

SUMMARY OF THE HULL HARBOR PLAN

December 1999

The Harbor Master Plan has been created by the Town of Hull to help manage the future of its harbor and waterfront resources. The areas included in the Plan are defined by the harbor and waterfront edges along the western edges of the community, from Windmill Point to the north and to the southern limits of the Weir River estuary to the south. The Plan also includes the land and waters along the coastal features of Gun Rock Beach, and Green Hill Harbor at Crescent Beach.

Separate planning processes have been initiated to help resolve the issues in the beachfront areas of Hull, from Nantasket Beach to Stony Beach and Village Beach to the north. As a result, Hull's beach areas are not included within the scope of the Harbor Plan.

The Plan has been prepared in concert with the requirements for a Municipal Harbor Plan as recognized by the Commonwealth of Massachusetts Office of Coastal Zone Management, in order to establish a consistent regulatory approach to those lands and waters subject to Commonwealth jurisdiction. The Commonwealth retains specific interests in the future of the Harbor for public access and water-dependent uses through M.G.L. Chapter 91 (Public Waterways Act, 1866), and through the implementing regulations (310 CMR 9.00). Funding for this Plan has been in part provided by a grant from the Commonwealth of Massachusetts.

This effort has been guided by the Hull Harbor Planning Committee which is an appointed committee of the Town. Public participation has been an integral part of the planning process, through public meetings and workshops held throughout the course of the Plan's development. The Harbor Planning Committee has been assisted by numerous agencies, boards, and individuals. Consultant teams have served the Committee in the preparation of technical studies and in the assembly of the findings.

The Hull Harbor Plan has been prepared under the guidance of the Harbor Planning Committee during a three-year long process. Key milestones remaining include public reviews of the Draft Harbor Plan, approvals by the Town of Hull through the Harbor Planning Committee and the Board of Selectmen, a public hearing, and approval by the Commonwealth's Secretary of Environmental Affairs.

General Conclusions of the Hull Harbor Plan

The Town of Hull has evolved as a residential community that has a unique waterfront orientation, special uses and destinations that attract visitors, and water-dependent uses that continue a long tradition of a maritime town. This Master Plan for Hull's Harbor areas envisions revitalized, active and pleasant waterfront edges where the community has traditionally been connected to the harbor that surrounds it. The Master Plan seeks to

protect the beauty, tranquility, and environmental quality of much of the Harbor, through good management and appropriate public policy. The economic potential presented by visitors to the Town and appropriate development of marine facilities is recognized; Hull can and should become a place that is a more diversified regional destination with both waterside and landside access.

The revitalization of harbor front facilities will include construction of new facilities, and restoration of older facilities that serve water-dependent commercial and recreational uses. Improvements are planned for all Town-owned facilities, appropriate to their location and use potential. This revitalization encompasses Pemberton Pier, James Wharf, the A Street Pier, and Nantasket Pier.

The needs of lobstermen and fishermen are recognized in this Plan. Specifically, the Plan calls for improved facilities in locations that will benefit existing operations.

Enhanced public access is a particular emphasis of this Plan. The Plan envisions a connected series of waterfront access points that have signage and improvements that encourage local use, and direct use by visitors to Hull where appropriate. This public access system would be linked to pedestrian and bicycle networks that would connect neighborhoods to the water, and Hull to the surrounding waterfront communities.

Opportunities for recreational boating are envisioned that continue to improve safe moorage, provide excellent marina facilities, convenient piers and ramps, and additional shore side parking facilities to serve both the local needs and regional opportunities represented by Hull's harbor resources.

The Plan seeks to support appropriate economic development in the encouragement of links between Harbor resources and strengthened destinations within Hull for the tourism. The Plan foresees a long-term shift in the perception of Hull as one of the most interesting destinations among the Boston Harbor Islands, with bicycle, shuttle bus, and pedestrian networks linking Hull's particular attractions to ferry terminal facilities at Pemberton Point.

This Harbor Plan recognizes the value placed on the relationship between the harbor areas and the residential neighborhoods along the Hull peninsula. In general, the development of new uses along the water's edge are discouraged that are inconsistent with the residential character of the neighborhoods, while recognizing that the existing water-dependent uses and traditional waterfront access points are integral to the character of the community and should not be displaced by residential needs.

A comprehensive approach to management has been included in this Plan, which relies on improvements to the existing system of responsibilities within the Town and adds a new Harbor Commission to oversee the implementation of the Plan and advocacy of effective solutions to future challenges. The management approach also recognizes the regional importance of Hull, and stresses effective interaction with neighboring jurisdictions, State and Federal agencies and programs.

The Plan recognizes the need to match future resources to the needs and priorities of the Plan. In this regard, it prioritizes actions that must rely on Town funds, and supports initiatives to direct State and Federal resources to support initiatives where practical.

Selection of Specific Recommendations and Conclusions

Navigation and Water Use

- The dredging of the access channel and perimeter areas at Nantasket Pier are a priority of the Harbor Master Plan.
- Maintenance dredging should be planned on a regular basis to simplify permitting and support the funding processes necessary to bring both Town and external resources to keep Hull's piers and mooring areas accessible.
- Commercial fishing should be supported through improvements at Pemberton Point, including both waterside and landside facilities. This should include the construction of a breakwater and allocation of land for a lobster pound facility.
- Recreational boating activities should be improved through the improvements at Pemberton Point, Allerton Harbor, the A-Street Pier, Nantasket Pier, Gun Rock Beach and Crescent Beach.
- Water transportation to and from Hull should be encouraged, with particular emphasis on facilities and programs that consider Hull as a destination for visitors to the Boston Harbor Islands.

Management and Maintenance of Harbor Facilities

- A program of repair, reconstruction and maintenance has been described for important foreshore structures, including the Crescent Beach Seawall, the Gun Rock Breakwater, seawalls near Point Allerton, the Green Hill breakwater and seawalls, Pemberton Pier seawall, and a seawalls along Highland Avenue.
- Improvements have been recommended for all Town-owned piers and facilities, including Pemberton Pier, James Wharf, the A-Street Pier, and Nantasket Pier.
- Programs to expand and improve Town-managed moorings have been including in the Master Plan, with an emphasis on the Pemberton Point and Allerton Harbor areas.

Waterfront Use

- A program has been defined for a series of Town-owned landings to provide consistent and attractive signage, public access improvements, and an information and maintenance program.
- The access program should include linked bikeways and pedestrian routes that are improved and managed.
- The land within and adjacent to the Nantasket Pier area should be redeveloped for marina use and associated accessory requirements, along with retail and restaurant uses that are consistent with this preferred, water-dependent use.
- Private land use along the waterfront is appropriately planned within current Town zoning, and the Harbor Plan recommendations are consistent with the existing Chapter 91 regulatory standards on private property where existing regulations are applicable.

Harbor Management and Administration

- Administration of the Chapter 91 regulatory reviews within Hull should be transferred to the proposed Harbor Commission from the Planning Board.
- A new Harbor Commission is proposed as a standing committee to oversee the implementation of the Harbor Plan, to provide for regular reviews of Town policies and regulations, to advocate for local, State and Federal funding of relevant projects, and to serve as a forum to resolve issues and conflicts concerning harbor and waterfront use within the Town.
- A program of regular inter-jurisdictional coordination should be established between the Town of Hull and relevant State and Federal-level agencies to help facilitate the actions recommended within the Plan.
- The Harbor Plan supports the continued implementation of the harbor management responsibilities of the Harbormaster, including completion of a survey of moorings, improved record-keeping and reporting procedures, and other actions as initiated by the Town.

Marine and Natural Resource Protection

- The Harbor Plan acknowledges the environmental importance of the Weir River Area of Critical Environmental Concern. The Plan suggests the potential for minor modifications in the limits of the Area if necessary to support the redevelopment of Nantasket Pier, and recognizes the procedural requirements to establish the potential impacts and mitigation associated with the restoration of active uses in this portion of the Harbor.

- The Harbor Plan recognizes that there are limited local opportunities to improve water quality within Hull Harbor; the water quality is relatively high and the Town maintains a sewer system for nearly all properties. Water quality problems tend to be associated with regional sources and are likely to be substantially alleviated through the regional changes in the sewer treatment program. The Plan supports the administration and enforcement of existing environmental and water quality regulations to protect this resource. The Plan targets particular actions that may be taken to reduce storm water run-off and other point-source pollution along Hull's waterfront.

HARBOR MANAGEMENT PLAN FOR THE TOWN OF HULL

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I. Summary of the Plan

1. SUMMARY OF THE PLAN

A. Overview

Since Hull's founding in 1622, the special character of the Town has been linked to the harbor that surrounds it. The maritime orientation of the community has been reflected in the strategic role it played in the defense of Boston Harbor, in the lifesaving facilities that were founded here, and in the shipbuilding and fishing industries it has supported. Water transportation was integral to the recreation and entertainment industries that once flourished here. The beaches, piers, and marinas have been a regional recreational resource. As a residential community, Hull has enjoyed the unique vantage points of properties with water views in all directions.

This Harbor Master Plan has been created by the Town of Hull to help manage the future of its harbor and waterfront resources. The areas included in the Plan are defined by the harbor and waterfront edges along the western edges of the community, from Windmill Point to the north and to the southern limits of the Weir River Estuary to the south. The Plan also includes the land and waters along the coastal features of Gunrock Beach and Green Hill Harbor at Crescent Beach.

Separate planning processes have been initiated to help resolve the issues in the beachfront areas of Hull, from Nantasket Beach to Stony Beach and Village Beach to the north. Therefore, Hull's beach areas are not included within the scope of the Harbor Plan.

The Plan has been prepared in concert with the requirements for a Municipal Harbor Plan, as recognized by the Commonwealth of Massachusetts Office of Coastal Zone Management, in order to establish a consistent regulatory approach to those lands and waters subject to Commonwealth jurisdiction. The Commonwealth retains specific interests in the future of the harbor for public access and water-dependent uses through M.G.L. Chapter 91 (Public Waterways Act, 1866) and through the implementing regulations (310 CMR 9.00). Funding for this Plan has been provided in part by a grant from the Commonwealth of Massachusetts.

This effort has been guided by the Hull Harbor Planning Committee, which is an appointed committee of the Town. Public participation has been an integral part of the planning process, through public meetings and workshops held throughout the course of the Plan's development. The Harbor Planning Committee has been assisted by the Town Manager, the Department of Community Development, and the Town Harbormaster. Numerous public agencies have provided input throughout the planning process, including the Massachusetts Office of Coastal Zone Management. Professional consulting has been provided in the preparation of the Plan through a team led by The Cecil Group, Inc., with assistance from Nucci Vine Associates, Inc., the Urban Harbors Institute of the University of Massachusetts/Boston, and FXM Associates, Inc. Preparation of the Scope for the Master Plan and other professional assistance was provided by Appledore Engineering, Inc.

Section I of the Harbor Master Plan summarizes the vision of the Plan and reviews the goals and objectives that the Plan seeks to fulfill. It also summarizes the conclusions and recommendations that are contained in the subsequent Sections.

1. A Plan for the Future of Hull Harbor

The Town of Hull has evolved as a residential community that has a unique waterfront orientation, special uses and destinations that attract visitors, and water-dependent uses that continue a long tradition of a maritime town. This Master Plan for Hull's harbor areas envisions revitalized, active, and pleasant waterfront edges where the community has traditionally been connected to the harbor that surrounds it. The Master Plan seeks to protect the beauty, tranquillity, and environmental quality of much of the harbor through good management and public policy. Visitors represent a significant economic potential for the Town, and associated development of marine facilities is recognized; Hull can and should become a place that is a more diversified regional destination with both waterside and landside access.

The revitalization of harborfront facilities will include construction of new facilities and restoration of older facilities that serve water-dependent commercial and recreational uses. Improvements are planned for all Town-owned facilities, appropriate to their location and use potential. This revitalization encompasses Pemberton Pier, James Wharf, the three piers in Allerton Harbor, the A Street Pier, and Nantasket Pier.

The needs of lobstermen and fishermen are recognized in this Plan. Specifically, the Plan calls for improved facilities in locations that will benefit existing operations. Enhanced public access is a particular emphasis of this Plan. The Plan envisions a connected series of waterfront access points that have signage and improvements that encourage local use and, where appropriate, direct use by visitors to Hull. This public access system would be linked to pedestrian and bicycle networks that would connect neighborhoods to the water, and Hull to the surrounding waterfront communities.

Opportunities for recreational boating are envisioned that continue to improve safe moorage, and that provide excellent marina facilities, convenient piers and ramps, and additional shoreside parking facilities to serve both the local needs and the regional opportunities represented by Hull's harbor resources.

The Plan seeks to support appropriate economic development in the encouragement of links between harbor resources and strengthened destinations within Hull. The Plan foresees a long-term shift toward the perception of Hull as one of the most interesting destinations among the Boston Harbor Islands, with bicycle, shuttle-bus, and pedestrian networks linking Hull's particular attractions to ferry terminal facilities at Pemberton Point.

This Harbor Plan recognizes the value placed on the relationship between the harbor areas and the residential neighborhoods along the Hull peninsula. In general, the plan discourages the

development of new uses along the water's edge that are inconsistent with the residential character of the neighborhoods, while recognizing that the existing water-dependent uses and traditional waterfront access points are integral to the character of the community and should not be displaced by residential needs.

A comprehensive approach to management has been included in this Plan, which relies on improvements to the existing system of responsibilities within the Town and adds a new Harbor Advisory Committee to oversee the implementation of the Plan and to advocate for effective solutions to future challenges. The management approach also recognizes the regional importance of Hull and stresses effective interaction with neighboring jurisdictions, and state and federal agencies and programs.

The Plan recognizes the need to match future resources to the needs and priorities of the Plan. In this regard, it prioritizes actions that must rely on Town funds and supports initiatives to direct state and federal resources to Hull.

2. Limits of the Planning Area

The planning area for the Hull Harbor Plan consists of the waters, harbor bottom, and land edges along specified portions of Hull's coastline, exclusive of the beaches that compose the majority of the eastern edge of the Town. The Plan incorporates Hull Bay, stretching from Windmill Point southward and extending into Straits Pond. The only portions of the study area on the eastern side of Hull are areas along Crescent Beach and Gunrock Beach.

More formally, the study area is defined as follows:

- Hull Bay — The study area consists of the area defined on the east by the land edge and to the west by a line defined by a series of channel markers (No. 3 flashing green buoy at Windmill Point, the green channel marker that lies to the east of red buoy No. 6, black can No. 1m) and along the middle of the Weir River to the border of Hull and Cohasset along Straits Pond.
- Crescent Beach — This portion of the study area consists of Gunrock Beach and Crescent Beach, with the water edge being defined by the seaward edge of Gunrock and Seal Rock, including the existing breakwater.

The landward boundary of the study areas includes all land extending from the water to the first public way or landward extent of filled tidelands, whichever is less. It has been assumed that this boundary includes all filled and flowed tidelands within the Town of Hull's municipal jurisdiction. The landside boundaries were extended in several areas, including the following:

- A portion of the Hull High School property

- An area adjacent to James Wharf
- An area extending from the Allerton seawall near Mariner's Park
- An area from A Street and Bay Avenue East to Nantasket Avenue
- An area extending eastward from Nantasket Pier

The Harbor Planning area has been further subdivided in order to assist in the organization of the Harbor Plan (see Figure 1, Harbor Planning Area). The designation of the sub-areas is also consistent with the distinct identities of the harbors and residential districts that compose the Town of Hull.

- Planning Area #1: Pemberton Point Area - This is the area stretching between Hull Gut and Spinnaker Island, including Pemberton Pier.
- Planning Area #2: Allerton Harbor Area — This is the area centered on Allerton Harbor.
- Planning Area #3: Whitehead Flats Area — This area includes Whitehead Flats and Bumkin Island and extends to Sunset Point.
- Planning Area #4: Inner Harbor Areas — This area extends southward from Sunset Point and includes the Nantasket Pier Area.
- Planning Area #5: Weir River Area — This designation consists of much of the Weir River and Straits Pond area.
- Planning Area #6: Gunrock/Seal Rock Areas — This is the Gunrock Beach and Crescent Beach sub-area.

3. Organization of the Hull Harbor Plan

The Hull Harbor Plan consists of five elements, in addition to this Summary. Section II, Summary of Existing Conditions, contains data that have been used to create a clear picture of the key issues and opportunities facing the Harbor. Section III reviews the planning process that has been used to create the Harbor Plan; this section of the report includes a summary of the alternatives that were considered in formulating the Plan. Section IV, Planning Recommendations, details the specific conclusions of the Master Plan. It is organized by both topic areas and geographic areas to facilitate review and reference. Section V, Implementation Framework, contains the list of priorities, responsibilities, actions, and schedules that will result in the successful implementation of the Plan. The Master Plan is followed by an Appendix that lists additional sources of information for reference during the implementation process.

4. Summary of the Planning Process

The Hull Harbor Plan has been prepared under the guidance of the Harbor Planning Committee during a six-year-long process. Key milestones in that process have included the following:

- Fall 1992: Formation of the Hull Harbor Planning Committee
- Fall 1994: Establishment of the framework for a Harbor Plan through discussions with the Massachusetts Office of Coastal Zone Management and planning support in conjunction with the Hull Visions Project (Hull Economic Development Task Force)
- Spring 1996: Preparation of a Request for Scope for the Harbor Plan, including interviews with stakeholders and public meetings
- Summer 1996: Submittal and approval of the Scope for the Harbor Plan by the Secretary of Environmental Affairs of the Commonwealth of Massachusetts
- Winter 1996-1997: Initiation of the Harbor Plan preparation
- Spring 1997: Preparation of the Hull Harbor Plan Findings Report and public meeting to review the findings
- Summer 1997: Preparation of Alternatives and a public meeting to review the Alternatives
- Fall 1997: Preparation of Preliminary Harbor Plan for review and public comment
- Winter 1997-1998: Preparation of the Draft Harbor Plan for a public hearing, approval by the Harbor Planning Committee and the Hull Board of Selectmen, and submittal to the Secretary of Environmental Affairs
- Spring 1998: Anticipated actions include review and approval by the Harbor Planning Committee and the Hull Board of Selectmen and approval by the Secretary of the Executive Office of Environmental Affairs

B. Planning Framework: Overall Goals and Objectives

1. Overall Goals

Hull is a unique coastal community that derives much of its history, economy and quality of life from its harbors and harbor edges. The future should protect and enhance the use and environment of the harbor in keeping with the character of the community. Consistent with the

Hull Vision Statement adopted by the Town, the future of Hull's harbor areas should be shaped to meet the following overall goals:

- Actions should be taken to maximize waterfront access for water-dependent and public use that is consistent with the existing land uses that border the harbor edges.
- The environmental qualities of Hull's Harbor must be appropriately protected and enhanced as change takes place.
- Planning for the harborfront should recognize the dual character of year-round residential uses and seasonal uses and seek compatibility among these uses.
- Harbor improvements should reinforce the distinctive sub-areas of Hull with their special identities, while creating a consistent approach to access and connections among harbor areas.
- Actions should consistently protect and enhance Hull's maritime character for productive economic uses such as commercial fishing, marine recreation, and research.
- Hull should be a significant gateway and a destination within the Harbor Islands network of Boston Harbor.
- Improved management should be instituted to allow for more productive use of the harbor areas and to more effectively advance public policies and goals.

2. Objectives

The specific recommendations of the Hull Harbor Management Plan should be consistent with the following specific objectives.

- The use and improvement of Hull's harbor resources should respect the residential character of neighborhoods that occupy much of the coastal edge.
- Nantasket Pier should be improved and redeveloped, with active uses including recreational boating, commercial and ferry boat access, and other uses that enhance the character of the surrounding areas.
- Nantasket Pier should be self-supporting in terms of future operational costs.
- Public access points, paths, and streets to the waterfront should be marked to allow and encourage public access.

- The shoreside facilities that support public mooring areas and access points should be improved to meet the needs of the boating public.
- Shoreside sources of pollution within Hull town limits should be corrected to enhance water quality and protect the marine resources within the Harbor.
- The Town should initiate the process to change the ACEC (Area of Critical Environmental Concern) boundary in order to achieve local, state, and federal economic and environmental goals for the Nantasket Pier and surrounding waterway.
- Hull should be a principal arrival and destination point for future water transportation relating to the Boston Harbor Islands National Recreation Area and the other tourism destinations in the harbor.
- Ferry service should be enhanced for residents and visitors alike.
- Continuity should be established between Hull's harbor areas through pedestrian connections, bikeway connections, and coherent signage and information systems.
- Public access should be enhanced along water edges wherever practical, consistent with Chapter 91 policies.
- Management practices should be improved to provide adequate supervision and enforcement of harbor regulations for the Town of Hull.
- The Town's educational programs should be linked to understanding of the Harbor Management Plan and the unique qualities of the environment.
- The commercial and recreational shellfishing activities should be enhanced through support for access and protection of the available resources.
- A comprehensive long-term maintenance dredging program should be established for access to all harbors.
- Regarding flood-prone areas, programs should be undertaken to provide technical evaluations of actions that could mitigate current risks, and information on these issues should be distributed to affected property owners.

C. Summary of Principal Conclusions and Recommendations

1. Overall Recommendations

Navigation and Water Use

- The dredging of the access channel and perimeter areas at Nantasket Pier are a priority of the Harbor Master Plan.
- A planned approach to maintenance dredging should be established to anticipate and secure funding for Town needs.
- Commercial fishing should be supported through improvements at Pemberton Point, including both waterside and landside facilities. These improvements should include the construction of a breakwater and allocation of land for a lobster pound facility.
- Commercial shellfishing in Hull's Harbors should continue to be supported through the protection of the environmental quality of the waters surrounding the Town.
- Opportunities for aquaculture should be supported as a Town policy and through active outreach to research and development entities for this industry.
- Recreational boating activities should be enhanced through the improvements at Pemberton Point, Allerton Harbor, the A Street Pier, Nantasket Pier, Gunrock Beach, and Crescent Beach.
- Water transportation to and from Hull should be encouraged, with particular emphasis on facilities and programs that consider Hull as a destination for visitors to the Boston Harbor Islands.

Management and Maintenance of Harbor Facilities

- A program of repair, reconstruction, and maintenance has been described for important foreshore structures, including the Crescent Beach seawall, the Gunrock Breakwater, seawalls near Point Allerton, the Green Hill Breakwater and seawalls, Pemberton Pier seawall, and seawalls along Highland Avenue.
- Improvements have been recommended for all Town-owned piers and facilities, including Pemberton Pier, James Wharf, the A Street Pier, and Nantasket Pier.
- Programs to expand and improve Town-managed moorings have been included in the Master Plan, with an emphasis on the Pemberton Point and Allerton Harbor areas.

Waterfront Use

- A program has been defined for a series of Town-owned landings to provide consistent and attractive signage, public access improvements, and an information and maintenance program.
- The access program should include linked bikeways and pedestrian routes that are improved and managed. This system should be linked to regional bikeway improvements and access through water transportation. The locations of public access points and amenities should be communicated through a public education and information program.
- In general, reopening of closed street ends and landings is advocated in the Plan for views or access, consistent with neighborhood use of waterfront access points.
- Access points that have been traditionally used for boat access in neighborhood areas is supported, without encouraging expanded public use through signage or other improvements, and consistent with good environmental practices in intertidal areas.
- The use of waterfront land owned by the public and used as open space is consistently recommended for continued public use as open space, with the exception of the Nantasket Pier area.
- The land within and adjacent to the Nantasket Pier area should be redeveloped for marina use and associated accessory requirements, along with retail and restaurant uses that are consistent with this preferred, water-dependent use.
- Should marina or other water-dependent uses prove infeasible at Nantasket Pier, the Town should retain the option of allowing non water-dependent uses such as retail, restaurant, and parking to occur in this location.
- Private land use along the waterfront is appropriately planned within current Town zoning, and the Harbor Plan recommendations are consistent with the existing Chapter 91 regulatory standards on private property where existing regulations are applicable.
- Encroachment of private improvements on public accessways is specifically discouraged by the Harbor Plan.
- Development of new water-dependent facilities such as marinas or commercial fishing-related facilities is encouraged through the recommendation that zoning policies be adopted that allow for reduction in parking requirements if on-street or off-site parking solutions can be established that are consistent with reasonable, low impacts on neighboring uses.

Harbor Management and Administration

- The recommendations of the Harbor Management Plan are consistent with the existing Chapter 91 regulations of Commonwealth and private tidelands.
- A new Harbor Advisory Committee is proposed. This committee works with the Town Manager and reports on the implementation of the Harbor Plan, provides for regular advisory reviews of Town policies and regulations, advocates for local, state, and federal funding of relevant projects, and may serve as a forum to resolve issues and conflicts concerning harbor and waterfront use within the Town.
- A program of regular interjurisdictional coordination should be established between the Town of Hull and relevant state and federal agencies to help facilitate the actions recommended within the Plan.
- The Harbor Plan supports the continued implementation of the harbor management responsibilities of the Harbormaster, including completion of a survey of moorings, improved record-keeping and reporting procedures, and other actions as initiated by the Town.

Marine and Natural Resource Protection

- The Harbor Plan recommends modifications to the boundary of the ACEC to support the redevelopment of Nantasket Pier. The Plan acknowledges the environmental importance of the Weir River Area of Critical Environmental Concern (ACEC) and recognizes the procedural requirements to establish the potential impacts and mitigation associated with the restoration of active uses in this portion of the harbor.
- The Harbor Plan recognizes that there are limited local opportunities to improve water quality within Hull Harbor; the water quality is relatively high and the Town maintains a sewer system for nearly all properties. Water quality problems tend to be associated with regional sources and are likely to be substantially alleviated through the regional changes in the sewer treatment program. The Plan supports the administration and enforcement of existing environmental and water quality regulations to protect this resource. The Plan targets particular actions that may be taken to reduce storm water runoff and other nonpoint source pollution along Hull's waterfront.
- Public appreciation of Hull's environmental assets, including the Weir River Estuary, is encouraged through support of programs of reasonable public access, education, and information.

2. Summary of Recommendations by Sub-Area

Pemberton Point Planning Area

The Pemberton Point Planning Area (Planning Area #1) includes important opportunities to create a safer harbor to serve all users, to create additional amenities for residents and visitors, and to provide for a unique destination as part of the Harbor Islands water and land transportation network. Principal recommendations for the Pemberton Point area include the following:

- Commercial fishing should be encouraged through support of landside and waterside facilities, including the potential for a lobster pound and additional floats.
- A breakwater to protect the existing piers and boat ramp area at Pemberton Point would provide substantial benefits to commercial fishing, ferry and water transportation uses, and recreational boating and the Coast Guard Station.
- The Harbor Plan supports the initiatives to implement landscape and streetscape improvements along the Pemberton Point area.
- Pemberton Point should be considered as a future destination for the water transportation network serving Boston Harbor and the Boston Harbor Islands State Park and National Recreation Area.
- Links should be established between the Pemberton Point area and other parts of Hull through a bikeway network, bicycle rental facilities at Pemberton Point, and shuttle buses on a seasonal basis.
- The Coast Guard Boathouse is a substantial long-term amenity that should be preserved for public use.
- Improvements to the boat launch ramp at Pemberton Point are recommended.
- The natural character of the cobble and gravel beach at Hull Gut is an amenity and local feature; it should not be altered.
- Planning should not preclude the long-term potential to provide for a marina at the Pemberton Point area; however, off-site impacts should be minimized.
- Additional public amenities should be provided along Hull Village Beach near and opposite Captain Cleverly's Park.
- James Wharf should be reinforced as a local park.

- Signage and continued maintenance of existing public access points within the Pemberton Point area should be undertaken.

Allerton Harbor Planning Area

Allerton Harbor (Planning Area #2) is a significant public amenity as a protected moorage with landside support facilities for commercial fishing and recreational boating use. Allerton Harbor includes such important facilities as the Hull Yacht Club, Hull Town Pier, and the Nantasket Beach Saltwater Club. The use of this area can be enhanced through shoreside and waterside improvements that are generally oriented toward the town residents, local boat owners, and fishermen. Specific elements of the Plan in this area include the following:

- Construction of a marine structure to reduce the impacts of southwest winds in Allerton Harbor should be planned and implemented.
- Additional float space should be provided at the Town Pier.
- A regular program of maintenance and reinvestment in the public pier should be established.
- Open space, parking area, and signage improvements should be undertaken.
- Continued use or redevelopment of private marinas in this area is encouraged.
- Private ownership of land that is seaward of Cadish Avenue or Sunset Avenue should be reviewed, to preserve public rights.

The A Street Pier and Whitehead Flats Planning Area

The A Street Pier and Whitehead Flats Planning Area (Planning Area #3) generally consists of shallow tidal waters north of Sunset Point, between Strawberry Hill and Bumkin Island. The area is generally lined with residential uses, except for a cluster of public and private marine-related facilities at the foot of A Street, which includes the South Shore Charter School. The recommendations within the Master Plan largely focus on opportunities within the A Street Pier area and on the enhancement of public access points consistent with the residential uses in this area. Specific recommendations include the following:

- A distinct beach area should be signed and improved at the A Street Pier.
- Improvements to the A Street Pier should be undertaken, including signage, low-intensity lighting and ongoing maintenance, a simple dinghy tie-up, and improvements to the roadway paving and sidewalks, including parking on Bay Avenue East.

- Public support should be provided for improvements to enhance the private marina use.
- Public access points in the Whitehead Flats area should be signed, improved, and maintained.

Inner Harbor Planning Area

The Inner Harbor Planning Area (Planning Area #4) consist of those areas within and along the Weir River Estuary along the embayments that flank Sagamore Hill. This area is west of the land that has traditionally supported the tourism and recreation destination within Hull, including the Metropolitan District Commission Nantasket Beach facility. Residential uses surround much of the harbor in this area, as well. The Harbor Plan focuses on the future of public land and facilities in this area, to support the economic development and quality of life for the entire community. Specific recommendations within this planning area include the following elements:

- Actions should be taken to complete dredging of the perimeter of Nantasket Pier.
- The Town should oversee the implementation of a marina development that includes leased slips, transient slips, floats for excursion boats, and slips and floats for lobstermen and commercial fishermen in this area. Pier area remaining after marina development should be made available for compatible retail and restaurant uses.
- The Town should petition to amend the boundary of the ACEC or seek a variance from relevant Chapter 91 regulations where the boundary of the existing ACEC are inconsistent with the feasibility of a marina at Nantasket Pier or its capacity to meet economic development goals.
- The Plan recommends public open space improvements in the open area near the intersection of Electric Avenue and Nantasket Avenue and for the Hull Redevelopment Authority lands near the northern intersection of Bay Street and Nantasket Avenue. The Plan calls for provision of a park-like landscaped edge with pedestrian and bicycle routes along Nantasket Avenue opposite the Hull Redevelopment Authority parcel.
- The Harbor Plan supports a long-term redevelopment strategy for the land between Nantasket Pier and Nantasket Beach.
- Signage and improved access at the public access ways should be provided.

Weir River Planning Area

The Weir River Planning Area (Planning Area #5) largely consists of the Weir River Area of Critical Environmental Concern and the lands along the waterway south of Ring Bolt Rock.

This area is characterized by scenic wetlands and marine estuary environments and residential uses. The recommendations of the Plan in this area are consistent with the passive use and environmental sensitivity of the Weir River Estuary and include the following:

- Short trails or viewpoints and interpretive exhibits should be established as part of a local open space network.
- The Plan supports actions to monitor and enforce environmental standards.
- The Plan recommends signage and provision of access points.

Gunrock/Seal Rock Planning Area

The Gunrock/Seal Rock Planning Area has been identified as Planning Area #6 within the Hull Harbor Plan. It consists of two shallow coves along a rocky coastline that provide protection for limited moorage areas and short stretches of beach. Both areas are lined with residential uses. The recommendations of the Harbor Plan in this area include the following:

- Foreshore structure improvements are required along the Gunrock seawall.
- The Gunrock Breakwater and the Green Hill Breakwater should be included in the list of future projects for funding.
- Public access in this area should be provided and enhanced, consistent with neighborhood use.

3. Summary of Implementation Plan

The Hull Harbor Plan contains a specific implementation plan that assigns roles and responsibilities, supports particular actions, lists priorities, and identifies funding sources for all elements of the Plan. Key implementation recommendations contained in the Harbor Plan include the following:

- The Town Manager and Board of Selectmen should work with the relevant state agencies to finalize funding and feasibility of a Nantasket Pier marina. Technical feasibility of dredge spoil locations, finalization of dredging costs, and allocation of state and local funds is a priority action. Implementation also includes pursuing immediate funding of final feasibility evaluations from the Massachusetts Development Finance Agency and the Seaport Advisory Council. Subsequently, the Town Manager should initiate the actions necessary to implement the improvements in this area.
- The installation of a breakwater, associated with landside improvements, at Pemberton Point could dramatically improve its service to the commercial fishing industry, water

transportation, and recreational uses. An engineering feasibility study followed by a state funding application is advocated.

- A phased program of public access improvements should be undertaken using local and state funds, as they are available. In partial support of such a program, an increase in the moorage fees in the Town is proposed.
- A Harbor Advisory Committee should be established to monitor implementation of this Plan, with responsibilities to include support of funding initiatives, advisory review of policy issues, and regular reporting to the Town Manager. Special task forces should be established to implement particular programs as identified and prioritized in the Plan, such as the proposed improvements at Pemberton Point.
- The Town Manager should direct an interagency coordination effort to implement all elements of the Plan that rely on cooperation and action by regional, state, and federal agencies.
- The Harbormaster should complete those elements of the Plan that are within his duties and should coordinate the funding and financing of these improvements with the Harbor Advisory Committee and the Town Manager.

II. Summary of Existing Conditions

II. SUMMARY OF EXISTING CONDITIONS

A. Overview

The study of existing conditions in Hull Harbor provided an informational base for the planning process and a basis for the conclusions and recommendations that have been reached as a result of this process. The evaluation of existing conditions considered past trends and future prospects for the Harbor areas and the lands that surround them. In part, the existing conditions were analyzed in response to a comprehensive list of issues that was assembled during the scope preparation for the Plan, and was further reviewed by the Harbor Planning Committee as part of the planning process. The organization of this Report includes the following elements:

- **Physical and Environmental Conditions** — This section reviews the physical conditions along the water edge and within the harbor area of Hull and lists environmental conditions that may affect the outcome of the Plan.
- **Economic Conditions** — This section of the report reviews relevant economic conditions that may affect the Plan in terms of both landside and waterside activities.
- **Management Conditions** — This section of the Harbor Plan consists of an overview of the various agencies and regulations that affect the management of Hull's harbors.

B. Physical and Environmental Conditions

1. Historical Context

Hull is a long peninsula of land jutting into Boston Harbor that is composed of a varied topography of low, sandy beaches sweeping between a series of rocky hills and hummocks. Its eastern edge is characterized by the broad band of Nantasket Beach; its western edges border a series of shallow bays, estuaries, and ponds. The history of Hull has grown directly from its unusual regional location and characteristics derived from its underlying geography. In fact, many people know the community as "Nantasket," and signage to the Town often includes this designation, for example.

Hull was first established as a fishing village by Native American peoples. It was first settled by the English colonists in 1622 as a fishing and trading village. Because it was centrally located along the main shipping corridor into Boston Harbor (Nantasket Roads), the village was an advantageous location for fishing, shipping, and shipbuilding activities. A gateway to the growing center of Boston, Hull became the location for the first lighthouse in the young country. Hull's location as a gateway to Boston Harbor also led to its usefulness as a fortification site; remnants of these fortifications have become local landmarks.

The booming economy of Boston and the pleasant beaches of Nantasket led to Hull's emergence as a seasonal and tourism destination in the middle of the eighteenth century. A number of enormous grand hotels were located along Hull peninsula, all of which could be reached by regular steamers from Boston. A railroad stretched to the northernmost areas of Hull; the right-of-way remains in evidence today in the shoreside embankments along several areas. Hull was once a major yachting center, as well. The Hull Yacht Club was a significant institution that evolved into the Boston Yacht Club.

Over time, however, the railroads opened up additional seasonal attractions around New England, dispersing the summertime demand. Hull increasingly became a day-trip destination for the urban population of Boston. Up through the 1960's, Nantasket Pier was the most actively landed ferry service south of Boston, bringing hundred's of thousands of visitors to Nantasket Beach and the surrounding area. The opening of Paragon Park as an amusement center near the turn of the century reinforced the carnival-like character of the summer beach experience.

Throughout the nineteenth and twentieth centuries, the available land was absorbed in land development, much of it for seasonal homes; apparently, much of the year-round population evolved around the employment opportunities at the hotels and other places of business.

Three major economic factors have affected the recent history of Hull. The first was the advent of the automobile, which allowed significant access for the regional population to a variety of recreational opportunities at increasingly greater distances from Boston. The second factor is the relative isolation of Hull from the regional highway transportation network that serves the automobile. Despite its physical proximity to Boston, Hull is relatively distant from major business and employment centers in terms of time of travel. The third factor is that Hull is limited in land area; nearly an island, Hull contains a relatively limited population, despite the high density of development. This fact has resulted in the inability to reach a critical mass of consumers adequate to support a full range of local goods and services. As a result, Hull has evolved as a predominately residential community with lagging value and activity in the seasonal and retail economy.

2. Natural Resources

Salt Marshes

The salt marsh plays a critical role in maintaining the physical, biological, and chemical character of Hull's coastal environment. In particular, the vegetation's ability to produce food and filter nutrients, sediment, and heavy metals from the overlying water column is essential to the proper functioning of the ocean ecosystem. See the Natural Resource Map (Figure 2) for salt marshes and other natural resource areas.

The dense macro-vegetation characteristic of a salt marsh (e.g., cord grass and goldenrod) serves a variety of roles: It is able to use photosynthesis and nutrients to produce food (organic matter used by other organisms in the salt marsh system); it regulates water temperatures; it serves as a natural shoreline buffer during coastal storms; it creates important nesting sites and protective habitats for many coastal animals; and it serves as a point of transfer of moisture from the soil to the air by transpiration. In addition, by producing large volumes of organic matter, salt marshes provide food and nutrients needed by aquatic bacteria, fungi, protozoa's, and — most importantly — phytoplankton.

Phytoplankton are micro-sized plants (algae) that cover the surface of the marsh. The exportation of phytoplankton during tidal exchange is essential in supporting the continued existence of the mollusks, lobsters, shrimp, crab, and fish that feed on phytoplankton in the deeper ocean waters. In addition, phytoplankton are essential to the salt marsh system because of their ability to extract nitrogen from the overlying air and convert it into a form that can be used by other marsh plants.

The salt marshes surrounding Hull are principally composed of Salt Marsh Cordgrass (*Spartina alterniflora*) and Salt Meadow Cordgrass (*Spartina patens*). The uppermost portions, which are flooded only during spring tides, contain such species as Blackgrass (*Juncus gerardi*), Sea Lavender (*Limonium carolinanum*), Sea Pink (*Sabatia spp.*) and Salt Marsh Aster (*Aster maritima*). Many of the tidal channels are lined with High Tide Bush (*Iva frutescens*).

Eel Grass

Eel grass is a critical coastal resource found at various locations along the Hull Bay shoreline. Eel Grass systems provide a variety of services. They serve as a direct food source (the leaves and animals attached) to animals such as snails, crabs, fish, and waterfowl; cycle nutrients in the subtidal coastal waters; and produce detritus that nourishes crabs, mollusks, worms, shrimps, and sea urchins—to name a few.

Beaches as Environmental Features

The beaches and barrier beaches in Hull represent distinctly different environments — intertidal flats, upper beaches and dunes, and rocky shorelines, described as follows:

- Intertidal flats — The combination of salinity, water, and sediment quality and the flow of water over the flat determines the species composition of the plant and animal community. The species of animals in the flats will also vary according to the proportions of sand and mud making up the area. The intertidal flats in Hull Bay are unvegetated, though algae such as Sea Lettuce (*Ulva spp.*) may be found. The dominant species in Hull Bay is the soft shell clam (*Mya arenaria*).

- Upper beaches and dunes — Vegetation of the upper beaches and dunes is dominated by American Beach Grass (*Ammophila spp.*). Other common species that can tolerate the wind and salt from the ocean include Rugosa Rose (*Rosa rugosa*), Bayberry (*Myrica pensylvanica*), and Poison Ivy (*Toxicodendron radicans*). These are hardy species that provide good dune coverage and stabilization.
- Rocky shorelines — Ecosystems of rocky shorelines develop along the faces of boulders and cobbles and also on such man-made structures as rock jetties, groins, piers, and rip-rap. Large-sized brown and green macroalgae are the dominant species found along rocky shorelines. Rockweed such as *Fucus spp.* are the most common. Other species common to this ecosystem in Hull include rock barnacles and periwinkles. Rocky shoreline populations exhibit less seasonal fluctuation than other systems.

The general character of the beaches as natural resources has been noted as follows for the sub-areas defined for this study:

- Planning Area #1: Hull Gut to Spinnaker Island Bridge — The shoreline is primarily a coastal bank with a short rock shore running parallel to Harbor View Road. The shoreline of Spinnaker Island is characterized by a salt marsh on the northern side and tidal flats on the southeast side.
- Planning Area #2: Spinnaker Island Bridge to L Street — This shoreline is characterized by beaches and barrier beaches along both the Hull Bay and ocean shorelines.
- Planning Area #3: L Street to the tip of Sunset Point — The Hull Bay side is mostly beaches and barrier beaches, with an extensive salt marsh system in the elbow of the Sunset Point peninsula. The ocean side is characterized by barrier beaches and an extensive dune system.
- Planning Area #4: Sunset Point to Ring Bolt Rock, including Nantasket Pier — The Hull Redevelopment Authority (HRA) region and the shoreline at Nantasket Pier is a barrier beach. An extensive salt marsh system lies around the peninsula that comprises Sagamore Hill and Hampton Hill.
- Planning Area #5: Ring Bolt Rock to the Town boundary on the eastern edge of Straits Pond — The shoreline on the bay side along George Washington Boulevard is a coastal embankment. On the ocean side, between Long Beach and Gunrock, the shoreline is mostly barrier beach and rock shore.
- Planning Area #6: Gunrock/Crescent Beach — This shoreline is entirely rock shore and barrier beach.

3. Water Quality

Classification

The Massachusetts Surface Water Quality Standards (314 CMR 4.00) describe the activities that are prohibited and the standards that must apply in various class-designated fresh and marine surface water bodies. These water quality standards are enforced by the Massachusetts Division of Water Pollution Control, which requires that discharges to Massachusetts Bay and Hull Bay must meet the criteria for “SA” waters, which are suitable for swimming, fishing, and other recreational activities. Any actions that would prevent such activities are strictly prohibited. The water on the ocean side of Hull (i.e., the Nantasket Beach side) is also designated SA.

The Weir River and Straits Pond are both designated as Class B waters, which is the highest designation for fresh water not used as a potable water supply. No portion of Hull is within an aquifer recharge area or a zone of contribution. The surface waters located in the Weir River ACEC are designated as Outstanding Surface Waters, pursuant to 310 CMR 4.00.

Pollution Sources

Hull has the best water quality in Boston Harbor. This quality is expected to improve as the Boston Harbor cleanup program progresses. Most of the time, the water quality standards in both the bay and ocean sides of Hull exceed the state standards for swimming and boating. However, fecal coliform standards for shellfishing are not met anywhere in the bay or ocean waters surrounding Hull.

There are five major pollution sources that adversely affect the water quality for shellfishing in Hull Bay: (1) non-point-source surface runoff from storm drains (see Figure 3, Pollution Source Map), (2) effluent plumes from the Nut Island Sewage Treatment Plant (attributed to the hydrography of the southern half of the bay), (3) sea birds, (4) landfill sludge that is washed into the Weir River during storm events, and (5) infiltration of waste water from two sections of Hull that are not sewered — the area near James Avenue in the northwest and the area near North Truro and South Truro Streets in the southwest. There are plans to sewer these areas when the Deer Island Treatment Plant is operational, which will relieve this problem. In addition, the Nut Island Sewage Treatment Plant is scheduled to be off line in two to three years, which should help reduce the overall levels of contamination in the bay, particularly during the summer months. The regional flood control system, however, directs runoff from four surrounding drainage areas into the Weir River and into Hull Bay. Pollution from storm drains appears to present the greatest long-term threat to water quality in the bay.

On the ocean side of Hull, water quality is also adversely affected by the Nut Island Sewage Treatment Plant. Commercial shellfishing is prohibited in these waters year-round.

The water quality in Straits Pond is adversely affected by wastewater leachate from surrounding on-site septic systems and from storm drains from North Cohasset residential areas. In addition, it is affected by the nutrient-rich waters of Rattlesnake Run — a Straits Pond tributary that is affected by an upstream golf course and the Cohasset sanitary landfill. Tidal flows into the pond are normally restricted by a tidal gate.

4. Shoreline

The shoreline of Hull extends approximately 27 miles and is composed of beaches, seawalls and revetments, unarmored embankments, and bulkhead and pier structures. The Town is surrounded by water on all sides, with shoreline changes historically being altered by tidal currents and waves, sediment transport processes, and manmade alterations by dredging and filling structures. The following review of shoreline changes in the Town of Hull is based largely on shoreline change maps that include shore positions at different intervals between 1847 and 1978. Because the data are sometimes inconsistent, all positions at all time intervals are not available. However, the data are useful for determining the general trends of accretion, erosion, or stability along the shoreline (see Figure 4, Shoreline Changes).

The south end of the Town is at the Green Hill drumlin. The northeast-facing shore of this drumlin retreated about one foot per year between 1849 and 1950. To the west, Crescent Beach is a transgressive barrier beach that retreated at a similar rate in the nineteenth century but appears to be largely stable in this century due to shore protection structures.

Between Crescent Beach and Atlantic Hill the shoreline is very irregularly shaped, with bedrock outcrops and pocket beaches. The shoreline position data are not consistent over the past century, but the 1978 shoreline is generally landward of earlier positions. Site-specific studies would be required to generalize further about this segment of shoreline.

Nantasket Beach extends north from Atlantic Hill. The southern 1000 feet of Nantasket Beach has retreated slightly over the past century. North of this area, most of the length of the beach has generally been stable over the past century. Turn-of-the-century historic reports indicate that this beach has also been stable for most of the nineteenth century.

Nantasket Beach is tied to Allerton Hill, a glacial drumlin, at its north end. The east-northeast face of this drumlin shows two trends. The south end, adjacent to Nantasket Beach, has eroded slightly in the past century, while the north end, adjacent to a seawall, has accreted significantly in this century.

The northern tip of this shoreline is Point Allerton, which was retracting in the late nineteenth century but has been stable throughout this century, largely due to the effectiveness of a seawall. West of Point Allerton is the northern face of Allerton Hill, which has been stable in this century due to the presence of seawalls. Allerton Hill connects to a narrow tombolo, which ties into Stony Beach and Telegraph Hill, another drumlin. This entire shoreline segment has

been stable throughout this century. The western end of Hull, Pemberton and Windmill Points accreted early in this century. The inside of Windmill Point, from the public pier to the Coast Guard Station, accreted early in this century, possibly due to landfill. The Hull Bay – facing shoreline of Hull Village, extending from the Coast Guard Station to Mariner’s Park, has been stable for over a century. The configuration of Spinnaker Island has changed over the last century, including areas of accretion and erosion. The Mariner’s Park area has accreted significantly in this century, again, apparently due to landfill activities.

The Windemere area, which is the Hull Bay-facing section of Allerton Hill, has been stable throughout this century. The area from Windemere to Skull Head has accreted slightly in this century, which may be landfill-related. Historic shoreline trends for Strawberry Hill are not available, but it is presently stable due to a seawall. South of Strawberry Hill, the Kenberma area is low lying, and shore positions do not show a clear trend. However, the shore has been generally stable over the past century, and a seawall presently stabilizes it.

Both the northern and southern shores of Sunset Point have been stable over the past century, as has the Weir River shore of Nantasket Beach at its east end. The northern faces of Sagamore Hill and Hampton Hill, both glacial drumlins, have retreated slightly in this century. The southwest face of Hampton Hill, adjacent to the main channel of the Weir River, has been stable over this century. The southern faces of Sagamore Hill and Hampton Hill, which face the embayment of the Weir River that includes the Town Pier, appear to have accreted in the late nineteenth century, while shoreline changes in this century are unclear, but slight. The Town Pier and the area to the south have accreted in this century, probably due to landfill.

The section of Hull northwest of Washington Boulevard, between the two channels of the Weir River, have an irregular shoreline. The shoreline changes are irregular, but generally slight.

5. Navigation

Navigation within the Town of Hull is determined by the extreme environments of the ocean and bay area (see Figure 5, Channels and Contours). The eastern shoreline along Massachusetts Bay is a V4 Zone and is capable of developing extreme waves under storm conditions. The shore is generally flat beach with inshore stone in many areas from drumlin erosion. Access to the mainland along the east coast is limited.

Along the northern section of Town, there is the Federal Channel, extending between Peddocks Island and Pemberton, to the ocean. The Federal Channel between Peddocks Island and the mainland at Hull Gut is capable of developing major currents up to 6 knots. The U.S. Army Corps of Engineers last maintained the channel in the early 1970s. As the name implies, the funnel effect between Peddocks Island and the mainland can create difficult navigation.

The major mooring area in Town is at Allerton Harbor. It is accessed by an entrance channel that is approximately 100 feet wide and 2,600 linear feet long, dredged to an overdredge

elevation of 7 feet below mean low water (Elevation -7). The mooring area has approximate dimensions of 680 feet by 1150 feet, extending from the pier facilities at Mariner Park westward.

The Town and the Department of Environmental Management (DEM) provided maintenance and improvement dredging of the mooring area in 1996. This work included extension of the mooring area, by approximately 200 feet by 1150 feet, to its present dimensions. The Town Harbormaster reestablished the mooring grid plan for the area at that time and reestablished the channel to best utilize available draft.

The Weir River has a channel extending approximately three miles from Nantasket Pier that was last dredged in the 1930s. It was dredged at that time to elevation -13. The channel was originally developed by the Nantasket/Boston Steamship Company. This channel maintenance has since been accepted by the DEM and the Town.

The channel is currently being permitted for maintenance dredging to occur over three phases. The first phase includes the northern portion of the access channel to elevation -7. The second phase includes the same area to elevation -10. The third phase will be the southern portion, including the area adjacent to Nantasket Pier, to elevation -10. Each of these contracts would be of approximately 21,300 cubic yards, for an approximate total of 64,000 cubic yards. Transport and containment of this material will require significant regulatory review. The area south of Nantasket Pier is heavily silted, with limited navigation dependent on tidal conditions.

6. Area of Critical Environmental Concern

The harbor planning area includes the Weir River Area of Critical Environmental Concern (ACEC). The ACEC was designated on December 11, 1986, by the Secretary of Environmental Affairs under the authority of Massachusetts General Laws Chapter 21A, Section 2(7) and in accordance with regulations at 301 CMR 12.00. The ACEC includes the Weir River estuary for its entire length, including Straits Pond. The landward boundary generally follows the 100-year flood elevation as delineated by the Federal Emergency Management Agency, though in some places it is the mean high water line or other artificial boundaries. The boundary of the Weir River ACEC is shown on Figure 6.

The Secretary's findings supporting the designation of the Weir River ACEC noted that the estuary contains one of the most extensive salt marsh systems in the greater Boston metropolitan area. The one hundred acres of marsh provides a relatively undisturbed marshland wildlife habitat. It is home to over one hundred migratory and indigenous bird species, as well as numerous species of small mammals. The estuary supports a significant shellfish resource, including both soft shell clams and mussels, an anadromous fish run (alewife), and habitat for year-round and seasonal populations of blueback herring, smelt, eel, bluefish, striped bass, and flounder.

At the time of the designation, there were pending proposals for approximately 1,000 new units of housing and 56,000 square feet of commercial space within the Weir River watershed. Adding this burden to the existing development in the area was considered to pose a significant threat to the capacity of the resources to accommodate the impacts.

7. Land Use and Harbor Access

Most of the existing land use in the harbor planning area is residential. Water-dependent and commercial uses are mostly concentrated in the Pemberton Pier/Marine Park area, at the A Street Pier and Marina, along Nantasket Beach, and at Nantasket Pier.

There are six main piers and marina facilities in the harbor planning area that provide public access to the water: A Street Pier, Hull Yacht Club, Nantasket Pier, Pemberton Pier, the Salt Water Club, and Windemere Pier. A complete inventory of facilities is provided in this Section (see Figure 7, Existing Water Use). There are also public boat ramps at Crescent Beach, Nantasket Pier, 8th Street, A Street, the corner of Main Street and Nantasket Avenue near the sewage treatment plant, and Pemberton Pier. Following are some basic data on these facilities related to harbor access:

- Nantasket Pier has fifteen (15) boat slips, ten (10) moorings and a docking facility for larger boats. There is no dinghy dock. Nantasket Pier is used mainly by lobstermen and by recreational fishers who fish off the pier.
- A Street has a private marina and a public boat ramp. Prevailing northwest winds can make navigation difficult, particularly during the summer months, which reduces public use and enjoyment of this facility.
- Pemberton Pier is used primarily by commercial fishermen and a commuter ferry boat that travels between Hull and Boston.
- The Hull Yacht Club and the Salt Water Club serve as important points of access to the waterfront for Hull residents. In particular, the Salt Water Club offers low-cost memberships to town residents. Parking in this area is insufficient, according to some comments received as part of this report. In addition, there is inadequate provision for dinghy space in this location.

Nantasket Pier has been targeted for economic improvements and associated dredging, which are discussed in more detail in relevant sections of this Report. The Pemberton Pier area has been targeted for a variety of enhancements for public access, which are discussed in more detail below. In addition to the public facilities, there are four (4) privately owned piers and marinas: Donahue's Marina, Nantasket Marina, Spinnaker Island, and Sunset Marina.

The town has worked to develop the concept of a Weir River Estuary Park, which could serve as a major waterfront recreational center. The park would include an extensive trail system with interpretive signs, a site for canoe launching, and an educational center.

There are also twelve public beaches in the harbor planning area that enable waterfront access: A Street Beach, the foot of J and K Streets, Bayside Beach, Green Hill Harbor, Hampton Beach, Hull Village Beach, Gunrock Beach, Nantasket Beach (town), Nantasket Beach (state), Stony Beach, Pemberton Beach, and Windmill Point. All beaches are owned and maintained by the Town except for a portion of Nantasket Beach, which is owned by the Metropolitan District Commission (MDC). While all these beaches are both visually and physically accessible — except perhaps at high tide — there is not adequate signage indicating the rights-of-way. Also, pedestrian access to portions of beach north of Nantasket Beach is impeded because of the extensive dune system that runs along the seaward side of Beach Street. Removal of this dune system is not recommended, however, since the dunes provide a natural buffer that counters flooding during storm events.

Public parking is another factor that affects access to Hull's waterfront. While there is extensive parking at the MDC Nantasket Beach, it is insufficient to support the transient summer tourist population. Other beaches, such as Hull Village, Gunrock, Green Hill, Stony Beach, and Bayside Beach, have extremely limited parking and are used primarily by Hull residents. There is also inadequate parking at other waterfront access points, particularly at Pemberton Pier, Hull High School, James Wharf, Hull Yacht Club, the Salt Water Club, A Street Pier, and Nantasket Pier.

Among the regional land uses that affect the future of Hull's harbor are the public beaches that are within the jurisdiction of the Metropolitan District Commission, known as Nantasket Beach. Annual visitation numbers are not available, but this major attraction serves hundreds of thousands of annual visitors. The bathhouse and other public facilities have recently been completely renovated, contributing to an improved image and amenity for the area.

Near the Nantasket Beach area is a significant concentration of seasonal businesses. Directly across the street from Nantasket Pier on the southern edge of Wharf Avenue is the Carousel Under the Clock, a restored carousel that is a regional attraction within an all-weather enclosure. Adjacent to the carousel is a historic structure that houses a nonprofit art gallery in the summer season, as well as a refreshment stand. Proceeding farther south, commercial uses include restaurants, a well-maintained miniature golf course, and an extensive entertainment and arcade center.

In planning for the future of the harbor areas around Planning Area #4 and the Weir River, the potential influence of the World's End Park should be taken into account. This is a historic park that is owned and maintained by the Trustees of Reservations, a nonprofit institution dedicated to the preservation of high-quality open space throughout the Commonwealth. Designed by Frederick Law Olmsted, the park is a destination from both the land side and the water side. Numerous moorings are maintained along the edge of the park.

Pemberton Pier Area: Proposed Enhancements

The Town of Hull has proposed a series of enhancements to the Pemberton Pier area to improve public access. As noted elsewhere, the pier area today consists of an underutilized facility consisting of a pier, a boat ramp, a former Coast Guard boathouse to the north, and a poorly paved parking area to the south. The site of the parking lot is an abandoned rail terminal from Hull's past as a hotel destination.

The Town is seeking to landscape the areas, provide pedestrian improvements, make the area more accessible for bicyclists, construct park amenities such as picnic kiosks, and enhance the relationship of this area to the historic Hull Village area that lies adjacent to it. The proposed improvements have been approved by the regional agency responsible for prioritizing potential projects for special federal funding through the Intermodal Surface Transportation Act mechanism. This approval is contingent on several factors, however, not the least of which is the need for Congress to reauthorize the existing program.

A new boat launch has also been proposed for this area. Parking for vehicles could be located in the nearby Hull High School parking lot.

8. Marine Structures and Coastal Features

Foreshore Protection Structures

Shoreline structures and conditions within the Town of Hull include town, federal, and private seawalls, revetments, breakwaters, and dike structures. In 1995 the Town initiated an inventory program that provided visual inspection, condition evaluations and documentation of all shoreline structures. The report developed inventory tables classifying structures by assessor parcel ownership, type of structure, available plans, and an "urgency rating" system that characterized the need to improve existing conditions. The rating system utilized nine categories that were defined by composition, prior repairs, prior regulatory approvals, maintenance and rehabilitation needs, and a Maintenance Urgency Index based on the anticipated immediacy of action and the potential to cause accelerated damage if not corrected.

The report divided the Town shoreline into thirty-three designated areas, with each being further divided into individual structures, consistent with shoreline parcel assessor designation. The inventory study identified the following foreshore structures to be in the most immediate need for repair/rehabilitation work. The first two structures were identified within the highest category and the remaining in the next highest.

- Crescent Beach seawall along Gunrock Avenue was repaired by the Town under a Phase 1 1996 contract. Work included reconstruction of raveled revetment. Second-phase work has been permitted and there has been minimal repair, pending additional funding for completion.

- Gunrock Breakwater is a 450-foot-long stone-mound breakwater that has areas that are settled or breached. Improvements would require major (over \$1 million) funding.
- Green Hill seawalls are located off of Atlantic Avenue, in two sections. These concrete walls were constructed by the state in the 1950's and have experienced extensive deterioration.
- Green Hill Breakwater is a stone-mound breakwater. The breakwater contains several areas that are raveled and lowered.
- Pemberton Pier seawall is a masonry seawall with a precast concrete barrier wall on top, constructed by the state. The wall protects a pump station, several outfalls, and the parking lot across from the High School. Failed sections of the wall were repaired by placing mounded stone, as part of an emergency contract performed by the Town in 1993. There are voids and sinkholes present along the wall.

The two stone breakwaters at Gunrock and Green Hill (discussed above) are the only solid-fill breakwaters within the Town. Both were constructed by the state. There are also a floating breakwaters at Spinnaker Island and Waveland Marine that support marina operations.

The high number of Town/state-owned foreshore structures has resulted in the expenditure of a high level of funding by the Town and the state to maintain these structures. The Town has initiated a regular maintenance program, utilizing approximately \$50,000 to \$100,000 in annual Town appropriations. The town is currently seeking DEM funding support to this program. The DEM is currently initiating repairs at Point Allerton seawalls, which are outside of the study area.

Pier Structures

The Town of Hull contains various pier and wharf structures, as indicated below. Pemberton Pier, Nantasket Pier, and Windemere Pier support commercial fishing. The U.S. Coast Guard has a facility near the Federal Channel at Pemberton. The other piers generally support recreational boat users. (See Section III of this Report).

- The U.S. Coast Guard has facilities including the major pier and boathouse structure off South Main Street. The pier structure extends approximately 400 feet to a 30-foot by 100-foot boathouse and was observed to be in good condition. Plans have been prepared for the installation of breakwater improvements that will protect the boathouse and the immediate approach to it.
- Pemberton Pier is located off of Main Street in the northern section of Town. The pier has a concrete-deck, timber-pile – supported pier extending approximately 40 feet by 180

feet, with two 50-foot sections extending off the main pier, parallel to the shoreline, that create a central embayment within the main pier. A stone masonry wall retains fill as the pier abutment. The facility includes a ramp structure to floats used for loading/unloading operations. The openness of the area has limited its use. The general condition of the structure is good. The Assessor's reference indicates that the Town owns Pemberton Pier, with the two adjacent parcels (totaling 6,750 square feet) being owned by Pemberton Marine, Inc. License drawings indicate that the pier was originally built in the 1880s. The Nantasket Beach Steamboat Company made a series of extensions and modifications to the pier during the late 1800's, associated with the Pemberton Hotel, the railroad and ship transportation to the area.

- Lifesaving Museum Boathouse — The Hull Lifesaving Museum rowing programs occupy a former Coast Guard boathouse near Pemberton Point. This building is accompanied by a timber travelift in poor condition and in need of repairs.
- Filled Pier — There is a filled pier structure located off of Main Street, between Pemberton Pier and the Coast Guard Pier. The 40-foot-wide by 60-foot-long pier has a masonry stone wall with anchorage piles and dolphins. This private pier was the original location of the Hull Yacht Club, and has limited use today.
- James Wharf is a masonry-filled wharf structure located at the end of James Avenue. The wharf is approximately 120 feet wide by 50 feet long, extending into the water. There is a single-span-pile supported timber walkway to a float system. The area contains ten Town moorings.
- Spinnaker Island Marina has a 100+- foot timber walkway to a gangway to marina floats. The facility also includes 500+- foot floating breakwater oriented to the east toward Hull Bay. The facilities are licensed and are in good condition.
- Allerton Park/Allerton Harbor Mooring Areas — There are three pier structures at the Mariner's Park/Allerton Harbor mooring area. The Hull Yacht Club has an on-land facility house with a timber walkway to a landing float. The timber pier is approximately 5 feet wide by 70 feet long and is generally in fair to poor condition with the poor condition due to deterioration of piling at the mudline.
- Windemere Town Pier in Mariner's Park is about 25 feet wide by 80 feet long and is a timber structure that supports vehicle traffic. The pier extends to a gangway to an on-off float used for transient mooring by fishing boats. The pier is in generally in fair to poor condition, with portions of the pier indicating past overloading.
- Salt Water Club has an on-land facility house with a timber walkway to a landing float. The pier is approximately 4 feet wide by 80 feet long and is in generally good condition.

- Sunset Marina is located off of the Bay Avenue – Sunset Avenue intercept. The marina has a timber pier approximately 5 feet wide by 120 feet long with a gangway to an on-off float, supporting marina operations. The pier was observed to be in generally fair to good condition.
- The A Street Pier is a timber pier structure where Cadish Avenue meets A Street. The pier has an "L" shape, is 8 to 10 feet wide, and extends approximately 340 feet, with a turn at the north end measuring approximately 34 feet by 88 feet. There is a concrete abutment at the shoreline and a concrete boat ramp. The present pier was constructed by the Massachusetts DPW in 1970 to replace an existing pier (which apparently was modified in the late 1800s for railroad and steamboat operations). In 1957, the area adjacent to the pier was dredged by the DPW. The general condition of the pier is good. The deck pile cap and stringers were observed to be in generally good condition with no timber deterioration. The timber cross bracing was observed to be displaced at the lower connection in several locations.
- Donahue's Waveland Marina is located about 200 feet south of the A Street Pier. The pier is a timber structure approximately 170 feet long by 5 feet wide, leading to a gangway to a series of floats. The floats provide approximately 50 slips and provide on-off landing for boats moored in the area. The marina also has a floating wave break, a 700+-foot floating breakwater, and an L-shaped wave screen of approximately 150 feet (parallel to the shoreline) by 200 feet (perpendicular to the shoreline). There is a stone-armored filled-wharf adjacent to the pier that provides backland services. The facilities are in generally good condition. Chapter 91 licenses date the structure to 1933.
- Private Docks — There are several private floating docks along the bay area from Sunset Point to Nantasket Pier.
- Nantasket Pier along George Washington Boulevard is a filled pier structure consisting of masonry walls, sheetpiling, and timber decks. The Nantasket Pier was part of the rail and steamboat transportation system for the area in the late 1800s. License documents indicate a series of filling and modifications to the pier and retaining structures commencing with an extension to the pier in 1889. Available plans indicate the pier was reconstructed by the state in several phases in 1982 and 1985 at a total cost of \$2.9 million. This work replaced and repaired prior pier structures, with the new sheetpiling being built inward of the prior structure. It is approximately 130 feet landward of the previous structure. Survey information prepared as part of the reconstruction process indicated that the elevations on the pier varied somewhat, but approximate elevations of 14.0 feet were typical. At this elevation, the pier has experienced some overwash during periods of severe storms and high tides. As part of the reconstruction process, an old wooden bulkhead and timber pier were replaced by a new steel bulkhead and anchorage system, along with a new 200-foot-long timber pier at the seaward end. The access way leading down the center of the pier (Parcel 6A) is approximately 75 feet wide. The sheetpile structure includes gangways and on-off floats. The general condition of the

sheetpile structure is good. The masonry wall interior filled piers were in poor to fair condition, with sinkholes observed primarily on the southern abutment area.

Beaches as Coastal Features

There are eleven Town beaches and one state (MDC) beach as indicated in the following table. Two of these beaches have boat ramp and mooring facilities. Further description is provided in other sections of this Report.

Table 1. Beach Location and Designation

Beach and Map Designation		Owner/Manager		Other Facilities
B.1	Bayside Beach	Town	Selectmen	
B.2	Green Hill Harbor	Town	Selectmen	Boat Ramp, Moorings
B.3	Hampton Beach	Town	Selectmen	
B.4	Hull Village Beach	Town	Selectmen	
B.5	Gunrock Beach	Town	Selectmen	Boat Ramp, Mooring
B.6	Nantasket Beach	Town	Selectmen	
B.7	Nantasket Beach	State	MDC	
B.8	Stony Beach	Town	Selectmen	
B.9	Pemberton Beach	Town	Selectmen	
B.10	Windmill Point	Town	Selectmen	
B.11	J and K Street Beach	Town	Selectmen	
B.12	A Street Beach	Town	Selectmen	Boat Ramp, Marina

Nantasket Dune

Although the eastern edge of Hull is outside the project area, it is important to note the overall context of the coastal form along this edge. There is a dune structure extending from the southern end of the Hull peninsula to the armored shoreline at Point Allerton. The dune has variable-density vegetation along the length, generally consisting of American Beachgrass. In general, the owners of the property (or adjacent properties) have typically provided the maintenance of the vegetation. There have been a series of proposals to nourish the dune, which have not been implemented due to failure to receive consensus and regulatory approvals. The most recent proposal by the U.S. Army Corps of Engineers was to provide a major dune structure with off-site nourishment material. This proposal was estimated to have a total cost of several million dollars for construction and would have required the Town to expend yearly funding for maintenance. This proposal has not gained Town support due to beach use and cost implications.

C. Economic Conditions

1. Shellfishing/Aquaculture

Shellfishing

There are five major shellfishing areas in Hull Bay, including the Weir River, which comprise approximately 356 acres of soft shell clam beds (*Mya arenaria*). Blue mussels (*Mytilus edulis*) are also found in the Weir River. Surf clams (*Spisula solidissima*) are found on the ocean side of Hull. These beds have been closed to commercial shellfishing for the past five (5) years because of poor water quality. In Hull, a number of recreational surf clam permits have been issued during this time period for the Boston Harbor beach areas, which are not within the harbor planning area.

The clam beds, or clam flats, in Hull Bay are classified according to the National Shellfish Sanitation Program as Conditionally Restricted because of moderate contamination (high levels of bacteria in the water). The Town of Hull has implemented a management program consistent with the policies of the national program entitled "Shellfish Management Plan for Moderately Contaminated Areas." The intentions of this plan are to insure proper controls of the shellfish areas and to provide guidance and adequate measures for conservation, propagation, and law enforcement.

There is no recreational shellfishing in Hull, other than for the surf clams in locations outside the study area. All shellfish harvested in the Conditionally Restricted beds must be harvested by subordinate diggers under the direct supervision of a licensed master digger, and they must be harvested for control depuration. The master diggers, supervisors, and subordinate diggers participating in the Hull Management Plan must hold a valid town shellfish license and a valid state shellfish license. In addition, they must sign a receipt indicating that they received a copy of the Hull plan. There are usually four master diggers that simultaneously harvest in Hull. The diggers typically rotate between the five regions in Hull Bay (intratown rotation) and between the shellfish beds in Hingham and Weymouth (intertown rotation). As a result of this rotation, the shellfish beds in Hull may remain fallow for up to one year, which enables the clams to reach full maturity.

The Massachusetts Division of Marine Fisheries (DMF) has the responsibility for monitoring the water quality in shellfish bed areas and the responsibility for classifying shellfish beds as a result of this water quality monitoring. While management of shellfish beds is normally delegated to local shellfish wardens and commissions, the DMF has retained management responsibility over Boston Harbor, including Hull Bay, because of the multiple sources of pollution and because all shellfish harvested in Boston Harbor must be sent for depuration.

The Conditionally Restricted designation forces an automatic closure of shellfish beds following a rain event in excess of 0.5 inches of precipitation. The duration of the closure

increases with the amount of precipitation measured. The clam beds in Hull Bay are closed permanently to shellfishing between June and October because of prevailing southwest winds that attenuate flushing of the bay and direct an effluent plume from the Nut Island Sewage Treatment Plant into the bay. Although there are other water quality problems in Hull Bay, they are masked by these factors during the summer months.

The Nut Island Sewage Treatment Plant discharges 80 million to 100 million gallons per day (gpd) during dry weather and as much as 300 million gpd during wet weather. The direct discharge from the treatment plant is scheduled to stop in 1998.

The clam beds between Point Allerton and Windmill Point are closed permanently because of marina activity (closed safety zone). In addition, the shellfish beds around Peddocks and Bumkin Islands are closed permanently due to poor water quality. In the upper Weir River shellfishing is prohibited because of failing septic systems.

The only way for a classification to be upgraded is through a Sanitary Survey. The next Sanitary Survey for Hull Bay is scheduled for 2000. These surveys have to be done every twelve years at a minimum, and the date happens to roughly coincide with the cessation of the Nut Island STP discharge. The DMF does do annual reports based on monthly sampling of the intertidal waters; there are fifteen or sixteen sampling sites in Hull waters. In "conditional" areas, monthly sampling is conducted only during the months the area is open. The DMF also does a tri-annual report containing a more in-depth assessment. These interim investigations could lead to a downgrading (but not an upgrading) of an area's status.

Aquaculture

The soft shell clam flats are an important economic resource for the Massachusetts shellfishing industry. According to the Massachusetts Division of Marine Fisheries, approximately twenty percent of the shellfish harvested annually in Boston Harbor are harvested in the 356 acres of clam flats in Hull.

There is no aquaculture in Hull. Water quality is a serious consideration when developing and promoting aquaculture. No information was received indicating planned aquaculture activities within the study areas.

2. Commercial Fishing

Hull Fleet

The fishing fleet of Hull consists mostly of lobster boats, approximately thirty in number, generally 35 feet to 45 feet in length. Twenty of these boats moor in Hull, and the rest in Hingham. There are also a few skiffs of 20 feet or so. As reported in Hull's 1994 Open Space

and Recreation Plan, the town's commercial lobster industry is important, ranking 18th among the State's 48 coastal communities. Hull lobstermen landed 299,253 pounds of lobster in that year.

Lobstering is done primarily in Hull Bay (state waters) in the summer and farther afield at other times. At least twenty of the boats hold federal permits in addition to state permits. A couple of lobster boats change to groundfishing in the summer. In addition to these commercial fishermen, there are also twenty or thirty people in town that hold ten-pot licenses.

Ten to twelve boats fish year-round. Most stop fishing from November or December through April. The boats work out of Hingham in the winter because of ice conditions in Hull Bay.

There are six to eight gillnetters with boats to 44 feet. The gillnetters fish Cape Cod Bay and, in recent years, as far away as North Carolina. There are two seiners—one mooring in Hull, the other in Hingham—that fish for pogies and unload at Pemberton Pier. The pogy boats provide bait for the lobstermen. At various times there have been fishermen from town harvesting sea urchins out at the harbor islands and others long-lining for cod.

Commercial Fishing Facilities

Commercial fishing vessels use several locations in town: Pemberton Pier, Allerton Harbor, and Nantasket Pier. These locations are described below.

Pemberton's exposure to south/southwest winds make it a poor place to moor boats; only two fishing boats moor there. Construction of a breakwater would improve the condition. The area also needs dredging to make it navigable through all tides.

Allerton Harbor is the most popular area; fifteen fishing boats moor there. It is, however, limited in terms of facilities and storage, though there is a bait storage cooler. The area was dredged in 1996. Allerton Harbor is vulnerable to a south wind, particularly at high tide when the sand spit that provides protection is submerged. The most exposed area is near the dock. The pier is old and in need of maintenance.

In the area of Nantasket Pier there are nine fishing boats; four or five are at the pier, and the remainder are on moorings between the Weir River and the pier. The Department of Environmental Management is scheduled to dredge the south side of the pier this fall. The channel leading to the pier is not to be dredged, and its depth limits access to boats that draw less than five feet of water.

Fish are landed at each of the above facilities. Boats return in late afternoon and are met by dealers who purchase the catch. The buyers come from Hingham, Cohasset, and as far as Cape Cod and New Bedford. The lobsters are brought to a lobster pound, where they are sold to retailers. There used to be a lobster pound at A Street.

The lack of facilities and exposure to weather has caused many boats to leave the harbor and go to Hingham (Hewitt's Cove). Hingham has more support facilities, such as coolers, off-loading facilities, and buyers on site. However, there has been an expressed concern on the part of some fishermen that fishing vessels may be excluded from Hewitt's Cove in the future, in which case Hull may be the best option. At this time, however, while Hull's piers are in reasonably good condition, none of the areas from which the fishermen work have adequate facilities to properly support operations.

There are no vessel repair facilities in Hull. What the fishermen cannot do themselves is done outside the town, at Hewitt's in Hingham or in Provincetown or Gloucester.

A fuel truck comes to Pemberton on certain days of the week to fuel vessels. In fact, boats will come from Hingham to fuel at Pemberton because it is less expensive.

None of the areas from which the fishermen work has adequate facilities to support the operations. Piers are in poor condition, and hydraulic hoists, storage facilities, ice, and so forth, are needed. The prohibition in the Harbor By-law on storage of fishing equipment on town landing places, floats, and piers and the inadequacy of public or communal facilities in support of commercial fishing, is compounded by restrictions in the Zoning By-law. Though the By-law allows the storage of lobster traps, the number of traps is limited to 300, as is any storage of bait. These restrictions are necessary to protect adjacent property from potential negative impacts, but they reinforce the need for finding and/or developing appropriate space and facilities for fishermen if commercial fishing is to be considered an important economic activity in Hull.

3. Recreational Boating

Marinas and Yacht Clubs

Recreational boating is generally centered around the local marinas and mooring facilities. The following table provides an inventory of recreational boat facilities, including slips and moorings, based on information available at the date of this Plan. It is very important to note that no consistent source of data was discovered as part of this research effort to date. The information that has been obtained on mooring counts varies substantially among available sources. The Harbormaster will be responsible for confirming counts and locations in the future. Data available at this time are included in Table 2.

Table 2. Summary of Existing Marinas and Yacht Clubs

Marina/Pier and Area	Owner	Manager	No. Of Moorings in Town-Managed Fields	No. Of Slips	Other
A Street Pier	Town	Selectmen	18		Town Pier, Boat Ramp
Salt Water Club	Town	Selectmen	120		Pier, On-Off Floats
Windemere Town Pier	Town	Selectmen	30		Pier, On-Off Floats
Hull Yacht Club	Town	Selectmen	40		Pier, On-Off Floats
Nantasket Pier	Town	Selectmen	7	20	Pier, Boat Ramp
Pemberton Pier	Town	Selectmen	25		Pier, On-Off Floats, Commuter Boat, Boat Ramp
Weir River Moorings	Private	Selectmen	40		Private
Spinnaker Island Marina	Private	Spinnaker		60	Pier, Rental
Sunset Marine	Private	Kelley	20	4	Pier, Fuel, Repair, Storage
Donahue/Waveland Marina	Private	Donahue	20	45	Pier, Fuel, Repair, Storage
James Wharf	Town	Selectmen	10		Filled Wharf, Float
Crescent Beach	Town	Selectmen	25		Boat Ramp
Gunrock Beach	Town	Selectmen	10		
TOTALS:			365	129	

The following table shows boat services that do not have associated pier or mooring facilities:

Table 3. Boat Services in Hull

Boat Services	Owner	Services
Allerton Boat Works	Private	Repairs, Rental, Storage
Hull Lifesaving Museum	Town	Repairs, Storage
Nantasket Marine Service	Private	Repairs, Rental, Storage
Pemberton Marine	Private	Repairs, Rental

Mooring and Docking Demand and Fees

In general, adequate information to evaluate past and future trends in the demand for mooring and docking in Hull is unavailable, in part because of the lack of accurate historical data on the number of slips and moorings available. However, an extensive telephone survey was undertaken to inventory current available regional mooring and slip rates in order to compare

Town pricing policies and evaluate potential feasibility of private sector provision of marina facilities. The results of this telephone survey are included in the Appendix of this report.

The current mooring fee for the Town of Hull is \$3.00 per foot per season. This rate is somewhat lower than the fees in other nearby towns for which information was obtained. Relevant comparable rates include the following:

- Plymouth — Rates are \$4.00 per foot per season, with all moorings privately owned. It should be noted that the Town maintains 552 moorings, with a waiting list of about 350, indicating strong demand. This list has been consistent at approximately this number for at least five years.
- Scituate — The Town has 850 moorings at \$3.50 per foot per season; they charge an additional water user fee of \$3.50/foot. This additional \$3.50 applies to all Scituate marinas and private clubs.) Scituate currently has a waiting list of 90 boats; past lists have been over 100 boats.
- Weymouth — The Town charges an administration fee of \$5.00, applicable to both Town moorings and private marinas. There is currently a small waiting list of 12 boats for the Back River area.
- Cohasset — Rates are \$5.00 per foot per season, with all moorings privately owned.
- Hingham — Hingham does not have mooring fees.

The review of demand for marina and mooring slips in the area suggests that there has been a substantial decline in overall demand over the past ten years, based on the past lengths of waiting lists for private marinas and other data. In general, it has been observed that the demand may be increasing somewhat from the levels during the recent economic recession.

4. Marine Transportation

Hull historically was served by water transportation that was essential for its seasonal and recreational uses; steamers regularly entered Hull Gut and proceeded to the active piers, most notably Nantasket Pier. However, with the decline in the tourism destinations, the water transportation system largely evaporated.

Hull is currently served by the Harbor Express passenger ferry service that operates from the wharf at Pemberton Pier. They currently operate two boats in the morning and afternoon daily on weekdays, year-round, between Hull and Boston, with “minimal subsidy” from the MBTA.

The inbound ferries leave Pemberton Bay in Hull at 6:50 and 7:25 a.m.; the outbound ferries leave Long Wharf in Boston at 5:15 and 5:50 p.m. The total travel time is approximately 60

minutes in the morning and 20 minutes in the afternoon. Fare is \$3.00 one way and \$25.00 for a 10-ride pass. The passenger capacity of the 90-foot-long boats is 149 and average ridership totals 50 people per trip. There is a free parking lot in Pemberton with approximately 150 spaces available. There is an MBTA bus line that stops near the parking lot.

5. Landside Economic Conditions

General Economic Conditions

The economy of Hull can be characterized as that of a relatively stable residential community with a small but important seasonal economic component and a small retail and service business base. Sources of information on the economy are limited, with the best and most recent summary being the Development Potentials for Focus Area; Market/Feasibility Analysis Town of Hull prepared for the Economic Development Task Force by Bonz & Company, Inc., in 1995.

The population of Hull has increased over the last fifteen years, in contrast to the communities that surround it. The population reached 10,400 in 1990, in contrast to a population of 9,714 in 1980. This growth has been expected to continue, although at a slower rate, through 1999. At that time, population is expected to have reached approximately 11,150. The rate of household formation in Hull has been substantially lower than the surrounding areas, however. In general, the low rate of household formation reflects the fact that there are relatively few remaining developable parcels of land in the entire town.

The 1980s was a period of substantial development of multi-family condominium developments on several sites, which allowed the expansion of the population. However, the demand for such housing has not resurfaced at levels that would justify construction of new units. Given the lack of available land, current zoning regulations, and weak growth in population and household formation in the region, there is little evidence that Hull will experience a significant expansion of its housing stock in the foreseeable future. Should demand for housing rise substantially in the future, the only method to accommodate this demand would be to allow for increased multi-family housing through assembly of land, rezoning, and the construction of housing. In the 1980s, high housing demand led to development scenarios of this type.

Hull has experienced substantial increases in average incomes, at a rate substantially higher than surrounding areas. In part, this increase may reflect the influx of higher-income individuals into the new housing constructed in the 1980s. Based on the conclusions on household formation and population changes, the rate of growth in income is expected to lag behind that of the surrounding communities, according to projections by the National Planning Corporation.

As a predominately residential community, Hull is dependent for employment, goods, and services on the surrounding region. In this regard, the population of the Town of Hull and its isolation from regional roadways places it below the critical mass necessary to support large-scale retail and service operations. As a result, it is very dependent on purchases from stores and businesses in Hingham, Cohasset, Weymouth, and other nearby communities. This characteristic is unlikely to change.

Seasonal Visitation and Retail Uses

Historically, the recreational and entertainment destinations in Hull supported a specialized seasonal economy. This economy still exists and supports a concentration of seasonal businesses. However, a critical mass of uses has been lost over time, while the availability of other attractions and alternatives in the region has grown.

Statistics on the number of seasonal visitors to the Town are not available. Based on traffic and parking counts the number of seasonal visitors is estimated at 500,000 to 750,000 (Development Potentials for Focus Area; Market/Feasibility Analysis Town of Hull, Bonz & Company, Inc., 1995). The destination for the visitors is primarily Nantasket Beach and the retail, restaurant, and entertainment attractions that surround it.

The recent economic study suggested that targeted retail, restaurant, and marine-related uses may be able to be developed in the area if overall investment is in balance with the revenues available. A positive conclusion was reached concerning potential reuse of Nantasket Pier in this regard, which is discussed in more detail below.

Seasonal tourism and recreation in Boston Harbor are anticipated to benefit substantially from the initiation of a Boston Harbor Islands National Recreation Area. The U.S. Congress has approved the implementation of the park, subject to the participation and contribution by a number of jurisdictions and entities with interests and ownership of the various islands that will compose the park. In the 1996 Congressional legislation, Hull is one of the specific communities named as a participant in the program. Hull has been nominated to serve as a gateway to the park, although specific decisions about the location of access points and potential links to other attractions have not been made. Planning is currently under way to establish the program for the various island destinations, and a joint public/private effort is being used to secure the capital and operating funds necessary for the park to be successful. Large-scale development and use of the park are a number of years away, according to current schedules.

The Hull Lifesaving Museum is an important regional attraction and interpretive opportunity for Hull. This museum is a link between the maritime history of the community, the region, and the nation. This facility was one of the first in the nation to provide professional service for ships in need along dangerous coastal waters, and it contributed substantially to the formation of the national chain of lifeguard stations that grew along the nation's coasts in the nineteenth century.

Seasonal events are another source of attraction and identity for Hull. Among the events oriented to the maritime edge of Hull are the rowing races that attract media attention and participation by rowing enthusiasts.

Nantasket Pier

Nantasket Pier is a town-owned pier with associated land that is significantly underutilized and occupies a prominent location near the center of the seasonal land uses associated with Nantasket Beach. The site consists of five parcels of land that have been assembled as a single ownership.

Assessor's records indicate that these parcels as numbered on the Assessor's record contain 157,959 square feet, or 3.63 acres of land. The largest of these parcels (Parcel 7) includes the majority of the pier. The pier is largely composed of fill, with some pile-supported structure along perimeter areas and at its end. The pier extends approximately 675 feet westerly from the shore. The access way leading down the center of the pier (Parcel 6A) is approximately 75 feet wide.

Various uses have occupied several of the remaining parcels (Parcels 6C, D, and E). Parcels 6C and 6D once contained support uses for the pier and the nearby moorings. A vacant wood-framed building remains on Parcel D; it is in poor architectural condition. Parcel 6E once contained a gasoline filling station. This filling station and its underground storage tanks were removed from the site in the late 1980s. The Town recently performed a 21E assessment of the site with the results indicating no contamination exists.

The remaining parcel is indicated as Parcel 6A, and is leased from the Town of Hull by a restaurant operation known as "Jake's." This parcel consists of approximately 11,200 square feet of land at the southerly end of the project site bordering George Washington Boulevard. The restaurant occupies a single-story wood-frame building containing approximately 4,900 square feet of area. This area also accommodates a small public boat launching ramp and a parking area sufficient for approximately 28 cars.

Use of the water sheet at the edge and immediate vicinity of the Pier has been planned for reuse as docking and slip locations, subject to approvals and conditions relating to the use of water sheet areas by the Commonwealth of Massachusetts, the U.S. Army Corps of Engineers, and the Town of Hull.

The water sheet surrounding the pier is available for use. This area is generally shallow in depth and would likely require dredging to accommodate moored boats or slips. The Commonwealth of Massachusetts has established a locally nominated and state-approved Area of Critical Environmental Concern (ACEC) that approaches to within 150 feet of the pier

perimeter; proposals that would impact the ACEC would be subject to additional reviews and approval.

The site is currently used by several businesses and the public. As noted above, a portion of the site is used by a restaurant (Jake's). The lease on this portion of the site was recently renegotiated. The current lease term was initiated in 1994 and concludes in 2012 (18 years). The initial term of the lease included annual payments of \$10,000 per year, with payments increasing according to a schedule linked to the consumer price index.

A float along the southern edge of the pier is used as a transient public dock. A small transient moorage fee is charged for its use as a program of the Hull Scholarship Fund. A small boat ramp is located at the west end of the dock and is actively used by a small boat and motor repair business located nearby (Nantasket Pier Marine), among other users. The western end of the pier is used by commercial lobstermen.

The pier area serves as a parking lot to visitors during the summer season. Approximately 250 cars can be accommodated on the pier.

Complete site utilities exist on or near the site, including water service, fire hydrants, sewer service, and electrical service. Adequate capacity for any likely redevelopment scenario exists within this infrastructure. In addition, existing documents also indicate the presence of gas supply mains beneath George Washington Boulevard along the edge of the site.

An economic study was undertaken in 1995 regarding the potential reuse of the pier. Based on the study and according to the Town policies at that time, the following uses were considered for the pier:

- **Recreational Boating Facilities** — A range of recreational boating facilities were considered, including full marina facilities with associated slips and/or moorings. Shoreside support facilities that could serve a larger market in terms of food service, chandlery, or other uses were also considered.
- **Restaurants** — A range of restaurant facility types were considered.
- **Seasonal Retail Uses** — Permanent or temporary facilities catering to the visitor trade were considered.
- **Entertainment Uses** — Uses attractive to the visitors to the waterfront were considered.
- **Commercial Boating Uses** — Demand for compatible development of increased commercial boat use, including excursion boats or seasonal ferry service, was also envisioned.

D. Management Conditions

1. Federal Management

The Federal Emergency Management Agency (FEMA) provided a flood study of the Town in 1982. This study was performed by the firm of Harris-Toups Associates to investigate the existence and severity of flood hazards. The study utilized hydrologic and hydraulic analyses to establish Flood Insurance Zones and floodplain management measures for the area. The investigation considered historic flood elevations, estimates of shoreline levels and stillwater and wave runup for storms of various frequencies. The major past storms of the area include the hurricanes of November, 1944, January 1961, March 1966, February 1972, and February 1978. The February 1978 northeaster produced water levels higher than any others ever recorded and was used for many of the modeling studies.

The flood evaluation information is used to establish Flood Boundaries, which are indicated on the Flood Insurance Rate map. The study has established the Flood Hazard Factor (FHF) as the FEMA device used to correlate flood information with insurance rate tables. Correlation's between property damage from floods and their FHF's are used to set actuarial insurance premium rate tables based on FHF's from 005 to 200.

The Flood Insurance Zones were determined by FEMA, dividing the Town of Hull into zones, with each zone having a specific flood potential or hazard. The following defines the zones utilized by FEMA for the Town of Hull:

- Zone AO: Special Flood Hazard Areas inundated by types of 100-year shallow flooding where depths are between 1.0 and 3.0 feet; depths are shown, but no FHF's are determined.
- Zone AH: Special Flood Hazard Areas inundated by types of 100-year shallow flooding where depths are between 1.0 and 3.0 feet; base flood elevations are shown, but no FHF's are determined.
- Zones A2 and A3: Special Flood Hazard Areas inundated by the 100-year flood as determined by detailed methods; base flood elevations are shown, and zones are subdivided according to FHF's.
- Zone V4: Special Flood Hazard Areas along coasts inundated by the 100-year flood as determined by detailed methods and that have additional hazards due to velocity (wave action); base flood elevations are shown, and zones are subdivided according to FHF's.
- Zone B: Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year floodplain that are protected from the 100-year flood dike, levee, or other water control structure; also, areas subject to certain types of

100-year shallow flooding where depths are less than 1.0 foot; and areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.

- **Zone C:** Areas of minimal flooding. The Hull Gut area (Sub-area 1) and the eastern shoreline facing Massachusetts Bay, are in a Velocity Zone. The developed area within Hull Bay is in an A3 Zone. The velocity zone extends into Channel Street, and the eastern area from Helen Street through Newton Street is in an AH Zone. This area is prone to flooding, and the Town performed an investigation under a FEMA grant for the central Ocean Avenue area to determine measures to improve flooding conditions within this area. Considerations were given to improvement of current drainage facilities, pump facilities, and/or raising the level of the houses within this area.

Harbor Planning Areas 2, 3, 4 and 5 are in areas that are less prone to flooding than Sub-areas 1 and 6. The Spinnaker Island area (Sub-area 2) is all in Zone A3 with the exception of the development at Spinnaker Island, which is Zone C. The L Street to Sunset Point area (Sub-area 3) is also in Zone A3, with the exception of the high area at Halvorsen Avenue, which is Zone C. The Sunset Point to Nantasket Pier (Sub-area 4) and Ring Bolt Rock (Sub-area 5) areas are generally in Zone A3, with the exceptions of the inland Zone C high areas.

The Gunrock/Crescent Beach (Sub-area 6) area, and the shoreline to the north, facing Massachusetts Bay, is in a V4 Zone. Many of the homes along Nantasket Avenue are in the V4 Zone.

Additional information regarding the study can be obtained by contacting the Natural and Technological Hazards Division, Federal Emergency Management Agency, Regional Director, Region I Office, J.W. McCormack Post Office and Courthouse Building, Room 462, Boston, MA 02109.

The Coast Guard maintains a major station in Hull, on Hull Bay near Windmill Point. This station is the most active service location for Boston Harbor. Its strategic location and importance suggest that this facility is likely to remain in Hull into the indefinite future. The Coast Guard is currently planning breakwater improvements at this location.

2. State Management

State management of harbor areas in Hull is undertaken through a number of agencies. The principal agencies and their responsibilities include the following:

- Department of Environmental Management — Administration and conduct of state-funded dredging programs, oversight of the ACEC program

- Department of Environmental Protection (DEP) — Administration of the Chapter 91 licensing programs
- Massachusetts Office of Coastal Zone Management — Planning and technical assistance and policy oversight of Chapter 91 regulations and coordination with the ACEC program
- Division of Marine Fisheries — Regulation of the marine fisheries for the State
- Metropolitan District Commission — A special state-chartered entity, having specific responsibilities for public recreation land that it owns and maintains within Hull and related harbor islands

3. Local Management

There are a series of local boards and agencies with jurisdiction or activities that affect the harbor areas included within the Plan. The primary manager of the harbor is the Town Harbormaster. This is a paid position that is under the overall supervision of the Town Manager. The duties of the Harbormaster have recently been formalized in a job description, and a new Harbormaster has recently been hired to undertake this responsibility. The policies of the Harbormaster's Department are established by the Town's Board of Selectmen. The Harbormaster undertakes supervisory, administrative, and patrol work, as well as directing a department that includes several employees and assistants. At this time, the department consists of six part-time paid Assistant Harbormasters.

Among Harbormaster's duties are the following:

- Administration of all documentation relating to harbor management, including preparation of the annual operating and capital budget requests, five-year capital planning needs program, dredging schedules, and written maintenance schedules for all plant and equipment items
- Preparation of relevant grant applications
- Preparation of required reports to Town, state, and federal agencies
- Coordination of pump-out boat operations
- Recommendation of candidates for Assistant Harbormaster and subsequent training and supervision
- Ongoing communication with local, state, and federal agencies as required
- Enforcement of state, federal, and local rules and regulations

- Maintenance of active patrol and search and rescue operations
- Scheduling of year-round active watch schedule
- Supervision of the official recreational boating season (April 1 to October 31)

Administration of Town moorings is a key responsibility of the Town Harbormaster. This responsibility grows directly from state legislation that establishes the role of the Harbormaster in this regard. The Harbormaster is responsible for the development of a mooring plan and map or chart of locations for all moorings. In the past, it appears that this task was accomplished informally. It is the intention of the Town to complete a more comprehensive chart and plan in the near future. The Harbormaster issues the Mooring Permits and assists the Board of Assessors and Tax Collector in recording boats and collecting excise taxes. Finally, the Harbormaster is responsible for assigning moorings and inspecting them, as well as generally assigning anchorage areas.

The Town Shellfish Warden is responsible for monitoring use of the clam beds through the issuance of licenses and the enforcement of shellfish regulations. A complete description of the duties of the Warden was not available at the time of this writing. This position is currently being performed by the Harbormaster.

The Planning Board in Hull has two roles relevant to the management of the harbor areas. First, the Planning Board reviews and makes recommendations to Town Meeting on proposed zoning changes, which affects the harbor edges. Second, the Planning Board has a role mandated by the state in the review of proposed Chapter 91 licenses.

The Zoning Board of Appeals has an important role in the administration of land use regulations. They rule on proposed variances from zoning standards for development or alterations to existing improvements.

The Conservation Commission has an important role in the review and approval of projects where designated wetlands or their buffer areas may be affected by a proposed project. The Town Department of Public Works is responsible for the maintenance of roads and town property within the harbor area. The Harbor Planning Committee is responsible for harbor planning, including preparation of this document. Finally, the Police and Fire Department have responsibilities for emergency and public safety measures.

E. Regulatory Conditions

The waterfront is subject to regulatory authority of the local, state, and federal governments. The Town regulates uses, density, and dimensions of development along the shoreline through

its Zoning by-law. It also regulates wetlands and flood-prone areas through the authority of the conservation commission to regulate wetlands resources.

The state exercises regulatory authority over the alteration or use of both filled and flowed tidelands under Massachusetts General Laws Chapter 91, the Public Waterways Act. The purpose of this law and the waterways regulations (310 CMR 9.00) adopted to implement the law is to protect the public's interests in the waterways. All existing and new work such as piers, wharves, floats, retaining walls, revetments, pilings, and some waterfront buildings require Chapter 91 authorization.

The federal government, through the U.S. Army Corps of Engineers, also regulates shorefront activities including dredging and fill in or near coastal waters and structures below the mean high water mark.

1. Federal Regulations

The U.S. Army Corps of Engineers has the authority to regulate activities in wetlands and waters. The Corps has been regulating these activities in the nation's waters since 1890. Until the 1960s, the primary purpose of the regulatory program was to protect navigation. Since then, new laws and court decisions have broadened the program. The regulatory program now considers the full public interest for both the protection and use of water resources.

The following laws define the regulatory authorities and responsibilities of the Corps of Engineers:

- Section 9 of the Rivers and Harbors Act of 1899 (33 U.S.C. 401) authorizes the Corps to regulate the construction of any dam or dike across navigable waters of the United States.
- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) authorizes the Corps to regulate certain structures or work in or affecting navigable waters of the United States.
- Section 404 of the Clean Water Act (33 U.S.C. 1344) Section 301 of this Act authorizes the Corps to regulate the discharge of dredged or fill material into waters of the United States.
- Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended (33 U.S.C. 1413), authorizes the Corps of Engineers to regulate the transportation of dredged material for the purpose of disposal in the ocean.

The Corps also coordinates compliance with related federal laws. These laws include the National Environmental Policy Act, the Fish and Wildlife Coordination Act, the Endangered Species Act, the National Historic Preservation Act, the Deepwater Port Act, the Federal Power Act, the Marine Mammal Protection Act, the Wild and Scenic Rivers Act, the National Fishing

Enhancement Act, and the National Flood Insurance Act of 1968 on Flood Management. Other laws that affect the Corps regulations of navigable waters include the following:

- Section 401 of the Clean Water Act requires applicants to obtain a certification or waiver from the State Water Pollution Control Agency to discharge dredged or fill materials. This agency reviews the effect on water quality standards.
- Section 307(c) of the Coastal Zone Management Act of 1972, as amended, requires applicants to obtain a federal consistency certification that the activity complies with the state's coastal zone management program for activities affecting a state's coastal zone.

2. State Regulations

Waterways Regulations 310 CMR 9.00 (Massachusetts Department of Environmental Protection)

Massachusetts' principal tool for protection and promotion of active water-dependent uses of its tideland and other waterways is M.G.L. Chapter 91 (Public Waterways Act). Chapter 91 and the waterways regulations (310 CMR 9.00) are administered by the Division of Wetlands and Waterways of the Massachusetts Department of Environmental Protection. The purpose of the program is to ensure that the Commonwealth's tidelands are utilized only for water-dependent uses or otherwise "serve a proper public purpose which provides greater benefit than detriment to the rights of the public in said lands."

Chapter 91 applies in tidelands, in great ponds, and along certain rivers and streams. There are two types of tidelands: (1) private tidelands are those areas between mean high and mean low water which are usually privately owned but on which the Commonwealth reserves and protects public rights of fishing, fowling and, navigation, and (2) Commonwealth tidelands, which are all lands below the low water mark, extending out three miles to the limit of state jurisdiction, that are owned by the Commonwealth or held by private persons in accordance with the trust for the benefit of the public. Chapter 91 applies to filled as well as flowed tidelands, so that any filled areas, moving inland to the point of the historic high tide line, are subject to jurisdiction.

Chapter 91 authorization is required for both new and existing alterations in the areas identified above. Types of structures include: piers, wharves, floats, retaining walls, revetments, pilings, bridges, dams, and some waterfront buildings (if on filled lands or over the water). A new license also may be required if there has been a structural change or change in use of a previously licensed structure. The placement of temporary rafts, floats, or moorings in the waterway do not require a Chapter 91 license but must receive an annual permit from the Harbormaster.

With the intent of bringing coastal properties into compliance with Chapter 91, the 1990 revisions of the waterways regulations included an amnesty provision applicable to unlicensed

structures or fill in existence and in use since January 1, 1984 (and without any substantial alteration or change in use since that date). Amnesty license applications are subject to the Chapter 91 Waterways Regulations that were in effect prior to October 4, 1990 (the effective date of the 1990 revisions), which are generally less stringent, impose lesser fees, and provide longer terms than those now in effect. The amnesty period expired October 4, 1996.

Water-Dependent Uses

Water-dependent use is defined in section 9.12(2) of the Chapter 91 regulations. In general, a water-dependent use is one that requires direct access to or location in tidal or inland waters and therefore cannot be located away from said waters. A full definition of water-dependent uses can be found in the regulation. Among the uses defined as water-dependent that are likely to apply to Hull are the following:

- Marinas, boat basins, channels, storage areas, and other commercial or recreational boating facilities
- Facilities for fishing, swimming, diving, and other water-based recreational activities
- Parks, esplanades, boardwalks, and other pedestrian facilities that promote use and enjoyment of the water by the general public and are located at or near the water's edge, including but not limited to any park adjacent to a waterway and created by a public agency
- Aquariums and other educational research, or training facilities dedicated primarily to marine purposes
- Aquaculture facilities
- Beach nourishment
- Waterborne passenger transportation facilities, such as those serving ferries, cruise ships, commuter and excursion boats, and water shuttles and taxis
- Dredging for navigation channels, boat basins, and other water-dependent purposes and subaqueous disposal of the dredged materials below the low water mark
- Navigation aids, marine police and fire stations, and other facilities that promote public safety and law enforcement on the waterways
- Shore protection structures, such as seawalls, bulkheads, revetments, dikes, breakwaters, and any associated fill that is necessary either to protect an existing structure from natural erosion or accretion or to protect, construct, or expand a water-dependent use

- Flood, water level, or tidal control facilities
- Discharge pipes, outfalls, tunnels, and diffuser systems for conveyance of stormwater, wastewater, or other effluents to a receiving waterway
- Marine terminals and related facilities for the transfer between ship and shore and for the storage of bulk materials or other goods transported in waterborne commerce
- Facilities associated with commercial passenger vessel operations
- Commercial fishing and fish processing facilities
- Boatyards, dry docks, and other facilities related to the construction, serving maintenance, repair, or storage of vessels or other marine structures
- Other industrial uses or infrastructure facilities that cannot reasonably be located at an inland site

Municipal Harbor Plans

In September 1990 the Secretary of Environmental Affairs adopted regulations for "Review and Approval of Municipal Harbor Plans" (301 CMR 23.00). The regulations established a voluntary procedure by which municipalities could obtain State approval of a municipal harbor plan. A municipal harbor plan is defined as a document setting forth the community's objectives, standards, and policies for guiding public and private use of the land and water areas of a harbor and an implementation program to achieve the desired plan.

A plan prepared and approved in accordance with these regulations serves to guide Executive Office of Environmental Affairs (EOEA) agency actions including the regulatory decisions of the Department of Environmental Protection (DEP) under M.G.L. c. 91. When an approved harbor plan exists, any project seeking a Chapter 91 permit from the DEP must be in conformance with that plan. In essence, a municipality with an approved harbor plan utilizes the state regulatory authority to help implement its own objectives.

Through a locally prepared harbor plan, a municipality has the ability to "substitute" local standards for certain state Chapter 91 requirements, such as building height limits, and to "amplify" certain discretionary state standards.

The standards that can be substituted for by an approved harbor plan apply only to nonwater-dependent uses. Section 9.51(3) establishes minimum standards and limitations on building height, site coverage, waterfront setback, and encroachment into flowed tidelands. Section 9.53(2)(b)-(c) pertains to the provision of interior and exterior public space in a project. Section

9.52(1)(b)(1) is a requirement for a waterfront walkway with a minimum width of 10 feet to be included with any nonwater-dependent use. In those instances where nonwater-dependent uses are allowed, this public access requirement exists, as does the ability to modify it through a municipal harbor plan. The provisions of a municipal harbor plan can also be effective in providing guidance for the DEP in applying the numerous discretionary requirements of the Chapter 91 regulations to projects under review.

Weir River Area of Critical Environmental Concern (Massachusetts Department of Environmental Management)

The harbor planning area includes the Weir River Area of Critical Environmental Concern (ACEC). The ACEC was designated by the Secretary of Environmental Affairs under the authority of Massachusetts General Laws Chapter 21A, Section 2(7) and in accordance with regulations at 301 CMR 12.00 on December 11, 1986.

The purpose of the ACEC program is to promote the long-term preservation, management, and use of natural and cultural resources that have been determined to be of regional, state, or national significance. Designation of an area as an ACEC requires all agencies within the Executive Office of Environmental Affairs (EOEA) to take actions, administer programs, and review regulations to preserve, restore, and enhance the resources of the ACEC. EOEA agencies are also required to subject projects under their jurisdiction “to the closest scrutiny” to meet these objectives.

Operationally, the designation raises the standards of review for projects within the ACEC as follows:

- The threshold for MEPA reviews, such as the filing of an Environmental Notification Form, are lowered for certain project types in an ACEC. These include all state-funded projects, projects undertaken by state agencies, state agency planning projects, and projects requiring state permits or actions. The MEPA Unit of the EOEA and the MEPA Regulations (301 CMR 11.00) should be consulted for further information and specific applications of the lower ACEC threshold.
- Within the ACEC water quality classification is raised to SA, the highest standard. The Weir River is also classified as an Outstanding Resource Water.
- Any activities in a coastal ACEC requiring a federal permit or using federal funding is subject to a Federal Consistency Review by the Massachusetts Coastal Zone Management Office. The project must be found consistent with the purpose of preserving or restoring conservation, recreational, ecological, or aesthetic values.
- The Wetlands Protection Act allows “no adverse impact” to any coastal wetland from any activity within an ACEC (310 CMR 10.24(5)(b)). Maintenance dredging must minimize

adverse effects using best available measures to be approved under the standards of the Act.

- The ACEC designation triggers specific restrictions contained in the Chapter 91 regulations regarding dredging and waterfront structures and fill.

Dredging in an ACEC

Improvement dredging is prohibited by the Waterways Regulations in the ACEC except for the sole purpose of fisheries or wildlife enhancement (310 CMR 9.40(1)(b)). Improvement dredging is defined as dredging of an area that has not been previously authorized.

Maintenance dredging can be conducted in the ACEC upon approval of necessary permits. Maintenance dredging refers to the dredging of areas that have in the past been authorized for dredging regardless of whether or not dredging has ever been done. The area extent and depth of maintenance dredging eligible for permitting are as described and shown in existing authorizations.

Fill and Structures in an ACEC

Within ACECs, the Chapter 91 regulations prohibit new fill in tidelands (with a few limited exceptions described below). Projects that may be conducted, that is, that are eligible for licensing in the ACEC (310 CMR 9.32(1)(e)) include the following:

- 1) Fill or structures for any use on previously filled tidelands
- 2) Structures for public pedestrian access over flowed tidelands, provided it is not feasible to locate the structure above the high-water mark or within the footprint of existing pile supported structure or pile field.
- 3) Publicly owned structures for water-dependent use below the high-water mark, provided they are designed to minimize encroachment into the water. Such structures would include a dock, pier, or boat launch ramp.
- 4) Privately owned structures for a water-dependent use below the high-water mark, provided that:
 - a) The proposed use is not industrial and is located within the footprint of existing previously authorized pile-supported structures. Example: a new commercial dock in the area of a former industrial pier;
 - b) Such structures are necessary to accommodate infrastructure facilities and are designed to minimize encroachment in the water. Infrastructure facilities are those

that produce, deliver, or provide electric, gas, water, sewage, transportation, or telecommunications services to the public.

- c) Such structures are consistent with a Resource Management Plan adopted by the municipality and approved by the secretary.

Beyond those described above, the few limited circumstances described in the Chapter 91 regulations in which fill or structures may be allowed in the ACEC (provided that reasonable measures are taken to avoid, minimize, and mitigate any encroachment in the waterway) include the following:

- Shoreline stabilization or rehabilitation of an existing shore protection structure
- Installation of drainage, ventilation, or utility structures, or placement of minor and incidental fill necessary to accommodate any modification to existing public roadways or railroad track and/or rail bed
- Improvement or rehabilitation of existing public roadways or railroad track and/or rail bed, provided that any net encroachment with respect to public roadways is limited to widening by less than a single lane, adding shoulders, and upgrading substandard intersections

None of the above effects or restricts the continuation, maintenance, or replacement of existing and/or licensed water-dependent use structures, nor limits structures otherwise eligible for licensing.

ACEC Resource Management Plan

The Department of Environmental Management (DEM), the agency within EOEA with responsibility for the ACEC Program, promotes the preparation of ACEC Resource Management Plans. These plans establish goals and an implementation strategy for resource protection and use and serve to coordinate the activities and interests of local, state, and federal agencies. Preparation of the plan is usually a collaborative undertaking of municipal and state government, together with environmental and community groups and organizations and other interested parties. Guidance and technical assistance for preparing an ACEC Resource Management Plan are available from the DEM's ACEC Program.

One specific purpose for preparing an ACEC resource management plan is contained in CMR 9.32(1)(e)(4) of the state's Waterways Regulations. This provision allows for the permitting of new privately owned structures below the high-water mark if they have been provided for in a Resource Management Plan that has been approved by the Secretary of EOEA and adopted by the local municipality.

Chapter 91 regulations will play a significant role in the future of the Hull Harbor areas. The extent of filled tidelands under Chapter 91 jurisdiction has not been established, although a great deal of information is available concerning certain known areas of fill where Chapter 91 licenses were previously obtained. It is not clear at this time whether there is substantial nonconformance with the Chapter 91 discretionary or nondiscretionary standards in existing conditions; further research is required on this issue.

Changes in the ACEC Boundary or Variance from Chapter 91 Regulations

The regulatory standards and the locations of the boundary of the Weir River ACEC could be inconsistent with certain activities that may be considered as part of this plan, including the expansion of marine-related uses in the area around Nantasket Pier and dredging for this use. Relief from these regulatory standards can be obtained either by a relocation of the boundary limits of the ACEC or through a variance from Chapter 91 regulations. Existing procedures can be used for either method. To facilitate the amendment process, Town representatives should meet with the ACEC Program and other EOE staff before preparing and submitting the proposed amendment.

The process for amending the boundary of an ACEC is described in the ACEC Regulations (301 CMR 12.00). The Town would submit a proposed amendment to the Secretary of Environmental Affairs, including maps indicating the location of the proposed amendment. The proposal would describe the reasons for and benefits of the boundary change and would reference criteria listed in 301 CMR 12.09. The proposal would describe the environmental resource context of the proposed dredging requiring the boundary change and would demonstrate a lack of adverse impacts. Generally, amendments are discouraged unless accompanied by a supporting ACEC Resource Management Plan (RMP) or comparable plan. However, a proposed amendment may be submitted without such a plan if the supporting information is comprehensive and similar to that which would have been included in an RMP. The Town representatives would have an opportunity to meet with key state agency staff prior to submitting a proposal.

To the extent that there are no adverse impacts and the action is justified, approval of the amendment may be warranted. However, approvals in the case of adverse impacts are likely to be contingent upon the significance of the impacts, the need for the dredging, and the mitigation proposed.

The variance procedure for Chapter 91 regulations is outlined in Section 9.21 (310 CMR 9.00). This procedure, as quoted below, allows a variance to be issued through a written finding by the Commissioner of the DEP following a public hearing if:

- a) There are no reasonable conditions or alternatives that would allow the project to proceed in compliance with the regulations;

- b) The project includes mitigation measures to minimize interference with the public interests in the waterways, and the project incorporates measures designed to compensate the public for any remaining detriment to such interests; and
- c) The variance is necessary . . . 1. to accommodate an overriding municipal, regional, state or federal interest . . .

Division of Marine Fisheries

The Division of Marine Fisheries (DMF) has oversight authority over leasing of public areas for shellfish aquaculture; only nonproductive areas can be leased.

3. Local Regulations

Zoning By-law

The Zoning By-law of the Town of Hull establishes a number of districts: the waterfront district, several single- and multi-family residential districts, a business district, commercial recreation districts, a public open space, flood plain district, and conservation districts.

The uses allowed in the waterfront district are consistent with the state's Waterways Regulations. In fact, the water-dependent uses allowed in and the nonwater-dependent uses prohibited from the waterfront district are as defined by the state's regulations at 310 CMR 9.00. The regulations for this district specifically prohibit residential uses, including hotels, and commercial office buildings. Further, the regulations encourage amenities such as public access and water-related recreational uses to be considered with special permit uses whenever possible and feasible. The dimensional standards for the waterfront district allow a maximum building height of two and one-half stories, and a maximum structure height of 30 feet. Maximum lot coverage is fifty percent. The waterfront district regulations are consistent with the use and dimensional standards of the Chapter 91 regulations and explicitly promote the water-dependent use and public-purpose goals of the Public Waterways Act.

The Commercial Recreation A, B, and C districts permit marinas and accessory uses as well. Boat storage, as a commercial enterprise, is a permitted use in the Business and Commercial Recreation A, B, and C districts and may be authorized in other districts by issuance of a special permit by the Board of Selectmen.

The single-family, and multi-family, mixed-use residential districts, business districts, commercial recreation districts, and the public open space district permit boat and equipment storage, subject to the requirements of Section 45, Boats and Boat Equipment Storage, of the Zoning By-law.

For residential property, Section 45 limits boat storage to no more than three boats on any one residential property. Lot coverage of all buildings and boats may not exceed fifty percent. These limitations may only be exceeded upon issuance of a special permit by the Board of Selectmen.

The Townhouse Residence District permits, along with townhouse and garden apartment-type dwellings, boating facilities for boats other than power boats or sailboats less than twenty (20) feet and uses (coffee shop, restaurant, boat repair, sales, service) in accessory structures serving such facilities.

A floodplain district is established by Section 37 of the By-law. It is an overlay district, the boundaries of which are defined as special flood hazard areas A, AI, AH, AO, A1-A30, A99, V, VE, and V1-30, — that is, the 100-year regulatory floodplain and high velocity zones. Uses allowed in the floodplain district are described in Section 42, “Floodplain District Use and Development Regulations.” All uses permitted by right or by special permit must meet the standards of this section, as well as state and local regulations for buildings and activities in a floodplain and/or wetlands resource area (See Section II.D.1. Federal Management).

In coastal high hazard areas, only uses that have low flood damage potential and present no obstruction to flood flows (and are permitted uses in the underlying district) are allowed. These include agricultural uses, outdoor recreation, conservation and wildlife management, and temporary structures in connection with fishing and the above uses.

For purposes of the Harbor Plan, the Zoning By-law of the Town of Hull provides the appropriate types of provisions for accommodating, if not promoting, water-dependent uses and protecting natural resources. As noted above, certain provisions of the By-law are specifically written to ensure consistency and compatibility with the principles of the state’s Waterways Regulations for use of tidelands. There are no obvious inconsistencies between the dimensional standards of the By-law and the Waterways Regulations. However, this will be further assessed as the extent of filled tidelands in Hull is fully explored.

Wetlands Regulations

The Wetlands Protection Act (Chapter 131, Section 40) through the Wetlands Protection Program, requires local conservation commissions to examine and regulate development activities that may alter wetlands and to issue or deny permits based on whether the proposed activity is consistent with the requirements of the Wetlands Protection Act and DEP regulations (State Wetlands Regulations at 310 CMR 10.00 provide clarification of the provisions of the Act). DEP issues superseding orders and variances and offers compliance, enforcement and technical assistance.

Under the Wetlands Act and the local by-law, the Conservation Commission has authority over projects in or affecting five categories of resource areas: bank, beach, dune, flat, marsh, swamp,

freshwater or coastal wetlands that border on the ocean or any estuary, creek, river, stream, pond or lake. The Commission also has jurisdiction for land under water bodies, land subject to tidal action, land subject to coastal storm flowage, and land subject to flooding. Activities within these resources areas subject to jurisdiction include activities that would remove, fill, dredge, or alter the resource. The Commission also has the right of review for activities within a 100-foot buffer zone around wetlands bordering water bodies, banks, beaches, and dunes. The Conservation Commission also has responsibilities to plan for, acquire, and manage open space, as well as to promote conservation restrictions.

Mooring Specifications and Regulations

Mooring regulations stipulate a Hull Harbor Use Permit from the harbormaster for the placement of a mooring in the waters of the Town of Hull. The regulations detail the required mooring specifications and require inspection of moorings at least every five years.

Harbor Regulations (Harbor By-law)

Chapter 111 of the Hull Code is the regulations for the harbor. The chapter's provisions detail the responsibilities of the Harbormaster, rules for operating vessels in the harbor, and rules for use of town marine facilities. The authorities of the Harbormaster include issuing annual permits for the moorings of boats, ensuring navigational safety, and taking enforcement actions as necessary. Section 111-3 establishes the rules governing town piers, docks, and floats. Town landing places, floats, and piers are to be used only for loading and unloading of fishing and recreational boats. Unless specifically permitted by the Harbormaster, no storage of equipment, swimming, vessel repairs or maintenance, cleaning of fish, or long-term berthing of boats is allowed.

Mooring fees are established by Town Meeting. The fee is currently \$3.00 per foot for both residents and nonresidents. Mooring permits and slip rentals will be denied to persons delinquent in paying boat excise taxes. A lease or license from the Board of Selectmen is required of commercial operations using town piers or floats for business purposes. The Selectmen also have responsibility for determining the usage of town launching ramps.

F. Summary of Key Issues Based on Findings

The Scope for the Hull Harbor Management Plan was organized in part around a list of issues that must be addressed. The purpose of this segment of the Harbor Plan is to review the existing conditions findings in terms of the issues that were listed. There are six general categories of issues, each of which is discussed in turn:

- Harbor Capital Improvement Projects

- Public Use of the Harbor and Harborfront

- Commercial Fishing and Aquaculture Industries
- Development and Uses
- Compatibility of Diverse Harbor Uses
- Compatibility of Residential and Harbor Uses

1. Harbor Capital Improvement Projects

Nantasket Pier is the most prominent of the potential public capital improvement projects that is consistently referred to in interviews, studies, and discussions concerning the future of the Town of Hull. The pier is located in a prominent location along one of the major entrances to the Town. The pier has been largely unused for many years, in part because of a decline in recreational and commercial boating activity and in part because of a general decline in the vitality of the seasonal-use district that surrounds it. Funds have been secured for at least partial dredging of the area around the pier, to increase its waterside accessibility. The active reuse of the pier and the water that surrounds it has not proceeded, despite several Town initiatives to date. However, the Town is currently planning to solicit private sector-interest in uses that will reactivate the pier and its surroundings. Numerous issues need resolution regarding reinvestment in the pier, including the allocation of costs for improvements and sources for public funds, the relationship of the pier to adjacent land, and the relationship between desirable redevelopment and reuse to the Weir River ACEC that surrounds the pier. The management of the pier redevelopment and future maintenance does not appear to be resolved and was a factor for consideration in the planning process.

Another prominent capital improvement project is the proposed improvement to the Pemberton Pier area. This area serves recreational boaters and patrons of the ferry service; a proposal for funding has been submitted to the Commonwealth of Massachusetts for landscape and parking area improvements that has achieved preliminary approvals for future funding.

There is a need for improvements at most of the other Town landings, including the following:

- A persistent need for more parking areas
- Physical improvements to piers and docks to repair damage
- Provision of improved dinghy facilities at several locations
- Improvements at boat ramps, including floats along the ramp edges

There is currently no capital improvement program for the provision of significant public access, for bicyclist and pedestrian improvements along the water's edge, or for connecting waterfront features. Signage programs to better mark access points and the facilities for the public also have not been defined.

Dredging needs have been determined for the areas around Nantasket Pier, as noted above. There has been significant shoaling in the vicinity of Spinnaker Island, which has altered boating patterns in that area. Dredging may be required to continue to allow reasonable access to the Allerton Harbor areas. Additional dredging needs may be identified during the course of the planning process.

2. Public Use of the Harbor and Harborfront

Public use of the harbor and harborfront is currently provided at many locations throughout the Town. These locations include small boat launch areas at street endings and scenic overlooks. There are limited amenities at many of these smaller public access locations, and there are few attractions for the non-boating public. Additional considerations include the potential to provide improved public access along the waterfront areas and the creation of connecting links among access points. A clear program needs to be assembled of desirable public uses that should be encouraged and preferred locations for encouraging such uses. Parking opportunities must be linked to public access and use of the Harborfront.

There are a number of locations that should be considered for improvements to support water access points, including Hull High School (Pemberton Point), street areas adjacent to the Hull Town Pier at James Wharf, the parking area at the Allerton Harbor pier and access facilities, parking areas near the A Street boat ramp and beach, and the areas surrounding Nantasket Pier.

3. Commercial Fishing and Aquaculture Industries

Commercial fishing for shellfish and lobster are important activities within Hull. There are a number of environmental issues that affect the shellfish resource; the Harbor Plan can address those sources of pollution that may be within the jurisdiction of the Town. Appropriate mooring locations and adequate shoreside support facilities for lobstermen are needs that must be further evaluated and included in the Harbor Plan. Finfishing is a small element of the local commercial fishing activity, but the public piers provide a useful location for access and offloading for several vessels. Aquaculture is not currently present in Hull or its waters and may require special efforts if it is to be introduced.

4. Development and Uses

The existing conditions evaluation suggests that it is unlikely that economic demand will be sufficient to support large new housing or seasonal businesses in the near term in the Harbor

planning area. Development is likely to be focused on specific locations, of which the Nantasket Pier is the most prominent. However, small-scale infill development and additions to existing buildings may trigger planning issues concerning compatibility of development with public policies, zoning regulations, and Chapter 91 regulations that specify certain relationships among development, uses, and the harbor.

5. Compatibility of Diverse Harbor Uses

Compatibility of uses within and alongside the Harbor has been considered as part of the initial investigations of the Hull Harbor Management Plan. Principle conflicts seem to be relatively limited. Conflicts taken into account include the following:

- Demand for parking spaces in areas adjacent to marinas, boat ramps, and mooring access points that are in conflict with neighboring uses
- Potential conflicts between commercial fisherman and recreational boating

6. Compatibility of Residential and Harbor Uses

Hull is a predominately residential community of extremely high density relative to surrounding communities. Therefore, there are numerous single-family and multi-family residences along the shoreside areas of the Town. These residences have established private expectations concerning use and accessibility to the waterfront. In some cases, the residential uses may be negatively impacted by actions that lead to increased nonresident parking, traffic, or public access to waterfront areas. In addition, the Weir River Area of Critical Environmental Concern regulations constrain some private use options for waterfront locations.

III. Review of the Planning Process

III. REVIEW OF THE PLANNING PROCESS

A. Participants

The Hull Harbor Plan has been prepared under the direction of the Hull Harbor Planning Committee, which was constituted by the Town of Hull for the specific purpose of initiating and conducting the planning process that has resulted in this document. The management of the planning process has been the responsibility of the Office of Community Development, with additional administrative responsibility through the Town Manager. The planning process has directly included the public through a series of public meetings and workshops. The Board of Selectmen has been involved in providing input and review at key phases of the project. The Harbormaster has been involved through meetings, reviews, and coordination with the Harbor Planning Committee, and other Town officials have been consulted within areas of appropriate concern, including the Superintendent of Streets and the Harbormaster as acting Shellfish Warden.

The Commonwealth of Massachusetts has been integrally involved in the preparation of the Hull Harbor Plan. This Plan has been prepared in fulfillment of the requirements of a Municipal Harbor Plan, with overall coordination provided by the Massachusetts Office of Coastal Zone Management. The Secretary of the Executive Office of Environmental Affairs has reviewed and approved the Scope for this Plan and will review the final submitted Plan to confirm its compliance with the policies and regulations of the Commonwealth. Among the other state agencies directly involved in providing information and reviews for this Plan are the Department of Environmental Protection (DEP), the Department of Environmental Management (DEM), the Division of Waterways and Navigation, and the Massachusetts Development Finance Agency.

The Scope for the Harbor Plan, mapping, and the gathering of initial information was performed by a consultant team under the direction of the Town, led by Appledore Engineering, Inc. The remainder of the Harbor Plan was prepared by a consultant team led by The Cecil Group, Inc., with assistance by the Urban Harbors Institute of the University of Massachusetts (regulatory and environmental planning), Nucci Vine Associates, Inc. (marine engineering and coastal features), and FXM Associates, Inc., (economics).

Many other individuals and agencies were involved in the planning process. A list of primary interviews is listed in Appendix A, represents only a small number of those who provided important input and insight into this Plan. Among the individuals who contributed to the planning, reviews, and discussions leading to this Harbor Plan were the following:

Hull Board of Selectmen

Regina Burk
Mark Burns
Carl Katzeff
William McLearn
John Reilly, Jr.

Harbor Planning Committee

Myron R. Smith, Chair
Henry Kostka, Vice Chair
Jim Linville, Clerk
Ronald Gale
Peter Mahoney
William McKeon
William McLearn
John Schmid
Shephard Shove

Town Manager

Philip Lemnios

Director, Office of Community Development, Town of Hull

Jay Szklut

Hull Harbormaster

Michael Nicholson

Commonwealth of Massachusetts, Executive Office of Environmental Affairs

Trudy Coxe, Secretary

Massachusetts Office of Coastal Zone Management

Margaret Brady, Director
Elizabeth Grob, Boston Harbor Regional Coordinator
Laurel Rafferty, Harbor Management Coordinator

Massachusetts Department of Environmental Management

Leslie Luchonok

Massachusetts Department of Environmental Protection

John Simpson, Environmental Analyst

B. Preparation, Review, and Approval Process

The Hull Harbor Plan has been prepared under the guidance of the Harbor Planning Committee during a six-year-long process. That process was initiated internally within the Town in September of 1992, through the creation of a Harbor Planning Committee for the purpose of resolving numerous issues concerning the future of the waterfronts and harbors that surround Hull.

Two early decisions strongly influenced the planning process. The first decision was to fulfill the requirements of a Municipal Harbor Plan as defined by state regulations. A Municipal Harbor Plan allows the Town and the Commonwealth to resolve common issues in regard to the regulation of uses and environmental conditions in areas where both entities have jurisdiction. The Municipal Harbor Plan process has a series of procedural requirements that have been closely followed.

Second, it was decided that the Scope of the Harbor Plan would not include the continuous beach areas that are along Hull's eastern and northern edges. The beaches, dunes, and seawall along this edge of Town are integral to the protection of the Town during extreme storm events and have many public access and other issues associated with their future. A separate planning process has been under way to address the special issues of these areas of Hull, and so these areas did not need to be included as part of the Hull Harbor planning process. Key steps in the planning process have included the following:

- Fall 1992: Formation of the Hull Harbor Planning Committee
- Fall 1994: Establishment of the framework for a Harbor Plan through discussions with the Massachusetts Office of Coastal Zone Management and planning support in conjunction with the Hull Visions Project (Hull Economic Development Task Force)
- Winter 1995-96: Selection of a consultant team to assist the Town in the technical steps necessary to initiate a Municipal Harbor Plan under state regulations
- Spring 1996: Preparation of a Request for Scope for the Harbor Plan, including interviews with stakeholders and public meetings
- Summer 1996: Submittal and approval of the Scope for the Harbor Plan by the Secretary of Environmental Affairs of the Commonwealth of Massachusetts

- Fall 1996: Selection of a consultant team to assist the Town in completing the planning and technical tasks necessary to complete the Harbor Plan
- Winter 1996-97: Initiation of the Harbor Plan preparation
- Spring 1997: Preparation of the Hull Harbor Plan Findings Report and public presentation to review existing conditions and projected trends. This included a public meeting and a presentation to the Board of Selectmen
- Summer 1997: Preparation of alternative planning concepts and evaluation of the alternatives. This phase included and a public meeting and a public workshop to present the alternatives and to receive comments
- Fall 1997: Preparation of Preliminary Harbor Plan (initial recommendations) for review and public comment
- Winter 1997-98: Preparation of the Draft Harbor Plan. This Plan will be reviewed by public agencies, the Harbor Planning Committee, the public through a public meeting, and the Board of Selectmen. A revised Harbor Plan will then be prepared and be the subject of a public hearing, approval by the Harbor Planning Committee and the Hull Board of Selectmen, and submittal to the Secretary of Environmental Affairs
- Winter 1998-99: Approval by the Secretary of Environmental Affairs

C. Summary of the Planning Alternatives

An important part of the planning process was the examination of two alternative directions that could be taken concerning the future for Hull's harbor areas. This step allowed for broad consideration of the most practical and useful actions that could be taken to achieve the goals and objectives that had been established earlier in the planning process. Special reports and summaries were prepared concerning the alternatives. This segment of the Harbor Plan highlights the principal aspects of the two alternatives and considerations that led to the preferred directions.

The first illustration (Alternative A) explored the concept of Hull Harbor as a local resource that is managed to be a direct recreational, economic, and environmental asset to the Town and reinforces existing patterns of use. The second illustration (Alternative B) investigated the implications of Hull Harbor as a regional recreation, economic, and environmental resource that also serves the South Shore, the Greater Boston region, and Boston Harbor. The alternatives were specifically constructed to respond to major topic categories that are a focus of the planning process, including the following:

- Navigation and Water Use

- Management and Maintenance of Harbor and Waterfront Facilities
- Waterfront Use
- Harbor Management and Administration
- Marine and Natural Resource Protection

1. Alternatives for Navigation and Water Use

Navigation and Water Use: Alternative A

Alternative A generally proposed that the navigation channels and harbors be improved and maintained according to their past and present use. This included the re-establishment of the navigation channels to and along Nantasket Pier and the maintenance of other areas that are subject to shoaling. This particularly included the restoration of the breakwaters along both Seal Rock cove and Crescent Beach cove.

Water use would continue in its present pattern, although mooring locations would be more thoroughly inventoried and managed as part of the management process. Piers and boat ramps would be repaired where required, and amenities such as floats, dinghy docks, and the like would be added where they would serve as improvements. The largest shift in water use would be the establishment of a multi-use marina around the perimeter of Nantasket Pier.

Navigation and Water Use: Alternative B

The second alternative included all of the recommendations listed for the first option. However, Alternative B would extensively expand the dredged area around Nantasket Pier to create an enlarged marina and/or mooring opportunity and increase revenue, as part of a significant effort to revitalize this portion of Hull's waterfront. Implementation of this concept would include dredging within the Weir River Area of Critical Environmental Concern. This alternative would provide for a large new breakwater at Pemberton Point, creating an excellent new location for a marina and improved operations of ferries, excursion boats serving the Harbor Islands, and the existing uses. Alternative B also envisioned breakwater improvements at Allerton Harbor and at Donahue's Marina near the A Street Pier to protect these locations from southwest winds.

This alternative would also encourage potential introduction of in-water aquaculture as a water use. Finfish and shellfish aquaculture is an expanding industry throughout the country and in the New England states. Massachusetts has lagged behind its neighboring states in developing an industry, but the state is now devoting resources to developing the potential that exists.

Shellfish aquaculture is important in the nearshore waters of Cape Cod Bay and the Islands and in some places along the North Shore. In Hull Bay, the potential for in-water (shellfish) aquaculture is limited by the water quality. Water quality is, however, expected to improve. The Division of Water Pollution Control classifies Hull Bay as “SA,” a designation that results in close controls on the quality of new discharges. The classification of the Weir River and Straits Pond as Outstanding Resources Waters prohibits new or increased discharges. With the eventual remediation of existing pollution sources, the quality of water should be supportive of shellfish cultivation.

2. Alternatives for Management and Maintenance of Harbor and Waterfront Facilities

Management and Maintenance of Harbor and Waterfront Facilities: Alternative A

Maintenance of existing facilities is a problem that would be addressed largely on a local basis in this alternative, with support by state agencies for the major and periodic investments such as large dredging projects that are occasionally necessary. One method for improved funding for maintenance of facilities would be the allocation of revenue into a harbor improvement fund, along with a plan for prioritizing expenditures. As part of this plan, the Town could review the level of mooring fees and consider raising these fees to be similar to other towns to help fund improvements. Other possibilities would include partnerships with government agencies or with private enterprise associated with management agreements. Public funding to support water transportation infrastructure may become more available as the state promotes and responds to increasing interest in ferries as a form of mass transportation. The public/private initiative to develop the Boston Harbor Islands National Recreation Area may yield additional public or private interest in investing in infrastructure improvements, as well.

Management and Maintenance of Harbor and Waterfront Facilities: Alternative B

This alternative included substantial improvements to the major public waterfront facilities at Pemberton Point, Allerton Harbor, and Nantasket Pier; this would require a commitment to increased management and maintenance. The larger-scale improvements discussed under Alternative B for each of these areas may necessitate a management entity for one or more of the sites, along with the associated costs. The expectation should be that revenue generated from the new facilities would offset, at least partially, these increased costs.

3. Alternatives for Waterfront Use

Waterfront Use: Alternative A

Waterfront uses would be reorganized and improved to provide for increased amenity and convenience for local residents, as well as for visitors to Hull. This alternative would support

the proposed program of improvements at Pemberton Point, consisting of parking area paving, landscaping, and an improved boat ramp. Landscape and park amenities would be added to Hull Village Beach, and the small James Wharf pier would be converted into a more park-like environment.

The Allerton Harbor area would include parking and landscape improvements to better support the Hull Yacht Club, Hull Town Pier, and the Nantasket Beach Saltwater Club. The A Street Pier area would also receive improvements in terms of pavement, signage, and designated, improved street parking for individuals using the pier, the beach, or the small boat ramp that is there.

The edge of the Weir River north of Sagamore Hill would be improved with park-like landscaping and improvements to encourage pedestrians and bicyclists.

The most extensive change in shoreside uses would occur in the vicinity of Nantasket Pier (see Figure 8, Nantasket Pier Area). This would include all of the landside support needed for a small, mixed-use marina, including parking and access for supplying and serving small commercial vessels. Consistent with previous planning studies, this alternative would include retail and restaurant uses along the pier and its environs.

This alternative included a consistent approach to the preservation and enhancement of existing public ways that connect to the waterfront. In each case, signage would be provided to indicate a public way, and paving, landscape, or other improvements would be added as appropriate to the conditions of each location. A complete list of the locations for which signage and access enhancements would be proposed was included within the reports that described the alternatives.

Waterfront Use: Alternative B

This alternative envisioned enhanced landside support for the waterside uses that would be significantly upgraded as a result of infrastructure investments. This would include parking and marina support services at Pemberton Point and for the marina at Nantasket Pier. This support must match the actual needs of a facility at Nantasket Pier to ensure viability. The alternative would also allow for some additional parking in the vicinity of Donahue's Marina and the A Street Pier.

Alternative B envisioned the potential for new development using the HRA land near the intersection of Bay Street and Nantasket Avenue, consistent with the "coastal village" scale and qualities sought for this part of Town. This may consist of multi-family housing as a preferred use.

Alternative B recommended a significant realignment of land uses along Nantasket Harbor's edge. This would consist of the relocation of George Washington Boulevard to create a more

park-like environment along the water's edge and to provide for needed parking near Nantasket Pier. It would support the relocation of certain MDC functions and buildings to create a more contiguous and attractive relationship between the Nantasket Pier area and the seasonal attractions of the beach and its environs.

In this approach, a systematic series of pedestrian and bicycle path improvements would be undertaken to lace together the various public amenities throughout the Town. The bicycle path route would include the rail right-of-way and would be linked to Hingham and a growing regional trail system.

Upland-based recirculating systems for finfish aquaculture were considered as part of Alternative B. These systems require large investments for commercial-scale operations. Partnerships with area universities and researchers would be explored as part of the process of establishing this industry in Hull.

4. Alternatives for Harbor Management and Administration

Harbor Management and Administration: Alternative A

Local management of the uses of the waterways is largely the purview of the Board of Selectmen and the Harbormaster, who is responsible for implementing the Harbor By-law. Under this alternative, the roles and responsibilities would not be fundamentally altered, but new methods of reporting information and fulfilling specific goals would be established. This would likely include improved management of moorings.

This alternative would establish a standing Harbor Management Committee to assist the Town by providing a forum for the implementation of the Plan and the resolution of issues that may arise. Membership would include the Harbormaster, the Shellfish Warden, the Town Manager, the Director of Community Development, and various appointed representatives.

The actions proposed for this alternative are not inconsistent with the regulatory structure for the existing Weir River ACEC. This alternative would not require new dredging within the ACEC, which is generally prohibited in an ACEC. Improvements to this existing publicly owned pier to support water-dependent and related uses is generally consistent with Chapter 91 and the ACEC. Edge improvements for shoreline stabilization or rehabilitation of existing structures is an allowable activity.

For the Weir River Estuary ACEC, consideration would be given to preparing a Resource Management Plan for the ACEC. Preparation of this plan would generate information that is currently lacking on the extent and condition of the various resources of the ACEC. The plan would also provide a solid basis for developing a comprehensive plan and approach for access and recreation improvements, resource protection and restoration, and for other activities

occurring in the ACEC. These plans are typically guided by a steering committee of citizens, together with local, regional, and state officials. The process of preparing a plan can be expected to generate increased interest and involvement of local citizens, leading to formation of a stewardship group to implement the plan's recommendations and oversee the ACEC.

The ACEC Resource Management Plan also becomes the basis for coordinated and consistent decision making among the state and the towns that share the resources. As mentioned in the findings report, one of the specific reasons to prepare an ACEC Resource Management Plan would be to allow for the permitting of new privately owned docks, which is otherwise prohibited in an ACEC.

Harbor Management and Administration: Alternative B

The second approach to harbor management and administration was very similar to the first. However, the scale of the improvements to the Pemberton Point area and the Nantasket Pier area would likely require the establishment of a development and management structure within the Town government, unless the Town would manage these facilities through a contract arrangement with a private entity. The administrative responsibilities associated with these facilities would be significant.

In addition, the second approach would require a more extensive coordination effort on a regional basis with other agencies and entities involved in recreation, tourism, transportation, and development. This coordination would most likely be accommodated through an increased level of effort and staff support of the standing Harbor Management Committee as discussed above.

5. Alternatives for Marine and Natural Resource Protection

Marine and Natural Resource Protection: Alternative A

The present quality of Hull's coastal waters constrains commercial shellfishing, precludes recreational shellfishing, and is an impediment to establishing shellfish aquaculture in Hull Bay. Actions by the town to sewer areas where septic systems are failing and eliminate the problem of leachate from the landfill would help to address this problem. Other sources, beyond the town's control, would also have to be eliminated before appreciable improvement in water quality would be achieved and the associated economic benefits can be realized.

The coastal wetlands resources are afforded protection under the Commonwealth's Wetlands Protection Act. Many other communities have also adopted local wetlands by-laws that contain local refinements and purposes. The Hull Conservation Commission would adopt a local by-law to complement and strengthen their authority under state law.

A large expanse of wetlands is encompassed by the Weir River Estuary ACEC. This designation provides a higher degree of protection for the resources within the ACEC. The limited alterations envisioned under Alternative A would be inherently consistent with the resource protection goals of the ACEC designation. Improvements to existing access, creation of new access, and recreational and educational uses are all appropriate objectives.

Marine and Natural Resource Protection: Alternative B

The more extensive physical improvements under Alternative B should still be consistent with the resource protection goals of the Weir River ACEC. Greater attention to and evaluation of potential long- and short-term impacts would be necessary. The issue of dredging within the ACEC would need to be addressed through one of several means and would depend, in part, on whether this was a public improvement or a project undertaken under private-sector auspices. The other important consideration in this alternative would be the impact of such a plan on adjacent residential areas.

The harbor improvements, particularly construction of new breakwaters, identified under Alternative B for Pemberton and Allerton Harbor would require careful evaluation of environmental impacts. Changes in water circulation patterns and destruction of benthic (and intertidal, in some cases) habitat would be two areas of concern.

D. Conclusions of the Alternatives Phase

The alternatives were evaluated in terms of their potential to fulfill the goals and objectives of the harbor planning process through several different means. These means included the following:

- An evaluation of general costs and potential revenues associated with each of the alternatives
- Public presentation and discussion of the planning alternatives
- Evaluation matrices that listed the implication of each alternative with regard to the implications for the environment, the economy, management and administration of the harbor and its resources, and the regulatory environment

The evaluation of the alternatives resulted in the following important directions being established for the Harbor Plan, along with the associated rationale.

- Navigation and Water Use — The general maintenance planning approach in Alternative A was considered as essential to the future of the harbor, recognizing that the Town should seek to distribute as much of the cost of maintaining navigability as possible to state and federal sources, to the extent that they are available in the future. This included

completion of all dredging to the ACEC boundary at Nantasket Pier to unlock the economic development of this area of Town. Additional breakwater improvements at Allerton Harbor and Pemberton Point were developed as preferred approaches because of the substantial benefit to the fishing industry and the town moorings that would occur. Future dredging within the ACEC boundary near Nantasket Pier was recommended should a marina use in this area require it. This conclusion recognized the environmental regulatory implications of potential future dredging.

- **Management and Maintenance of Harbor and Waterfront Facilities** — In general, the ability of the Town of Hull to fund major capital improvements or to subsidize substantial ongoing operational costs is limited. It was recognized that the funding of major capital improvements will need to be undertaken largely with contributions from available state and federal resources. To the extent that marina development is to occur at Nantasket Pier, it must essentially be self-supporting, with minimal contributions from the Town's annual budget or capital appropriations. Management costs of any significant redevelopment such as the Nantasket area are included in this consideration; there is no substantial excess capacity within the Town's existing management structure. There would appear to be a rationale for raising mooring fees within the Town and using part of the revenues to fund some of the proposed improvements, and this was considered in preparing the final recommendations.
- **Waterfront Use** — The waterfront use recommendations combined those aspects of Alternative A and Alternative B that would increase access and usefulness of the waterfront primarily for townspeople, and secondarily for visitors. All of the improvements studied were carried into the final Plan, except for those elements that appear to be so expensive as to be unfundable or that would cause serious landside or waterside impacts that would be unacceptable. This approach included a preference for open space rather than new development on developable public land within the study area. The Plan recognized that the large-scale reorganization of infrastructure and land use in the Nantasket Pier area is a desirable goal, but that this goal could not be comprehensively planned within the Scope of the Harbor Plan.
- **Harbor Management and Administration** — In general, improvements in the management and administration of the Harbor were largely directed toward existing mechanisms within the Town and other relevant jurisdictions. A recommendation to establish a standing Harbor Advisory Committee was discussed at length and was recommended as an improvement, assuming that it does not add to the administrative complexity of existing Town management structures.
- **Marine and Natural Resource Protection** — Marine and natural resource protection methods are generally established for the harbor areas of Hull for those resources that the Town is in a position to protect and enhance. The evaluation of alternative responses resulted in recommendations that these methods be relied upon in the future, with specific attention to monitoring programs for key pollution and contamination issues.

IV. Planning Recommendations

IV. PLANNING RECOMMENDATIONS

A. Overall Recommendations

1. Navigation and Water Use

Water Use Plan

In general, the water use plan consists of the recommendations for the future use of the watershed and the harbor bottom (see Figure 9, Proposed Water Use Plan). In most regards, The Harbor Plan recommends retention of the traditional patterns of use. In particular locations, however, the Plan calls for the re-establishment of navigable areas, enlargement of marina and mooring areas, and additional protection from wave action to enhance mooring and pier areas.

A number of the recommendations center on the Pemberton Point area. This location is very convenient to Boston Harbor through Hull Gut, immediately north of the Point. However, the shallow bay enclosed by Pemberton Point is very exposed to southwesterly winds and wave action, which makes it unsuitable for mooring except under the most certain conditions and which hampers off-loading and loading for the passenger ferries, fishing vessels, and recreational vessels during certain times and conditions. The boat ramp is overwashed by sand and gravel because of the strong littoral currents along the shore's edge and requires constant maintenance by the Town to keep it clear for vessels.

Goals for the Pemberton Point area that were developed as part of the Harbor Plan included the following:

- Pemberton Pier should be enhanced as a location for water transportation, particularly as a potential destination as part of the Boston Harbor Islands network. The northern part of Hull is a potential visitor destination and could be linked by trolley and bicycle paths to Nantasket Beach and other locations within Hull.
- Pemberton Point is extremely accessible to lobstering and fishing grounds and could be enhanced to serve the existing Hull fleet and be a mooring and off-loading location for an enlarged fleet.
- Pemberton Point could serve an expanded recreational boating demand if facilities were substantially improved.

The most effective method for dramatically expanding the usefulness of the Pemberton Point area would be the creation of a breakwater structure that would protect the Town's Pemberton Pier facilities and the waters around it from exposed directions. Consideration was given to either a stone breakwater or a floating breakwater. Engineering studies would be required to

confirm the implications of the conditions at Pemberton Point, but it is assumed that the relatively deep waters would make a stone breakwater too costly and that a floating breakwater could be designed for the conditions in this location.

Costs for breakwater improvements have been estimated at approximately \$400,000 (construction costs only), based on similar installations. The costs would vary considerably on the amount of water area desired to serve for moorages.

With a breakwater in place, ferry operations would be significantly enhanced and would not be as easily interrupted by wind conditions. Mooring would be secure for lobster and fishing boats, which would save cruising time and make the Point more competitive with other locations as a seasonal operating location for boats that are now located outside of Hull's waters. As noted elsewhere, this improvement would be further enhanced by allowing the construction of a lobster pound at the Pemberton Point area.

The presence of a breakwater may reduce overwash of the boat ramp and allow more frequent use of this facility. Expansion of the parking areas and provision of other amenities for visitors to the Pemberton Point area would also support this improvement, as discussed in other sections of this Plan.

The mooring field at Allerton Harbor is subject to significant wave action at high tide under southwesterly wind conditions. A long, shallow bar projects south of Spinnaker Island and protects the moorage under other conditions. The Harbor Plan proposes the installation of a marine structure above the bar as added protection. This action would improve the desirability of the mooring area and its usefulness for the commercial and recreational craft that utilize its waters.

Preliminary cost estimates were developed for this improvement and are approximated at \$125,000 (construction only). Engineering studies are required to determine the best method to create the protective structure, to establish potential impacts on siltation and shoaling in the area, and to establish that environmental impacts would be acceptable.

The mooring areas in the vicinity of Gunrock and Seal Rock should be enhanced through breakwater improvements. These areas have become poorly protected because of the deterioration of the structures that are to the east of the moorage areas.

The Gunrock breakwater is a 375-foot-long stone-mound breakwater that has areas that are settled or breached. Repair work was bid as an alternate to other work in 1989, at which time a cost of \$765,000 was established. This work was not initiated, and conditions have since worsened. It is estimated that improvements at this time would require major funding, perhaps in the order of \$1 million.

The Green Hill breakwater protecting this area is a 1,350-linear-foot stone-mound breakwater. The breakwater contains several areas that are raveled and lowered. The estimated cost to repair the breakwater has been estimated to be in the order of \$1 million to \$1.5 million pending further inspection and engineering studies.

The Harbor Plan strongly supports all actions that contribute to the expansion of water transportation to and from Hull. As has been noted above, the facilities at Pemberton Point are likely to serve as an excellent destination point for seasonal tourism, as well as continuing to support commuter ferry operations. This location could also serve excursion or whale watch boats, under conditions where parking demand does not compete with other uses. Nantasket Pier could serve seasonal visitors and may be considered as a potential origin terminal for Harbor Islands Visitors.

The Harbor Plan recognizes that maintenance dredging should be planned on a regular basis to maintain an active 10-year dredging permit approved by the Conservation Commission, and the DEP, and to support the funding processes necessary to bring both Town and external resources to keep Hull's piers and mooring areas accessible.

Water Use Plan: Nantasket Pier Area

An increase in the water use in the vicinity of the Nantasket Pier area is envisioned in the Harbor Plan through the redevelopment of the marina facilities, transient and commercial boating facilities, and potential ferry docking in this location. The Harbor Plan proposes that the boat ramp facility at Nantasket Pier be retained and improved, and that parking areas be provided to support its use. This ramp should be used to support marina-related uses, as well as being available for public use. Public fees for use of this ramp could be considered to control demand and to help support the redevelopment and management of Nantasket Pier.

The fairway to the pier requires maintenance dredging, as does the perimeter of the pier. The Harbor Plan strongly supports the funding and implementation of the dredging plan as currently envisioned for this area, under the auspices of the Massachusetts Department of Environmental Management. The limits of the dredging should include, at a minimum, all of the areas around the pier that are not subject to the Weir River Area of Critical Concern. This minimum dredging area should include shore edge locations that can serve boat slips or as maneuvering areas.

Water Use Plan: Nantasket Pier Area and the ACEC

This following discussion is a summary of the overall approach to the relationship between the ACEC and the potential redevelopment of Nantasket Pier and is the basis for related recommendations concerning the pier and its redevelopment in the Harbor Plan.

Dredging near the Nantasket Pier is currently limited to previously dredged areas within the ACEC, or to areas outside of the boundary of the ACEC, unless special steps are taken. Improvement dredging within the ACEC is prohibited pursuant to the Chapter 91 Waterways Regulations. The ACEC boundary is 150 feet from the perimeter of the pier.

Preliminary feasibility evaluations were undertaken as part of the Hull Harbor Plan process to consider the potential for marina development at this location. These studies concluded that:

- Marina development at Nantasket Pier is one of the highest priorities of the Town and the Harbor Plan and will have significant positive implications for the economic future of the entire Nantasket area of Hull.

- Marina development may be financially self-supporting if there are an adequate number of slips to generate sufficient revenues and if it can be constructed within a narrow range of costs parameters. Additionally, a marina layout that encourages other activities to develop on the pier is in line with local, state, and federal reuse goals for Nantasket Pier. Preliminary studies suggest that an economically feasible marina layout that does not encroach on the ACEC may require, at a minimum, the entire watershed surrounding the pier without adequate provision for other desirable uses (e.g., excursion boats, commuter boats, and commercial boats). Marina development that is both economically feasible and does not occupy the entire pier may require dredging within the ACEC, although this cannot be firmly established without further study. The dredging would be required in order to provide adequate slips to finance or to operate the marina and to meet town economic goals, while still allowing for other uses in the Nantasket Pier watershed.

Numerous factors regarding the marina need to be resolved in order to determine whether dredging within the ACEC would be required, including the following:

- Firm estimates of dredging costs

- Finalization of dredging funding sources and allocation of dredging costs

- Determination of the overall marina program

- Finalization of construction costs

- Projected market demand for marina slips

- Income projections

- Operational cost projections

- Management and/or lease structure for marina development and operations

The Plan recommends that several steps be undertaken, in this order. First, detailed feasibility evaluations should be undertaken as a high priority, along with dredging studies. The implementation plan targets grant sources and other actions to achieve this goal. These feasibility evaluations should reach definitive conclusions concerning the need for incursions into the ACEC and the extent and location of such incursions, should this be required.

Second, if incursions should be required, environmental investigations should be undertaken to assess the potential impacts. The Town should meet with appropriate state agencies to confirm the scope and methodology of environmental investigations.

Finally, the Town should review its options concerning processes for changing the ACEC boundary or achieving a Chapter 91 regulatory variance to allow dredging and incursion of marina use into the ACEC. The procedures for these options are discussed in Section II.E.2 (p.52-53) of this Plan. The Town should then initiate the process that would best match its goals when the economic and environmental studies are completed. These processes include planning for mitigation of impacts on the ACEC in this area.

Commercial Fishing

Commercial fishing is currently supported at several locations in town: Pemberton Pier, Allerton Harbor, and Nantasket Pier. Pemberton Pier is the most convenient location for the fishermen to work from because it is closest to the fishing grounds. The pier is used for unloading catches throughout the year by lobstermen, gillnetters, and pogy boats. Mooring of boats is difficult because of weather exposure, and the area requires dredging to afford access at all tides.

The majority of full-time fishermen moor their boats in Allerton Harbor because it offers better protection, though the water area near the pier is exposed from the south at high tides. Landside facilities include a bait storage cooler (limited capacity), storage of lobster traps in winter, electricity, and water. Dredging was conducted several years ago. The pier is in need of maintenance to allow improved truck access.

The Nantasket Pier area is an important mooring area for the commercial vessels in the event of storms. It is important that this function be maintained. The pier is at the greatest distance from the fishing grounds but has good potential for integrating the fishing industry with other commercial uses being proposed for this area.

None of the areas from which the fishermen work has adequate facilities to support the operations. Some of the piers are in poor condition, and far better support facilities are needed, such as coolers, off-loading facilities, hydraulic hoists, storage facilities, ice, and so forth. A facility for on-site buyers would be ideal.

All of the locations currently used by the fishermen should continue to include commercial fishing-related activities. Each area serves specific purposes that need to be maintained—at least until proposed facility improvements are made. The presence of commercial uses at waterfront facilities is important in securing public funds for dredging and marine structures.

As a consequence of the value of Pemberton Pier's location, the Harbor Plan recommends the improvement of the pier as a public facility in support of commercial fishing. As noted above, a new breakwater to provide protection for fishing boats on moorings and during loading and off-loading operations is recommended. Improvements could also include improvements to the pier for loading/unloading, fueling, and short-term maintenance activities. Improvements should also include a small hoist and the provision of electricity and water. Floats could be added to help utilize the perimeter of the pier for tie-up for the above activities.

The usefulness of the Pemberton Pier area for commercial fishing activities would be substantially aided by the provision of a small lobster pound. The Harbor Plan specifically endorses this as an appropriate land use for this purpose, particularly if associated with the other improvements noted above.

At Allerton Harbor, the navigation and water use plan recommends construction of a breakwater on the spit south of Spinnaker Island to provide additional protection for mooring of commercial vessels. Should this area continue to be the primary mooring area for commercial fishermen, maintenance and improvements in the support facilities at this location should be undertaken.

At Nantasket Pier, the commercial fishing operations tend to be less intensive and more seasonal than at other locations within Hull. Any redevelopment of Nantasket Pier should retain adequate facilities for commercial fishing operations, scaled to the likely use of the area. These facilities should include mooring, tie-up, and off-loading capability. In addition to the commercial fishing value, it should be noted that the Nantasket Pier redevelopment is intended to serve as a center of interest in the town. Commercial fishing boats and activities can contribute to the maritime image and character, particularly if developed in conjunction with marine-related commercial uses, restaurants, and public access.

Shellfishing

In general, the existing bottom areas associated with shellfishing would neither be reduced nor expanded as part of the recommendations of the Hull Harbor Plan. Because it will be some years before all the sources of pollution in Hull's Harbor will be abated (most of which are beyond the reach of the Town of Hull), the state Department of Marine Fisheries will continue to manage the shellfish resources in Boston Harbor and Hull Bay. Water quality is expected to improve considerably upon cessation of the discharge from Nut Island, and it is projected that the shellfish areas around Peddocks Island and on the ocean side of Hull will be the first to be reopened to recreational shellfishing. It is likely that other sources will need to be controlled

before the remaining beds can be opened. In anticipation of these events, the Shellfish Warden should review and prepare municipal rules and regulations for shellfishing.

Aquaculture

Shellfish aquaculture historically has been and presently is the dominant form of aquaculture in Massachusetts. In-water shellfish aquaculture potential in Hull is limited by two factors. First, almost all of the intertidal zone in Hull and Hingham Bays is considered to be productive shellfish areas by the DMF, and the agency does not approve leasing of productive public lands for aquaculture; only nonproductive areas can be leased. Second, water quality classification of the area has to be "approved" or "conditionally approved," and Hull Bay waters are classified "conditionally restricted" (shellfish harvested must be "cleaned" or depurated for several days). The state purification plant would not/could not handle an increase from aquaculture of shellfish requiring treatment. Scallops are one species exempt from shellfish closures because only the muscle is consumed.

Water quality is improving and is expected to improve further over time and to achieve seasonal or conditional (i.e., approved) opening. The discharge from the Nut Island treatment plant is scheduled to cease at the end of 1998. Water quality classifications can only be upgraded through a Sanitary Survey. The next Sanitary Survey for Hull Bay is scheduled for the year 2000. These surveys have to be done every 12 years at a minimum, and the date happens to roughly coincide with the cessation of the Nut Island discharge.

The water quality of Hull waters does not preclude finfish pen aquaculture, and the bay offers relatively good protection. Principal problems with pen aquaculture are competing uses for the water sheet (this is an actively used harbor) and objections from nearby landowners. Other barriers to establishing finfish aquaculture are that an appropriate species has not been identified and the regulatory process is not yet well defined. There are no finfish pens in Commonwealth waters at the present time. Obtaining permitting is very difficult for the reasons stated. Nevertheless, the Harbor Plan supports technical studies and economic feasibility investigations that may be provided over time to monitor the evolving finfish farming industry, and supports the concept of finfish facilities in Hull's Harbors, if compatibility with existing uses can be established.

Concrete or fiberglass tanks in buildings and recirculating systems are alternatives to in-water aquaculture. Tanks require a continual supply of clean water that is then discharged. Recirculating systems filter and reuse all or a portion of their water. Since there is little or no discharge, permitting is simpler.

The main obstacles to establishing these types of operations is lack of investment capital and, for coastal towns, the relatively high price of property. All of the existing upland finfish facilities in the state are at inland locations, with the exception of one pilot project to grow summer flounder that has recently been established in New Bedford.

The Town of Hull may be a reasonable location for establishing upland facilities, If town sites are identified that could be used for such a facility. It is conceivable that a pilot project could be started in collaboration with one of the schools in town and with technical assistance from area research institutions or colleges. At a minimum, the facility could become an educational attraction in Hull along with the other cultural and recreational resources, and, perhaps, eventually spawn a commercial operation. Actions required to support upland aquaculture include amendment of the Zoning By-law to allow this as a principal permitted or conditional use.

Recreational Boating

Hull supports extremely active recreational boating uses. In addition to serving as an important amenity for the residents of Hull, the recreational boating activities serve as an attraction to visitors. The Harbor Plan contains several recommendations, in order to strengthen recreational boating activities and to expand the economic value of visitors that use the ramps, moorings, and marinas along the shoreline.

At Pemberton Point, the Harbor Plan advocates the institution of proposed parking, landscape and other improvements that would enhance the shoreside appearance and amenities attractive to the boating public. Breakwater improvements in this area would significantly improve the usefulness of the existing ramp during certain weather conditions and may reduce the sand and gravel overwash at this location.

There are several locations where small, private marinas have extended from the shore into Hull's harbor waters. The Harbor Plan specifically supports the operation of these small facilities and advocates the adjustment of zoning requirements on a special permit basis to allow for easing parking and other standards, recognizing the practical use of nearby streets and minimal landside lot sizes as typical of such operations. Special permit reviews should ensure that such uses remain compatible with abutting and nearby uses, including residential districts, while reinforcing the marine orientation that makes Hull an unusual and desirable community.

An additional float is needed to serve the recreational boating community at Allerton Harbor that is separate from the demands of the commercial boaters. This improvement has been estimated at approximately \$17,000 for construction costs.

The Harbor Plan advocates a range of improvements to the A Street Pier in support of recreational boating. These improvements include an additional float to serve as a tie-up and the provision of a simple tie-up on the beach for dinghies serving moored and anchored vessels.

The most significant improvement in regard to recreational boating is the restoration of an active marina at Nantasket Pier. Nantasket Pier was once the terminal for excursion boats traveling between Boston and the Nantasket Beach area. This use disappeared with the

reorientation of the public to the automobile and the decline of Nantasket as a multi-use seasonal destination. Siltation along the perimeter of the pier and the lack of shoreside facilities to support marina uses has left the pier as a public facility with minimal boating use; it is mostly employed as a parking lot for beachgoers in the summertime.

The economic feasibility of marina uses was considered during the alternatives analysis phase of harbor planning. It has been understood that economic feasibility would be defined by a capital investment and operational cost structure that could be carried through private or public redevelopment of the pier. In general, it was concluded that a well-serviced marina with excellent facilities may be economically viable in this location, under certain conditions. These conditions include the following:

- Dredging of the pier perimeter and the channel approaches to the pier would be undertaken at public expense and would not be allocated as a capital improvement for the marina project.
- The structure of the pier would require minimum repair for the short and mid-term (this appears to be consistent with previous engineering evaluations, which identified some problems but considered the pier to be generally in good condition).
- The perimeter of the pier would be dredged to at least the limits of the existing Weir River ACEC, and additionally within the limits of the ACEC, in order to meet the Town's economic goals. It is assumed that the approval process for an expanded dredging area (variance or boundary change) would be accomplished as described within the recommendations concerning navigation (Section IV.A.1).
- The landside support needs for a marina would be supplied on the pier, including parking.
- The Town would not be required to provide expensive handicapped accessibility to marina floats, by providing alternative methods for meeting this need. These could include the provision of boat ramps or the use of public grant programs for access improvements that do not add direct costs needing support by project revenues, for example.
- Demand for slips would support rental rates similar to highly desirable marinas in the region, by virtue of the quality of the operations.
- The level of demand (slips absorbed within the market) would meet or exceed the minimum levels required to meet financial feasibility goals.
- Layout of the slips would maximize rental opportunities and income to support the fixed costs of pier and parking area improvements.

- Marina facilities would include small repair and supply operations, provisions and chandlery, bathrooms, electrical and water connections, and other amenities associated with a high-quality operation.
- Operation and maintenance of the marina would be undertaken through a cost-effective method. While this could be through Town auspices, management would more likely be organized through contract by a private entity.

Using these assumptions and applying current cost, revenue, and financing profiles, a simple pro forma evaluation of feasibility suggested that a marina in the range of 225 slips could be developed. This number is near, or may exceed, the practical capacity of the water area potentially available adjacent to Nantasket Pier and outside of ACEC limits. Feasibility would be enhanced by increasing marina size through a change in the ACEC boundary allowing new dredging.

The presence of an active marina operation would have substantial economic benefits through the influence on the vitality and attractiveness of the entire Nantasket area. Additional positive attributes include the increase in local employment and excise tax income. Assuming an average value of a boat in this location at \$12,000/vessel and a valuation of \$10/\$1,000, the excise income would be approximately \$31,000 to the Town. It is assumed that all operational costs would be covered internally by the marina operation and would not result in a significant increase in management expenditures other than increased Harbormaster activities.

The redevelopment concept for the marina includes slips set aside for commercial fishing access, transient recreational boats, excursion boats, and ferries. It should be noted, however, that dedication of such space either must be reimbursed with income adequate to cover costs or must be limited so as not to endanger the economic feasibility of redevelopment as a whole.

As the implementation plan notes, there are technical issues that require resolution in order to proceed with the marina redevelopment at Nantasket Pier. Some additional market research is required to establish likely absorption rates, lease rates, and vessel profiles for potential users of the marina. The marina operation needs to be defined in relation to the target markets. Refined layouts of the marina need to be undertaken, once the market profiles are established. Another technical issue is the need to undertake an environmental assessment of the resources located within the surrounding ACEC.

In the areas of Gunrock Beach and Crescent Beach, future breakwater improvements are envisioned to protect recreational boating moorings. This will have the effect of increasing the viability and perhaps the number of moorings in these locations.

The Harbor Plan recommends programs that would increase boating safety throughout the planning area. This may require a review of existing regulations and the institution of new

regulations to better govern water ski and jet ski use. Increased enforcement is encouraged, as well.

Dredging

The focus of short-term dredging in Hull Harbor will be the areas immediately adjacent and leading to Nantasket Pier. Funding allocations of approximately \$300,000 have been set aside within state budgets for this project, and engineering studies have been undertaken to help identify the quantity and characteristics of the material to be removed. It is evident that additional funding will be required to achieve minimum desired depths with the area necessary to support a marina development as discussed above. The Harbor Plan also supports the scoping of the dredging project based on the profile of boats being encouraged to visit Hull.

The disposal of the dredge spoil will be the greatest determinant in the cost and timing of dredging. The state is currently undertaking studies to establish alternative sites that would lower dredging costs relative to trucking or barging the spoil to remote locations.

The Harbor Plan specifically supports all efforts to resolve remaining dredging and dredge spoil issues in a timely manner, coincident with the redevelopment initiatives for Nantasket Pier. The engineering and permitting processes need to specifically take into account impacts on water quality in regard to swimming, fishing, and shellfishing in this area. Impacts on existing shellfish beds should be considered; locations may include either side of the pier, as well as the area along Moreland Road and Hampton Circle. Final planning should specify the timing of dredging and the number of seasons that are likely to be required to complete the project. These studies should also specify the equipment that will be used and their proposed location and duration of use relative to nearby residential properties.

As has been noted elsewhere, the planning and funding of future maintenance dredging of Hull's channels might be facilitated through a proactive review of conditions. This function is proposed as a responsibility of a Harbor Advisory Committee or similar entity within the overall Town management structure.

2. Management and Maintenance of Harbor Facilities

Foreshore Structures

The Harbor Plan supports the continuation of the existing program to repair Town- and state-owned foreshore structures that has resulted in the expenditure of a high level of funding by the Town and state to maintain these structures. In addition to breakwater improvements mentioned under other categories, the specific recommendations of the Plan include the following:

- Crescent Beach Seawall (Gunrock Seawall), located along Gunrock Avenue — The cost for the reconstruction of remaining, unrepaired areas is \$60,000, for which design has been completed. There are approximately 320 additional linear feet of revetment with corrosion and subject to future damage when the steel toe breaches, at an estimated additional cost of \$150,000 to \$250,000.
- Pemberton Pier Seawall — The estimated cost to repair 300 linear feet of seawall is \$100,000 to \$185,000.
- Highland Avenue Seawall — The cost to repair approximately 30 percent of the worst condition areas along the seawall is estimated to be in the order of \$200,000 to \$350,000.
- Green Hill Seawalls (off of Atlantic Avenue) — The estimated cost to rehabilitate seawalls is \$100,000, pending further inspection.

Piers and Waterfront Facilities

Improvements have been recommended for all Town-owned piers and facilities, including Pemberton Pier, James Wharf, the A Street Pier, and Nantasket Pier. Pemberton Pier would be improved with a variety of changes designed to enhance its usefulness to the commercial fishing industry and is discussed within that category of recommendations. James Wharf has potential as a small park that serves the community. Modest landscape, lighting, and amenities could be provided to enhance this location and have been discussed under the category of Waterfront Use, below. The A Street Pier could similarly be enhanced, and specific recommendations have been advanced within the Waterfront Use Category. Finally, an extensive reorganization and redevelopment of the Town's Nantasket Pier has been proposed within the context of this Plan.

Town Moorings

The Master Plan for Hull Harbor recommends that a comprehensive survey of all Town moorings be completed and prepared in an electronic database format for annual review and update. The lack of reliable data on the number, location, and condition of Town moorings has hampered past planning and administrative efforts. This responsibility has been assigned to the Harbormaster of the Town of Hull, and a process has been initiated to complete this work. The Harbor Plan recommends that the Town Manager and the proposed Harbor Advisory Committee be responsible for annual reviews of these data and for corresponding reviews of mooring fees and income.

Programs to expand and improve Town-managed moorings have been included in the Harbor Plan, with an emphasis on the Pemberton Point and Allerton Harbor areas.

3. Waterfront Use

Public Access

A program is proposed to provide for improved access for a series of Town-owned landings and street ends that extend to the waters edge (see Figure 10, Public Access Map). This program would provide consistent and attractive signage, physical access improvements, and information to indicate the locations and character of the access points. This signage would be located at each access point included in the program. However, this program should not include directional signs along Nantasket Avenue or other major thoroughfares; it is intended as a more local network. Accompanying this program of improvement would be a maintenance program.

The program would be undertaken as a multi-phased effort. The first step will be to confirm the legal status of all landings, street ends, and public property that abuts the waterfront. This will require collaborative efforts of the proposed Harbor Advisory Committee, the Town Assessor, and Town Counsel. Next, a signage design program needs to be commissioned, and design standards need to be established that are consistent and attractive. A landscape design contract must be funded to establish a program for access improvements and cost estimates for each location. Funding sources need to be determined for initial phases of implementation. Finally, prioritization of access improvements must be accomplished to finalize the list of projects appropriate to funding levels.

It is strongly recommended that the signage program be implemented to the greatest extent practical as an early phase improvement. This will have a strong impact on public perceptions of access and the provision of amenities along the waterfront. The DEM Coastal Access Grants Program may be a source of funds to supplement town funds.

Several streets fronting the water, landings, and street ends have been lost to public access due to lack of maintenance or construction of private improvements. In general, the Plan recommends restoration of these lands to public control for access, with exceptions being necessary where considerable public expense would be required to restore public access with relatively small benefit.

Continued use of access points that have been traditionally used as small boat ramps in neighborhood areas is supported, without encouraging expanded public use through signage or other improvements, and consistent with good environmental practices in intertidal areas. The list of access points and the proposed types of improvements are included in the following table.

Table 4. Public Access Point Improvements

Access Point Location (Map Location from Figure 10 noted where applicable in parentheses)	Type of Improvement
Pemberton Point (1)	Pedestrian walkways connecting all public areas; the creation of paved parking areas with sidewalks for public parking to the east of Pemberton Pier; the depression of utilities at several locations; improved appearance of the sewer pump station; Provision of public park amenities such as picnic kiosks; low-level lighting near Hull Gut
Hull Village Beach near and opposite Captain Cleverly's Park (between 1 and 2)	Paving of the parking area, picnic tables and a kiosk, sidewalk improvements
James Wharf (5)	Parking; seating and landscape areas; signage; lighting
Western Avenue Access Point (2)	Signage; maintenance
Vautrinot Avenue Access Point (3)	Signage; maintenance
Spring Street adjacent to the residence at 105 Spring Street (6)	Encouragement of swimming through modest improvements to the beach; signage
Public way between 41 and 51 Highland Avenue (4)	Removal of private impediments; signage
Allerton Harbor	Signage
Land that is seaward of Cadish or Sunset Avenue	Review of ownership and development of specific recommendations as part of the Harbor Advisory Committee public access agenda
J and K Street (10)	Signage
A-Street Pier (8)	Signage; improved sidewalks; low-level lighting
Circuit Avenue (2 locations) (9)	Signage; landscape improvements
Prospect Avenue (between 12 and 13)	Signage; landscape improvements
Osmunden Avenue (between 12 and 13)	Signage; landscape improvements
Beech Avenue (13)	Signage; landscape improvements
Second Street (between 14 and 15)	Signage, landscape improvements
Fourth Street (between 14 and 15)	Signage; landscape improvements
Sixth Street (between 14 and 15)	Signage; landscape improvements
Eighth Street (between 14 and 15)	Signage; landscape improvements; continued use as boat ramp for neighborhood use only
Tenth Street (between 14 and 15)	Signage; landscape improvements
Causeway connecting Nantasket Road and Newport Road (between 12 and 13)	Creation of a public access amenity for pedestrians and bicyclists
Open area near the intersection of Electric Avenue and Nantasket Avenue (15)	Signage; landscape improvements
The Hull Redevelopment Agency lands near the intersection of Bay Street and Nantasket Avenue (16)	Signage; landscape improvements
Public access ways along Hampton Circle (17)	Signage; landscape improvements

Access Point Location	Type of Improvement
Public street extensions along Edgewater Road (between 14 and 15)	Signage; landscape improvements
Public street extension at the foot of Island View Road (16)	Signage; landscape improvements
Public street extensions along Andrew Road (near 17)	Signage; landscape improvements
Public street extensions near Hampton Circle (17)	Signage; landscape improvements
Public way near Sunset Point (near 14)	Signage; landscape improvements to create a small lookout
Access point at the foot of Alsada Road (21)	Signage; landscape improvements
Access point at the foot of Rockview Road (19)	Signage; landscape improvements
Access point at the foot of North Truro Street (25)	Signage; landscape improvements
Public landings at the foot of Rowley Street and Onset Street (22,23)	Signage; landscape improvements
Public landings at the foot of Onset Street (23)	Signage; landscape improvements
Gunrock/Seal Rock Planning Area (27 to 30)	Signage

The access program should include linked bikeways and pedestrian routes that are improved and managed. In this regard, the Town should undertake a comprehensive bikeway study, including consideration of the appropriate use of segments of the abandoned rail right-of-way that connects segments of Hull. This system should be linked to regional bikeway improvements and access through water transportation. The location of public access points and amenities should be communicated through a public education and information program.

The Town should consider pursuing grants from the State Department of Environmental Management to upgrade access to the waterfront. This program typically offers grants in amounts of approximately \$5,000.

Public Land Use

The use of waterfront land owned by the public and used as open space is consistently recommended for continued public use as open space, with the exception of the Nantasket Pier area. This recommendation specifically includes the HRA-owned land between Bay Street and Electric Avenue/Edgewater Road. While this land may also have some development value, it is recognized as contributing substantially to the open view of the water and contributing to the coastal identity that is one of the Town's strengths.

The land within and adjacent to the Nantasket Pier area should be redeveloped for marina use and associated accessory requirements, along with retail and restaurant uses that are consistent

with this preferred, water-dependent use. Should marina or other water-dependent uses prove infeasible at Nantasket Pier, the Town should retain the option to allow nonwater-dependent uses such as retail, restaurant, and parking to occur in this location. The Harbor Plan recognizes that such uses may require amendment to the existing Zoning By-law, which calls for low-intensity, water-dependent uses. However, few practical options to provide such uses may remain if the pier cannot be properly restored to its original function.

The redevelopment of the Nantasket Pier area should be undertaken in concert with broader consideration of the reorganization of public land use and circulation patterns along George Washington Boulevard, within the public parking areas, and within the MDC-owned lands. This area of Hull lacks the coherence of use or image that can contribute to the economic revitalization of the area. The circulation patterns contribute to confusion and create an aesthetic detriment for visitors and residents alike. The Harbor Plan encourages the Town to continue initiatives to reinforce the public open space and vital activity of this area. Among the elements that may be considered that would reinforce the revitalization of Nantasket Pier are the following:

- George Washington Boulevard may be narrowed in some locations and/or relocated or rerouted to the east to create an open space edge along the Weir River Estuary.
- Portions of the MDC administrative complex might be able to be put to more active use.
- A more active and direct pedestrian connection between Nantasket Beach and Nantasket Pier might be created.
- Creative reparcelization combined with reorganization of streets, parking, and public land might be used to create opportunities for private redevelopment.

Private Land Use

Private land use along the waterfront is appropriately planned within current Town zoning, and the Harbor Plan recommendations are consistent with the existing Chapter 91 regulatory standards on tidelands where existing regulations are applicable. As a result, this Plan recommends no substitutions or amplifications of the discretionary standards within the existing Chapter 91 regulations. The implications of these regulations are discussed at length below.

As noted elsewhere, development of new water-dependent facilities such as marinas or commercial fishing-related facilities is encouraged through the recommendation that zoning policies be adopted that allow for reduction in parking requirements if on-street or off-site parking solutions can be established that are consistent with reasonable, low impacts on neighboring uses.

Development of new private improvements on public property is specifically discouraged by the Harbor Plan except through lease or other arrangements at Nantasket Pier.

4. Harbor Management and Administration

Chapter 91 Regulations

Massachusetts' principal tool for protection and promotion of water-dependent uses of its tideland and other waterways is M.G.L. Chapter 91 (Public Waterways Act, 1866). Chapter 91 and the waterways regulations (310 CMR 9.00) are administered by the Waterways Regulation Program of the Massachusetts Department of Environmental Protection (DEP).

The Chapter 91 statute was amended in 1984 with new substantive and procedural requirements to ensure that tidelands—both presently flowed and previously filled—are utilized only for water-dependent uses or otherwise serve a proper public purpose that provides greater public benefit than detriment to the rights of the public in tidelands. Projects involving nonwater-dependent use also are required by the statute to be consistent with Coastal Zone Management (CZM) Policies.

Major revisions of the waterways regulations followed in October 1990. Key provisions of the new regulations are designed to promote water-dependent use of the shoreline; preserve and promote public access; and encourage local involvement in Chapter 91 licensing decisions through municipal harbor plans, which provide harbor-specific guidance to the regulatory decisions of the DEP under Chapter 91. A companion set of regulations (301 CMR 23.00) governing the development and approval of municipal harbor plans was also adopted that same year.

The Chapter 91 regulations stipulate that where a state-approved harbor plan exists, projects requiring a DEP license or permit and subject to the current regulations must conform to the plan (310 CMR 9.34(2)). The municipal harbor plan is used by the DEP for guidance that amplifies upon discretionary requirements of the waterways regulations. The regulations also provide that the municipal harbor plan may contain substitute standards for certain use limitations or numerical standards specified in the waterways regulations for nonwater-dependent uses. The alternatives established by the plan must be equally effective in achieving the objectives of Chapter 91 and the waterways regulations.

There are two different Chapter 91 licensing scenarios in Massachusetts under the waterways regulations of 1990 (as further amended in 1996). There is licensing of certain existing structures and uses under the amnesty provisions (310 CMR 9.28), which apply standards from the regulations in effect prior to 1990. All other projects are governed by a new set of requirements that are more explicit and extensive than the previous version (although based on the same general objectives and regulatory principles).

Regardless of whether the DEP applies the new licensing requirements or the previous standards, the Chapter 91 licensing process on Massachusetts tidelands can be summarized in three steps. First, the DEP determines whether the proposed activity (structures or change in use) needs a license and whether it qualifies for amnesty (assuming the property owner applied for amnesty). Second, the DEP reviews the license application and considers community recommendations obtained during the public comment period, in order to determine whether all applicable requirements and standards have been met and the license should be granted. Third, the DEP normally issues the license with a series of conditions, which occasionally require on-site public improvements to compensate the public for the nonwater-dependent use of Commonwealth tidelands. The license also specifies a period of time during which the property owner must complete the project and meet the conditions stipulated in the license.

Properties Within Chapter 91 Jurisdiction in Hull

Chapter 91 applies in tidelands, in great ponds, and along certain rivers and streams. Tidelands refer to all land presently or formerly beneath the waters of the ocean, including lands that are always submerged as well as those in the intertidal area, that is, between the mean high and low water marks. These areas are governed by a concept in property law known as the public trust doctrine, which establishes that all rights in tidelands and the water are held by the state “in trust” for the benefit of the public.

There are two types of tidelands: (1) *Commonwealth tidelands*, which are, for most of the Massachusetts coastline, all lands below the historic low water mark extending out three miles to the limit of state jurisdiction. This area is owned by the Commonwealth or held by private persons in accordance with the trust for the benefit of the public; (2) *Private tidelands* are those areas between historic high and historic low water, which are usually privately owned but on which the Commonwealth reserves and protects public rights of fishing, fowling, and navigation (and the natural derivatives thereof). The historic high water marks are the farthest landward tide lines that existed “prior to human alteration” by filling, dredging, impoundment, or other means (310 CMR 9.02) (see Figure V-1). Thus, Chapter 91 applies to filled as well as flowed tidelands, so any filled areas, moving inland to the point of the historic high tide line, are subject to jurisdiction.

Chapter 91 authorization is generally required for any fill, structure, or use not previously authorized in tidelands, including any changes of use and structural alterations. Types of structures include piers, wharves, floats, retaining walls, revetments, pilings, bridges, dams, and waterfront buildings (if on filled lands or over the water).

For planning purposes, the location of the historic high water mark was discerned from historic maps of Hull and from the Massachusetts Office of Coastal Zone Management’s Shoreline Change Maps. A review of historic licenses and of maps of Hull indicates that there is limited fill along the Hull waterfront. Thus Chapter 91 jurisdiction within the Harbor Planning Area appears to be restricted to all submerged lands seaward of the mean high water mark, two salt marshes along Hull Bay (located in Planning Areas 2 and 4), and relatively small isolated

patches of fill along the Bay. There are 199 Chapter 91 licenses in the records at the DEP; some of these licenses are still valid, provided there has not been a significant change in use or structural alterations on the property since 1984, when the new regulations that claimed jurisdiction over uses on tidelands came into effect. In addition, there are twenty amnesty and pending Chapter 91 licenses on file at the DEP.

There appear to be a small number of properties where structures and uses occupy filled tidelands without complete and proper authorization (some of which are being used for nonwater-dependent purposes). Even though the existing conditions do not impede realization of the goals of the Plan, owners of such properties are required by Massachusetts law to obtain licenses to ensure that their structures and uses of tidelands meet the requirements of Chapter 91.

Licensing under the Amnesty Standards of the Waterways Regulations

With the intent of bringing properties on tidelands into compliance with Chapter 91, the 1990 revisions of the waterways regulations included an amnesty provision (310 CMR 9.28) applicable to unlicensed structures or fill in existence and in use since January 1, 1984 (and without any unauthorized substantial structural alteration or change in use since that date). Amnesty license applications are subject to substantive requirements that were in effect prior to October 4, 1990 (the effective date of the 1990 revisions), which included less-specific standards, lesser fees, and (for water-dependent projects) longer license terms than those now in effect. The period during which an amnesty license application could be submitted to the DEP expired October 4, 1996.

Applications for amnesty licenses are reviewed for compliance with the waterways standards in effect prior to 1990, which included (among other things) a basic requirement that a project . . . “does not interfere with or abridge any rights of the public . . . or the Commonwealth in tidelands [and] has public benefit which outweighs public detriment if the project is located on or over the Commonwealth tidelands.” (§9.07(2)).

Licensing Under the 1990 Standards of the Waterways Regulations

Projects subject to the 1990 standards include (1) projects involving structural alteration or change of use and (2) existing development that does not qualify for amnesty either because (a) there have been substantial unauthorized changes on the site since 1984, or (b) the applicant did not file an application during the amnesty period, which closed October 4, 1996.

Nantasket Pier

The following Chapter 91 standards will be applicable to new development on and structural alterations to Nantasket Pier:

- **Water-Dependent Use Zone** — If nonwater-dependent uses were to occur on Nantasket Pier, a water-dependent use zone would be required. The water-dependent use zone is an area abutting the shoreline and within the geographic jurisdiction of the DEP conserved for water-dependent uses. At the end of Nantasket Pier, “the zone extends for the lesser of 100 feet or 25% of the distance from the edges in question to the base of the pier, but no less than 25 feet.” Along the sides of Nantasket Pier, “the zone extends for the lesser of 50 feet or 15% of the distance from the edges in question to the edges immediately opposite, but no less than 15 feet.”
- **Public Access** — Structures to accommodate pedestrian access shall be provided within the water-dependent use zone in accordance with §9.52(1)(b). Walkways and related facilities shall be provided along the entire length of the water-dependent use zone and shall be no less than 10 feet in width. In addition, connecting walkways that allow pedestrians to approach the shoreline from public ways shall be provided.
- **Uses on the pier** — Accessories to water-dependent uses, and parking facilities for any use may not be located within the water-dependent use zone or on pile-supported structures in accordance with §9.51(3)(c). New or renovated buildings for nonwater-dependent structures that replace or modify existing previously authorized buildings on the pier are permissible provided they do not extend beyond the footprint of previously authorized structures, that the structure is a facility of public accommodation and that the structure does not extend into the water-dependent use zone (§9.32(2)(d) and §9.51(3)(a-c). (As determined by the DEP, an accessory to a water-dependent use is a use “customarily associated with and necessary to accommodate a principal water-dependent use” (§9.12(3)). Examples of accessory uses include restaurants and retail facilities primarily serving patrons of the water-dependent uses , yacht clubhouses, and chandleries.)

Chapter 91 Implementation

At the local level, the Planning Board should continue to have the primary municipal role for projects seeking a license or permit from the DEP. The Board should be included in the list of recipients of the notice of license or permit application sent by DEP. They are responsible for the following:

- Participating in pre-application consultation meetings with the DEP to provide preliminary guidance on the standards of the waterways regulations in accordance with 310 CMR 9.11 (1)(a);
- Coordinating and participating in public hearings held by the DEP in Hull in accordance with 310 CMR 9.13 (5);

- Providing the DEP with a written recommendation as to a proposed project's conformance with the Harbor Plan in accordance with 310 CMR 9.13 (5) and 9.34 (2); and
- As necessary, submitting a petition to intervene of behalf of the municipality to become a party in any adjudicatory hearing on a license in accordance with 310 CMR 9.17.

The Zoning By-law of the Town of Hull establishes a number of districts: the waterfront district, several single- and multi-family residential districts, a business district, commercial recreation districts, a public open space, floodplain, and conservation districts. The uses allowed in the waterfront district (Planning Area 4; waterside of George Washington Blvd.) are consistent with the state's waterways regulations. In fact, the water-dependent uses allowed in and the nonwater-dependent uses prohibited from the waterfront district are as defined by the state's regulations at 310 CMR 9.00. The regulations for this district specifically prohibit residential uses, including hotels, and commercial office buildings. Further, the regulations encourage amenities such as public access and water-related recreational uses to be considered with special permit uses whenever possible and feasible.

The dimensional standards for the waterfront district allow a maximum building height of two and one-half stories, and a maximum structure height of 30 feet. Maximum lot coverage is fifty percent. These are consistent with the standards for nonwater-dependent uses within the jurisdiction of Chapter 91. The waterfront district regulations are consistent with the use and dimensional standards of the Chapter 91 regulations and explicitly promote the water-dependent use and public-purpose goals of the Public Waterways Act.

For purposes of the Harbor Plan, the Zoning By-law of the Town of Hull provides the appropriate types of provisions for accommodating, if not promoting, water-dependent uses and protecting natural resources. As noted above, certain provisions of the By-law are specifically written to ensure consistency and compatibility with the principles of the state's waterways regulations for use of tidelands.

There are no obvious inconsistencies between the dimensional standards of the By-law and the waterways regulations. Therefore, the Harbor Planning Committee has determined that there is no need for the Harbor Plan to recommend substitutions for the standard of waterways regulations.

Town Management Structure

In general, the Town of Hull has a well-organized distribution of responsibilities in regard to the management of the Harbor and the edges that surround it. The Harbor Plan recommends additional mechanisms to help ensure that coordination among relevant departments, boards and Town Meeting are strengthened.

The primary recommended change in Town management is the institution of a new Hull Harbor Advisory Committee. This committee works with the Town Manager and monitors the implementation of the Harbor Plan, provides for regular reviews of Town policies and regulations, advocates for local, state, and federal funding of relevant projects, and may serve as a forum to resolve issues and conflicts concerning harbor and waterfront use within the Town.

A reasonable concern in the creation of another standing committee within the Town would be the creation of an additional constituency within Town government that would require substantial resources and create additional layers of communication. To avoid these problems, it is recommended that the Committee operate within very specific charges and responsibilities. These responsibilities would include the following:

- The submission of an annual progress report on the implementation of the Harbor Plan including recommending actions for the following year, an annual review of a report by the Harbormaster relative to the job responsibilities and activities undertaken, submission of an annual report on any proposed alterations to the Harbor regulations or shellfish regulations, identifying and securing community support on funding and grant sources for initiatives, submitting an annual report on interjurisdictional coordination, and an open agenda item to discuss issues not anticipated within the Harbor Plan that would benefit from discussion among the participating agencies and representatives. The Committee's role would be advisory to the Town Manager and Board of Selectmen on all of the issues raised through minutes of the meeting.
- The Committee would be expected to direct the planning process associated with updates of the Harbor Plan at five-year intervals in order to maintain a state-approved harbor plan.
- Advisory review of Chapter 91 licensing applications would be included as the responsibility of the proposed Harbor Advisory Committee from the Planning Board.
- The Committee should be responsible for a schedule of quarterly meetings, except for reviews of Chapter 91 licenses, which would occur within a time frame responsive to the submittal of license applications.

The Harbor Plan supports the continued implementation of the harbor management responsibilities as currently defined by the Town for the Harbormaster, including completion of a survey of moorings, improved record-keeping and reporting procedures, and other actions as initiated by the Town.

Interjurisdictional Management

The Town has already undertaken a very active program of regular interjurisdictional coordination between the Towns of Hull, Hingham, and Cohasset, and relevant state and federal agencies regarding many of the issues raised within the Plan. The Harbor Plan

recommends the continuation of proactive and regular coordination, particularly in regard to dredging, the Harbor Islands initiatives, state water transportation planning, water quality programs, and relationships with the MDC.

5. Marine and Natural Resource Protection

Weir River Area of Critical Environmental Concern

As detailed in the Summary of Existing Conditions, all improvement dredging is prohibited in an ACEC. It is likely that improvements to Nantasket Pier will reveal a need to expand the dredged area around the pier so as to encroach into the ACEC. It is understood that such improvement dredging would require either (1) an ACEC boundary amendment (amendment procedures are contained in the ACEC regulations), or (2) a variance in accordance with Section 9.21 of Chapter 91. Both procedures are designed to ensure appropriate marine and natural resource protection.

It is the recommendation of this plan that a study be initiated to determine whether an amendment or variance is to be pursued. Further concerns regarding the ACEC and dredging are discussed in Section IV. A. 1. as part of the Water Use Plan and Recreational Boating recommendations.

Water Quality

Considering the abundance of viable shellfish and ecologically important eel grass beds in Hull Bay, this Plan reinforces existing environmental policies that characterize the Bay and the Weir River as environmentally sensitive locations. The Harbor Plan recognizes the importance of the current program to correct water pollution problems due to failed subsurface sewage systems by removal of these systems. The Harbor Plan recommends proactive involvement of the Metropolitan Area Planning Council and the Town in programs to monitor and address water quality problems and to pursue corrective measures to ensure high water quality.

Land based non-point surface runoff from storm drains has been identified as the primary source of pollution into Hull Bay. So while the water quality of the Bay will improve significantly following the closing of the Nut Island Sewage Treatment Plant, pollution problems will persist. One important consideration in designing a stormwater management plan is that even with the widespread and increased use of best management practices across the United States, there is still a consistent relationship between urbanization and degraded water quality. Therefore, the problem of stormwater contamination cannot and should not be mitigated and managed solely through the use of best available technology or best management practices.

This Plan recommends that Hull consider developing a comprehensive stormwater management plan to safeguard the water quality and overall integrity of Hull Bay. This Plan

also recommends that the Town consider adopting a policy to follow Best Management Practices (BMP's) for stormwater management as prepared by the Massachusetts Department of Environmental Protection and the Office of Coastal Zone Management as documented in the Storm Water Policy Handbook (Volume 1) and the Stormwater Technical Handbook (Volume 2) as revised in March, 1997.

The Town should consider pursuing a grant from MCZM's Coastal Pollution Remediation Grant Program to decrease storm water impacts on coastal waters. Grants require a 25 percent local match and have typically been awarded in amounts ranging from \$40,000 to \$80,000. Proposals must indicate conclusively that pollution problems are linked to either roadway or vessel discharges.

As a first step, further field studies are recommended to assess comprehensively the impacts of stormwater in the Bay and to distinguish between impacts from septic system leachate and impacts from stormwater runoff. A water quality monitoring program should be established using a full suite of water quality indicators — also known as water quality pollutant constituent monitoring. Inorganic leachate indicators can be used to indicate the presence of septic tank effluent.

Water quality constituent monitoring is only one type of water quality indicator. Other water quality indicators include toxicity, non-point source loadings, exceedance frequencies, sediment contamination, and human health criteria. Also, water quality is only one type of environmental indicator. A comprehensive stormwater management program should include multiple indicators selected on the basis that they can (1) provide a realistic assessment of the overall health of the aquatic system, (2) track general improvements or deterioration's in overall aquatic health, (3) assess and evaluate which components of the plan work and which do not, and (4) assess the overall success — or failure — of management efforts. Moreover, the stormwater program has to be based on what is realistically achievable for Hull Bay and the Weir River.

Other types of environmental indicators that should be considered in the design of Hull's stormwater management program include physical and hydrological indicators (e.g., physical habitat monitoring), biological indicators (e.g., marine phytoplankton and macro-invertebrate monitoring), social indicators (e.g., public attitude surveys), programmatic indicators (e.g., number of best management practices in use), and site indicators (e.g., growth and development of the drainage area).

Environmental Quality

The environmental quality of Hull's harbor area is largely dependent on water quality, which has been addressed at some length under that category of recommendations. The Harbor Plan further recognizes the importance of public awareness of environmental issues and the relationship of an improved environment to the physical and economic health of the

community. To this end, the Plan supports educational programs within the school system and Charter School structure that further awareness and support of environmental quality.

B. Recommendations by Planning Area

The following list of recommendations has been prepared to create a comprehensive summary of the specific conclusions of the Harbor Plan, organized by geographical location. This list is consistent with the recommendation discussed above and includes more detailed enumeration of improvements and locations where change should occur from existing conditions.

1. Recommendations for the Pemberton Point Planning Area

The Pemberton Point Planning Area (Planning Area #1) includes important opportunities to create a safer harbor to serve all users, to create additional amenities for residents and visitors, and to provide for a unique destination as part of the Harbor Islands water and land transportation network. Principal recommendations for the Pemberton Point area include the following:

- Commercial fishing use of the Pemberton Pier should be maintained and encouraged through support of landside and waterside facilities, including the potential for a lobster pound and additional floats.
- A breakwater to protect the existing piers and boat ramp area at Pemberton Point would provide substantial benefits to commercial fishing, ferry and water transportation uses, and recreational boating. This plan recommends the initiation of steps to secure funding, design, and eventual construction of such a breakwater. Design and construction should take into account efforts to minimize potential impacts to the environment, and consideration should be given to erosion controls and sediment transport.
- The Harbor Plan supports the initiatives to implement landscape and streetscape improvements along the Pemberton Point area, including pedestrian walkways connecting all public areas, the creation of paved parking areas with sidewalks for public parking to the east of Pemberton Pier, the depression of utilities at several locations, and improving the appearance of the sewer pump station. The plan would provide for public park amenities such as picnic kiosks.
- Pemberton Point should be considered as one of the future destinations for the water transportation network serving Boston Harbor and the Boston Harbor Islands State Park and National Recreation Area. A comprehensive program should be undertaken to strengthen the relationship between Pemberton Point and the northern end of Hull as a tourism destination, including links to the remainder of Hull. This program should build upon the existing historic district, Lifesaving Museum, bed and breakfast establishments, and the like.

- Links should be established between the Pemberton Point area and other parts of Hull through a bikeway network and shuttle buses on a seasonal basis. Actions should be taken to encourage the establishment of bicycle rental facilities at the Pemberton Point ferry terminal to serve this activity.
- The Coast Guard Boathouse is a substantial long-term amenity that should be preserved for public use. Appropriate uses such as the existing open water rowing organization are important to Hull's identity and the character of this area. The Harbor Plan specifically recommends the establishment of a long-term program to provide for maintenance, in conjunction with institutional sponsorship that will secure a long-term, water-dependent use that is oriented to the public.
- Improvements to the boat launch ramp at Pemberton Point are recommended, including provision of a float, if undertaken in conjunction with breakwater improvements.
- The natural character of the cobble and gravel beach at Hull Gut is an amenity and local feature; it should not be altered. However, unobtrusive lighting is recommended as an amenity in this area.
- Planning should not preclude the long-term potential to provide for a marina at Pemberton Point; however, the impact on the environment, parking, traffic, and existing water-dependent uses should be minimized.
- Additional public amenities should be provided along Hull Village Beach near and opposite Captain Cleverly's Park, including paving of the parking in this area, picnic tables and a kiosk, and sidewalk improvements.
- James Wharf should be reinforced as a local park through modest improvements for parking, seating and landscape areas, signage, and lighting.
- Signage and continued maintenance of existing public access points within the Pemberton Point area should be undertaken, including the access locations at Western Avenue, at Vautrinot Avenue, and at Spring Street adjacent to the residence at 105 Spring Street. Swimming may be encouraged at this location through modest improvements to the beach and signage.
- The view corridor along the public way between 41 and 51 Highland Avenue should be reopened by removing private improvements, and the corridor should be maintained as part of the Town access program.

2. Recommendations for the Allerton Harbor Planning Area

Allerton Harbor (Planning Area #2) is a significant public amenity as a protected moorage with landside support facilities for commercial fishing and recreational boating use. Allerton Harbor includes such important facilities as the Hull Yacht Club, Hull Town Pier, and the Nantasket Beach Saltwater Club. The use of this area can be enhanced through shoreside and waterside improvements that are generally oriented toward the town residents, local boat owners, and fishermen. Specific elements of the Plan in this area include the following:

- Construction of a marine structure to reduce the impacts of southwest winds in Allerton Harbor is a recommendation of this report.
- Additional float space should be provided at the Town Pier to provide improved recreational boat access for public use.
- A regular program of maintenance and reinvestment in the public pier should be established as part of the ongoing management recommendations.
- Open space and parking area improvements should be undertaken in this area to improve the aesthetics and capacity of the Allerton Harbor landside for boating and public uses.
- Signage should be provided indicating public access to the Harbor.
- Continued use or redevelopment of private marinas in this area is encouraged to the extent that reasonable landside support can be provided without undue impacts on neighboring properties and uses.
- Private ownership of land that is seaward of Cadish Avenue or Sunset Avenue should be reviewed and private improvements removed if no ownership exists along the waterfront edge, other than improvements such as stairways that are also available to the public.

3. Recommendations for the A Street Pier and Whitehead Flats Planning Area

The A Street and Whitehead Flats Planning Area (Planning Area #3) generally consists of shallow tidal waters north of Sunset Point, between Strawberry Hill and Bumkin Island. The area is generally lined with residential uses, except for a cluster of public and private marine-related facilities at the foot of A Street. The recommendations within this Harbor Plan largely focus on opportunities within the A Street Pier area and on the enhancement of public access points consistent with the residential uses in this area. Specific recommendations include the following:

- A distinct beach area should be signed and improved to encourage appropriate, family-oriented recreation at a reasonable distance from the boat ramp at the A Street Pier.

- A simple dinghy tie-up improvement should be provided near the boat ramp.
- Improvements to the A Street Pier should be undertaken, including low-intensity lighting and ongoing maintenance.
- Signage should be provided indicating the public facilities at the A Street Pier.
- Improvements to the roadway paving and sidewalks along the streets immediately adjacent to the pier should be undertaken, including striping of parking spaces along Bay Avenue East for use of the A Street Pier and beaches.
- Public support should be provided for breakwater, dredging, or other improvements to enhance the private marina use in this area.
- Public access points in the Whitehead Flats area should be signed, improved, and maintained, including public access at Circuit Avenue (2 locations), Prospect Avenue, Osmunden Avenue, and Beech Avenue.
- The causeway connecting Nantasket Road and Newport Road should be improved to become a pleasant and significant public access amenity for pedestrians and bicyclists.

4. Recommendations for the Inner Harbor Planning Area

The Inner Harbor Planning Area (Planning Area #4) consists of those areas within and along the Weir River Estuary along the embayments that flank Sagamore Hill. This area is west of the land that has traditionally supported the tourism and recreation destination within Hull, including the Metropolitan District Commission Nantasket Beach facility. Residential uses surround much of the harbor in this area, as well. The Harbor Plan focuses on the future of public land and facilities in this area, to support the economic development and quality of life for the entire community. Specific recommendations within this planning area include the following elements:

- Actions should be taken to complete dredging of all previously dredged areas to and along the perimeter of Nantasket Pier.
- The Town should oversee the implementation of a marina development that includes leased slips, transient slips, floats for excursion boats, and slips and floats for lobstermen and commercial fishermen in this area. Use of the pier should include parking necessary to support the marina uses. Retention of an improved boat ramp should be considered as part of this project.

- Pier area remaining after marina development should be made available for compatible retail and restaurant uses.
- Nantasket Pier should be considered as one of the future destinations for the water transportation network serving Boston Harbor and the Boston Harbor Islands State Park and National Recreation Area.
- The Town should undertake the initiative either to establish a variance from relevant Chapter 91 regulations or to revise the boundary of the ACEC where the boundary proves to be inconsistent with the Nantasket Pier marina project feasibility and related economic development goals. These processes include planning for mitigation of impacts on the ACEC in this area.
- In the event that marina development proves infeasible due to the inability to secure adequate resources for dredging, the reuse of Nantasket Pier for uses that are consistent with the seasonal and tourism-related uses of this area of Hull should be allowed and encouraged, with water-dependent uses being the priority.
- The Harbor Plan recommends public open space improvements in the open area near the intersection of Electric Avenue and Nantasket Avenue and for the Hull Redevelopment Agency lands between the intersection of Bay Street and Electric Avenue, in preference to redevelopment with other uses.
- The Plan calls for provision of a park-like landscaped edge with pedestrian and bicycle routes along Nantasket Avenue opposite the Hull Redevelopment Authority parcel.
- The Plan proposes strengthening pedestrian links between Nantasket Pier and Nantasket Beach, including streetscape and pathway improvements.
- The Harbor Plan supports a long-term redevelopment strategy for the land between Nantasket Pier and Nantasket Beach. The public use and enjoyment of the waterfront in this area will be improved by the long-term reorganization of roadways, redevelopment and reorganization of public and private land, and the institution of transit and parking strategies that reduce impacts in this area. The Plan specifically supports the long-term concept of relocating portions of George Washington Boulevard to the east, thus creating open space along the water's edge.
- Signage and improved access at the public access ways should be provided along Hampton Circle and at the public street extensions along Edgewater Road. Boat access using street ends should be continued in this area, consistent with past neighborhood-oriented access and appropriate practices for intertidal areas.

- Signage and improved access should also be provided at public ways at the foot of Island View Road and Andrew Road and at Hampton Circle. Provision should be made for a small lookout location along the public way near Sunset Point.

5. Recommendations for the Weir River Planning Area

The Weir River Planning Area (Planning Area #5) largely consists of the Weir River Area of Critical Environmental Concern and the lands along the waterway south of Ring Bolt Rock. This area is characterized by scenic wetlands, marine estuary environments, and residential uses. The recommendations of the Plan in this area are consistent with the passive use and environmental sensitivity of the Weir River Estuary and include the following:

- Locations should be established with short trails or viewpoints and interpretive exhibits as part of a local open space network.
- The Plan supports actions to monitor and enforce environmental standards.
- The Plan recommends signage and provision of access points at the foot of Alsada Road, Rockview Road, North Truro Street, and the public landings at the foot of Rowley Street and Onset Street.

6. Recommendations for the Gunrock/Seal Rock Planning Area

The Gunrock/Seal Rock Planning Area has been identified as Planning Area #6 within the Hull Harbor Plan. It consists of two shallow coves along a rocky coastline that provide protection for limited moorage areas and short stretches of beach. Both areas are lined with residential uses. The recommendations of the Harbor Plan in this area include the following:

- Foreshore structure improvements are required along the Gunrock seawall and should be programmed for funding and implementation.
- The Gunrock Breakwater should be included in the list of future projects for funding and implementation when resources are available.
- The Green Hill Breakwater along Crescent Beach should also be included in the list of future projects for funding and implementation when resources are available.
- Public access in this area should be provided and enhanced, with signage consistent with predominately neighborhood use, consistent with the lack of available parking in this area.

V. Implementation Framework

V. IMPLEMENTATION FRAMEWORK

A. Matrix of Actions, Roles, and Responsibilities

This section of the Harbor Master Plan summarizes the specific actions that will be required to implement the recommendations of the Plan. It consists of an overall matrix of actions and responsibilities that corresponds to each element of the plan. This section also includes specific discussion of the roles and responsibilities within the governmental framework of Hull, the state, and federal agencies. The format of the implementation framework mirrors that of the recommendations. First, the overall recommendations are reviewed. Then, the recommendations are summarized in more detail for each of the study areas. In general, actions have been prioritized according to their importance and relationship to the overall goals and objectives of the Plan within each category. This prioritization is listed in the left-hand column of the table.

Table 5. Actions, Roles and Responsibilities

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities (Primary responsibility in bold)
Overall Recommendations: Navigation and Water Use		
Provide dredging of the access channel and perimeter areas at Nantasket Pier for commercial fishermen, lobstermen, water transportation, and recreational boating	Complete technical studies, establish spoil location, seek state and local funding, undertake dredging	State DEM Town Manager to monitor progress Board of Selectmen, Hull Redevelopment Authority review and approvals Seaport Advisory Council funding support Town Meeting funding if required
Establish improvements program at Pemberton Point for commercial fishermen, lobstermen, water transportation, and recreational boating, including both waterside and landside facilities; this should include the construction of a breakwater and the study of allocation of land for a lobster pound facility	Seek funding sources and initiate studies	Town Manager Harbor Advisory Committee
Recreational boating activities should be improved through the improvements at Pemberton Point, Allerton Harbor, the A Street Pier, Nantasket Pier, Gunrock Beach, and Crescent Beach	Seek funding sources and initiate studies for engineering and cost evaluation; establish capital improvement program for small projects; seek funding for large projects	Town Manager Harbor Advisory Committee

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities <i>(Primary responsibility in bold)</i>
Overall Recommendations: Navigation and Water Use		
Encourage water transportation to and from Hull, with particular emphasis on facilities and programs that consider Hull as a destination for visitors to the Boston Harbor Islands	Maintain regular coordination with the Harbor Islands, existing services, and the MBTA	Town Manager Harbor Advisory Committee
Plan maintenance dredging for all water users	Prepare reports on a regular basis to simplify permitting and support the funding processes necessary to commit both Town and external resources	Town Manager Harbor Advisory Committee Harbormaster
Support commercial shellfishing	Undertake non-point source pollution control measures; consider preparation of a Stormwater Management Plan consistent with DEP's new guidelines; seek grant funding from the CZM CPR grant program to prepare this Plan	Department of Public Works Board of Selectmen Town Manager Shellfish Warden
Support aquaculture programs	Establish liaison with the research programs at UMass Dartmouth and the Woods Hole Institute; secure funding for research grants or pilot projects	Town Manager Harbor Advisory Committee
Improve recreational boating safety	Update Harbor regulations and provide enforcement funding directly through the Town budget	Town Manager Harbormaster Harbor Advisory Committee

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities <i>(Primary responsibility in bold)</i>
Overall Recommendations: Management and Maintenance of Harbor and Waterfront Facilities		
Undertake a program of repair, reconstruction, and maintenance for important foreshore structures, including the Crescent Beach Seawall, the Gunrock Breakwater, seawalls near Point Allerton, the Green Hill breakwater and seawalls, Pemberton Pier seawall, and along Highland Avenue	Prioritize repair program; fund and authorize technical studies; secure state and local funding	Town Manager Harbor Advisory Committee
Undertake improvements to all Town-owned Piers and facilities, including Pemberton Pier, James Wharf, the A Street Pier, and Nantasket Pier	Prioritize repair program; fund and authorize technical studies; secure state and local funding	Town Manager Harbor Advisory Committee Harbormaster
Expand programs to improve Town-managed moorings included in the Master Plan, with an emphasis on the Pemberton Point and Allerton Harbor areas	Establish specific improvement budgets; authorize improvements based on funding availability; fund through mooring income, in part	Town Manager Harbor Advisory Committee Harbormaster
Overall Recommendations: Waterfront Use		
Redevelop the land within and adjacent to the Nantasket Pier area as marina use and associated accessory requirements, along with retail and restaurant uses that are consistent with this preferred, water-dependent use	Pursue grant funds to undertake detailed feasibility evaluations; coordinate with DEM dredging; seek state dredging funds; implement RFP process	Board of Selectmen Town Manager Harbor Advisory Committee
Implement a program to provide consistent and attractive signage, public access improvements, and an information and maintenance program for Town-owned landings	Establish specific improvement budgets; authorize improvements based on funding availability; fund through mooring income, in part; secure DEM Coastal Access grant funding to help support this program	Town Manager Harbor Advisory Committee Department of Public Works

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities (Primary responsibility in bold)
Overall Recommendations: Waterfront Use		
Reopen street ends and landings, consistent with neighborhood use of waterfront access points	Establish specific improvement budgets; authorize improvements based on funding availability; fund through mooring income, in part	Town Manager Harbor Advisory Committee Department of Public Works
Improve and manage bikeways and pedestrian routes	Establish specific improvement budgets; authorize improvements based on funding availability	Town Manager Department of Public Works
Support access points traditionally used for boat access in neighborhood areas, without encouraging expanded public use and consistent with good environmental practices	Establish written policies for each boat landing and incorporate into Harbor Regulations	Town Manager Harbormaster Harbor Advisory Committee
Continue use of waterfront land owned by the public and used as open space, with the exception of the Nantasket Pier area	Coordinate with the HRA and establish townwide policies	Harbor Advisory Committee Hull Redevelopment Agency Board of Selectmen
Adopt zoning policies that allow for reduction in parking requirements for small marinas that are consistent with reasonable, low impacts on neighboring uses	Establish draft language; submit to zoning change process	Planning Board Harbor Advisory Committee Town Meeting
Overall Recommendations: Harbor Management and Administration		
Establish a Harbor Advisory Committee as a standing committee to monitor the implementation of the Harbor Plan	Establish description of duties and functions; establish committee	Town Meeting Board of Selectmen

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities <i>(Primary responsibility in bold)</i>
Overall Recommendations: Harbor Management and Administration		
Review all recommendations of the Harbor Plan and prioritize actions for implementation	Establish prioritized goals for implementation on an annual basis; provide for a coordinated list through meetings among the Town Manager, Harbor Planning Committee (and subsequently the Harbor Advisory Committee), and the Board of Selectmen	Town Manager Harbor Advisory Committee Board of Selectmen
Institute advisory Chapter 91 regulatory reviews by the proposed Harbor Advisory Committee as input to Planning Board	Constitute the Committee; establish approval of new procedure through Town Meeting, Board of Selectmen	Town Meeting Board of Selectmen Secretary of Environmental Affairs
Establish a program of regular interjurisdictional coordination between the Towns of Hull, Hingham and Cohasset, and relevant state and federal agencies to help facilitate the actions recommended within the Plan	Continue current activities and establish overall schedule for all projects	Town Manager Harbor Advisory Committee
Continue implementation of the harbor management responsibilities of the Harbormaster, including completion of a survey of moorings, improved record-keeping and reporting procedures, and other actions as initiated by the Town	Establish annual report process in conjunction with the Harbor Advisory Committee; hold quarterly meetings	Town Manager Harbormaster Harbor Advisory Committee

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities <i>(Primary responsibility in bold)</i>
Overall Recommendations: Marine and Natural Resource Protection		
Initiate variance procedures or modifications in the limits of the Weir River ACEC as necessary to support the feasible redevelopment of Nantasket Pier	Establish need through feasibility study; undertake initial consultation with state agencies; prepare request for modification in boundary or variance; modify dredging plans as required	Town Manager Conservation Commission Mass. CZM Mass. DEM Mass. DEP
Reduce storm water runoff and other point source pollution along Hull's waterfront	Undertake non-point source pollution control measures; consider preparation of a Stormwater Management Plan consistent with DEP's new guidelines; seek grant funding from the CZM CPR grant program to prepare this Plan	Department of Public Works Board of Selectmen Town Manager Shellfish Warden MAPC
Encourage public appreciation of Hull's environmental assets, including the Weir River estuary through support of programs of reasonable public access, education, and information	Coordinate program with local schools, town agencies, and institutions; seek DEM access grant and self-help grant program funds for this effort	Harbor Advisory Committee
Summary of Recommendations by Sub-Area: Overall Recommendations: Pemberton Point Area		
Maintain and encourage commercial fishing use of the Pemberton Pier through support of landside and waterside facilities and additional floats	Establish public policy to support such uses through adoption of the Harbor Plan	Board of Selectmen

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities <i>(Primary responsibility in bold)</i>
<p>Summary of Recommendations by Sub-Area:</p> <p>Overall Recommendations: Pemberton Point Area</p>		
<p>Install a breakwater to protect the existing piers and boat ramp area at Pemberton Point, which will provide substantial benefits to commercial fishing, ferry and water transportation uses, and recreational boating; secure funding, design, and eventual construction of such a breakwater</p>	<p>Seek funding sources; initiate studies</p>	<p>Town Manager Harbor Advisory Committee</p>
<p>Undertake landscape and streetscape improvements along the Pemberton Point area, including pedestrian walkways connecting all public areas, the creation of paved parking areas with sidewalks for public parking to the east of Pemberton Pier, the depression of utilities at several locations, and improving the appearance of the sewer pump station; provide for public park amenities such as picnic kiosks</p>	<p>Implement program dependent on state funding and local match of current proposal; continue to pursue funding until implemented</p>	<p>Town Manager Board of Selectmen Harbor Advisory Committee</p>
<p>Provide additional public amenities along Hull Village Beach near and opposite Captain Cleverly's Park, including paving of the parking in this area, picnic tables and a kiosk, and sidewalk improvements</p>	<p>Establish capital budget and overall schedule</p>	<p>Board of Selectmen Town Manager Harbor Advisory Committee Hull Village Association</p>
<p>Reinforce James Wharf as a local park through modest improvements for parking, seating and landscape areas, signage, and lighting</p>	<p>Establish capital budget and overall schedule</p>	<p>Board of Selectmen Town Manager Harbor Advisory Committee</p>

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities <i>(Primary responsibility in bold)</i>
Summary of Recommendations by Sub-Area: Overall Recommendations: Pemberton Point Area		
Undertake signage and continued maintenance of existing public access points within the Pemberton Point area, including the access locations at Western Avenue, at Vautrinot Avenue, and at Spring Street adjacent to the residence at 105 Spring Street; encourage swimming at this location through modest improvements to the beach and signage; reopen public way between 41 and 51 Highland Avenue	Implement signage and access program prioritized by Harbor Advisory Committee, with funding from mooring fees, Town, and potential grant sources	Town Manager Harbor Advisory Committee Department of Public Works
Improve boat launch ramp at Pemberton Point, including provision of a float, if undertaken in conjunction with breakwater improvements	Seek funding sources in association with the waterside improvements	Town Manager Harbor Advisory Committee
Maintain the natural character of the cobble and gravel beach at Hull Gut, which should not be altered; install unobtrusive lighting in this area	Seek funding sources in association with the waterside improvements	Town Manager Harbor Advisory Committee
Provide planning for the long-term potential for a marina at Pemberton Point area; minimize the impact on the environment, parking, traffic, and existing water-dependent uses	Include technical studies in breakwater feasibility evaluation effort	Town Manager Harbor Advisory Committee
Support tourism-related initiatives in this area		Town Manager Board of Selectmen Harbor Advisory Committee
Preserve the former Coast Guard Boathouse for public use	Pursue funding for improvements	Town Manager Board of Selectmen Harbor Advisory Committee Lifesaving Museum

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities (Primary responsibility in bold)
Overall Recommendations: Allerton Harbor Planning Area		
Construct a marine structure to reduce the impacts of southwest winds in Allerton Harbor	Seek funding sources and initiate studies	Town Manager Harbor Advisory Committee
Provide additional float space at the Town Pier to provide improved recreational boat access for public use	Fund and implement recommendation	Board of Selectmen Town Manager
Establish a regular program of maintenance and reinvestment in the public pier as part of the ongoing management		Harbormaster Town Manager Harbor Advisory Committee
Undertake open space and parking area improvements in this area to improve the aesthetics and capacity of the Allerton Harbor landside for boating and public uses	Fund and implement recommendation	Board of Selectmen Town Manager
Provide signage indicating public access to the harbor	Fund and implement recommendation	Board of Selectmen Town Manager Harbor Advisory Committee
Encourage continued use or redevelopment of private marinas to the extent that reasonable landside support can be provided without undue impacts on neighboring properties and uses	Establish public policy through the adoption of this plan	Board of Selectmen Town Manager
Review private ownership of land that is bayward of Cadish or Sunset Avenue and review private improvements on public land	Undertake a review of this issue as part of the Harbor Advisory Committee public access agenda	Harbor Advisory Committee
Overall Recommendations: A Street/ Whitehead Flats Planning Area		
Provide a distinct beach area signed and improved at a reasonable distance from the boat ramp at the A Street Pier	Fund and implement recommendation	Board of Selectmen Town Manager Harbor Advisory Committee
Provide a dinghy tie-up near the boat ramp	Fund and implement recommendation	Board of Selectmen Town Manager Harbor Advisory Committee

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities (Primary responsibility in bold)
Overall Recommendations: A Street/ Whitehead Flats Planning Area		
Undertake improvements to the A Street Pier, including low-intensity lighting and ongoing maintenance	Fund and implement recommendation	Board of Selectmen Town Manager Harbor Advisory Committee
Provide signage indicating the public facilities at the A Street Pier	Fund and implement recommendation	Board of Selectmen Town Manager Harbor Advisory Committee
Undertake improvements to the roadway paving and sidewalks along the streets immediately adjacent to the Pier	Fund and implement recommendation	Board of Selectmen Town Manager Harbor Advisory Committee
Provide public support for breakwater, dredging, or other improvements to enhance the private marina use in this area	Establish public policy through the adoption of this plan	Board of Selectmen Town Manager
Improve public access points in the Whitehead Flats area, including public access at Sunset Point, Circuit Avenue (2 locations), Prospect Avenue, Osmunden Avenue, and Beech Avenue	Implement signage and access program prioritized by Harbor Advisory Committee, with funding from mooring fees, Town, and potential grant sources	Harbor Advisory Committee Town Manager Department of Public Works
Improve the causeway connecting Nantasket Road and Newport Road to become a pleasant and significant public access amenity for pedestrians and bicyclists	Seek grant funds in coordination with a bikeway and pedestrian improvement program	Harbor Advisory Committee Town Manager Department of Public Works
Overall Recommendations: Inner Harbor Planning Area		
Complete dredging of all previously dredged areas to and along the perimeter of Nantasket Pier	Complete technical studies, establish spoil location, seek state and local funding, complete permitting, undertake dredging	Town Manager Mass. CZM Mass. DEM Mass. DEP

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities (Primary responsibility in bold)
Overall Recommendations: Inner Harbor Planning Area		
Oversee the implementation of a marina development including leased slips, transient slips, floats for excursion boats, and slips and floats for lobstermen and commercial fishermen in this area	Pursue grant funds to undertake detailed feasibility evaluations from the Massachusetts Development Finance Agency and the Seaport Advisory Council; EOTC Water Transportation Grants through Transportation Bond funding; coordinate with DEM dredging; seek state dredging funds; implement RFP process	Board of Selectmen Town Manager Harbor Advisory Committee
Initiate variance procedures or modifications in the limits of the Weir River ACEC as necessary to support the feasible redevelopment of Nantasket Pier	Establish need through feasibility study; undertake initial consultation with state agencies; prepare request for modification in boundary or variance; modify dredging plans as required	Town Manager Town Environmental Coordinator Mass. CZM Mass. DEM Mass. DEP
Encourage the reuse of Nantasket Pier consistent with water-dependent uses as a priority	Establish public policy through the adoption of this plan	Board of Selectmen Town Manager
Provide public open space improvements in the open area near the intersection of Electric Avenue and Nantasket Avenue and for the Hull Redevelopment Agency lands near the intersection of Bay Street and Nantasket Avenue, in preference to redevelopment with other uses	Coordinate with the HRA and establish townwide policies	Hull Redevelopment Agency Board of Selectmen Harbor Advisory Committee
Strengthen pedestrian links between Nantasket Pier and Nantasket Beach, including streetscape and pathway improvements	Coordinate with the MDC; coordinate with overall Nantasket Area redevelopment planning	Hull Redevelopment Agency Board of Selectmen Harbor Advisory Committee

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities (Primary responsibility in bold)
Overall Recommendations: Inner Harbor Planning Area		
Support a long-term redevelopment strategy for the land between Nantasket Pier and Nantasket Beach	Coordinate with the MDC; coordinate with overall Nantasket Area redevelopment planning	Hull Redevelopment Agency Board of Selectmen Harbor Advisory Committee
Improve access at the public access ways along Hampton Circle and at the public street extensions along Edgewater Road, at the foot of Island View Road and Andrew Road, and at Hampton Circle; provision should be made for a small lookout location along the public way near Sunset Point	Implement signage and access program prioritized by Harbor Advisory Committee, with funding from mooring fees, Town, and potential grant sources	Town Manager Harbor Advisory Committee Department of Public Works
Overall Recommendations: Weir River Planning Area		
Improve access points at the foot of Alsada Road, Rockview Road, North Truro Street, and the public landings at the foot of Rowley Street and Onset Street	Implement signage and access program prioritized by Harbor Advisory Committee, with funding from mooring fees, Town, and potential grant sources	Town Manager Harbor Advisory Committee Department of Public Works
Establish locations with short trails or viewpoints and interpretive exhibits as part of a local open space network	Pursue state grant or funding sources	Town Manager Harbor Advisory Committee
Support actions to monitor and enforce environmental standards	Monitor and enforce standards	Conservation Commission
Overall Recommendations: Gunrock/Seal Rock Planning Area		
Provide foreshore structure improvements required along the Gunrock seawall	Prioritize repair program; fund and authorize technical studies; secure state and local funding	Town Manager Harbor Advisory Committee
Provide Gunrock Breakwater improvements	Prioritize repair program, fund and authorize technical studies, secure state and local funding	Town Manager Harbor Advisory Committee

Categories and Recommendations	Required Actions and Cost Implications	Responsibilities (Primary responsibility in bold)
Overall Recommendations: Gunrock/Seal Rock Planning Area		
Provide Green Hill Breakwater improvements along Crescent Beach	Prioritize repair program; fund and authorize technical studies; secure state and local funding	Town Manager Harbor Advisory Committee
Enhance public access in this area consistent with predominately neighborhood use and consistent with the lack of available parking in this area	Implement signage and access program prioritized by Harbor Advisory Committee, with funding from mooring fees, Town, and potential grant sources	Harbor Advisory Committee Town Manager Department of Public Works

B. Harbor Management Roles and Responsibilities

1. Town Meeting

The Town of Hull must undertake certain actions to support the Harbor Plan recommendations in regard to funding of potential future programs. Specific requirements that are anticipated in the Harbor Plan include the following:

- Consideration and approval of an increase in moorage fees to help fund capital and maintenance programs for public access improvement and mooring facilities.
- Creation of a Harbor Advisory Committee to serve the Town functions as noted below
- Obtaining other funding approvals for capital improvement projects or cost sharing as appropriate

2. Board of Selectmen

The Board of Selectmen will have overall responsibility for several aspects of the Harbor Management Plan. The Hull Harbor Plan contains a specific implementation plan that assigns roles and responsibilities, supports particular actions, lists priorities, and identifies funding needs for all elements of the Plan. Recommendations contained in the Harbor Plan include the following:

- A Harbor Advisory Committee should be established to monitor implementation of this Plan, with responsibilities including support of funding initiatives, review of policy issues, and regular reporting to the Town and Board of Selectmen. Special task forces

should be established to implement particular programs as identified and prioritized in the plan, such as the proposed improvements at Pemberton Point, with membership reflecting a cross section of harbor and town interests.

- The Town Manager and Board of Selectmen should work with the relevant state agencies to finalize funding and feasibility of the Nantasket Pier marina. Subsequently, the Town Manager should initiate the actions necessary to implement the improvements in this area.
- The Harbor Advisory Committee should be assigned the responsibility of advisory review of Chapter 91 license applications, through input to the Planning Board.
- A phased program of public access improvements should be undertaken, using local and state funds, if available.
- The Town Manager should direct an interagency coordination effort to implement all elements of the Plan that rely on cooperation and action by regional, state, and federal agencies.
- The Harbormaster should complete those elements of the Plan within his duties and coordinate the funding and financing of these improvements with the Harbor Advisory Committee and the Town Manager.

3. Town Manager

The Town Manager should review the Harbor Plan and include the implementation plan in administering future Town programs and priorities. The Town Manager should attend quarterly Harbor Advisory Committee meetings. Oversight of Harbormaster duties and performance is an existing responsibility that will include a review of consistency between the Harbor Plan and the activities of the Harbormaster. A similar responsibility will exist with future Shellfish Warden responsibilities.

4. Harbormaster

The Harbormaster will be responsible for additional regulatory and enforcement activities associated with any substantial expansion in water use and water-related activities associated with moorings, piers, marinas, and other facilities that may be enhanced over time.

5. Conservation Commission

The Conservation Commission would be primarily involved in reviews and approvals associated with marine structures, seawalls, and dredging associated with the Harbor Plan.

These reviews could include proposed breakwater and shoreside improvements at Pemberton Point, marine structures south of Spinnaker Island at Allerton Harbor, dredging and improvements at Nantasket Pier, and improvements in the Crescent Beach and Seal Rock areas.

6. Planning Board

The Planning Board would continue to review the Chapter 91 license applications, with advisory input from the Harbor Advisory Committee according to this Plan. They would be involved in any amendments to zoning associated with encouraging marina uses or amendments intended to encourage appropriate actions in regard to Nantasket Pier.

7. Harbor Planning Committee

The Harbor Planning Committee would cease its function and activities upon approval of this Plan, to be replaced by a Harbor Advisory Committee as discussed in the recommendations of this Plan.

8. Other Existing Departments and Entities

The Department of Community Development would be responsible for continued staff support for the implementation of all physical improvements associated with the Harbor Plan. The Department of Public Works would be responsible for appropriate oversight of infrastructure projects associated with the Harbor Plan. The Beach Committee would be responsible for coordination with the conclusions of the study to ensure consistent policies in regard to Chapter 91 and potential funding sources for various projects within the Town.

Appendices

APPENDIX A: SUMMARY OF SOURCES AND ADDITIONAL AVAILABLE INFORMATION

List of Available Information

Bergan, William M. *Old Nantasket*. N. Quincy: The Christopher Publishing House, 1968.
Chapter 111, Hull Code, Harbor Regulations.

Development Potentials for Focus Area; Market/Feasibility Analysis Town of Hull, Economic Development Task Force, Bonz & Company, Inc., Consultants, 1995.

Flood Insurance Rate Maps, Town of Hull, Federal Emergency Management Agency, May 2, 1983.

Gravity and Force Main Maps, Town of Hull, Whitman & Howard Engineers, Consultants, July, 1974.

Homer, James Lloyd. *Notes on the Sea-Shore or Random Sketches*. Boston: Redding and Co., 1848.

Hull 1647-1972. Hull Historical Society, Inc.

Hull Foreshore Protection Structures Inspection and Inventory Report, Town of Hull, Board of Selectmen, Nucci Vine Associates, Inc., Consultants, February, 1995.

Hull Harbor Plan, Request for a Scope, Town of Hull, Appledore Engineering, Inc., Consultants, April 10, 1996.

Hull Vision Statement, Hull Economic Development Task Force, adopted by the Town of Hull, Cecil & Rizvi, Inc., Consultants, April 8, 1994.

Hull Village Historic District Study, Hull Village Historic District Study Committee, 1993.

Hull Zoning Bylaws, April 1996 (includes floodplain regulations).

Nantasket Pier Request for Development Proposals, Town of Hull, 1995.

The New England Historical Genealogical Register, Vol. CXLII, 1988.

Mooring Specifications and Regulations, Town of Hull, 1986 (approved March 12).

Pemberton Pier Area Enhancements Funding Application, Town of Hull, G & A Guertin & Associates, Incorporated, Consultants, February 28, 1997.

Proposed New Cooperative Regional Management Area for Surf Clams (Spisula solidissima) Commercial Fisheries, Town of Hull.

Shellfish Management Plan for Moderately Contaminated Areas, Town of Hull, 1986.

Sweetser, M.F. *Kings Handbook of Boston Harbor*, pp. 28-80. 1888.

Town of Hull Open Space and Recreation Plan, Town of Hull Planning Board, Kenneth M. Kreutziger AICP and Eugene Peck, Consultants, 1995.

Weir River Area of Critical Environmental Concern: Designation with Supporting Findings, Massachusetts Department of Environmental Management, December 11, 1986.

Report of the Subcommittee on Current Needs and Resources, Harbor Study Committee, September, 1985.

List of Interviews

Eric Bornheim, Anastos Hardware and Nantasket Place Condominiums

Brian Broderick, Metropolitan District Commission/Hull Project Manager

Lenny Hersch, Fascination

Paul Paquin, Chairman, Hull Conservation Commission

Phillip Lemnios, Town Manager

Peter Mahoney, Fisherman and Hull Harbor Planning Committee

Ed McCabe, Hull Lifesaving Museum

Edward McDevitt, Former Harbormaster

Kevin Mooney, Department of Environmental Management

Mike Nicholson, Harbormaster and Shellfish Warden

Tom McDuff, Hull Fisherman and President, Hull Commercial Fishing Association

Lisa Nash, Metropolitan District Commission/Water Quality

Chris Nolan, Boston Harbor Cruises

Robert Palmeiri, Blackie's Restaurant

Jim Paula, Hull Fisherman

Norman Rogers, Hull Sewer Department

Greg Sandanato, Nantasket Pier Marine

Myron Smith, Chair, Harbor Planning Committee

Jay Spence, Mass Bay Lines

David Roach, Mass. Division of Marine Fisheries, Newburyport Depuration Plant

Dennis Zaia, President, Hull Chamber of Commerce

U.S. Coast Guard Staff

Donahue's Waveland Marina Staff

APPENDIX B: SUMMARY OF MARINA RESEARCH

Memorandum

TO: Cecil & Rizvi
FROM: FXM Associates
DATE: 5/12/97
RE: Hull Harbor Management Plan: Survey of Marina Charges

Pursuant to your request, FXM Associates surveyed area marina operators and harbormasters, and compiled available secondary source data to obtain information on current charges for slips and moorings as part of the information gathering phase of the Hull Harbor Management Plan project. A complete listing of contacts and results is attached. Also attached is a list of various other waterfront communities and their mooring/slip rates, etc., which was sent to us from Hawthorne Cove Marina in Salem.

The following summarizes results of the survey:

Communities contacted and/or researched: 17

- Plymouth
- Marshfield
- Hummarock
- Scituate
- Duxbury
- Quincy
- Weymouth
- Hingham
- Cohasset
- Boston
- Gloucester
- Danvers
- Lynn
- Charlestown
- Chelsea
- Beverly
- Salem

Harbormasters contacted and facilities contacted and/or researched: 35

- Plymouth Harbormaster
- Plymouth Yacht Club
- Plymouth Town Wharf

- Brewer's Plymouth Marine
- Marshfield Harbormaster/Town Dock
- Green Harbor Marina (Marshfield)
- Taylor Marine (Marshfield)
- South River Yacht Yard/Simms Brothers
- Scituate Harbormaster/Town Pier
- Scituate Harbor Yacht Club
- Scituate Harbor Marina
- Marina at James Landing (Scituate)
- Young's Boat Yard (Scituate)
- Duxbury Harbormaster/Town Pier
- Long Point Marine (Duxbury)
- Quincy Harbormaster
- Weymouth Harbormaster
- Hingham Harbormaster
- Kehoe's Ship Chandlery (Hingham)
- Hingham Boat Works
- Hewitt's Cove Marina (Hingham)
- Landfall Marine Center (Hingham)
- Cohasset Harbormaster/Town Dock
- Cohasset Harbor Marina

Harbormasters contacted and facilities contacted and/or researched (continued)

- Cohasset Yacht Club
- Rowes Wharf (Boston)
- Cape Ann/Gloucester
- Liberty Marina (Danvers)
- Marina Bay (Quincy)
- Constitution Marina (Quincy)
- Seaport Landing (Lynn)
- Shipyard Quarters (Charlestown)
- Admirals Hill (Chelsea)
- Port Marine (Beverly)
- Pickering Wharf (Salem)

Range of slip charges reported:

On an annual basis: \$1,500 to \$4,560/year

On a 6-month or seasonal basis: \$45 to \$86/foot

Strictly by length: \$5 to \$140/foot (the \$5 is an administrative fee paid to the town)

Overnight (transients): \$1.75 to \$2.50/foot

On a weekly basis: \$8.50

On a monthly basis: \$30/foot

Range of mooring charges reported:

On an annual basis: \$446 to \$620/year

On a seasonal basis: \$30

Strictly by length: \$2 to \$7/foot

APPENDIX C: AREA HARBORMASTER/MARINA CONTACTS MAY, 1997

Plymouth Harbormaster: 508/830-4182

All slips are privately owned

Town has 552 moorings

About 250 to 300 boats on these moorings are under 25 feet, the rest over 25 feet

\$4/foot per year

Waiting list of about 350, has been consistent for the past 5 to 10 years

Town has no slips for transient boats - they refer transients to the Plymouth Yacht Club

Plymouth Yacht Club: 508/746-7207

Slips are strictly for loading/unloading

Their 200+ moorings are privately owned by clubs, marinas

Town charges clubs/marinas \$4/foot in dredged areas, \$2/foot on flats

Average boat size is 28 feet

Approach depth (reported) - 8 feet

Dockside depth (reported) - 6 feet

Showers available

Nearby motel and restaurant

Plymouth Town Wharf: 508/747-6193

No slips or moorings - fuel service only

Approach depth (reported) - 11 feet

Dockside depth (reported) - 11 feet

Nearby motel, restaurant, grocery store

Brewer's Plymouth Marine: 508/746-4500

96 slips, no moorings

\$1.75/foot for transient boats

Slips (or "fingers") are rented on a yearly basis: seven 24-foot slips; 25 30-foot slips for \$2,850; 32 36-foot slips for \$3,420; 16 40-foot slips for \$3,800; and 16 48-foot slips for \$4,560

Rack storage available for 22-foot boats and smaller: outdoors \$1,575, indoors \$1,850

Currently have a waiting list six pages long, have always had a large waiting list over the past 5 to 10 years

Approach depth (reported) - 14 feet

Dockside depth (reported) - 10 feet
Showers and laundry facilities available
Nearby motel, restaurant, grocery store

Marshfield Harbormaster/Town Dock: 781/834-5541 (George Burgess)

No one available - left message 5/9, will call back later

Called again 5/12, left message again

Green Harbor Marina suggests we talk to him about a harbor plan so they can dredge

Approach depth (reported) - 5 feet

Dockside depth (reported) - 3 feet

Pump-out station available

Nearby restaurant

Green Harbor Marina (Marshfield): 781/837-1181

Has 200 slips (20 for transients) at \$85/foot; no moorings

Usually has boats from 17 to 47 feet

Over the past 10 years, hasn't had much of a waiting list; had 60-70% occupancy during the late '80s and early '90s, and is now back up to 98%

Approach depth (reported) - 8 feet

Dockside depth (reported) - 8 feet

Showers and pump-out station available

Nearby restaurant

Taylor Marine (Marshfield): 781/837-9617

140 slips for \$1,500/year or \$75-\$85/foot for six months

1/4 of his slips are used by the larger boats - largest is 48 feet

Most of his customers are from 30 to 40 miles inland - Brockton area, etc.

Has always had a waiting list, list got quite extensive through the '80's, but has leveled off now.

This is Taylor's 29th year in business, and in all that time, he has never advertised nor has he ever had an empty slip (he credits his wife for this)

Taylor objects to the new Scituate Town Pier facility's low prices; feels they're damaging the privately owned marinas in the area

Approach depth (reported) - 6 feet

Dockside depth (reported) - 4+ feet

Showers and pump-out station available

Nearby restaurant and grocery store

South River Yacht Yard/Simms Brothers (Humarock): 781/834-6070

65 slips

\$65/foot for the year, \$45/foot for the season

Boats up to 42 feet

No slips reserved for transients

Had waiting lists in the '80's, but none now

Simms Brothers took over operation six years ago

Approach depth (reported) - 28 feet

Dockside depth (reported) - 7 feet

Showers available

Scituate Harbormaster/ Town Pier: 781/545-2130

185 slips for \$60/foot from May 15 to October 15

Slips hold boats from 17 to 32 feet

4 transient slips, but they also use other patrons' slips when they're away if necessary

Transients are charged \$40/night, regardless of boat size

Slip fee includes shower facility, 24-hour security, water, electrical hookup

Boats are now limited to 30-footers and under, except a couple of bigger boats that have been there for years and are grandfathered

850 moorings for \$3.50/foot; additional \$3.50/foot water user fee (this additional \$3.50 applies to all Scituate marinas and private clubs)

Currently have a waiting list of 90 boats; past lists have been over 100 boats.

Waiting list is not rolled over from year to year; every year they start their waiting list for the following season on August 1

Their location at the center of town, within walking distance of lots shopping and activities has created a huge demand for their slips and moorings

Approach depth (reported) - 5.5 feet

Dockside depth (reported) - 5.5 feet

Showers and laundry facilities available

Nearby restaurant

Scituate Harbor Yacht Club: 781/545-9804

No answer, no machine

Approach depth (reported) - 10 feet

Dockside depth (reported) - 10 feet

Showers and laundry facilities available
Nearby restaurant

Scituate Harbor Marina - 781/545-2165

No answer, left message 5/12

Approach depth (reported) - 15 feet

Dockside depth (reported) - 9 feet

Nearby restaurant

Marina at James Landing (Scituate): 781/545-3000

88 slips (includes 10 for transients), no moorings

\$55 to \$75/foot, depending on location and size of boat; includes electric hookup and water

Boats range in size from 16 to 50 feet, most are about 30-footers

Has always had a waiting list as they are in a very protected area (Herring River)

Approach depth (reported) - 4 feet

Dockside depth (reported) - 6 feet

Showers, laundry facilities, and pump-out station available

Nearby motel and restaurant

Young's Boat Yard (Scituate): 781/545-0440

65 slips at \$65/foot (2 for transients), no moorings

Boats range from 16 to 30 feet

Has had a small waiting list in the past 5 to 10 years, but none this year

Approach depth (reported) - 6 feet

Dockside depth (reported) - 6 feet

Nearby motel, restaurant, and grocery store

Duxbury Harbormaster/Town Pier: 781/934-2866

No one available ó left message 5/9, will call back later

Called again 5/12, left message again

Approach depth (reported) - 8 feet

Dockside depth (reported) - 8 feet

Nearby restaurant

Long Point Marine (Duxbury): 781/934-5302

No slips or moorings, maintenance and storage only

Quincy Harbormaster, Bernie Reisberg: 617/773-7213

Total of 2,000 slips and moorings, all private

Quincy Yacht Club has 200 slips/moorings (of the 2,000 total)

2 to 3 other private marinas

Demand has not overwhelmed supply; slips are always available, but for definite numbers we'd have to call each club/marina individually

Fees are determined by each club/marina (Harbormaster feels the town is losing out on a lot of \$\$\$ to the private clubs/marinas by doing it this way)

Marina Bay has 650 slips that can accommodate ocean-going liners (BIG ships)

Clubs/marinas in Quincy include Bay Pointe, Anchor (formerly Town River Yacht Club), Clipper Apartment Marina, Quincy Yacht Club, Squantum Yacht Club, Wollaston Yacht Club, and Marina Bay)

Weymouth Harbormaster, Al Malone: 781/682-6109

275 moorings, 300 slips, 575 vessels total

\$5 administration fee only (mooring gear is purchased separately by each boat owner and is owned by the boat owner)

Average boat size is 25 feet

No mooring fees separate from town (i.e., clubs cannot charge more than the \$5 administration fee for slips or moorings)

Current waiting list is 12 boats for Back River area

Hingham Harbormaster: 781/741-1450

No one available ó left message on machine 5/12/97) Note: The Cecil Group left additional messages 3/18, 1/19/98

Kehoe's Ship Chandlery (Hingham): 781/749-9855

Kehoe's rents mooring equipment and places the moorings wherever the Harbormaster wants them; also provides prams to/from moored boats, and keeps an eye on the boats during storms

No equipment reserved for transients, very little demand

Waiting list of 20 to 30 boats

Boats up to 16 feet are \$446/year; 17 to 22 feet, \$505/year; 23 to 26 feet, \$561/year; and 27 to 30 feet are \$620/year (there is a limit of 30 feet on boats in Hingham Harbor)

Approach depth (reported) - 5 feet

Dockside depth (reported) - 5 feet

Nearby restaurant

Hingham Boat Works: 781/749-8868

Hingham Boat Works does boat rentals and repairs only, but runs Hewitt's Cove Marina.

Approach depth (reported) - 15 feet

Dockside depth (reported) - 15 feet

Hewitt's Cove Marina (Hingham): 781/749-2223

I was told to speak with a Mr. Sugar about their rates, etc., but he was unavailable

Left message for him 5/1

Approach depth (reported) - 15 feet

Dockside depth (reported) - 10 feet

Showers, laundry facilities, and pump-out station available

Nearby motel, restaurant, grocery store

Landfall Marine Center (Hingham) : 781/749-1255

175 slips from \$32/foot to \$72/foot, depending on depth of water, tidal areas, if a dinghy is necessary to reach mooring

No moorings

Boats range from 16 to 30 feet for the most part, with a few up to 40 feet

Slips are completely booked up for this year, and they have a short waiting list; in years past, they had waiting lists of 50 or more

Approach depth (reported) - 15 feet

Dockside depth (reported) - 15 feet

Showers available

Nearby motel, restaurant, grocery store

Cohasset Harbormaster/Town Dock: 781/383-0863

The only dockage the Town of Cohasset has is for 60 dinghies, no charge

All moorings are privately owned

Marinas, yacht clubs, etc., all pay a user's fee to the town of \$5/foot for each boat moored or docked in their areas

Approach depth (reported) - 15 feet

Dockside depth (reported) - 15 feet

Nearby restaurant

Cohasset Harbor Marina: 781/383-1504

350 slips, \$86 average - seasonal

125 moorings for \$30/foot - seasonal

Boats range from 16 to 70 feet

They don't reserve any slips or moorings for transients, but there are usually some available if they're needed

Currently have no waiting list, but in the '80s they had waiting lists of 125 to 150 boats; they believe it's picking up again now, but will never be the way it was in the '80's

Approach depth (reported) - 7 feet

Dockside depth (reported) - 6 feet

Nearby motel, restaurant, grocery store

Cohasset Yacht Club: 781/383-2050

Closed till season opens later this month ó no one around except maintenance people

Approach depth (reported) - 28 feet

Dockside depth (reported) - 7 feet

Nearby restaurant

Rowes Wharf, Boston: 617/439-3131

32 slips, no moorings

Over 60 feet \$2.50/foot overnight, otherwise \$2/foot overnight

\$8.50/foot weekly

\$30/foot monthly

Average boat size 40 to 50 feet

More demand this year than last, waiting list is full now, only accepting reservations from transient boats

Source: 1997 Northern Waterway Guide, industry contacts, and FXM Associates