



TOWN OF BROOKHAVEN

COASTAL ENERGY IMPACT PROGRAM



TOWN OF BROOKHAVEN
Department of Planning, Environment and Development

Vincent G. Donnelly, Commissioner
Thomas H. Cramer, Director

TD
195 28, 1985
.E49 Grant Number
T69 D-CZ035
1985

The preparation of this document was financially aided through a federal grant from the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration under the Coastal Zone Management Act of 1972, as amended. This map was prepared for the New York State Department of State, Federal Grant Number NA-82-AA-D-CZ-035



Town of
Brookhaven
New York

HENRIETTA ACAMPORA, Supervisor
ERIC J. RUSSO, Deputy Supervisor

DEPARTMENT OF STATE
COASTAL PROGRAMS

MAR 14 1985

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DEPARTMENT OF PLANNING, ENVIRONMENT
& DEVELOPMENT
VINCENT G. DONNELLY, Commissioner

DIVISION OF ENVIRONMENTAL PROTECTION
THOMAS W. CRAMER, Director

March 6, 1985

George R. Stafford
Coastal Programs Administrator
NYS Department of State
162 Washington Avenue
Albany, New York 12231

Dear George:

In accordance with my correspondence of January 9, 1985, the Town of Brookhaven has completed the Coastal Energy Impact Program.

We are pleased to submit the enclosed 6 (six) copies of the document in fulfillment of the contract number D 000362.

The last payment request summary for the period December 16, 1984 to February 28, 1985 will be completed and submitted to your office within a week.

Thank you for the opportunity to participate in the Coastal Energy Impact Program. We are confident that the document produced as part of this program will be informative and useful to all branches of Government and interests in the private sector.

Very truly yours,

Thomas W. Cramer, R.L.A.
Director

TWC:CJV:mm
cc: Dennis Terry
David E. Buerle, CEIP Coordinator
James W. Curfman, Coastal Management Program

TOWN OF BROOKHAVEN
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February 28, 1985

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TOWN OF BROOKHAVEN
COASTAL ENERGY IMPACT PROGRAM

Submitted To:

New York State Department of State
162 Washington Avenue
Albany, New York 12231

in fulfillment of:

Coastal Energy Impact Program Agreement
Federal Grant Number - NA-83-AA-D-CZ035

Prepared By:

The Division of Environmental Protection

and

Greenman-Pedersen, Inc.

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Preface

The Town of Brookhaven received a grant from the New York State Department of State to complete a Coastal Energy Impact Program (CEIP). The purpose of this study is to address potential environmental and socio-economic impacts of the LILCO proposed coal conversion of units 3 and 4 at the Port Jefferson Power Station, not addressed in the Draft Environmental Impact Statement.

To aid in completing the contract, the Town of Brookhaven subcontracted the consulting firm of Greenman-Pedersen Inc. (GPI Engineers, Architects and Planners) 100 West Main Street, Babylon, New York. Activities 1, 2 and 3 are the product of the consultants report prepared in conjunction with the coordinating staff at the Division of Environmental Protection. The Final Report - Activity 4 was prepared by the Town of Brookhaven using the consultants report as well as office literature. The Final Report is presented under this cover, however, it is in a form that can be extracted and easily reproduced as a handout or summary of the project.

This report will be available to interested parties at the:

Town of Brookhaven
Division of Environmental Protection
475 East Main Street
Patchogue, New York 11772
(516) 654-7914

It is our intention to draw from the findings, conclusions and recommendations of this report in planning, designing and implementing projects under the funding or approval powers of the Town of Brookhaven. The Town of Brookhaven CEIP will be available to other involved agencies and primary shorefront commercial interests in Port Jefferson Harbor, for consultation in planning coastal projects.

TOWN OF BROOKHAVEN
COASTAL ENERGY IMPACT PROGRAM
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TOWN OF BROOKHAVEN
COASTAL ENERGY IMPACT PROGRAM

ACTIVITY 1 - MARINE TRAFFIC

Section 1 - Introduction

This activity 1 report consists of a synthesis of existing information, field surveys, planning analysis, conclusions and recommendations concerning marine traffic, both commercial and recreational, on Port Jefferson Harbor.

The main goal of this study is to determine the impact of commercial traffic generated by the Port Jefferson Power Station, owned and operated by the Long Island Lighting Company (LILCO). The Port Jefferson Power Station consists of four oil fired units. Fuel for these units is brought into the harbor by tanker and by barge. LILCO has applied to the New York State Department of Environmental Conservation for permits to convert two of these units, designated units 3 and 4, to coal. The stated purpose for the conversion is to reduce country's reliance on foreign oil. Under the proposed conversion plan, coal will be supplied to the plant by barge.

Interestingly, at the time that this study was conducted, oil was relatively inexpensive. Under these economic conditions it is unlikely whether LILCO will proceed with their proposed coal conversion. It becomes obvious, therefore, that the proposal for coal conversion is strictly economic in nature rather than one of conforming to national goals.

Port Jefferson Harbor is located on the north shore of Suffolk County, New York and consists of a tributary of Long Island Sound. The harbor is one of several on the north shore of Long Island which was formed when a glacial indentation became connected to the Long Island Sound some time within the last 10,000 years. Little Neck Bay, Manhasset Bay, Hempstead Harbor, Cold Spring Harbor and Oyster Bay Harbor in Huntington and Northport Bays are other harbors on the north shore of Long Island with similar geological origins. The main common characteristics of all these kettle hole bays is relatively deep water access to the Long Island Sound. It is this deep water which makes them attractive for commercial and industrial use. Of the various harbors on Long Island with this characteristic, Port Jefferson Harbor is the easternmost. As Long Island developed, therefore, it became a prime candidate for a commercial harbor where various goods could be delivered for distribution to eastern and central Long Island. Of foremost importance in this regard is home heating oil. At the same time, however, due to its position as the easternmost of the major harbors, as well as to its natural beauty, the pressure for residential development along the shorelines and general vicinity has intensified. For this reason, the harbor has become a major focal point for recreational boating in Suffolk County.

Section 2 - Existing Information

There are several sources of information on vessel traffic in Port Jefferson Harbor including records maintained by the U.S. Army Corps of Engineers and the Bridgeport/Port Jefferson Steamboat Company. In addition, the environmental impact statement prepared by LILCO for the proposed coal conversion contains information on commercial marine traffic. All of these sources address commercial related traffic to the exclusion of recreational boating. There is little or no data regarding recreational marine traffic on the harbor. In order to fill this gap, field surveys were conducted which are discussed in the following section.

Most of the commercial traffic in Port Jefferson Harbor is accounted for by the Bridgeport/Port Jefferson Steamboat Company which operates the vessels Martha's Vineyard and Grand Republic between Port Jefferson Harbor and Bridgeport, CT. This accounts for approximately 60% of the commercial traffic on the Port Jefferson Harbor which is included in the Corps of Engineers surveys. However, there is commercial traffic which is most likely overlooked in these various surveys which would reduce the percentage of traffic accountable to the ferry company. These other sources include ship chandlery services, minor tugboat operations, and deployment of oil spill containment equipment. Other vessel movements, such as launch service to mooring areas,

is also commercial in nature. However, it probably belongs more properly under the recreational category. Although the marine traffic on Port Jefferson Harbor has complements from both recreational and commercial uses, the vast majority of vessels using the harbor are recreational, particularly during times of peak use. This recreational usage is essentially seasonal in nature, with peak activity between Memorial Day and Labor Day.

The draft environmental impact statement on coal conversion for Port Jefferson Power Station units 3 and 4, prepared by the Long Island Lighting Company, provides an analysis of the existing and expected vessel traffic generated by this facility. According to the DEIS, at the present time, Port Jefferson Power Station receives a total of approximately 50 deliveries of fuel oil per year. Under the proposed coal conversion, two scenarios are presented. The first assumes the use of 24,000 ton self unloading vessels, which would entail approximately 38 coal deliveries per year. The second scenario entails the use of 3500 ton river barges, which would increase the annual delivery to approximately 130 deliveries a year, with each delivery consisting of 2-barge tows. In addition to these coal deliveries, the present rate of 2 to 4 deliveries of fuel oil per year for units 1 and 2 would be maintained under both scenarios. The DEIS does not provide any insight into the decision making process which will be used to determine which type of vessel will be employed in the coal deliveries. Evidently, their analysis lead

them to the conclusion that even with the greater traffic scenario, the impact would be small, as it would still account for only an approximate 2% increase in commercial harbor traffic. However, from the reviewers point of view, some additional information from these two scenarios would be helpful. The obvious question is whether or not the type of barge is dictated by the route which the coal takes to get to Port Jefferson Harbor or by the characteristics of the harbor itself. In other words, does the use of the larger vessels require any dredging or other modifications to the harbor? If so, these were not included in the analysis presented in the DEIS. From the information presented, it can be concluded that the direct impact on marine traffic from coal conversion would be insignificant. However, there is a possibility of significant indirect impacts if, for instance, dredging or other harbor modifications would be proposed.

Section 3 - Field Survey and Results

A field survey on vessel traffic on Port Jefferson Harbor was conducted during the 1984 Labor Day Weekend (September 1, 1984), for the purposes of determining peak vessel traffic on the harbor. For the purposes of this survey, the harbor was subdivided into seven units as follows:

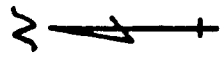
1. Old Field Beach and Conscience Bay Anchorage

2. Harbor Inlet
3. McAllister Cove Anchorage and County Park Area
4. Harbor Mooring Area
5. Marinas and Commercial Docks
6. Poquott Mooring and Anchorage
7. Setuaket Harbor Marina Mooring and Anchorage

Example 1 presents a map of these harbor subdivisions.

The survey was conducted between the hours of 8:00 and 11:00 a.m. These hours were selected because, due to the nature of boating activity on long holiday weekends, it was anticipated that a significant percentage of vessels moored on the harbor would be leaving for the weekend. Based on this assumption, the survey was set up to observe peak outbound traffic for the weekend. Prior to the actual field survey, a reconnaissance of the harbor shoreline was undertaken to determine the optimum advantage point for surveying the entire harbor. The best point from which the survey marine vessel traffic in the harbor was determined to be the Village Beach in Poquott. An observer was stationed at this location for the duration of the survey, and all vessel movements were counted from this location. Although this was the best point available for observing vessel traffic, it is possible that some movements that took place in the mouth of the Setauket Harbor and the more recessed portions of Conscience Bay were unobserved, thus, minimizing the contributions

LONG ISLAND SOUND



OLD FIELD BEACH &
CONSCIENCE BAY

HARBOR INLET

MACALLISTER
COVE

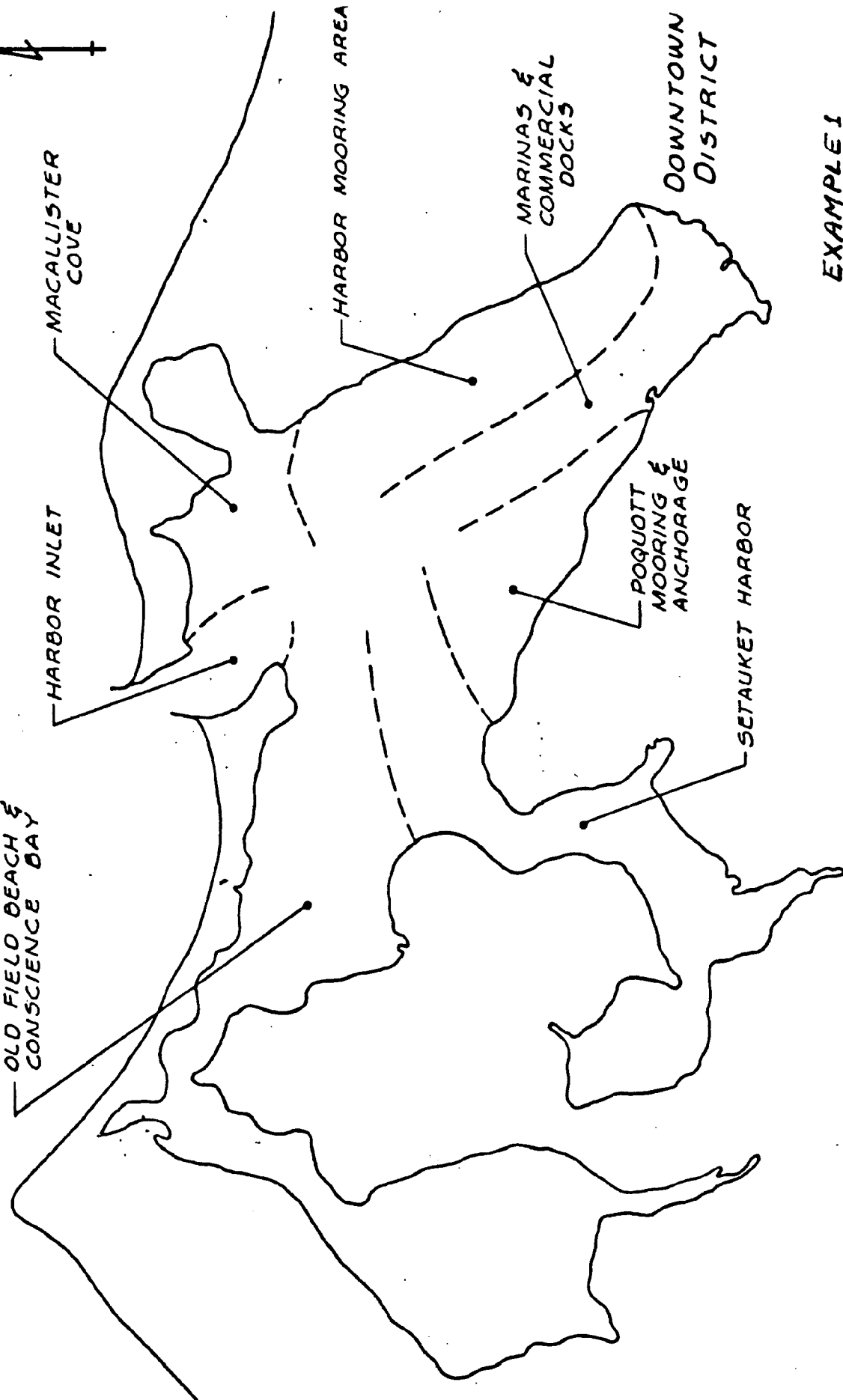
HARBOR MOORING AREA

MARINAS &
COMMERCIAL
DOCKS

DOWNTOWN
DISTRICT

POQUOTT
MOORING &
ANCHORAGE

SETAUKET HARBOR



EXAMPLE I
HARBOR SUBDIVISION.
1" = 2000'

of these areas to harbor traffic. It is not thought, however, that the resulting error is significant. The field survey did not distinguish between recreational and commercial movements, because, with the exception of movements of the Port Jefferson ferry, the contribution of commercial traffic during the peak hours on Labor Day Weekend appeared to be very small. For all practical purposes, all vessels enumerated in the course of this survey can be considered to be recreational traffic.

The results of the field survey indicate that peak hour movements occur between 10:00 and 11:00 a.m. The actual number of vessel movements broken down into various harbor subunits is presented in the following table.

PEAK HOUR VESSEL MOVEMENTS

Harbor Inlet (both directions)	67
Gas Docks & Town Marina	68
Main Mooring Area	26
Setauket Harbor	10
McAllister's Cove	36
Miscellaneous Areas	<u>32</u>
Total Peak Activity	239

It can be seen from these results that the greatest concentration of activity takes place within the harbor inlet area and within the area at the head of the harbor where the Town marina, launching ramp, gas docks and other boating facilities are located. It also happens that this same area contains the largest concentration of shoreside commercial facilities including sand and gravel and oil terminals as well as the Port Jefferson Power Station.

Additional field surveys were undertaken to determine the number of recreational vessels moored on the harbor and its tributaries. The results of this phase of the field survey were used for the analysis of marine traffic as well as Activity II, which is an analysis of mooring areas and channels.

Section 4 - Planning Analysis

Port Jefferson Harbor and its tributaries have a total shoreline length of approximately 16 miles. Of this total, 15.1 miles are privately owned and developed for residential purposes, or publicly owned and undeveloped with little or no public access from the mainland. Commercial, industrial and utility usage of the harbor compromise 0.9 miles, less than 6% of the total shoreline. This commercial/industrial/utility area forms a continuous strip at the head of the harbor and is the focal point of a large percentage of the harbor's vessel traffic. Although the main harbor areas and channel areas are adequate to service all the vessels moored or otherwise berthed on the harbor, as indicated in the Activity II Report on mooring areas and channels, the heavy concentration of activity at the head of the harbor does cause difficulties. Geometrically, the harbor can be envisioned as shaped like a large funnel, with the greater portion of the activity at the narrow end. Concentration of the marine and recreational traffic at the head of the harbor is not ideal in terms of harbor planning. In this area, movement of a single

large commercial vessel can disrupt traffic. Fortunately, in the area of concentrated boating activity there is navigable water for virtually the entire width of the harbor, and recreational vessels are not restricted to relatively narrow channel areas, as are many of the larger commercial vessels.

Although a planning study of zoning and other land use issues around Port Jefferson Harbor is beyond the scope of this report, several planning considerations are relevant to the conclusions regarding commercial and recreational traffic in the harbor. In comparison to the open waters of the Long Island Sound, tidal flushing of Port Jefferson Harbor, and the consequent assimilative capacity for oil and other pollutants, is poor. Other options are available for the importation of oil into the region. These include the construction of an offshore oil terminal and the construction of pipelines, both of which have been recommended by the Nassau-Suffolk Regional Planning Board. An offshore terminal could similarly be used to transport coal to the Port Jefferson Power Station in slurry form. However, the transportation of coal into the harbor, as proposed by the LILCO DEIS, would represent a minor portion of the traffic and is probably not a major consideration at this time. Implementation of these alternatives would alleviate a substantial portion of the commercial traffic in the busier portions of the harbor. Concurrently, waterfront property which is now used for commercial and industrial purposes would become available for uses which serve the

recreational boating public while providing increased public access to the harbor shoreline. Such change in land use would also be expected to improve water quality within the harbor although vast improvements to the Port Jefferson sewage treatment plant, which are beyond the scope of this study, will be required before significant improvements in water quality are experienced.

The gravel operation at the southwest corner of the harbor can not feasibly be replaced by the construction of offshore terminals and pipelines. At the same time, it does not appear that the economics regarding regional importation of gravel are likely to change in the near future. For these reasons, this use will probably be continued at Port Jefferson Harbor. The only major conflict this presents is a proximity to the Town marina and consequent constricting of the waterway at the marina entrance. Spillage caused when barges are off loaded also reportedly causes shoaling of the channel area. Unfortunately, there does not appear to be any feasible solution to this conflict.

Section 5 - Conclusions and Recommendations

- 1) Problems related to marine traffic are caused by the funnel shaped configuration of the harbor and the concentration of marine recreational and commercial activity at the narrow head of the harbor.

- 2) Neither of the two marine traffic scenarios presented in the LILCO DEIS would have a significant direct impact on marine traffic in the harbor. The factors which would favor either scenario, however, are not presented, and could possibly have significant indirect impacts.
- 3) The Town should continue to support the construction of an offshore oil terminal and the phasing out of shoreside oil terminals.

TOWN OF BROOKHAVEN
COASTAL ENERGY IMPACT PROGRAM

ACTIVITY 2 - MOORING AREAS

Section 1 - Introduction

The purpose of Activity 2 of the Town of Brookhaven Coastal Energy Impact Program is to review existing practices, regulations and other pertinent data regarding the mooring of vessels at Port Jefferson Harbor. Available data was gathered, synthesized and reviewed, field surveys were conducted and overall planning analysis was performed to determine the need, if any, for Town legislation to increase control over mooring and establishment of channel areas. As part of this study, an analysis of the Port Jefferson Harbor main channel was performed to determine its adequacy for handling the marine traffic of the harbor.

This portion of the study utilizes data and techniques as well as field survey information from Activity 1 - Marine Traffic. As such, it should be considered a compliment to that activity. For the purposes of this section, mooring includes those vessels which are kept at anchor within the study area when not in use by their owners. In addition, for the purposes of assessing channel adequacy, the definition of mooring is expanded to include those vessels berthed in the Town marina and adjacent docks, as well as the expected contribution of the town launching ramp to the concentration of boats in the harbor.

Section 2 - Existing Regulations

The ownership of land under water of Port Jefferson Harbor by the Trustees of the Freeholders and Commonality of the Town of Brookhaven can be traced back to the colonial patents. The Town exercises control over the harbor bottom in several areas. Chapter 57 of the Town Code covers the taking of shellfish. At the present time, Port Jefferson Harbor is considered uncertified water by New York State and the taking of shellfish is prohibited with the exception of the cove in the northwest sector of the harbor. Chapter 81, Wetlands, covers dredging, filling and the construction of recreational piers. Chapter 13 of the Town Code, although not predicated on the Town ownership of the harbor bottom, regulates boat control within waters of the Town. None of the above regulations directly affect the placement of moorings in the harbor. Up to the present time, the Town of Brookhaven has not exercised this option to control moorings in Port Jefferson Harbor, except to restrict the configuration of the mooring area in order to allow adequate channel width west and south of the mooring area. This activity is conducted by the Town Harbormaster.

Several of the Long Island towns with harbors bordering Long Island Sound have promulgated legislation governing placement of moorings within their waters. The Town of Oyster Bay, in Nassau County, has the most comprehensive legislation. Mooring areas

are divided into various sections for various classes of boats and boat densities. Their legislation includes specifications for moorings and the authority to inspect the placement of moorings. Town of Smithtown has a set of specifications for moorings, which are placed by the Town harbor masters. Town of Huntington does not specifically regulate moorings but does require a 50 foot buffer zone adjacent to navigable channels.

Section 3 - Description of Mooring Areas

A. Main Harbor Mooring Area

The main harbor mooring area is located on the east side of the main channel beginning at the head of the harbor and extending approximately half the length of the harbor for a total area of approximately 106 acres. Approximately 300 moorings were present in this area during the summer of 1984.

B. Setauket Harbor

Setauket Harbor is a very popular mooring spot, chiefly because it provides greater protection than the main portion of the harbor. The mooring area in Setauket Harbor comprises of virtually all navigable water within the harbor. Approximately 310 moorings were present in this area in the summer of 1984.

the boat is probably accounted for by a mooring or marina slip. Furthermore, an average launching ramp will launch and retrieve about 50 trailered boats on a peak day (1), about 80% of which, or 40 boats, will be using the waterway at a given time. Considering that the Port Jefferson launching ramp is capable of launching more than one boat simultaneously, the figure of 70 vessels contributed to peak waterway usage by the ramp is reasonable. The parking facility at the town launching ramp has a trailer parking capacity of 70 units.

The private marina facility located adjacent to the Town launching ramp also provides a drysail launching service. According to the owners, this launching facility will launch and retrieve 75 vessels on a peak-use day.

The following table presents a breakdown of the total concentration of recreational boats which are moored or otherwise berthed on Port Jefferson Harbor.

RECREATIONAL VESSELS USING HARBOR

Main Mooring Area	300
Setauket Harbor	310
Other Mooring Areas	90
Town Marina	180
Launching Ramp Capacity	70
Private Launch Service	<u>75</u>
TOTAL:	1025

Section 4 - Planning Analysis

A. Channel Areas

There are presently approximately 1025 boats moored and launched on Port Jefferson Harbor and its tributaries. Since this number is based on actual field counts, it should be considered as an accurate estimate to within 10 percent. For instance, one factor, which may affect the accuracy of the field estimate, is the practice of various boaters of having two moorings on the harbor, one in the main mooring area and one in the more excluded portion of the harbor, such as the northwest cove, for weekend use.

In order to estimate the boating capacity of the channel area of the harbor with respect to the number of boats which could safely navigate, it is necessary to establish peak boat usage during a major summer weekend and the size of the channel area in the harbor. In planning navigation projects in harbor areas, it has been calculated (2) that at any one time on a peak day in summer, 25% of the boats moored on a harbor may be in operation at some point along the harbor's channels. Interestingly, the field survey conducted for Activity 1, Marine Traffic, established a total peak activity of 239 vessel movements. This calculates as 25.2% of the total vessels moored in the harbor. It is certainly an indication

that the established criterion of 25% is accurate. In the case of Port Jefferson Harbor, however, most of the recreational boats moored at the harbor are not restricted to particular channel areas, and traffic moves rather haphazardly throughout the entire harbor. The main channel from the harbor entrance to the head of the harbor, however, is marked and recognized by boaters in the area as a channel area and honored as such. For the purposes of this evaluation, in order to attain a more conservative result, it was assumed that the entire 25% of moored vessels in transit at a given time were concentrated within the main channel area.

The main channel of Port Jefferson Harbor is approximately 300 feet wide and 10,400 feet long, for a total square footage of 3,120,000. There are no hard and fast rules regarding clearances between recreational boats operating in channel areas within the Town. However, it is assumed that for safe navigation, a minimum clearance of 10 feet between boats would be involved in side by side passage. This is the standard which has been legislated by Anne Arundel County, Maryland, which has a mix of recreational vessels similar to Port Jefferson Harbor, although Anne Arundel County has a much higher concentration of boats. It is also assumed that a minimum of one boat length in front of and behind each boat where vessels are following one another in channel areas (yielding two boat lengths between boats), is a reasonably

adhered to standard(3). Although, from field investigations, it became obvious that there is not an "average boat" on Port Jefferson Harbor, for the purpose of this analysis, it is assumed that an average boat on the harbor is a sailboat, approximately 32 feet in length with auxiliary power. Using the above assumptions for clearances between vessels under way in channels, one can envision a square of safe navigational maneuverability around each vessel of approximately 1800 square feet. Multiplying the navigational square unit by peak vessel movements in the harbor (239 x 1800) yields a total required channel square footage of 430,200 which represents 14% of available channel area required for peak hour vessel movements. Even if peak usage is increased to 50% of the boats moored at the harbor at the same time, the navigational channel area usage is increased to only approximately 28%.

Although the harbor channel is adequately sized for existing and anticipated marine traffic, the geometric configuration of the harbor could be conducive to the formation of marine traffic "hot spots" such as the southwest end of the harbor and the harbor entrance. The entrance channel is particularly susceptible as it provides the only link between the Long Island Sound and the whole harbor complex. In harbor planning, the size of the entrance channel should account for both geophysical factors as well as boating concentrations.

In the case of Port Jefferson Harbor, the entrance channel is determined by the location of the inlet jetties, and is not likely to be modified. This leaves boating concentration as the determinant of entrance channel adequacy. A reasonable planning criterion is the provision of a navigable width of 300 feet for the first 1,000 boats, plus an additional 100 feet for every additional 1000 boats moored or launched on the harbor⁽⁴⁾. These numbers should be considered as minimum widths and may be marginal if the entrance channel is aligned parallel to the prevailing wind. The navigable width of the Port Jefferson entrance channel is approximately 400 feet. According to the above standards, this will accommodate a harbor servicing 2000 boats. Presently, slightly over 1000 boats currently use the harbor. In the near future, recreational use of harbors similar to Port Jefferson can be expected to increase significantly, in proportion to the ongoing increase in median family income⁽⁵⁾. In addition, there is significant capacity for expansion of dockage at the east downtown harbor area, as well as increased mooring in this area. Furthermore, the entrance channel is aligned predominantly northwest/southeast. During the summer months, the passages of cold fronts frequently result in winds blowing from the northwest, which causes outbound sailboats to be forced to tack in the entrance channel. Such days are generally characterized by some of the area's best weather, with a concomitant increase in boating. At such times, the capacity of the entrance channel can be used to its limit.

It can be seen from this analysis that any significant increase in commercial traffic within the entrance channel could impact adversely on the recreational use of the harbor. The Town of Brookhaven should monitor the expected increase in boating activity on the harbor, to see if any entrance channel regulations should become necessary.

B. Mooring Areas

At the present time, placement of moorings in Port Jefferson Harbor is not controlled by the Town. It should be noted, however, that markers are placed by the town harbormaster along the west and south sides of the main mooring area to prevent any encroachment on the main channel area. Within the mooring area itself, however, placement of moorings is uncontrolled at the present time. Several options are available to the town which will provide partial or full control of moorings within the harbor. These options are as follows:

1. Delineation of mooring subareas for different classes of boats.
2. Grid system for locating individual moorings.
3. Moorings set by town forces.

4. Maintaining existing conditions.

5. Control placement of moorings by establishing a permit system.

Delineation of subareas for different classes of boats based on size, and, possibly, with a distinction between sail and power would require the town to perform an analysis of the mix of boats currently using mooring areas. Armed with this information, the different subareas could be properly sized. The benefit to be derived from this alternative would be to allow a greater concentration of boats within a given area.

Establishment of a grid system would first include the delineation of subareas (Alternative #1) so that the grid would have uniform spacing within subareas. A grid system would insure proper clearances between moored vessels.

Alternative #3 entails actual setting of moorings by town forces. The only benefit that can be derived by this alternative would be assurance that all moorings conform to a particular standard.

There are many arguments in favor of the maintenance of existing conditions. Possibly the strongest argument is the old adage that "if it ain't broke, don't fix it." A survey

of the main mooring area indicates that the existing moorings do provide adequate clearances between boats. Although anchors and tackle were not inspected, dragged moorings appear to be the exception rather than the rule.

Although, from the physical standpoint, the existing system seems to work adequately, there is an additional aspect of mooring at Port Jefferson Harbor which should be addressed. That is the use of the harbor for mooring by non-residents of the Town of Brookhaven. It seems clear that the town residents, who pay taxes to maintain the harbor, should receive priority for the use of mooring areas. As the demand for recreational mooring and boat berthing increase, the establishment of moorings by non-residents could become a problem. For this reason, a permit system should be established, including a fee differential for non-residents. At the same time, a mooring standard could be enacted which should alleviate the occasional problem of dragged moorings. The standard, which has been implemented by the Town of Smithtown, appears to be adequate in this regard. A permit system could be monitored by way of stickers placed on moored vessels and enforced relatively easily by the town harbor-masters. Considering a nominal fee of approximately \$10, should a permit system would generate approximately \$7,000 in revenue based on the number of moorings present in the summer

of 1984. This revenue would help to offset costs involved in administering and enforcing the permit system. The mooring standard for the Town of Smithtown is presented in Example 2.

§ 25-5

BOAT BASIN MOORING AREAS

§ 25-6

§ 25-6

SMITHTOWN CODE

§ 25-9

§ 25-5. Application for mooring permits.

A. Applicants for a permit to moor along the Nisequoque River and Long Beach mooring area and/or in the boat basin shall file a written application with the Town Clerk, signed by the proper party, as herein above described, stating:

- (1) The name of the applicant.
 - (2) The permanent address of the applicant.
 - (3) A description of the vessel for which a mooring is sought, including name and registry number, if any, and length and beam.
- B. Applications will be accepted only for the season in the year in which the application is made for the season in the following year; provided, however, that such applications shall be subject to the priorities established by § 25-6 in favor of hirers of space during the season last year.
- C. The town reserves the right to reject any application for a berth for reasons of safety or for the reason that the granting of a permit for a specific boat would be contrary to the public convenience and welfare.

§ 25-6. Issuance of permits.

A. After receipt of an application, together with the fee charged pursuant to § 25-8, the Town Clerk shall issue a permit, except that no permit shall be issued prior to the first day of January in the year for which a permit shall be sought. Permits shall be issued in order of application, except that any applicant who applies for a permit before the first day of January in the year for which he seeks a permit and who shall have hired space in the season last past and shall have fully complied with this ordinance during such hiring shall have priority over new applicants.

B. Nothing herein contained shall be construed as limiting in any way the right of the Town of Smithtown to establish a new system of licensing by amendment or repeal of this

ordinance, and the town, in such event, shall be obligated only to make refunds of fees prepaid. The town may also terminate rentals for reasons of safety upon making proper refund of fees charged, except that there shall be no refund if such termination be occasioned by a violation of this ordinance.

§ 25-7. Permits to be nontransferable; subletting.

- A. Mooring permits are absolutely nontransferable. Berths are for the exclusive use of the renter only and for the specific vessel described in the application for permit.
- B. [Added 3-10-81] The Harbor Master shall have the authority to sublet a vacant slip or unused mooring at any time. However, said subletting shall not be in conflict with the use of said slip or mooring by the original lessee. The fee for said subletting shall be:
- (1) For town residents, per day: three dollars (\$3.).
 - (2) For nonresidents, per day: twenty dollars (\$20.).

§ 25-8. Fees.

The following fees will be charged:

A. Berthing at the boat basin.

- (1) Type Slip A, per lineal foot: nine dollars (\$9.).
 - (2) Type Slip B, per lineal foot: ten dollars (\$10.).
 - (3) Type Slip C, per lineal foot: eight dollars (\$8.).
- B. Mooring permit fee: ten cents (\$0.10) per pound, based on weight of anchor requirements set out below.

§ 25-9. Mooring.

No vessel shall be so anchored or moored so that any portions of the vessel, at any time, rest within any channel, within fifty (50) feet of any channel marker, or so as to interfere with the full use of such channel, nor shall any vessel anchor or moor within one

§ 25-9 BOAT BASIN MOORING AREAS § 25-9

C. No mooring shall be so located that a vessel when tied thereto may endanger or interfere with a vessel attached to any previously placed moorings.

hundred (100) feet of a public dock except at the discretion of the Harbor Master. Vessels whose home port is within the waters subject to the jurisdiction of the Town of Smithtown shall be moored in accordance with the following specifications:

A. All moorings shall utilize mushroom anchors having a minimum weight in accordance with the following table:

Length of Vessel Overall (feet)	Light Displacement		Cruising Auxiliaries	
	Sailboats (pounds)	Motorboats (pounds)	Motorboats (pounds)	Auxiliaries (pounds)
0 - 16	75		75	
16 - 20	100		125	
20 - 25	125		150	175
25 - 30	150		200	250
30 - 35	200		250	300
Over 35			300	400

B. All moorings shall have a maximum scope in accordance with the following table:

Length of Vessel Overall (feet)	Chain*		Pennant** (Manila)	
	(feet)	(inches)	(feet)	(inches)
Under 20	30	¼	6	¾
20 - 30	40	5/16	10	1
Over 30	50	¾	10	1¼

NOTES:

* The foregoing scope requirements are based on approximate depth of mean low water of three (3) to ten (10) feet. For moorings in deeper water, add an additional five (5) feet of chain for each additional foot increase in depth of water.

** Equivalent sizes of nylon or stainless steel wire may be used. If manila or nylon, adequate chafing gear must be used. Manila pennants shall be replaced every year.

§ 25-10. Temporary mooring.

Pleasure boats may tie up to the dock, subject to direction of the dock attendant in charge, for the purpose of loading or unloading passengers or supplies for a period not to exceed ten (10) minutes.

§ 25-11. Sanitary requirements.

The flushing of toilets or dumping of refuse along the Nissequogue River and the boat basin proper or in the channel leading from the boat basin to Porpoise Channel is strictly prohibited.

§ 25-12. Swimming and fishing prohibited.

Swimming, fishing or taking of crabs or other sea food from the docks is strictly prohibited.

§ 25-13. Parking of motor vehicles.

A. Persons using the parking fields in or about the mooring areas shall park their automobiles only in spaces designated therefor and pursuant to directions of the dock or beach attendant in charge.

B. Trucks, other than those of the so-called "pickup" type, shall not be permitted to park for any purpose other than delivery of supplies. The parking or storage of boats on the town parking area on the southerly side of the boat basin and on the town parking area at East and West Park at Long Beach and the town parking area near the mouth of the Nissequogue River for any period of time is hereby prohibited.

TOWN OF BROOKHAVEN
COASTAL ENERGY IMPACT PROGRAM

ACTIVITY 3 - DREDGING AND SPOIL DISPOSAL

Section 1 - Introduction

The purpose of Activity 3 is to examine the various options for disposal of dredge spoil and to formulate a uniform spoil disposal policy for Port Jefferson Harbor. This section includes a matrix analysis of disposal options and spoil characteristics that present the feasibility or non-feasibility in terms of economic and regulatory constraints.

Section 2 - Other Pertinent Documents

Various publications containing generic treatments of dredging and dredge materials management on Long Island have been prepared by various agencies or groups including Nassau-Suffolk Regional Planning Board, the Marine Sciences Research Center, the Oceanic Society and the Corps of Engineers. These documents are useful in general terms, but do not deal specifically with Port Jefferson Harbor. The Suffolk County Department of Health Services Division of Disease Control and Environmental Health Services has undertaken monitoring activities in Port Jefferson

Harbor on several occasions. Included in this data collection effort is information on various metals and other parameters, in as well as sediment grain size. This data can prove to be quite useful in determining disposal options on a case by case basis. For the most part, the data indicates(6) that the deeper portions of the harbor consists of mud, with fine to coarse sand being encountered in the shallower portions with depths of less than 12 feet. Very coarse sand is found in the inlet area as would be expected from the strong currents at this location.

Section 3 - Dredging Needs

Unfortunately, at the present time, an adequate assessment of dredging needs at Port Jefferson Harbor has not been conducted. The Town of Brookhaven is in the process of finalizing the dredging component of the Local Waterfront Revitalization Program. Information on dredging needs, broken down regionally, will likely be included in this section. At such a time as this information becomes available, it should be incorporated into this report. For the purposes of this analysis, dredging projects are broken down into major and minor dredging projects with 100 cubic yards being a dividing point. The vast majority of dredging projects, which would be undertaken at Port Jefferson Harbor by the private land owner, would be minor in nature. Major dredging projects, greater than 100 cubic yards, would generally be limited to the commercial areas of the harbor and maintenance dredging within main navigational areas.

With respect to the main navigation channel of the harbor, the Corps of Engineers has proposed increasing the current 26 feet deep, 300 feet wide, channel to a minimum size of 40 feet deep and 350 feet wide. Any such increase has been opposed by Long Island Regional Planning Board, as well as the Town of Brookhaven. The proposed channel enlargement is not consistent with the goals of phasing out on-shore oil terminals by construction of an off-shore loading facility. Due to the regional importance of Port Jefferson Harbor, however, it is important that the Corps of Engineers continue to assume responsible for maintaining the channel at its present size.

Section 4 - Planning Analysis for Spoil Disposal

Seven disposal options were investigated for feasibility under various conditions of spoil characteristics. The options assessed are as follows:

1. Transportation to Brookhaven Landfill
2. Disposal in other landfills
3. Upland Disposal on Project Site
4. Open Water Disposal
5. Habitat Development (Diked)
6. Habitat Development (Undiked)
7. Beach Nourishment

Brookhaven Landfill

At the present time, the Brookhaven landfill is the most commonly used off-site spoil disposal area, primarily because this landfill is lined, preventing chlorides and other dissolved solids from leaching to the groundwater. Disposal in the Brookhaven landfill is often a condition of regulatory permits. This is particularly true of major projects greater than 100 cubic yards where disposal on the project site is not feasible. Several problems with this disposal method are apparent. Transport to the Brookhaven Landfill is relatively expensive, involving approximately a fifteen mile haul plus dumping fees. Furthermore, it is presumed that, in the not very distant future, a resource recovery plant will come on line and a fading out of the Brookhaven landfill will take place. It is unsure whether this site will still be available at this time for the disposal of dredge spoil.

Although the Brookhaven landfill is commonly used for a disposal area, due to constraints set by regulatory agencies, this disposal method does represent a wasting of a potential resource. Dredge spoil can be put to more beneficial use as material for habitat development or beach nourishment as outlined in the discussion of these options below.

Other Landfills

Many of the coarser grained sediment dredged from Port Jefferson Harbor are limited in dissolved solids content to salts normally found in sea water. These pose very little danger to groundwater in terms of contamination. It would be possible to designate an area in the town, closer to the harbor, construct a plastic or clay liner, and designate this as an area for dredge spoil disposal. An inactive sand mine might be used for this purpose. This could be a town or privately operated facility which could charge a fee for the disposing of dredge spoil which would be competitive with fees charged at the town landfill. It is not likely that this option is feasible, however, in terms of the minor projects which account for most of the dredge spoil at Port Jefferson Harbor. The construction of such a site, however, may very well be feasible when maintenance dredging of the main channel area is required.

Upland Disposal on Site

This is the most commonly used disposal option for projects with less than 100 cubic yards of dredge spoil. For projects with greater amounts of dredge spoil, the physical limitations of the site quite often preclude on-site disposal. Due the cost effectiveness of on-site disposal, in the case of small projects, this practice will probably be continued indefinitely.

Open Water Disposal

Corps of Engineers currently maintains two sites in Long Island Sound for the disposal of dredge materials. The Western Long Island Sound site is located north of Lloyd Point at latitude $40^{\circ}, 59.4'$ north, longitude $73^{\circ}, 28.7'$ west or approximately 17.6 nautical miles from the entrance to Port Jefferson Harbor. The Central Long Island Sound site is located south of East Haven, Connecticut, at latitude $49^{\circ} 9'N$, longitude $72^{\circ} 52.8' W$, or approximately 14.5 nautical miles from the entrance to the harbor. These sites are available for dredge spoil less than 25,000 cubic yards in volume. Required tests include grain size analysis and bulk sediment analysis. Extensive bioassay and chemical analyses are not required for sand sized sediments. The availability of these sites, however, which require a Corps of Engineers permit, is predicated on the non-availability of an upland site. In the case of an upland site, where disposal would be more expensive than transportation to the open water site, the Corps of Engineers would still require use of the upland site. Under these circumstances, it is unlikely that open water disposal would be a feasible option for dredge material from Port Jefferson Harbor. A possible exception would be maintenance dredging of the main channel, assuming it could pass the grain size requirements.

Habitat Development (Diked)

The Dredge Material Research Program, an extensive study of dredge material options, performed by the Corps of Engineers and completed in 1978, found habitat development to be a feasible as well as beneficial use of dredge material. Habitat development can include upland, intertidal, and as well as littoral habitat areas. With respect to fine grained or muddy sediments, upland development and in the Port Jefferson Harbor region is probably not feasible due to the difficulties in finding available open upland, as well as the problems encountered in containing the fluid spoils. In this case, habitat development would require the construction of a dike to contain dredge spoils. The most feasible such habitat development would be intertidal in nature. This would involve selecting an area for the establishment of intertidal wetlands, constructing an impermeable dike with a top elevation within the intertidal regime, and filling the dike area with the muddy sediments. Finished grade would then be planted with appropriate wetland species and monitored. Unfortunately, this option carries a high initial cost due to the construction of the dike. Furthermore, the habitat area must be completed within a reasonable period of time so that the fine grain sediments may be stabilized with vegetation. Therefore, rather than being a long term disposal option, this alternative would only be feasible for relatively large projects with short time frames.

Habitat Development (Undiked)

Dredge spoil consisting of sandy material can be used for habitat development without the need for retention and, thus without the high initial first cost. The coarse grained sediments could also be used on upland areas for the establishment of dunes or coastal wildlife habitat areas. Old Field Beach would be an excellent candidate for upland habitat development, however, some logistical problems would have to be resolved. The access to this area by heavy equipment could possibly do more harm than the benefit to be derived from the habitat development. In addition, during the summer months, this is a relatively high use area where people beach their boats and sunbathe, etc. Any habitat to be developed, therefore, would require enforcement in the forms of patrol, signs, and, possibly, fencing in order to maintain its value. Coarse grain sediments are also well suited to intertidal habitat development. This may, indeed, be the most feasible from the various alternatives for the disposal of coarse grain sediments off site. Transportation costs are low and planting is rather inexpensive.

Beach Nourishment

In the course of this study, no information was uncovered regarding the erosion of shorelines within Port Jefferson Harbor.

It is known, however, that there are extensive eroding areas along the Long Island Sound which are not too distant from the harbor. The use of dredge spoils for beach nourishment is beneficial in that it represents an approach to erosion control which does not involve shoreline hardening structures. Great care, however, must be exercised in matching dredge spoil with the beach to be nourished. It is of prime importance that the dredge spoil has a grain size equal to or slightly larger than the beach to be nourished. If smaller grain sizes are used, the indigenous interstitial community, which is very valuable to the food chain and to shorebird populations, can be destroyed, after which the nourishment material is often washed away. On the other hand, if the nourishment material is too coarse, the beach will steepen in profile, thus disrupting the coastal processes affecting the area. On the coast of the Long Island Sound, which is extremely irregular in nature, grain size can change very rapidly along relatively small reaches of shoreline. Therefore, the grain size analyses to be undertaken should be site specific in nature. The various disposal options are related to spoil characteristics in the disposal matrix presented in Example 3.

In addition to the selection of appropriate disposal method for dredging projects, other safeguards are applicable to the dredging operation itself. The Town normally imposes the condition that dredging should occur only between September 1 and

DISPOSAL OPTIONS

SOIL CHARACTERISTICS	BROOKHAVEN LANDFILL	OTHER LANDFILL	UPLAND ON SITE	OPEN WATER DISPOSAL	HABITAT DEVELOPMENT (DIKED)	HABITAT DEVELOPMENT (UNDIked)	BEACH NOURISHMENT
GRANULAR	1	2	1	1	1	1	1
NON-GRANULAR	1	2	1	3	1	3	3
> 100 CY	1	2	1	1	1	1	1
< 100 CY	1	2	1	2	2	1	1

- NOTES:
- 1 - Feasible
 - 2 - Not Feasible Due to Economics at Present Time
 - 3 - Not Feasible Due to Regulatory Constraints
 - 4 - Not Feasible Due to Costs & Regulatory Constraints

April 1. The purpose of this condition is to avoid increased turbidity in the harbor's waters during the time when marine organisms are undergoing the peak of reproductive activity. Benthic organisms, including shellfish, are particularly susceptible to disruption by such activities. Due to the overloading and/or malfunctioning of the Port Jefferson Sewage Treatment Plant, the coliform levels in the harbor have forced most of Port Jefferson Harbor to be designated as uncertified for the taking of shellfish. Although this condition is likely to prevail for some time, certain areas of the harbor may still retain their importance as breeding areas. When the harbor is finally reopened to shellfishing, it is likely that the stocks, which are not now being harvested, will be greater in both areal extent and density. For this reason, the seasonal restrictions on dredging should be maintained as a general policy.

Various other conditions are appropriate regarding the final configuration of the dredged area. Isolated holes should not be permitted in areas where adequate oxygen levels cannot be anticipated. Side slopes of dredged areas should have a maximum gradient which is dependent on the natural angle of repose of the sediments being dredged. As a general rule, a maximum slope of one on three is appropriate, however, in the case of very fine sediments, the maximum slope should be determined on a case by case basis. Generally, it is a condition of dredging permits that spoil not be placed within tidal or fresh water wetlands.

In the case of habitat development, in intertidal or littoral areas, the benefits to be derived from such habitat development would have to be weighed against the benefits produced by the wetlands in their existing states. Obviously, only unproductive or marginal wetland areas should be considered for any type of habitat development.

Contaminated sediments must be considered on a case by case basis. This is a thread that runs through and is common to all disposal options, however, it is more likely to become a problem in the finer grained muddy sediments. Heavy metals and other contaminants generally adhere to the finer grained sediments due to the electrical charges possessed by particles of fine grain silt and clay. It is relatively unusual for sand to be contaminated. Dredge materials, which are considered to be contaminated, must be reviewed on a case by case basis. Any highly contaminated sediments which might be encountered would be very likely to generate controversy, even among experts in the field. The potential dangers of leaving them in the harbor must be weighed against the possibilities that contaminants would be mobilized during the dredging process and be more likely to enter the food chain. Additional concerns involve the difficulties of disposing of highly contaminated materials. If such materials were encountered in the course of any dredging project, the final dredging and disposal options could only be selected after consultation with appropriate state, Federal and county hazardous materials experts.

Section 5 - Conclusions and Recommendations

A. Dredging Needs

The majority of dredging projects on Port Jefferson Harbor and its tributaries involve relatively minor quantities of spoil, which can often be disposed of outside of the waterway on the project site. The exceptions include dredging at the commercial and municipal facilities on the harbor, as well as maintenance dredging of the main navigation channels within the harbor.

B. Disposal Options

Disposal in landfills is both a costly option and a waste of a potentially valuable resource. Particularly in the case of granular sediments, habitat development, particularly the establishment of intertidal marshes, should be encouraged. Beach nourishment is feasible, but careful attention must be paid to grain size compatibility. Disposal on site is likely to remain the option chosen in the majority of dredging projects.

C. Dredge Disposal Area

The conditions currently imposed by the Town on dredging permits are appropriate and should be continued.

REFERENCES

1. Dunham, James W. and Finn, A. A.; "Small Craft Harbors: Design, Construction, and Operation", SR #2 December 1974, Coastal Engineering Research Center, Page 84.
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3. Ibid Page 4 - 55.
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5. McConnell, K. E., and Caswell, M. F.; "Report on A Survey of Rhode Island Households Concerning their Outdoor Recreational Activities", University of Rhode Island Marine Memorandum #50, 1977.
6. Gross, M. G., et al.; "Characteristics and environmental quality of six north shore bays, Nassau and Suffolk Counties, Long Island, New York." Tech Report 14, MSRC, Stony Brook, 1972.

TOWN OF BROOKHAVEN
COASTAL ENERGY IMPACT PROGRAM

ACTIVITY 4 - FINAL REPORT

Section 1 - Introduction

Port Jefferson Harbor is the only deep water access harbor between Mattituck Inlet and Huntington Bay, which supports a wide mix of recreational and commercial marine traffic. Understanding the composition of boat traffic is important in regulating marine conditions and planning for future harbor needs.

The proposal to convert two units of the LILCO Port Jefferson Power Station to coal, was predicted to change the composition of marine commercial useage in the harbor and therefore possibly impact marine traffic; recreational mooring; and future dredging needs. In planning to meet the changing conditions in Port Jefferson Harbor, the Town of Brookhaven requested and received a grant from the New York State Department of State to study these three aspects under the Coastal Energy Impact Program. A summary of the findings and conclusions of this study are presented herein.

It should be noted that due to present economic conditions, it is unlikely that LILCO will proceed with the proposed coal conversion. The value of the Town of Brookhaven Coastal Energy Impact Program is not predicated on LILCO coal conversion. The findings of this program are useful in harbor planning under present conditions, as well as future conditions dictated by changing economic and social pressures.

Section 2 - Marine Traffic

The marine traffic section of the CEIP is critical to the LILCO proposal for coal conversion of units 3 and 4, at the Port Jefferson Power Station. Port Jefferson Harbor, due to deep water conditions and proximity on the north shore of Long Island, is heavily used for industrial and commercial marine purposes. This use must be balanced with the seasonal, recreational boat traffic which the harbor supports. The Draft Environmental Impact Statement (DEIS) for LILCO Coal Conversion projected an increase in commercial traffic due to coal conversion that would not significantly impact the present marine traffic scheme in the harbor. As part of this study, the DEIS was reviewed and additional references were consulted to determine the possible marine traffic impacts not addressed by the LILCO report. In addition, field surveys of actual conditions in Port Jefferson were conducted.

Sources of information regarding marine traffic on Port Jefferson Harbor include: U.S. Army Corp of Engineer surveys, Bridgeport, Port Jefferson Steam Boat Company Records, and the LILCO DEIS. All of the sources address commercial related traffic to the exclusion of recreational boating. For this reason, the field survey performed under the CEIP is extremely valuable.

LILCO traffic impact projections were based on a comparison of existing fuel deliveries to required fuel deliveries after coal conversion. In the worst case scenario, LILCO concluded that a 2% increase in commercial harbor traffic would be realized upon conversion. Other studies estimate that the major volume of commercial harbor traffic is the Bridgeport Port Jefferson ferry service, accounting for 60%. Therefore, existing literature supports the conclusion that a relatively small change in fuel deliveries at LILCO would not significantly impact commercial harbor traffic.

The CEIP Indicates that existing literature is not sufficient to support this conclusion. Other factors which must be considered include:

- additional commercial traffic such as ship chandlery services, minor tugboat operations, deployment of oil spill containment equipment and launch service
- recreational harbor useage
- harbor configuration

In order to fill this gap of information and formulate meaningful conclusions a marine traffic survey was performed. The survey involved the counting of all vessel movements, in various subsections of the harbor, during the peak hours of a holiday weekend. The location of harbor subsections are presented in the appendix. Field results are as follows:

PEAK HOUR VESSEL MOVEMENTS

Harbor Inlet (both directions)	67
Gas Docks and Town Marina	68
Main Mooring Area	26
Setauket Harbor	10
McAllister's Cove	36
Miscellaneous	<u>32</u>
Total Peak Activity	239

Based on existing literature, field survey, and planning analysis the following series of conclusions and recommendations were formulated:

1. Problems relating to marine traffic are caused by the funnel shaped configuration of the harbor, and the concentration of marine recreational and commercial activity at the narrow inlet to the harbor.
2. The worst case marine traffic scenario present in the LILCO DEIS would probably not have a significant direct impact on marine traffic in the harbor. The factors which would determine which delivery method LILCO would employ upon coal conversion were not presented. There is a potential for indirect impacts to occur which cannot be evaluated based on existing information.
3. An alternative should be considered in port planning for Port Jefferson. This is the construction of an offshore unloading terminal as proposed by the Nassau-Suffolk Regional Planning Board. Reasons supporting this include: potential for improved water quality, reduction of marine traffic congestion in the down-

town area, and the phasing out of shoreside terminals for other desirable water dependent uses. The facility plans of LILCO, Mobil Oil Corporation, and Northville Industries, in Port Jefferson Harbor must be considered in conjunction with this alternative.

Section 3 - Mooring Areas

Port Jefferson Harbor is a very desirable anchorage for permanently moored recreational vessels. There are two yacht clubs on the waterfront, one of which maintains a launch service. The Village of Port Jefferson also runs a launch service to accommodate moored vessels. In addition, the Town operates a marina and launch ramp, and one private boatyard has a dry sailing facility for recreational vessels. All of these uses are clustered in the downtown harbor area.

The main mooring area extends half the length of Port Jefferson Harbor, and consists of 106 acres. Other mooring areas which are within the Port Jefferson Harbor complex include Poquott Village, Setauket Harbor and Little Bay, the Conscience Bay entrance and the Narrows.

The moored vessel component of the Port Jefferson Harbor complex must be investigated from a regulatory standpoint to ascertain whether boat control is necessary to maintain safe conditions in Port Jefferson. The Town presently maintains a navigable channel through use of bouys. A study of moored vessels can also be correlated to recreational marine traffic generated on Port Jefferson Harbor, thus complementing that section of the CEIP. Finally, an assessment of the saturation capacity of Port Jefferson Harbor can be performed based on a relationship of moored vessels to channel size and safe clearances.

All of the above considerations have been addressed under the CEIP and conclusions and recommendations have been reached. This information is valuable in planning for the future of Port Jefferson Harbor and maintaining a compatible mix of recreational and commercial traffic.

This study is based on field surveys performed during the summer of 1984. For the purposes of this section, mooring includes those vessels which are kept at anchor within the study area when not in use by their owners. In addition, for the purposes of assessing channel adequacy, the definition of mooring is expanded to include those vessels berthed in the Town Marina and adjacent docks, as well as the expected contribution of the Town launching ramp to the concentration of boats in the harbor.

Results of the survey are as follows:

RECREATIONAL VESSELS USING HARBOR

Main Mooring Area	300
Setauket Harbor	310
Other Mooring Areas	90
Town Marina	180
Launching Ramp Capacity	70
Private Launch Service	<u>75</u>

1025

A planning analysis was performed using these data, for the channel area and the mooring area of Port Jefferson Harbor. To assess the adequacy of the harbor channel to accommodate existing traffic, a scenario was proposed where 25% of all vessels using the harbor occupied the channel at one time. The resultant traffic estimate of 256 boats correlates remarkably well with the 239 vessel movements observed as part of the marine traffic section. By applying recognized navigation standards for safe clearances, it was estimated that at present approximately 14% of the available channel area required

for peak hour vessel movements, is currently utilized. Therefore, the navigational area of the channel is sufficient to accommodate an increase in boat traffic. Further analysis indicates that although the channel is adequately sized, the inlet and downtown area are two marine traffic "Hot Spots". An application of reasonable planning criterion for marine traffic capacity of the harbor entrance concludes that current use is in excess of 50% of capacity under normal boating conditions, and at capacity during certain circumstances. Therefore, an increase in commercial traffic within the entrance channel could impact adversely on the recreational use of the harbor. It is recommended that the expected increase in boating traffic be monitored to determine if entrance channel regulations become necessary.

In the planning analysis for mooring areas, five alternatives are discussed, including maintenance of existing conditions. Based on analysis of existing conditions, available alternatives, demand and safety, it is recommended that the existing mooring system remain in tact, with some additional modifications. Under existing conditions, the Town Harbormasters maintain markers on the west and south side of the channel to prevent mooring encroachment and allow for safe navigation. Within the mooring area itself, placement of moorings is uncontrolled. This system appears to work well at the present time. It is further recommended that a mooring permit system be established by the Town to give preference to Town residents, including a fee differential for non residents. The permits would generate sufficient revenue to administer the program, and monitoring could be accomplished by placing stickers on moored vessels. The Town Harbormaster would enforce the program. At the same time, a mooring standard could be enacted which should alleviate the occasional problem of dragged moorings. The standard, which has been implemented by the Town of Smithtown, appears adequate in this regard and is presented in the

appendix.

A summary of conclusions and recommendations is as follows:

1. Field surveys conducted during the summer of 1984 estimate that 1,025 vessels are berthed, moored or launched in the Port Jefferson Harbor complex.
2. The harbor channel is not overutilized at the present time, however, the downtown area and harbor inlet are at or near capacity under certain circumstances.
3. It is recommended that the expected increase in boating traffic be monitored to determine if entrance channel regulations become necessary.
4. The existing mooring system for Port Jefferson Harbor should not be changed, with the exception a permit/fee system, and application of minimum standards similar to Smithtown.

Section 4 - Dredging and Spoil Disposal

Port Jefferson has historically been maintained as a commercial port of operations for ship building, and more recently for transport of petroleum products, sand and gravel. In addition, the Bridgeport Port Jefferson Steamboat Company has operated a ferry service between the two ports for over a century. It is apparent that under existing conditions, as well as coal conversion of LILCO units 3 and 4, Port Jefferson must maintain deep water access to remain a viable marine commercial port. At this time there has been no commitment by any of the large commercial businesses in the harbor, toward construction of an offshore unloading terminal. Therefore, in planning for dredging and spoil disposal in Port Jefferson, maintenance of a dredged channel is a priority.

It is interesting to note the history of Port Jefferson Harbor channel dredging as part of this report. In 1903, the U.S. Army Corps of Engineers dredged the channel to a depth of 12 feet; in 1930-1931 the Army Corps

modified the project to a depth of 16 feet, but the job was done by private interests. In 1957, the channel was dredged to 26 feet by private interests with no modification of the federal project. Therefore, the U.S. Army Corps of Engineers must maintain the channel only at a depth of 16 feet.

The present channel depth of 26 feet is adequate for the needs of LILCO and other facilities presently occupying the harbor. This depth would also be adequate should coal conversion take place. Due to the regional importance of a suitably navigable channel in Port Jefferson, it is recommended that the U.S. Army Corps of Engineers make a commitment toward maintenance of 26 foot by 300 foot channel.

Other dredging needs in Port Jefferson Harbor include minor dredging in the Downtown area for commercial and recreational purposes. Projects include: Port Jefferson ferry slip maintenance; Town marina and launch ramp dredging; spilled gravel removal in the vicinity of the Sand and Gravel Company; Village and private dock area dredging to a safe depth; and dredging in the vicinity of the yacht clubs and other commercial slips and docks. Additional minor projects may be proposed in the Port Jefferson Harbor complex in the vicinity of private and marine commercial land and docks. Setauket Harbor was last dredged in 1965, and although some shoaling has been reported, no efforts have been initiated to dredge this channel.

For the purposes of this report, dredging projects are broken down into major and minor dredging projects with 100 cubic yards being the dividing point. The vast majority of projects which would be undertaken by the private land-owners would be minor in nature. Major dredging projects, greater than 100 cubic yards, would generally be limited to the commercial areas of the harbor and maintenance dredging within main navigational areas.

Seven disposal options were investigated for feasibility under various conditions of spoil characteristics. These options are as follow:

1. Transportation to Brookhaven Landfill
2. Disposal in other landfills
3. Upland Disposal on Project Site
4. Open Water Disposal
5. Habitat Development (Diked)
6. Habitat Development (Undiked)
7. Beach Nourishment

A description of each alternative and an assessment of the applicability of each to Port Jefferson Harbor is provided in the main body of the CEIP, Activity 3. In order to summarize the feasibility of each option with regard to grain size and magnitude of the project, a matrix has been included in the Final Reports, Activity 4 (see appendix).

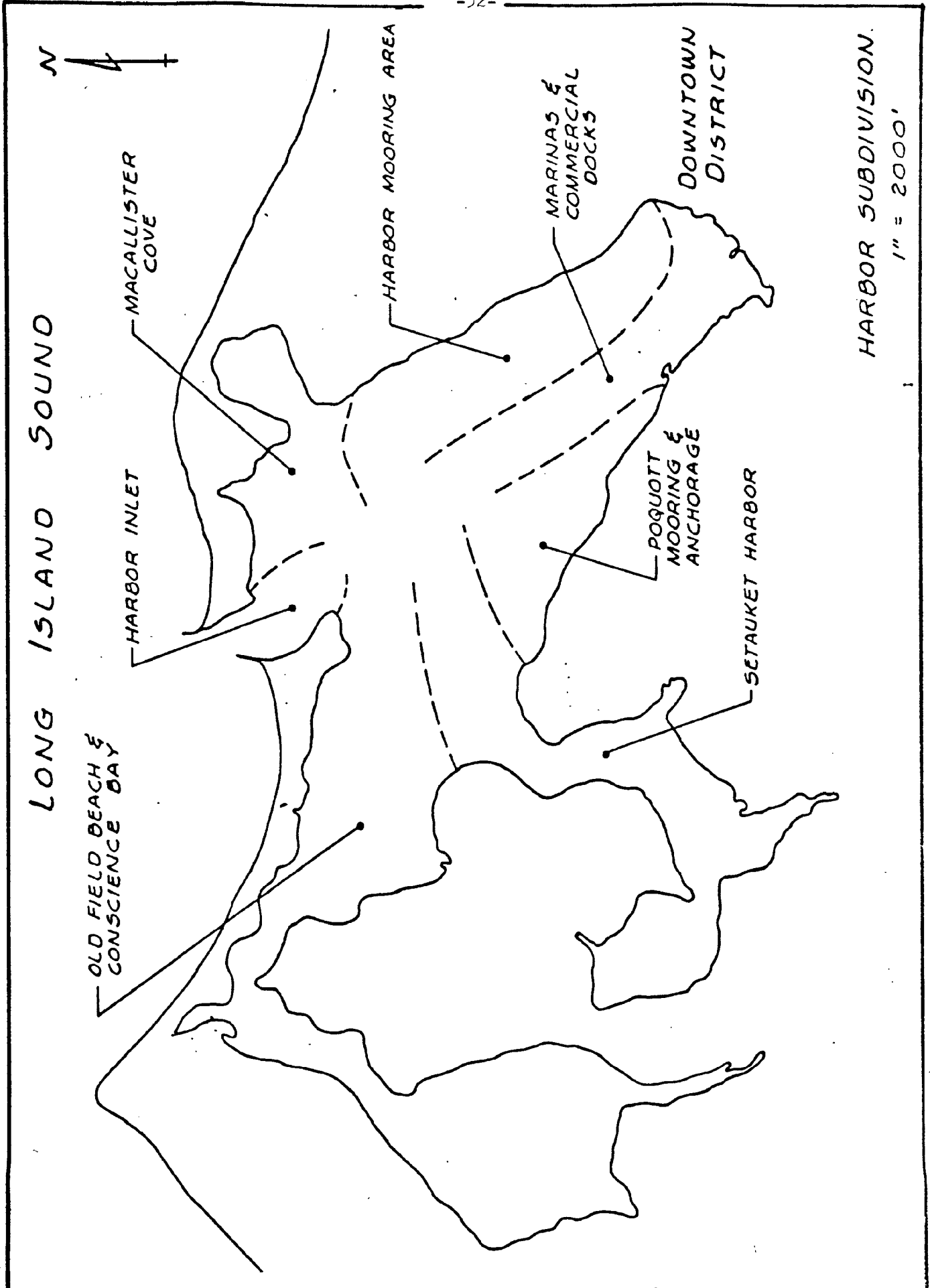
In addition to the selection of appropriate disposal methods for dredging projects, other safeguards are applicable to the dredging operation itself.

1. A restriction on summer dredging is necessary to control increased turbidity in the water column and the resultant impacts on the marine biota and aesthetics. This restriction is currently used and will be evaluated and established in policy with criteria for determining adherence as part of the Local Waterfront Revitalization (LWRP). The findings of the LWRP shall apply to dredging projects within the Port Jefferson Harbor complex.
2. Isolated holes should not be permitted in areas where anaerobic conditions may be promoted.
3. Side slopes of dredged areas should have a maximum gradient dependent on the natural angle of repose of the sediments being dredged. As a general rule, 1:3 is appropriate, however in the case of very fine sediments, the maximum slope should be determined on a case by case basis.
4. Dredging and dredge spoil disposal shall not adversely impact viable tidal and freshwater wetlands. In the case of habitat development the benefits must be weighed against benefits from existing wetland quality. Only unproductive or marginal wetlands should be considered for any type of habitat development.
5. Dredging and disposal of contaminated sediments must be reviewed on a case by case basis.

The conclusions and recommendations of dredging and spoil disposal are broken down into three areas: 1. Dredging Needs; 2. Disposal Options; and 3. Dredge Disposal Area.

1. The majority of dredging projects on Port Jefferson Harbor and its tributaries involve relatively minor quantities of spoil, which can often be disposed of outside of the waterway on the project site. The exceptions include dredging at the commercial and municipal facilities on the harbor, as well as maintenance dredging of the main navigation channels within the harbor.
2. Disposal in landfills is both a costly option and a waste of a potentially valuable resource. Particularly in the case of granular sediments, habitat development, particularly the establishment of intertidal marshes, should be encouraged. Beach nourishment is feasible, but careful attention must be paid to grain size compatibility. Disposal on site is likely to remain the option chosen in the majority of dredging projects.
3. The conditions currently imposed by the Town on dredging permits are appropriate and should be continued.

APPENDIX



HARBOR SUBDIVISION.
1" = 2000'

§ 25-5

BOAT BASIN MOORING AREAS

§ 25-6

§ 25-6

SMITHTOWN CODE

§ 25-9

§ 25-5. Application for mooring permits.

A. Applicants for a permit to moor along the Nissequoque River and Long Beach mooring area and/or in the boat basin shall file a written application with the Town Clerk, signed by the proper party, as herein above described, stating:

- (1) The name of the applicant.
- (2) The permanent address of the applicant.

(3) A description of the vessel for which a mooring is sought, including name and registry number, if any, and length and beam.

B. Applications will be accepted only for the season in the year in which the application is made for the season in the following year; provided, however, that such applications shall be subject to the priorities established by § 25-6 in favor of hirers of space during the season last year.

C. The town reserves the right to reject any application for a berth for reasons of safety or for the reason that the granting of a permit for a specific boat would be contrary to the public convenience and welfare.

§ 25-6. Issuance of permits.

A. After receipt of an application, together with the fee charged pursuant to § 25-8, the Town Clerk shall issue a permit, except that no permit shall be issued prior to the first day of January in the year for which a permit shall be sought. Permits shall be issued in order of application, except that any applicant who applies for a permit before the first day of January in the year for which he seeks a permit and who shall have hired space in the season last past and shall have fully complied with this ordinance during such hiring shall have priority over new applicants.

B. Nothing herein contained shall be construed as limiting in any way the right of the Town of Smithtown to establish a new system of licensing by amendment or repeal of this

ordinance, and the town, in such event, shall be obligated only to make refunds of fees prepaid. The town may also terminate rentals for reasons of safety upon making proper refund of fees charged, except that there shall be no refund if such termination be occasioned by a violation of this ordinance.

§ 25-7. Permits to be nontransferable; subletting.

A. Mooring permits are absolutely nontransferable. Berths are for the exclusive use of the renter only and for the specific vessel described in the application for permit.

B. [Added 3-10-81] The Harbor Master shall have the authority to sublet a vacant slip or unused mooring at any time. However, said subletting shall not be in conflict with the use of said slip or mooring by the original lessee. The fee for said subletting shall be:

- (1) For town residents, per day: three dollars (\$3.).
- (2) For nonresidents, per day: twenty dollars (\$20.).

§ 25-8. Fees.

The following fees will be charged:

A. Berthing at the boat basin.

- (1) Type Slip A, per lineal foot: nine dollars (\$9.).
- (2) Type Slip B, per lineal foot: ten dollars (\$10.).
- (3) Type Slip C, per lineal foot: eight dollars (\$8.).

B. Mooring permit fee: ten cents (\$0.10) per pound, based on weight of anchor requirements set out below.

§ 25-9. Mooring.

No vessel shall be so anchored or moored so that any portions of the vessel, at any time, rest within any channel, within fifty (50) feet of any channel marker, or so as to interfere with the full use of such channel, nor shall any vessel anchor or moor within one

§ 25-9

SMITHTOWN CODE

§ 25-13

C. No mooring shall be so located that a vessel when tied thereto may endanger or interfere with a vessel attached to any previously placed moorings.

§ 25-10. Temporary mooring.

Pleasure boats may tie up to the dock, subject to direction of the dock attendant in charge, for the purpose of loading or unloading passengers or supplies for a period not to exceed ten (10) minutes.

§ 25-11. Sanitary requirements.

The flushing of toilets or dumping of refuse along the Nissequogue River and the boat basin proper or in the channel leading from the boat basin to Porpoise Channel is strictly prohibited.

§ 25-12. Swimming and fishing prohibited.

Swimming, fishing or taking of crabs or other sea food from the docks is strictly prohibited.

§ 25-13. Parking of motor vehicles.

A. Persons using the parking fields in or about the mooring areas shall park their automobiles only in spaces designated therefor and pursuant to directions of the dock or beach attendant in charge.

B. Trucks, other than those of the so-called "pickup" type, shall not be permitted to park for any purpose other than delivery of supplies. The parking or storage of boats on the town parking area on the southerly side of the boat basin and on the town parking area at East and West Park at Long Beach and the town parking area near the mouth of the Nissequogue River for any period of time is hereby prohibited.

§ 25-9 BOAT BASIN MOORING AREAS § 25-9

hundred (100) feet of a public dock except at the discretion of the Harbor Master. Vessels whose home port is within the waters subject to the jurisdiction of the Town of Smithtown shall be moored in accordance with the following specifications:

A. All moorings shall utilize mushroom anchors having a minimum weight in accordance with the following table:

Length of Vessel Overall (feet)	Light		Cruising Auxiliaries	
	Displacement Sailboats (pounds)	Motorboats (pounds)	Motorboats (pounds)	Auxiliaries (pounds)
0 - 16	75	75		
16 - 20	100	125		
20 - 25	125	150	175	
25 - 30	150	200	250	
30 - 35	200	250	300	
Over 35		300	400	

B. All moorings shall have a maximum scope in accordance with the following table:

Length of Vessel Overall (feet)	Chain*		Pennant** (Manila)	
	(feet)	(inches)	(feet)	(inches)
Under 20	30	¼	6	¾
20 - 30	40	5/16	10	1
Over 30	50	¾	10	1¼

NOTES:

* The foregoing scope requirements are based on approximate depth of mean low water of three (3) to ten (10) feet. For moorings in deeper water, add an additional five (5) feet of chain for each additional foot increase in depth of water.

** Equivalent sizes of nylon or stainless steel wire may be used. If manila or nylon, adequate chafing gear must be used. Manila pennants shall be replaced every year.

DISPOSAL OPTIONS

SOIL CHARACTERISTICS	BROOKHAVEN LANDFILL	OTHER LANDFILL	UPLAND ON SITE	OPEN WATER DISPOSAL	HABITAT DEVELOPMENT (DIKED)	HABITAT DEVELOPMENT (UNDIKED)	BEACH NOURISHMENT
GRANULAR	1	2	1	1	1	1	1
NON-GRANULAR	1	2	1	3	1	3	3
> 100 CY	1	2	1	1	1	1	1
< 100 CY	1	2	1	2	2	1	1

- NOTES: 1 - Feasible
 2 - Not Feasible Due to Economics at Present Time
 3 - Not Feasible Due to Regulatory Constraints
 4 - Not Feasible Due to Costs & Regulatory Constraints

DATE DUE

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