An aerial photograph of Cranston, Rhode Island, showing a dense urban grid on the left and a harbor area on the right. The harbor features several large industrial buildings and a pier extending into the water. The right side of the image is overlaid with a dark blue, textured background.

Harbor Management Plan

City of Cranston

2008

Prepared by:
Cranston Planning
Department

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CHAPTER I OVERVIEW

A. Introduction

Cranston's waterfront lies directly south of the industrially prominent coastline of the City of Providence and Field's Point. Although these developments exist in close proximity to Cranston, the City's coastline and its only protected cove, Pawtuxet Cove, are primarily residential and low density commercial in nature. More recently the increased interest in pleasure boating has prompted the expansion of marinas, water use intensive businesses, and an increased use of Cranston's waters.

With increased popularity of the water and adjacent lands, the City has realized that a Harbor Management Plan [HMP] is necessary to accommodate all of the uses while maintaining, and where feasible enhancing the Pawtuxet Cove and coastline environment, with regards to water quality, safety, navigation and aesthetics. Harbor management planning is one method for anticipating the future requirements for the harbor areas. By implementing a HMP, Cranston can preserve its natural resources, organize traditional water-dependent activities and decide upon the appropriate amount and location of additional water-dependent development.

Several federal, state and local government agencies work together toward the management and protection of Cranston's waters (See Appendix A). Chapter 4 of Title 46 of the General Laws of Rhode Island confers upon Cranston certain powers concerning the regulation of the public waters within its boundaries. Prior to 1990, these powers were under the jurisdiction of the City of Providence. Generally, these powers are segregated into three types: 1) management of vessel operation within harbors; 2) management of anchorage and mooring areas; and 3) regulation of such activities as water-skiing and skin-diving, regattas and marine parades.

As Cranston examines the current condition of the waterfront, the Rhode Island Coastal Resources Management Council's (CRMC) harbor management planning guidelines offer a framework by which the City may develop a HMP. In addition, other planning tools such as standards from the Rhode Island Department of Environmental Management (DEM) for water quality, categories for CRMC water types, articulated in Providence River Special Area Management Plan, Federal Emergency Management Agency (FEMA) flood zones and local building regulations, and mooring configurations are available to facilitate the implementation of City's goals and objectives.

B. Definition and Purpose

A HMP is a comprehensive document which: 1) provides an accurate inventory of both coastal and water resources within the City; 2) identifies the issues associated with said areas; 3) suggests goals, objectives and policies for guiding public and private use of land and water in the defined harbor area; and 4) sets forth an action plan achieving the desired pattern of use on and adjacent to the harbor. Within a HMP, all major uses, both land and water, including the relationship between them are addressed. Relevant technical information pertaining to water quality, navigational hazards, mooring inventory, Rhode Island Coastal Resources Management Program water use designations, current use inventory and natural resource areas are collected and analyzed to aid in developing goals and policy objectives. Many harbor user groups, in addition to the general public, are actively involved throughout the planning process.

Title 46, Section 4 of the General Laws of Rhode Island grants municipalities the authority to establish Harbormaster ordinances and rules and regulations pertaining to the administration of their harbors. The CRMC states that the purpose of a HMP shall be to provide a comprehensive long-term evaluation of the coastal activities within the City; to provide a comprehensive evaluation of current and/or proposed municipal harbor management programs; to establish ordinances or regulations consistent with applicable regulatory and management program requirements of the State of Rhode Island; and to promote the delegation of primary authority over consistent management programs and responsibilities to the municipalities.

In order to realize the objectives of the CRMP, the CRMC carries out certain coordinating activities: it functions as a binding arbitrator in disputes involving coastal resources and the interests of two or more municipalities and state agencies; it carries out consulting and coordinating action with local, state regional and federal agencies and private interests; it conducts and sponsors coastal research; and it advises the governor, General Assembly and the public on coastal matters. All departments and agencies of state government are required to cooperate with the CRMC in discharging its responsibilities. The CRMC also employs a regulatory or permit program to implement its management plans. The permit program has two integrated phases: assessment of conformance of proposed projects with applicable local, state and federal environmental requirements and review of the project for consistency with the specific policies and standards of the CRMP.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

The DEM has primary responsibility for implementing the requirements of the federal clean water act, for managing the living resources of the State's waters and for overseeing federal and state land acquisition and open space programs. DEM, through its division of water resources, has promulgated regulations and water quality standards as required by the clean water act. DEM's Division of Fish and Wildlife and the Marine Fisheries Council manages the fin and shellfish fisheries within the State. Current programs include the regulation of commercial fisheries, shellfish propagation and transplanting and establishing and protecting shellfish management areas. The Division also provides comment to the CRMC on proposals that may impact resources under their jurisdiction.

THE LOCAL ROLE

Chapter 4 of Title 46 of the General Laws of Rhode Island (Waters and Navigation) confers upon coastal communities powers to regulate the public waters within their boundaries. Prior to 1990 these powers were under the jurisdiction of the city of Providence. In January 1990, three bills (S-2822, S-2823, S-2824) were approved by the General Assembly in order to correct this situation. The enabling legislation gave Cranston the authority to properly manage its own harbor areas. Generally, these powers are divided into three areas: 1) management of vessel operation within harbors; 2) management of anchorages and moorings; and 3) regulation of water activities such as water skiing, skin diving regattas and marine parades.

THE ROLE OF THE HARBORMASTER

The Harbormaster, and any assistants or deputies, should be an employee of the municipality. The Harbormaster should be empowered to act for the City Council or the Harbor Management Commission, and have specific powers and duties. Specific responsibilities of the Harbormaster should include, but not necessarily be limited to:

1. Acting as a non-voting, ex-officio member of the Harbor Management Commission;
2. Administering designated mooring areas;
3. Issuing permits for all moorings;
4. Keeping records of the location of all moorings, users and vessels within the designated harbor areas and other city waters;
5. Preparing and making available a current waiting list for mooring permits, if demand is greater than the number of moorings available in a given year;
6. Collecting mooring permit fees annually for deposit into the harbor management fund;
7. Enforcing any ordinance or provision of the HMP, ordinance or any state boating safety laws as applicable.

CHAPTER II HARBOR DESCRIPTION AND RESOURCE INVENTORY

A. Introduction

1. HISTORY

Prior to European settlement various coastal Indian tribes occupied Cranston. The largest tribe was the Narragansett, who were members of the Algonquin nation. The Narragansett Indians lived in large, semi-permanent coastal villages surrounded by extensive cultivated fields. In 1616, a plague struck the coastal tribes of Southeastern New England. The plague depopulated villages, upset traditional tribal boundaries and alliances, and ultimately weakened the Indians' strength which encouraged English settlement. Cranston's Indian heritage is reflected in many of the names of its roads, rivers and villages.

In 1638 the first Englishmen, primarily farmers, settled in Cranston. Cleared fields abandoned by the Indians greatly aided the settlers' transition to Cranston because much of the arduous work of removing trees and rocks from the land had already been completed. Most of the settlement occurred around Pawtuxet Cove and along the fertile plains abutting the Pawtuxet River.

Cranston and the Pawtuxet Village continued to grow until King Philip's War (1675-77). This conflict between the Indians and the English resulted in the destruction of all but one of the residences in Cranston. With the defeat of the Indians, the residents of Cranston began to rebuild the town and by the end of the seventeenth century, settlements were seen all across what is now present day Cranston.

In the decades following King Philip's War, Cranston's growth was most influenced by the introduction of mass transportation. In 1837, the Providence and Stonington Railroad was constructed through eastern Cranston and in 1852 the Hartford, Providence and Fishkill Railroad was constructed through the central Cranston. The railroads provided residents of the city with a simple and direct commuting route to Providence. These rail links changed Cranston's character from a rural farm community to a suburban residential retreat for people working in Providence.

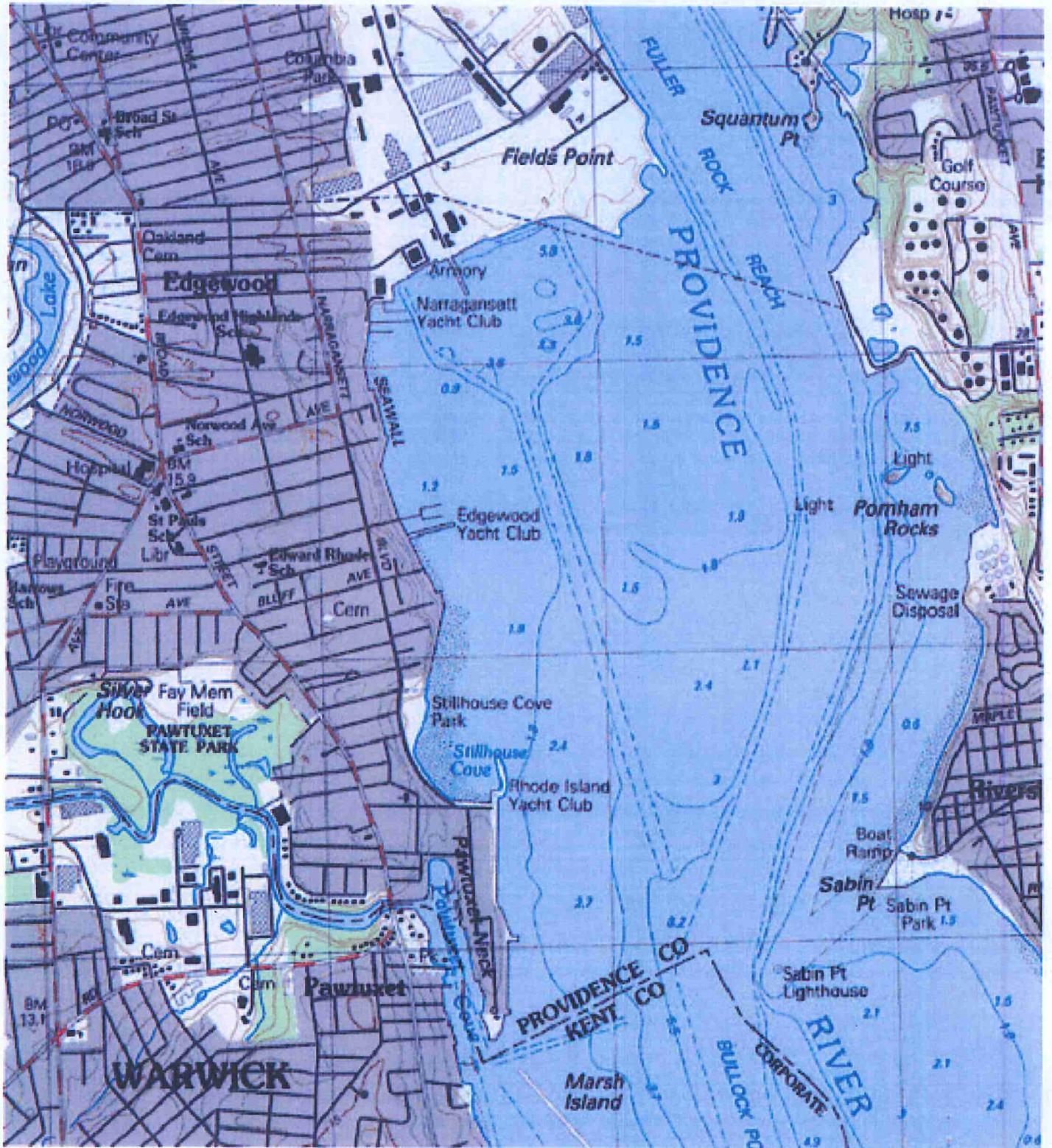
In 1870, the construction of the first horse drawn railroad from Providence to Pawtuxet greatly improved accessibility thus stimulating development throughout this area. Pawtuxet Village quickly became one of the most fashionable residential areas in the metropolitan region. Pawtuxet's popularity was due to its convenient location to Providence, the accessibility and natural beauty of the Narragansett Bay and the impressive colonial architecture of the homes many of which still exist to this present day.

The Providence to Pawtuxet railroad and the natural beauty of the Bay also stimulated other development along the shores of Cranston's waterfront, some of which can still be seen today. Located on the shores of Cranston's waterfront were three yacht clubs. The Providence Yacht Club, organized in 1875 and known today as the Rhode Island Yacht Club, offers members many amenities associated with recreational boating. The Edgewood Yacht Club, founded in 1880, provides their members with elegant leisure life, sweeping views of the Bay and boat dockage. The Washington Park Yacht Club was established in the late 1800's but it was destroyed in the 1938 Hurricane.

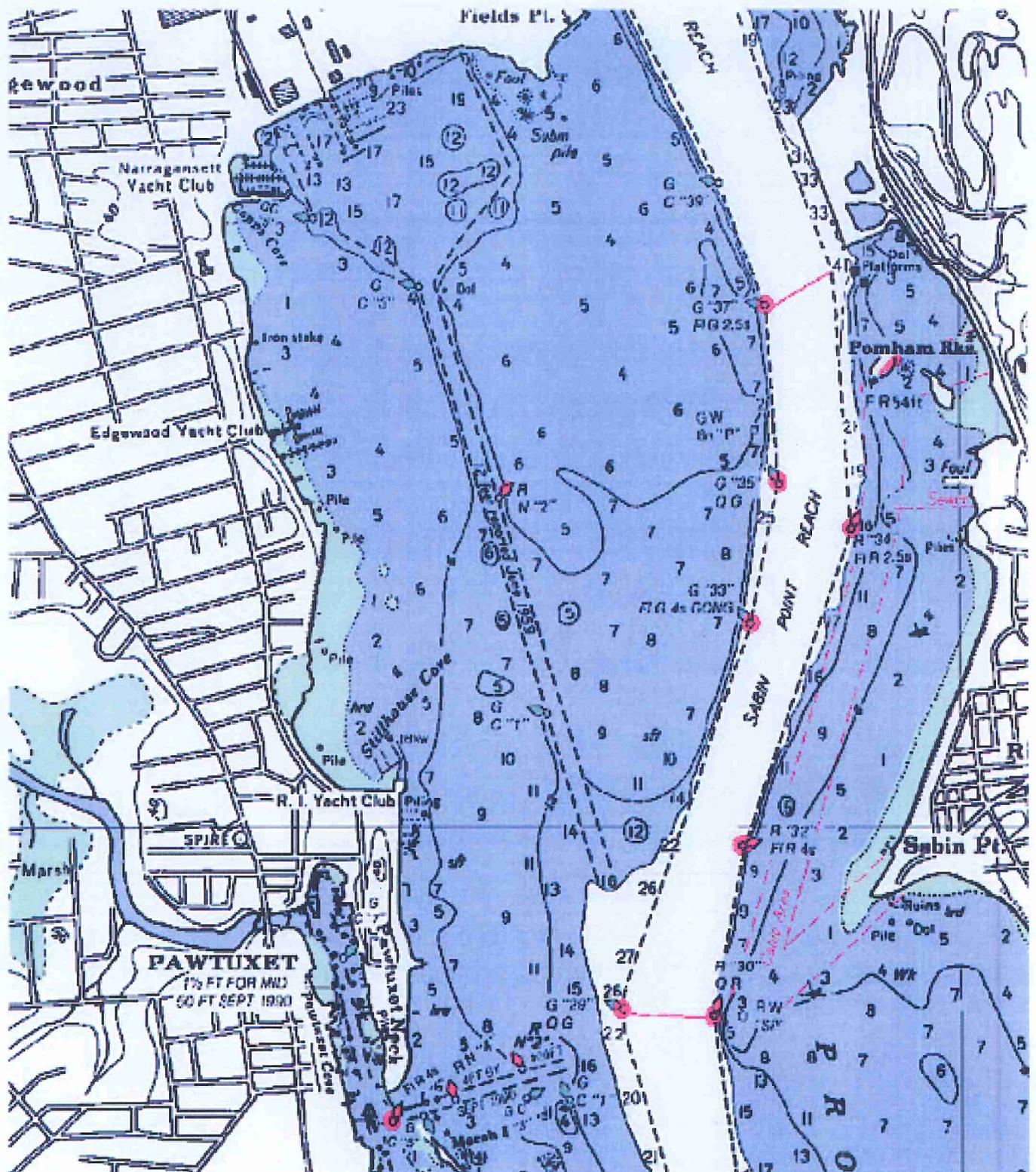
Pawtuxet Cove, Cranston's only completely sheltered cove, offers accessibility to Narragansett Bay, scenic vistas, and protection within its sheltered areas.

2. PROJECTIONS FOR FUTURE GROWTH

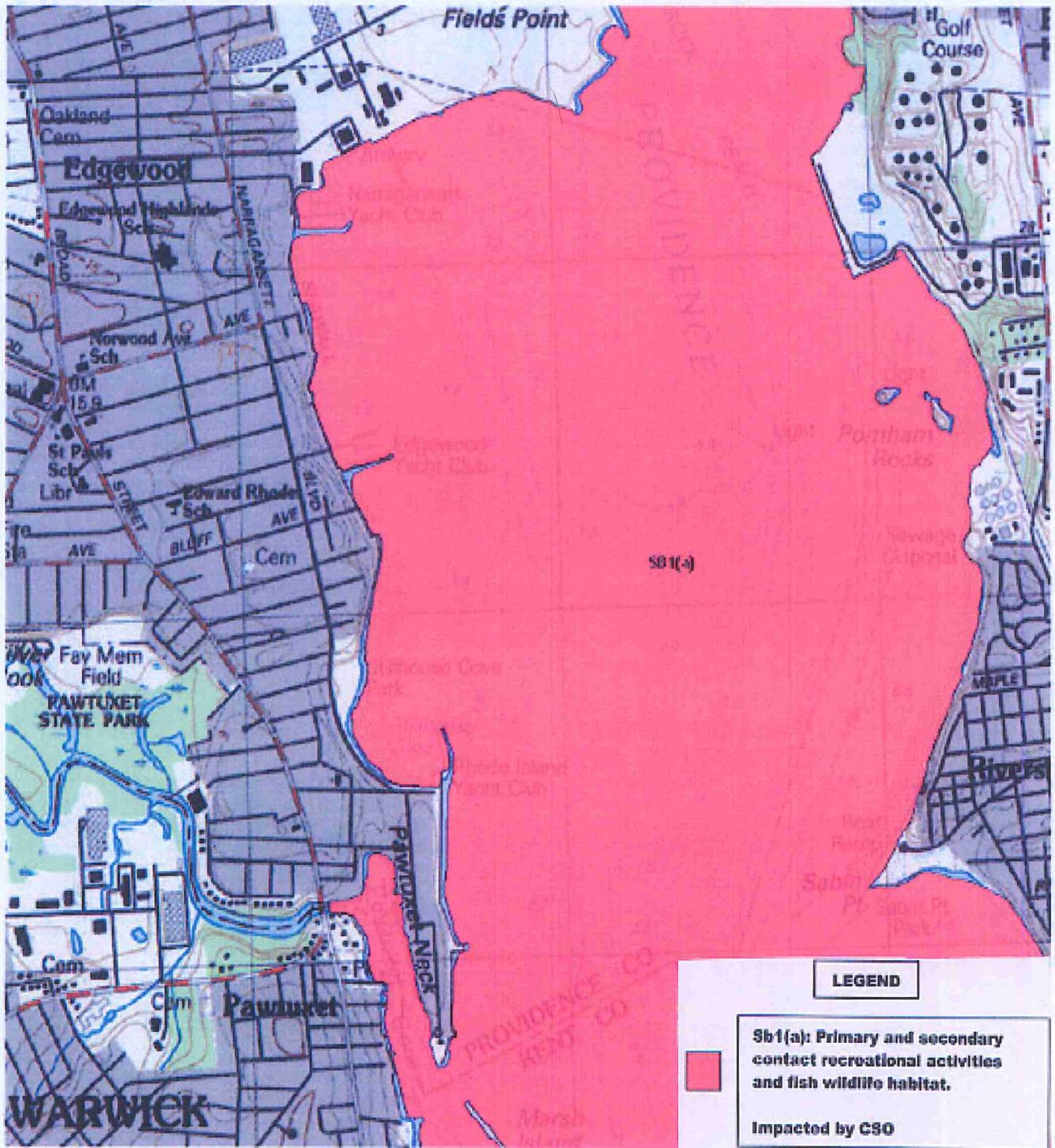
A study initiated over the July 4, 1978, holiday weekend by URI/CRC showed that in Rhode Island had a total of 8,965 slips and moorings (Collins, 1979). A 1987 International Marina Institute study and a CRMC update of this study in 1988 shows that the total number of slips and moorings in Rhode Island had increased by 6,820 (75%) over 10 years to 15,785. The number of boats registered in the State was between 27,000 and 28,000 in 1990, 31,096 in 1994, and 36,522 in 1999, therefore showing a rapid increase in the use of the State's coastal waters.



MAP ONE
CRANSTON COASTAL AREA
 SOURCE: SOURCE: CRMC Management Plan Mapping Layers



MAP TWO
WATER DEPTHS NOAA CHART 13224
 SOURCE: CRMC Management Plan Mapping Layers



MAP THREE
DEM WATER QUALITY CLASSIFICATIONS
 SOURCE: SOURCE: CRMC Management Plan Mapping Layers

To serve the purposes of the Clean Water Act means that whenever attainable, the water quality standards should: provide water quality for the propagation of fish, shellfish and wildlife and for recreation in and on the water; take into consideration their use for aquaculture, industrial, and other purposes including navigation.

4. AREAS SUBJECT TO EXTREME FETCH AND WAVE VELOCITIES.

Cranston's entire coastline is designated as a Velocity Zone according to Federal Emergency Management Agency Map Community panel # 445396 0007B (**See map 4**). Velocity zones are defined as high hazard areas subject to coastal flooding and wave action during a 100-year storm.

Although the entire shoreline of Cranston is designated as a velocity zone, Fields Point and Pawtuxet Neck are areas of greater concern since they would be subjected to greater storm surge due to their perpendicular orientation on the Providence River.

5. DREDGED AND SHOALING AREAS

Dredged and shoaling areas within the City are most easily presented in terms of marinas and federal navigational projects. All of the City's marinas have at one time or another undertaken dredging efforts.

6. NAVIGATIONAL HAZARDS

The primary navigational hazards within the City are exposed rocks, submerged piles in the vicinity of Fields Point and a large number of derelict docks and pilings that dot Cranston's shoreline.

C. CRMC WATER USE DESIGNATIONS

The CRMC has designated the coastal waters of the State into six use categories. Cranston's waters fall into three of the six (**See map 5**). These are as follows:

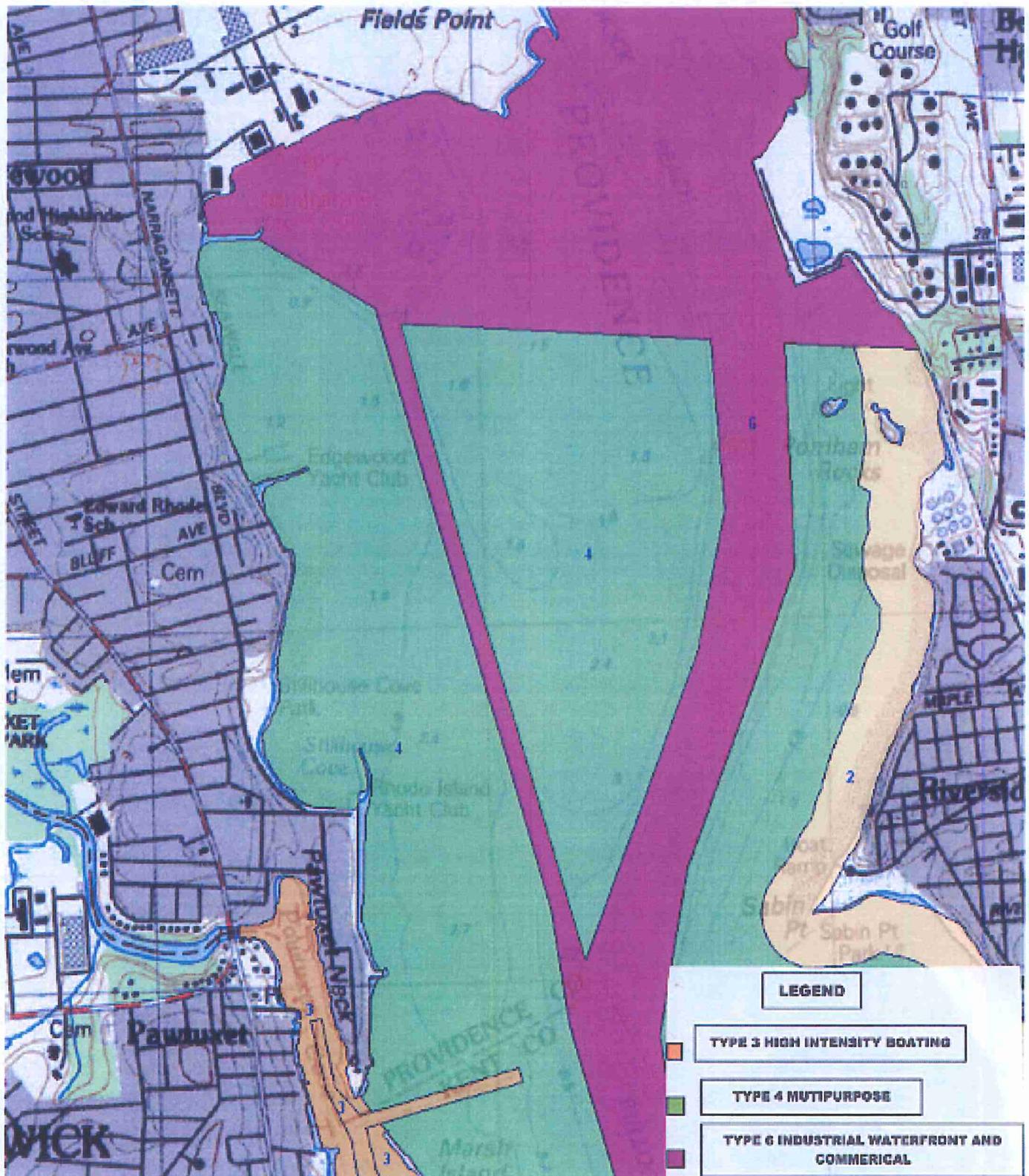
- Type 3, High Intensity Boating (Pawtuxet Cove) – Includes intensely utilized water areas where recreational boating activities dominate and where the adjacent shorelines are developed as marinas, boatyards, and associated water-enhanced and water-dependant businesses.
- Type 4, Multipurpose Waters (Pawtuxet Cove entrance north to Port Edgewood Marine) – Open waters adjacent to shorelines that support water-dependant commercial, industrial, and /or high-intensity boating activities.
- Type 6, Industrial Waterfront and Commercial Navigation Channels (Areas adjacent to Fields Point, the Providence River Shipping Channel and the Fields Point Turning Basin) – Water areas extensively altered in order to accommodate commercial and industrial water-dependent and water-enhanced activities.

Priority Uses for water types as identified in the CRMP Section 200.1-200.5 are as follows

- TYPE 3 WATERS: "The highest priority uses of Type 3 waters and adjoining land areas within the Council jurisdiction are (a) marinas, mooring areas, public launching ramps, and other facilities that support recreational boating and enhance public access to tidal waters; and (b) boatyards and other businesses that service recreational boaters."
- TYPE 4 WATERS: "The Council's goal is to maintain a balance among the diverse activities that must coexist in Type 4 waters. The changing characteristics of traditional activities and the development of new water-dependent uses shall, where possible, be accommodated in keeping with the principle that the Council shall work to preserve and restore ecological systems."



MAP FOUR
FLOOD PLAIN MAP
SOURCE: City of Cranston GIS Data Base



MAP FIVE
CRMC WATER USE DESIGNATIONS
 SOURCE: SOURCE: CRMC Management Plan Mapping Layers

3. MOORINGS AND MOORING AREAS

The vast majority of moorings within Cranston’s jurisdictional waters are commercially operated by the Rhode Island and Edgewood Yacht Clubs. The Rhode Island Yacht club has 55 such moorings and the Edgewood Yacht Club has 65. The two clubs’ moorings are located in separate fields (**see map 6**) which can be geographically defined as follows.

Edgewood Yacht Club – From Northing/Y: 332295.658 Easting/X: 330424.160 to Northing/Y: 323084.503 Easting/X: 332540.218 to Northing/Y: 318328.229 Easting/X: 336998.922 to Northing/Y: 298392.285 Easting/X: 346005.377 to Northing/Y: 296680.831 Easting/X: 355611.201 to Northing/Y: 322585.917 Easting/X: 347346.557.

Rhode Island Yacht Club – from Northing/Y: 273084.595 Easting/X: 343223.797 to Northing/Y: 343949.960 Easting/X: 353140.293 to Northing/Y: 252560.000 Easting/X: 291638.574 to Northing/Y: 278567.195 Easting/X: 359795.200.

The mooring field at the Edgewood Yacht Club runs in a north/south direction and is located in the waters just to the east of the Yacht Club’s building in docks. The Edgewood Yacht Club is located at the end of Shaw Avenue off of Narragansett Boulevard.

The mooring field at the Rhode Island Yacht Club runs in a north/south direction and is located in the waters to east of the break water at Rhode Island Yacht Club. The western edge of the mooring field abuts Rhode Island Yacht Club’s break water. The northern tip of the mooring field is located in front of the Rosedale condominium complex. The Rhode Island Yacht Club is located at the end of Ocean Avenue off of Narragansett Boulevard.

While RIGL Ch. 46-46-6.5 authorizes the City of Cranston to issue permits for the placement of moorings in the public waters within its jurisdiction, the City has not exercised this authority and issued permits. Nonetheless, in addition to currently authorized moorings associated with marinas a number of moorings have also been placed in the waters adjacent to Cranston (see Table 1). A plan to either retroactively permit these moorings or order their removal is in this HMP.

Table1 - Mooring Inventory

Commercial Facility	Moorings
Pawtuxet Cove Marina	0
Port Edgewood Marina	1
Rhode Island Yacht Club	55
Edgewood Yacht Club	65
Pawtuxet Athletic Club	0
Unknown ownership	16
Private/Municipal	0
Total	137

4. SHORELINE ACCESS POINTS

- a. Shoreline access points or public rights of way (ROWs) are defined as pathways that provide access to and from the City’s shoreline. Other ROWs may include city-owned parks, beaches, boat ramps, conservation areas, and overlooks. The following shoreline public access points derived from the guidebook Public Access to the Rhode Island Coast include the three CRMC designated ROWs in Cranston (**Also see map 7**).

Residential B-2	Single-family, two-family and multi-family dwellings.
Commercial C-3	General business.
Industrial M-2	General industry.
Open space S-1	Uses containing high proportion of open space or natural character.
Educational Intitutional EI	Institutions of Higher Education

E. Natural Resource Areas

1. WILDLIFE AND/OR CONSERVATION AREAS

- a. Reserves: The only significant waterfront conservation areas within the City are the coastal wetlands at Stillhouse Cove. These wetlands have been specifically designated for preservation by the CRMP Sec. 210.3 and are highly valued due to their uniqueness within the urban environment of the Providence Metropolitan Area.
- b. Areas Identified by Studies or Programs: See comments on removal of dam at the Pawtuxet River in section below.
- c. Areas of Intensive Scientific Research: There are no areas of intensive scientific research located within the City of Cranston.

2. RECREATIONAL AND COMMERCIAL FISHING

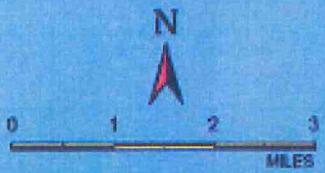
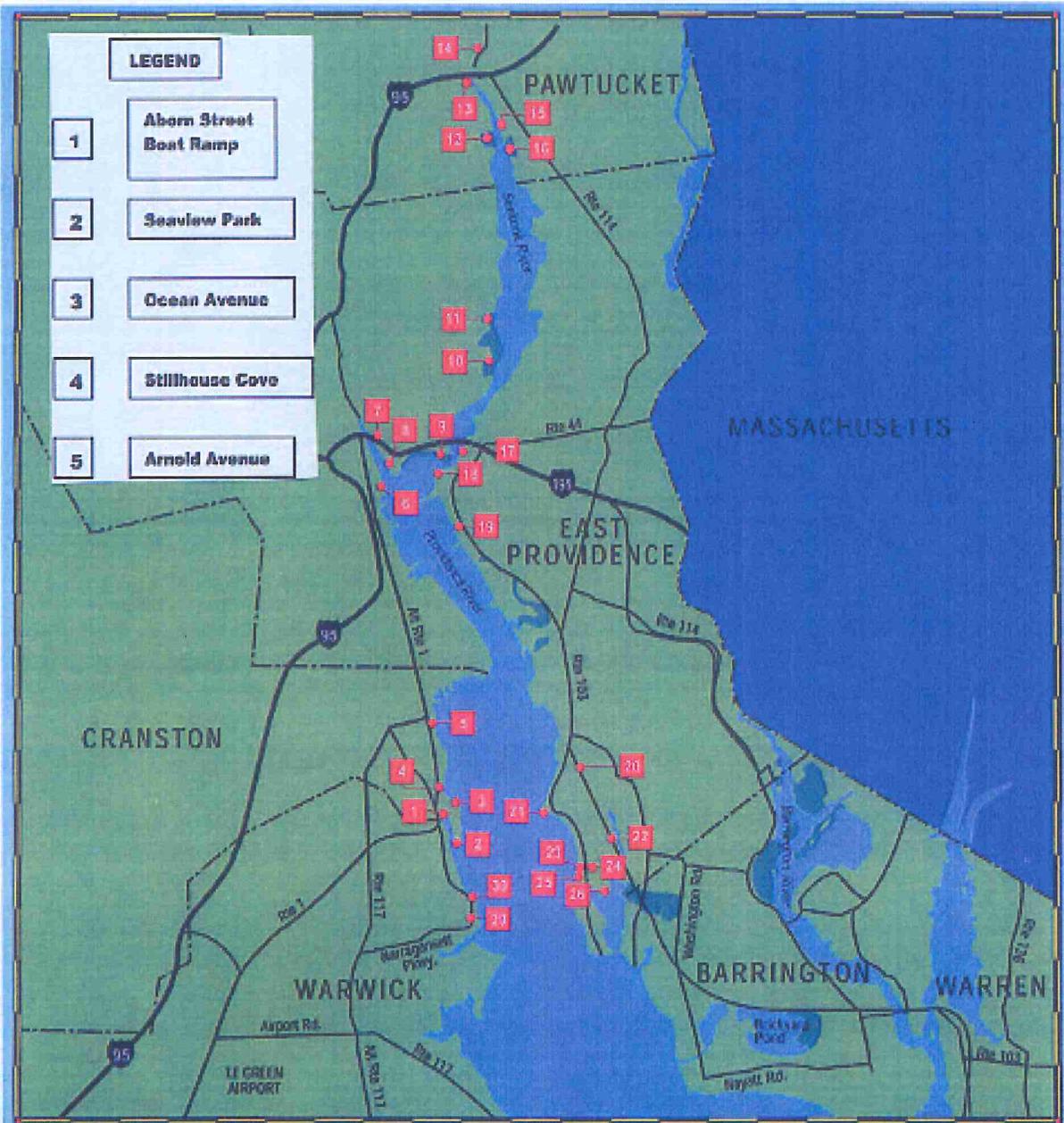
Soft-shell (steamer) clams and quahogs are abundant in Cranston's jurisdictional waters. However, these waters are closed to shellfish harvesting and there are no commercial fishing facilities located on Cranston's waterfront. Pollution problems from the City of Providence as well as local pollution sources make it unlikely that they will be reopened in the near to long-term future. These same concerns also severely limit the amount of recreational fishing that is undertaken in the City's tidal waters. There are no anadromous fish runs and no known spawning areas within Cranston. However, the possibility of removing a dam at the mouth of the Pawtuxet River is currently being studied. If the dam is removed, a significant portion of the Pawtuxet River will be reopened as an anadromous fish run and as a spawning area for shad and herring.

3. BIOLOGICAL HABITATS

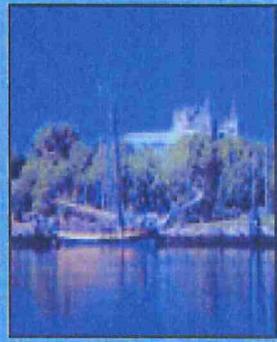
- a. Submerged Aquatic Vegetation: There are no areas of submerged aquatic vegetation within Cranston's coastal area.
- b. Intertidal Flats: Cranston has one tidal flat within its coastal waters. Located at Stillhouse Cove, this intertidal flat abuts a coastal tidal marsh and is exposed as the tidal marsh drains during low tides. **[See mp 1]**
- c. Tidal Wetlands: Coastal tidal marshes are primarily found along the shore of the City from Stillhouse Cove Park north to and beyond the Edgewood Yacht Club. This condition also exists in some areas south of the Rhode Island Yacht Club and in the northern section of the Pawtuxet Cove. The Stillhouse Cove coastal wetland is perhaps the most valuable.



MAP SIX
MOORING AREAS
SOURCE: City of Cranston GIS Data Base



WARWICK, CRANSTON,
PROVIDENCE, PAWTUCKET
& EAST PROVIDENCE

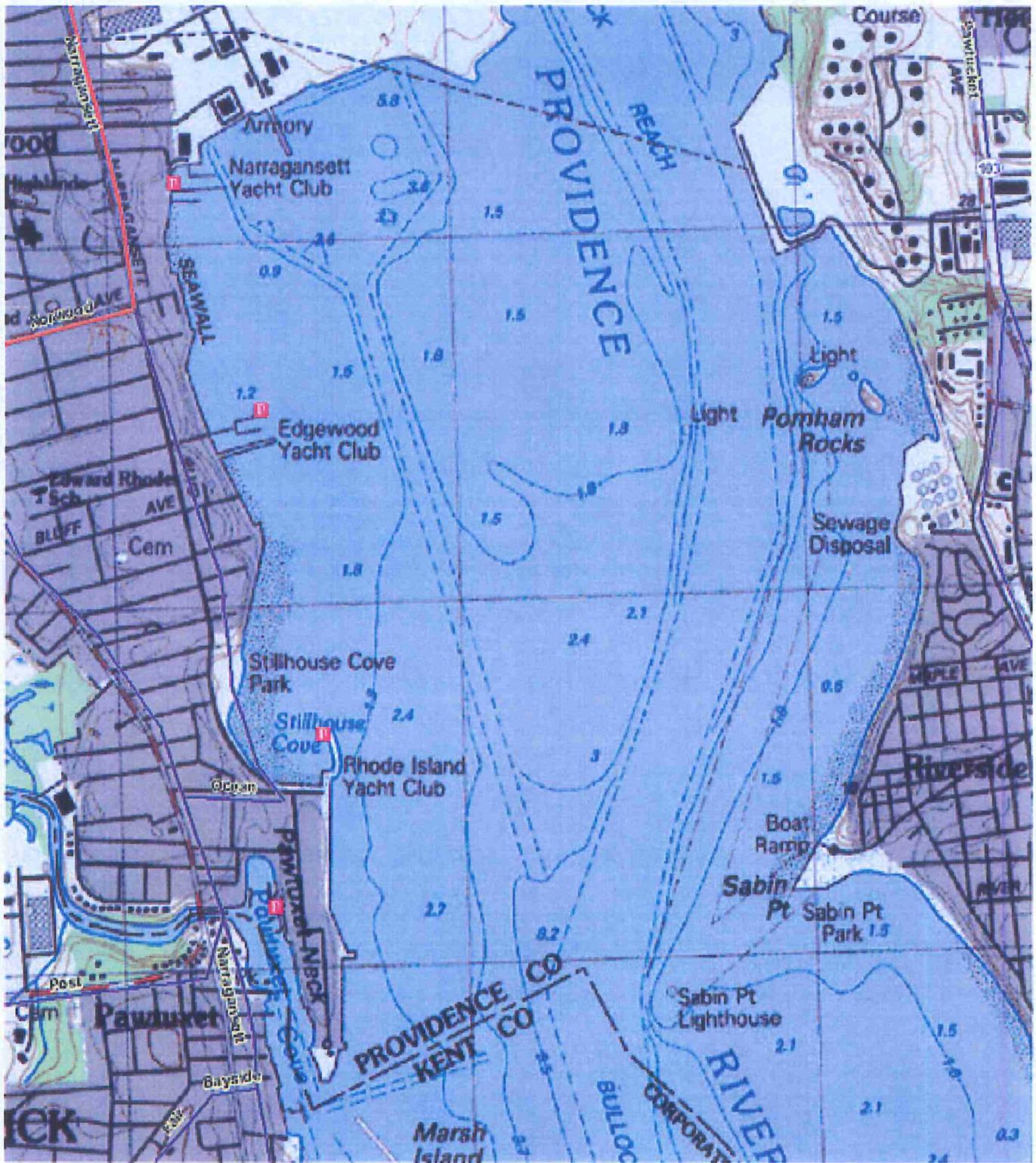


India Point Park

MAP SEVEN
SHORELINE ACCESS POINTS
SOURCE: CRMC Public Access to the Rhode Island Coast



MAP EIGHT
LAND USE AND ZONING
SOURCE: City of Cranston GIS Data Base
(See Table 3 for key to zoning classifications)



MAP NINE
PUMP OUT STATIONS
 SOURCE: SOURCE: CRMC Management Plan Mapping Layers

CHAPTER III ISSUES, GOALS, POLICIES AND RECOMMENDATIONS

The following sections address the issues, goals, policies, and recommendations identified through the harbor management planning process. Issues are treated as items of concern where as goals are the desired outcomes. Policies and recommended actions are those positions or courses of action that if taken lead to the accomplishment of a goal or the resolution of an issue.

A. Issues

During the recent past, an increased in pleasure boating has prompted the expansion of marinas, water-related businesses and increased use of Cranston's waters. Due to the increased popularity of boating, many problems associated with the waterfront have surfaced. The City's waterfront faces a wide spectrum of issues ranging from problems with water quality through public access to the shoreline.

Based CRMC regulations and public input the HMP Committee identified eight major issues which must be addressed within the HMP. These issues are:

- MOORINGS
- WATER QUALITY \ ENVIRONMENTAL PROTECTION
- INTERCITY COORDINATION / ENFORCEMENT
- PUBLIC ACCESS
- SAFETY AND HARBORMASTER DUTIES
- JURISDICTIONAL BOUNDARIES WITHIN PAWTUXET COVE
- STORM PREPARDNESS
- REDEVELOPMENT OF FIELDS POINT

B. Goals

Using the information obtained in the issue identification section, the City's HMP Committee developed goals for the use, preservation, and development of the City's waterfront. In establishing these goals, the HMP Committee considered the relationship between natural coastal resources, commercial facilities, and the surrounding residential community. The goals are long term and reflect consideration for the future preservation and development of the waterfront.

C. Policies and Recommended Actions

Comprehensive planning is one method for anticipating the future requirements of the harbor areas. By implementing a comprehensive HMP, a community sets the policy framework for preserving its waterfront resources, prioritizing traditional water-dependent activities and determining the appropriate amount and location of new water-dependent developments. The City's HMP is a policy document that includes enforceable ordinances. This plan balances land use activities with the many water use activities of the City by establishing policies for the use of its shore areas. This chapter delineates the policies and actions intended to be taken by the City in order to achieve the broad goals stated in this chapter. Those items that are listed as "Recommended Actions" are intended to provide points of departure for future review and consideration. These items are not meant to be established within this report as policies for implementation without completion of further study.

1. MOORINGS

Issues:

In that the City has not until now adopted and enacted a Harbor Management Plan and Ordinance, the City's efforts to manage/regulate boating activities within its coastal areas have been less than adequate. This has lead to the following issues regarding mooring activities.

space to residents and non-residents consistent with the CRMC requirement of no greater than 3 resident to 1 non-resident.

- Establish a policy to equitably accommodate commercial moorings as well as recreational moorings.
 - Should a federal mooring area or anchorage be established, establish a policy consistent with the ACOE "open to all on an equal basis" policy.
 - Establish a mooring permit waiting list to be managed by the City Harbormaster.
- c. Location
- Attain jurisdiction over placement of moorings through passage and implementation of regulations authorizing the Harbormaster to carry out the City's mooring management plan in a manner consistent with CRMC's Coastal Resource Management Program..
 - Establish a municipal mooring fields with 2 or 3 transient guest moorings.
 - Develop and maintain a map of existing and proposed mooring areas. Said mooring areas to be located via GPS and tied into the State's coordinate system .
 - Provided the necessary ordinances, staff, and resources to manage the mooring fields. For public moorings said management shall include: keeping an accurate count, the precise location and waiting list for moorings and to require that moorings be allocated via said waiting list.
 - Establish an ordinance requiring that all moored vessels (except riparian) be located within CRMC approved mooring area perimeters.
 - Establish an ordinance prohibiting the placement of unregistered moorings in the City's waters.
- d. Siting , Safety and Security
- Establish regulations that will address but not be limited to: minimum setback standards for present and future mooring fields, mooring tackle specifications, mooring inspections, illegal abandoned moorings, lessee responsibilities and liability for maintenance of public moorings.
 - Establish and maintain a City log of registered public moorings including information on age of mooring tackle, last inspection, maintenance done on tackle, size of boat.
 - Establish a policy for forfeiture of non-renewed moorings.
 - Prohibit by ordinance the locating of commercially managed moorings (i.e. rented at market values) in Federal navigation projects.
 - Prohibit by ordinance water skiing and swimming in designated channels, fairways and mooring areas.
 - Establish an ordinance to require setbacks from mooring fields to prevent moorings from interfering with access to fairways and channels. Setback limits from riparian moorings and shoreline public rights of ways shall be sufficient to allow ingress and egress and prevent interference with the exercise of private and public right in these areas. Mooring areas shall be setback at least three times the US Army Corps of Engineers authorized project depth from federal navigation projects.
 - Require by ordinance that all new and significantly expanded mooring areas be sited so as not to obstruct access to public recreation areas, conservation areas and shellfish management areas and traditional fishing grounds should any be designated by the CRMC within the City's coastal waters.
 - Require by ordinance that all new and significantly expanded mooring fields be sited to ensure that tides and currents aid in flushing the mooring area.
 - Require by ordinance that all new and significantly expanded mooring areas be sited to avoid adverse effects on water quality.
 - Require by ordinance that all new and significantly expanded mooring areas be sited to avoid adverse effects to fish/shellfish resources.
 - Require by ordinance that all new and significantly expanded mooring areas be sited to avoid adverse effects to wetlands.
 - Require by ordinance that all new and significantly expanded mooring areas be sited to avoid adverse effects to submerged aquatic vegetation.

2. WATER QUALITY \ ENVIRONMENTAL PROTECTION:

Issues:

- a. The increased interest in pleasure boating has prompted the expansion of marinas, water-related businesses and increased use of Cranston's waters. This present level of use may adversely affect the water quality and quality of life along the City's shoreline areas.
- b. Cranston's waters suffer from severe pollution problems most of which are regional in nature.
- c. As recognized by the State's CRMP moorings can be significant sources of non-point source pollution (NPSP).
- d. The existing shellfish resources, which serve as a brood stock, must be protected.
- e. Cranston's waterfront is the site for coastal tidal marshes which must be protected from the impacts created by more intense use of the land and water. The degradation of Stillhouse Cove coastal wetlands by infiltration of phragmites is an important issue because the area is Cranston's only waterfront park. The City was recently awarded a large grant to restore the coastal wetlands within Stillhouse Cove.
- f. Historically, improperly maintained septic systems which serviced housing located within the City's coastal area have failed. In order to address this problem, the City constructed a sewerage pump station at the end of Sea View Avenue which allowed houses that were on septic systems to be connected to the City's sewer system. Based on available data, there are now less than 12 houses that have septic systems which may impact the coastal waters.
- g. Historically, runoff into the Pawtuxet River has been a major contributor of non-point source pollutants of Pawtuxet Cove. This issue is being addressed as the City complies with the requirements of the Clean Water Act. Under said requirements, stormwater runoff from developments will be treated through best management practices prior to release.
- h. Pumpout facilities are located at each of Cranston's four yacht clubs/marinas (Port Edgewood Marina, Edgewood Yacht Club, Rhode Island Yacht Club and Pawtuxet Cover Marina.). **(See map 8)** Use of these pump out stations are not restricted to shipyard/marina members. These are open to the general public free of charge. In addition to the existing facilities, Cranston has arranged to have East Providence's mobil pumpout facility provide services in Cranston as needed.

Goals and Policies:

- a. To strive towards the improvement of water quality and the protection of natural resources along the City's coastline and in the Pawtuxet Cove by adopting policies and programs to address pollution generated by recreational boating, non-point source pollutants, and shore side developments and activities.
- b. To maintain, and where possible, improve the water quality of Cranston's waters in conjunction with appropriate state and federal agencies and programs
- c. To implement regulations authorizing the Harbormaster to visually inspect all vessels to determine if USCG approved marine sanitation devices are in proper working order.
- d. To protect the existing shellfish brood stock through the regulations of land use and water use. Significant changes in mooring fields, dock facilities or other water uses shall be evaluated for potential impacts to the brood stock.

3. INTERCITY COORDINATION / ENFORCEMENT

Issues:

- a. The City of Cranston shares water boundaries with the City of Providence, East Providence and Warwick. Each city has different regulations and enforcement procedures.
- b. The southwest portion of Pawtuxet Cove lies within the City of Warwick creating a potential problem with the jurisdiction of the Cove.
- c. The southern portion of Fields Point, approximately 50 acres of the total 210 acres, is located in the City of Cranston. Future development of this property will require inter-city coordination with the City of Providence.
- d. The Pawtuxet River, which flows through the City of Cranston, the City of Warwick and the Town of West Warwick, is a significant contributor to the pollution problem in Pawtuxet Cove. Coordination between the three municipalities is needed in order to reduce this pollution problem.

Goals and Policies:

- a. Pursue a working relationship with the City of Warwick in order to coordinate activities within the shared jurisdiction of Pawtuxet Cove.
- b. Pursue a working relationship with the City of Providence in order to coordinate activities at the Fields Point site.
- c. Pursue a working relationship with the City of East Providence to establish and coordinate enforcement of the water boundaries that they share.
- d. Negotiate Memoranda of Understanding with the City of Warwick, the City of Providence and the City of East Providence on the mutual enforcement of harbor rules and regulations.
- e. Propose a reciprocal agreement with the adjacent cities of Warwick, Providence and East Providence, in which there shall be one, nonvoting, ex-officio member of each community's Harbor Management Committee sitting on the others Harbor Management Committee.
- f. Ensure that the Cranston Harbormaster maintains effective communication with the harbormasters of the surrounding cities.
- g. To work with the City of Providence, Johnson and Wales University and Save the Bay to coordinate waterfront development along the southern shore of Fields Point.

Implementation Actions:

- a. Coordinate harbor safety and enforcement patrols with the Cities of Providence, East Providence, and Warwick per section 46-23-15.1 of the RI General Laws.
- b. Create and periodically update a file containing appropriate harbor plans, ordinances or other documents relating to the waters and waterfront of nearby communities.
- c. Participate, when possible, in public meetings which occur in the nearby cities and towns pertaining to the waters and waterfront of the nearby communities.
- d. Participate in design and construction of Fields Point waterfront development.

SEAVIEW PARK: Located on a cul-de-sac at the end of Seaview Avenue, this small park overlooks historic Pawtuxet Cove. The area is enclosed on three sides with a three-rail wood fence and has a picnic table and park benches. There is no parking on the cul-de-sac.

- CRMC ROW#: K-3
- Trash receptacles

OCEAN AVENUE: At the foot of Ocean Avenue, next to the Rhode Island Yacht Club, five steps in a concrete seawall lead to a beach that is accessible only at low tide.

- Scenic view

STILLHOUSE COVE: A grassy strip at the southern end of Narragansett Boulevard overlooks the Rhode Island Yacht Club, Stillhouse Cove, and the Providence River. There is an unmarked asphalt boat ramp in poor condition leading to the Providence River. The ramp is situated on a muddy, rocky shore and is usable only at extreme high tides. The City plans to construct a concrete, 15-foot-wide concrete ramp by 2005. No on-street parking is available.

- Picnicking, wildlife observation

ARNOLD AVENUE: Arnold Avenue ends in a small grassy area. In spite of a chain link fence on top of the concrete seawall, this is a pleasant spot to bring a lunch and enjoy the view of the river.

ABORN STREET (southside): A City parcel bounded on the north by Aborn Street, the east by the Pawtuxet Athletic Club, the south by Pawtuxet Cove, and the west by Bridge Street. This ROW provides pedestrian access from Aborn and Bridge Streets to Pawtuxet Cove by means of a 4' wide strip approximately 50' in length along its eastern boundary. (CRMC ROW #K-1).

Goals and Policies:

- Preserve, protect and enhance existing public rights-of-way to the tidal waters of the City.
- Support the designation and appropriate marking of additional CRMC waterfront rights-of-way.
- Encourage the provision of public access amenities at new waterfront developments.
- Designate municipal paper streets as potential new ROWs.
- Designate easements as potential new ROWs.
- Designate drainage outfalls as potential new ROWs.
- Designate duried cables as potential new ROWs.
- Foster the development of a public recreational facility in the Fields Point vicinity that would provide adequate vehicle parking, boat launching facilities and access to a potential municipal mooring field targeted for the area.
- Support educational outreach efforts designed to raise awareness of existing public access opportunities.

Implementation Actions:

- Develop and implement a maintenance program for all municipally owned rights-of-way. Program elements should focus on upkeep of existing landscaping, trash removal and equipment/public amenities repair.

- c. To create a permanent Harbor Management Commission to serve in an advisory capacity on all future issues regarding Cranston's coastal waters and development along its shore.
- d. To provide a budget which will provide adequate funds and facilities to manage the City's harbor and coastal waters.
- e. To require the harbormaster and any assistants to be trained in CPR, basic first aid, and all certified boat safety courses offered by the state's Division of Boating Safety.
- f. To develop and adopt "no wake zones" which will ensure the safety of the boating public and the public at large.
- g. To identify and establish a program for removal of derelict docks, abandoned vessels, and other dangerous harbor structures.
- h. To ensure that all land use actions such as proposed zoning amendments and requests for variances, special permits, or other land use permit which will impact the City's coastal area are submitted to the Harbor Management Commission for advisory comments on any potential coastal impacts to the area.
- i. To have the Harbor Management Commission review the regulations and draft revisions for consideration by the City Council for enactment.

Implementation Actions:

- a. Actively involve the Harbormaster and the Harbor Management Commission, with the assistance of the state's Division of Boating Safety, and the U.S. Coast Guard Auxiliary, in the organization and participation of safe boating workshops/courses for the public.
- b. Establish a Harbor Management Commission with oversight of the harbor budget.
- c. Set up dedicated accounts for the Harbormaster salary, educational purposes and training, and an account to acquire a City boat for the harbormaster.
- d. To investigate the purchase of a City vessel for the harbormaster.

6. JURISDICTIONAL BOUNDARIES WITHIN PAWTUXET COVE

Issues:

Insure that Cranston's jurisdictional boundary clearly reflects Marsh Island as being within Cranston.

Goals and Policies:

- a. To forge an agreement with the City of Warwick regarding the jurisdictional responsibilities within Pawtuxet Cove and the jurisdictional boundary line of Marsh Island.
- b. Formalize an agreement with Warwick recognizing (and possibly expanding) the existing mooring field within Pawtuxet Cove.
- c. Establish an agreed upon number of moorings for both cities within Pawtuxet Cove.

Implementation Actions:

APPENDIX A: ACRONYMS

ACOE – Army Corps of Engineers

BMP – Best Management Practices

CRMC – Coastal Resources Management Council

CRMP – Coastal Resources Management Program

DEM – Department of Environmental Management

EPA – Environmental Protection Agency

FEMA – Federal Emergency Management Agency

HD – Historic District

HM – Harbor Master

HMC – Harbor Management Commission

HMP – Harbor Management Plan

ISDS – Individual Sewage Disposal System

MHW – Mean High Water

MLW – Mean Low Water

MSD – Marine Sanitation Device

NPSP – Nonpoint Source Pollution

ROWs – Rights of Way

USCG – United States Coast Guard

V-ZONE – Velocity Zone

APPENDIX B: APPLICATION FOR MOORING SPACE PERMIT 2008

Applicant's Name _____ Date: _____

Address: _____
Street City State Zip Code

Telephone Number: _____
Home Business

Vessel Name _____

- a. Length: _____
- b. Beam: _____
- c. Draft: _____
- d. Power/Sail: _____
- e. Current MSD Inspection Sticker : _____

Vessel Registration Number and State of Issue: _____

Mooring Tackle

- a. Mushroom anchor weight: _____
- b. Chain size and length: _____
- c. Date of Last Inspection: _____
- d. Name and address of certified mooring inspector

- DO NOT LEAVE THIS SECTION BLANK. DO NOT WRITE "SAME AS LAST YEAR". THIS INFORMATION IS REQUIRED FOR MOORING PERMIT!
- A COPY OF THE DIVER'S CERTIFICATE OR OTHER CERTIFICATION OF INSPECTION ATTESTING TO THE RELIABILITY AND SERVICEABILITY OF THE MORRING TACKLE MUST ACCOMPANY THIS PERMIT APPLICATION!

No discharge policy statement:

The City of Cranston prohibits the discharge of any sewage or pollutants whatsoever into the waters under its jurisdiction. Every mooring permittee shall be expected to abide by this policy which will be strictly enforced. Please read and sign the following certification statement.

APPENDIX C : SAMPLE IMPLEMENTATION PLAN

Each harbor management plan should incorporate an IMPLEMENTATION PLAN that provides a means of ensuring that goals and recommendations are included in the City's planning process. The Implementation Plan takes major recommendations from the HMP and:

1. Assigns responsibility within local government for each action;
2. Sets a general schedule for accomplishing each action;
3. Suggests applicable new ordinances or regulations, new city administrative services, and estimates costs involved.

RECCOMENDATIONS ACTIONS shall be supported with the following data:

1. Action –Recommended implementation action;
2. Reference – HMP page number, Section, Sub-section, etc;
3. Responsibility – The agency, board or commission which is responsible for implementation the action and reporting on progress and completion schedule;
4. Time Line – Estimated number of weeks, months, or years to complete the action;
5. Cost – Estimate of the approximate cost to complete the action.

APPENDIX D

CRANSTON STORM PREPAREDNESS AND HAZARD MITIGATION PLAN



Prepared by the Cranston Harbor Management Planning Committee
2008

**FEMA FLOOD MAPS ARE AVAILABLE FOR VIEWING AT
THE PLANNING DEPARTMENT, CRANSTON CITY HALL**
Maps effective as of November 1, 1984

act or omission in providing or arranging salvage, tonnage, medical treatment, or other assistance where the assisting person acts as an ordinary, reasonable prudent man would have acted under the same or similar circumstances.

The key phrase here is "act as an ordinary, reasonable prudent..." which dictates that the Harbormaster must act in good faith and in a reasonable, seamanlike manner. Any variance from this standard may increase liability.

This potential liability, and the fact that alternatives exist, should dissuade the Harbormaster from towing. Other resources that may be able to offer assistance can be contacted. The Coast Guard will issue a Marine Assistance Request Broadcast (MARB) which solicits voluntary response of anyone who can assist the disabled mariner (including Coast Guard Auxiliary Units and good Samaritans) (U.S. Coast Guard COMDTINST 16101.2B, p. 2). A Harbormaster may also contact a friend or family member of the boater for assistance.

Another viable form of assistance may be sought through professional towing companies that work in the area. The Harbormaster can provide the disabled boater with information on how to contact these companies, and their current rates. In most instances these firms will contact the boater directly in response to the MARB. Once the boater decides upon a service and a verbal agreement is made, the Harbormaster cannot interfere with that contract. [Safe Sea - 401-294-2360 Sea Tow - 800-338-7327]

It is clear that "good faith" actions of Harbormasters are protected, to some degree, by the "Federal Boating Safety Act of 1971," but to what extent remains uncertain. Unfortunately, there is no statutory framework from which to formulate guidelines. Issues such as this are decided by customary law, which means each case is reviewed individually by a judge and jury. Because there are so few cases involving Harbormaster liability, judges and jurors lack prior judicial decisions which set precedents. It is therefore difficult to predict the extent to which Harbormasters will be protected by the state. In order to limit the potential of being found liable, Harbormasters must realize the extent of their liability and must make rational, professional decisions which can be supported as reasonable actions before a court of law.

What is the municipalities mooring liability?

The major concern focuses on the Harbormaster's involvement with setting mooring standards, placing ground tackle and conducting inspections. In order for a Harbormaster to avoid or minimize the amount of liability he/she must exercise reasonable care. This includes:

1. setting mooring standards which are appropriate for the area. The Harbormaster must be able to justify the standards which have been set. The maximum load the mooring gear is expected to withstand must be identified and documented (Taylor, 1992);
2. providing mooring occupants with information on the stress points of moorings and offering advice on dealing with extreme weather conditions;
3. ensuring that all mooring gear under City control is routinely inspected, and that proper records of these inspections are kept. The question of liability continually arises if the city conducts the inspections itself. Liability results not because the city inspects the mooring, but because it does so improperly or fails to correct a situation in which the mooring does not meet specifications. The City of Cranston places the burden of mooring inspection on the boaters. Moorings are to be inspected at least once every three years; (see Cranston Code of Ordinances, Section Chapter 12.24.17 Mooring Inspections) and
4. identifying and correcting situations which may cause damage to a moored vessel. If a Harbormaster learns that two boats are hitting one another while on city managed moorings, the situation needs to be rectified quickly. The Harbormaster must first stop the vessels from hitting. This can be achieved by removing one of the vessels from its mooring. The Harbormaster then decides where to move the vessel. City mooring tackle specifications are indicated in the Cranston Code of Ordinances, Section 12.24.230. Information on mooring specifications and storm preparedness can be obtained through the Harbormasters Office, City Clerks Office and through any Mooring Inspector or online in the near future.

320. High Hazard Areas:

Historically, flooding has always been significant during storm events for Cranston.

330. Risk Assessment Table

Threat	Marine interest	Effect	Result -1	Result -2
Flood/surge	Boats on moorings and docks	decreased scope	Dragging	
		Lower	threaten shoreline homes	
		Middle	threaten shoreline business	
		Upper	Severe threat to auto bridge	
	Marina facility		flooded facility	floating debris
			spills of hazardous material	threaten surrounding
			Docks topping piles	freed docks and boats
	Private residences		flooded property	
			Docks topping piles	freed docks and boats
Wind	Boats on moorings		windage	Dragging or pennant
	Marina facility		windborne debris	structural damage

400. Strategies for Preparedness, Response and Recovery

410. City of Cranston - The Harbormaster will coordinate all harbor activities related to preparation, response and recovery. This will be done in coordination with the emergency management officer and other department heads.

410.1 Preparedness - The City of Cranston , through its Harbormaster, will activate the following preparedness, response and recovery plan 72 hours prior to a severe storm event or as necessary for unpredictable events.

THE SAFFIR-SIMPSON HURRICANE SCALE

The Saffir-Simpson Hurricane Scale is a 1-5 rating based on the hurricane's present intensity. This is used to give an estimate of the potential property damage and flooding expected along the coast from a hurricane landfall. Wind speed is the determining factor in the scale, as storm surge values are highly dependent on the slope of the continental shelf in the landfall region. Note that all winds are using the U.S. 1-minute average.

Category One Hurricane:

Winds 74-95 mph (64-82 kt or 119-153 km/hr). Storm surge generally 4-5 ft above normal. No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Some damage to poorly constructed signs. Also, some coastal road flooding and minor pier damage. Hurricanes Allison of 1995 and Danny of 1997 were Category One hurricanes at peak intensity.

5. Inventory and update first aid equipment and other onboard emergency tools.
6. Contact local marinas and boat moving companies for statuses to relay to mariners.
7. Maintain radio watch.
8. Alert local port community, encouraging boat owners to seek safe refuge, remove boats from water, or take action to minimize damaging effects.
9. Alert local marinas, marine interests, holders of mooring permits, and occupants of special anchorage areas to impending emergency.
10. Keep Marine Safety Office (MSO) Providence appraised of hazardous conditions in harbor.
11. Document waterfront using photographs or video.
12. Start tracking time and resource allocations for possible state and federal reimbursement.

LEVEL 2 - 48 HOURS

1. Continue to perform activities in level 3.
2. Contact mooring permit holders who are not complying with preparedness plan.
3. Assist marinas/waterfront business with special requests.
4. Continue to manage harbor traffic as it increases.
5. Finalize emergency work schedule with assistant Harbormasters.
6. Confirm arrangements to have Harbormaster vessel hauled and stored.
7. Preparation of city properties with department of public works, that includes: removing all city equipment from flood plain securing all items such as trash bins, benches, etc.. complete necessary precautions for Harbormaster office.
8. Establish liaison with police, fire and public works departments.
9. Alert maritime community to unsafe conditions in the harbor as needed.
10. Curtail regular business activities.
11. Begin regular patrols of the harbor to ensure necessary individual precautions are begin taken.
12. Advise MSO Providence as to the status of emergency preparedness in progress.
13. Alert local harbor community to any impending closure of anchorages or waterways.
14. Encourage local marinas to suspend fueling operations and to secure fueling piers sufficiently to minimize pollution threat.
15. Inventory of individuals who plan on staying on their moored vessels during the storm event.

LEVEL 1 - 24 HOURS

1. Final patrol of the harbor: inventory number of vessels and precautions taken by harbor and shoreline users .
2. Log information on transient boats (see section 425.2).
3. Fuel Harbormaster vessel.
4. Haul and store Harbor Patrol vessel with assistance of the Department of Public Works
5. Complete shoreline survey and final harbor check from shore.
6. Alert harbor community and MSO to any unsafe conditions in harbor.
7. Continue to perform pertinent level 2 activities.
8. Transient moorings **will not** be allowed to be used during any storm event.
9. Raise hurricane signal twelve hours prior to storm's arrival.

410.2 Response - The City of Cranston's policy is that no emergency watercraft shall be dispatched for emergency response during a storm event. All requests for assistance will be forwarded to the nearest Coast Guard Station. This policy shall remain in effect unless revoked by the Fire Chief or Mayor. The Harbormaster shall remain on-call to address any harbor related issues. This will also allow the Harbormaster vessel to begin operation immediately at the conclusion of storm. The Harbormaster shall monitor police, fire and marine frequencies throughout the event.

- List of facility staff who are expected to assist in preparation, response and recovery phases.
- List of hazardous material stored on site (i.e. waste oil, fuel tanks, solvents). This information can be extracted from the facilities Environmental Operations and Maintenance Plan.
- Inventory of potential recovery equipment (heavy equipment, generators), including outside contracts for special equipment for recovery phases
- Debris disposal plan
- Special assistance requested from city
- List of preparation, response and recovery activities and timing

422. Boaters - Boats moored on possible city managed moorings will be required to submit a preparedness plan. This will be accomplished by adding a preparedness plan questionnaire as part of the annual mooring renewal forms. For a mooring permit to be approved, the questionnaire must be completed and returned with the mooring application. Boaters will be expected to comply, to the best of their ability, with the plan they have prepared. The boat owner should advise the Harbormaster of any significant changes to the plan made during the boating season.

Mooring standards have been developed to maximize safety during normal weather conditions. To safeguard a moored boat during a severe storm event, additional precautions will be necessary. This actions will include:

- Improving the connection between the vessel and the mooring chain by using chafing gear and extra lines.
- Reducing windage
- Whenever possible, increase scope.

Boaters should also consider:

- Bypassing the mooring swivel and attach the chain directly to the pennant.
- Hauling their boat and storing it upland
- Leave anchor lights and auto bilge pumps on.
- Ensure that self-bailing cockpit drains are clear of debris
- Add an emergency catenary weight at the vessel end of the chain to absorb shock

Boat owners are encouraged **NOT** to stay aboard during major storm events. The City's standard procedure is not to respond to on-the-water requests for assistance during a major storm event. Such requests for assistance will be forward to the nearest U.S. Coast Guard Station.

423. Shorefront home owners- All shorefront homeowners are expected to take the necessary precautions to protect their property.

424. Special Hazards

1. Transients- vessels not usually moored in the harbor, but seeking safe refuge will be allowed to moor in the specified anchorage areas. Transit yachts will not be allowed to tie to a mooring if not authorized by both the mooring owner and the Harbormaster. Transient vessels seeking shelter will provide the Harbormaster with:
 - name of owner and captain if different.
 - home port
 - registration/documentation numbers
 - length, draft and type (power/sail)
 - number of persons aboard
 - address and phone were owner can be contacted
2. Passenger vessels and ferries- As deemed necessary by the Harbormaster, local passenger vessels and ferries will submit individual plans to the Harbormasters. These plans will include information about planned preparedness, response and recovery actions.

1. Encourage and participate in the maintenance, restoration and enhancement of beaches and dunes.
2. Limit development and redevelopment in hazardous coastal areas to protect lives and property from coastal storms and hazards. Post storm development shall avoid extensive rebuilding and intensification of land uses in critical areas and encourage reductions in the amount and intensity of development in order to reduce exposure of lives and property to coastal hazards.
3. Attempt to minimize public expenditures and reduce risk to public infrastructure and facilities through redevelopment encourage relocation of structures landward of critical areas. This can be done by influencing State policies, expenditures, and programs to reduce the amount and intensity of development and redevelopment .
4. Require shorefront areas replacement of non-conforming uses and eliminate unsafe conditions and inappropriate uses as opportunities arise.
5. Identify shorefront areas that shall be subject to post-storm regulations and acquisition in order to reduce loss of life and damage to property.

In order to further coordinate local policies contained in the comprehensive land use plan for resource protection, coastal management, the city should consider the following policies.

1. The city should work with appropriate state agencies to ensure that Post-storm shoreline management options for shoreline
2. areas shall be consistent, to the extent possible, with use, density and other land uses policies and standards contained in the comprehensive land use plan.
3. The city should create local priorities for acquiring coastal properties to promote hazard mitigation, public recreation, and resource management objectives contained in the comprehensive plan.
4. The city should consider post-storm redevelopment options impacts to evacuation routes, as determined by emergency management officials.
5. The city should maintain and or adopt minimum parcel size and configuration requirements on the subdivision of critical shoreline features.
6. The city should discourage platting of shoreline properties and encourage replatting to accommodate post-storm relocation of structures landward.

PAST STORM INFORMATION

THE GREAT NEW ENGLAND HURRICANE of 1938 (CAT 3 - September 21)

The Great New England Hurricane of 1938 was one of the most destructive and powerful storms ever to strike southern New England. This system developed in the far eastern Atlantic, near the Cape Verde Islands on September 4. It made a twelve day journey across the Atlantic and up the eastern seaboard before crashing ashore on September 21 at Suffolk County, Long Island, then into Milford, Connecticut. The eye of the hurricane was observed in New Haven, Connecticut, 10 miles east of Milford. The center made landfall at the time of astronomical high tide, moving north at 60 mph. Unlike most storms, the hurricane did not weaken on its way toward southern New England, due to its rapid forward speed and its track. This kept the center of the storm over the warm waters of the Gulf Stream.

Sustained hurricane force winds occurred throughout most of southern New England. The strongest winds ever recorded in the region occurred at the Blue Hill Observatory with sustained winds of 121 mph and a peak gust of 186 mph. Sustained winds of 91 mph with a gust to 121 mph was reported on Block Island. Providence, Rhode Island recorded sustained winds of 100 mph with a gust to 125 mph. Extensive damage occurred to roofs, trees and crops. Widespread power outages occurred, which in some areas lasted several weeks. In Connecticut, downed power lines resulted in catastrophic fires to sections of New London and Mystic. The lowest pressure at the time of landfall occurred on the south side of Long Island, at Bellport, where a reading of 27.94 inches was recorded. Other low pressures included 28.00 inches in Middletown, Connecticut and 28.04 inches in Hartford, Connecticut.

Coastal communities from central Connecticut eastward were devastated. Entire coastal communities were nearly wiped out in New London, Groton, and Mystic, Connecticut, as well as from Westerly to Narragansett, Rhode Island. Once again, as in the 1938 hurricane, downtown Providence, Rhode Island was flooded under 12 feet of water.

Rainfall amounts ranged from 2 to 5 inches across most of the area. The heaviest amounts, up to 6 inches, occurred in the New London, Connecticut area in the vicinity of landfall, and across extreme north central Massachusetts.

Hurricane Carol destroyed nearly 4000 homes, along with 3500 automobiles and over 3000 boats. All of Rhode Island and much of eastern Connecticut and eastern Massachusetts lost electrical power. In addition, as much as ninety-five percent of all phone power was interrupted in these locations.

This information was taken from SOUTHERN NEW ENGLAND TROPICAL STORMS AND HURRICANES, A Ninety-eight Year Summary 1909-1997, by David R. Vallee and Michael R. Dion, National Weather Service, Taunton, MA.

APPENDIX E

HARBOR ORDINANCES CRANSTON HARBOR PLAN ADOPTED _____

CHAPTER 2.32 HARBOR MASTER

2.32.010 PURPOSE OF CHAPTER

The purpose of this chapter is to:

1. Manage the waters of the City and balance the diverse uses of the waters and waterfront;
2. Maintain and improve shoreline public access and water quality;
3. Continue to support opportunities for commercial fishing and recreational boating; and
4. Remain consistent with the goals and policies of the City Harbor Management Plan [HMP], the City's comprehensive plan, the State's Coastal Resources Management Program [CRMP] the Rhode Island Department of Environmental Management [DEM], and the US Army Corps of Engineers.

2.32.020 DEFINITIONS

The following words, terms and phrases, when used in this Chapter and in Chapter 12.24, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Anchoring means to secure a vessel temporarily to the bottom of a water body by dropping an anchor or other ground tackle from a vessel.

Boat launching ramp means any manmade or natural facility used for the launching and retrieval of boats. (Article 300.4, CRMP)

Channel means any water areas reserved for unobstructed movement of vessels.

Commercial fisherman means an active, full-time fisherman with a current commercial license and a working commercial vessel.

Commercial mooring means any mooring that the owner does not keep their own personal boat on. (note: In contrast to a commercial mooring, a riparian guest mooring that the owner does not keep their personal boat may not be rented, leased, or otherwise made available for a fee of any kind).

Fairway means any locally designated and/or maintained water areas reserved from unobstructed movement of vessels.

Harbor Committee means the body established to carry out the provisions of this Chapter and the responsibility associated with the management of the HMP.

Harbormaster means that person appointed by the City Council to implement the harbor management plan and ordinance consistent with RIGL 46-4-6.15 and the CRMC's Coastal Resources Management Program.

2. Any person violating the provisions of this chapter shall be subject to a penalty not to exceed those in the following table:

OFFENSE	FINE/PENALTY
VESSEL REGISTRATION RIGL 46-22-3	
Unregistered	Violation. Up to \$100.00
Numbers not displayed	Violation. Up to \$100.00
Possession of a vessel with the hull ID number altered, removed or destroyed	Up to \$500.00
VESSEL OPERATION	
Excessive speed or wake: RIGL 46-22-9.5	
Up to ten miles	\$25.00
11 miles to 15 miles	\$50.00
16 miles to 20 miles	\$75.00
21 miles to 25 miles	\$100.00
Over 25 miles, per mile	\$5.00
Improper operation in swimming area or restricted area RIGL 46-22-9	Up to \$1,000.00 and/or one year imprisonment
Operation in a reckless manner RIGL 46-22-9	Up to \$1,000.00 and/or one year imprisonment
Refusal to stop when ordered RIGL 46-22-9	Up to \$1,000.00 and/or one year imprisonment
Inadequate boat personnel	Up to \$200.00
Underage boat personnel	Up to \$200.00
Failure to use personal floatation devices	Up to \$200.00
Operation outside time limits	Up to \$200.00
Any other personal watercraft offense of RIGL 46-27-2 not specified herein	Up to \$500.00
Interference with other vessel	Up to \$100.00

exercise thereof, shall have the authority to stop and board any vessel within the water subject to the jurisdiction of the City pursuant to G.L. 1956, § 46- 22-17.

4. Any patrol boat used for the service of the City shall keep a log in a manner satisfactory to the harbormaster. Such log shall indicate the date, time and service, weather conditions, wind conditions, area patrolled at one-half hour intervals, gas consumption and a description of occurrences, incidences and other confrontations.
 5. All regulations relating to the City's boating regulation program shall be maintained by the offices of the Mayor and City Clerk, and all violations shall be processed by the harbormaster in accordance with provisions of law applicable thereto.
- B. Enforcement of operation and equipping of vessels. The State law provisions concerning operation and equipping of vessels shall be adopted as follows:
1. The City Council adopts all of the provisions of G.L. 1956, § 46-22-1 et seq., relating to the operation and equipment of vessels and motorboats within the water subject to the jurisdiction of the City.
 2. The City Council adopts all of the provisions of G.L. 1956, § 46-27-1 et seq., relating to the operation of personal watercrafts.

AREAS UNDER JURISDICTION

Cranston's waterfront lies directly south of the industrially prominent coastline of the City of Providence and Field's Point. The coastal waters and harbor areas of the City included under the jurisdiction of this Chapter include those waters within Pawtuxet Cove and Cranston to the inshore bounds of the federal channel starting at the northwesterly bound of the Providence-Cranston line extending southerly to the northeasterly point of the Cranston/Warwick line.

2.32.060 DEPOSIT OF REVENUE INTO ENTERPRISE ACCOUNT

All revenue generated by City boat launching fees, mooring permit fees, qualified mooring inspectors, other fees of this Chapter, and fines levied under the authority of this Chapter shall be deposited into the Harbor Management Enterprise Account whose use shall be restricted to the funding of harbor management activities including the management and implementation of the City's HMP and the Cranston Code of Ordinances Chapters 2.32 and 12.24.

2.32.070 LIABILITY

Persons using the coastal waters and harbor areas of the City shall assume all risk of personal injury and damage or loss to their property. The City assumes no risk on account of accident, fire, theft, vandalism or acts of God.

2.32.080 INFORMAL PROCEDURE FOR PAYMENT OF BOATING VIOLATION FINES

- A. *Payment without personal appearance.* Whenever a person shall be charged with a violation of any of the provisions of this Chapter or other ordinances of the City relating to harbor management, the jurisdiction and cognizance of which is in a municipal court, and such person is notified in writing by a the harbor master or any other duly authorized enforcement officer to appear on a day and date and hour stated in such notice to answer such charge before the municipal court having jurisdiction thereof, such person instead of personally appearing in court, may in person or by one duly authorized by him or her in writing appear at the police headquarters, admit the truth of such charge and pay to

CHAPTER 12.24 HAROR REGULATIONS

12.24.010 DEFINITIONS

Where words or phrases used in this Chapter are defined in the definitions section of Chapter 2.32 Harbor Master, they have the meanings stated in said Chapter.

12.24.020 VESSEL SPEED ZONES

The City hereby designates the following vessel speed zones, to be established and marked immediately by City Council petition to the State DEM, Division of Enforcement:

- *Mooring fields.* Vessel speed shall not exceed five miles per hour, nor create wake in any mooring field, as established and described in the harbor management plan.
- *Dock areas.* Vessel speed shall not exceed five miles per hour, nor create wake in any dock areas, as established and described in the harbor management plan.
- *Shallow Water habitat* [submerged aquatic vegetation, intertidal flats, tidal wetland] Vessel access to said areas shall be prohibited. Vessel speeds abutting said areas shall not exceed five miles per hour, nor create wake nor prop wash which may damage said areas.

12.24.030 VESSEL OPERATIONS

Vessels used alone or engaged in activities including, but limited to, water skiing, jet skiing, paragliding and other like uses are not allowed within 200 feet of any swimming area, mooring area, shore side facility, rights of way ingress and egress point, launching ramp or navigation fairway. Vessels used in these manners are allowed within 200 feet of shore side facilities when the sole purpose is to begin or end such activity.

12.24.040 OBSTRUCTION OF CHANNELS

No vessel shall be moored or anchored so as to interfere with the free and unobstructed use any channels within the areas under City jurisdiction as detailed in Section 8-5.

12.24.050 SWIMMING AND WATERSKIING

Swimming is prohibited in all City launching areas. In mooring fields and transient anchorage areas swimming is prohibited, with the exception of vessel owners or crews or persons contracted to do maintenance on the boat or its mooring tackle within a reasonable distance of said boat. Waterskiing shall be prohibited in all designated channels and mooring areas.

12.24.060 FISHING AND PLACEMENT OF FISHING GEAR

The placement of fish nets is prohibited in all mooring fields.

12.24.070 BOAT SEWAGE WASTES NO DISCHARGE ZONE

The disposal of untreated boat sewage wastes by any means into the coastal waters of the City is prohibited. No person shall operate a marine sanitation device at any time so as to create or permit to pass or to be discharged any sewage into the waters of the City. For the purpose of this Chapter, a marine sanitation device will be in operation when the Y valve is in the open position. Penalty for violation of this section shall be a fine of \$500.00 for the first offense. The second offense will result in a fine of \$1,000.00 and forfeiture of all mooring permits and/or dock slips in the name of the offender.

- C. Any person in violation of this section shall be subject to a fine in accordance with Section 8-3 of this Chapter.

12.24.150 TRANSIENT ANCHORING AND ANCHORAGES

- A. A vessel may anchor on its own anchor in the coastal waters and harbor areas of the City except in federal navigation channels, shellfish transplant beds, mooring fields, swimming areas, rights-of-way ingress and egress areas, and launching ramp areas. No vessel anchored under such conditions shall be left unattended. Owners and/or operators of such vessels may go ashore, but must be available to tend the vessel in the event of heavy weather. It shall be the vessel owner's and/or operator's responsibility to remain clear of all moored vessels, and other structures.
- B. Transient anchorages. The following areas are established for use as transient anchorage areas:
North of Stillhouse Cove.

12.24.160 FAILURE TO STOP

It shall be a violation of this Chapter for any person to refuse to move or stop on oral command or order of the harbormaster or assistant harbormasters operating from a patrol boat identified as such and exercising the duties lawfully assigned to him.

12.24.170 MOORING INSPECTIONS

- A. All new moorings in the coastal waters and harbor areas of the City must have the chain, tackle and anchor inspected by the harbormaster or his designee prior to setting the mooring.
- B. Every permit holder shall be required to maintain his mooring in safe condition. Any chain, shackle, swivel or other tackle which has become warped or worn by one-third its normal diameter shall be replaced. Failure to maintain a safe mooring shall be cause for revocation of the mooring permit and shall be deemed a violation of this article. The harbormaster or his designee may inspect any moorings at any time to determine compliance with this section.
- C. All moorings shall be inspected once every three years, and the results of such inspection shall be reported to the harbormaster by September 1. Mooring inspections shall be performed by a qualified inspector. The inspection shall be made by either raising the mooring or by underwater inspection. Such inspection shall determine compliance with the mooring and mooring tackle standards of the mooring and dock regulations of this article. Any mooring or component of a mooring reported not in compliance with the mooring and dock regulations shall be replaced or if need be relocated within 30 days of such notice. Any mooring washed ashore during a storm shall be inspected by the harbormaster or his designee before it is reset. All costs of any mooring inspection required under the provisions of this article shall be the responsibility of the mooring owner.
- D. Within 45 days after a mooring and/or its mooring tackle has been reported to violate any requirements of the mooring and dock regulations of this article, a second mooring inspection must be completed to determine if the violation has been corrected and meets the standards detailed in the mooring and dock regulations of this article. The results of such second mooring inspection must be reported to the harbormaster. Failure to correct the violation shall cause the mooring to be deemed not safe and shall be cause for the revocation of the mooring permit, a violation of this article, and subject to the removal of the mooring from the coastal waters and harbor areas of the City, in accordance with any provision of this article at the risk and expense of the mooring owner.

3. Thereafter, all private moorings that are forfeited by or not renewed by a holder of a valid mooring permit shall be made available to individuals on the waiting list.
4. No existing private mooring shall be allowed to transfer to a commercial mooring without prior authorization from the harbormaster.

E. *Existing Moorings.* The moorings placed and owned by

- Edgewood Yacht Club
- Rhode Island Yacht Club
- Port Edgewood Marina
- any riparian property owner

shall be deemed to have been granted a mooring permit at the time this Chapter is adopted by the City. Within six months after the adoption of this Chapter, all riparian owners, Port Edgewood Marina, the Edgewood Yacht Club and the Rhode Island Yacht Club shall provide to the harbormaster a listing of mooring existing as of the date of adoption by the City of this Chapter and provided a plan showing the location of said moorings. Any mooring not associated with the Edgewood or Rhode Island Yacht Clubs or a riparian property owner shall not be considered to have been granted a mooring permit at the time this Chapter is adopted by the City. All such moorings shall be subject to removal by order of the harbormaster.

F. *New moorings* Available spaces for new moorings shall be assigned by the harbormaster to the person next on the waiting list whose boat fits the space.

G. *Increase in boat size.* Mooring permit holders who plan to put a larger boat on their mooring must file an application form with the harbormaster to receive his authorization. Failure to comply with this regulation can result in forfeiture of the mooring permit.

H. *Annual permit fee.* The harbormaster shall collect an annual permit fee of \$125.00 per mooring for any new riparian or private mooring assigned after the date that this Chapter has been adopted by the City. The harbormaster shall collect an annual permit fee equaling the top permit fee being charged to the Edgewood Yacht Club, Rhode Island Yacht Club, or Port Edgewood Marina rate for for any new mooring assigned to said entities after the date that this Chapter has been adopted by the City For any mooring in existence as of the date this Chapter is adopted by City, the harbormaster shall collect an annual permit fee in accordance with the following scheudle:

YEAR	PERMIT FEE
2009	\$20.00 per mooring**
2010	\$40.00 per mooring**
2011	\$60.00 per mooring.**
2012	\$80.00 per mooring**

** By no later than July 1st of each year, Edgewood Yacht Club, Rhode Island Yacht Club, or Port Edgewood Marina shall provide the harbor master with a listing of mooring that they are ussing during the current year. A mooring fee will not be charged for the year for any existing mooring that is not being used for that year.

I. *Request for a mooring permit.*

1. To be eligible for a new mooring permit, an applicant must own a boat for which a private mooring permit is being sought, or be a commercial mooring operator or yacht club.
2. All requests for mooring permits shall be submitted to the harbormaster on the application forms provided by the harbormaster.

3. Any request received by the harbormaster that is not complete shall be returned to the applicant and no action will be taken on the request.
- L. *Failure to renew an existing valid mooring permit.* Failure to renew an existing valid mooring permit in accordance with the provisions of these regulations shall result in the permitted owner's abandonment of all his privileges in the previously permitted mooring space. Upon the written request of the harbormaster the permit holder shall immediately remove the mooring tackle from the mooring space. If the permit holder does not remove the mooring tackle within 30 days of the written request, the harbormaster may remove the now abandoned mooring tackle at the permit holder's expense.
- M. *Forfeiture of mooring space.* Any permit holder shall be deemed to have forfeited his mooring space by reason of any one of the following:
1. Failure to comply with any of the requirements of this chapter;
 2. Removal of mooring and mooring tackle and notification to the harbormaster that the mooring has been forfeited;
 3. Failure to respond to the harbormaster's notice that (i) the mooring does not comply with the mooring tackle standard's set forth in this chapter and all applicable regulations, or (ii) that the mooring has been displaced or moved from its permitted location without approval;
 4. Failure to display the mooring sticker on the mooring buoy;
 5. Failure to resurface, repair or replace mooring tackle within 60 days after being advised to do so by the harbormaster.
- N. *Removal of mooring from forfeited mooring space.* The harbormaster shall send a letter, by registered mail, to the mooring owner advising of the reason for forfeiture as stated above. The mooring owner shall be given a reasonable time frame for compliance; and, if they do not comply, then the harbormaster's office shall cause the mooring to be removed at the owner's expense. If a boat is tied to the mooring, the boat will also be removed and stored at the owner's expense.
- O. *Available spaces.* As of June 1 of each year, the harbormaster shall determine the number of mooring permits available for mooring placement. The number of permits available shall equal the number of spaces authorized by this article, minus the sum of all acceptable mooring permit renewal applications. The available mooring permits shall be made available first to those persons whose names appear on the waiting list whose boat fits the mooring.
- P. *Waiting list.* The harbormaster shall maintain a waiting list of all new applications for private and commercial mooring permits. When no mooring space is available for new or relocated moorings, applications shall be placed on the waiting list upon receipt of a completed application made in accordance with this section in the order in which they are received by the harbormaster. The harbormaster shall update the waiting list twice a year and make the waiting list available for public review at all times. The waiting list shall show the names of the persons desiring the mooring space, the date of application, the area in which such space is desired; and, the size of the boat for which the mooring space has been requested. The waiting list shall be updated once a month; and, shall be posted at the harbormaster's office and City hall at all times.
- Q. *Occupancy of mooring.*
1. No vessel shall occupy a mooring other than the one for which it has been permitted. The harbormaster shall have the authority to move or cause to be moved any vessel violating the provisions of this section, at the expense and risk of the vessel owner.

moorings, shall be in accordance with the Harbor Management Plan. Except for riparian moorings all moorings and their associated vessels must remain within the perimeter limit of the mooring area to which they are assigned by the harbormaster under a current and valid permit. Except for riparian moorings all moorings and their associated vessels must remain within the perimeter limit of the mooring area to which they are assigned by the harbormaster under a current and valid permit.

B. *Mooring field siting standards.* All designated mooring fields sited within the coastal waters and harbor areas of the City shall be setback a minimum distance:

1. From riparian moorings and shoreline rights of ways that which is sufficient to allow ingress and egress and to prevent interference with the exercise of private and public rights.
2. Fifty (50) feet from all residential or commercial docks, piers, floats and public launching ramps.
3. Public mooring areas shall be setback from Federal Navigation projects at least three times the U.S. Army Corps of Engineers authorized project depth from federal navigational projects.
4. Private commercial moorings shall be prohibited in Federal Navigation Projects.
5. All new and significantly expanded mooring fields shall be sited to ensure that tides and currents aid in flushing the mooring area.
6. All new and significantly expanded mooring areas shall be sited to avoid adverse effects on water quality
7. Mooring areas shall be sited so as to not substantially interfere with designated shellfish management areas, traditional fishing grounds, public recreational areas and conservation areas.
8. Mooring area shall be sited so as to not significantly effect finfish and or shellfish resources, wetlands, submerged aquatic vegetation and aquatic habitat.
9. Moorings areas shall be adequately serviced by maintained and accessible pump out facilities.

C. *Mooring field designations.* Certain waters of the City shall be designated as mooring fields. Those waters authorized for the placement of permitted moorings shall be located in accordance with all policies of the City's harbor management plan, the policies and requirements of the coastal resources management council's guidelines for the development of municipal harbor management plans, and the CRMC's management procedures for siting mooring fields. Any revisions to the size, and/or location of these mooring field designations shall require the approval of the Harbor Commission, the City Council, and the CRMC before the revisions may take effect.

D. *MAXIMUM NUMBER OF MOORINGS: Reserved*

12.24.230 MOORING TACKLE SPECIFICATIONS

A. Moorings and mooring tackle shall meet the minimum standards set forth in all applicable the following specifications and tables:

1. The minimum length of the pennant should be 2 1/2 times the distance from the bow chock to the water plus the distance from the bow chock to the mooring cleat or post. The maximum length shall not exceed three-fourths the length of the boat.
2. All pennant lines running through a chock or any other object where chafing may occur should have adequate chafeguards.

37 to 44.....	5/8
45 to 55.....	5/8

PENNANT DIAMETER:

<i>Length of Boat (feet)</i>	<i>Nylon only-- Minimum Diameter (inches)</i>
Up to 20.....	5/8
21 to 26.....	3/4
27 to 36.....	7/8
37 to 44.....	1
45 to 55.....	1 1/4

- B. Transition Rule: The specification required under this Section shall be effective upon adoption of this Chapter [12.24]. Moorings in existence on that date not in conformance with these specifications excluding number 7 above shall be brought into compliance by March 1, 2010. New moorings must comply before the initial permit is issued. The specifications of number 7 shall be met by all moorings on or before March 1, 2009.
- C. The harbormaster may approve informal variances to mooring tackle specifications, other than those minimum standards described herein, for specific cases if such specifications are inappropriate for the area in which a mooring will be located. The harbormaster must file such variance with the harbor commission.

12.24.240 Records and Numbering

- A. The harbormaster shall keep a detailed record of all moorings and dock slips and their location based on a current harbor management plan. The records shall include the owner's name, home and business address, telephone number(s), permit number and mooring number, the date the mooring was placed, last mooring inspection date, and all vessel data.
- B. Each mooring located in the City of Cranston, once permitted, shall be assigned a mooring number by the harbormaster. The number will be displayed in contrasting color in two places on each mooring buoy or pick-up float in block letters at least three inches in height. Winter stakes shall be numbered with the same number as the mooring. Any mooring or winter stake not displaying a registration number will be considered a not-permitted mooring and will be removed in accordance with any provision of this article.

