

**TOWN OF HULL**

**OPEN SPACE AND RECREATION PLAN**

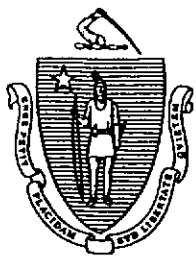
**UPDATE**



**2000**

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**Town of Hull Planning Board**



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*Executive Office of Environmental Affairs*  
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February 28, 2001

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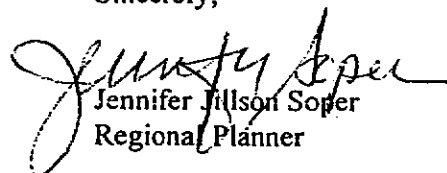
Re: Open Space and Recreation Plan

Dear Mr. Szklut:

Thank you for submitting the last remaining documents to complete Hull's Open Space and Recreation Plan. I am pleased to write that the plan is approved. This final approval will allow Hull to participate in DCS grant rounds through October, 2005.

Congratulations on a job well done. Please call me at (617) 626-1015 if you have any questions or concerns about the plan.

Sincerely,

  
Jennifer Jillson Soper  
Regional Planner

cc: Board of Selectmen  
Conservation Commission  
Recreation Department



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## **Section 1**

# **Plan Summary**

## Section 1

### PLAN SUMMARY

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### PLAN SUMMARY

#### What is desired? . . . Community Vision

The current open space and recreation plan update was initiated by the planning board in February 1999. The update continues the open space and recreation planning process begun by the town-wide comprehensive visioning process held in 1994. That visioning process encompassed all aspects of town aspirations. The beginning of the resultant vision statement adopted in 1995 highlights the importance citizens place on open space.

*"We the people of Hull seek to shape a future for our town that preserves and enhances its natural features . . .".*

Additional phases further emphasized the value citizens hold for its open spaces, relation to the ocean, and maritime character.

*"Hull's distinguishing characteristics are its spectacular coastal setting, its location in the harbor of a metropolitan region, and its small town identity. . . . the natural peninsular setting of the town, with its diverse topography, varied landscape and views, and extensive beach front, continues to be its dominant feature and great asset."*

The vision statement elaborated several principles that directly relate to open space and recreation planning and were incorporated into the 1995 Open Space and Recreation Plan. These principles include:

- Protect and enhance the qualities of the natural resources.
- Recognize that visitors and summer residents come to Hull for its waterfront amenities.
- Protect and enhance Hull's maritime character.

- Consider each new development opportunity very carefully since relatively few opportunities for development remain (or for preservation of open space and recreation use.)
- Establish a process that ensures predictable, steady, and visible progress toward our goals.

### **What do we have to do? . . . Community Needs**

Since the adoption of the 1995 Open Space and Recreation plan the Town of Hull has addressed and met many of the needs facing the community. These needs include: transportation improvements, harbor management plan, Allerton harbor improvements, Pemberton area improvements, involvement in the Boston Harbor Islands National Recreation area, development of Nantasket pier area, and addressing the Straits Pond area. Work continues in several of these areas to insure that objectives are fully met. Other activities have included beginning improved recreation facility maintenance, building modifications for handicapped accessibility, and revitalization of the MDC maintenance complex.

The high priority needs identified for the future during this open space and recreation plan update are:

- Town Beautification
- Maintenance of Existing Open Space and Recreation Lands
- New Recreation Fields
- More marinas and boating facilities

Medium priority needs included:

- Community center
- Beach maintenance
- Identification of private vacant parcels for possible acquisition

### **What is our intent? . . . Community Goals**

The 1995 Open Space and Recreation Plan adopted the principles and the goals as presented in the vision statement. The current update elaborates on these goals and identifies quantifiable objectives to achieve the goals. The goals identified in this update are as follows:

- Hull should beautify its entry points and main roadways with landscaping and other improvements to enhance the image of the town, welcome visitors, and link its districts.
- Hull's beaches, parks, the Weir River area, Straits Pond, and other resources provide Hull with high-quality and diverse open space areas. Hull's planning should concentrate on maintaining, protecting, and enhancing these public open spaces.



- Hull's past is interesting, important and unusual; it is an attraction to visitors. Opportunities to enhance the understanding and appreciation of the past are encouraged.
- The recreational needs of Hull's residents are paramount to maintaining the local quality of life. The Town should insure adequate space is available to meet these needs, now and into the future.
- Opportunities should be pursued that enhance both recreational and commercial uses of the waterfront. Properly planned improvements should be compatible with residential and tourism uses. This may include dredging or water edge improvements where environmentally responsible and where economically feasible or where state or federal funds may be available as assistance.
- Hull should join in the initiatives underway to establish the Harbor Islands as a comprehensive park system by promoting itself as a gateway to and from the islands through water transportation connections, visitor information, and other appropriate amenities.
- Access by the public to the waterfront, to parks, to playfields, and to other public areas is a consistent goal throughout the various Town planning documents. The Town's ADA Compliance Plan recognizes this goal and includes an accessibility analysis of the Town's recreational facilities and fields, and the Town's parks and beaches.
- The Hull school system should be encouraged to develop curricula that capitalize on the town's unique natural setting.
- Establish Hull as a recognized center of information on coastal and marine issues by bringing its unique natural resources to the attention of agencies and academic/research institutions.
- New development and improvements to existing properties should enhance the character of the districts in which they occur.
- Hull's residential character is in large part due to the conversion of summer homes. As Hull becomes more and more a suburban residential community appropriate densities and zoning guidelines should be recognized and established.

### **How do we achieve it? . . . Community Actions**

Each goal listed above generated a number of objectives for achieving the goal. These objectives were grouped by goal and sub-grouped by principle. Several objectives applied to more than one goal. The objectives include:

- *Identify significant gateway-to-Town parcels both privately and publicly owned.*
- *Identify gateway parcels to each of the Town's unique neighborhoods.*
- *Develop plan to link these gateway parcels together through an attractive signage system and/or bicycle/walking trails. Plan to include strategies for acquiring key parcels identified.*
- *Develop landscaping and tree planting plan along major Town roadways.*

- *Means for improving north/south linkages within Hull should be pursued for public transit such as a local trolley, for bicyclists, and for pedestrians. Such improvements should acknowledge varying needs according to season and age groups.*
- *Initiate process to develop a master plan for the Town.*
- *Develop and initiate an improvement and ongoing maintenance plan for Hull's parks and significant open space areas. Plan should include budgeting considerations and assignment of maintenance responsibilities to appropriate Town departments.*
- *Protect scenic areas and wetlands and beautify the Town.*
- *Improve public street-ends to create mini-parks and scenic vistas.*
- *Develop a healthy balance of aquatic life in Straits Pond.*
- *Encourage a better understanding of Hull's landside open space and its relationship to the Town's identity, growth, and development.*
- *Hull should use the opportunity of this planning process to help prioritize capital and maintenance programs and inform its citizens of progress to increase understanding of the Town's efforts.*
- *A permanent and regular liaison process should be established between the MDC and the Town to ensure continued cooperation and coordination on both short-term and long-term issues and to allow conformance of MDC operations, maintenance, and improvements with town goals and initiatives.*
- *Develop a walking path through historic Hull village including appropriate signage.*
- *Develop a bicycle/walking path through the Town.*
- *Identify parcels appropriate to the recreation needs of the community. Such parcels may be adjacent to current recreational fields and may be privately or publicly owned. Develop plan for utilizing or acquiring parcels for recreational use.*
- *A community center should be created as a central meeting place for the town, and provide recreational, cultural, and educational opportunities year round for both adult and youth. This center should serve the greatest number and range of residents possible.*
- *The Town should identify appropriate locations and develop areas so as to increase the available passive recreational opportunities (parks, etc.) in the Town.*
- *Development of a marina at Nantasket Pier with public access to the waterfront should be encouraged.*
- *Beaches should be well-maintained, and beach access provided through a planned process.*
- *Visitors and the recreational activities that attract them are a major contributor to the Town's employment and tax base; new uses and users that minimally impact the community and enhance the quality of life should be encouraged and supported.*
- *Commercial and waterfront zoning regulations should be reviewed and revised where necessary. Addition of watershed zoning to the Town's Zoning by-laws should be considered.*

- *The area in and around Nantasket Beach should be improved to create a more attractive pedestrian environment and reinforce the special qualities of this unique seaside destination.*
- *Protect developed areas from coastal storm damage and erosion through the development of a dune maintenance system.*
- *Hull should create a long-term maintenance strategy for Town facilities and communicate it to its citizens so that there is a greater understanding of priorities and appreciation for progress.*
- *Locations such as Pemberton Point and Nantasket Pier are special places which should have park-like improvements to accommodate residents and visitors seeking the vistas found there.*
- *Hull should improve public transit to and from Hull by working with the MBTA and others to increase access by bus, regional rail networks, bicycle, and passenger ferry. Any significant expansion of water transportation should be carefully coordinated with land use planning and other goals of the town.*
- *The Town should continue implementation of its ADA plan with special emphasis on providing access to Town beaches, parks, and other open-space facilities.*
- *The Town should continue its effort to make the A-Street Beach fully handicapped accessible.*
- *Hull should institute processes, such as workshops, forums, and newsletters, to encourage and continue broad public involvement in planning and town government.*
- *Create an ad hoc committee to identify support for such an effort including federal and state funding sources, university and research institutions, and other institutions such as museum and aquariums. Committee should include, at a minimum, representatives of the Hull Public School, the South Shore Charter School, and the Town's Community Development Office.*
- *Develop brochure/pamphlet/web site identifying Hull's special attributes.*
- *Consider creating different types of development/redevelopment areas within Town and establishing appropriate definitions and policies for each area (e.g. development areas, scenic development areas, residential areas, and conservation areas.*
- *Review and revise, where necessary, current zoning regulations.*
- *Develop guidelines for identifying environmentally sensitive parcels for protection/purchase by the Town.*
- *Since few undeveloped parcels, either private or town owned, are available, care should be taken in their disposition in terms of future use and benefit to the community. Consider creating different types of development/redevelopment areas within Town and establishing appropriate definitions and policies for each area.*
- *Review and revise current zoning regulations to encourage larger lot formation.*
- *Provide a wider variety of opportunities for long walks, jogging, and enjoyment of nature.*

Finally, a list of action items addressing each of the objectives was developed. Responsibility for each of the action items was assigned and implementation of the items is phased in over the next five years. It is anticipated that as the items in each category are completed from year to year, additional items will be required and results of studies and implementation will indicate

new activities and directions not now envisioned. This open space and recreation plan is therefore viewed as a dynamic plan subject to modification as new conditions dictate.

## **Section 2**

# **Introduction**

## Section 2

### INTRODUCTION

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### INTRODUCTION

#### Purpose of Plan

Hull views open space planning as an important component of overall planning. The Planning Board is the responsible town entity for preparation of the Open Space Plan update and is coordinating activities with the Conservation Commission and the Parks and Recreation Commission as well as other town boards, commissions and departments.

Hull is at a crossroads. This is a time of regional and national economic change. For Hull, new environmental concerns and regulations are affecting the use and character of the water's edge. Changing real estate markets are affecting decisions about land and future development. Regional tourism and spending patterns are shifting. How should Hull respond to these and similar challenges?

The 1994 open space and recreation planning effort was targeted to updating the 1992 plan, conducting additional technical studies and making the necessary changes to the existing draft plan in order to present the plan in the format of the Executive Office of Environmental Affairs (EOEA) 1990 Open space and Recreation Plan Requirements. In summation, the task at that time was to form the plan into a workable document that could be understood. The plan was also redirected to be in accordance with the highly successful town-wide visioning process conducted during the first quarter of 1994. This 2000 update continues to use the vision as an overall guide but incorporates new developments, new conditions, and new goals in planning for Hull's open space and recreation needs. While most of the technical data and overall goals remains the same, this update places a greater emphasis on the actions necessary to implement the plan.

#### Planning Process and Public Participation

Planning for Open Space and Recreation concerns began in 1989 with the town planner at that time preparing various papers addressing open space issues and reviewing them with the Planning Board during its public meetings. Early in 1992 a draft plan was assembled based on those papers.

The plan was submitted to the EOEA Division of Conservation Services (DCS) in June 1992. At that time DCS identified five technical areas needing more work. Also, only one of the required maps was submitted and it was not legible. The Planning Board embraced the feedback from the DCS and approached the Town for funding to hire a consultant to assist in revising the Open Space Plan.

Concurrent with this activity, the Town of Hull was preparing a plan to facilitate the economic revitalization of the town. The Hull Economic Development Task Force (EDTF) was formed in 1993 from a cross section of elected and appointed public officials and interested residents to formulate the Master Economic Revitalization Plan for the town. The first step of the revitalization planning program by the EDTF was for the development of a shared single vision of the community. This vision is to define the broad outline of what the town wants to be and what the general components of the vision are made of. In other words, what the town will see itself as in the future.

Because the vision was to be comprehensive, the open space planning process for the 1994 update began with participation in the formulation of the Shared Single Vision. Two workshops were held on Saturday, January 22, 1994 and Saturday, February 5, 1994. Over 200 people from all walks of life participated in the workshops. After the second workshop, the written vision statement was prepared, reviewed by various workshop leaders and distributed to all participants. Written comments were received and an Open House was held on March 24th where written comments were reviewed and other verbal evaluations received. The Hull Vision Statement was then issued on April 8, 1994.

It is to be noted in that statement included in Section 6, that open space and recreation goals are embedded throughout the statements of "Principles for the Future" and "Objectives for Hull". The specific open space and recreation goals articulated in Section 6 are derived from this, the town's Shared Single Vision. With the issuance of the Vision Statement, the EDTF, in its responsibility to create an economic revitalization plan, lent its support to the request of the Planning Board for funding to prepare an Open Space and Recreation Plan and funding was approved.

An Open Space and Recreation Plan was then prepared by the consultant team of Kenneth M. Kreutziger, AICP and Eugene Peck working with the Planning Board. Public hearings were held on September 21, 1994 and June 8, 1995. After suggestions were reviewed and adjustments made to the plan, letters of review were prepared by the Planning Board, the Board of Selectmen (chief elected official) and the MAPC (regional planning agency). Comments by MAPC were addressed prior to submission to DCS. This 1995 Plan was officially approved by DCS and established Hull's eligibility for several State discretionary grant programs through June 2000.

In February 1999, the Planning Board began the process for updating the Open Space and Recreation Plan. The decision was made to prepare the update using Town staff. Revised sections were prepared and reviewed by the planning board and at public meetings. Conservation Commission members and Parks and Recreation Commission members were invited to public hearings on August 11, 1999, September 1, 1999, January 10, 2000, February 16, 2000 and May 8, 2000 to review and revise goals, objectives, and implementation schedule. Also at the May 8<sup>th</sup> meeting, the Town Manager, the Harbormaster, Department Heads from the

Highway Department, Building Department, Light Department, Sewer Department, and representatives from the Police and Fire Departments reviewed and commented on the implementation plan. A completed draft was presented at a public hearing on June 29, 2000. Comments were then incorporated and the draft update was submitted to the Metropolitan Area Planning Council for their review.

Upon receipt of the MAPC review letter final revisions were incorporated and the Planning Board presented the draft update to the Board of Selectmen. A final draft incorporating the comments of the Selectmen was then prepared and submitted to DCS for approval.



## **Section 3**

# **Community Setting**

## Section 3

# COMMUNITY SETTING

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# COMMUNITY SETTING

## Regional Context

Hull is a L-shaped peninsula in a Coastal Zone which defines Boston Harbor. It is bordered by Cohasset and Hingham to the South. See Figure 1, Location Map on following page. Hull is a low-lying town, punctuated by hills. Hull was once an island, but since that time a causeway has been created to connect Hull to the mainland. As a barrier beach between Massachusetts Bay and the Atlantic Ocean, Hull can take quite a beating during stormy New England weather.

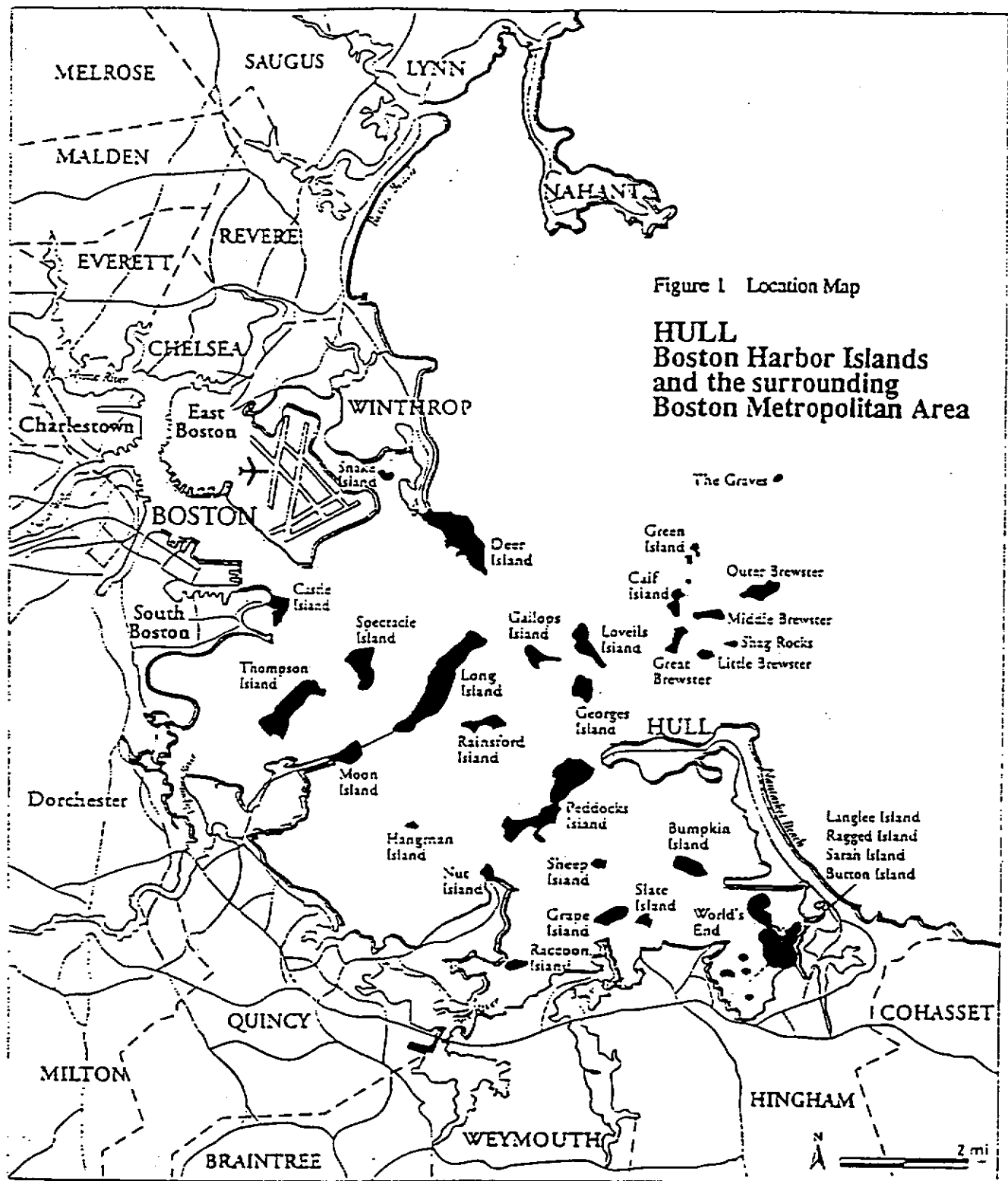
This seashore town has developed as a summertime resort with many seasonal homes and rentals. There has been an emphasis placed on waterside access, because it is close-in, yet it still retains a sense of remoteness. The hillside areas were the first to be developed and are high-density due to seasonal residential origins. Hull had a similar effect to living on an island, due to the access only by water and by causeway.

Many families have lived in the town for generations. Most residents of Hull work in Boston or on the South Shore. In recent years there has been an influx of young professionals from all over the country as well as other parts of this region. The growing realization of the beauty of the town attracts many new residents. Along with the younger generation there are a great many elderly residents living on fixed incomes. Within Hull there is a broad range of incomes. There is a growing trend of a larger year-round population and therefore fewer seasonal homes.

## Weir River Estuary

Hull shares only about two miles of borders with Hingham and Cohasset and these are across the Weir River. There is a total of only three access routes and all traffic must come through the towns of Hingham and Cohasset. The Weir River estuary watershed and the scenic river corridor created by the Weir River are shared with these two neighboring towns. It is a regional environment resource seen as a future location for recreational and educational opportunities within a protected conservation area. Straits Pond is the other major body of water shared by these three communities.

Many actions have affected this shared Weir River Estuary resource. Hull's sanitary landfill, located in the wetlands across from Hingham, was closed ten years ago. A clay liner was installed and the landfill undergoes active monitoring by SEA Consultants. The monitoring conforms with all DEP regulations and includes gas monitoring and leach collection. Quarterly reports on the status of the landfill are submitted to the Department of Environmental Protection. Under existing conditions, it is expected that the landfill will be available for reuse in seven to eight years. The landfill is not considered to be a significant pollution source. The Highway Department garage and yard is also located at the town boundary along the wetlands. The twentieth century saw many locally unwanted land uses (LULUs) located along town boundaries throughout the country. These situations require cooperative action between adjoining communities.



## **Nantasket Beach and Boating**

In the summer there is a large influx of visitors and seasonal residents, which generates crowds at the beaches in Hull. The beach is the magnet attraction for the town of Hull; it is what the tourism industry thrives upon. In the early days Nantasket Beach was a summer playground for the entire Boston area. The beach now provides a recreational resource to year-round and summer residents as well as nearby south shore towns. The Nantasket Beach area now operated by the MDC will continue to be a regional recreation resource. Impacts from traffic and parking in Hull need to be addressed. Since access to the beach is through Cohasset and Hingham, peak traffic periods also present impacts to these towns.

Another draw to the area is the clustering of restaurants within the town. Retention of family oriented amusements and recreation in the demise of Paragon Park has kept the town popular for families with young children. Along the shore of Hull Harbor there are a number of marinas, public boat launches as well as piers for pleasure cruises. Hull has become a regional facility drawing large crowds and this has led to an excess amount of black-top used for parking. Due to these conditions, there is an increasing need to encourage the establishment and use of convenient, affordable public transit.

## **Metropolitan Area Planning Council: MetroGreen**

Hull is one of the 101 cities and towns in the Boston Metropolitan area who are voting representatives of the Metropolitan Area Planning Council, MAPC. The current regional development plan for the Boston metropolitan area is MetroPlan 2000 which was adopted by MAPC in May 1991. This plan includes five detailed elements. One of these is the Land Resources Protection Element, commonly referred to as MetroGreen. It was adopted at the May 1992 MAPC Council meeting.

In the broadest terms MetroGreen includes all the land area which contributes to the environmental health of the metropolitan region. These lands have been called the Land Resources Protection Area and are defined as "areas within the region to be preserved as part of a network of open space including critical environmental areas, unique landscape features, rights-of-way with scenic or recreational potential and areas required to fill regional open space and recreational needs".

The recommended network of areas shown on the Regional Land Resources Protection Element Map for Hull have been incorporated into this open space and recreation planning process. In addition, Hull has been represented on and working with other nearby communities on open space and other regional issues as part of the South Shore Coalition. Items in the Hull Five Year Action Plan work toward achieving both regional and local needs, many of which coincide.

MetroGreen sets forth 29 action recommendations to foster "the protection of environmental and recreational resources within the region to enhance the quality of life and protect the public health". Four of these recommendations apply to Hull and have been addressed within this plan. Comments associated with each of these four MAPC action recommendations relative to Hull follows.

- Action Recommendation LR#2  
Support critical land acquisition and protection programs.

MDC has identified the Ft. Revere site in Hull as one of the areas important to the metropolitan open space system. Hull supports this acquisition and will continue to assist MDC. This area can also be a feature attraction of the future Boston Harbor Islands proposal because it is within easy walking distance of the proposed land access point at Pemberton Point on Hull which is near the geographic center of all the harbor islands.

- Action Recommendation LR#9  
Encourage implementation of local open space and recreation plans.

Proposals and the Five Year Action Plan have been reviewed relative to MetroGreen. This open space and recreation plan is consistent with the open space and land resources recommendations of the regional development plan. Approval by the state Division of Conservation Services will complete Hull's local action to support this recommendation and make it eligible for related state funding programs for the next five years.

- Action Recommendation LR#14  
Preserve and protect areas identified in the Land Resources Protection Element.

Items in the Five Year Action Plan work toward additional protection and improvement of identified areas. At Ft. Revere additional parcels are being acquired by the MDC and a future program to develop this site for tourist visitation will be supported by the town. The town continues to work with MDC to facilitate improvement of MDC facilities at Nantasket Beach, where the focus is the rehabilitation of a bath house that has been closed for ten years. Another project includes reuse of buildings no longer used by MDC located in the heart of downtown. A multi-agency agreement for the development of the Weir River Estuary which is an ACEC (Area of Critical Environmental Concern) will begin in the next two years.

- Action Recommendation LR#22  
Coordinate Master Plans and Open Space Plans with the Land Resources Protection Element

Consultation with the open space planner at MAPC has occurred during the preparation of the original plan.

## **The History of Hull**

A great natural breakwater, Hull was essentially a series of hills, dating to the ice age, connected to one another and to the mainland by barrier beaches, often overflowed by the tide. The hills or drumlins, densely wooded, contrasted sharply with the narrow barrier beaches, which appeared as arid plains.

In 1644 a decisive transformation of the landscape was set in motion when the State Legislature ordered one hundred and fifty tons of timber to be cut in order to build fortifications. The hills

were denuded and the beauty of the region was destroyed. With the clearance of the original forest cover, a rural agrarian and fishing economy began to emerge.

### **Hull Village Established**

By 1657 twenty families were contributing to the revenue of Massachusetts with the money from their farms or their fishing. These residents of Hull had established a notable share in the government of the Bay Province.

Behind the homes closely lining both sides of the winding main street, beneath the shadow of the hills, long rectangular fields extended up the slopes as far as the coastal banks overlooking the bay to the south and to the open sea on the north. By 1760 there were some fifty families in Hull.

In the early eighteenth century novelist Susanna Rowson, who spent her childhood in Hull, described the area:

On the left hand of the entrance to Boston Harbor is a beautiful little peninsula, called Hull. It consists of two gradually rising hills beautifully diversified with orchards, cornfields, and pasture land.

In the valley is built a little village, consisting of about fifty houses and a rustic temple is situated by the side of a piece of water, nearly in the middle of the village.

The Village's land connections to the mainland were tenuous at best. The original road from Hull to the mainland was a grass grown track, lonely and still, flanked on either side by ruined fortifications and gnarled and wind-wrenched apple orchards. At it's highest point there was a scene of great delight as a sea-view opened out for travelers to gaze upon.

The quaint village had much more to offer than it's beautiful scenery. It had a rural/nautical ambiance, a pastoral setting as well as a very healthful environment. A great many literary figures lived here or visited this picturesque hamlet. A few of these figures are Susanna Rowson who lived in Hull in her childhood, John Boyle O'Reilly whose summer cottage is now the public library, and Samuel Smith whose poem "My Country 'tis of thee" became the national song.

There were a few early attempts at expanding the economic base of Hull. One of these attempts was made by the Tudor family in the early nineteenth century. In order to create jobs in town, they leased "The Point" with a view to extract salt from sea water on a commercial basis. Extensive salt works, artificial ponds, and dikes were established at great expense to the Tudor family. Unfortunately, the enterprise soon failed

## **The Beginning of Tourism**

Summer visitors were soon attracted in larger numbers to this quiet and picturesque village. It was a place where families could escape the summer heat of the city. As demand rose, the three homes which rented rooms could no longer handle the flow of business. To meet this growing demand, a few boarding houses were opened in the early 1800's. The Nantasket, the Hayes House, The St. Cloud and the largest of all, the Oregon House were built to house summer visitors.

The first resort hotel was opened in 1840 by the Tudor family - "The Mansion" House. This pioneer summer hotel occupied the tip of the peninsula. Some thirty years later in 1871 the hotel burned to the ground. It was replaced with "The Tudor" which met with the same fate less than five years later.

## **Railroad Days**

During the 1800's Hull experienced its greatest growth. Hull became the popular place for people to get away from the hot city summers. Much of the development took place in the mid to late nineteenth century. This surge of development involved additions, conversions and great amounts of new construction. Much of the growth was stimulated by increasing ease of access - a new steamboat pier, more boat runs and the new Nantasket Beach Railway. During the 1870's the proprietors of the Oregon made additions in order to be better able to face competition, to meet the growing demand and in anticipation of an upsurge in business from the new Hull Yacht Club completed in 1882. Many old homes were available as summer residences and Hull Hill began development. It was soon covered with summer cottages and villas, most of them affording a view of the bay.

Through the growth pressures the village was able to retain much of it's essential character, a blissful refuge from the frantic city. This was facilitated by a number of important factors. Most important, the new Nantasket Beach Railroad was routed to minimize impact, by-passing the village and avoiding visual intrusiveness. A church was built within the village in Carpenter Gothic Style in 1881 and it became a focal point as well as being compatible with the character of the town commons. While much development did occur on Hull Hill, it was, for the most part, sensitive to the context. Roads respected the former patterns of parcelization and public access to the shore was by stairs, easements or right-of-ways. Shade trees were planted on the hill. These trees helped to revert the hills back to a close approximation of their original appearance before the "denude" effect of the pastures and fields.

The advent of the railroad reduced pressure on the village by opening up other areas for development. Allerton Hill became a site for expansion and by 1888 the lower slopes were filled with cottages and many building lots were for sale since the passage of the railway along the side of the hill made it so easily accessible.



## **The Open Space Ethic**

The village also benefited from a strong open space ethic. A major landowner refused to part with her property - Telegraph Hill. Another open space asset was the "handsome sheet of water", an area of ten square miles, almost fully enclosed by Nantasket, Peddocks Island, Houghs Neck and the mainland. This beautiful bay invited visitors and residents alike to participate in a range of recreational activities. One could learn to sail under the auspices of the Hull Yacht Club, the second largest in the country at the time or hire a boat for a long afternoon sail with the practiced hand of a local captain at the tiller.

An integral aspect of the overall open space experience was the journey by water to the town of Hull. The very affordable trip on capacious side-wheel steamboats was an experience in itself, highly educational, visually interesting and healthful. Once the steamboat reached Pemberton, a number of choices were available. Development there created in effect a major interface between numerous boat lines and land transit - an intermodal transportation hub. Among the choices, one could transfer to a boat of the Boston - Hingham line and continue to the town of Hingham, take a boat to Strawberry Hill, remain on board and end up at the Nantasket Beach pier, take the railway to Nantasket, or simply debark and enjoy the ambiance of the resort, the cooling breezes and the beautiful views. The Hotel Pemberton was the most elaborate resort in Hull and was a center of activities in the area. The architecture of the hotel was quite elaborate, with many gables, towers and piazzas cutting a distinctive silhouette over the low beaches of Windmill Point.

## **The "Cottage Movement"**

By the 1880's there became a need to develop the plains as a number of trends became apparent. On the unoccupied headlands and along the reaches of Weir River as well as on Little Hog Island there were hundreds of people encamped in tents every week. Many people wanted to stay for extended periods during the summers, but the prices of the hotels were rather high for an average citizen to bear throughout a season. These conditions increased the demand for summer cottages. Families found it expedient to build or lease a cottage and transfer the housekeeping essentials from the city home to this summer residence.

This was the beginning of the "Cottage Movement" in Hull. The inauguration of service on the Nantasket Beach Railroad coincided with the start of a sustained development and construction boom. Located between the two intermodal transportation hubs at each end of town, the hills and plains which occupied the length of the peninsula, now conveniently accessible by rail, were targeted for development of summer cottages and villas. This movement manifested itself in a variety of ways in different parts of town. As well as the already developed Hull Hill and Allerton Hill, Sagamore Hill's far viewing crest was occupied by several cottages and a picnic garden. The southern part of town saw a different pattern. Access was easier due to the South Shore Branch of the Old Colony Railroad which ran through the south shore to Plymouth. Crescent Beach and Green Hill were largely occupied by the cottages of inland citizens of great wealth. During the late 1880's and the 1890's and through the turn of the century many well-to-do people came to Hull and built expensive estates and spacious summer homes.

Today's Alphabet section and Kenberma section were developed by the Nantasket Land Company at the end of the nineteenth century. Until 1840 these lands had been held as commons of the people of Hull. Once the Nantasket Land Company gained control of these lands, their goal was to develop the plains into a great cottage city. The company sought this location because it would be attractive to those looking to avoid the vast numbers of visitors overflowing other areas of Hull. The planned community was located approximately mid-way between the two transportation hubs at either end of the peninsula - Pemberton and Nantasket. In order to secure a more thorough quiet and decorum, several small hotels and restaurants in the area were closed and thousands of shade trees were planted along the avenues. Nantasket Beach was a selling point for the new cottages and these new areas of development. This four mile belt of wide and level sand stretching from Point Allerton to Atlantic Hill lured many families to buy cottage lots from the Nantasket Land Company. By 1880 this area of sand had developed into the summer park and playground of Boston.

### **Nantasket - A Summer Resort**

The development of Nantasket as a summer resort occurred in an incremental manner through many decades. Different stages in the development have been largely a function of access. At the time of the American Revolution, no road traversed the length of the beach. By the end of the eighteenth century country roads led to the beach and old colony farmers would bring their families to the beach for day trips. In the early nineteenth century the South Shore Branch of the Old Colony Railroad connected with the main line at Braintree. The availability of train service from Boston prompted the establishment of the Rockland House Hotel in 1854. The late 1860's brought steamboats to Nantasket Beach, docking at the pier at the foot of Strawberry Hill. In 1868 the first steamboat ascended the narrow and crooked channels of Weir River and tied up at the new pier. The Nantasket Beach Railroad began operation in the 1870's from the South Shore branch of Nantasket Junction. The line was nine miles in length along the beach. The Hotel Pemberton was opened to coincide with the inauguration of train service. The line interfaced with the steamboat mode at three points - "The Point", Strawberry Hill and at Nantasket. Each area became a growth pole. In 1895 the railroad was electrified by overhead wires just in time for summertime service, and at about the same time trolley lines ran from Nantasket to Boston direct as well as connecting with lines all over south-eastern Massachusetts.

There were many recreational uses of Nantasket Beach and the surrounding area during the 1800's. This area was known for the thousands who sought enjoyment on the Southern mile of beach. Lovers of nature could ramble the beaches, families would settle on the sand with a crammed lunch-basket and one could find solitude on the rocks at the foot of Atlantic Hill. Although there were a great number of beachgoers, the beach seemed unchanged by their presence. It was as if the beach had room for "millions", but there was only several thousand occupying the long stretch of sand. In 1880 seven boats each way, to and from Boston, were hardly enough to handle the flow of summer visitors.

This surge in summer visitors created business for the big hotels as well as smaller hotels all over the peninsula. The Rockland Cafe, under the same management as the Nantasket Hotel, received immense amounts of business during the summer months. The cafe had a great many

attractions to lure travelers in, these included a dancing hall, bowling alleys, shooting galleries and swings.

### **Unfortunate Conditions**

By the end of the nineteenth century the natural environment had undergone a decisive transformation. The beach now had a half dozen crowded hamlets, a score of hotels, an aquarium, a score of shops, avenues and parks. The beachfront had an appearance similar to an amusement park. Peddlers of candy and fruits, peanuts and popcorn, pink lemonade and foaming beer and red balloons as well as the flying horses and goat wagons common to city parks were well established all along the beach. A great deal of this hoopla was linked to the fact that from the mid 1870's on, the only place licensed for the sale of liquor, from Boston to the tip of Provincetown, was Nantasket.

At the end of the 1890's resentment ran so high against conditions in Hull due to illegal liquor sales, rampant gambling, prostitution, con games, and pickpockets, that complaints were lodged with the state and federal governments. Some of these complaints even requested that the town be occupied by the armed forces of the United States.

A series of legislative initiatives was launched in order to change the conditions in Hull. In February of 1899 two bills were introduced, one for the Metropolitan Park Commission (MPC) to take over Nantasket Beach, and the other was a bill to establish a board of police for Nantasket Beach. Both bills failed when they were voted upon. In April of 1899 a bill was introduced for the MPC to take over Nantasket Beach, Straits Pond and adjacent waters as a park reservation. The final act provided for an area of beachfront of 5,600 feet in length with no sale of alcohol and no liquor licenses to be granted within 400 feet of the land taken. The clause "Straits Pond and adjacent waters" was omitted and the bill was enacted into law on the second of June, 1899. There were a few amusements on the area taken over from the town by the MPC, but these were phased out since they were not compatible with the ambiance and type of recreational environment that the Commission wished to promote.

### **The Wonders of Paragon Park**

Amusement in the area was not to disappear for very long. In 1904 the Eastern Park Construction Company was formed and plans were drawn up to construct a huge amusement park. This park was called Paragon Park and it opened on May 30th, 1905. Elements of the park included a 150-foot tower in the center of the park, a replica of Venice replete with a lagoon and gondolas and gondoliers imported from Italy, camels and camel drivers from Egypt, a Japanese Village with Japanese from Tokyo, a wild west show with riders and horses from a ranch in Oklahoma and many other attractions from all over the world along with the usual amusement rides of the time. The expense of running the huge park sometimes made it difficult for the owners to make a profit and during its first season the park lost \$32,000. The park did provide amusement for many people who came to visit the beaches of Hull as well as providing business for the hotels and shops in the area until its close in 1984.

## **The End of the "Romantic Era"**

As travel by automobile increased in the early twentieth century there was a correspondent decline in the other modes of transportation in Hull. In 1918 the trolley cars (inter-urbans) were discontinued. By 1932, the train line was abandoned. Worn-out steamboats were not replaced. In 1929 all but one of the remaining six of the original ten steamers of the Nantasket Beach line were destroyed by fire tied to the pier on Thanksgiving day.

After the fire the Nantasket Steamboat Company, faced with declining ridership, prepared to discontinue service. Local interests formed a new company which bought boats, wharves, and real estate in an effort to keep service going. After three disappointing summers, the new company decided to sell the properties to the town of Hull. The Massachusetts Legislature passed an act "Authorizing the Town of Hull to acquire Lands for Wharf and Recreation Center Purposes in Said Town". Town Meeting approved the acquisition in 1941.

With increasing suburbanization made possible by the automobile in the 1950's and 1960's, the automobile became the dominant mode of accessing Hull. Traffic soon became a problem due to the street structure of Hull. A portion of the old railroad bed along Nantasket Beach was soon turned into an ocean side drive, built at an elevation designed to reduce the effect of wave action. At the northern end of this street, at Phipps Street, a rotary was incorporated so that residential areas would not be impacted by traffic.

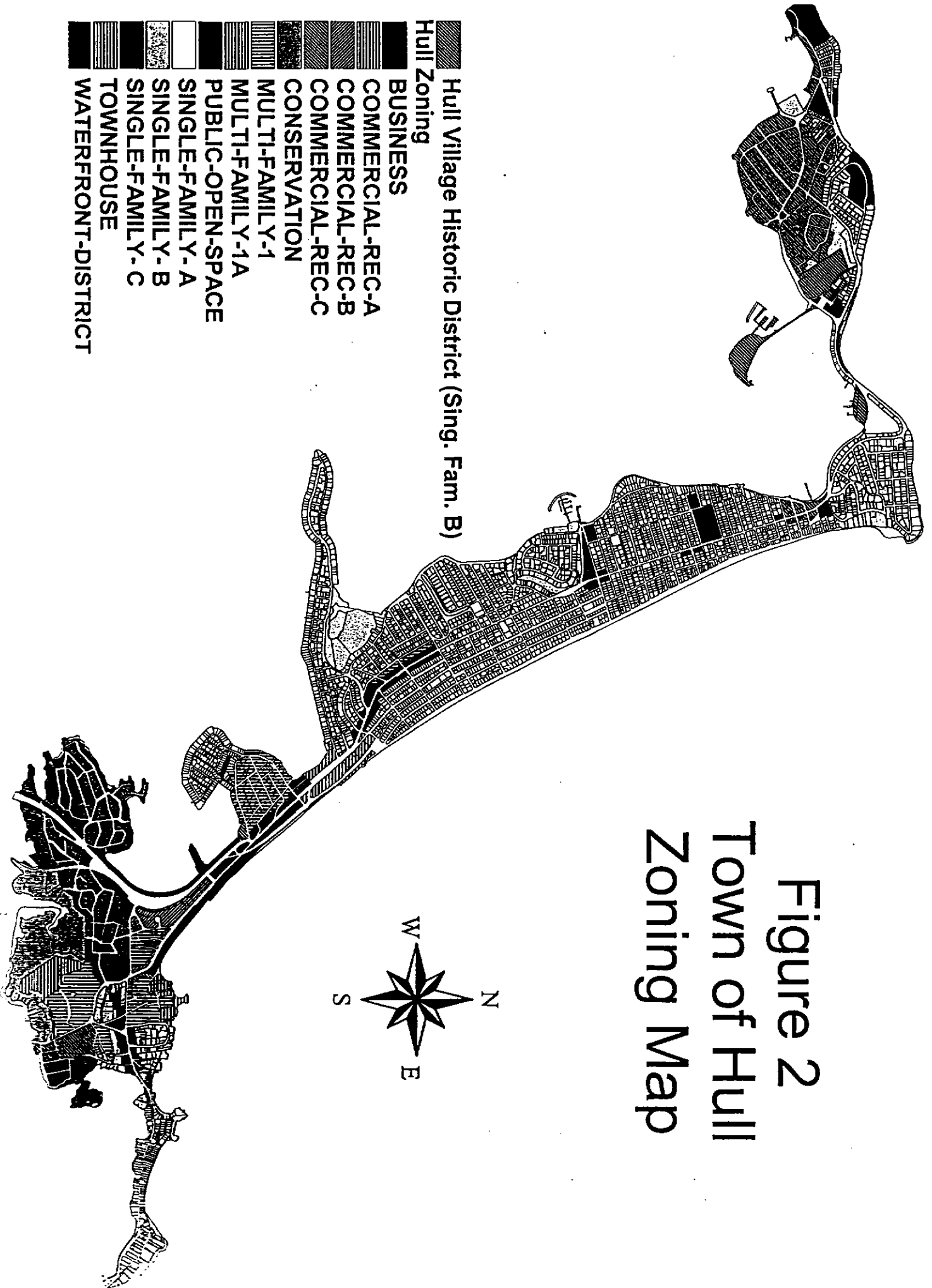
The town's circulation and parking problems were complicated by seasonal extremes of traffic volume. Peak summer loads were primarily the result of out-of-town traffic bound for the Central Recreation Area. In 1960 peak summer flows on Saturday and Sunday were on the order of 20,000 vehicles per day. At this time the area along Nantasket Avenue was a mixed commercial-residential hotel area, catering to the needs of both seasonal visitors and year-round residents. The Surfside area included many hotels, stores, a supermarket, night club, post-office, bank and other commercial establishments as well as a few residences, mostly apartments above stores.

## **The Seeds of Urban Renewal**

In the sixties urban renewal began. The town embraced the renewal project although many ambitious goals laid out in the plan of 1961 were not implemented. Much of this was due to changing attitudes about the environment and many of the approaches advocated were no longer acceptable from an environmental policy point of view. This urban renewal continued through the sixties, seventies and eighties with increasing focus on environmental concerns. During the 1980's a great number of condominiums were erected in Hull as once again people were looking for a summer getaway. Much of this new housing is not only for seasonal residents, but there are quite a number of year-round residents as well.

Hull in 1995 is a mature community with nearly all its land developed. The Hull Redevelopment Authority (HRA) site in the center of town, cleared for urban renewal in the sixties, is the only major site of undeveloped land in town besides parcels adjoining the Weir River Estuary. Therefore, the Zoning Map, Figure 2, reflects generally both the current and maximum development pattern.

# Figure 2 Town of Hull Zoning Map



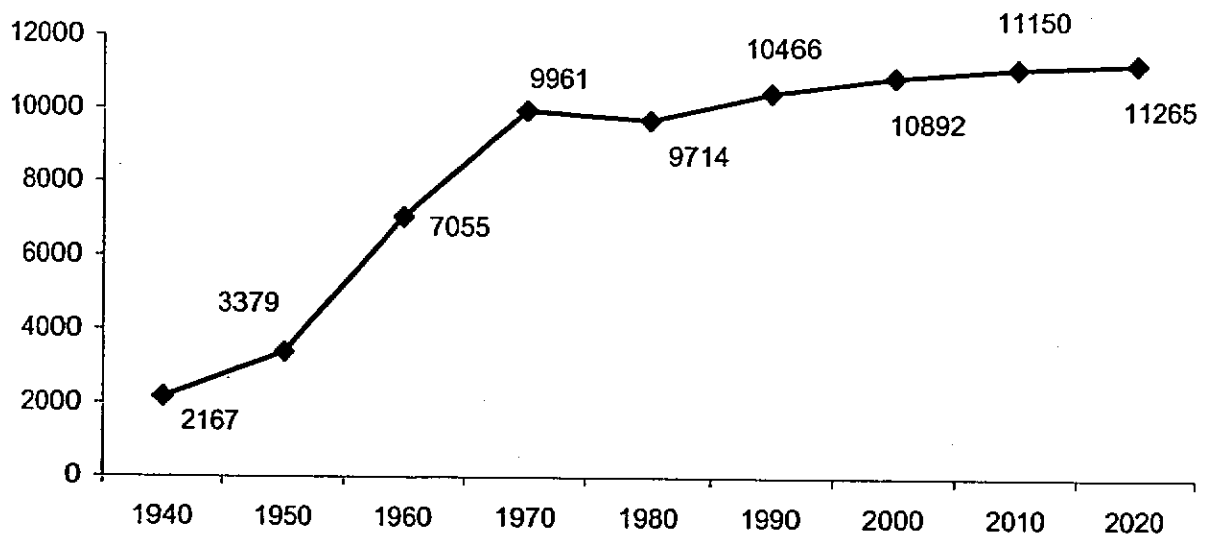
As the desire for urban renewal continues today, different options are being explored for the town as a whole as well as for the vacant land left by earlier clearance. Though the town established a vision for Hull in 1994 through a town-wide public participation process, consensus still remains to be achieved for the biggest issue of what to do on the HRA property in the center of town; what portion should be open space and what should be devoted to economic development? Not only is the environment a big concern, but beautification is an aspect that needs to be incorporated into the renewal process.

## Population Characteristics

### Town Growth

Today, Hull is a mature town with most of its land developed and an aging population. In 1940 Hull was a small town with slightly over two thousand residents (See Figure 3). After the Second World War the town expanded rapidly as people began to move from the city to suburban areas. Between 1950 and 1970 the population tripled from 3,379 to 9,961. Growth was rapid and steady throughout the two decades. Then, during the decade of the seventies, the population decreased slightly. However, construction of several large condominium complexes caused the population to increase during the eighties to 10,466 in the 1990 census.

**Figure 3**  
**Population: 1940-2020**



The latest population forecasts by the Metropolitan Area Planning Council (MAPC, March 1999) project a slowly expanding population through the year 2020 at a decreasing rate for each decade. In 2020 a nearly steady state population is expected when the percentage increase from

the previous decade will have slowed to about one percent from the expected rate of increase throughout the nineties of four percent.

The town density of 4,137 persons per square mile makes Hull a moderately dense community (See Table 1). However, the area utilized in this calculation includes the islands off the coast of Hull which are predominantly unpopulated. Utilizing the land area of mainland Hull, the density of the Town increases to 5,233 persons per square mile. Density is calculated by dividing the population figure by the land area. Its neighbors of Cohasset, Hingham and Scituate all have densities between 700 to 1,000. Marblehead, Nahant and Swampscott have densities comparable to Hull, while the density of Winthrop is similar to that of Boston at approximately three times that of Hull. As the density of a town becomes greater, it becomes increasingly important to have public open space in order to have relief from urban development and to provide recreational resources. The higher the density of the town, the less likely it is that land is available for open space or other uses, which is the case in Hull. The projected increase in population up to 2020 from the 1990 population is 799 persons. At the present household size of 2.73 persons, this would be an additional 293 housing units. This number of people can be accommodated in two ways. First, according to the Town Assessor's records, there are 84 buildable lots available where some of the population could be housed in new construction. Secondly, in 1990 there were reported 28% or 1,468 vacant housing units, of which 979 are seasonal units that could become homes for year around residents. This is a decrease in the 40% of seasonal houses reported in the 1975 state census. Hence, if the trend toward greater year-around use continues, there is physical capacity for substantial increase in the town's year round population.

Historically, Hull has been a seaside resort community and many of the units were not lived in on a year round basis. According to the 1970 census, Hull had 9,961 year-round residents. Based on approximately 40% of the houses being seasonal, Hull had about 16,500 residents in the summer of 1970. However, by 1990 only 20% of the houses were seasonal (979 units out of a total 5,256 with an additional 489 vacant) resulting in an estimated summer population of 13,500.

Summer units typically are occupied by households that include more persons per household than most year-round households. At the weekend there is typically an influx of additional household members - children, adult children, grandchildren, other family members creating an expanded family, visiting friends, overnight guests and working husbands and wives. Assuming a larger average household size for seasonal units, the summer population is in the 15,000 range. This puts residential densities even higher than the 4,000 plus figure mentioned previously.

Although the increase in the summer population has declined as more housing units are converted to year round dwellings, there remains a significant increase in the summer population density. It should be noted however, that as year round growth consumes seasonal homes, the demand for services during the summer months will actually decline as the year round population increases.

However, there are no records to document to what extent summer residents use town recreation facilities or participate in town sponsored recreation programs. In order to determine such use of

recreation facilities and programs it is suggested that summer resident use be documented for the future planning purposes.

It should be noted that of all the towns studied in the comparison of population statistics, Hull is the only town to increase its population during the decade of the eighties having had an increase of nearly eight percent.

**Table 1**  
**Population Characteristics**

|                | Area in<br>Sq. Miles | Density<br>Per Sq.<br>Mile | 1990<br>Census | 1980<br>Census | %<br>Change |
|----------------|----------------------|----------------------------|----------------|----------------|-------------|
| Hull           | 2.53                 | 4,137                      | 10,466         | 9,714          | 7.7         |
| Hull Mainland* | 2.00                 | 5,233                      | 10,466         | 9,714          | 7.7         |
| Cohasset       | 10.06                | 704                        | 7,705          | 7,174          | -1.4        |
| Hingham        | 22.59                | 878                        | 19,821         | 20,339         | -2.5        |
| Scituate       | 17.07                | 984                        | 16,783         | 17,317         | -3.1        |
| Marblehead     | 4.42                 | 4,519                      | 19,971         | 20,126         | -0.8        |
| Nahant         | 1.06                 | 3,612                      | 3,828          | 3,947          | -3.0        |
| Swampscott     | 3.10                 | 4,404                      | 13,650         | 13,837         | -1.4        |
| Winthrop       | 1.63                 | 11,121                     | 18,127         | 19,294         | -6.0        |

\*Hull's mainland area was calculated utilizing assessor's records and length of roadway. The Town Assessor reports that the total number of parcels (public and private) sums to 1,100 acres. Subtracting the parcels from the islands belonging to Hull and adding the land area occupied by condominiums (49 acres) results in a total land area of 1,068.4 acres. Assessor's records do not include the area occupied by streets. Hull contains 49.93 miles of roadway at an average width of 35 feet. The area occupied is .33 square miles.

### **Household Economics**

The median household income for residents of Hull is about two thirds of that in the other south and north shore communities compared in Table 2 with the exception of Winthrop which is similar. The same relationship exists for per capita income showing that Hull is below the averages of the South Shore Coalition, MAPC Region, and slightly less than the Massachusetts average, though slightly above the U.S. average. It could be expected that Hull residents also have less discretionary income than residents in other communities, indicating that recreation opportunities should be as economical as possible. As might be expected there is a direct correlation between per capita income and the level of education attained by the population as well as the percentage of the population employed as executives and professionals.



Another very informative economic statistic is the number of jobs in a community per person. It is noted that all the shore communities in Table 2 are below the average amount of employment in towns within the MAPC Region. Also, it was observed that Hull has the fewest number of jobs per person in the 101-town MAPC region, which is only 17% of the average. This means that most people have to commute some distance to find work and confirms the frequent complaint that employment opportunity for students in town is scarce.

**Table 2**  
**Economic Characteristics**  
(Source: 1990 U.S. Census)

|             | Median Household Income | Per Capita Income | % H.S. Grad | % Col. Grad | % Exec. & Prof. | Employment Per Pop. |
|-------------|-------------------------|-------------------|-------------|-------------|-----------------|---------------------|
| Hull        | 37,683                  | 16,907            | 85.4        | 19.7        | 29.5            | 0.10                |
| Cohasset    | 62,933                  | 31,166            | 94.4        | 54.6        | 49.4            | 0.29                |
| Hingham     | 60,274                  | 25,726            | 94.2        | 48.2        | 45.6            | 0.49                |
| Scituate    | 52,044                  | 22,156            | 93.3        | 39.9        | 41.3            | 0.17                |
| Marblehead  | 53,333                  | 30,615            | 95.6        | 53.7        | 47.6            | 0.23                |
| Nahant      | 47,212                  | 22,724            | 92.4        | 39.0        | 48.2            | 0.13                |
| Swampscott  | 50,191                  | 25,576            | 91.6        | 43.8        | 46.7            | 0.20                |
| Winthrop    | 37,240                  | 17,850            | 86.9        | 21.7        | 30.2            | 0.16                |
| South Shore | N/A                     | 20,220            | 90.2        | 31.1        | 34.0            | N/A                 |
| MAPC Region | N/A                     | 19,577            | 83.7        | 33.5        | 36.4            | 0.58                |
| MA          | 44,367                  | 17,224            | 80.0        | 27.2        | 32.0            | N/A                 |
| US          | 35,225                  | 14,420            | 75.3        | 20.3        | 26.4            | N/A                 |

## Housing

Hull experienced greater growth in its housing supply than other shore communities during the eighties (See Table 3). The growth rate (17%) was greater than the average for the South Shore Coalition and for the state, but slightly below the U.S. average of 21%. This surge in housing supply for Hull was due to the construction of condominiums. Condominium construction is not as land intensive a use as development of single family homes and thus has only a minor impact of the available open space. However, as noted above, the Town has only 84 available buildable parcels. Therefore, the loss of even a small parcel has a significant effect of the Town's available open space. Additionally, the increases in population due to condominium development has added significant demand on the Town's recreation system.

Hull's older housing, that built before 1939, shows a similar percentage to other shore communities. It is less than on the north shore which generally developed earlier but greater

than its neighbors on the south shore because those towns include extensive interior lands which generally developed later. The tenure in the town by both owners and renters does not seem to differ substantially from other towns or the nation as a whole.

Finally, the median sales price for homes in Hull remains substantially below that in neighboring towns. The 1980's saw a trend for young urban professionals to purchase in Hull. Given its location and low relative cost for housing Hull is likely to remain an attractive bargain for prospective homeowners.

## Disability

The statistics in Table 4 show that Hull has a greater percentage of its residents between 16 and 64 mobility challenged and with work disabilities than other shore towns. However, the percentage of disability is close to the U.S. average. There is less difference between towns for persons 65 and over. Part of the reason for greater disability of the younger population is likely a larger percentage of the work force in more physically dangerous occupations, i.e. fewer executives and professionals. This indicates potentially a greater need than other communities to focus on the needs of younger persons with disabilities.

**Table 4**  
**Disability of Civilian Non-institutional**

|             | <u>Persons 16 to 64 Years</u> |                 | <u>Persons 65 and Over</u> |                    | Percent of<br>Total Pop. |
|-------------|-------------------------------|-----------------|----------------------------|--------------------|--------------------------|
|             | Mobility or<br>Self-Care      | Work Disability | Mobility or<br>Self-Care   | Work<br>Disability |                          |
| Hull        | 3.9                           | 9.0             | 13.8                       | 28.3               | 16.9                     |
| Cohasset    | 4.3                           | 11.9            | 20.2                       | 9.6                |                          |
| Hingham     | 1.2                           | 4.2             | 17.6                       | 27.2               | 11.5                     |
| Scituate    | 2.3                           | 5.3             | 18.0                       | 30.7               | 14.0                     |
| Marblehead  | 1.5                           | 3.6             | 15.2                       | 25.1               | 11.2                     |
| Nahant      | 3.3                           | 4.5             | 14.2                       | 25.3               | 14.5                     |
| Swampscott  | 2.9                           | 6.6             | 17.9                       | 18.0               | 15.1                     |
| Winthrop    | 2.8                           | 7.1             | 17.2                       | 28.4               | 17.1                     |
| South Shore | 3.0                           | 6.0             | 16.9                       | 27.3               | 13.9                     |
| MAPC Region | 3.7                           | 6.5             | 19.4                       | 27.7               | 15.9                     |
| MA          | 8.7                           | 7.2             | 31.0                       | 27.9               | 22.9                     |
| US          | 4.6                           | 8.2             | 20.1                       | 32.8               | 19.2                     |

**Table 3**  
**Housing Characteristics**  
**(1990 US Census except where noted)**

| TOWN                  | Age of Housing Stock |                   |                   |                            | Median Monthly Housing Costs |             | Owner Occupied Housing (%) | Median Sales Price (Banker & Tradesman) |         |          |
|-----------------------|----------------------|-------------------|-------------------|----------------------------|------------------------------|-------------|----------------------------|---|---------|----------|
|                       | % built before 1939  | % built 1940-1979 | % built 1980-1990 | # of homes built 1980-1990 | Mortgage Cost                | Renter Cost |                            | 1997                                    | 1998    | % change |
| Hull                  | 42                   | 31                | 17                | 876                        | 954                          | 797         | 67                         | 116,000                                 | 130,000 | 12       |
| Cohasset              | 43                   | 29                | 11                | 298                        | 1,430                        | 776         | 80                         | 265,000                                 | 308,500 | 16       |
| Hingham               | 33                   | 32                | 13                | 909                        | 1,217                        | 783         | 84                         | 228,000                                 | 270,500 | 19       |
| Scituate              | 30                   | 31                | 11                | 803                        | 1,142                        | 627         | 81                         | 211,600                                 | 224,000 | 6        |
| Marblehead            | 49                   | 36                | 6                 | 502                        | 1,385                        | 760         | 72                         | 244,000                                 | 267,000 | 9        |
| Nahant                | 53                   | 46                | 4                 | 71                         | 1,185                        | 784         | 65                         | 195,000                                 | 220,000 | 13       |
| Swampscott            | 52                   | 35                | 9                 | 514                        | 1,292                        | 831         | 74                         | 178,000                                 | 215,000 | 21       |
| Winthrop              | 54                   | 46                | 7                 | 580                        | 997                          | 681         | 51                         | 146,000                                 | 172,500 | 18       |
| South Shore Coalition | 27                   | 58                | 15                | 10,902                     | N/A                          | N/A         | 76                         | N/A                                     | N/A     | N/A      |
| MAPC Region           | 44                   | 46                | 10                | 122,039                    | N/A                          | N/A         | 55                         | N/A                                     | N/A     | N/A      |
| MA                    | 39                   | 44                | 14                | N/A                        | 985                          | 580         | 59                         | N/A                                     | N/A     | N/A      |
| US                    | 18                   | 26                | 21                | N/A                        | 737                          | 447         | 64                         | N/A                                     | N/A     | N/A      |

## Growth and Development Patterns

Historically, Hull has been a seaside resort community with many seasonal units. However, by 1990 less than 20% of the units were seasonal. Additionally, during the 1980's construction of several large condominium complexes contributed to the increase in year round residents. Today, Hull is a mature town with 97% of its land developed.

The Town is fully sewered which contributed to the condominium development during the 1980's. During the Spring of 2000, the Massachusetts Executive Office of Environmental Affairs along with the Metropolitan Area Planning Council completed a buildout analysis for the Town of Hull. Not surprisingly, given that the Town is nearly fully developed with infrastructure in place, the buildout analysis indicated little expected impact from future development. At full buildout under current zoning (see Zoning Map), the Town could expect 727 additional residents housed in approximately 203 additional units (see Table 4).

**Table 5**  
**Buildout Analysis Summary**

|                        | <u>1990</u> | <u>Current</u> | <u>Buildout</u> | <u>Impact</u> |
|------------------------|-------------|----------------|-----------------|---------------|
| Population             | 10,466      | 10,807         | 11,534          | 727           |
| Households             | 3,788       | 4,018          | 4,301           | 283           |
| Water use<br>(gal/day) |             | 972,140        | 1,069,265       | 97,125        |
| Students               | 1,507       | 1,646          | 1,751           | 105           |

Source: 2000 EOE & MAPC Buildout Analysis

## **Section 4**

# **Environmental Inventory and Analysis**

## Section 4 ENVIRONMENTAL INVENTORY AND ANALYSIS

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## ENVIRONMENTAL INVENTORY AND ANALYSIS

### Topography, Geology, Soils

#### Topography

Hull is located on a narrow, northwest-trending peninsula, which extends nearly five miles into Boston Harbor. Its shoreline, nearly straight in the north and intricately crenulated in the south, is nearly 27 miles long. Only a narrow sand spit at Black Rock Beach connects the 904-acre peninsula to the mainland. Four water bodies form Hull's boundaries: Straits Pond/Weir River in the south/southwest; Hull Bay in the west; Boston Harbor in the north; and, Massachusetts Bay in the east. Several offshore islands are within Hull's municipal boundaries, however only Spinnaker Island and the Black Rocks are controlled by the town. Peddocks and Bumpkin Islands are under Metropolitan District Commission jurisdiction, as are Calf Island, Little Calf Island, the Brewster Islands, and Green Island.

The peninsula is composed of several rounded, but steeply-sided hills, generally between 40 to 100 feet high, joined by nearly level land lying 10 to 20 feet above mean sea level (MSL). Telegraph Hill, Hull's highest point, reaches 121 feet (MSL). Nantasket Beach along Massachusetts Bay is wide, sandy and gently sloping, in contrast to the beaches south of Atlantic Hill and along the Boston Harbor shoreline which tend to be narrow, rocky or paved with cobbles. The protected Hull Bay and Weir River shorelines are characterized by tidal flats and salt marshes.

#### Geology

Hull's topography and its unique physical beauty are the result of a long and complex geological history which geologists have only recently begun to understand. Hull lies at the southern edge of the structural depression termed the Boston Basin (Rast and Skehan, 1990; Thompson and Skehan, 1992). Straits Pond and the upper Weir River east of George Washington Boulevard are the surface expressions of the deeply-buried Ponkapoag Fault which marks the edge of the basin. The southern part of Hull, Atlantic Hill, Rockaway and Rockaway Annex, contains a thin mantle of dense glacial till overlying bedrock composed largely of metamorphosed sedimentary and volcanic rocks which are more than 600 million years old (Hepburn, et.al., 1993; Cote and Katz, 1993). The metamorphosed sedimentary units, known to geologists as the Cambridge Argillite, underlie the Hull Peninsula as well as much of Boston Harbor. Calf Island, Little Calf Island, Shag Rocks and Black Rocks and the Brewster Islands, except for Great Brewster, also consist of this bedrock.

From Nantasket to Windmill Point, the surficial geology is product the last two glacial periods. The hills are drumlins, i.e. masses of glacial till oriented in the direction of the glacier's flow. Although debated for decades in the scientific literature, the origin of these structures still is not fully understood. Available evidence indicates that the Boston Harbor drumlins contain two layers. The lower, older "core" is composed of till material deposited during a glacial period about 100,000 years ago. During the last glacial period, beginning about 24,000 years ago and ending

about 14,000 years ago, the glacier streamlined the drumlins and deposited a layer of till on the older core.

The last glacier contained ice ranging from about 2,500 feet thick on the edges up to two and a half miles thick in central portions. So much of the ocean's water was stored in the ice that sea level was several hundred feet lower than it is today (Raymo and Raymo, 1989). When, as the ice retreated, sea level rose, Boston Harbor flooded, making the drumlins into islands, such as Great Brewster, Peddocks and Bumpkin Islands. As wind and waves attacked the drumlins, sand spits formed from the eroded debris (Johnson, 1925)( see Figure 1 - Evolution of Hull). These spits eventually bridged the gaps between neighboring drumlins creating structures called tombolos. What today is Nantasket Beach is a series of tombolos containing the sands of five completely eroded drumlins which were located east of Hull in Massachusetts Bay. Other tombolos connect Telegraph Hill to Allerton, Atlantic Hill to Green Hill and Green Hill to Cohasset.

The westward retreat of the Hull peninsula toward the future envisioned by Johnson has continued to the present time. Though the dynamics of the short-term changes in the Nantasket beach shoreline are not well understood despite numerous investigations (summarized by Peck, 1987), long term movements can be seen in the shoreline change maps developed by Massachusetts Coastal Zone Management which summarize 131 years of records. The maps indicate that between 1847 and 1978, Allerton Point retreated 145 feet, an average rate of 1.11 feet per year. During that period, Crescent Beach retreated 94 feet (0.71 feet per year). Interestingly, Nantasket Beach near Colburn Street did not erode; that area moved seaward 35 feet (0.26 feet per year) as did the shoreline north of the Jacobs School which gained 97 feet (0.71 feet per year). Further evolution, however, has been slowed by the seawalls at Point Allerton and at Nantasket Beach.

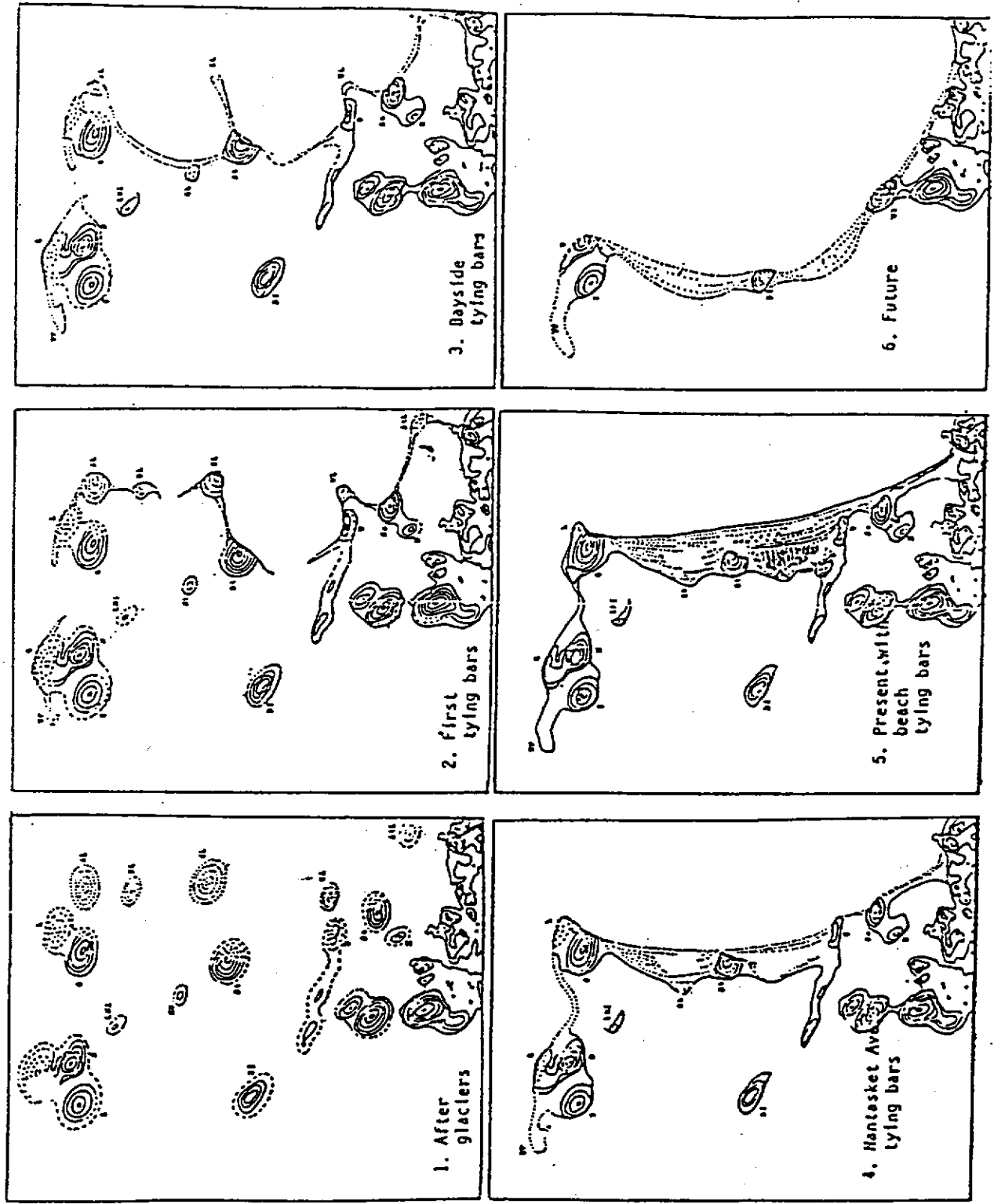
## Soils

The glacial deposits have weathered into four main types of soils in two major associations closely reflective of the underlying geology. Based on Soil Conservation Service mapping Upham, 1969), these are a Bernardston-Dune association which formed on the drumlins and sand spits between Nantasket and Pemberton and a Charlton-Hollis-Tidal Marsh association in bedrock areas between Nantasket and the Hingham/Cohasset town lines (see Figure 2 - Soils). Soils present in Hull are described below; their characteristics are summarized in Tables 1 and 2.

*Bernardston silt loam, (BbB: 3 to 8 percent slopes; BbC: 8 to 15 percent slopes)* - These soils are well drained, gently to moderately steeply sloping silt loam that formed in the glacial till of drumlins. The topsoil is a very friable, dark brown silt loam about 10 inches thick. The 14-inch thick subsoil is a very friable yellowish-brown to light olive brown silt loam. Unaltered, these soils are very stony; usually they have been cleared to allow tillage. Directly below the subsoil, at a depth of 24 to 30 inches, is a platy layer of dense, firm and brittle glacial till termed a fragipan. Because of its texture, drainage and moisture retention, Bernardston soils are considered among the better soils in Plymouth County for many crops. Limitations result from the slowly permeable fragipan which restricts the vertical movement of water, forcing downslope seepage. Consequently, the soil is unsuitable for septic systems.



Figure 1  
Evolution of Hull



|       |  |
|-------|--|
| Bb1   | Dennardston silt loam, 3 to 8 percent slopes                               |
| BbC   | Dennardston silt loam, 8 to 15 percent slopes                              |
| Du    | Dune land and coastal beach  |
| Hb1   | Hollis-Charlton fine sandy loam,<br>3 to 8 percent slopes                  |
| HpC   | Hollis-Charlton very rocky fine sandy loam,<br>3 to 15 percent slopes      |
| HrC   | Hollis-Charlton extremely rocky fine sandy loam,<br>3 to 15 percent slopes |
| Ma    | Made land  |
| Nb1   | Norwell sandy loam, 3 to 8 percent slopes                                  |
| PlA   | Pittsdown silt loam, 0 to 8 percent slopes                                 |
| Se1   | Schuette sandy loam, 3 to 8 percent slopes                                 |
| Td    | Tidal marsh  |
| Urban | Urban unclassified   |

**Table 1**  
**Physical Characteristics of Hull's Soils**

| Soil Type   | Drainage             | Depth to High Water Table (ft) | Depth to Bedrock (ft) | Erodability (K-factor)   | Depth (inches) | Substratum Character         | Clay (%)     | Rock Fragments (%) | Permeability (inches per hour) | Frost Action Potential | Shrink-Swell Potential |
|-------------|----------------------|--------------------------------|-----------------------|--------------------------|----------------|------------------------------|--------------|--------------------|--------------------------------|------------------------|------------------------|
| Bernardston | Well                 | 3-5                            | 3-30+                 | Moderate (0.28)          | 0-22           | Silt Loam                    | < 25         | 10-20              | 0.63 -2.0                      | Moderate               | Low                    |
|             |                      |                                |                       |                          | 22-36          | Silt loam (Fragipan)         | < 25         | 10-20              | < 0.63                         | Moderate               | Low                    |
| Charlton    | Well                 | > 5                            | 3-10+                 | Slight - Moderate (0.28) | 0-20           | Fine sandy loam              | < 20         | 5-15               | 2.0-0.63                       | Moderate               | Low                    |
|             |                      |                                |                       |                          | 20-25          | Sandy loam                   | < 20         | 10-20              | 0.63-2.0                       | Moderate               | Low                    |
|             |                      |                                |                       |                          | 25-36          | Gravelly sandy loam          | < 20         | 20-25              | 2.0-.63                        | Moderate               | Low                    |
| Dune        | Excessive            | 0-5+                           | 3-10+                 | Varies                   | 0-30           | Coarse Sand                  | < 10         | Variable           | > 6.3                          | N/A                    | Low                    |
| Hollis      | Somewhat excessively | 3-5+                           | 1-1.5                 | Moderate (0.20)          | 0-18           | Fine sandy loam              | < 20         | 15-20+             | 2.0-6.3+                       | Moderate               | Low                    |
|             |                      |                                |                       |                          | 18             | Bedrock                      |              |                    |                                | Moderate               |                        |
| Made land   | N/A                  | N/A                            | N/A                   | N/A                      |                | Fill                         | N/A          | N/A                | N/A                            | N/A                    | N/A                    |
| Norwell     | Poor                 | 0-1                            | 3-10+                 | Moderate                 | 0-8            | Sandy loam                   | < 20         | 0-20               | 2.0-6.3                        | High                   | Low                    |
|             |                      |                                |                       |                          | 8-20           | Loamy coarse sand            | < 15         | 5-20               | > 6.3                          | High                   | Low                    |
|             |                      |                                |                       |                          | 20-48          | Sandy loam or loamy sand     | < 20 or < 15 | 5-15               | < 0.2-0.63                     | High                   | Low                    |
| Pittstown   | Moderately well      | 1.5                            | 3-30+                 | Moderate (0.28)          | 0-22           | Silt loam                    | < 25         | 10-15              | 2.0-6.3                        | Moderate               | Low                    |
|             |                      |                                |                       |                          | 22-30          | Silt Loam                    | < 25         | 15-20              | < 0.2                          | Moderate               | Low                    |
| Scituate    | Moderately well      | 1.5-3                          | 5-30+                 | Moderate (0.24)          | 0-20           | Sandy loam                   | < 20         | 5-15+              | 2.0-6.3+                       | Moderate               | Low                    |
|             |                      |                                |                       |                          | 20-36          | Sandy loam                   | < 20         | 5-15+              | 2.0-6.3+                       | Moderate               | Low                    |
|             |                      |                                |                       |                          | 36-46          | Loamy coarse sand (fragipan) | < 15         | 5-15+              | < 0.2-0.63                     | Moderate               | Low                    |
| Tidal Marsh | Very poorly          | 0                              | Variable              | Variable                 | Variable       | Variable                     | Variable     | Variable           | Variable                       | Variable               | N/A                    |
| Urban       | N/A                  | N/A                            | N/A                   | N/A                      | N/A            | N/A                          | N/A          | N/A                | N/A                            | N/A                    | N/A                    |

**Table 2**  
**Limitations of Hull's Soils**

| Soil Type   | Development Limitations            |                                    |                                    | Source Suitability          |                 |          | Potential Lumber Yields |              |              | Wildlife Suitability |                   |                  |
|-------------|------------------------------------|------------------------------------|------------------------------------|-----------------------------|-----------------|----------|-------------------------|--------------|--------------|----------------------|-------------------|------------------|
|             | Septic Fields                      | Homesite (sewered)                 | Athletic Fields                    | Topsoil                     | Sand and Gravel | Fill     | Upland Oak              | White Pine   | Red Pine     | Open wildlife        | Woodland Wildlife | Wetland Wildlife |
| Bernardston | Severe (fragipan)                  | Moderate (fragipan, wetness)       | Moderate (wetness)                 | Good, poor for stony phases | Unsuited        | Fair     | Fair to good            | Fair         | Good         | Good                 | Good              | Unsuited         |
| Charlton    | (see Hollis)                       | (see Hollis)                       | (see Hollis)                       | Fair, poor for stony phases | Unsuited        | Good     | (see Hollis)            | (see Hollis) | (see Hollis) | (see Hollis)         | (see Hollis)      | (see Hollis)     |
| Dune        | Very Severe                        | Very Severe                        | Moderate                           | Unsuited                    | Unsuited        | Unsuited | N/A                     | N/A          | N/A          | Fair                 | Unsuited          | Fair             |
| Hollis      | Severe (shallow bedrock, outcrops) | Severe (shallow bedrock, outcrops) | Severe (shallow bedrock, outcrops) | Fair to unsuited            | Unsuited        | Unsuited | Poor to fair            | Fair         | Fair         | Fair                 | Fair              | Unsuited         |
| Made - Land | N/A                                | N/A                                | N/A                                | Unsuited                    | Unsuited        | Unsuited | N/A                     | N/A          | N/A          | Fair to unsuited     | Unsuited          | Unsuited         |
| Norwell     | Severe (wetness)                   | Severe (wetness)                   | Severe (wetness)                   | Poor                        | Unsuited        | Fair     | Fair to good            | Good         | Good         | Fair                 | Fair              | Unsuited         |
| Pittstown   | Severe (fragipan, wetness)         | Moderate (fragipan, wetness)       | Moderate (wetness)                 | Fair                        | Unsuited        | Fair     | Good                    | Good         | Good         | Good                 | Good              | Poor             |
| Scituate    | Severe (fragipan)                  | Moderate (fragipan, wetness)       | Moderate (wetness)                 | Good, poor on stony phases  | Unsuited        | Fair     | Fair to good            | Fair to good | Fair to good | Fair                 | Fair              | Poor             |
| Tidal Marsh | Very severe                        | Very severe                        | Very severe                        | Unsuited                    | Unsuited        | Unsuited | Unsuited                | Unsuited     | Unsuited     | Unsuited             | Unsuited          | Good             |
| Urban       | N/A                                | None                               | N/A                                | Unsuited                    | Unsuited        | Unsuited | N/A                     | N/A          | N/A          | N/A                  | N/A               | N/A              |

*Dune Land and Coastal Beach (Du)* - Dune lands consist primarily of quartz sand deposited by wind and waves. Areas of uniform gravel may be included. Throughout most of Hull, these areas are stabilized by buildings, roads, and landscaping protected by shoreline engineering structures. Otherwise, they would be easily eroded. The excessive permeability of these soils may preclude adequate filtration of the septic effluent resulting in pollution of ground and surface waters.

*Hollis-Charlton fine sandy loams, 3 to 8 percent slopes (HoB); Hollis-Charlton very rocky fine sandy loams, 3 to 15 percent slopes (HpC); Hollis-Charlton extremely rocky fine sandy loams, 3 to 15 percent slopes (HrC)* - These mapping units are complexes of small individual areas of two soils, Hollis and Charlton, which are closely intermingled and are managed together. Both soils formed from glacial till in areas of shallow bedrock. Charlton soils are deep, well drained, gently to moderately sloping soils that contain about 5 inches of topsoil composed of very friable black to dark brown fine sandy loam. The 24-inch thick subsoil is composed of yellowish brown fine sandy loam and overlies olive-grey gravelly sandy loam. Hollis soils are shallow, gently sloping to moderately steep, somewhat excessively drained soils occupying areas where bedrock frequently outcrops. It consists of friable dark yellowish-brown to yellowish-brown fine sandy loam which contains 10 to 30 percent rock fragments. Bedrock typically is encountered at depths of about 18 inches, making these soils unsuitable for septic disposal.

*Made Land (Ma)* - This mapping unit consists of filled areas. The composition, is highly variable and on-site investigation is required to determine the capabilities and limitations of individual areas.

*Norwell sandy loam, 3 to 8 percent slopes (NoB)* - Occupying a small low portion of the Hall Estate, this soil is a poorly drained, stony, sandy loam which formed from glacial till. A fragipan occurs at a depth of about two feet. Norwell soils typically are wet seven to nine months a year. Wetness and the fragipan limit this soil to wildlife habitat and other wetland uses.

*Pittstown silt loam, 0 to 8 percent slopes (PtA)* - This moderately well drained soil formed from glacial till and occurs in the vicinity of Ft. Revere. It has a profile similar to Bernardston soils, except that the subsoil shows mottling (i.e. evidence of a seasonally high water table). It is generally wet until late in the spring because of an underlying fragipan and because it occupies the lower part of the drumlin slope. The fragipan limits the soil for on-site septic disposal.

*Scituate sandy loam, 3 to 8 percent slopes (SeB)* - A small area of this gently sloping, moderately well drained soil occupies a portion of the Rockaway Annex area. Formed from glacial till, Scituate soils are very stony, unless cleared for tilling, and overlie a fragipan at 18 to 30 inches below the surface. The topsoil and subsoil consist of sandy loam which is mottled in the subsoil. Because the fragipan restricts drainage, the soil remains saturated until late in the spring. Consequently, uses such as septic disposal are limited. Unstabilized exposures may be highly erodible.

*Tidal Marsh (Td)* - Tidal marsh is composed of very poorly drained mixed organic and mineral material, predominantly salt marsh vegetation (*Spartina spp.*) and silt. It occurs in protected, tidally flooded areas. Tidal marsh is unsuitable for uses other than salt hay and wildlife habitat.

*Urban Unclassified* - These areas were not mapped because of they are paved, highly disturbed, or otherwise severely urbanized. On-site investigation is required to determine the capabilities and limitations of individual areas.

## **Landscape Character**

### **Land Form**

To begin, Hull is a very distinctive land form. As a L-shaped peninsula defining Boston Harbor to its west and north, Hull's geology is unique for Massachusetts. This readily visible geology of drumlins (or hills) connected by tombolos (or sand spits) began its formation over 100,000 years ago during the first of two glacial periods as diagrammed in the geology discussion above. The resultant topographic variation provides dramatic views from the hills to the rest of Hull as well as to nearby islands, the land forms along Boston Harbor, and the ocean. There are also distant views across the harbor of the downtown Boston skyline. See Figure 3, Land Form and Views.

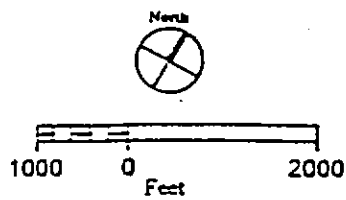
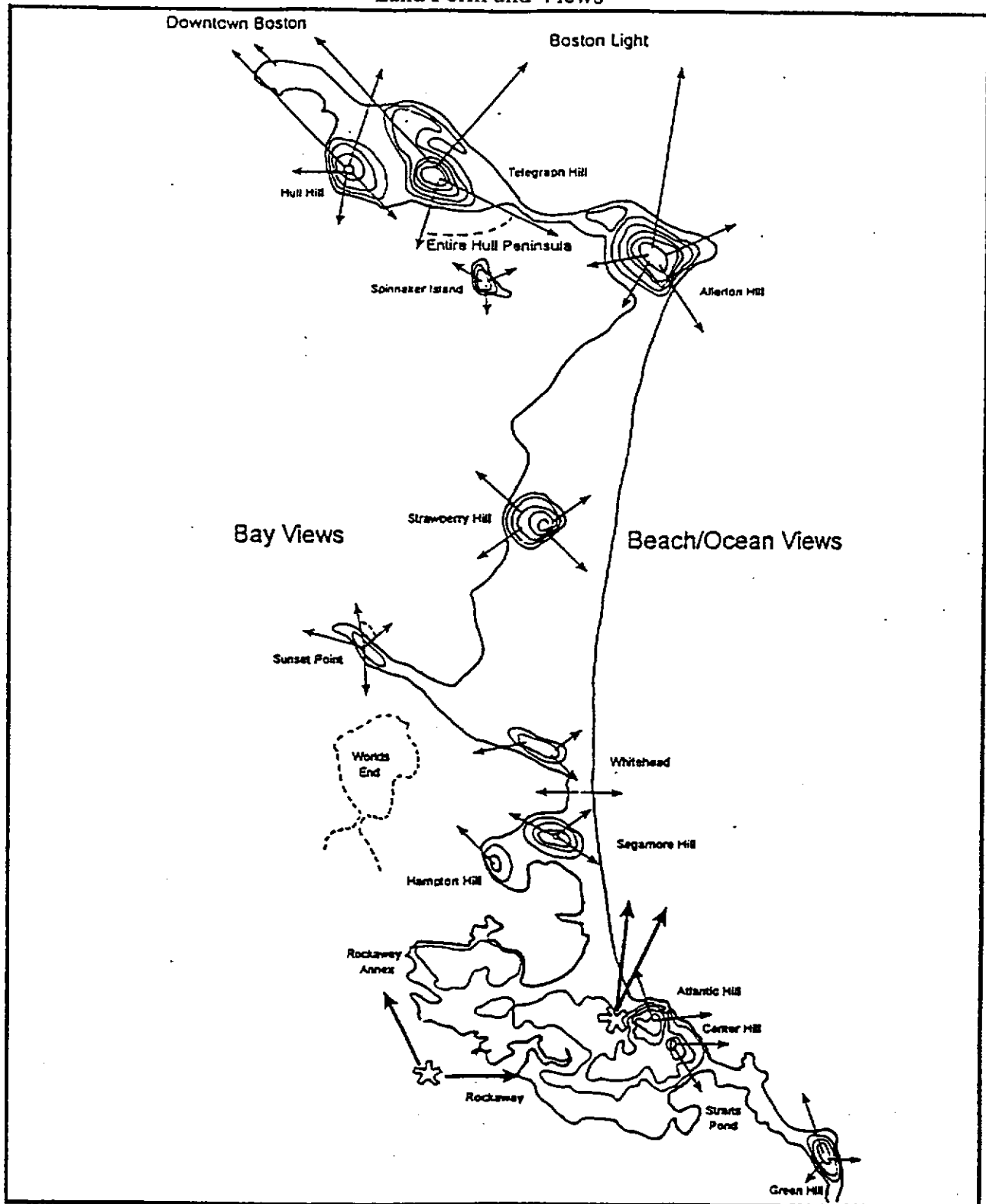
The sandy hills or drumlins deposited by glaciers which are approximately 10,000 years old include Hull Hill, Telegraph Hill, Allerton Hill, Spinnaker Island, Strawberry Hill, Sunset Point, Whitehead, Sagamore Hill, Hampton Hill and Green Hill. With the exception of Spinnaker Island, all of these hills are connected by tombolos (sand bars) formed only recently in terms of geological time. The southern shore portion of Hull known as Rockaway, Rockaway Annex, and including Atlantic Hill and Center Hill is part of a rock formation approximately 600 million years old, and therefore different from the drumlins. This topographic variation provides a wide diversity of dramatic views and different vegetative cover.

### **Vegetative Cover**

Generally the hills are covered with trees and the intervening sand spits are naturally devoid of vegetative cover. The planting of trees and other decorative landscape materials occurs in many residential areas, but constant care is required by homeowners in the sand spit areas. One measure of quality residential areas by most New Englanders is that of substantial vegetative cover. Most areas of Hull require extra effort and maintenance procedures to establish and maintain this expectation. Also, housing is more dense in Hull than most other suburban locations and therefore the lack of average vegetative cover occurring in the region results in the density being perceived as even greater than it is. Efforts should be made to promote plant materials that are more vigorous in the sand and ocean environment of Hull.

There are a few internal marsh areas such as in the Hull village area. A more significant marsh area exists north of Sunset Point, including the Westinghouse property. However, the most significant marsh lands occur along the Weir River corridor at the southern boundary of Hull. The Weir River corridor is such a special marsh community. It deserves the special preservation attention that it has been given in recent years, and truly has a potential to be both an environmental and recreational resource to the town and region. It can become one of the major natural resources of the town and part of the positive new identity for which Hull is searching.

Figure 3  
Land Form and Views



## Water Resources

### Surface Water

Water is the asset that defines Hull. Water attracted the first settlers and draws today's visitors. Although abundant, Hull's waters require careful consideration of their unique characteristics in order for the recreational potential to be fully developed. Careful management is necessary to ensure that the full benefits of this resource can be passed to the future.

### *Physical Characteristics*

Hull is bounded by four water bodies which are subject to semi-diurnal tides: Weir River in the south/southwest; Hull Bay in the west; Boston Harbor in the north; and, Massachusetts Bay in the east (see Figure 4 - Water Resources). The tidal range on both sides of the peninsula is about 9.5 feet. Hull Bay and the Weir River estuary form the eastern side of Hingham Bay, which in turn is the southeastern part of the Boston Harbor embayment. Hingham Bay is landlocked except for the openings at the east and west ends of Peddocks Island: Hull Gut and East Gut, respectively. Because all tidal exchange occurs through these openings, peak currents through Hull Gut are spectacular as they reach 2.1 knots during the flood tide and 2.6 knots during ebb tide.

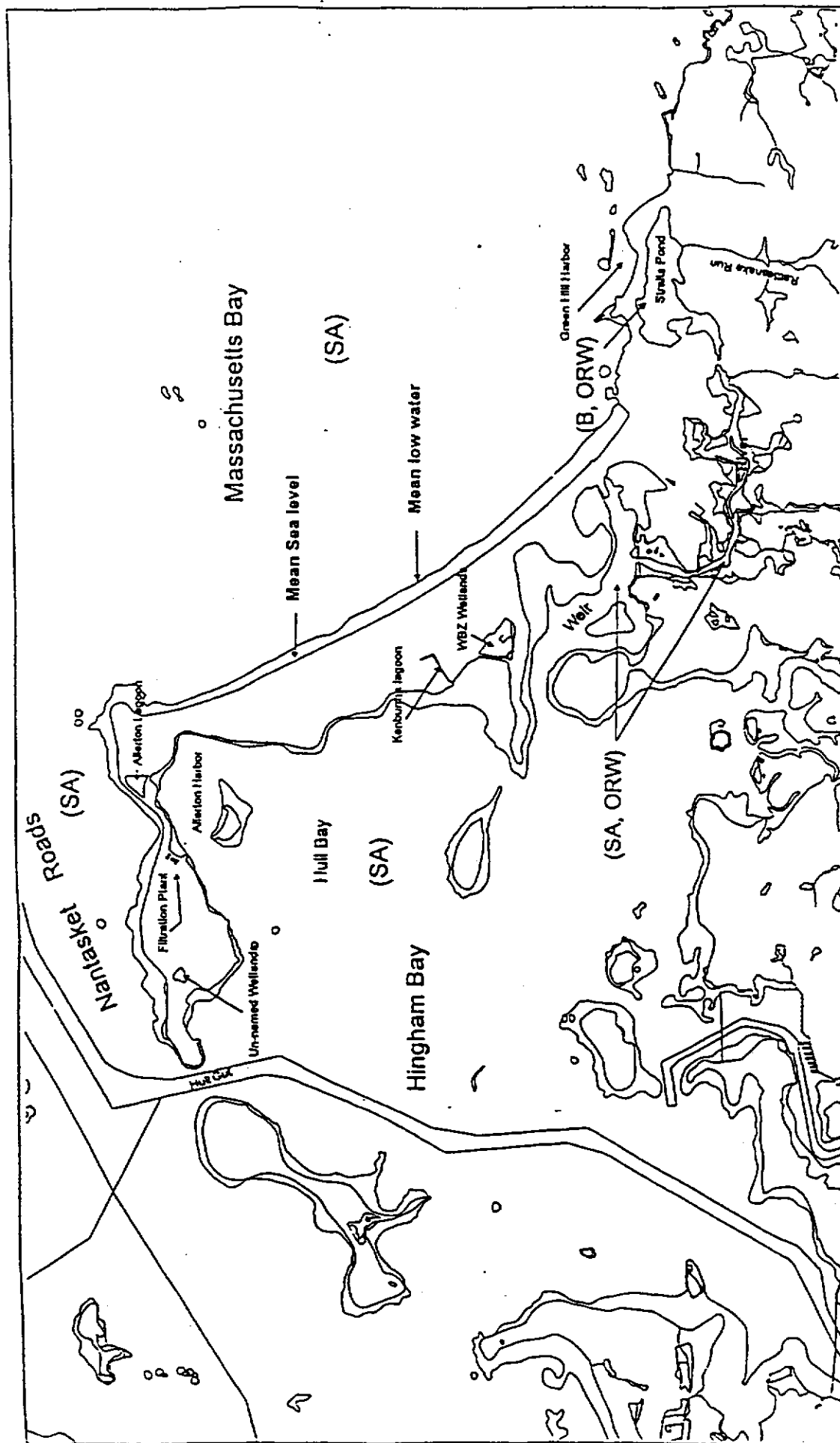
The bottom of Hull Bay is shallow and nearly flat. Its bottom sediments typically are sandy silt rich in organics ranging from a thin mantle to over 50 feet thick. This layer overlies post-glacial marine clay, glacial till, and/or bedrock. Depths at mean low water range between 6 and 9 feet. In the main channel which lies west of Bumpkin Island to Pemberton, the bottom drops to depths ranging between 20 and 62 feet (MLW). Hull Gut contains a 500-foot wide channel dredged to 35 feet (MLW). Except for the central channel, the lower Weir River is dominated by intertidal mud flats. There is a dredged channel (9 ft (MLW)) serving Nantasket Pier.

Hull Bay is the center of recreational boating in Hull. It contains three federally designated Special Anchorage Areas, administered by the Hull Harbor Master, that have a combined mooring capacity of several hundred boats. It also is the site of Hull's marinas and yacht clubs. Though protected from the open ocean, Hull Bay is subject to the waves and weather from the southerly winds which prevail during the summer boating season. The fetch across Hingham Bay is sufficient that marinas outside of Allerton harbor, which is in the lee of Spinnaker Island, require breakwaters.

Straits Pond is about 100 acres in size and has a mean depth of 3.3 feet (IEP, 1980). Rattlesnake Run, the only tributary, drains a portion of North Cohasset containing the town sanitary landfill, the Cohasset Golf Club and a wooded swamp. Storm drains from North Cohasset residential areas and from Hull also are tributary to the pond. Tidal flows into the pond normally are restricted by a tidal gate. During the winter months, the pond is drained. Most of the bottom sediments consist of organic silt, although much of the eastern portion of pond contains sand deposited from the overwash of Blacks Beach by storm waves.



Figure 4  
Water Resources



## ***Water Quality***

Water quality is of considerable importance to recreational opportunities in Hull. Under federal and state regulations, many water-based recreational activities may be restricted to protect against the potential health threats of contaminated waters. Shellfishing is most susceptible, but swimming, boating, nature watching and the general aesthetics of the shoreline can be affected. To protect and enhance water quality, Massachusetts Division of Water Pollution Control Regulations require that discharges to Massachusetts Bay, Hull Bay, and the Weir River must meet the criteria for "SA" waters, waters suitable for bathing, water contact sports and shellfishing without depuration. Straits Pond waters currently are of lesser quality and are rated "B", suitable for recreation and fish and wildlife habitat. In addition, the Weir River and Straits Pond are classified "Outstanding Resource Waters" for their outstanding recreational, ecological, economic, or aesthetic values. New or increased discharges to these waters are prohibited, and their watersheds are considered priority areas for the elimination of existing discharges.

Overall, Hull has the best water quality within Boston Harbor, and as the Boston Harbor clean-up progresses, water quality will continue to improve. The quality of ocean and bayside waters exceeds the state standards for swimming and boating. However, fecal coliform standards for shellfishing are not met in any part of Hull. Because of local domestic and industrial sources of pollution in Hingham Bay, this condition is expected to be improved, but not eliminated by the Boston Harbor clean-up.

## **Flood Hazard Areas**

About 50 percent of Hull is located within the 100-year floodplain. The Boston Harbor and Massachusetts Bay shorelines are open to the ocean and are subject to storm waves. Accordingly, these areas are classified as "velocity zones" with base flood elevations ranging between 14 and 23 feet (NGVD). Calculated storm wave heights are included in these base flood elevations. Current recreational facilities within the velocity zone are limited to Massachusetts Bay beaches and Stony Beach.

Flood zones on the protected Hull Bay and Weir River shorelines are mapped as "A-zones" with base flood elevations range between 10 and 14 feet (NGVD) and as AO or AH zones where inundations of 1 to 3 feet are anticipated. Except for Hull High School, Jacob Elementary School, Hull Village Playground, Point Allerton Park and Fort Revere which are located above the floodplain, all other recreational facilities are located within this zone.

## **Wetlands**

Hull's wetlands primarily consist of the coastal wetlands which ring the peninsula. These areas are of critical importance to the town. The beaches, marshes and water are an important part of the quality of life for Hull's residents and the foundation of Hull's economy. Additionally, these areas are of vital ecological importance as spawning, nursery, and feeding areas for fish and as feeding, resting, and wintering areas for birds. As described throughout this report, the protection and enhancement of these resources is a major focus of Hull's recreational planning.

Wetlands identified on the USGS quadrangle map for Hull are mapped in Figure 4. None of Hull's wetlands, either coastal or inland, have been mapped by the Department of Environmental Protection Wetlands Conservancy Program (formerly the Wetlands Restriction Program).

### *Coastal Wetlands*

Hull coastal wetland resources include the ocean, Hull Bay and the Weir River/Straits Pond, as well as the extensive intertidal flats, beaches, dunes, rocky intertidal shores, and salt marshes. Though geologically a tombolo, the Hull peninsula is classified as a barrier beach by the state wetlands regulations.

These coastal wetlands are Hull's greatest recreational assets, providing a variety of recreational activities to both local and regional residents such as sunbathing, strolling/jogging, fishing, fowling, boating, bird watching, and special events. Nantasket Beach receives the heaviest use; the Metropolitan District Commission (MDC) beach/bathhouse and related facilities alone draw more than one million visitors annually. Other beaches such as Hull Village, Gunrock, Green Hill, Stony and the bayside beaches as well as the northern part of Nantasket Beach, have extremely limited parking, effectively reserving them for resident use only. Recreational use of beaches on the Hull Bay and Weir River shoreline is restricted by excessively stony or muddy sediments, seawalls or extensive salt marshes. Around Sunset Point, Hampton Hill, and Rockaway, extensive shorefront residential development limits beach access to the undeveloped "stub-ends" of streets. However, activities such as fishing, birding or viewing are readily available from several bayside piers and wharves. Most of these contain public parking.

Boat mooring/docking is provided in Hull Bay by three yacht clubs, several private firms offering marina and related services, and through the Harbormaster. Currently there are 485 moorings in Hull Bay with a waiting list. There is capacity for another 100 or more boats. Public boat ramps are located at Windmill Point, "A" Street Pier and at Nantasket Pier. Dredging to create a mooring basin at the Hull Yacht and Salt Water Clubs in Allerton Harbor and to improve boat access to the anchorage area is scheduled to begin in 1995.

The recreational potential and access to the upper Weir River will be enhanced by the 62-acre Weir River Estuary Park currently being developed. The park will provide hiking trails, a site for canoe launching and educational areas. Interpretive signs along the trails will help the visitors to understand and appreciate the natural assets of the estuary.

Straits Pond currently is unused for recreation. There is no public access to Straits Pond because its entire shoreline is privately owned, except for along a portion of Atlantic Avenue which consists of a steep revetment with a guardrail.

### *Inland Wetlands*

Hull is unusual among eastern Massachusetts' towns in that it generally lacks freshwater wetlands. Freshwater streams and permanent ponds are absent due in large part to the highly pervious soils and the town's geography. Where present, freshwater wetlands typically form where groundwater seepage occurs at the base of slopes. Such areas have limited extent and may not be contiguous

with surface water bodies. Fresh/brackish water wetlands also fringe salt marsh and Straits Pond. Hull's freshwater wetlands have very little recreational value. Except for those along the Weir River, most are dominated by *Phragmites*, a tall reed which tends to crowd out native species. Very few vegetative communities have lower value to wildlife than *Phragmites*.

### **Aquifer Recharge Areas**

Drinking water is supplied to the entire town by the Massachusetts American Water Company from wells and a reservoir located in Hingham. No portion of Hull is within the recharge areas or zones of contribution to Hingham supply wells.

## **Vegetation**

### **Generalized Cover Types**

Hull contains a wide variety of vegetative communities, ranging from coastal dune and marsh communities to upland forests and urban landscaping. Whether as urban plantings creating an aesthetically pleasing atmosphere or as beach grass that helps preserve the beach by trapping sand, each community performs functions critical to the health, value and preservation of Hull's open spaces and recreational potential.

### ***Developed Areas***

With most of Hull developed, the most prevalent habitat is a densely developed urban one consisting of residences and other structures surrounded by lawns and landscaping including various ornamental flowers, shrubs and trees. Such plantings obviously have little recreational potential but they can benefit some wildlife by providing cover, nesting/breeding habitat and food sources which often are more diverse than in many natural settings. Since shrub and thicket habitat is almost lacking in Hull, unmanaged growth in vacant lots are important, especially as resting and feeding areas to migratory birds. The areas of this habitat most useful to wildlife are the Village, Point Allerton, Strawberry Hill, Rockaway and Rockaway Annex where development is less dense than areas such as Sunset Point or the Alphabet section.

### ***Salt Marsh***

Salt marshes principally are comprised of Salt Marsh Cordgrass (*Spartina alterniflora*) and Salt Meadow Cordgrass (*Spartina patens*). The uppermost portions, which are flooded only during spring tides, contain species such 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*).

Although visually pleasing and habitat for numerous species of wildlife, the recreational value of salt marsh is indirect. Salt marshes are extremely productive systems; in fact, the net production

may be about three times higher than the net production of a Missouri tallgrass prairie (MCZM, 1978). By producing and exporting large volumes of detritus (organic material), salt marshes provide food and nutrients needed by phytoplankton. The phytoplankton are a primary food source of the large populations of fish and shellfish in Hull Bay. In addition, salt marsh grasses help renovate water quality by trapping and removing sediment, heavy metals, and excess nutrients. Salt marshes also provide shelter to juvenile fish.

### ***Beaches and Dunes***

Although considered in this report as a single generalized cover type, "beaches and dunes" consists of four very different environments: intertidal flats, upper beaches, dunes, and rocky shores. The intertidal flats are unvegetated, though algae such as Sea Lettuce (*Ulva sp.*) may occur. Vegetation of the upper beach and dunes often is dominated by American Beach Grass (*Ammophila sp.*). Other common species include Rugosa Rose (*Rosa rugosa*), Bayberry (*Myrica pensylvanica*), and Poison Ivy (*Toxicodendron radicans*). Rocky shoreline usually contain brown and green macroalgae. Rockweed such as *Fucus spp.* are the most common forms. The recreational value of beach and dune areas are high. Consequently, the upper beach and dune communities are under heavy pressure from foot traffic. Recognizing the importance of these communities in protecting residences against storm damage by storing and stabilizing the beach sands, the Hull Beach Management Committee has developed a management plan which includes a dune restoration project and measures to permit beach access without damaging the dune vegetation..

### ***Upland Forest***

Hull's forests are composed of successional oak-pine-mixed hardwoods, and are primarily located in the Rockaway/Rockaway Annex area along the Weir River. The six-acre Weir River Woods is the largest parcel of town-owned woodland. Under the control of the Conservation Commission, these woods are dedicated wildlife habitat areas and are not open for public recreation. The remaining undeveloped portions of the Hall estate and the Worrick mansion area contain approximately 15 and 10 contiguous wooded acres, respectively. Other woodlands include portions of Strawberry Hill and the Fort Revere area, where they occupy undevelopable slopes of drumlin. Such areas have little recreational potential except as wildlife habitat.

### **Rare, Threatened and Endangered Species**

According to the Massachusetts Natural Heritage Program, the agency which oversees the protection of rare species, peninsular Hull contains no rare species habitat. However, Peddocks Island and Bumpkin Island may support two state-listed species of plants. Seabeach Dock (*Rumex pallidus*), was identified in 1912. Its occurrence at the original location has not been verified recently, but was identified at a second location in 1981. Primarily because it is at the southern edge of its normal range, Seabeach Dock is classified as "threatened" - a species likely to become "endangered" (in danger of extinction or extirpation) in the foreseeable future. Heavy pedestrian use of beaches are its greatest threat. The second plant, Broad Tinker's Weed

(*Triostuem perfoliatum*), was found in Hull in 1890, but has not been identified in Hull since. It is listed in Massachusetts as endangered.

## Fisheries and Wildlife

### Fisheries

Though commercial takes have declined over the past decades, Hull's fisheries remain highly productive and of statewide importance. Although closed for recreational use, tidal flats in Hull are a major commercial shellfish area. Hull's sport fishery has attracted tourists for over 120 years. Commercial landings of lobsters at Hull rank 18th in the state.

### Shellfish

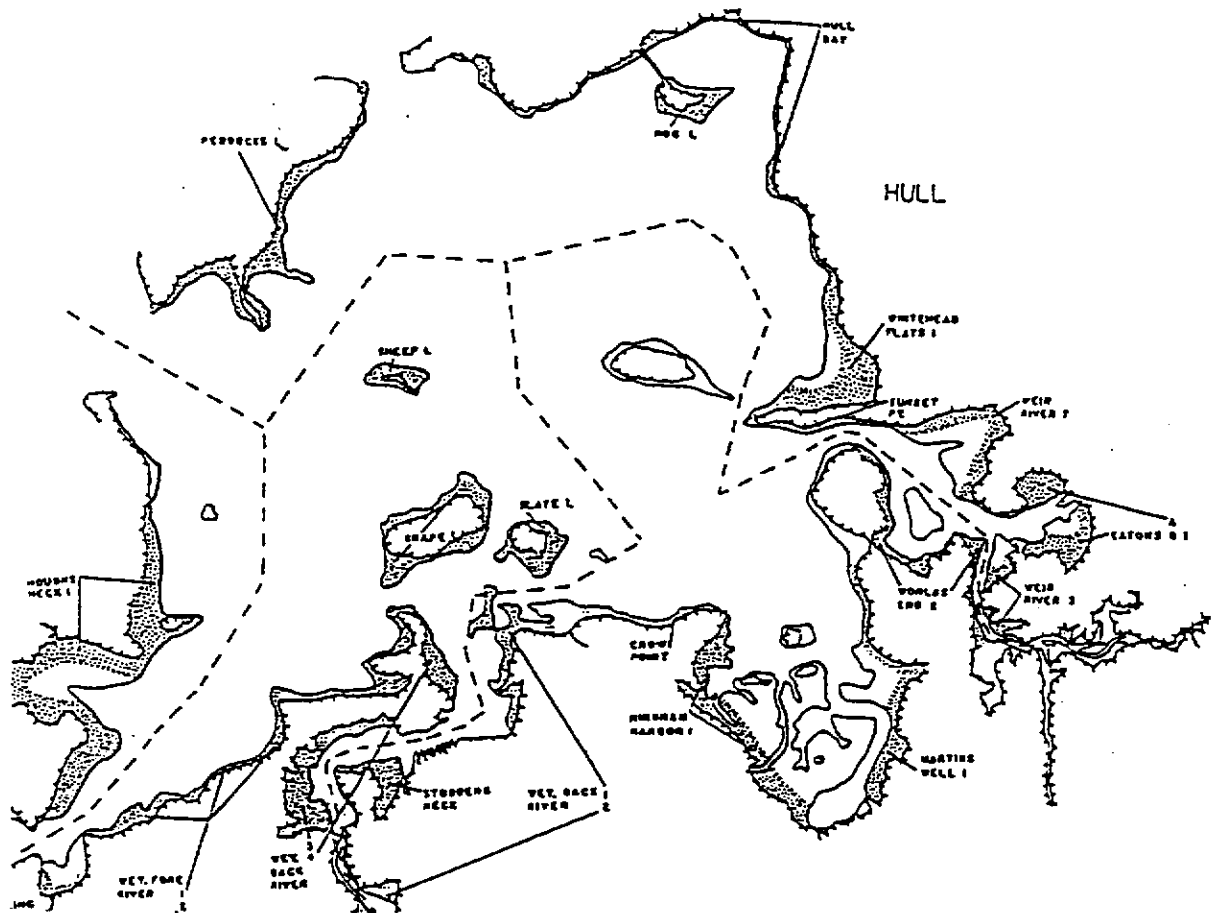
Hull has extensive shellfish resources as shown in Figure 5 - Soft-Shell Clam Flats. Hull Bay and the Weir River combined contain approximately 356 acres of soft-shell clam beds. Blue Mussels also are found in the Weir River. On the other side of the peninsula, Nantasket Beach contains surf clams. The acreage of soft-shell clam beds, together with shellfish densities determined by the Department of Marine Fisheries are presented below (see Table 3; source: Iwanowicz, 1984). Hull's shoreline also contains numerous non-commercial shellfish such as ribbed mussels, periwinkle, little macoma, whelks, razor clams, and marsh snails.

**Table 3**  
**Soft-Shell Clam Resources**

| Bed                       | Acreage      | Bushels per acre<br>Intermediates | Legals        |
|---------------------------|--------------|-----------------------------------|---------------|
| Weir River (3)            | 21.0         | 1,321                             | 2,744         |
| Eatons B                  | 35.8         | 3,072                             | 3,074         |
| Eatons A                  | 24.6         | 8,794                             | 10,917        |
| Weir River (7)            | 42.0         | 2,102                             | 4,802         |
| Sunset Point              | 19.4         | 0                                 | 264           |
| White Head Flats          | 72.0         | 3,398                             | 4,704         |
| Hull Bay                  | 50.2         | 1,508                             | 3,007         |
| Spinnaker Island          | 22.1         | 1,201                             | 4,813         |
| Peddocks Island (MDC)     | 68.9         | 3,547                             | 3,939         |
| <b>Total</b>              | <b>356.0</b> | <b>24,943</b>                     | <b>38,264</b> |
| <br>Total for Hingham Bay | <br>1,457.9  | <br>101,055                       | <br>146,250   |
| % in Hull                 | 24.4         | 24.7                              | 26.2          |

Water quality, due in large part to Hull's highly urban setting, remains the major obstacle to the utilization of shellfish resources. Because of poor water quality, the Department of Marine

Figure 5  
Soft Shell Clam Flats



Fisheries has closed all beds to recreational shellfishing. Shellfishing for bait also is prohibited. Commercial fishing for soft-shelled clams is allowed in certain areas provided that the clams are treated at the Newburyport depuration facility prior to sale. Commercial soft-shelled clam harvests for recent years are listed in Table 4, below.

**Table 4**  
**Soft-shelled Clam Harvest**

| Year | Harvest (lbs) |
|------|---------------|
| 1989 | 9,191         |
| 1990 | 5,563         |
| 1991 | 2,951         |

Due to improvements in local water quality, it is anticipated that the Nantasket Beach surf clam fishery will reopen in the near future.

### ***Lobster Fishery***

Hull's commercial lobster industry is of statewide importance. The 299,253 lbs. of lobster landed by Hull lobstermen in 1992 rank 18th among the state's 48 coastal communities. At an average price of \$2.98 per pound, the value of this catch was nearly \$892,000. However, a comparison of Department of Marine Fishery data from 1987 shows that the numbers of fishermen from Hull and has declined more than five times the statewide decline (Table 5, below).

**Table 5**  
**Hull Lobster Fishery Statistics**

(Source: Massachusetts Division of Marine Fisheries)

|  | 1987       | 1992       | 1997       | Change (%)<br>1992-1997 | Change (%)<br>1987-1997 |
|--|------------|------------|------------|-------------------------|-------------------------|
| Number of Fishermen                    | 43         | 28         | 23         | -17.86                  | -46.51                  |
| Rank (Fishermen)                       | 12         | 18         | 16         |                         |                         |
| Percent Statewide Total<br>(Fisherman) | 2.51       | 1.74       | 1.54       | -11.49                  | -38.64                  |
| Fishermen Statewide                    | 1,713      | 1,606      | 1,498      | -6.72                   | -12.55                  |
| Total Landings (lbs)                   | 339,587    | 299,253    | 264,491    | -11.62                  | -22.11                  |
| Rank (Catch)                           | 17         | 18         | 17         |                         |                         |
| Percent Statewide Total<br>(Catch)     | 2.54       | 2.01       | 1.76       | -12.44                  | -30.71                  |
| Statewide Catch (lbs)                  | 13,369,285 | 14,897,161 | 14,990,805 | +0.006                  | +12.13                  |

### ***Finfish***

Protected estuaries such as Hingham Bay are well known to be highly productive areas of vital importance to the marine environment. Many species of fish use such areas for breeding and as nurseries. Moreover, these resources support a substantial recreational fishery. Common fish in the waters of Hingham Bay include sport fish such as: winter flounder, summer flounder, cusk,



cunner, striped bass, bluefish, Atlantic mackerel, Atlantic tomcod, Atlantic cod, pollock, red hake, skates, and numerous smaller fish such as anchovies, ninespine stickleback, northern pipefish (see Appendix 1).

The Weir River is significant as a anadramous/catadramous fish run. Anadramous fish (who mature in the ocean and return to freshwater to spawn) that use the Weir River include alewife, rainbow smelt, white perch, and blue-back herring. Only one catadramous fish (fish that spawn in the ocean but mature in freshwater) occurs in Massachusetts: the American eel. All of these have been found in Straits Pond by a 1978 Department of Marine Fisheries survey. The survey also found that Straits Pond contains Atlantic silverside, mummichog, striped killifish, threespine stickleback, and fourspine stickleback.

## Wildlife

Much of Hull's habitats can be characterized as those typical of urban/suburban areas: man-made structures surrounded by lawns and landscaped areas composed of a wide variety of shade and ornamental trees, shrubs, gardens and various other plantings. Still, for its small area and high degree of urbanization, Hull contains an unusually diverse assemblage of habitat types. Most of the diversity occurs along the town edges where the peninsula is surrounded by three very different types of water bodies ranging from brackish pond to open ocean. Moreover, the shorelines vary from offshore islands of till or bare rock to rocky headlands, gravelly beaches, sandy beaches, tidal flats, salt marshes and brackish marshes. Two recent open space acquisitions, the upland oak forest of the Weir River Woods and the recently-capped landfill which contains several acres of gently sloping grassland, add to this diversity.

Though some of these habitats are limited in areal extent, they still are important because of their scarcity in Boston Harbor and because of Hull's location along major migratory routes. Migratory birds, particularly in the spring, may utilize areas for food and rest that would be too small for extended stays or nesting. In addition, the value of Hull's shoreline habitats, particularly the Weir River tidal flats and marshes, is enhanced because they are form large, contiguous stretches largely unbroken by development.

An inventory of vertebrate wildlife species which potentially may use these habitats is contained in Appendix 1. As many as about 200 species of birds, including transients, potentially use habitat in Hull; at least 60 of these are known to breed in Hull. Boston Harbor, Hull Bay and the Weir River are important wintering areas for scaups, eiders, brant and other ducks. Calf Island, Middle Brewster Island and Shag Rocks contain major rookeries for Double-crested Comorants, Black-crowned Night Herons, Glossy Ibis, Snowy Egrets, and Herring and Greater Black-backed Gulls, while Peddocks Island contains an historical coastal heron rookery that potentially may be re-colonized. The list of potential indigenous mammals contains over 25 species including harbor seals, common urban species and several that use marsh and riparian habitats. About 15 species of reptiles and amphibians may occur. These primarily are snakes because the occurrence of amphibians is limited by Hull's general lack of permanent bodies of freshwater and freshwater streams.

Hunting of waterfowl and shorebirds are allowed under federal, state and local regulations from Pemberton Point.

### **Rare, Threatened and Endangered Species**

Two rare birds are known to occur in Hull: the Common Tern and the Common Barn Owl. Occurrences of Common Terns were first recorded in 1977. Spinnaker Island is known to be continuously used as a nesting site, though dogs and human traffic represent a significant threat to terns. The only recorded observation of the owl was in 1971. However, since several sightings have been made in Hingham and on the harbor islands and since they utilize abandoned buildings, steeples, and similar structures for nesting, they may still occur in Hull. Both species are listed as "special concern" - species that have suffered declines which, if unchecked, could threaten the existence of the species in Massachusetts.

## **Scenic Resources and Unique Environments**

### **Scenic Resources**

What is the most important component of a view in Hull? It includes water! The ocean, the bay, a river, an estuary, and a pond are all part of Hull. Water surrounds Hull and is a short distance from everyone. Even so, there are a large number of people who live in interior blocks so it is important to protect and enhance views of the water from the roadway and to maintain and increase where possible public access to the waters edge.

Two important views occur at or near the entry to Hull. One is when traveling north on George Washington Boulevard at the Weir River when entering Hull. Additional protection in perpetuity of this view is necessary and it is important to enhance the view along the roadway to Nantasket Pier and through the central area of town. The other view, probably more dramatic to most people occurs shortly after entering Hull on Nantasket Avenue upon descending the western flank of Atlantic Hill when a seemingly aerial view of Nantasket Beach and the ocean suddenly appears. The views today along Nantasket Avenue do not measure up to that expectation.

Hull abounds with great views from its hills beginning with sweeping views of the ocean from Atlantic, Center and Green Hills. From Atlantic Hill there is a dramatic view of the entire Nantasket Beach all the way to Point Allerton. Some sections of Center and Green Hills have good views overlooking Straits Pond. Hampton Hill, Sagamore Hill, Whitehead and Sunset Point all have special views of World's End and that portion of the Weir River Estuary. Though there are numerous vantage points to view a sunset, none is more talked about than those from Sunset Point. Depending on your location views of both the beach side and the bay side exist on Strawberry Hill, Allerton Hill, Telegraph Hill and Hull Hill. Boston Light is prominent to the north from Allerton and Telegraph Hills while Downtown Boston is particularly visible from Telegraph and Hull Hills. The views of Allerton Harbor and much of the bay side of Hull are noteworthy from virtually anywhere on Spinnaker Island.

There is one unsurpassed location for panoramic views of Hull and the entire Boston Harbor-Massachusetts Bay. That spot is Telegraph Hill. Views from the historic watertower on a clear day seem endless. Views from the top of the bunkers at Fort Revere above the cemetery are spell binding. It is fortunate that Hull and the MDC are working together to preserve this spot for the public. The location and its history are seen as an opportunity to both enhance the quality of life for residents as well as a supporting keystone for the economic revitalization of Hull.

### **Area of Critical Environmental Concern**

The entire Weir River from Straits Pond to a line connecting Worlds End, Hingham to the tip of Sunset Point was designated an Area of Critical Environmental Concern (ACEC) by the Secretary of Environmental Affairs in 1986.

In making the designation, the Secretary found the estuary to be significant for its uniqueness as an extensive, highly productive estuarine/salt marsh ecosystem located in close proximity to a major metropolitan area. The additional protection derived from the designation was found to be warranted by the threats to the resources of irreversible impacts resulting from intense development on the Hull shorelines. At the time of the designation, approximately 1,000 new residential units and 56,000 square feet of new commercial space were proposed within the Weir River watershed. Possible threats to public health resulting from increased pollutant loading to shellfish beds were cited. Finally, the designation noted the potential for adverse economic impacts to the vicinity due to a decreased "quality of life" resulting from alterations to the estuary.

The ACEC designation has several effects on the potential future use of the Weir River for open space and recreational purposes as well as for other uses. First, all EOEA agencies are required to take action, administer programs, and revise regulations to ensure that activities in or impacting the area are carried out so as to minimize adverse effects on:

- marine and aquatic productivity;
- surface and groundwater quality;
- habitat values;
- flood control and prevention of storm damage;
- historic and cultural resources;
- scenic and recreational resources; and,
- other natural resource values of the area.

Second, the designation affects a number of state agencies by requiring regulatory programs to raise the standards of review for projects within the ACEC. The specific effects on regulatory programs are summarized below.

- *Massachusetts Environmental Policy Act (MEPA)* - Any state-regulated or state-funded project within an ACEC will trigger MEPA review.
- *Wetlands Protection Act* - The performance standards for work affecting wetlands resource areas within the ACEC is raised to "no adverse effect". For salt marshes, the standard is raised to "shall not destroy or have an adverse effect on the productivity of the

salt marsh". Maintenance dredging for navigation improvement must minimize adverse effects using best available measures.

- *Waterways (Chapter 91)* - The 1990 revisions to waterways regulations impose significant restrictions on the uses of tidelands within an ACEC. These include:
  - improvement dredging except for fisheries or wildlife enhancement is prohibited;
  - dredge material disposal is prohibited, except if non-degrading and used solely for beach nourishment, salt marsh creation, dune stabilization, or the enhancement of fishery or wildlife resources;
  - fill and structures are permitted only if they are on previously filled tidelands, or if they are for public pedestrian access on (presently) flowed tidelands (provided the location of such structures on piles or above high water is not feasible), or publicly-owned structures for water dependent use which are designed to minimize encroachment in the water, or non-industrial, privately-owned structures for infrastructure facilities which are consistent with an approved resource management plan and designed to minimize encroachment in the water.
- *Water Quality Standards* - Within ACECs the water quality classification is raised to SA, the highest standard. The Weir River also has been classified as an Outstanding Resource Water (ORW). Anti-degradation standards for ORW waters are no new discharges. However, the Division of Water Pollution Control currently is formulating policies on stormwater discharges to these waters.
- *Coastal Zone Management Consistency Review* - For any project in an ACEC requiring a federal permit or using federal funding, the proposed activities must be consistent with the purpose of preserving or restoring such areas for their conservation, recreational, ecological, or aesthetic values. This policy is included as departmental policy for Division of Water Pollution Control Regulations for Water Quality Certification for Dredging, Dredge Materials Disposal and Filling in the Waters of the Commonwealth.
- *Wetland Restriction Program* - An order of restriction prohibiting large-scale alterations of wetlands is automatically attached to the deeds of all properties containing wetlands within an ACEC.
- *Solid Waste Facility Site Assignment Regulations* - The siting of a new solid waste facility within an ACEC is prohibited.

### **Barrier Beaches**

The Hull peninsula has been designated a "Barrier Beach" by Massachusetts Coastal Zone Management with a finer distinction that Hull is considered a "developed" barrier beach. State-funded projects are subject to Executive Order No. 181. The order directs that:

- Barrier beaches shall be given priority status for self-help and other state and federal acquisition programs and that status shall be incorporated into the SCORP. The highest priority for disaster assistance funds shall go towards relocating willing sellers from storm damaged barrier beach areas.

- State funds and federal grants for construction projects shall not be used to encourage growth and development in hazard prone barrier beach areas.
- For state-owned barrier beach property, management plans shall be prepared which are consistent with state wetland policy and shall be submitted to the Secretary of Environmental Affairs for public review under the provisions of MEPA.
- At a minimum, no development shall be permitted in the velocity zones or primary dune areas of barrier beaches identified by the Department of Environmental Protection.
- Coastal engineering structures shall only be used on barrier beaches to maintain navigation channels at inlets and then only if mechanisms are employed to ensure that downdrift beaches are adequately supplied with sediment.
- Dredge material of a compatible grain size shall be used for barrier beach nourishment, if economically feasible. and,
- The Coastal Zone Management Office shall coordinate state agency management policy for barrier beach areas.

Because of Hull's status as a developed beach, many of the above charges are not applicable. Proposed developments and beach management issues are determined on a case by case basis.

## **Environmental Problems**

Though sharing many of the environmental problems as other communities bordering Boston Harbor, Hull is fortunate to have many residents who have taken an aggressive approach to find solutions. Most of the environmental problems cited here are well-known to both the residents and the town decision makers. In most cases, progress is being made. Among the environmental problems which directly impact open space and recreation include; degraded water quality, coastal erosion and flooding, sedimentation, and development impacts.

**Water Quality -** Degraded water quality in coastal waters surrounding Hull was chiefly the result of inadequately treated sewage discharges primarily from Boston and to a lesser extent from Hull. Water quality in Boston Harbor has significantly improved as a result of the Harbor cleanup. In addition, the Town's own activities have improved water quality to the point where the waters surrounding Hull are the cleanest in Boston Harbor. Hull has now completed sewerage of the entire Town including the Rockaway and Rockaway Annex areas. Thus, the Town also insures a healthful water quality in the Weir River Estuary. Efforts by the Environmental Service Corps to study the potential restoration of year-round tidal flowage into Straits Pond should be supported.

**Coastal erosion and flooding -** Coastal flooding is a major problem in Hull. Measures to enhance natural protection, i.e., beaches and dunes, are already underway through the Beach Management Plan and the sacrificial dune project. Included in these projects are measures to promote dune regeneration and reduce pedestrian traffic on dunes through limiting access points and constructing elevated crossings. The dynamics of Nantasket Beach and the sand budget is being studied by the Environmental Service Corps.

**Sedimentation -** Sedimentation within Hull Bay and the Weir River creates shallow bottoms which limit boat accessibility to these areas. An improvement and maintenance dredging project in Allerton Harbor was completed in 1997. Improvement dredging in the Weir River is prohibited by the ACEC regulations, unless for fisheries and wildlife enhancement and except in the

immediate vicinity of Nantasket Pier. Dredging of the area surrounding the Pier is scheduled to begin in the Fall of 1999.

Development impacts - Development increases the demand for recreational facilities while reducing potential, and in some cases, existing publicly-owned open space. In addition, development pressures on the infrastructure may limit the construction of new recreational facilities. In Hull, a major constraint to the creation of new facilities is traffic and parking.