanitary waste from intensively developed coastal areas, and the latter will reduce non-point nutrient and other pollution to surface waters by eliminating loadings to base streamflow and groundwater from existing on-site septic systems. **While hookup to the Sewer District is not mandatory, the Village of Patchogue should encourage property owners to connect their businesses and residences to the sanitary sewer system after service has been provided.**

Recommendation No. 35 - Determine the magnitude of various non-point sources of contamination to the Patchogue River and adjacent bay, and formulate a response plan to reduce contaminant loadings at priority locations.

As discussed in the **Marine Surface Water Quality** section of this study, the quality of surface waters in the tidal portion of the Patchogue River and Patchogue Bay is the result of land uses and activities and their associated pollutant loadings that occur in a geographical context that is much larger than the PRMC study area. Various efforts by federal, New York State and Suffolk County agencies are underway to develop the necessary data and information bases required to design water quality improvement strategies that will address priority problem areas throughout the South Shore Estuary Reserve (SSER), especially those related to non-point sources of pollution. Non-point sources of pollution include direct urban runoff from streets and paved areas located near surface waters, overland flow from turf and other ground surfaces, illegal discharges, etc. **No detailed analysis of the Patchogue River watershed and adjacent areas has been conducted with respect to** the **location and relative magnitude of non-point sources of pollution** to groundwater and surface waters. **Interested parties should conduct such an analysis that includes the PRMC study area**, and **set priorities for implementing** non-point source controls, i.e., **BMPs**, **that target cost-effective solutions at specific locations**. Actions to improve surface water quality in the PRMC study area should be viewed within the context of SSER plan recommendations when they are finalized, and potential SSER funding sources.

Maintaining the certification of bathing beaches in the PRMC study area in the future **should be an important priority, as well as improving the esthetic condition of waterways**. BMPs, such as retention/detention of urban runoff at street-ends and other measures to control the quality of freshwater discharges, like the creek at Shorefront Park, may prove to be critical in addressing these priorities.

Zoning Recommendations

The current zoning serves as a blueprint for the type and intensity of future development one can expect within a municipality. The adoption of the following zoning recommendations will assist in achieving the goals of maintaining and expanding the existence of water-related uses along the shoreline of the Patchogue River. Appropriate zoning will also prohibit the siting of new non water-dependent uses, such as high density residential housing, along/near the valuable waterfront in the PRMC

Recommendation No. 36 - Amend the Village of Patchogue zoning code and map, as appropriate, to preserve existing water-related uses, attract new water-related development and prevent the expansion of high density residential use along/near the waterfront in the PRMC.

All of the Patchogue River waterfront from Division St. south to Crescent and Patchogue Streets is in the Industrial E zoning category, which is the most permissive zoning district in the Village. Property zoned Industrial E may be used for any lawful business or industrial use. **Two of the prohibited uses listed in the Industrial E district - residential purposes of any kind except when authorized by special permit from the Board of Trustees, and motel use - are in conflict with the recommendations offered in this report.** The recommendation has been made that no new high density residential development occur in either the Northwest or Southwest River Segments. It has also been recommended that a hotel with transient boating facilities be located in the Northwest River Segment.

One remedy to this apparent conflict, and **the preferred alternative, is to change the zoning on all of the Industrial E district parcels south of Division St. to the GW General Waterfront district zoning category.** The GW zoning category is currently a floating zone that was added to the Village zoning code in 1983. The permitted uses listed in the GW zoning category should be expanded to include marine contractors, as well as maritime museums, marine centers/parks, aquariums or similar types of entertainment or cultural facilities. A provision should be added that any other water-related use be allowed where it can be demonstrated that such use will be beneficial, compatible and harmonious with the uses of the GW district. The advantage of selecting the **General Waterfront zoning category** is that it **focuses on attracting water-related uses**, it **limits residential use to only one-family dwellings**, and it **allows hotels and motels**. The second **alternative** would be to **retain the Industrial E zoning category** on the parcels south of Division St. as it currently exists, **but amend the district uses to prohibit high density residential** development and **allow motel/hotel use by special permit** from the Board of Trustees. In addition to the above blanket recommendation for Industrial E zoned parcels, zoning recommendations targeted to specific parcels that currently lie partially or completely outside the boundaries of the Industrial E zoning classification can be found in Recommendation Nos. 13, 18 and 26.

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Table A1 - INVENTORY OF ESTABLISHMENTS WITH BOATING FACILITIES IN THE PATCHOGUE RIVER MARITIME CENTER, 1998.

Establishment Name	*Address*	*Slips*	*Dry Stack Storage*	*Boat Repairs*	*Boat Sales*	*Restaurant/ Food*	*Gas*	*Railway*	*Marine Store*	*Crane*	*Pumping Station*
American Boat Works, Inc.; J. P. Miller, Inc.; Steen Melby, etc.	200 West Ave.	3		Yes	Yes	No	No	No	No	No	No
Davis Park Ferry Company	West Ave.			No	No	No	No	No	No	No	No
Fire Is. National Seashore Boatyard	West Ave.			Yes	No	No	No	Yes	No	No	No
Frank M. Weeks Yacht Yard	10 Riverview Ct.	65		Yes	Yes	No	No	No	Yes	Yes	No
Island View Marina	61 Price St.	23	60	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Leeward Cove Marina	257 River Ave.	25	160	No	No	No	No	No	No	Yes	Yes
Leeward Cove South	327 River Ave.	300		Yes	No	Yes	No	No	No	Yes	Yes
Marina (no name)	10 Riverfront St.	78		Yes	No	No	Yes	No	No	No	No
On the Waterfront Restaurant	82 Brightwood St.	10		No	No	Yes	No	No	No	No	No
Pier East	30 Argyle La.	16		No	No	No	No	No	No	No	No
South Bay Boat Repair	20 Underwood St.			Yes	No	No	No	Yes	No	Yes	No
South Shore Boatyard	57 Patchogue St.	56	40	Yes	Yes	No	No	No	No	Yes	No
Steamers Restaurant/Marina	116 Division St.	55		No	No	Yes	No	No	No	No	No
Suffolk Boat Club, Inc.	P.O. Box 721, Crescent St.	5		No	No	No	No	No	No	No	No
Sun-Dek Marina	264 West Ave.	30		Yes	No	Yes	No	No	Yes	No	No
Thomas Marine	37 Bransford St.	15		No	Yes	No	No	No	No	Yes	No
Town of Brookhaven Sandspit Marina and Beach	Brightwood St.	104		No	No	No	No	No	No	No	Yes
Vill.of Patchogue Mascot Dock/Shorefront Park	South Ocean Ave.	68		No	No	No	No	No	No	No	No

Table A2 - MARINAS, BOATYARDS, OTHER BUSINESS ESTABLISHMENTS AND NON-RESIDENTIAL USES IN THE PATCHOGUE RIVER MARITME CENTER, 1998.

Map#	Name, Address and Phone #	Tax Map #
1.	Town of Brookhaven- undeveloped park South end of River Road	0204-02100-0100-001000
2.	Island View Marina (447-1234)/ Steve's Marine Service (475-6155) 61 Price Street	0204-01900-0200-021000 0204-01900-0200-040000
3.	Davis Bros. Engineering (363-6240) Crescent Street	0204-01900-0100-005001 0204-01900-0100-005002
4.	Suffolk Boat Club (758-8625) P.O.Box 721 Crescent Street	0204-01900-0100-006000 0204-01900-0100-007000
5.	boat slip (private) Crescent Street	0204-01900-0100-008000
6.	boat slip (private) Crescent Street	0204-01900-0100-009000
7.	boat slip (private) Crescent Street	0204-01900-0100-010000
8.	boat slip (private) Crescent Street	0204-01900-0100-011000
9.	boat slip (private) Crescent Street	0204-01900-0100-012000
10.	Leeward Cove South (654-3106) f/k/a Patchogue Marine or Pier 66/ Dublin Deck Restaurant(207-0370)/ Marine Mechanic (654-3106)/ Harbor Boatworks (758-5777) 327 River Avenue	0204-01900-0100-001004 0204-01900-0100-002000

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Map#	Name, Address and Phone #	Tax Map #
11.	Frank M. Weeks Boat Yard (475-1675) 10 Riverview Court	0204-01600-0200-022001 0204-01600-0200-022002 0204-01600-0200-022003 0204-01600-0200-022004 0204-01600-0200-024000 0204-01600-0200-025000 0204-01900-0100-001005
12.	The Landings at Patchogue Condos Common Area/boat slips 263 River Avenue	0204-01601-0100-067000 0204-01601-0100-042000- through -064000
13.	Leeward Cove Marina (758-2550)/ Discount Marine Upholstery (289-8042) 257 River Avenue	0204-01600-0200-014009
14.	East Egg Women's Fashion Apparel Manufacturing River Avenue	0204-01600-0200-014005
15.	Thomas Marine (289-0621) 37 Bransford Street	0204-01600-0200-010000
16.	U.S. Tape (289-0500) 217 River Avenue	0204-01600-0200-009003 0204-01600-0200-009004 0204-01600-0200-009005 0204-01600-0200-009006 0204-01600-0200-009007
17.	Anything Marine (447-1884) River Avenue	0204-01600-0100-019000
18.	Abandoned boatyard/marina - former Connelly site. 3 structures/blgs: new bldg - auto repair; others - unknown River Avenue	0204-01600-0100-018002
19.	Rant Contracting (758-0881) dock space (286-3462) 30 Noxon Street	0204-01600-0100-023000

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Map#	Name, Address and Phone #	Tax Map #
20.	Rowaldal Realty (758-0257) or (447-2028)/ Flag Oil (475-2250)/ Boiler Room Specialists (654-0111)/ Brookhaven Energy Sys (447-0630)/ East Coast Driver Training (654-0206) Raycirco - boat/marine carpenter Tower Assoc.- computer sales Acessory use - boat storage 10 Noxon Street	0204-01600-0100-011001 0204-01600-0100-011003 0204-01600-0100-011004 0204-01600-0100-011005
21.	Marina - (no name)/ Al's Marine Service (475-6841)/ Medford Upholstery (758-1150) 10 Riverfront Street	0204-01600-0100-012000
22.	South Bay Boat Repair(758-0909)or (800-269-5585)/ Island Fire Protection & Supply (447-9300) 20 Underwood Street	0204-01600-0100-004005
23.	The Tire Store (654-8676)/ Blue Point Brewing Co. (475-6944) 161 River Avenue	0204-01600-0100-004002
24.	Ad Apparel Factory Direct Screen Printing and Embrodery 153 River Avenue	0204-01600-0100-001000
25.	Auto World - car repair 6 Underwood Street	0204-01600-0100-002000
26.	This lot has merged w/#25 -private fuel oil storage/gasoline tank 12 Underwood Street	0204-01600-0100-003000
27.	Auto repair- (no name). Small, 1-story building Underwood Street	0204-01300-0800-007001

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Map#	Name, Address and Phone #	Tax Map #
28.	Dr. Jones Chiropractor (475-0711) 143 River Avenue	0204-01200-0800-021000
29.	Marine repair (no name)/residential apartment. Small, 1-story building/ 1 occupancy. Jones Place	0204-01200-0800-020003
30.	Riverside Inn/hotel (758-6246) 120 Division Street	0204-01300-0800-002001
31.	Steamers Restaurant (289-4335)/ Marina/Sunset Sales (696-6372) 116 Divison Street	0204-01300-0800-003001 0204-01300-0800-008000
32.	Patchogue 40 Lanes Bowling Center (475-5164) 138 West Avenue	0204-01300-0900-001001
33.	Kappler's Hotel, Bar & Grill (475-1910) 80 Division Street	0204-01300-0900-002000
34.	Lal's Auto Radiator (475-4485) 72 Division Street	0204-01300-0900-005000
35.	M&D Auto Repairs (758-7171) 46 Division Street	0204-01300-0900-012000
36.	Wm. Spadaro Wood Designs (475-1517) 119 West Avenue	0204-01300-0900-003000
37.	Interstate Battery System of LI 475-6882 (1-800-CRANK IT) 147 West Avenue	0204-01300-0900-022000 0204-01300-0900-023000
38.	Fire Island National Seashore/Ferry Terminal for Watch Hill, Fire Island West Avenue	0204-01300-0900-001002 0204-01600-0300-001000 0204-01600-0300-002000

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Map#	Name, Address and Phone #	Tax Map #
39.	Fire Island National Seashore/ Boatyard West Avenue	0204-01600-0300-003003
40.	J.P. Miller, Inc (475-2281)/ Steen Melby Boat Restorations (654-8962) /American Boatworks Inc. (654-8939)/Perry's Auto & Marine Upholstery(654-8670)/Tops Marine Repair Service (289-0035) 194-204 West Avenue	0204-01600-0300-004000 0204-01600-0300-005001
41.	Davis Park Ferry Co. (475-1665) West Avenue	0204-01600-0300-005002 0204-01600-0300-006000
42.	Marran Oil (654-2500) 102 Mulford Street	0204-01600-0300-007000 0204-01600-0600-001002
43.	Sun-Dek Marina (758-5599)/ The Oar House Restaurant (654-8266) 264 West Avenue	0204-01600-0600-005000 0204-01600-0600-006000
44.	boat slips (private) West Avenue	0204-01600-0600-007000
45.	Fire Island National Seashore/ Headquarters (289-4810) 120 Laurel Street	0204-01600-0900-001000 0204-01600-0900-028000
46.	Pier East Marina (654-4321) 30 Argyle Lane	0204-01900-0400-001000 0204-01900-0400-002000
47.	Ke-per Enterprises -marine upholstery (447-9668) 78 Campbell Street	0204-01900-0400-039000
48.	Bonel Contracting Corp - equipmt. rental (289-6740) 62 Campbell Street	0204-01900-0400-037000 0204-01900-0400-038000

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Map#	Name, Address and Phone #	Tax Map #
49.	South Shore Boat Yard (475-5196)/ Alpha Yachts (758-4121)/ Blue Water Marine (475-3189)/Great South Bay Excursions (475-1606) 57-59 Patchogue Street	0204-01900-0400-071001
50.	On The Waterfront Restaurant (654-2233) 82 Brightwood Street	0204-01900-0600-001000
51.	Town of Brookhaven Sandspit Marina and Beach (475-1592)/ Davis Park Ferry Co.(475-1665) - Ferry Terminal for Davis Park, Fire Island Brightwood Street	0204-01900-0600-002000 0204-02200-0200-001000
52.	Village of Patchogue Pool & Beach Club (475-4302)/ Nancy's Crab Shack Maiden Lane and So. Ocean Ave.	0204-01900-0900-007003
53.	Louis XVI Restaurant (654-8970) South Ocean Avenue	0204-02300-0100-001000
54.	Two Bros. Deli (447-3625) 575 South Ocean Avenue	0204-02000-0500-001000
55.	Village of Patchogue Mascot Dock/ Shorefront Park (475-4302) South end of South Ocean Avenue	0204-02000-0500-011000 0204-02000-0500-015001
56.	Village of Patchogue Micheal Reilly Fireman's Memorial Park DeWitt Avenue	0204-02000-0600-006000

Table A3 - **COVER LETTER AND QUESTIONNAIRE**

December 23, 1998

Dear Patchogue Village Business Owner:

The Village of Patchogue Riverfront Advisory Committee, in conjunction with the Village of Patchogue and the Suffolk County Department of Planning, is undertaking a study of the area around the Patchogue River. The outcome of the study, the *Patchogue River Maritime Center Plan,* will serve as a guide for actions that will revitalize the Patchogue River, maintain and promote water-dependent uses, create jobs and generate tax revenue. The Plan will also advance environmental quality, enrich the quality of life, and sustain the river as a clean, inviting, assessable, and healthy place for residents, business and visitors.

One of the work tasks in producing the *Plan* is to identify concerns and expansion plans of are a businesses. Your cooperation in completing the enclosed survey will provide information that is very important for the outcome of this study. Responses from businesses surrounding the Patchogue River will be of significant assistance in planning for the future of this vital area. Please return your answers in the enclosed postage-paid envelope as soon as possible, preferably by January 13, 1999.

If you have and questions concerning this survey, please contact me at 475-4300.

Very truly yours,

David M. Kennedy
Committee Chairman
Patchogue Riverfront Advisory Committee

Patchogue Riverfront Business Questionnaire

Do you have plans to expand your facility or include new activities? (If yes, please describe.)

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What are some constraints or problems facing your current operations?

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What types of businesses or activities would you like to see encouraged on or near the Patchogue River waterfront?

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What other ideas do you have for the future of the waterfront in Patchogue, and how might these ideas be implemented?

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Your Name _____ Business Name_____

Phone _____ Address _____

Thank you for your participation. Please return the questionnaire in the postage-paid envelope by January 13, 1999.

Table A4 - PLANS AND CONCERNS OF ESTABLISHMENTS, PATCHOGUE RIVER MARITIME CENTER.

Business Name	*Address*	*Plans for Facility Expansion/Modification?*	*Complaints/ Constraints?*	*Activities That Should Be Encouraged?*	*Ideas For Future Of Waterfront?*
American Boat Works, Inc.	200 West Ave.	No	No		
Davis Bros. Engineering Corp.	P.O. Box 6, Blue Point	Continue to use as industrial applications.			
Davis Park Ferry Company	West Ave.		River needs to be dredged. Ferry went aground on channel near dock around July 4, 1998.		
Fire Is. National Seashore Boatyard	West Ave.	FINS is considering redesign of entire site to accommodate various functions, including office space, maintenance, storage and facilities for 26 boats in FINS fleet. Would like to locate new headquarters facility at terminal site. Will transfer admin. activities to leased bank building in Patchogue. Would like to build a permanent year-round visitor center at existing ferry terminal site.	Existing headquarters building on Laurel St. not adequate. Would need authorization from Congress to build any new buildings, purchase property, or trade public land for private land.	Transient marina space needed on river.	Seeing Patchogue and ferry terminal site as the "gateway" to the seashore. Can river serve as a destination for transient boaters traveling to Watch Hill Marina?
Frank M. Weeks Yacht Yard	10 Riverview Ct.	Nothing major - basic improvmenets, repave road. Upkeep and beautification.	The river needs dredging.	Museums. Shopping (nautical). More boat building. Restaurant on west side. A full service facility with shops and restaurant(s) for transient boats.	The river needs development of an attraction of some sort. Possibly at Hess site or bowling alley site. Something for people to do on the mainland.
Island View Marina	61 Price St.	No plans to expand. A general upgrading of the current facility, including new style racks for above ground boat storage and new bulk heading at the gas facility.	River is shoaling and desperately needs dredging. Ferry docks across from our facility, and when ferry turns around, they blow the silt into our boat slips making them unrentable, causing financial hardship.	Any kind of water related activity would be nice but any activity that would fit into the area would be acceptable.	
J. P. Miller	200 West Ave. (rear)	No.	River needs to be		

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			dredged. Muck is 4 feet deep. Sunk and abandoned boats must be removed.		
Kappler's Hotel, Bar & Grill	80 Division St.	Clam bar; outdoor tables & umbrellas enclosed by wrought iron railings.	Expansion plans would be partially dependent upon permits.	1. Trolley service from public parking areas to corner of West Ave. 2. Maritime museum 3. Specialty shops 4. Expanded ferry service & water taxis to Fire Island	The Patchogue River to be cleaned and dredged to allow increased usage and promote tourism.
Leeward Cove Marina	257 River Ave.	No	No		
Leeward Cove South	327 River Ave.	Cleaning up and moving things around (basic improvements)	Need a payphone.		
Marina (no name)	10 Riverfront St.				
Marran Oil	102 Mulford St.	Possible renovation to a better use of riverfront location.	D.E.C.	Restaurants, marinas, yachtclubs	Museum, aquarium, water park.
On the Waterfront Restaurant	82 Brightwood St.	Dock facility under constr. to accommodate paddle-wheel excursion boat			
Perry's Auto & Marine Upholstery	200 West Ave.	The DEC would probably stop any expansion by my landlord because of the environmental impact.	Access to the business property and main exposure to the main road (West Ave.) Some kind of sign would help business.	Some kind of public awareness of the type of business that are on the Patchogue River that would inform people of work performed there.	Make regulations to businesses that are on the river to keep their operations environmentally clean. No dumping of any chemicals into the river, which most of them do. I know because I see it.
Pier East	30 Argyle La.	No reason to expand.	The village has not adopted or implemented a clear waterfront development zone defining what the permitted uses are. Patchogue village has no boat ramp on the river. Village should encourage private	Various restaurants, clam bars, Starbucks, etc. There is a need for several boatels on present vacant land sites. A need for small studio apts. to accommodate singles and couples, a need for small efficiency apts.	Village needs to adopt a uniform waterfront zoning and implement same to include 500 feet or 600 feet on both sides of the river, starting at Division St. south to the Great South Bay to include all of the above mentioned

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			investment and become business-friendly to develop the river.	for vacationers to reside in Patchogue for the summer and enjoy Fire Island.	uses and other marine and recreational uses.
Rowaldal Realty Corp./Patchogue River Realty	Between Noxon & Underwood Sts.	We have a mixed use which includes boating and water related activities with no plans to expand, but tenants can change.	None at this time.	Any kind of water related activity would be nice but any activity that would fit into the area would be acceptable.	
South Bay Boat Repair	20 Underwood St.				
South Shore Boatyard	57 Patchogue St.	New mechanic; possible restaurant. Site also used for Davis Park Ferry transient parking for a fee.	No		
Steamers Restaurant/Marina	116 Division St.	Yes. Pave parking lot.	No		
Steve's Marine Service	61 Price St.	Yes, used boats for sale, and new boats for sale.	We need to attract boaters and families to the River instead of F. I. beaches. We could use transit docking.	Activities that would draw people to the waterfront: parks, childrens' amusements, learning center.	Maybe an aquarium at the head of the river.
Suffolk Boat Club, Inc.	P.O. Box 721, Crescent St.				
Sun-Dek Marina	264 West Ave.				
Thomas Marine	37 Bransford St.	Moving a building (improve storage).	The river needs to be dredged.	Marine related, yacht sales, restaurants, an area for transient overnight dockage.	Clean up run down properties, discourage absentee landlords. Try to develop solid, financially stable marine operations.
Town of Brookhaven Sandspit Marina and Beach	Brightwood St.	May have to put toilet facilities closer to bathing beach; existing building is more than 500 feet away. Dock/bulkheads in fairly good condition; no major capital budget expenditures planned.	Not enough parking for Davis Park ferry users.		

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U.S. Tape	217 River Ave.		High tax rates. Difficulty hiring enough qualified workers.	Job training	
Vill.of Patchogue Mascot Dock/Shorefront Park	South Ocean Ave.	Demand for docks/slips would increase if provided protection from southeast winds/waves.	Need some form of structure, e.g. "T" wave screen at end of docks, to protect boats from wave action.		