The City of East Providence

Harbor Management Plan

Prepared by the
East Providence Harbor Commission
1992
(updated 2011)

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CHAPTER I. OVERVIEW

Introduction

The East Providence Harbor Management Plan was originally adopted by the City Council in 1992 and was updated in 2011 with technical assistance provided by the Rhode Island Coastal Resource Management Council (CRMC) and East Providence Planning Department. An advertised public workshop was held on February 8, 2011, which was hosted by the Harbor Commission to identify issues and solicit comments from the public and Harbor Commission members. This plan was not created to supersede the recommendations of previous plans, but to build upon them in the creation of a comprehensive harbor management plan that will allow for positive management of the activities within the jurisdictional waters of East Providence.

Definition and Purpose

A Harbor Management Plan is a comprehensive document that establishes a long term management plan for the activities occurring within the City's harbors and waterways through the development of issues, goals, objectives, policies and recommendations. The Coastal Resources Management Council (CRMC) states that:

> *"the purpose of a municipal Harbor Management Plan shall be to 1) Provide a comprehensive and long term evaluation of municipal harbor management activities; 2) Provide for a comprehensive evaluation of current and/or proposed municipal harbor management programs, ordinances, or regulations with applicable regulatory and management program requirements of the State of Rhode Island; 3) Promote delegation of primary management authority over consistent management programs and responsibilities to the municipalities. Title 46, Section 4 of the General Laws of Rhode Island grants municipalities the authority to establish Harbormaster ordinances as well as rules and regulations pertaining to the administration and management of their harbor waters"* (CRMC, Guidelines for the Development of Municipal Harbor Management Plans, November, 1988).

The Harbor Management Plan deals with all major issues pertaining to landside and waterside use. Major issues addressed in this plan include: Mooring Management, Public Access, Water Quality, Boating Safety and Storm Preparedness.

CHAPTER II. PUBLIC OPINION ON HARBOR USES

Results From Public Workshops

During the 1992 Harbor Management Plan preparation process, the public was encouraged to attend the Harbor Commission meetings in addition to three (3) public workshops which were held to formally receive public input. During these meetings and workshops, a large number of issues and concerns were raised by the public. Many of these concerns were incorporated in the development of the 1992 plan for the formation of the goals, objectives and recommendations. Important issues raised during the 1992 Harbor Management Plan's public comment period included:

Moorings

- The need for fair and equitable mooring allocation system.
- The need for an appeals mechanism in the mooring permit application process.
- The City needs to establish how many boats Bullock Cove can safely accommodate to help reduce hazards and property damage.
- The City needs to establish minimum usage standards for moorings.
- Minimum mooring tackle specifications should be developed.
- The City needs to develop additional mooring fields to increase the number of available moorings for the public.
- What impact will additional moorings have on water quality?
- What impact would new mooring fields have on the adjoining neighborhoods?
- Mooring fields in Bullock Cove are too crowded. Boats are being moored in navigation channels and fairways.

Public Access

- Public access to the City's waters needs to be improved. Few people know where the public access points are.
- Public access ways are poorly marked and in poor condition. They need to be improved.
- Need better shore side access to the existing mooring fields.
- Will access way improvements create problems with increased noise, trash buildup and access way degradation?

Water Quality

- Water quality in East Providence needs to be improved to create a more usable resource in the future.
- The City needs to improve facilities and develop policies to deal with trash, vessel wastes and other problems that show potential to further degrade the waters of East Providence.

Boating Safety

- There is a need for improved and/or increased monitoring and patrolling of the waters of East Providence.
- There is a need for increased boating safety awareness for the users of the City's waters. Boater education should be a greater priority in East Providence.

Since 1992, the Harbor Management Commission implemented a number of policies and procedures to address the above issues that include: a formal mooring application process; mooring tackle standards and specifications; GPS verified mooring field charts; amendments to the City charter that created job classifications and minimum qualifications for the positions of Harbormaster and Assistant Harbormaster; identification and recommendations to improve public access to the City's shorelines; and a no-discharge compliance program.

During the preparation of the 2011 plan update an advertised public workshop was held on February 8, 2011 to solicit comments from the public, boat users and harbor commission members. The public workshop was not attended by a single resident or boat user, however during the public workshop the commission members identified the following issues as priorities to be addressed by the Harbor Management Commission:

- Determine the maximum number of boats Bullock Cove can safely accommodate to reduce hazards and property damage;
- Many public access points to the City's shorelines are poorly marked and/or overgrown with vegetation; and
- A lack of shoreline access points to existing mooring fields.

Results From Past Studies

A number of previous studies have identified issues pertinent to the development of the waterfront of East Providence. These studies relied heavily upon input from the public. As a result of this public opinion process, much of the groundwork in the development of this Harbor Management Plan has been substantially covered in the preparation of these previous plans.

The Coastal Resources Management Council (CRMC) is authorized under the federal Coastal Zone Management Act of 1972 to develop and implement Special Area Management Plans (SAMPs) to address specific regional issues. These plans are ecosystem-based management strategies that are consistent with the council's legislative mandate to preserve and restore ecological systems. The CRMC coordinates with local municipalities, as well as government agencies and community organizations, to prepare the SAMPs and implement the management strategies.

As of January 2011, the Rhode Island Sea Grant is working in coordination with the communities of Cranston, East Providence, Pawtucket, and Providence to make Narragansett Bay's largest urban waterfront a more appealing place to live and work by:

- Improving the economic, social, and environmental resources of the working waterfront;
- Attracting world-class developers by making permitting more predictable and efficient; and
- Providing recreational opportunities and public access to the water.

The Rhode Island Sea Grant and the Rhode Island Coastal Resources Management Council have supported these efforts through development of the Metro Bay Special Area Management Plan (SAMP). SAMPs refine the state coastal program by taking a regional integrated approach in setting coastal management goals and policies. SAMPs are federally recognized upon state approval.

The East Providence City Council adopted the "*East Providence Waterfront Special Development District Plan*" on December 2, 2003 which articulates a plan and strategies to transform over 300 acres of the City's currently underutilized waterfront along the Providence and Seekonk Rivers to a mix of land uses, including: commercial; office; medium and high density residential; entertainment and hospitality; restaurants; marinas; civic, and recreational uses, particularly those oriented towards the water. It is the City's intention to foster a rebirth of its waterfront that will result in a new city with a mix of quality development and land uses that generate year-round activity, with linkages to the surrounding neighborhoods, downtown amenities, labor, access to infrastructure, and the recreational and scenic attributes of a waterfront location.

Following the adoption of the "*East Providence Waterfront Special Development District Plan*", on March 2, 2004 the City Council created by ordinance the waterfront districts, which divides the City's 300 acres along the waterfront into six separate zones of activity, each with unique development characteristics and potential. These zones are identified as special development sub-districts. A range of general land uses are within each of the waterfront sub-districts that allow a variety of land uses that include commercial (i.e. restaurants, clubhouses, marinas and retail), residential (i.e. single-family, condo, high density multi-family residential), hospitality (i.e. hotels, cafes, restaurants, bars and entertainment venues), and technology (i.e. light manufacturing, research and development).

CHAPTER III. HARBOR DESCRIPTION AND RESOURCE INVENTORY

History

East Providence was originally settled by Roger Williams and his followers in the spring of 1636 on a site near present day Omega Pond. Roger Williams named the cove and the surrounding land "Seakunke" (an Indian term meaning "home of the black geese"). This settlement was short lived, however, and soon after, Williams and his followers crossed the Seekonk River to create a settlement in Providence. Several years later, a new settlement was established near Omega Pond not far from William's original settlement site. The new settlement flourished and expanded. At that time the community was known as Rehoboth and its domain consisted of present day Riverside and Barrington. The area around Omega Pond became the nucleus of Rehoboth and much of the area's trade originated from the shores adjacent to the pond. Later, ferries were introduced to transport goods to and from the Providence side of the Seekonk River. In 1793, John Brown built a bridge connecting the two communities, making the movement of goods and people a much easier proposition.

During the American Revolution a small earthworks fort was built atop Fort Hill to defend Providence Harbor in the event of an attack from the British. After the revolution, the industrial and commercial development of the Providence and Seekonk Rivers continued.

The Town of East Providence was incorporated in 1862. East Providence was at first primarily an agricultural community, and developed through the 19th and early 20th century as such. The waterfront was always recognized as an important resource for commerce and trade to the community. Much of the land uses along the Providence and Seekonk Rivers were industrial uses which placed a heavy reliance on the water for transportation and power generation. Railroad lines linking these waterfront sites with inland areas further added to the industrialization of the City’s coastline.

In time, the Watchemoket section of East Providence became the industrial and commerce center of the community, due mainly to the fact that the area was accessible by the City’s coastline and a north/south rail line. Watchemoket’s proximity to important bridges and interior roadways also contributed to its industrial and commercial growth. Early industrial uses along the rivers did not make provisions for public access and as a result, most of the town's northern coastline is inaccessible to the general public for recreational use. This pattern of industrialization which developed along the waterfront still exists to this day with very few public access points designated along this coastline of the Seekonk River.

The southern coastline of East Providence developed differently than its northern counterpart.

Portions of the waterfront in Riverside became famous as a recreation destination. Summer recreation and tourist sites appeared in such numbers, that the Riverside area eventually received recognition in the late 19th century as the "Coney Island of New England". Hotels, cottages, amusement parks and shore dinner halls sprouted up along the coastline. Examples include the Vue de L'Eau Hotel (1842), the Ocean Cottage (1863), The Silver Spring House (1869), the What Cheer House (1870), Crescent Park (1886), and the short lived amusement parks, Vanity Fair (1907) and Boyden Heights. As recreational and tourism facilities in Narragansett and South Kingstown became more accessible to urban vacationers, many of East Providence's facilities slowly degraded or went out of business. By the early 20th Century most of these facilities were gone, replaced by either industrial, commercial or residential development. The last remaining extensive recreational facility, Crescent Park, closed in 1977 (although the Park's carousel which was designed by Charles I.D. Looff remains in operation has been restored and maintained by the City of East Providence).

During the 20th Century additional industrial development occurred along the City's waterfront in the form of oil refineries and tank storage farms. In 1917 Standard Oil (Socony-Mobil) constructed one of the first tank storage farms in an area west of Silver Spring Golf Course. During the 1920's, several other oil companies developed tank farms and port facilities along the City's shoreline that include the Gulf Oil facility at Kettle Point, Union American (AMOCO), Exxon, Atlantic-Richfield (ARCO) and Getty. Currently, the only tanks located on the City's shoreline are those in the vicinity of Massasoit Avenue/Dexter Road operated by Getty Oil and Capital Terminals, and the only off-shore loading facilities of petroleum products occurs at the Wilkes-Barre pier located south of the Washington Bridge and the Mobil/Exxon facility located west of the Silver Spring Golf coarse.

Physical Setting

East Providence is located at the head of Narragansett Bay on the east bank of the Providence River. The City's northern shore is bounded by the Seekonk River with its northern corporate boundary abutting the City of Pawtucket, its southern corporate boundary abutting the Town of Barrington and its Eastern boundary abutting the town of Seekonk, Massachusetts.

There are two large coves in East Providence: Watchemoket Cove and Bullock Cove. Watchemoket Cove is classified by the CRMC as type 1, and as a result the cover is restricted to conservation activities. Bullock Cove has a north and a south water bodies. The north water body is classified as type 1 and the south water body is classified as type 3, which allows for high intensity boating activity. Bullock Cove contains a large number of both moorings and slips located on both the Barrington and East Providence side of the Cove. A Federal channel with two associated mooring fields also exists within the Cove.

Harbor Boundaries

The harbor line boundaries of East Providence and jurisdiction of these waters as established by the Rhode Island General Laws, Section 46-4-5 and are delineated as follows:

> "*The jurisdiction of the City of East Providence shall include all of the public waters easterly of the easterly sides of the ship channels in the Seekonk River, Providence River and harbor and Narragansett Bay from the Pawtucket-East Providence City line southerly to the point of intersection of said ship channel sides with a straight line drawn from Gaspee Point on the west shore to Nayatt Point on the east shore; and all of the public waters on the northerly side of a line running sixty five (65) degrees true from the said intersection formed by the straight line drawn from Gaspee Point to Nayatt Point and the said ship channel side to the point of intersection with the east Providence-Barrington boundary line; and all of the public waters westerly and northerly in Bullock Cove, of the East Providence-Barrington boundary line to the point of an intersection of said boundary line and the mean high water line."* (Rhode Island General Laws, Section 46-4-5)

CRMC Water Type Designations and Priority Uses

The Coastal Resources Management Council has classified the waters of East Providence as follows:

Seekonk River: The Seekonk River along the City's shoreline is designated as type 4 (multi purpose waters) from the Washington Bridge to the East Providence/Pawtucket boundary. A narrow navigation channel of the Seekonk River is designated as a type 6 (industrial waterfronts and commercial navigational channels).

Providence River: A number of different water classifications are present along the City's shoreline of the Providence River that include types 2, 4, 5, and 6. A type 5 designation (recreation and commercial harbors) is present from Bold Point Park to the Mobil Oil terminal. A type 6 designation (industrial waterfront and commercial navigation channels) is present along the shoreline of the Providence & Worcester Railroad South Quay. A type 5 designation is present from the Providence & Worcester Railroad South Quay to Kettle Point. A type 2 designation extends from the Kettle Point to the Squantum Association property, and is present from the

Pomham Lighthouse to the southern point of the Terrace.

Watchemoket Cove: All waters of the Cove east of the western edge of the former railroad causeway are designated as type 1 waters (Conservation).

Bullock Cove: Between the Crescent View Avenue culverts and Little Neck Cemetery is designated as type 1 (conservation area). South of the Crescent View Avenue culverts is classified as type 3 (high intensity boating).

The goals and priority uses for the five CRMC water types that occur in the City of East Providence are as follows:

- Type 1: Preserve and protect type 1 waters from activities and uses that have the potential to degrade scenic, wildlife, and plant habitat values, or which may adversely impact water quality or natural shoreline types;

- Type 2: Maintain and, where possible, restore the high scenic value, water quality, and natural habitat values of these areas, while providing for low-intensity uses that will not detract from these values;

- Type 3: 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: 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; and,

- Type 6: The highest priority uses of type 6 waters and adjacent lands under Council jurisdiction are: (a) berthing, loading and unloading, and servicing of commercial vessels; (b) construction and maintenance of port facilities, navigation channels, and berths; and (c) construction and maintenance of facilities required for the support of commercial shipping and fishing activities.

Water Quality

The Rhode Island Department of Environmental Management, in conjunction with the Rhode

Island Department of Health, initiated water quality standards for both freshwater and saltwater resources throughout the State in the mid 1970's. These standards established minimal physical and chemical standards as well as allowable uses within each water quality classification. The RIDEM has categorized the saltwater resources of the State based on water quality goals for the future that may not reflect actual conditions of the water at the present time. This is the case with all of the saltwater bodies within East Providence's jurisdiction.

According to the July 2006 (amended December 2009) RIDEM Water Quality Regulations, the designated water use classification standards for saltwater bodies are below:

Class SA - These waters are designated for shellfish harvesting for direct human consumption, primary and secondary contact recreational activities, and fish and wildlife habitat. They shall be suitable for aquaculture uses, navigation and industrial cooling. These waters shall have good aesthetic value.

Class SB - These waters are designated for primary and secondary contact recreational activities; shellfish harvesting for controlled relay and depuration; and fish and wildlife habitat. They shall be suitable for aquaculture uses, navigation, and industrial cooling. These waters shall have good aesthetic value.

Class SB1 - These waters are designated for primary and secondary contact recreational activities and fish and wildlife habitat. They shall be suitable for aquaculture uses, navigation, and industrial cooling. These waters shall have good aesthetic value. Primary contact recreational activities may be impacted due to pathogens from approved wastewater discharges. However all Class SB criteria must be met.

Class SC - These waters are designated for secondary contact recreational activities, and fish and wildlife habitat. They shall be suitable for aquaculture uses, navigation, and industrial cooling. These waters shall have good aesthetic value.

The following water bodies in East Providence have been assigned saltwater quality classifications:

Table 1. RIDEM Water Classification

Waterway	Water Classification
Providence River (upper)	SB1(a)
Providence River (lower)	SB(a)
Seekonk River	SB1(a)
Bullock Cove	SB(a)
Watchemoket Cove	SB1(a)

Source: RIDEM Environmental Resource Map, http://www.dem.ri.gov/maps/index.htm#GV

Flood Zones

The 2007 FEMA maps depict nearly the entire East Providence shoreline as susceptible to extreme fetch and wave velocities (V Zones) during severe storm events such as hurricanes and winter storms. V Zones along the East Providence coastline are delineated as follows: The entire shoreline within Bullock Cove below the Crescent View Avenue bridge with the exception of a small inlet area just south of Richmond Point; and the entire shoreline of East Providence from Bullock Point north to the Pawtucket City line, which includes all of Watchemoket Cove.

Federally Maintained Channels and Dredging

The 2009 NOAA charts 13224 and 13225 provide water depths for all of the waters within the jurisdictional boundaries of East Providence. The water depths vary along the City's shoreline from 1 to 30 feet (MLLW) with the greatest depths found in the Providence River at the Fox Point Reach, Fuller Rock Reach, Sabin Point Reach and Bullock Point Reach. The Seekonk River along the City's shoreline maintains a depth at 1 to 5 feet (MLLW) along the immediate shoreline and depths that average 22 feet (MLLW) in the center of the river.

The Army Corps of Engineers dredged the north and south anchorage points of the federal maintained channel of Bullock Cove in January 2010 and completed a survey of the dredged channel on February 3, 2010. The survey shows a channel depth of 6 feet (MLW) or more maintained between the two anchorage points. There are no turning basins and special anchorages in the federal maintained channel of Bullock Cove.

Conservation and Wildlife Habitat Areas

The only City owned conservation area that is in vicinity of the coastal waters of East Providence is the Boyden Heights Conservation Area, which provides direct access to the shoreline of the Providence River. There are no formally designated wildlife refuge areas in East Providence but the RIDEM Natural Heritage Program has designated several areas in East Providence that have rare

and ecologically significant natural species. These designated areas are the Runnins River/Barrington River, Turner Reservoir/Central Pond and the Watchemoket Cove. Watchemoket Cove is a particularly important coastal resource that provides habitat for a wide variety of waterfowl. The Natural Heritage Program encourages communities to establish protection measures for these designated areas within their jurisdiction as well as coordination with other communities that share boundaries with the sites.

Ten Mile River Fish Restoration Project

The City of East Providence, Save the Bay, the Narragansett Bay Estuary Program, the Department of Environmental Management's Division of Fish and Wildlife, Natural Resource Conservation Service and the U.S. Army Corps of Engineers have forged an innovative partnership to restore a fish run to the Ten Mile River. The goal of the restoration project is to restore self-sustaining runs of American shad and two species of river herring to the lower reaches of the Ten Mile River, including the Turner Reservoir. As of Summer 2011, construction of the Turner Reservoir and Hunt's Mills fish ladders is currently underway and are expected to be complete by the early Spring of 2012, and the construction of the Omega Pond fish ladder is expected to begin during the Fall of 2011.

Shellfish and Finfish Resources

There are no commercial fish facilities located within the harbor boundaries of East Providence. The City's shoreline supports recreational fishing in areas where public access is provided, and during the season from May through October fisherman are active along the City's shoreline catching migrating Bluefish and Striped Bass on rod and reel.

Tidal Wetland Areas

There are several important tidal wetlands within East Providence waters. Along the City's shoreline tidal wetlands provide protection to the shoreline and provide habitat for a variety of wildlife. Tidal wetlands are prevalent in Watchemoket Cove and the upper reaches of Bullock Cove. These areas play an important role in providing habitat for the various species of wading birds and other waterfowl that frequent these coves. Tidal wetlands also occur in two small coves just south of Watchemoket Cove. These coves, one adjacent to the Boyden Heights Conservation area and the other bordering the State owned Squantum Woods, contain well established tidal wetlands that provide a scenic resource to users of the State and City owned lands, as well as providing wildlife habitat. The area along the lower Runnins River south from the Socony dam, contains significant tidal wetlands that provide habitat for a variety of waterfowl and fish. A small tidal wetland is also present immediately north of the East Providence Sewage Treatment plant. There are no significant aquatic beds of vegetation along the City's shoreline.

Marinas

Recreational harbor structures within the waters of East Providence include:

1. The Oyster House Marina - This facility currently maintains 60 boat slips in the lower Seekonk River. These slips are located near the previously mentioned area where numerous abandoned pilings and dilapidated structures still exist. The marina has a boatyard that is utilized for storage of a variety of boats during the winter months.

2. East Providence Yacht Club - Just south of Oyster House Marina, this Club maintains approximately 24 slips.

3. Bullock Cove Marina- Located on Riverside Avenue on Bullock Point, this full service marina maintains 49 slips. There is a boatyard and repair facility located at this marina and a number of vessels are stored on this property during the winter months.

4. Peterson's Marina - This facility is located in Bullock Cove and has approximately 24 slips.

5. Cove Haven Marina - The East Providence/Barrington line passes through the marina with 175 of the 357 slips within the East Providence's jurisdictional waters. Cove Haven is located within Bullock Cove. This is a full service marina with extensive repair and vessel storage facilities.

Boat Launching Facilities

The following four boat launching facilities are located in City waters with Bold Point Park, Sabin Point Park, and Haines Park being the most heavily used:

Bold Point Park: A City owned park that contains a public dock and boat ramp; the dock is fairly new and in good condition while the boat ramp is in need of improvement. These facilities are heavily utilized and parking is available for several cars with trailers. There are no public rest facilities available at the park.

Sabin Point Park: A City owned park that contains a public dock, boat ramp and limited parking.

Haines Park: A State park whose boundaries straddle the East Providence/Barrington corporate boundaries. A public boat ramp is located in the East Providence portion of the park. This ramp is heavily utilized.

Richmond Point: This State owned property is used by local residents as a boat launching area. The area is not officially designated as a boat launching area, but nevertheless receives moderate use as

a boat launching facility. There is no off street parking available at this site.

Shoreline Debris and Navigational Hazards

The shoreline of East Providence historically has had a number of uses that have had an impact on the variety of harbor structure debris currently existing along the waterfront. Industrial and commercial development over the years along the upper Providence River and Seekonk River have contributed to the deposition of harbor debris that could present a potential hazard to navigation.

The lower Seekonk River contains numerous abandoned pilings and the dilapidated structures of a formerly bustling commercial waterfront district. An abandoned railroad bridge as well as numerous pilings make this area hazardous to commercial navigation, and as a result the use of this area is mostly confined to recreational boating with only occasional shallow draft barges using the 16 foot navigation channel.

The upper Providence River also contains numerous abandoned docks, pilings, and vessel hulks that can create a hazard to navigation. The Providence Harbor Special Area Management Plan highlights areas where shoreline debris is found in the Seekonk and Providence Rivers and recommends strategies to aid in the removal of harbor debris and other abandoned harbor structures in the future. Structures that could cause adverse impacts to navigation include: the abandoned coal pier adjacent to the East Providence wastewater treatment facility, the abandoned pier in the vicinity of the old AMOCO/ARCO property and the dilapidated footbridge and associated pilings that cross Bullock Cove.

Mooring Fields

The East Providence Harbor Commission manages the City's mooring fields and reviews all applications for moorings. There are a total of 7 mooring fields located in City waters with the majority of all mooring permits issued to mooring fields located in Bullock Cove (fields A, A-1, and B), see table 2 below and Appendix B. The remaining mooring fields are located outside of Bullock Cove along the shoreline of the Providence River (fields C, D, E, and F). The mooring fields of Bullock Cove were dredged in 2010 by the Army Corps of Engineers and as a result, the Bullock Cove mooring fields (A, A-1, and B) must follow federal guidelines that require allocation in a manner that is fair and equitable to all who seek a mooring permit, regardless of place of residence. The mooring fields C, D, E, and F are outside federal navigation project areas and follow the CRMC policy of resident-to-non-resident mooring allocation of no greater than three resident mooring permits to one non-resident mooring permit (3:1).

Table 2. Mooring Locations and Permits Issued as of January 2011

Mooring Area	Mooring Field	Permits Issued	Field Capacity
Bullock Cove North Field	A, A-1	87	120
Bullock Cove South Field	B	99	120
Narragansett Terrace	C, D	32	60
Sabin Point South	E	9	50
Sabin Point North	F	10	40

The majority of permits issued are to individuals to moor private boats. However, some areas of the Providence and Seekonk Rivers are suitable to moor commercial barges and scows. In 2010 there were 6 permits issued to commercial vessels. Two transient moorings are available for use in Bullock Cove, one in the north field and one in the south field. Based on the projected need as established by the Harbormaster, additional transient moorings could be provided in Bullock Cove and other mooring areas to accommodate visiting vessels.

Public Shoreline Access Points

There are 53 public access points to the City' shoreline in the form of rights-of-ways, City/State parks with waterfront access, and CRMC designated rights-of-way. There are no public boardwalks or piers along the City's shoreline. Residents have not only expressed support for physical access to the waterfront but also visual access. The City's Waterfront District Plan has specific policies regarding preserving waterfront viewsheds for the public. The Waterfront District Plan and the waterfront zoning regulations require that all development that occurs in the City's waterfront sub-districts must provide physical access and visual view corridors.

CRMC Designated Rights of Way

There are 13 CRMC designated rights-of-way that provide physical access and in some cases view corridors to the City's waterfront. These access points are managed by the CRMC and held in public trust for the people of the State of Rhode Island. The CRMC maintains responsibility for the management of these lands. The 13 access point are mostly narrow State rights-of-way with all of them are located on Terrace Avenue, Riverside Drive and Bullock Point Avenue. At present, these access corridors are very poorly marked, and as a result they are utilized infrequently by the public. See table below 3 below and a detail description of their current condition can be found in Appendix C.

Table 3. CRMC Designated Rights-of-Way Providing Access to the Shoreline

Street	**Adjacent house number**
Terrace Avenue	181-189 Terrace Avenue
Terrace Avenue	207-209 Terrace Avenue
Terrace Avenue	217-221 Terrace Avenue
Terrace Avenue	57-65 Terrace Avenue
Terrace Avenue	109-115 Terrace Avenue
Terrace Avenue	129-133 Terrace Avenue
Terrace Avenue	273-273 Terrace Avenue
Terrace Avenue	1 Seaview and 305 Terrace Avenue
Riverside Drive	252-254 Riverside Drive
Riverside Drive	200-206 Riverside Drive
Riverside Drive	132-146 Riverside Drive
Riverside Drive	78-88 Riverside Drive
Bullock Point Avenue	888-890 Bullock Point Avenue

Public Streets (developed and undeveloped)

There are a total of 32 developed and undeveloped public streets in East Providence that provide physical and visual access to the shoreline, see table 4 below. These streets, particularly the undeveloped paper streets are valuable resources, especially in areas of the City with very few formal public access points. Most of the streets have a width of forty feet and could potentially be developed as formal access points at some time in the future. See Appendix C for a detail description of their location and current condition.

Table 4. Public Streets Providing Access to the Shoreline

Street	**Adjacent house number/identifying feature**
Bourne Avenue	End of street
Omega Way	End of street
Waterman Avenue	End of street/former Red Bridge abutment
Warren Avenue	End of street at RR tracks
Mauran Avenue	End of street/Lewis Park
Tangent Street	Paper street at Bold Point boat ramp
Grant Avenue	End of street
Lincoln Avenue	End of street
Maple Avenue	At corner of Narragansett Avenue and Maple Avenue
Cedar Avenue	End of street
Balkcom Street	End of street
White Avenue	3-7 White Avenue
White Avenue	15-21 White Avenue
White Avenue	49-55 White Avenue
White Avenue	61-65 White Avenue
Harding Avenue	Parcel owned by City
Beach Road	End of street
Beach Point Drive	End of street
Beach Point Drive	48-54 Beach Point Drive
Beach Point Drive	68-72 Beach Point Drive
Winter Harbor Avenue	End of street
Oak Crest Drive	End of street
Anson Drive	End of street
Pine Crest Drive	End of street
Peach Orchard Drive	End of street
Lindy Avenue	End of street
Read Street	End of street
Cozzens Avenue	End of street
Silver Street	End of street
Main Street	End of street
Bell Avenue	End of street
Cove Street	End of street

Public Recreation Areas along the Waterfront

There are 8 publicly owned areas that provide direct public access to the City's waterfront, see table 5 below. These are in the form of public recreational facilities, both passive and active that include conservation areas, parks and the East Bay Bicycle Path, see table 4 below. Swimming, water-skiing, and windsurfing are prohibited at City recreation facilities, navigation channels, boat launch facilities, and mooring areas. Four of the 8 public facilities are owned and maintained by the State, and the remaining four are owned and maintained by the City. Public boat launch ramps

are located at Haines Memorial Park, Bold Point, and Sabin Point Park. There are no official public or private beaches located in the City, however the shorelines along Sabin Point Park, Rose Larisa Memorial Park, and the southeast point of the Terrace (2.15 acre parcel owned by the U.S. Government) are frequently used by walkers and individuals seeking views of the harbor. Access to the southeast shoreline of the Terrace and other waterfront areas could be improved by signage and the removal/trimming of landscaping, see Appendix C, 2009 Harbor Management Commission Public Access Report.

Table 5. Public Recreation Areas Providing Access to the Shoreline

Facility	Ownership	Amenities
Haines Memorial Park	State	Boat launch ramp, picnic area, parking facilities, numerous playing fields, off street parking.
Squantum Woods	State	Picnic areas, salt marsh overlook area, walking trails.
Veteran's Memorial Parkway	State	Scenic highway, overlook areas.
East Bay Bicycle Path	State	Bicycle path, some access points along Veteran's Memorial Parkway provide off street parking.
Bold Point Park	City	Boat launch ramp, dock, sitting areas, picnic areas, off street parking.
Sabin Point Park	City	Boat launch ramp, fishing pier, dock, sitting areas, playground equipment, basketball courts, off-street parking.
Boyden Heights Conservation Area	City	Walking paths, boardwalk, nature trail, salt marsh overlook, sitting areas.
Rose Larisa Memorial Park	City	Overlook area, passive recreation site, off street parking.

CHAPTER IV. RECOMMENDED ACTIONS

Moorings

Moorings and mooring area management play an important role in Harbor Management Planning. Many boat owners, especially those with smaller boats under 16 ft, rely on boat ramps to enter and utilize the states waters in lieu of available slips or moorings. For these smaller boats, this is probably all they will ever require, and boat ramp provision for these vessels should continue to be encouraged. Moorings offer an alternative to the boat owner who wishes to keep a vessel in the water during the boating season. There is an initial cost in purchasing tackle, but in the long run moorings are a much less expensive option than slip space rental. This has made moorings a popular alternative for a great number of boat owners. Careful consideration has been given to the location of existing moorings and as a general goal of this report is that the expansion of current mooring fields and any future mooring fields shall not obstruct access to designated shellfish management areas, traditional fishing grounds, public recreational areas, and conservation areas. In addition, expansion of current and future mooring fields shall not significantly impact fish/shellfish resources, wetlands, submerged aquatic vegetation and other aquatic habitat.

The mooring fields located in Bullock Cove (mooring fields A, A-1 and B) are located within a federal navigation project, and therefore must meet the Army Corps of Engineers requirement of "open to all on a fair and equitable basis". The mooring fields C, D, E, and F are outside federal navigation projects and follow the CRMC policy of resident-to-non-resident mooring allocation of no greater than three resident mooring permits to one non-resident mooring permit (3:1). As a policy of the Harbor Commission and as a CRMC policy, mooring areas and/or moorings dedicated to private commercial uses are not to be located in federally maintained project areas; any future mooring areas will be installed in areas with tides and currents that aid in the flushing the mooring area; future mooring fields will not cause significant adverse effects on water quality; and swimming and water-skiing is prohibited in all designated channels, fairways, and mooring areas.

Recommended Action # 1: Mooring areas and/or moorings dedicated to private commercial uses or for-profit uses are not to be located in federally maintained project areas. Any future mooring areas will be installed in areas with tides and currents that aid in the flushing the mooring area;

Recommended Action # 2: The City should continue to implement the current mooring procedures for issuing mooring permits, established by City ordinance that provides an equitable distribution method that is consistent with the CRMC Harbor Management Plan Guidelines;

Recommended Action # 3: Existing and future mooring fields shall not obstruct access to

designated shellfish management areas, traditional fishing grounds, public recreational areas, and conservation areas. Expansion of mooring fields shall not impact fish/shellfish resources, wetlands, submerged aquatic vegetation and other aquatic habitat;

Recommended Action # 4: In order to foster safe and environmentally sound mooring fields, the City's mooring fields shall not exceed the maximum capacity as shown in table 2.

Public Access

It is important that the City and State provide both perpendicular and lateral public access to the City's shorelines (lateral meaning movement along the shoreline and perpendicular denoting direct access, perpendicular to the shoreline). The provision of lateral access is guaranteed to the public under the States Public Trust doctrine. This doctrine gives the public the right to utilize the waterfront below the Mean High Water (MHW) mark for walking, fishing, swimming, etc. Perpendicular access may be provided through State and City owned lands, paper streets or easements over privately owned lands. Lateral use of the shoreline is impossible unless perpendicular access is provided in some form in order to allow the public to get to these areas.

The provision of "visual access" to the shoreline (the provision of unobstructed views of the coastline from various vantage points within the City) is also very important. Portions of the City's shoreline already provide excellent visual access to the water. Many sections of the Veteran's Memorial Parkway provide stunning vistas of the Providence Harbor and skyline. The East Bay Bicycle Path also plays a vital role in providing visual as well as direct public access to the City's shoreline. These visual access corridors should be preserved and new potentials for future visual access should be assessed as well. As stated earlier, the City's Waterfront District Plan has specific policies regarding preserving waterfront viewsheds for the public. The Waterfront District Plan and the waterfront zoning regulations require that all developments that occur in the City's waterfront sub-districts must provide physical access and visual view corridors.

Although there would appear to be enough public access corridors along the East Providence waterfront in general (based on raw numbers), the concentration of access points is skewed toward the southern portion of the City and many existing public access points are poorly marked, narrow, with steep slopes, and limited options for parking. As a result, large stretches of the City's coastline are inaccessible to the public; this is especially true in the northern section of the City along the Seekonk River shoreline.

Recommended Action # 1: Improved shoreline access to mooring fields needs to be provided if possible, not only in Bullock Cove but for any proposed mooring areas located along the shores of the Providence River;

Recommended Action # 2: Seek federal, state and private grants to increase and improve existing public access points along the City's waterfront. Encourage off-street parking if possible to minimize impacts to nearby properties;

Recommended Action # 3: Coordinate efforts with the CRMC and RIDEM to improve existing and identify potential new right-of-ways in areas of the City that are deficient in the number of access points currently available. Locate access points that are suitable for the various forms of access, including mooring field access, boat launch ramps and general use;

Recommended Action # 4: Provide a diversification of access points for the various groups who will potentially utilize the waterfront. Access points designed for mooring access, public boat ramps to allow trailers easy access to the water, and general access to those who simply wish to enjoy the City's waterfront areas should be provided and maintained;

Recommended Action # 5: Improve selected state right-of-ways on Bullock Point that show the best promise for improvement and utilization by the public. Right-of-ways that are unsafe for use due to natural or manmade features could remain designated as public right-of-ways, with a long term management and maintenance plan to deal with the use of these access points in the future;

Recommended Action # 6: Install signage at waterfront access points to encourage the use by the public;

Recommended Action # 7: Utilize and develop "paper streets", dedicated easements, drainage outfalls, and buried cables as public right-of-ways to the shoreline;

Recommended Action # 8: Preserve and enhance the existing view corridors of the City's waterfront;

Recommended Action # 9: Explore the feasibility of a municipal pier or dock to provide slips for City owned boats and equipment;

Recommended Action # 10: The City shall encourage additional boat launch facilities as part of the redevelopment of the City's waterfront and seek State and federal grants to improve existing facilities;

Recommended Action # 11: In September 2009, the Harbor Commission completed a public shoreline access report titled "East Providence Harbor Management Commission Report on Public Access to the City's Shoreline" that identified 54 public access points that consist of CRMC designated rights-of-way, City/State rights-of-way, paper streets and public recreation areas along the City's shoreline. The condition of the public access points range from well-maintained

and accessible to overgrown and in some cases intentionally or unintentionally disguised by abutting property owners. The Harbor Management Commission Report on Public Access recommends that the City take action to ensure all public access points are maintained, cleared of visual and physical barriers, identified with appropriate signage, and in some cases improved for safe public use. This report recommends that the recommendations of the "East Providence Harbor Management Commission Report on Public Access to the City's Shoreline" are implemented in a timely manner and the report is updated every two years by the Harbor Commission to reflect the current status of the public access points.

Water Quality

The waters of East Providence are directly impacted by the activities occurring within the waters of the Providence River, Seekonk River and the upper Narragansett Bay. Pollution has plagued the Providence River and its tributaries since the earliest days of industrialization and the growth of the Providence Metropolitan areas during the 19th century. 20th century construction of primary and secondary sewage treatment plants in Providence and East Providence have further impacted the water quality of the River. The sewage treatment facilities at Fields Point and Bucklin Point presently operate with Combined Sewer Overflows (CSO's). These CSO's raise the levels of raw sewage entering the river during storm events where storm drain waters combine with raw sewage effluent to enter the river's waters directly, without treatment. Although facilities such as these are located outside of East Providence's jurisdiction, they nevertheless have profound impacts on the water quality of the City's waters. These point discharge facilities as well as other industrial and commercial facilities along the waterfront, directly impact the overall water quality of the Providence River and its tributaries.

Heavy metals in the sediments of the river, the result of continuous industrial use of the river through the 19th and 20th century, hamper the management of the rivers waters in terms of dredging due to the health threats associated with the disposal of these materials. The health threats posed by trace metals suspended in the water column is also a concern. Recreational boats utilizing the waters of East Providence provide further potential for water degradation through illegal discharge of treated and untreated sewage from marine head facilities, as well as the potential for inadvertent oil or gasoline spills and irresponsible disposal of trash overboard. Shoreline trash deposits impact the overall perception of water quality in the river as well as degrading the aesthetic qualities of the waterfront. Shoreline disposal of trash and rubbish by those utilizing the waterfront also can adversely impact water quality and aesthetics.

Non-point discharges from shoreline activities and land use runoff pose serious threats to the overall quality of the City's waters. Non point pollution runoff is generated by the vast uses which occur in the upland areas of the rivers watershed. Deposits of oil and grease on streets and in parking lots, heavy metals from a variety of sources, organic and inorganic matter and its associated

bacterial populations, as well as pesticides and fertilizers are carried in suspension or solution within stormwater runoff. This stormwater runoff eventually makes its way into the City's water resources. Impacts from non-point sources on the waterways of East Providence is difficult to quantify, but these sources are most likely significantly impacting the water quality of the Narragansett Bay watershed overall. The design of best management practices to deal with reduction of non-point pollutant sources is receiving growing support from State and Federal agencies. Local involvement supporting these activities should be promoted.

Recommended Action # 1: Support volunteer shoreline cleanup efforts;

Recommended Action # 2: Conserve and/or support the conservation of shoreline buffers such as coastal wetlands as well as inland wetland areas that serve to filter stormwater runoff before it enters the City's water resources;

Recommended Action # 3: Encourage marinas to develop operations and maintenance plans and participate in the CRMC Clean Marina Program;

Recommended Action # 4: Encourage best management practices (BMP's) for stormwater management, especially for development on and near the City’s waterfront;

Recommended Action # 5: Maintain pumpout facilities at specified locations along the City's waterfront in a manner to encourage boaters to pump out their holding tanks in a convenient and efficient manner;

Recommended Action # 6: Continue enforcement of the no-discharge compliance program;

Recommended Action # 7: Revise City ordinances to restrict boats in shallow waters to protect shoreline and shallow water habitats;

Recommended Action # 8: Maintain facilities and receptacles for the disposal of waste oil, plastics and trash at locations convenient to boaters and the general public such as boat launch sites, marinas, public access and recreational facilities to encourage the proper disposal of waste products;

Recommended Action # 9: Continue to seek federal and state funds to identify and remove shoreline debris and navigational hazards;

Recommended Action # 10: Promote and support programs which serve to educate the public on proper application practices for fertilizers and pesticides.

Storm Preparedness

Hurricanes and other major storms have caused extensive damage to the shorelines of East Providence, such as the hurricane in 1938 and hurricane Carol in 1954 that caused severe damage to property from high winds, flood waters and storm surges. The New England hurricane season starts in mid August and ends in September, which coincides with the highest boating activity of the Narragansett Bay and East Providence coastline. As recently as August 2010, damage caused by the remnant of Hurricane Irene, which was a severe tropical storm as it entered southern New England caused nine moorings to be dragged in Bullock Cove (mooring fields A and B) and a vessel to break free from mooring field D to beach at Sabin Point. High winds, flood waters and storm surges have the potential to cause moorings to drag or fail, vessels to beach and/or damage nearby vessels, damage to private docks/marinas, damage to shoreline facilities (i.e. bridges, roadways, utility lines, and private docks/piers), hazardous material spills and floating debris.

In the event of a hurricane or severe tropical storm that has the potential to cause damage to persons and property, the following procedures will be implemented by the Harbormaster, see Appendix D, Hurricane Protocol:

- The Harbormaster will check will all marina and boat yard facilities within the city to be sure they are prepared to begin to remove all vessels from the water 72-48 hours prior to the storm and offer assistance if needed;
- Once NOAA and the NWS has issued a “Hurricane Watch” for our area the Harbormaster will post a notice “strongly urging” all persons to remove their vessels from our waters. This notice will be sent via email, posted on the city web site and at marinas, boat yards and yacht clubs;
- The Harbormaster will contact the EMA director and keep him apprised on the progress of the removal of vessels from our waters;
- Once NOAA and the NWS has issued a “Hurricane Warning” for our area the Harbormaster will post a notice “ordering” the removal of all vessel from our waters. This notice will be sent via email, posted on the city web site and at marinas, boat yards and yacht clubs. The EMA director will be notified and a press release will be issued;
- Within 24 hours of the projected landfall the Harbormaster will remove all city patrol boats from the water and secure them in an area that will be least effected by high water and winds; and
- As soon as possible after the Hurricane has passed the Harbormaster will return the patrol boats to the water and coordinate with the Fire dept as needed for emergency response.

Recommended Action # 1: In order to identify policies and activities that can be implemented to prevent loss of life and property along the City’s shoreline, the Harbor Management Commission, with assistance provided by the EMA Director, Planning Department and

Harbormaster, is to continue to integrate harbor mitigation activities with the City's adopted Hazard Mitigation Plan and regularly update the City's Storm Preparedness and Hazard Mitigation Plan for the East Providence Shorelines and Coastal Waters.

APPENDICES

A. **Map of CRMC Water Classifications**
B. **Map of East Providence Mooring Fields**
C. **2009 Harbor Management Commission Public Access Report**
D. **Hurricane Protocol**
E. **Storm Preparedness and Hazard Mitigation Plan for the East Providence Shorelines and Coastal Waters**

Appendix A: Map of CRMC Water Classifications

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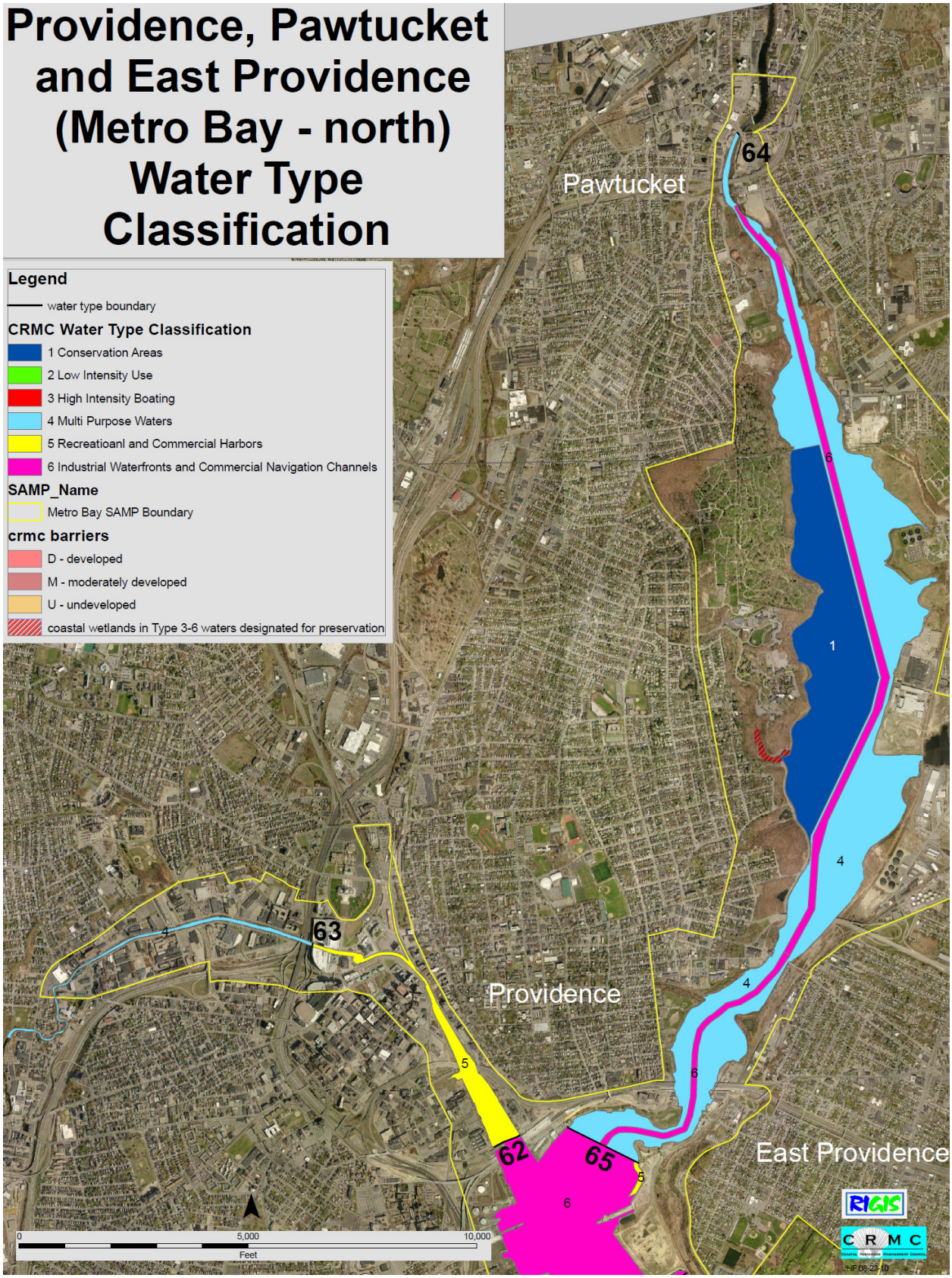
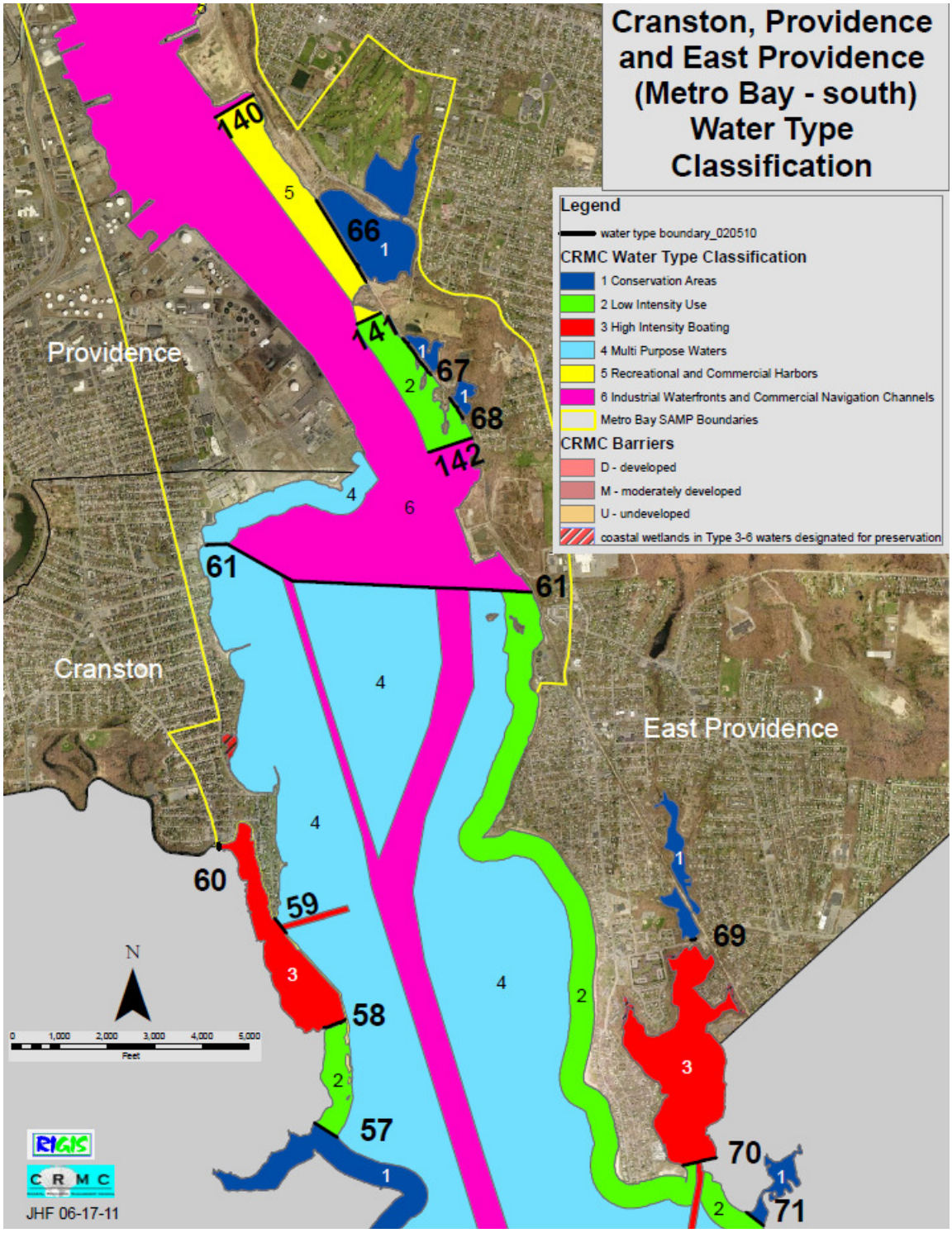

Providence, Pawtucket and East Providence (Metro Bay - north) Water Type Classification
Legend
water type boundary
CRMC Water Type Classification
1 Conservation Areas
2 Low Intensity Use
3 High Intensity Boating
4 Multi Purpose Waters
5 Recreatioanl and Commercial Harbors
6 Industrial Waterfronts and Commercial Navigation Channels
SAMP_Name
Metro Bay SAMP Boundary
crmc barriers
D - developed
M - moderately developed
U - undeveloped
coastal wetlands in Type 3-6 waters designated for preservation
Pawtucket
Providence
East Providence
64
63
62
65
0
5,000
10,000
Feet


Cranston, Providence and East Providence (Metro Bay - south) Water Type Classification
Legend
water type boundary_020510
CRMC Water Type Classification
1 Conservation Areas
2 Low Intensity Use
3 High Intensity Boating
4 Multi Purpose Waters
5 Recreational and Commercial Harbors
6 Industrial Waterfronts and Commercial Navigation Channels
Metro Bay SAMP Boundaries
CRMC Barriers
D - developed
M - moderately developed
U - undeveloped
coastal wetlands in Type 3-6 waters designated for preservation
Providence
Cranston
East Providence
140
141
142
66
67
68
69
70
71
57
58
59
60
61
N
0 1,000 2,000 3,000 4,000 5,000
Feet
RIGIS
CRMC
JHF 06-17-11

Appendix B. Map of East Providence Mooring Fields

East Providence Mooring Fields

Field	Acres	Square Feet	Square Meters	Latitude/Longitude NW	NE	SW	SE
A	4.9	215,574	20,028	41 45.250/-71 21.248	41 45.248/-71 21.206	41 45.014/-71 31.306	41 45.012/-71 21.283
A-1	1	43,501	4,041	41 45.215/-71 21.210	41 45.216/-71 21.175	41 45.170/-71 21.210	41 45.171/-71 21.175
B	5.7	249,442	23,174	41 45.014/-71 21.306	41 45.012/-71 21.283	41 44.829/-71 21.320	41 44.788/-71 21.253
C	19.62	854,903	79,423	41 45.230/-71 21.869	41 45.233/-71 21.792	41 44.698/-71 21.666	41 44.698/-71 21.628
D	29.5	1,288,163	119,675	41 45.645/-71 21.920	41 45.645/-71 21.785	41 45.299/-71 21.920	41 45.300/-71 21.785
E	23	1,004,662	93,337	41 45.865/-71 22.070	41 45.865/-71 21.905	41 45.651/-71 22.081	41 45.651/-71 21.906
F	14.6	639,785	59,438	41 46.201/-71 22.300	41 46.200/-71 22.164	41 46.031/-71 22.300	41 46.033/-71 22.161

Data Source: Coordinate points obtained by East Providence Harbor Commission by GPS handheld device.
Coordinate System: NAD 1983, State Plane Rhode Island FIPS 3800 Feet, Degrees Decimal Minutes.

Appendix C. 2009 Harbor Management Commission Public Access Report

DRAFT

East Providence Harbor Management Commission Report

on

Public Access to the City's Shoreline

September 1, 2009

DRAFT

A review of the fifty-four (54) public access points – as identified in the City of East Providence Harbor Management Plan (HMP) dated 1992 – was conducted and completed per the direction of the Chair of the Harbor Management Commission.

In general, the 54 public access points range from large public parks, to dead end or "paper" streets, and to five-foot (5') paths between residences. Similarly, their conditions range from well-maintained and accessible, to overgrown and impassible, and/or intentionally or unintentionally disguised by abutting property owners.

The attached spreadsheet includes all public access points listed in the 1992 HMP and was revised to include adjacent addresses as well as the Assessor's plat map numbers. Significant findings follow:

The following access points were found to be generally accessible and convenient to use: All City and State Parks, Veteran's Memorial Parkway parking areas, East Bay Bicycle Path entrance areas, Beach Road (#17), Richmond Point (#'s 18-21) - which could be improved as recommended in 1992 - and most of the points on "The Terrace," to include Terrace Avenue (#'s 73, 76, 77 & 78), all Riverside Drive sites (#'s 80-83) and a Bullocks Point Avenue site (#84), which is a site that was previously mislabeled as Riverside Drive.

The following group of access points is comprised mainly of the terminus of dead end or paper streets – although some are perpendicular to Terrace Avenue - and, in order to access the waterfront, they require transit over rocks, through brush, and down steep slopes or direct drop-offs such as seawalls, bulkheads or bridge/pier abutments. They all are assigned a "slope" factor of 3 or 4, and should be considered hazardous in terms of passages for those who choose – at their own risk - to utilize them. They are site numbers 1, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 72, 74, 75 and 79.

Other dead end and paper street access points, which are less hazardous, are located on the northern reaches of Bullock Cove, above the causeway and bike path. They are numbers 22 through 32 with slight and moderate slope factors of 1 and 2, respectively, but are generally obstructed by vegetation and lack established paths or trails. While they make for good neighborhood access, limited parking, lack of water at low tide, and there locations well off the main roads make them ostensibly less desirable destinations.

Of the access points that are seemingly safe for transit, all need to be better marked to aid public access, as it is difficult to ascertain where, exactly, a 5' to 40' span of city/state property begins and ends. While some access points are relatively clear due to the overall narrowness created by hedges or fences, others are longer and wider expanses of land. In the case of many of the wider expanses, some of these access points are blocked, or partially blocked, by stored boats, temporary structures, gardens, and parked vehicles. A survey – or a professional review of existing survey results – would be necessary before placement of signage and appropriate enforcement action could be conducted.

Furthermore, two sites listed do not readily appear on the Assessor's maps. While site

#9, on Maple Avenue in Riverside, is generally considered a public access point (which is usually blocked by an RV), it is not apparent on Assessor's Map 312. In fact, there is no break on the map between the adjoining privately-own properties, nor is Maple Avenue continued as a paper street to the water's edge, as is the case with other access points. Likewise, Warren Avenue (site #4) does appear to terminate at the water's edge, but at the railroad tracks (shown on Assessor's Map 016) some 500' from the river. It does not appear to pick up on the other side of the old tracks, where it would then have to cross Water Street before reaching the river's edge over 400' feet away. These issues should be reviewed by the Assessor or Planning Department in order to determine if they are actually public access points. Whatever the case, presently, neither area allows safe passage to the water anywhere in their general proximity.

Finally, although not on the current public access list, arguably the best beach in East Providence is generally thought to be inaccessible due to private property signage and rope fencing. However, the eastern terminus of Sea View Drive – according to Assessor's Map 415 – runs 50' beyond the current curbing at the corner of Riverside Drive and cuts a swath of approximately 30' to where it abuts the U. S. Government owned beach and jetty. If the City of East Providence was to clear a swath of what appears to be city land, even 5-feet in width as is the case of many city-owned access points, it would provide access to the 2.15 acre publicly-owned (by the USA) beach which is currently only anecdotally accessible by boat. This minor improvement of city owned property would provide an outstanding destination for area residents who are barred from the adjacent private property. Further improvements could make it suitable for parking and/or a small park area, such as Lewis Park, but determining ownership and access rights should first be reviewed by the Planning Department in conjunction with the U. S. Government.

In summary, as in 1992, the 2009 Harbor Management Commission recommends that the City Planning Department, or the appropriate public works and enforcement entities available to the City Manager, take action to ensure all access points are cleared of private property, maintained and – in the long term – improved for public use.

Additionally, all public access points should be identified with discreet signage or markers to ensure public knowledge and to prevent trespassing on adjacent private property.

While the Harbor Management Commission was pleased to perform this review, the actions recommended above should be undertaken by paid city employees, with the approval of the City Council and Manager.

PUBLIC ACCESS TO THE SHORE, E PROVIDENCE, RI (Revision 9/1/2009)

Site # per EP HMP	Public Streets	Assessor's Map #	Adjacent house numbers and/or other identifying features	Planning District	Owner	Waterway	Water Status	Shoreline (ft)	Slope Factor	Man Made Obstruct	Natural Obstruction	Parking Potential	Util by Abutter	Util for Drainage	Pier	Boat Ramp	Beach	Comments section for future reviewers
1	Bourne Av.	203	At Dead End of street	I	1	S	3	40	4	X		2	X					
2	Omega Way	303	At Dead End of street	I	1	O	2	40	3	X	X	2						
3	Waterman Av.	105	At Dead End/Old Red Bridge	II	2	S	3	90	4	X		2	X					
4	Warren Av.	016	At end of avenue @ RR tracks	III	1	S	3	50	1	X	X	3	X	X				
5	Mauran Av.	016	At end of street/Lewis Park	III	1	S	3	120	4	X		2	X					
6	Tangent St.	016	Paper St.. at Bold Point Boat ramp	III	1	S	3	50	1			3						
7	Grant Av.	312	Dead End of street to paper street	IV	1	P	3	20	3	X	X	2						
8	Lincoln Av.	312	Dead End of street to paper street	IV	1	P	3	32	3	X	X	2		X				
9	Maple Av(Not on Plat Map	312	At corner w/Narragansett	IV	1	P	3	32	3	X	X	2						
10	Cedar Av.	312	Dead End of street to paper street	IV	1	P	3	35	3	X	X	2	X					
11	Balkcom St.	312	Dead End of street to paper street	IV	1	P	3	30	3	X	X	2	X					
12	Off White Av.	313	3-7 White Av.	IV	1	P	3	10+	3		X	1						
13	Off White Av.	313	15-21 White Av.	IV	1	P	3	10+	3	X		1	X					
14	Off White Av.	313	49-55 White Av.	IV	1	P	3	6+	3	X		1	X					
15	Off White Av.	313	61-65 White Av.	IV	1	P	3	6+	3		X	1						
16	Off Harding Av.	313	Used as parking Area across from 20-22	IV	1	P	3	10	3		X	1						
17	Beach Rd	313	At Dead End of street	IV	1	P	3	35+	1			3					X	
18	Beach Pt Dr. N	513	End of street/partly paved drain area	IV	1	B	3	40	2		X	3						
19	Beach Pt Dr. S	513	48-54 Beach Point Drive	IV	1	B	2	20	2	X	X	2						
20	Off Beach Pt Dr.	513	68-72 Beach Pt. Dr-Gravel driveway	IV	1	B	2	25	2	X	X	2	X					
21	Winter Harbor Av.	513	At Dead End of street-South end	IV	1	B	1	40	2		X	2	X					
22	Oak Crest Dr.	513	At Dead End of street	IV	1	B	1	40	2		X	2		X				
23	Anson Dr.	513	At Dead End of street	IV	1	B	1	40	2		X	2		X				
24	Pine Crest Dr.	513	Dead End of street to paper street	IV	1	B	1	40	2		X	2		X				
25	Peach Orchard Dr.	513	Dead End of street to paper street	IV	1	B	1	40	2		X	2		X				
26	Lindy Av.	513	At Dead End of street	IV	1	B	1	40	2	X	X	2	X	X				
27	Read St.	412	Dead End of street to paper street	IV	1	B	1	40	2		X	2						
28	Cozzens Av. (2)	412	Dead end to paper street across stream	IV	1	B	1	40	1		X	2						
29	Silver St.	412	Dead End of street to paper street	IV	1	B	1	40	1		X	3		X				
30	Main St.	412	Dead End of street to paper street	IV	1	B	1	40	1		X	2	X					
31	Bell Av.	413	At Dead End of street-South end	IV	1	B	2	40	1	X	X	2						
32	Cove St.	413	At Dead End of street @ Bike Path	III	1	B	1	40	1		X	2						

PUBLIC ACCESS TO THE SHORE, E PROVIDENCE, RI (Revision 9/1/2009)

Site # per EP HMP	Public Streets	Assessor's Map #	Adjacent house numbers and/or other identifying features	Planning District	Owner	Waterway	Water Status	Shoreline (ft)	Slope Factor	Man Made Obstruct	Natural Obstruction	Parking Potential	Util by Abutter	Util for Drainage	Pier	Boat Ramp	Beach	Comments section for future reviewers
40	Bold Pt Park	006	Mauran Av. to left on Pier Road	III	1	P	3	1360	1	X	X	3				X		
41	Boyden Heights Conservation Area	209	Boyden Blvd, down hill to left	IV	1	P	2	1000	3	X		3						
42	Sabin Pt Park	212	At end of Shore Road	IV	1	P	3	1300	1			3			X	X	X	
43	Bullock Cove Access Park	414	27-31 Carousel Drive	IV	1	B	2	1200	1		X	3	X	X				
44	Haines Memorial Park	514	End of Metropolitan Park Drive	IV	2	B	3	1520	4			3			X	X		
45	Squantum Woods	209	On upper Veteran's Memorial Pkwy	III	2	P	1-2	????	3		X	3						
	Veteran's Memorial Pkwy	n/a	Along most of city waterfront	III	2	P	2	3520	2	X	X	3						
	Rose Larisa Park	313	Near end of Bullocks Point Av..	IV	1	P	2	600	3			1					X	
	East Bay Bicycle Path	n/a	Along most of city waterfront	III-IV	2	P	1-3	5.4 mi	1		X	1						
72	Off Terrace Av.	414	181-189 Terrace Av.	IV	2	P	2	10	4	X		2		X				
73	Off Terrace Av.	414	207-209 Terrace Av.	IV	2	P	2	5	1			2						
74	Off Terrace Av.	414	217-221 Terrace Av.	IV	2	P	2	5	4	X		2	X					
75	Off Terrace Av.	414	57-65 Terrace Av.	IV	2	P	2	5	4	X		2						
76	Off Terrace Av.	414	109-115 Terrace Av.	IV	2	P	2	5	1	X	X	2	X				X	
77	Off Terrace Av.	414	129-133 Terrace Av.	IV	2	P	2	5	1		X	2	X				X	
78	Off Terrace Av.	415	273-271 Terrace Av.	IV	2	P	2	5	1			2					X	
79	Off Terrace & Seaview Av	415	1 Seaview/305 Terrace Av.	IV	2	P	2	10	4	X		2						
80	Off Riverside Dr.	415	252-254 Riverside Dr.	IV	2	B	2	5	1	X		2	X					
81	Off Riverside Dr.	414	200-206 Riverside Dr.	IV	2	B	3	5	2	X	X	2						
82	Off Riverside Dr.	414	132-146 Riverside Dr.	IV	2	B	2	5	1			2						
83	Off Riverside Dr.	414	78-88 Riverside Dr.	IV	2	B	1	5	2		X	2	X					
84	Bullocks Pt Av.	414	888-890 Bullocks Point Av.	IV	2	B	1	40	1	X	X	2	X					
n/a	Seaview end at Riverside Dr.	415	Between 45 Seaview & Terrace Assoc. Picnic Area abutting U. S. Government beach and jetty area	IV	1/3	N	2	800	1	X	X	4		X		X	X	Not current access point-Needs review

KEY

Owner
1 = City of East Providence
2 = State of Rhode Island
3 = U. S. Government

Waterway
S = Seekonk River
P = Providence River
W = Watchemoket Cove
B = Bullock Cove
O = Omega Pond
N=Narragansett Bay

Waterway Status (at mean low water)
1 = Marsh or Wetland
2 = Shallow Water (0-3 ft deep)
3 = Deep Water (> 3 ft deep)

Slope
1 = Slight (0-5%)
2 = Moderate (5-15%)
3 = Severe (>15%)
4 = Bulkhead, Abutment, or Seawall

Parking Potential
1 = None
2 = Limited (1-4 cars)
3 = Moderate (>4 cars)

X = Exists
Blank = Does not exist

Photos available from 2009 and past efforts
Photos on CD for #72-84 and others

Appendix D. Hurricane Protocol

DRAFT

EAST PROVIDENCE HARBOR DEPARTMENT

145 TAUNTON AVE. EAST PROVIDENCE, RI
02914-4505

401/639-8437
Harbormaster@cityofeastprov.com
401/270-1437 FAX

DATE 05-05-2005

HURRICANE PREPAREDNESS PROTOCOL

In the event of a threat to the City of East Providence of a Hurricane making landfall within a proximity that will cause damage to persons and property the following procedures will be followed:

1. The Harbormaster will check will all marina and boat yard facilities within the city to be sure they are prepared to begin to remove all vessels from the water 72-48 hours prior to the storm and offer assistance if needed.

2. Once NOAA and the NWS has issued a "Hurricane Watch" for our area the Harbormaster will
post a notice "strongly urging" all persons to remove their vessels from our waters. This notice will be sent via email, posted on the city web site and at marinas, boat yards and yacht clubs.

3. The Harbormaster will contact the EMA director and keep him apprised on the progress of the
removal of vessels from our waters.

4. Once NOAA and the NWS has issued a "Hurricane Warning" for our area the Harbormaster will post a notice "ordering" the removal of all vessel from our waters. This notice will be sent
via email, posted on the city web site and at marinas, boat yards and yacht clubs. The EMA director will be notified and a press release will be issued.

5. Within 24 hours of the projected landfall the Harbormaster will remove all city patrol boats from the water and secure them in an area that will be least effected by high water and winds.

6. As soon as possible after the Hurricane has passed the Harbormaster will return the patrol boats to the water and coordinate with the Fire dept as needed for emergency response.

S. Bruce Dufresne
Harbormaster

DRAFT

Appendix F. Storm Preparedness and Hazard Mitigation Plan for the East Providence Shorelines and Coastal Waters

DRAFT

STORM PREPAREDNESS AND HAZARD MITIGATION PLAN FOR THE EAST PROVIDENCE SHORELINES AND COASTAL WATERS

Prepared by the

EAST PROVIDENCE HARBORMASTER
AND
PLANNING DEPARTMENT

March 2012

DRAFT

Introduction

One of the critical harbor and shoreline users is the individual boater. Because they are often the primary occupants of the harbor area, they should be given special attention. As part of this element of the harbor plan and related ordinance, each boater should complete and submit to the Harbormaster a preparedness plan. There is a growing amount of technical and educational material being developed for boat owners to assist in preparing for a significant storm event. The following is a summary of key points contained in the current literature.

Boat owners will be faced with the decision of what to do with their boats in advance of a storm event. If the storm is less then tropical strength and the decision is made so that boats can remain on the moorings, all lines should be doubled and chaffing protection provided where dock lines pass through fairleads and chocks over the vessel's side.

If mooring tackle has been recently inspected and serviced, leaving the boat on the mooring may be the best option. One of the drawbacks to staying on a mooring, as with staying at a dock, is the threat of storm surge. Check with expected storm-surge forecasts to determine if the scope of the mooring will provide sufficient holding power at maximum tidal flow. All individuals using their moorings during a storm must notify the Harbormaster that they will be weathering the storm on the mooring. Those same individuals will also be required to notify the Harbormaster again when finally leaving the vessel. The city requires mooring inspections to be done every 3 years with inspection reports due by August 1st.

Regardless of whether the boat remains at a dock or mooring, there are some basic steps that need to be taken before the storm strikes. The first step is to minimize the amount of surface area the wind can work against. The more surface area the wind has to push on, the greater the strain on all components of your boat and securing devices. Remove sails entirely and stow them below deck, especially roller furling jibs. Secure or remove everything in the cabin that is not fastened down, with particular attention to the galley area and chemicals stored in lockers. Secure all ports and hatches, and remove and cap all funnels. Tightly secure the tiller or wheel with strong lines from either side of the cockpit, do not leave coils of line on deck, and take out all slack from running lines on the deck or mast. In order to minimize damage caused by impact of loose boats in a crowded harbor, it is important to place fenders on both sided of the boat. Once all precautions have been taken, the boat owner should leave the boat and seek shelter.

Can the municipality tow a disabled vessel?

According to the U.S. Coast Guard, assistance cases fall into two broad categories: distress and non-distress. Distress is defined as imminent danger requiring immediate response and assistance (U.S. Coast Guard Commandant Instruction COMDTINST 16101.2B, p. 2). If the situation is life threatening, the historic law of the sea obliges the Harbormaster, or any boater, to render assistance.

In cases of distress the Coast Guard should be notified immediately of the situation and of the intent of the Harbormaster. The Harbormaster plays a key role in the hierarchy of emergency response, as he/she is often the first to arrive on-scene. If the Coast Guard deems it necessary, it may direct other private/public resources, in addition to its own, to respond. If the Coast Guard arrives and finds a stable situation with the first responders capable of assisting, it may withdraw its response equipment.

However, if the Coast Guard finds the situation unstable, and if the first responders are unable to provide the necessary assistance, it will intervene immediately. When a Harbormaster responds to a distress situation, and provides some form of emergency aid, he/she is afforded protection from liability through Title 46, Section 2303 of the US Code which states:

> Any person...who gratuitously and in good faith renders assistance at the scene of a vessel collision, accident, or other casualty without objection of any person assisted, shall not be held liable for any civil damages as a result of the rendering of assistance for any 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 Commandant Instruction 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 Bay Watch- 401-398-0388 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 City of East Providence assumes no risk on account of accident, fire, theft, vandalism or acts of God. Persons using the coastal waters and harbor area of the city shall assume all risk of personal injury and damage or loss to their property. (See City Ordinance Chapter 13, Article 13, Division 1, Sec 13-81)

100. Authority

The primary authority for carrying out the responsibilities detailed in this plan is vested with the Harbormaster, who will work in cooperation with the harbor commission. However to successfully implement the activities outlined in this plan, the Harbormaster is required to work with other City Departments that include: East Providence EMA, Police, Fire, Engineering, Public Works, Building Inspection, and Planning. The Harbormaster shall be a member of the East Providence Hazard Mitigation Committee.

200. Goals of the Storm Preparedness and Hazard Mitigation Plan

To prevent the loss of life and property by:

- Properly preparing for storm events;
- Having a completed and enforceable response and recovery plan;
- Working in cooperation with harbor and shorelines users to ensure that a coordinated approach is applied to hazard mitigation;
- Integrating harbor hazard mitigation activities with other, ongoing, local hazard mitigation programs; and
- Identifying and completing long term actions to redirect, interact with or avoid the hazard.

300. Risk Assessment

310. General Harbor Characteristics

The designated land uses along the shoreline of East Providence are a mix of open space,

residential and commercial with water dependant uses that include five marinas, two sewage treatment facilities and two fuel terminals minimal. See the below Risk Assessment table for details of facilities along the coastline of East Providence that are vulnerable to natural disasters. The East Providence Harbor Commission manages the City's mooring fields and reviews all applications for moorings. There are a total of 7 mooring fields located in City waters with the majority of all mooring permits issued to mooring fields located in Bullock Cove (fields A, A-1, and B). The remaining mooring fields are located outside of Bullock Cove along the shoreline of the Providence River (fields C, D, E, and F).

Bullock Cove for the most part is a soft bottom consisting of mud and decaying leaves. Deeper sections and the channel in the southern part of the cove is a sandy bottom. The northern channel and mooring area is dredged to 6' MLW and the southern channel and mooring area is dredged to 8' MLW. The mooring areas along the Providence and Seekonk Rivers have the same bottom with water depths ranging from 3-12' MLW.

320. Coastline Facilities Vulnerable to Natural Disasters

The facilities along the City's coastline are vulnerable to earthquakes, hurricanes, high winds, severe snowstorms, ice storms and flooding. Cargo stored on site, fuel products, fuel pipe distribution systems and sewage treatment facilities pose a threat to the residents, environment, local economy and shipping lanes in the event of a natural disaster. The table below identifies facilities located along the City's shoreline and coastal waters that are vulnerable to natural disasters:

330. Risk Assessment Table for Facilities along the City's Shoreline and Coastal Waters

Vulnerable Facilities	Location	Natural Hazard	Impact	Mitigation Benefit
Marinas	• The Oyster House marina; • East Providence Yacht club; • Bullock Cove Marina; • Peterson's Marina; • Cove Haven Marina.	• Earthquake • Hurricane • Flood • Snowstorm • Ice Storms	• Loss of life; • Loss of public/private property; • Possible Environmental contamination; • Navigation hazards.	• Protection of life; • Protection of private property; • Maintain/protect local infrastructure and economy; • Protection of marine and coastal environment; • Prevent/decrease cost incurred to repair/rebuild.
Sewage Treatment Facilities	• Pomham Terrace Sewage Treatment Plant; • Bucklin Point Sewage Treatment Plant.	• Earthquake • Hurricane • Flood	• Damage to major facility; • Damage to private property (backflow to low lying areas).	• Maintain capacity and prevent surcharge of sewage; • Prevent/decrease cost incurred to repair/rebuild.
National Register Historic Properties	• Pomham Lighthouse; • Omega Pond dam and rail bridge; • Richmond Paper Company Mill Complex (310 Bourne Avenue).	• Earthquake • Hurricane • Flood • Snowstorm • Ice Storms	• Disruption of transportation; • Loss of Historic significant structures.	• Protection of historical structures.
Fuel Terminals	• Capital Terminal; • Mobil Oil Terminal.	• Earthquake • Hurricane • Flood • Snowstorm • Ice Storms	• Loss/damage to local infrastructure and economy; • Discharge of hazardous substances and materials into marine and coastal environment; • Public/Private financial cost to repair/rebuild; • Loss of services to residents; • Navigational Hazard.	• Protection of life; • Maintain industries and services provided; • Protection of marine and coastal environment.

Vulnerable Facilities	Location	Natural Hazard	Impact	Mitigation Benefit
Major Utilities/Bridges	• Cross Bay Water Supply pipeline; • George Washington Bridge; • Henderson Bridge.	• Earthquake • Hurricane • Flood • Snowstorm • Ice Storms	• Loss of life; • Disruption of transportation; • Disruption of emergency routes; • Loss/disruption of water and pressure for majority of City; • Navigation hazards.	• Protection of life; • Maintain transportation; • Maintain emergency routes; • Protection of utility lines.
Recreation Facilities	• Haines Memorial Park • Squantum Woods • East Bay Bicycle Path • Bold Point Park • Sabin Point Park • Rose Larisa Memorial Park	• Earthquake • Hurricane • Flood	• Loss/damage of recreational; • Facilities.	• Protection of City facilities; • Prevent/decrease cost to repair/rebuild.
Conservation Areas	Boyden Heights Conservation Area	• Earthquake • Hurricane • Flood	• Loss/damage of conservation/habitat area.	• Protection of City facilities; • Prevent/decrease cost to repair/rebuild.

400. Strategies for Preparedness, Response and Recovery

410. The Harbormaster will coordinate all harbor activities related to preparation, response and recovery. This will be done in coordination with the City Manager, EMA Director, Fire Chief and Police Chief.

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

410.2 The National Hurricane Center will issue a Tropical Storm (or Hurricane) Watch if tropical storm (or hurricane) conditions are expected within 48 hours, and a Tropical Storm (or Hurricane) Warning if these conditions are expected within 36 hours

LEVEL 3 - 72 HOURS

- If a hurricane is anticipated to enter New England, begin tracking and monitoring hourly weather reports;
- Contact any services/vendors (i.e. towing and salvage) under contract that may be needed for preparing and recovering from a hurricane to assess their readiness;
- Manage harbor traffic as it increases during marina/boater preparation activities;
- Ensure all fuel tanks are full and reserve batteries are charged;
- Inventory and update first aid equipment and other onboard emergency equipment/tools;
- Contact local marinas and boat moving companies for statuses to relay to mariners;
- Maintain radio watch;
- Alert local port community, encouraging boat owners to seek safe refuge, remove boats from water, or take action to minimize damaging effects;
- Alert local marinas, marine interests, holders of mooring permits, and occupants of special anchorage areas to impending emergency;
- Keep Providence Marine Safety Office appraised of hazardous conditions in harbor;
- Monitor Bullock Cove with vessels taking refuge;
- Document waterfront using photographs or video;
- Start tracking time and resource allocations for possible state and federal reimbursement;
- Post notice to have all vessels removed from moorings.

LEVEL 2 - 48 HOURS

- Continue to perform level 3 activities;
- Contact mooring permit holders who are not complying with preparedness plan;
- Assist marinas/waterfront business with special requests;
- Continue to manage harbor traffic as it increases;
- Finalize emergency work schedule with assistant Harbormasters;

- Confirm arrangements to have Harbormaster vessel hauled and stored;
- Establish liaison with police, fire and public works departments;
- Alert maritime community to unsafe conditions in the harbor as needed;
- Curtail regular business activities;
- Begin regular patrols of the harbor to ensure necessary individual precautions are begin taken;
- Advise Providence Marine Safety Office as to the status of emergency preparedness in progress;
- Alert local harbor community to any impending closure of anchorages or waterways;
- Encourage local marinas to suspend fueling operations and to secure fueling piers sufficiently to minimize pollution threat;
- Inventory of individuals who plan on staying on their moored vessels during the storm event.

LEVEL 1 - 24 HOURS

- Final patrol of the harbor;
- Log information on transient boats;
- Fuel Harbormaster vessels;
- Haul and store Harbor Patrol vessels;
- Complete shoreline survey and final harbor check from shore;
- Alert harbor community and Providence Marine Safety Office to any unsafe conditions in harbor;
- Continue to perform pertinent level 2 activities.

410.2 Response - The Harbormasters policy is that no emergency watercraft will be dispatched for emergency response during a storm event. All requests for assistance will be forwarded to the nearest Coast Guard Station. The Harbormaster will 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.

410.3 Recovery - Immediately after the event has terminated, the city has three recovery priorities.

Priority 1: Reestablish the Harbormaster as an operational unit in order to facilitate the second and third priority;
Priority 2: Take the necessary immediate action to minimize additional risk to life and property;
Priority 3: Reopen the harbor for recovery activity.

To achieve these priorities, the following sequential actions will be taken:

IMMEDIATE 24 HOURS

- Assess readiness of the Harbormaster, correct deficiencies, reestablish radio communications of needed;
- Complete rapid assessment of damage;
- Provide damage assessment information to city officials and Providence Marine Safety Office;
- Initiate pre-established contracts with services/vendors (i.e. towing and salvage) if needed;
- Institute security watches as necessary;
- Alert maritime community to unsafe conditions in the harbor;
- Track time and resource allocation of the Harbormaster and Assistants for possible state and federal reimbursement.

MID-TERM 1 TO 14 DAYS

- Complete comprehensive inventory of damage using photographs and video if possible;
- Notify appropriate individuals/parties regarding damage of private property (i.e. mooring holders);
- Provide list of unidentified boats to Providence Marine Safety Office and Rhode Island Department of Environmental Management Enforcement;
- Contact local harbor and shoreline users to assess their situation;
- Provide Providence Marine Safety Office with a daily harbor status;
- Begin to remove large pieces of floating debris from the harbor;
- Assist City and state agencies with damage assessments and emergency permitting process.

LONG-TERM 14 TO 90 DAYS

- Complete summary report within 30 days of storm event for the City Manager and EMA Director;
- Review mitigation list and selection actions that could be implemented during the recovery phase;
- Conduct an evaluation meeting for harbor and shoreline users to identify problems not properly addressed by this plan;
- Complete a survey of boat damage;
- Update hazard mitigation plan and identify new mitigation opportunities;
- Assist emergency situations if needed;
- Continue to track time and resource allocations for possible state and federal reimbursement.

420. Harbor and Shoreline Users

421. Marina facilities - As part of the City of East Providence's harbor hazard mitigation plan, all marina facilities as defined by CRMC, will submit a hazard mitigation plan to the Harbormaster within 90 days of this document being approved. The facility's plan will be updated annually and any changes will be reported to the Harbormaster by January 1 of each year.

Facility plans will include:

- Primary contact person primary and secondary phone numbers;
- VHF channel that is monitored;
- List of facility staff that 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;
- Any special assistance requested from City;
- List of preparation, response, recovery activities and timing.

422. Boaters - Boaters will be provided a copy of the SPHM requirements that affect them along with their first mooring permit.

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 forwarded to the nearest U.S. Coast Guard Station.

423. Waterfront business (excluding marinas) - All waterfront business are expected to take the necessary precautions to protect their property.

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

425. Special Hazards

- Moorings- all vessels shall be cleared of the moorings 72-24 hours prior to expected storm event.
- Transients- vessels not usually moored in the harbor, but seeking safe refuge will be directed to the local marinas for removal or safe storage.

500. Inventory of longer term mitigation projects

1. Methods to increase scope within the harbor without losing surface area maximization should be explored. Actions may include a targeted approach to removing vessels from moorings and increasing the scope with storm pennants for those that remain. In the existing mooring

configuration, increasing mooring scope is difficult. Therefore, the City should explore alternative methods to populate the mooring field that will allow space maximization and increased scope;

2. Implement an annual education and training program conducted by the Harbormaster for the public. This program should focus on storm preparedness for the boater. Other workshops should be conducted with the help of the building inspector and planning board to discuss shoreline construction standards and storm proofing homes and business;

3. The Harbormaster should compile a list educational material that can be shared with harbor and shorefront users;

4. Maintain an accurate lists of principle marine interests including marinas, waterfront business, neighboring Harbormasters, Coast Guard, towing and salvage companies, environmental response teams, key vessel operators (charter boats and ferries) fishing cooperatives, etc.;

5. Starting at the beginning of each hurricane season (June 1) the Harbormaster shall:
   - Review local harbor hazard mitigation plan and update as necessary;
   - Distribute and post revised plan.

6. Conduct a Disaster Mitigation workshop for Business and Industry in cooperation with RI Emergency Management Agency. Propose activities that can be implemented to mitigate damage. Suggested actions for local coastal business may include:

   - Place more essential equipment and functions on higher levels of the structure, above the anticipated flood level;
   - Construct berms around the facility;
   - Install or have dewatering pumps;
   - Provide emergency generators and potable water storage;
   - Install blowout plugs in floor slabs whose elevation is below anticipated flood elevation;
   - Install master shutoff valve controls for sewer, gas, and water above anticipated flood elevation;
   - Reinforce walls to carry hydrostatic and hydrodynamic loads;
   - Install flood proof electrical systems and utility cores in areas subject to flooding; and
   - Install safety glass in windows.

7. Assess the feasibility of developing a volunteer corps who can assist the Harbormaster secure vessels during the phase or maintain security patrols after an event.

600. Coordination

The harbormaster shall coordinate with the EMA director, City Manager and other Department Heads to implement the SPHM plan. In order to discourage redevelopment of critical shoreline areas and to reduce vulnerability of life and property to coastal hazards the City should consider:

- 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;
- 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;
- Require shorefront areas replacement of non-conforming uses and eliminate unsafe conditions and inappropriate uses as opportunities arise;
- 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 and coastal management, the City should consider the following policies.

- The City should work with appropriate state agencies to ensure that post-storm shoreline management options are consistent, to the extent possible, with use, density and other land uses policies and standards contained in the City's Comprehensive Land Use Plan;
- Create local priorities for acquiring coastal properties to promote hazard mitigation, public recreation, and resource management objectives contained in the City's Comprehensive plan;
- Post-storm redevelopment options should consider impacts to evacuation routes, as determined by emergency management officials;
- Maintain and or adopt minimum parcel size and configuration requirements on the subdivision of critical shoreline features;
- Discourage platting of shoreline properties and encourage replanting to accommodate post-storm relocation of structures landward.

THE SAFFIR-SIMPSON HURRICANE WIND SCALE

The Saffir-Simpson Hurricane Wind Scale is a 1-5 rating scale based on a hurricane's present wind speed. It is used to provide a relative measure of the strength (and/or predicted future strength) of active storms. The scale is not intended to address the potential for other hurricane-related impacts such as storm surge. Actual storm surge values at any given location are highly dependent on the slope of the continental shelf in the landfall region and on the local coastal geography. The storm surge potential values listed below are estimates for the City based on local flood mapping and historical evidence. Note that wind values represent the peak 1-minute wind.

Category One Hurricane:

Winds 74-95 mph (64-82 kt or 119-153 km/hr). Storm surge potentially 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.

Category Two Hurricane:

Winds 96-110 mph (83-95 kt or 154-177 km/hr). Storm surge potentially 6-8 feet above normal. Some roofing material, door, and window damage of buildings. Considerable damage to shrubbery and trees with some trees blown down. Considerable damage to mobile homes, poorly constructed signs, and piers. Coastal and low-lying escape routes flood 2-4 hours before arrival of the hurricane center. Small craft in unprotected anchorages break moorings. Hurricane Bonnie of 1998 was a Category Two hurricane when it hit the North Carolina coast, while Hurricane Georges of 1998 was a Category Two Hurricane when it hit the Florida Keys and the Mississippi Gulf Coast.

Category Three Hurricane:

Winds 111-130 mph (96-113 kt or 178-209 km/hr). Storm surge potentially 9-12 ft above normal. Some structural damage to small residences and utility buildings with a minor amount of curtain wall failures. Damage to shrubbery and trees with foliage blown off trees and large trees blown down. Mobile homes and poorly constructed signs are destroyed. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the center of the hurricane. Flooding near the coast destroys smaller structures with larger structures damaged by battering from floating debris. Terrain continuously lower than 5 ft above mean sea level may be flooded inland 8 miles (13 km) or more. Evacuation of low-lying residences with several blocks of the shoreline may be required. Hurricanes Roxanne of 1995 and Fran of 1996 were Category Three hurricanes at landfall on the

Yucatan Peninsula of Mexico and in North Carolina, respectively.

Category Four Hurricane:

Winds 131-155 mph (114-135 kt or 210-249 km/hr). Storm surge potentially 13-18 ft above normal. More extensive curtain wall failures with some complete roof structure failures on small residences. Shrubs, trees, and all signs are blown down. Complete destruction of mobile homes. Extensive damage to doors and windows. Low-lying escape routes may be cut by rising water 3-5 hours before arrival of the center of the hurricane. Major damage to lower floors of structures near the shore. Terrain lower than 10 ft above sea level may be flooded requiring massive evacuation of residential areas as far inland as 6 miles (10 km). Hurricane Luis of 1995 was a Category Four hurricane while moving over the Leeward Islands. Hurricanes Felix and Opal of 1995 also reached Category Four status at peak intensity.

Category Five Hurricane:

Winds greater than 155 mph (135 kt or 249 km/hr). Storm surge potentially greater than 18 ft above normal. Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. All shrubs, trees, and signs blown down. Complete destruction of mobile homes. Severe and extensive window and door damage. Low-lying escape routes are cut by rising water 3-5 hours before arrival of the center of the hurricane. Major damage to lower floors of all structures located less than 15 ft above sea level and within 500 yards of the shoreline. Massive evacuation of residential areas on low ground within 5-10 miles (8-16 km) of the shoreline may be required. Hurricane Mitch of 1998 was a Category Five hurricane at peak intensity over the western Caribbean. Hurricane Gilbert of 1988 was a Category Five hurricane at peak intensity and is one of the strongest Atlantic tropical cyclones of record.

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 1 86~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.

The hurricane produced storm tides of 14 to 18 feet across most of the Connecticut coast, with 18 to 25 foot tides from New London east to Cape Cod. The destructive power of the storm surge was felt throughout the coastal community. Narragansett Bay took the worst hit, where a storm surge of 12 to 15 feet destroyed most coastal homes, marinas and yacht clubs. Downtown Providence, Rhode Island was submerged under a storm tide of nearly 20 feet. Sections of Falmouth and New Bedford, Massachusetts were submerged under as much as 8 feet of water. All three locations had very rapid tides increased within 1.5 hours of the highest water mark.

Rainfall from this hurricane resulted in severe river flooding across sections of Massachusetts and Connecticut. Three to six inches fell across much of western Massachusetts and all but extreme eastern Connecticut. Considerably less rain occurred to the east across Rhode Island and the remainder of Massachusetts. The rainfall from the hurricane added to the amounts that had occurred with a frontal system several days before the hurricane struck. The combined effects from the frontal system and the hurricane produced rainfall of 10 to 17 inches across most of the Connecticut River Valley. This resulted in some of the worst flooding ever recorded in this area. Roadways were washed away along with sections of the New York, New Haven, and Hartford Railroad lines. The Connecticut River, in Hartford reached a level of 35.4 feet, which was 19.4

feet above flood stage. Further upstream, in the vicinity of Springfield, Massachusetts, the river rose to 6 to 10 feet above flood stage, causing significant damage. A total of 8900 homes, cottages and buildings were destroyed, and over 15000 were damaged by the hurricane. The marine community was devastated. Over 2,600 boats were destroyed, and over 3,300 damaged. Entire fleets were lost in marines and yacht clubs along Narragansett Bay. The hurricane was responsible for *564* deaths and at least 1700 injuries in southern New England. Damage to the fishing fleets in southern New England was catastrophic. A total of 2,605 vessels were destroyed, with 3,369 damaged.

HURRICANE CAROL
(**CAT 3** - August 31, 1954)

On the morning of August 31, Hurricane Carol, the most destructive hurricane to strike southern New England since the Great New England Hurricane of 1938, came crashing ashore near Old Saybrook, Connecticut, leaving 65 people dead in her wake. Carol had developed in the Bahamas several days earlier, making only slow progress northward . Carol began her rapid acceleration during the evening of August 30, while passing just east of Cape Hatteras, North Carolina. Carol made landfall on eastern Long Island and southeastern Connecticut about 12 hours later, moving at over 35 mph.

Sustained winds of 80 to 100 mph roared through the eastern half of Connecticut, all of Rhode Island, and most of eastern Massachusetts. Scores of trees and miles of power lines were blown down. Strong winds also devastated crops in the region. Nearly 40 percent of apple, corn, peach, and tomato crops were ruined from eastern Connecticut to Cape Cod. Several homes along the Rhode Island shore had roofs blown completely off due to winds which gusted to over 125 mph. The strongest wind ever recorded on Block Island, Rhode Island occurred during Carol when winds gusted to 135 mph. The National Weather Service in Warwick, Rhode Island recorded sustained winds of 90 mph; with a peak gust of 105 mph. Lowest recorded pressure was at Suffolk County Airport on the south shore of Long Island with a reading of 28.36. Block Island reported 28.51 while Quonset Airport in North Kingstown, Rhode Island reported 28.72.

Hurricane Carol arrived shortly after high tide, causing widespread tidal flooding. Storm surge levels ranged from 5 to 8 feet across the west shore of Connecticut and from 10 to 15 feet from the New London area eastward. Storm tide profiles show, as in 1938, how dramatically the tides increased just before landfall across Narragansett Bay, the Somerset, Massachusetts area and in New Bedford, Massachusetts harbor. Narragansett Bay and New Bedford harbor received the largest surge values of over 14 feet in the upper reaches of both water ways. On Narragansett Bay, just north of the South Street Station site, the surge was recorded at 14.4 feet, surpassing that of the 1938 hurricane. However, since Hurricane Carol arrived after high tide, the resulting storm tide was lower.

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, much of eastern Connecticut and much of 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.