

THE CITY OF WARWICK  
STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

CHAPTER 24  
HARBORS

No..... Date.....

Approved.....Mayor

AN ORDINANCE AMENDING THE CITY OF WARWICK CODE OF ORDINANCES-  
CITY OF WARWICK HARBOR PLAN AND ORDINANCE

Be it ordained by the City of Warwick:

Section I. Chapter 24 of the Code of Ordinances of the City of Warwick is hereby amended as follows:

1. The Warwick Harbor Management Plan previously adopted by the City Council of the City of Warwick is hereby repealed in its entirety and replaced with the attached version of plan, entitled, "Warwick Harbor Management Plan 2016"; and
2. Chapter 24, Harbors, is amended in accordance with the attached version included as "Appendix A, City of Warwick Harbor Ordinance".

Section II. The City Clerk is hereby authorized and directed to cause said changes to be made to the Code of Ordinances for the City of Warwick.

Section III. This Ordinance shall take effect upon passage and publication as prescribed by law.

SPONSORED BY: COUNCIL PRESIDENT  
TRAVIS

COMMITTEE: ORDINANCE

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APPENDIX A  
CITY OF WARWICK HARBOR ORDINANCE

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~~PENDIX A~~  
~~City of Warwick Harbor Ordinance~~

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**Chapter 24 HARBORS\***

\*~~Cross reference(s)~~—Use of waterways by model power boats, § 40-23; police officers' duty to assist Harbormasters, § 52-3.

~~State law reference(s)~~—Authority of City with regard to Harbormasters, G.L. 1956, § 46-4-24642; duty of Harbormasters to give notice of obstructions, G.L. 1956, § 46-6-15; authority of waterfront development and park commission to regulate anchorages and moorings in public waters, and authority of Harbormaster in pursuance thereof, P.L. 1965, ch. 219.

Sec. 24-1. Purpose and applicability.

Sec. 24-2. Policy.

Sec. 24-3. Definitions.

Sec. 24-4. Area of jurisdiction.

Sec. 24-5. Administration and enforcement; Harbor Management Commission.

Sec. 24-6. Regulated activities.

Sec. 24-7. Mooring permit.

Sec. 24-8. Fees; harbor management fund.

Sec. 24-9. Penalty.

Sec. 24-10. Disclaimer of liability.

**Sec. 24-1. Purpose and applicability.**

(a) *Purpose.* The regulations set forth in this chapter are made in accordance with the City Harbor Management Plan for the purpose of promoting the public health, safety and general welfare of the citizens of the City and the general public at large that uses the City's waterfront. These regulations are designed to implement the Harbor Management Plan, to provide for the safe harbor and use of boats, and to provide for the proper disposal of waste. These regulations are made with reasonable consideration given to the fragile nature of the City's waterfront and with a view to conserving the waterfront while permitting its use and enjoyment.

(b) *Applicability.* The provisions of this chapter, and any rules and regulations adopted pursuant thereto, shall be applicable to and shall govern the use of harbor lands, waters, facilities and activities under the jurisdiction of the City. This chapter shall be subordinate to all existing federal and state statutes and regulations and is not intended to preempt or conflict with any other valid laws.

(c) *Scope.* It is not the intent of this chapter to have the City supersede the powers and duties of the state Coastal Resources Management Council or the state Department of Environmental Management. This chapter only sets forth rules and regulations for the use of the waters of the City and the issuance of mooring permits. (Code 1971, § 9-1)

**Sec. 24-2. Policy.**

It shall be the policy of the City that:

- (1) The public has the right to use the City's waters and that the City has the right to regulate the waters' use;
- (2) All the citizens of the City shall have the right of access to the shoreline;
- (3) Riparian landowners shall be given due consideration in the establishment of new moorings, docks or slip placements;
- (4) Moorings in the City's waters require a permit issued by the City;
- (5) Moorings shall be distributed on a fair and equitable basis between residents and nonresidents and individual and commercial users ~~with priority given to residents;~~

- 1 (6) In order to achieve an equitable balance between private and public use of the water resource within Type 3  
2 waters, the City promotes a balance of private and public access. The City recognizes the role of marinas as  
3 providing public access through private enterprise while reserving for public use federally maintained  
4 anchorages;
- 5 (7) Moorings shall not be sold or transferred by an individual;
- 6 (8) Pleasure boating and commercial fishing are a valuable resource for the City;
- 7 (9) The maintenance or upgrading of present water quality designations is essential for the continuation of the  
8 commercial fishing and pleasure boating industries;
- 9 (10) Every effort will be made to maintain or upgrade the present water quality designations assigned by the state;
- 10 (11) No discharge of sanitary waste into the waters enclosed by the City of Warwick Harbor boundary eaves of the  
11 city shall be permitted;
- 12 (12) The use of the water shall be balanced so that its environmental quality is protected;
- 13 (13) The enjoyment of the waters of the City through all types of recreational activity is encouraged;
- 14 (14) The various recreational activities shall be managed by the Department of parks and recreation so as to  
15 minimize their impact on each other;
- 16 (15) A balance between the demands of the fishing industry and the boating industry must be developed;
- 17 (16) Commercial fishing and shellfishing is a valuable component of the City's economy and must be protected  
18 and encouraged to grow
- 19 (17) Activities of mutual concern will be coordinated with the towns of North Kingstown and East Greenwich and  
20 the City of Cranston, and
- 21 (18) In the case of federal navigation projects, the Federal government open to all policy shall apply; Rhode Island  
22 CRMC's no greater than 3:1 resident to non-resident ratio shall apply to all other mooring areas

23  
24 (Code 1971, § 9-2)

25  
26 **Sec. 24-3. Definitions.**

27 For the purpose of this chapter, the following terms shall have the meanings designated in this section. The word  
28 "used" includes "designed, intended or arranged to be used."

29 *Abode* means the principal, nonwater-dependent use of a structure or vessel as a dwelling or home.

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

32 *Channel* means any water areas that are federally maintained and reserved for unobstructed movement of vessels.

33 *Commercial mooring* means the rental, lease, management, maintenance and/or operation of a mooring for an amount  
34 in excess of or in addition to the municipal mooring permit fee or for purposes other than private use.

35 *Commission* means the Harbor Management Commission.

36 *Department* means the department of parks and recreation.

37 *Director* means the Director of parks and recreation.

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

39 *Harbor Management Commission* means the commission established or designated in accordance with this chapter to  
40 carry out responsibilities associated with the development, oversight and administration of municipal harbor programs.

41 *Harbormaster* means an official appointed in accordance with this chapter to carry out the provisions of this chapter.

42 There shall be a Chief Harbormaster who is responsible for the supervision and direction of all other Harbormasters.

43 *Houseboat* and *floating home* mean a building constructed on a raft, barge or hull that is used primarily for single-  
44 family habitation. Houseboats may only be anchored in a permitted marina. Discharge of sanitary waste from  
45 houseboats into the waters of the City is prohibited.

46 *Immediate family* means husband, wife, father, mother, son, daughter, brother, sister, grandparent, grandchild or  
47 stepchild.

48 *Moor* means to permanently secure a vessel to the bottom of a water body by the use of mooring tackle.

1 *Mooring* means a place where buoyant vessels are secured to the bottom of a waterbody by mooring tackle in  
2 accordance with this chapter and which has received a permit from the municipality.  
3 *Mooring area* means any area designated by the 1989 Harbor Management Plan as amended for the location of  
4 moorings.  
5 *Mooring tackle* means the hardware used to secure a vessel at a mooring and which is kept in place seasonally.  
6 *Outhaul: Means a non-single-point anchoring device, for the purpose of securing a boat in tidal waters and retrieving*  
7 *it from shore.*  
8 *Private mooring* means any mooring registered to an individual and used exclusively for his/her recreational purposes.  
9 *Resident* means any person whose legal residence or place of principal operation is the City.  
10 *Transient anchorage* means any area reserved and designated on the 1989 Harbor Management Plan, as amended from  
11 time to time, for the exclusive short-term use of commercial and recreational vessels and any vessels seeking  
12 emergency shelter.  
13 *Transient mooring (commercial)* means a mooring reserved and designated by a commercial mooring operator for  
14 short-term use by a person who does not typically lease from the commercial mooring operator.  
15 *Vessel* means every description of watercraft, other than a seaplane on water, used or capable of being used as a means  
16 of transportation on water. Specifically excluded by this definition are floating homes or houseboats.  
17 *Wake* means a wave generated by a vessel.

18 (Code 1971, § 9-3)

19 **Cross reference(s)**—Definitions generally, § 1-2.

20  
21 **Sec. 24-4. Area of jurisdiction.**

22 (a) All waterfront areas, as detailed in the Harbor Management Plan: 1989-1993 as amended, for the City, shall fall  
23 under the jurisdiction of the City and shall be governed by this chapter and any rules and regulations adopted by the  
24 City. More specifically, it is that area of the waters of the City encompassed by the following description: beginning at  
25 the line between the City of Warwick and the Town of North Kingstown at a point on Forge Bridge; then proceeding  
26 down the centerline of the Potowomut River to a location halfway between Marsh Point and Pojac Point; from this  
27 point easterly to Round Rock Buoy "1"; then northeasterly to R "8" bell; thence northerly to the G "19" buoy on the  
28 channel to Providence; then along the southwesterly edge of the channel known as the Conimicut Point Reach to buoy  
29 "23"; then along the westerly edge of the channel known as the Bullock Point Reach to buoy "33"; then westerly to  
30 buoy RN "2" at the beginning of the channel to Pawtuxet Cove; then westerly to buoy N "6," N "8" and then to RN  
31 "10"; then running northerly and westerly through the center of the channel and the Pawtuxet River to the bridge on  
32 Route 1A.

33 (b) Excluded from the waters of the City is that portion of Greenwich Cove south and west of the municipal boundary  
34 line established by the P.L. 1986, ch. 354, that is located in the Town of East Greenwich.

35 (Code 1971, § 9-4)

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37 **Sec. 24-5. Administration and enforcement; Harbor Management Commission.**

38 The City may regulate uses and activities within the tidal waters of the state that are within the corporate boundaries of  
39 the City consistent with the authorities granted the City by G.L. 1956, § 46-4-1 et seq., to minimize user conflicts and  
40 to maximize the efficient use of both the water space and the City-owned waterfront. In order to regulate the uses and  
41 activities within the City's tidal waters, enforcement of the provisions of this chapter shall be completed as follows:

42 (1) ~~Department of parks and recreation:~~ The department of parks and recreation shall be the local regulatory body  
43 for the waters of the City. The Department shall enforce this chapter promulgated by the City Council and may adopt  
44 any rules and regulations, subject to CRMC approval, for the implementation of this chapter and perform all acts  
45 necessary and consistent with the purpose of this chapter. The Department shall operate the harbor management fund in  
46 accordance with this chapter. In addition to the duties and responsibilities delegated to the Department by this chapter, the  
47 Department is hereby authorized and empowered to develop, operate and administer parks and shoreline recreational  
48 facilities, waterfront business facilities, harbors and coves; to carry on a general beach and bathhouse business; to  
49 purchase, construct, maintain and operate or lease thereon buildings, wharves, piers, walks, parking facilities  
50 and swimming pools; to furnish business buildings and accommodations on or near the waterfront for lease or  
51 hire; to furnish bathing accommodations and facilities to the public and to make reasonable rules and

1 regulations for the use of same; and to charge suitable fees and/or rents therefor, as may be adopted from time  
2 to time by the City Council.

3 (2) *Harbormasters.*

- 4 a. *Chief Harbormaster.* There shall be a Chief Harbormaster for the City, who  
5 shall be appointed by the mayor and who shall serve at the pleasure of the  
6 mayor. The Chief Harbormaster shall report to the Director of parks and  
7 recreation and shall have the power and duties delegated to him/her by the director.  
8 b. *Other Harbormasters.* There shall be a Harbormaster for each cove or harbor  
9 within the City and other Harbormasters as needed, who shall be appointed by  
10 the mayor and who shall serve at the pleasure of the Mayor. The  
11 Harbormaster(s) shall work for the Chief Harbormaster and shall have the  
12 power and duties delegated to them by the director.  
13 c. *Compensation.* The Chief Harbormaster and Harbormaster(s) shall receive an  
14 annual stipend and shall be compensated for expenses incurred in the  
15 performance of their duties. All compensation shall be included in the  
16 Department's budget, and acted upon by the City Council.

17 (3) *Harbor Management Commission.* There is hereby created a Harbor Management Commission,  
18 which shall consist of seven members. The commission shall consist of one representative from  
19 each of the following groups: the recreational boating community, the commercial fishing industry,  
20 the commercial mooring operators and the environmental community. In addition, there shall be on  
21 the commission three citizens at large who are not affiliated with any of the above groups.

- 22 a. *Term of office.* Members shall be appointed by the mayor for five-year terms.  
23 b. *Vacancies.* All members shall serve until their successors are duly appointed.  
24 If a vacancy occurs, the mayor shall appoint a member to fill the remainder of  
25 the unexpired term.  
26 c. *Chairperson.* The chairperson, vice-chairperson and secretary shall be elected  
27 by the members of the commission. Meetings shall be called by the director or  
28 at the request of three members of the commission. The chairperson shall  
29 conduct the meetings of the commission. In the absence of the chairperson, the  
30 vice-chairperson shall assume those responsibilities. The secretary shall keep  
31 minutes of all meetings.  
32 d. *Powers and duties.* The commission shall be the primary advisory group for  
33 the management of the waters of the City. The commission shall adopt rules of  
34 procedure and operation for its meetings and is authorized to:

- 35  
36 1. Recommend to the department of parks and recreation for  
37 adoption rules, fees and penalties for activities that may be  
38 necessary to fulfill the goals of the City Harbor  
39 Management Plan and the requirements of this chapter;  
40  
41 2. Assist in preparing an annual budget and capital  
42 improvement program in cooperation with the department  
43 of parks and recreation and in accordance with the  
44 provisions of the City to expend monies in the harbor  
45 management fund;  
46  
47 3. Sit as a board of appeals to hear any person aggrieved by  
48 any decision, act or failure to act by the department of  
49 parks and recreation or the Chief Harbormaster in the  
50 enforcement of this chapter and any rules and regulations  
51 adopted by the City pursuant to this chapter; and

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4. Review and revise as necessary the Harbor Management Plan for City Council and CRMC approval. The plan shall be reviewed and revised at least once every 5 years.

e. ~~\_\_\_\_\_~~ *Ex officio members.* There may be one nonvoting ex officio member from the Cranston, East Greenwich and North Kingstown harbor commissions on the Warwick commission, enabling the commission to coordinate issues of mutual concern.

f. ~~\_\_\_\_\_~~ *Compensation of members.* Commission members may be compensated for their time and for expenses incurred in the performance of their duties.

(Code 1971, § 9-5; Ord. No. ~~O-0~~-94-27, § I, 11-14-94)

**Cross reference(s) ~~(s)~~**—Boards and commissions, ch. 6.

**Sec. 24-6. Regulated activities.**

(a) *Moorings.* The size, type, location and use of all anchorages and moorings within and on the public water within the City are hereby regulated. A permit from the Department of parks and recreation is required for all moorings within and on the public waters within the City except those installed by the City. No permit for a mooring shall be issued unless the mooring shall conform to the requirements of this chapter and the mooring is set in the place assigned by the Department. The Department of parks and recreation shall determine whether the applicant has complied with the requirements of this section.

1) ~~\_\_\_\_\_~~ *Mooring standards.*

-a. General standards.

1. All moorings installed after the effective date of this chapter and any existing mooring that must be replaced for any reason shall conform to the requirements of the following table:

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2.

**MOORING SIZES BASED ON 20-FOOT WATER DEPTH**

| <u>Registered Boat Length (feet)</u> | <u>Mushroom Anchor Size (pounds)</u> | <u>Heavy Chain Size (inches)</u> | <u>Light Chain Size (inches)</u> | <u>Pennant Size (inches)</u> | <u>(Nylon) Length to Eye</u>            |
|--------------------------------------|--------------------------------------|----------------------------------|----------------------------------|------------------------------|---|
| <u>Up to 20</u>                      | <u>200</u>                           | <u>3/4</u>                       | <u>3/8</u>                       | <u>3/4</u>                   | <u>2.5 times bow height above water</u> |
| <u>21 to 25</u>                      | <u>250</u>                           | <u>3/4</u>                       | <u>3/8</u>                       | <u>3/4</u>                   |   |
| <u>26 to 30</u>                      | <u>300</u>                           | <u>3/4</u>                       | <u>7/16</u>                      | <u>3/4</u>                   |   |
| <u>31 to 35</u>                      | <u>400</u>                           | <u>3/4</u>                       | <u>7/16</u>                      | <u>7/8</u>                   |   |

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~~2. \_\_\_\_\_ Registered Mushroom Heavy light Pennant (Nylon) Boat Anchor Size Chain Size Chain Size Size Length Length (ft) (pounds) (inches) (inches) (inches) to Eye~~

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|---------------------|----------------|----------------|-----------------|----------------|------------------------|
| <del>Up to 20</del> | <del>200</del> | <del>3/4</del> | <del>3/8</del>  | <del>3/4</del> | <del>2.5 times</del>   |
| <del>21 to 25</del> | <del>250</del> | <del>3/4</del> | <del>3/8</del>  | <del>3/4</del> | <del>bow height</del>  |
| <del>26 to 30</del> | <del>300</del> | <del>3/4</del> | <del>7/16</del> | <del>3/4</del> | <del>above water</del> |
| <del>31 to 35</del> | <del>400</del> | <del>3/4</del> | <del>7/16</del> | <del>3/4</del> |                        |
| <del>36 to 40</del> | <del>500</del> | <del>3/4</del> | <del>7/16</del> | <del>7/8</del> |                        |
| <del>41 to 45</del> | <del>550</del> | <del>3/4</del> | <del>1/2</del>  | <del>1</del>   |                        |

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2. Any boat with a registered length over 45 feet shall comply with the standards set when the permit is issued.

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- 3. ~~\_\_\_\_\_~~ The total scope of the chain shall be 2 ~~1/2~~ times the depth of ~~\_\_\_\_\_~~ the water at high tide.
  - 4. ~~\_\_\_\_\_~~ The heavy chain shall be 1 ~~1/2~~ times the water depth.
  - 5. ~~\_\_\_\_\_~~ As a minimum, commercial moorings shall be capable of handling a registered boat length of 25 feet.
  - b. All transient rental moorings shall consist of a 500-pound mushroom anchor and one-inch heavy chain and one-half-inch light chain. The weight of the anchor shall be clearly painted on the mooring ball. All commercial moorings shall have specially designated mooring buoys.
  - c. The maximum length of the pennant shall be 2 ~~1/2~~ times the distance from the bow chock to the water plus the distance from the bow chock to the mooring cleat or post.
  - d. All pennant lines running through a chock or any other object where chafing may occur shall have adequate chafe guards. A second pennant shall be fastened to moorings made of cable or chain and used in case of heavy weather. All pennant lines shall be the responsibility of the boat owner.
  - e. All shackles, swivels and other hardware used in the mooring hookup shall be proportional in size to the chain used.
  - f. All shackles shall be properly seized.
  - g. It is recommended that the pennant be spliced or shackled into the bitter end of the top chain below the buoy so the strain is not carried by the buoy.
  - h. The Department may approve installation of other types of moorings if they are deemed equivalent to these standards.
  - i. The Chief Harbormaster shall have full authority and discretion to specify one-inch size heavy chain for moorings in locations deemed by him/her to be in nonsheltered waters under his/her jurisdiction.
- (2) ~~\_\_\_\_\_~~ *-Numbering and description of moorings.* Each mooring shall be issued a registration number. The mooring buoy or float must be white and legibly marked in black block letters at least four inches in height with its assigned number.
- (3) ~~\_\_\_\_\_~~ *-Winter mooring spars.* Winter mooring spars shall be readily visible in a vertical position above the water at all times and shall be removed not later than June 1 of the next succeeding year. Winter spars shall not be set until, on, or after October 1 of each calendar year.
- (4) ~~\_\_\_\_\_~~ *-Occupation of mooring areas.* No vessel shall occupy a mooring other than the one for which it is registered. The Chief Harbormaster shall have authority to move any vessel violating the provisions of this chapter, and such movement shall be at the owner's expense and risk. At no time shall any vessel be tied to a mooring inconsistent with the mooring tackle standards attached hereto.
- (5) ~~\_\_\_\_\_~~ *-Illegal moorings.* Any mooring located on or maintained in the public waters within the City that does not have a valid permit or does not comply with the provisions of this chapter shall be deemed an illegal mooring and shall be removed at the owner's expense.
- a. *Notice to remove; removal by City.* The director or his/her agents shall cause illegal moorings to be removed by notifying, in writing, and by certified mail, the person who has built, deposited, owns, maintains or uses the illegal mooring to remove such mooring within 30 days. If the illegal mooring is not removed within 30 days of the notice, or if no such person is known to the director upon whom notice can be served, the director may remove the illegal mooring, or cause the same to be done, in such manner and to such place as the director shall deem best.
  - . *Liability for payment of costs.* The owner (or such other person) of the illegal mooring removed by the director, in accordance with this chapter, shall be liable to pay the cost and expense of such removal and storage, or to repay the



1 same when paid out by the City. This expense may be recovered in an action  
2 brought by the City solicitor against such persons. The City may sell unclaimed  
3 moorings and tackle. The proceeds from the sales shall be used to defray the  
4 cost the City incurred in the removal and storage of the mooring and in the  
5 administration of this chapter.

- 6 (6) *Guest anchorage.* A boat may anchor on its own anchor up to 48 hours in the public waters of the  
7 City. Written consent of the Chief Harbormaster is necessary for extended visits of more than 48  
8 hours. No vessel will be allowed to anchor in the City waters utilizing its own ground tackle and be  
9 left unattended. The owner or operator and party may go ashore, but shall not leave the area. They  
10 shall be available to tend to the vessel in the event of heavy weather. When anchoring in a  
11 combination mooring and anchoring area, it shall be the anchored vessel's responsibility to remain  
12 clear of all moored vessels, including a change of wind or tide situation.
- 13 (7) *Emergency anchorages.* Within close proximity to all fueling stations within the coves of the City,  
14 there shall be an emergency mooring. This mooring shall be supplied and maintained by the  
15 proprietor of said fueling station. The mooring shall meet the requirements of transient rental  
16 moorings and shall consist of an 18-inch, white cylindrical float with red lettering to read  
17 "Emergency Use Only." The exact location of such emergency mooring shall be determined and  
18 approved by the Chief Harbormaster. It shall be a violation of this chapter for anyone to use such  
19 emergency moorings other than in a genuine emergency situation.
- 20 (8) *Mooring setback.* All moorings shall be set back a minimum of three times the marked depth of 25  
21 feet from a channel, fairway or  
22 existing structure, and the boat shall swing clear of the channel, fairway or existing structure.
- 23 (9) *Hazardous mooring.* Any mooring determined by the Department to interfere with the safe  
24 movement of boats within waters of the City may be removed in accordance with subsection (a)(~~4~~)  
25 (~~5~~) of this section.

26 (10) *Federal Navigation Projects:* No private commercial mooring shall be allowed in Federal  
27 Navigation Projects

28 (b) *Transient berthing space.* Berthing space for transient boats may be designated by the City. Such transient berthing  
29 space shall not be occupied for more than a one-hour interval without the written consent of the Department. The  
30 Department shall mark such areas with signs that shall designate the area short-term berthing and shall contain the  
31 warning "TOW! ZONE: HOUR LIMIT." Any vessel violating the conditions of said berthing shall be subject to  
32 removal at the owner's expense and shall be subject to the issuance of a notice to move. Said notice shall include the  
33 time issued, the time at which the vessel was first observed at the berth, the state registration number of the vessel, and  
34 the name and signature of the Chief Harbormaster issuing the notice. Said notice shall give the owner or operator of the  
35 vessel 1 hour from the time of issuance to move said vessel and shall advise the owner that he/she has violated an  
36 ordinance of the City and is subject to the penalties of that ordinance.

37 (c) *Boat speed.* A speed maximum limit of 5 miles per hour and no wake zones are established for boats operating  
38 within the areas designated on the cove maps (figures 5 and 9) that are part of the Harbor Management Plan; 1989-  
39 1993, as amended by the department.

40 (d) *Littering and dumping.* No person shall throw, dispose or deposit, or cause to be thrown, disposed or deposited,  
41 bottles, glass, crockery, cans, scrap metal, junk, paper, garbage, refuse or debris of any nature, or any noxious  
42 substance, in or upon any of the waters within the City.

43 (e) *Operation on the waters.*

- 44 (1) No person shall operate any motorboat or vessel or manipulate any water skis, surfboard, sailboard,  
45 or similar device in a reckless manner so as to endanger the life, limb or property of another.
- 46 (2) No person shall operate any motorboat or vessel or manipulate any water skis or similar device  
47 while intoxicated or under the influence of any Schedule I or Schedule II non-prescribed drugs as  
48 defined by RIGL Uniform Controlled Substance Act, Ch. 21-28. ~~narcotic drug, barbiturate or~~  
49 marijuana. A person arrested and charged with operating any motorboat or vessel, or manipulating  
50 any water skis, surfboard or similar device, while under the influence of intoxicating liquor or  
51 narcotic or habit-forming drugs shall have the right to be examined at his/her own expense  
52 immediately after his/her arrest by a physician selected by him/her, and the officer so arresting or

1 so charging such person shall immediately inform such person of his/her right and afford him/her a  
2 reasonable opportunity to exercise the same, and at the trial of such person the prosecution must  
3 prove that he/she was so informed and was afforded such opportunity.

4 (3) Waterskiing, surfboarding, sailboarding or similar activities are prohibited in Greenwich Cove,  
5 Apponaug Cove, Warwick Cove and Pawtuxet Cove, ~~in any designated mooring areas~~ and within 100  
6 feet of any marked swimming areas.

7 (4) Waterskiing, surfboarding, sailboarding, swimming or similar activities are prohibited in any  
8 designated mooring areas.

9 (5) Waterskiing, surfboarding, sailboarding or similar activities are prohibited from one hour after  
10 sunset to one hour before sunrise.

11 (6) When towing a person or persons on water skis, surfboards, sailboards or similar devices, there  
12 must be one person, in addition to the operator of the boat, who is at least 12 years of age to  
13 observe the progress of the person(s) being towed. In addition, there shall be one life preserver, life  
14 belt, or ring buoy for each person on the boat and for each person being towed. The provisions of  
15 this section do not apply to a performer engaged in a professional exhibition or a person or persons  
16 engaged in any activity authorized under G.L. 1956, § 46-22-13, as amended.

17 (7) No person shall operate or manipulate any vessel, tow rope or other device by which the direction  
18 or location of water skis or a surfboard, sailboard, or similar device may be affected or controlled  
19 in such a way as to cause the water skis, surfboard or similar device, or any person thereon, to  
20 collide with or strike against any object or person.

21 (f) *Abandoned vessels or harbor structures.* No person shall deposit or abandon a vessel or structure upon a beach,  
22 upon a public right-of-way or in the waters of the City. Any person violating this section shall be subject to punishment  
23 in accordance with the provisions in section 24-9. When any vessel or structure is deposited or abandoned in the waters  
24 of the City, the director is authorized and empowered to remove the same or cause the same to be removed.

25 (1) *Notice to remove.* If the person who owns, has an interest in, or exercises any control over the  
26 vessel or structure is known, the director shall give written notice by certified mail to said person  
27 to remove the vessel or structure within a specified time.

28 (2) *Removal by City.* If the vessel or structure is not removed within the time specified in the notice  
29 and in a manner and to a place satisfactory to the director, or if no such person is known to the  
30 director upon whom the notice can be served, the director may proceed to remove or cause the  
31 vessel or structure to be removed in a manner and to a place the director shall deem best.

32 (3) *Liability for payment of costs.* The owner (or such other person notified) of a vessel or structure  
33 removed by the director in accordance with this chapter shall be liable to pay the cost and expenses  
34 of the removal and storage, or to repay the same when paid by the City. The expenses may be  
35 recovered in an action brought by the City solicitor against the owner(s). If the owner(s) are  
36 unknown or the vessel or structure is unclaimed within 90 days of the removal, the City may sell  
37 the vessel or structure. The proceeds from the sale shall be used to defray the cost the City incurred  
38 in the removal and storage of the vessel or structure and in the administration of this chapter.

39  
40 (g) *Pump-out facilities.* No person shall operate a marine toilet at any time so as to cause or permit to pass or to be  
41 discharged any sewage into the waters enclosed by ~~of~~ the City of Warwick Harbor boundry. ~~city, excluding Greenwich~~  
42 ~~Bay, Narragansett Bay and the Providence River.~~

43 (h) *Towing.* Any time the Chief Harbormaster or the director directs that a vessel be towed pursuant to this chapter or  
44 any rules and regulations of the commission, there shall be a fee for said towing. Said fee shall be set annually by the  
45 Director of parks and recreation.

46 (i) *Operation of unnumbered motorboats prohibited.* Every motorboat on, in, or within the waters of the City shall be  
47 numbered. No person shall operate or give permission for the operation of any motorboat on such waters unless the  
48 motorboat is numbered in accordance with state law, or in accordance with applicable federal law, or in accordance  
49 with a federally approved numbering system of another state, and unless the certificate of number awarded to such  
50 motorboat is in full force and effect and the identifying number set forth in the certificate of number is displayed on  
51 each side of the bow of such motorboat.

1 (j) *Obedience to orders of enforcement officers.* It shall be a violation of this chapter for any person to refuse to move  
2 or stop on oral command or order of the Chief Harbormaster, Harbormaster(s) or police officer operating from a patrol  
3 boat identified as such and exercising the duties lawfully assigned to him/her.

4 (k) *Boat standards.* Every vessel entering the waters of the City shall be equipped as required by G.L. 1956, § 46-22-5,  
5 as amended.

6 (l) *Rafting.* Rafting on a single mooring will only be allowed if it does not interfere with adjacent single moorings or  
7 anchorages. Boats in a raft shall be manned at all times.

8 (m) *Rights-of-way to the waters.*

9 (1) No person or persons shall block, barricade or in any way impede the public use of or access to  
10 designated public rights-of-way to the waters of the City.

11 (2) No person or persons shall store a vessel, vehicle or structure upon a designated public right-of-way  
12 to the waters of the City.

13 (3) Any person violating this section shall be subject to punishment in accordance with section 24-9.

14 (+) - (Code 1971, § 9-6; Ord. No. ~~09~~-94-8, §§ I, II, 4-18-94)

15  
16 **Sec. 24-7. Mooring and Outhaul permit.**  
17

18 (a) *Required.* No mooring shall be located in the waters of the City until a permit has been received from the *Department*.  
19 No mooring shall be located and no mooring shall be maintained unless the owner of the mooring has a valid permit for the  
20 mooring and the mooring conforms to the specifications set forth in this chapter and in the permit.

21 (b) *Application for renewal.* Applications for renewal of a valid mooring permit shall be submitted to the department, on the  
22 forms provided, by March 31 of each year. An application shall be accompanied by the required fee and shall be received by  
23 March 31 in the offices of the Department. Failure to submit a complete and accurate application by March 31 shall result in  
24 loss of mooring space. The Department shall mail application forms during the month of February to all persons who held valid  
25 permits at the end of the prior calendar year to the address listed on their last permit. It shall be the burden of the permit holder to  
26 notify the department of any change of address. The Department shall approve or reject the permit within 10 days of receipt of  
27 the complete application.

28 (c) *Application for new mooring or relocation.*  
29

30 (1) \_\_\_\_\_ All requests for new or relocated moorings shall be made on the forms supplied by the director  
31 and meet the application requirements of this chapter. To be eligible for any new mooring  
32 permit, the applicant must own a boat or be a commercial mooring operator. To apply for  
33 relocation of a mooring, the applicant must hold a permit from the preceding year and, as part of  
34 the application, shall specify the reasons for the relocation request along with the existing  
35 mooring space registration number and size and type of boat. Based on availability of spaces and  
36 the requirements of this chapter, action will be taken on the application. Any application  
37 received by the Department that is incomplete shall be returned to the applicant and no action shall be  
38 taken on the application.

39 (2) \_\_\_\_\_ The Department shall perform an evaluation of all coves and harbors within the City to determine  
40 the appropriate number of boats. This determination shall be based on water quality certification  
41 formulas and regulations of the DEM, Division of Water Resources, as may be established from  
42 time to time. If any cove or harbor is determined to have more boats moored or docked than

1 justified by the water quality certification regulations, no new moorings shall be issued unless  
2 appropriate remedial action is taken by the permit applicant or the City to ensure water quality  
3 certification compliance.

4 (3) The application process for a new or relocated mooring is as follows:

5 a. *Preapplication to Department.* An application in accordance with subsection  
6 (d) of this section shall be filed with the Department. The Department, upon  
7 determining that there is space for the mooring, shall issue a preliminary permit  
8 advising the applicant that a space is available and that, upon receipt of any  
9 necessary state and federal approval, a full permit may be issued.  
10

11 ~~*Federal/state approval. Once a*~~  
12 ~~*preliminary permit is issued, the applicant shall seek appropriate federal*~~  
13 ~~*and state permits.*~~

14 *b.* *Final application.* ~~*Upon receipt of any necessary state and/or federal approvals, if necessary, a*~~ final application shall  
15 be filed with the Department.

16 *c.* ~~*\_\_\_\_\_*~~ *Issuance of permit.* The Department shall approve or deny the final application  
17 within ten days of receipt. If within said ten-day period a permit is not issued,  
18 then the application shall be deemed denied.

19 (d) *Application requirements.* The following requirements are set for applications for mooring permits:

20 (1) ~~*\_\_\_\_\_*~~ *-Private moorings.* Private moorings shall be permitted only in approved mooring areas designated  
21 as part of the Harbor Management Plan; 1989-1993 ~~*as amended,*~~ with the exception of those  
22 permitted riparian landowners, who at the discretion of the City may be permitted within  
23 reasonable proximity to their property. An application for private moorings permit shall be made on  
24 the form supplied by the Department and shall contain the following:

- 25 a. Name, address and telephone number (work and home) of owner;
- 26 b. Vessel name, length in feet, breadth in feet, draft in feet, type, registration or  
27 documentation number, color, and type of sanitary facility;
- 28 c. Mooring classification and actual mooring weight;
- 29 d. Appropriate registration fee; and
- 30 e. Area where applicant would like to locate the mooring.

- 1 (2) \_\_\_\_\_-*Commercial moorings.* Commercial moorings shall be permitted in approved mooring areas  
2 designated as part of the Harbor Management Plan: 1989-1993, as amended.  
3 An application for a commercial mooring permit shall be made on the form  
4 supplied by the Department and shall contain the following:  
5 a. Name, address and telephone number of applicant;  
6 b. Name, address and telephone number of manager, if different from applicant;  
7 c. The number of moorings requested, a breakdown of the moorings requested by  
8 size and a listing of moorings by their assigned number and size; and  
9 d. A plan, stamped by an engineer or land surveyor registered in the state,  
10 showing the boundaries of the mooring field, the location of each mooring, the  
11 mooring's number, size and type of sanitary facility, and all moorings located  
12 within a 200-foot radius of the boundaries of the mooring field.
- 13 (e) *Waiting list.* The Chief Harbormaster shall maintain waiting lists of applications for private and  
14 commercial mooring spaces. The waiting lists shall consist of the existing waiting lists, minus all  
15 applicants who fail to file a new application and fee by April 1, 1989. Thereafter, the waiting list shall be  
16 added to as completed applications are received. The waiting list shall be available for public review.
- 17 (f) *Permit ratio for private and commercial moorings.* For every 6 permitted private moorings, there may be  
18 no more than four permitted commercial moorings.
- 19 (g) *Appeal of denial.* Upon denial of a permit by the department of parks and recreation, the applicant may,  
20 within 10 days of such denial, appeal the denial to the commission by filing in the office of the director a  
21 written notice of his/her claim of appeal.
- 22 (h) *Mooring placement.*  
23 (1) No mooring shall be placed in the waters of the City without inspection and approval of  
24 the Chief Harbormaster. The Chief Harbormaster must direct the placement of the  
25 mooring.  
26 (2) No vessel so moored or anchored shall extend beyond the mooring and anchorage areas  
27 into designated channels.  
28 (3) The Chief Harbormaster shall keep a detailed record of all moorings, their location and  
29 the owner's name, telephone number, home and business address, the date the mooring  
30 was set, and the name, length and type of boat to be attached thereto. Registration  
31 numbers will also be required if applicable.  
32 (4) All assignments of mooring space shall be made by the Chief Harbormaster in  
33 cooperation with the director. Moorings shall be assigned in chronological order of  
34 receipt of completed applications.

35 (i) *Maintenance of moorings; inspections.*

- 36 (1) *Responsibility for maintenance.* Every permit holder shall be required to maintain his/her  
37 mooring in safe condition. Any chain, shackle, swivel or other tackle that has become warped or  
38 worn by one-third its normal diameter shall be replaced. Failure to maintain a safe mooring shall be  
39 cause for revocation of the permit and shall be deemed a violation of this chapter. The Chief  
40 Harbormaster or the Harbormaster(s) may inspect any mooring at any time to determine  
41 compliance with this section.  
42 (2) *Inspections generally; correction of violations.* All moorings in the waters of the City  
43 shall be inspected at least once every 3 years by a qualified inspector. Any mooring washed ashore  
44 during a storm shall be inspected by the Chief Harbormaster and Harbormaster(s) before it is reset.  
45 The cost of any inspection required by this chapter shall be borne by the mooring owner. The  
46 inspection shall be made by raising the mooring or by an underwater inspection. The purpose of the  
47 inspection is to determine compliance with the mooring standards of this chapter. Any mooring or  
48 component of a mooring that violates the requirements of this chapter shall be replaced within

thirty days. Within forty five days after a mooring has been found to violate the requirements of this chapter, a second inspection by a qualified inspector must be completed to determine if the violation has been corrected. Failure to correct the violation shall cause the mooring to be deemed an illegal mooring. The director may remove the mooring in accordance with the provisions of Section 24-6 and the owner shall forfeit the mooring permit.

- (3) *Inspection schedule.* Moorings shall be inspected every 3 years. The report of the qualified inspector on the condition of the mooring shall be filed with the application for a permit renewal. ~~All New moorings permitted after April 1, 1990,~~ shall be inspected every 3 years from the date the permit was first issued.
- (4) *Qualified inspectors.* Any person certified by the YMCA or similar organization as a qualified diver or any person who is an operator or employee of a boatyard and is familiar with the requirements of this chapter and the rules and regulations of the commission may apply to the commission to be designated as an inspector. Application shall be made on the form provided by the department of parks and recreation and must be accompanied by the annual application fee. A qualified inspector must reapply by July 1 of each year. The commission may designate as many inspectors as it feels are necessary, shall set standards for the inspectors to follow, and shall establish criteria for qualifying as an inspector. Any inspector who does not possess the necessary qualifications or who has failed to exercise diligence in the exercise of his/her duty shall have his/her inspector's license revoked.
- (5) *List of inspectors.* The director shall keep a list of all qualified inspectors and shall make this list available to holders of mooring permits.

(j) *Forfeiture of mooring space.* Any owner shall be deemed to have forfeited his/her mooring permit by reason of the following:

- (1) Removal of tackle and notification to the Chief Harbormaster that the space is available.
- (2) Failure to reapply for the mooring permit by April 1 of any season or failure to replace any piece of mooring tackle not complying with the mooring tackle standards hereinafter set forth.
- (3) Failure to resurface or replace mooring within 60 days after being advised by the Chief Harbormaster that the mooring is down.
- (4) Failure to comply with any of the requirements of this chapter.

(k) *Abandoned moorings.* Failure to renew an existing permitted mooring by April 1 of any given year shall result in the registered owner's abandonment of all his/her rights and interest in said mooring. The director may remove the abandoned moorings at the registered owner's expense, which may be recovered in an action brought by the City solicitor against such person, or the director may assign the mooring to a new permit holder. If the mooring is assigned, the permit holder shall have the mooring inspected in accordance with this chapter.

(l) *Determination of number of available spaces.* As of April 1 of each year, the Chief Harbormaster shall determine the number of moorings available for new mooring space as the sum of all authorized mooring spaces for which acceptable applications for renewal were not received. These spaces shall be allocated to those on the waiting list.

(m) *Transfer of moorings.* A mooring shall not be transferred from person to person, other than to a member of the immediate family as the same is hereinbefore defined. Such transfers shall be strictly limited to a one time basis to those individuals holding a valid permit on the date that the CRMC approves the City of Warwick Harbor Management Plan and Harbor Ordinance. No immediate family member to whom a private mooring is transferred shall then be allowed to transfer that private mooring under any circumstance. Thereafter, all private moorings that are forfeited by or not renewed by a holder of a valid mooring permit shall be made available to individuals on the waiting list.

(n) Outhauls are subject to the regulatory jurisdiction of the CRMCouncil. The CRMCouncil may authorize a municipality to administer an annual permit for such provided said municipality has a CRMCouncil approved and active Harbor Management Plan and ordinance that contain the following:

- a. Municipal documentation that demonstrates that
  - i. Except as provided below, an outhaul(s) is/are to be permitted to the contiguous waterfront property owner; and,
  - ii. Up to two (2) outhauls may be allowed per waterfront property; and,
  - iii. Outhauls are not permitted on properties which contain a recreational boating facility; and,
  - iv. Procedures have been adopted to ensure that permits are issued only consistent with the CRMC, including the provisions of 300.18; and,

1 v. Their procedures acknowledge that the CRMC retains the authority to revoke any permits issued  
2 by the municipality if it finds that such permit conflicts with the RICRMP; and,  
3 vi. From November 15 to April 15, when a boat is not being secured by the device on an annual  
4 basis, the outhaul cabling system shall be removed; and,  
5 vii. Outhauls may be “grandfathered” in their current location upon annual Harbormaster  
6 documentation that such outhauls have been in continuous use at such location since 2004, and, the  
7 contiguous property owner(s) agree in writing to such, however, such “grandfathering” is  
8 extinguished whenever a recreational boating facility is approved at the location.  
9

10 (Code 1971, § 9-7)

11 **Sec. 24-8. Fees; harbor management fund.**

12 (a) *Fees.*

13 (1)       -*Mooring permit.* All applications for mooring permits shall be accompanied by the appropriate fee as  
14 provided in chapter 18. All such fees shall be non-refundable. These fees shall be set annually by the department of  
15 parks and recreation in cooperation with the Harbor Management Commission and shall be approved as part of the  
16 department's budget submittal to the City Council.

17 (2)       -*Application to become inspector.* All applications to become a qualified inspector shall be  
18 accompanied by a filing fee as provided in chapter 18.

19 (b) *Harbor management fund.* A harbor management fund is hereby created to receive and expend monies for harbor  
20 management purposes determined by the City. All revenues generated by boat launch ramp fees, mooring permits, and  
21 fines levied under the provisions of the harbor management ordinance shall be deposited into this fund. Funds shall be  
22 disbursed for purposes directly associated with the management and implementation of the Harbor Management Plan.  
23 Monies from this fund may be allocated to the Chief Harbormaster or his/her designee for the purpose of enforcing the  
24 provisions of the Harbor Management Plan and/or the harbor management ordinance. The harbor management fund  
25 shall be established, budgeted and administered in a manner consistent with the procedure contained within the City  
26 Charter and funded through the Department's annual budget as a line item.

27 (Code 1971, § 9-8)

28 ~~Cross reference(s)~~—Mooring permit fee, § 18-7.

29  
30 **Sec. 24-9. Penalty.**

31 Any violation of this chapter or of the rules and regulations of the department of parks and recreation shall be punishable as  
32 provided in section 1-4. Each day the violation exists shall be deemed a new violation.

33 (Code 1971, § 9-9)

34 **Sec. 24-10. Disclaimer of liability.**

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

37  
38 (Code 1971, § 9-10)  
39  
40

**Warwick Harbor  
Management Plan  
2016**





*We are grateful to the many people who contributed their time and expertise to the creation of this document. We are especially thankful to the members of the Warwick Harbor Management Commission for giving a great deal of their personal time to attend meetings, review drafts of the document, and conduct research, all of which were critical to the production of this document.*

*We also gratefully acknowledge:*

*Planning Director William J. DePasquale, Jr. , Staff Assistant Susan Cabeceiras, Kevin Cute and Jennifer Mehaffey of the Rhode Island Coastal Resources Management Council, Chief Harbormaster Jeff Baris, Harbormasters Matthew Prendergast and Steven Brown and residents of Warwick who attended the public meetings which provided us with valuable input.*

EXECUTIVE CHAMBER

CITY OF WARWICK



RHODE ISLAND

SCOTT AVEDISIAN  
MAYOR

Dear Warwick Residents:

As you know, the City's 39 miles of coastline offer a wonderful array of activities, from fishing, to boating, to swimming, to simply sitting on the shore and appreciating the beauty of our bays.

Our coastal waters have also long been the livelihood of many of our residents, and have been an important part of our local economy. In the past decade, great strides have been made – from expansion of our sewer infrastructure, educational outreach, and development of the Special Area Management Plan for Greenwich Bay – to restore and further protect this critical environmental, recreation and economic resource.

So that we may continue these efforts long into the future, the Planning Department and the Harbor Management Commission have been meeting in order to update the City's Harbor Management Plan, which was last revised a decade ago. I believe their recommendations, presented in this plan, set forth a use and management strategy for our waters that balance the interests of the many individuals and groups who enjoy our harbors and coastal areas.

I would like to thank all those who have worked so hard to create this comprehensive plan and encourage you to contact any member of our Planning Department or our Harbor Management Commissioners if you have questions, concerns or ideas relative to our harbors and bays.

Sincerely,

Scott Avedisian  
Mayor

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## I. Executive Summary

The City of Warwick has a vision to improve its harbors and bays. The first Harbor Management Plan in the City's history, written in 1989, was a first step. It was one of the state's first Harbor Management Plans and a model for others to follow. Further, the City took a lead role in the clean up of Greenwich Bay, which was closed to shellfishing in 1992, through the nationally recognized Greenwich Bay Initiative, and through the implementation of Warwick's Strategic Plan for the Reclamation of Greenwich Bay. It was opened in summer 1993. The City has already committed over \$6 million for this effort. Greenwich Bay was also closed for two years beginning in the winter of 2003 and closed for the month of December in 2012 and 2013.

The City of Warwick's vision continues today in addressing some of the more complex issues facing the future of our harbors and bays. Among these issues is the dredging debate. The City, the Harbor Commission, Planning Department, and the City Council are working together with local citizens' groups to find a solution that accommodates the environmental issues as well as the need of the City, private industry and citizens to regain lost use of their waterfront property.

The City remains committed to upgrading the Harbormaster's Office, including training and replacing outdated equipment. Having a full complement of Harbormasters under the direction of the Chief Harbormaster patrolling the City's waters is also a main priority. Other areas of concern that the Warwick Harbor Commission, along with the Planning Department, are addressing include how to best provide improvements to public facilities, obtaining funds needed for the projects, improving and maintaining City docks and launching ramps, providing better public access to the shoreline, and providing better public notification of areas designated as public Rights-of-way.

The major responsibility facing the Harbormaster's Office is facing is mooring management. The City had never had a master plan to guide the issuance of moorings. Starting in January 2003, the Harbormaster's Office sent out notices to all those on the waiting list to upgrade and make current their informaiton. As a result, this new data base allows for new mooring permits to be issued in a fair and timely manner. The Coastal Resources Management Council (CRMC) was given jurisdiction, by the Rhode Island General Assembly in 1971 (RIGL 46-23), over all activities taking place in tidal waters of the state and along the coastline. The enabling legislation that created CRMC established the regulatory authority under which the CRMC operates. The regulations, procedures, and policies of the CRMC are laid out in the Coastal Resources Management Program (CRMP). The approval of municipal harbor regulations and plans is regulated under Section 30.15 of the CRMP. Additionally, the CRMC has developed a guidance document for municipalities titled "Guidelines for the Development of Municipal Harbor Management Plans." The document states that all final Harbor Management Plans shall be reviewed by CRMC every five years. This update is motivated by the CRMC guidance recommendation.

The Warwick Harbor Commission, in conjunction with the Planning Department, acknowledges the responsibility of the City to preserve and improve the quality of the shoreline, harbors and bays of the City of Warwick. These natural resources belong to all residents of th City of Warwick and the State of Rhode Island.

## A. MOORING MANAGEMENT

### 1. FINDINGS

The Harbor Management Plan, first adopted in 1989, and the City of Warwick's Harbor Ordinance, Chapter 24 of the Warwick City Code, established the current mooring management requirements. While pertinent when written, the Harbor Management Plan and the Harbor Ordinance should be reviewed on a regular basis in order to keep current with boating trends and the best mooring management practices in the industry. The designation of Warwick and all of Rhode Island Waters as a "No Discharge Zone" removes the mooring density constraints placed by the Department of Environmental Management (DEM) Water Quality Regulations.

The City first delineated mooring fields within Warwick's waters in the 1989 Harbor Management Plan. These areas are designated as single use areas (See Section H) for commercial and private moorings. Table 1 indicates the approximate size and depth of each of these fields. The Harbormaster's Office has located the boundaries of the fields utilizing the state plane coordinate system. In addition, anchorage areas were also delineated for transient vessels, as required by federal regulations.

Warwick issues mooring permits on a first come first served basis, and is consistent with the CRMC's no greater than 3:1 resident to non-resident mooring allocation requirements. No moorings are allowed in City waters without a permit. Warwick also adheres to CRMC's requirement that Federal mooring areas must be open to all on an equal basis, and that no private-commercial moorings are allowed within the mooring area.

Fees for permits were originally set in 1989 by the Warwick City Council. In 2006, the fees were set at a rate of \$3.00 per foot length overall for moored vessels, with a minimum of \$60.00 for private and a flat fee of \$150.00 for commercial moorings. These rates are among the lowest in the State.

There are three federal mooring areas within City Waters, Apponaug Cove, Pawtuxet Cove and Warwick Cove. These areas are managed by the City in the interest of the general

Applications for mooring renewal are sent to current mooring holders in or around February of each year. Individuals who fail to renew the permit forfeit the mooring. Mooring permits in regulated mooring fields may be held for one year in which the permit holder does not use the mooring. After that one-year period, if the mooring is not used, the permit is forfeited and reassigned to a person on the waiting list, in accordance with the Harbormaster's waiting list procedures. The use of City moorings is not transferable, as described in Section 7 of the Warwick Harbor Ordinance.

A database containing mooring location information has been created by the Harbormaster. This will allow for better allocation of available mooring space. Although mooring density

no longer is constrained by discharge regulations, silting and increased vessel size and draft require relocation of some moorings. Alternate mooring configurations may be considered to increase capacity of mooring areas.

Riparian property owners can, at the discretion of the Harbormaster, be permitted to place a mooring in the water in front of their property. The mooring must be within their property lines as they extend out into the water. No riparian mooring shall be allowed to be placed in a location such that the boat would interfere with another riparian owner’s property line. No riparian mooring shall be placed in an area that interferes with navigation or would be considered a safety hazard, as determined by the Harbormaster. All riparian moorings must have a valid permit and must comply with Section Seven (7) of the Warwick Harbor Ordinance. Riparian mooring holders are limited to two riparian moorings per homeowner.

**Table 1: Mooring & Anchorage Areas, City of Warwick**

| LOCATION             | SIZE (acres)* | DEPTH (feet)** | LANDMARKS TO MORING AREAS   | FEDERALLY MAINTAINED |
|----------------------|---------------|----------------|---|----------------------|
| <b>Apponaug Cove</b> |               |                |   |                      |
| Mooring Area 1       | 10            | 6              | South: Brewer Yacht Yard Cowesett<br>North: Brewer Yacht Yard Greenwich<br>West: Masthead Drive   | No                   |
| Mooring Area 2       | 11            | 2-3            | South: Brewer Yacht Yard Greenwich<br>North: Apponaug Harbor Marina<br>West: Mary’s Creek   | No                   |
| Mooring Area 3       | 26            | 2-3            | South: Cedar Tree Point<br>East: Grandview Drive<br>North: Edgewater Drive  | No                   |
| Mooring Area 4       | 14            | 1-2            | East: Edgewater Drive<br>North: Homes along shoreline/Dory Rd. (shallow water)<br>West: Navigation channel  | No                   |
| Mooring Area 5       | 10            | 6              | South: Apponaug Harbor Marina<br>North: Ponaug Marina and City dock<br>West: Shoreline homes/Arnold’s Neck Rd. (shallow water)  | Yes                  |
| <b>Pawtuxet Cove</b> |               |                |   |                      |
| Mooring Area 1       | 16            | 6              | East: Marsh Island and sheltering stone Dike<br>South: Salter Grove Park and causeway<br>West: Shoreline homes/Narragansett Pkwy (shallow water)<br>North: Navigation channel | Yes                  |
| <b>Warwick Cove</b>  |               |                |   |                      |
| Mooring Area 1       | 5             | 6-9            | South: Harbor Light Marina<br>North: Winsteads Marina<br>West: Navigation channel   | Yes                  |
| Mooring Area 2       | 0.5           | 3-7            | South: Warwick Cove Marina<br>North: Pleasure Marina<br>East: Navigation channel  | No                   |
| Mooring Area 3       | 5             | 6              | South: Pleasure Marina<br>North: Brewer Yacht Yard Greenwich Bay West<br>East: Navigation channel   | Yes                  |
| Mooring Area 4       | 3             | 1-3            | North: Navigation channel<br>South: Shoreline homes/Harris Ave. (shallow water) and navigation buoy<br>East: Warwick Neck Ave.  | No                   |
| Mooring Area 5       | 1             | 1-2            | West: Bay Marina  | No                   |

|                       |    |     |  |     |
|-----------------------|----|-----|--|-----|
|                       |    |     | East: Warwick Neck Ave.<br>South: Navigation channel<br>North: Shoreline homes (shallow water)                           |     |
| Transient Anchorage   | 2  | --  | Directly in front of Oakland Beach launch ramp<br>East: Navigation channel<br>North: Oakland Beach Yacht Club            | Yes |
| <b>Greenwich Cove</b> |    |     | <b>Entrance between southernmost point of Chepiwanoxet Point and northernmost point of Long Point</b>                    |     |
| Mooring Area 1        | 9  | 5-8 | East: Goddard State Park<br>North: Long Point<br>West: Navigation channel and Division Street (East Greenwich town line) | No  |
| Mooring Area 2        | 4  | 6-7 | North: Chepiwanoxet Point<br>South: Navigation channel and Norton's Marina<br>West: Amtrak Rail                          | No  |
| Transient Anchorage   | -- | --  | Directly in front of Goddard Park swim area  | No  |

Sources: \* City of Warwick, 1995  
 \*\* Approximate depth; NOAA Charts, February, 1994

The City requires that all moorings be inspected every three years. Section Seven (7) of the Warwick Harbor Ordinance establishes the inspection process and describes a schedule by which all moorings must be inspected. A list of mooring inspectors designated by the City is available from the Harbormaster on request.

The City's mooring capacity is finite, and is managed by the Warwick Harbormaster. However, the current demand is greater than the existing number of mooring spaces and is expected to grow. A waiting list for moorings in each area is maintained by the Harbormaster. Constraints due to the draft and length of vessels also must be considered. Use of the newly available database will improve allocation of moorings. A fee for inclusion on the waiting list is under consideration. As of January 2014 there were 110 names on the waiting list, many of whom are waiting for openings in specific locations.

At the present time, there are 686 legally registered moorings in the City (Table 2), and 259 are registered to commercial operators. Of the 427 private moorings, 70% are held by Warwick residents, thus maintaining the no greater than 3:1 resident to non-resident ratio required by CRMC. In federally-maintained mooring areas the CRMC ratios do not apply; however, the Federal "open to all on an equal basis" policy does apply. The City Council passed an ordinance changing the fee structure to echo the U.S. Army Corps of Engineers (ACOE) requirement that all moorings must be available to all on a fair and equal basis. Thus the ratios are for statistical tracking purposes only.

**Table 2** Number of Boats by Location

| LOCATION        | Private Total | Commercial Total | Total Number of Moorings |
|-----------------|---------------|------------------|--------------------------|
| Apponaug Cove   | 90            | 47               | 137                      |
| Brush Neck Cove | 41            | 0                | 41                       |
| Greenwich Cove  | 76            | 206              | 282                      |
| Pawtuxet Cove   | 50            | 0                | 50                       |
| Warwick Cove    | 55            | 6                | 61                       |
| Open Water      | 114           | 0                | 114                      |
| <b>TOTAL</b>    | 427           | 259              | 686                      |

Source: Warwick Office of the Harbormaster, 2014

The demand for more mooring space within the City waters has grown since the Harbor Management plan was first adopted in 1989. In order to supply more mooring spaces, a proposal is being considered to create three new mooring areas. The proposed areas meet the requirement for public access and parking nearby.

The Director of Recreation shall be responsible for all matters in regards to moorings within the City of Warwick. This includes, but is not limited to, the placement of moorings, setting ground tackle, regulation, collecting of fees, handling of permit applications, issuing of stickers, and removal of illegal moorings.

**2. POLICIES**

City waters are held in public trust. A mooring secures a portion of public waters for personal use. The City manages the waters in the Public Trust Domain. The public should be compensated for allowing such use.

There shall be no unregistered moorings in City waters.

City mooring fields will be used for public moorings to the maximum extent practicable, consistent with safe navigation.

Moorings sited within the coastal waters and harbor areas of the City shall be set back a minimum distance:

- (1) From riparian moorings and shoreline rights-of-way that which is sufficient to allow ingress and egress and to prevent interference with the exercise of private and public rights.
- (2) Fifty (50) feet from all residential or commercial docks, piers, floats and public launching ramps.



- (3) Public mooring fields shall be setback from federal navigation projects at least three times the ACOE authorized project depth from federal navigational projects.
- (4) All future mooring fields established shall be set back a minimum distance of 125 feet from the shore, unless mean high watermark abuts non-buildable lands, (municipal or state owned), then 50 feet shall apply.

Except in the case of riparian moorings all moored vessels shall be kept within the perimeter of the mooring field to which they are assigned by the Harbormaster.

No private moorings or structures will be allowed to encroach on federal navigation projects.

Moorings will be equitably and efficiently allocated. In the case of federal navigation projects, the federal “open to all” policy shall apply; CRMCs “no greater than 3:1 resident to non-resident ratio” shall apply to all other areas.

Moorings must be kept in active use. Any non-riparian private mooring that is not being actively used over a one-year period will be reallocated.

Mooring fees should be consistent with market conditions and commensurate with services provided or anticipated in the future.

Ensure that tides and currents aid in the flushing of all new and significantly expanded mooring fields.

Ensure that siting of all new and significantly expanding existing mooring fields does not cause significant adverse effects on water quality.

Enforcement of §24-6(e) (3) shall prohibit swimming and water-skiing in designated channels, fairways and mooring fields.

Moorings should not be sited so as to obstruct access to: designated shellfish management areas; traditional fishing grounds; public recreational areas; and conservation areas.

Moorings should not significantly adversely affect: fish and shellfish resources; wetlands; submerged aquatic vegetation; and other aquatic habitat areas.

Moorings must be serviced by adequate and accessible marine pumpout facilities and dump stations that are maintained in operational condition.

### **3. OBJECTIVES**

The mooring management subcommittee will serve as a review board for alternate mooring systems and as a board of appeal to resolve disputes related to mooring allocation or

placement. The Harbor Commission by-laws should be amended to reflect the duties, responsibilities and composition of the Subcommittee.

Approval of new mooring areas in City waters should be considered. The increased demand for mooring space makes it imperative that more space be provided. Possible areas include: Greenwich Bay #1 on the North shore of Potowomut, extending from Sandy Point to Sidney Avenue; Conimicut Point #1 on the north shore of Conimicut Point, extending from the point to Talcott Street; and Passeonkquis #1, including Passeonkquis Cove from Gaspee Point to Rock Island. These areas would have the necessary public access and parking. The seaward extent of the areas would be determined in conjunction with CRMC's Management Procedures for Siting Mooring Areas.

Alternate mooring systems should be considered to aid in efficient use of mooring areas

#### **4. ISSUES**

Removal of illegal moorings continues to be a problem in mooring field management.

Mooring inspection continues to be a problem for both the City and the mooring holder.

Mooring demand is increasing and therefore more mooring space needs to be identified and made available.

#### **5. IMPLEMENTATION STRATEGIES**

- A-1 A portion of the money in the Harbormaster's Office Budget should be used for removal of illegal moorings.
- A-2 Mooring locations that are unused as defined in §24-7(k) shall be reassigned.
- A-3 Where possible, new mooring fields should be opened to accommodate demand for moorings.
- A-4 All mooring space may be allocated in an efficient manner.
- A-5 The Harbor Management Commission should review mooring fees annually and make a recommendation to the Director of Recreation regarding the fees.

## B. DREDGING

### 1. FINDINGS

Warwick's waters, coves and bays have been heavily silted over the last 100 years, partially due to the development of Warwick from a farm oriented community made up of various separate and distinct villages to a sprawling modern day suburban community. Warwick was described in the 1950's as the bedroom community of Providence" and to facilitate Warwick's growing population, much of the City's existing farm land has been converted to housing and roads.

Dredging resumed in Warwick after a 30-year absence due to a disposal site being created in conjunction with Providence River dredging project. Pawtuxet Cove dredging was completed in January 2006 by the ACOE and CRMC. This dredging restored the depth in the mooring field and channel making it navigable and therefore more useful in providing additional public access. After the flooding of March 2010, Pawtuxet Cove was dredged again, in January 2011, to restore the mooring field and channel. Warwick Cove was last dredged in 1966 to provide a channel depth of - 6' mean low water (MLW) and a mooring field depth of -6' MLW. Today the channel at the entrance to the cove is as low as -3' MLW, clearly a hazard to navigation. If dredged, and the planned nourishment area and dredge material meets CRMC requirements, the sediment should be used as beach nourishment. Although the State of Rhode Island has some policies regarding beach nourishment, there is currently no dedicated state funding mechanism. See generally *Rhode Island Coastal Resources Management Policies* (RICRMP) §§110, 210.7, 300.2, 300.7, 300.9, 335; see also *State, Territory and Commonwealth Beach Nourishment Programs: A National Overview*, National Oceanic and Atmospheric Administration (NOAA) OCRM Program Policy Series Technical Document No. 00-01, pp 6; B-74-78, March 2000.

Apponaug Cove was last dredged in 1963 to provide a -6' MLW channel and mooring field #5 at -6' MLW. Mooring areas 1 through 4 and the inner basin (west of the railroad bridge) have not been dredged in recent history. Depths in mooring areas 2, 3, and 4 have depths from +1 MLW to -3' MLW, making navigation impossible at low tide and mooring of most vessels impractical. Sedimentation has eliminated any practical economic or recreational value.

Brush Neck Cove, in 1987, was the subject of a City of Warwick petition to CRMC for a dredge permit. The City believed this would allow boaters and shellfishermen better access to the cove. Objections to the proposed dredging led to the abandonment of the petition. In recent years there has been renewed interest in dredging the entrance to the cove and the channel to improve flushing.

ACOE has a program to provide maintenance dredging of public channels and mooring areas at the request of local and state governments. There is currently a state commission appointed by the governor that identified strategies to facilitate ACOE's dredging of the Providence River. This major project had many of the challenges that local projects in Warwick also experienced.

The State Legislature has passed legislation pertaining to the classification of dredged materials. This includes, but is not limited to, the reuse of de-watered materials in construction projects, landfill capping, and beach nourishment.

**2. POLICY**

The City supports endeavors to restore water depths to historic [100 year] levels in our channels and coves to provide safe navigation and efficient use of mooring areas in City waters.

**3. OBJECTIVES**

The City supports a comprehensive ongoing statewide dredging plan that would include beneficial reuse of dredged material. Warwick’s bays and coves should be dredged to improve their biological health and restore their navigational usefulness.

**4. ISSUE**

The Providence River and Pawtuxet Cove have been dredged in recent years. More channels and coves need to be dredged to permit safe navigation.

**5. IMPLEMENTATION STRATEGIES**

B-1 The Harbor Management Commission supports the development of feasibility studies and cost estimates to dredge Apponaug Cove and Warwick Cove and any other Warwick cove deemed appropriate. The Pawtuxet Cove dredge project should be used as a model for future dredge projects and the momentum should not be lost.

B-2 A needs analysis should be conducted to determine which areas are in greatest need of dredging.

**C. PUBLIC ACCESS: RIGHTS-OF-WAY TO THE SHORE**

**1. FINDINGS**

The Rhode Island Constitution Art. 1 §17 specifically protects citizens’ rights to fish from the shore, to gather seaweed, to leave the shore to swim in the sea and to walk along the shore at or below the mean high water mark. Access along the shore has been a common expectation and legal right for generations of Rhode Islanders (Coastal Resources Center, 1993). Trespassing across private property to reach the shore is illegal. Since most waterfront property in Rhode Island is privately owned, those other than private property owners seeking to reach the shore without trespassing must rely on public lands and access ways.

Dedicated rights-of-way (ROW) represent just one form of shoreline access opportunities that exist in Rhode Island. Other ROW include various state-owned boat ramps, recreation areas, beaches, and parks, as well as various town-owned access sites. A detailed listing of all identified ROW can be found In Appendices E, F and G of this plan.

In the City of Warwick there are many platted streets that end at the shoreline that serve as access points. The City may wish to increase the opportunity for shoreline access through use of these platted streets. The 2014 *City of Warwick Comprehensive Plan Land Use Element* sets five policy recommendations for access to the shore. These recommendations are:

1. Adopt, maintain and update an official listing of shore access points within the City.
2. Determine and designate the level of use of ROW and related access points.
3. Maintain and permanently mark, as appropriate, all shore access points.
4. Institute a program of public education and awareness concerning availability and use of shore access areas.
5. New development along the coast should consider access to the shore for users of the total development and if possible, others in the vicinity.

RIGL 46-23-6(E) gives CRMC authority to designate, document, mark, and improve existing public ROW to tidal waters. CRMC may convey state designation upon such access ways. While the sites listed by CRMC are all public in nature, they vary considerably in terms of the degree to which they afford safe, convenient access to the shore.

There are presently 38 ROW that have received the CRMC designation. A complete listing of all public ROW to the shore can be found in Appendices E, F and G of this Plan.

## **2. POLICIES**

It shall be the policy of the City of Warwick to identify public ROW, and provide access to the waterfront via public ROW.

It shall be the policy of the City of Warwick to engage in a continuing process of discovery of potential ROW, including municipal paper streets, dedicated easements, drainage outfalls, and buried cables.

The City should adequately maintain as many public ROW as possible.

The City shall support CRMC's Adopt an Access Program to enhance public access opportunities at CRMC designated ROWs.

## **3. OBJECTIVES**

The City should ensure that there are usable ROW in each area of the City.

The City shall carry on a continuing discovery process to identify potential ROW to the shore.

## **4. ISSUE**

There are many ROW in Warwick, that have not yet been documented, designated or marked. In addition, many are littered, overgrown, obstructed or encroached upon.

There are potential ROW that may not yet have been discovered.

## **5. IMPLEMENTATION STRATEGIES**

C-1 The Harbor Management Commission and the Planning Department should inventory ROW listed in the plan in order to determine present physical condition; availability of on-site parking; current usage level; and feasibility of upgrade.

- C-2 The Harbor Management Commission should continue their efforts to determine which CRMC ROW and other public access points need improvements. These areas should be prioritized and targeted for improvements to ensure safe access to the shore. The commission should work with the Director of Public Works to seek funds for such improvements.
- C-3 The Harbor Management Commission, in consultation with the Director of Public Works, should develop and implement a plan for long term maintenance and improvements for ROW that addresses the following:
- **Reconstruction**  
Some of the City’s ROW may require physical improvements in order to provide safe access to the shore. In addition, improvements for handicap access should be considered for appropriate locations.
  - **Maintenance**  
It shall be the Harbor Management Commission’s policy to encourage maintenance of ROW by abutters, Adop- a-Spot programs, City resources, local and civic groups, neighborhood associations, or community service programs.
- The Harbor Management Commission should coordinate with the City on the preparation and adoption of a plan for long-term maintenance of ROW. The plan shall include the following: regular trash removal, periodic mowing and annual brush removal, installation of ROW identification signs and the removal of any illegal “no parking “signs.
- Such a plan shall be adopted and implemented only after property owners within a 200 foot radius of each ROW have been notified of contemplated improvements and have been given an adequate opportunity to comment.
- C-4 The Warwick Planning Department, in consultation with the Warwick Harbor Management Commission, should provide ROW information on the City’s website to better inform the public of the location of its ROW.
- C-5 Waterfront development should not restrict or diminish public access. The City shall require that new or expanded developments provide some form of public access.
- C-6 Inventory paper streets, dedicated easements, drainage outfalls, and buried utilities as they may provide opportunities for potential new public shoreline access points.
- C-7 Continue to identify shoreline public access points for any potential to be officially designated as such by CRMC.

## D. HARBOR FACILITIES AND BOAT RAMPS

### 1. FINDINGS

#### Harbor Facilities

Harbor facilities consist of public, private and commercial marinas, yacht clubs, boatyards, docks, and boat ramps. There are short public boardwalks located at both the City and Apponaug Cove parks. There are 20 marinas, boatyards and yacht clubs operating in the City of Warwick. These marinas contain over three thousand two hundred (3,200) slips (see Table 3). There are City docks in Apponaug and Warwick coves available for public use. Currently there are two private docks, located in Apponaug Cove, available for commercial fishermen. There are also numerous residential docks throughout the City's waters, though many are not approved by CRMC, and as such are illegal.

The commercial marinas provide various services. Table 3 indicates each of the marinas by cove, the number of slips, and whether or not the marina provides marine sewage pump-out facilities and restrooms. The US Environmental Protection Agency (USEPA) and the DEM Division of Water Resources Narragansett Bay Estuary Program has funded the installation of eight pump-out facilities within Greenwich Bay. Additionally, three more pump-out stations and a pump out boat from Norton's Marina have come on line since the adoption of the Harbor Management Plan updated in 1998.

There have been some major changes in ownership of marinas since the last survey. Greenwich Bay Marina Club was combined with C-Lark and Carlson's to form Greenwich Bay Marina and Greenwich Bay Marina North and East, respectively. The entire operation was sold to Brewer Yacht Yards, making them the largest marina operation within the City's waters. Angel's Marina has been renamed Oakland Beach Yacht Club. Sound Marina has been renamed Pleasure Marina. Aqua Vista has changed ownership and with renovation has been renamed Narragansett Bay Marina. The dock and building formerly a shellfish buy facility on Waterfront Drive has been purchased by Ocean State Mooring & Marine and the dock systems are being updated. Nick's Dock has been purchased by Mar Seafoods in Warwick, the dilapidated dock and floats have been replaced with a new dock array. Harbor Lights Marina owners purchased Sea View Country Club and combined marketing plans of both facilities for resort amenities. Dorr's Dock at the mouth of Warwick Cove Channel C-5 has changed hands several times and is owned by T&N Realty who has cleaned the area and has a sales contract in process. The marinas serving Greenwich Bay are in the process of upgrading their facilities to keep pace with the increased demand in slips for boats. There have been numerous requests for expansions or perimeter changes by many of these marinas. Planned marina expansions of approximately 318 slips represent an eleven percent (11%) increase in commercial boating facilities over that which was inventoried before 2000.

**Table 3** Inventory of Commercial Marinas

| LOCATION                          | PUMP-OUT | RESTROOMS | FUEL | SLIPS        |
|-----------------------------------|----------|-----------|------|--------------|
| <b>Greenwich Cove</b>             |          |           |      |              |
| East Greenwich Yacht Club         | X        | X         | X    | 60           |
| Norton’s Shipyard and Marina      | X        | X         | --   | 285          |
| <b>Apponaug Cove</b>              |          |           |      |              |
| Apponaug Harbor Marina            | X        | X         | --   | 378          |
| Ponaug Marina                     | X        | X         | X    | 130          |
| <b>Brushneck/Buttonwoods Cove</b> |          |           |      |              |
| Little Rhody Yacht Club           | --       | X         | --   | 0            |
| <b>Warwick Cove</b>               |          |           |      |              |
| Narragansett Bay Marina           | --       | X         | --   | 22           |
| Bay Marina                        | X        | X         | --   | 200          |
| Breezy Point Dock                 | --       | --        | --   | 50           |
| Brewer Greenwich Bay East         | X        | X         | --   | 182          |
| Brewer Greenwich Bay North        | X        | X         | X    | 410          |
| Harbor Lights Marina              | X        | X         | X    | 230          |
| Nick’s Dock/MAR Seafood           | --       | X         | --   | 10           |
| Oakland Beach Yacht Club          | --       | X         | --   | 96           |
| Pleasure Marina                   | --       | X         | --   | 67           |
| Warwick Cove Marina               | X        | X         | X    | 100          |
| Wharf Marina                      | X        | X         | --   | 80           |
| Winstead’s Dock                   | --       | X         | --   | 160          |
| <b>Pawtuxet Cove</b>              |          |           |      |              |
| Pettis Marine Boat Yard           | --       | X         | --   | 55           |
| <b>Greenwich Bay</b>              |          |           |      |              |
| Brewer Cowesett Yacht Yard        | X        | X         | --   | 274          |
| Brewer Greenwich Bay Marina       | X        | X         | X    | 475          |
| <b>TOTAL</b>                      |          |           |      | <b>3,264</b> |

Source: Warwick Harbormaster, 2012

**Public Boat ramps:**

Not all boat owners in Warwick and in surrounding communities have moorings or dock space. Residents and non-residents with small portable craft and with larger boats on trailers rely on public access ways and boat ramps for access to the water. There are a number of launching ramps in the City (Table 4). Table 4 indicates the condition of ramps as **Good** - suitable for immediate use, **Fair** - useable but in need of repair or improvement or **Poor** - not recommended for use. However, many structures originally meant for launching boats in Warwick are no longer feasible for public use.

- Many small boat ramps are located in densely developed neighborhoods with inadequate parking. Improving these ramps would result in traffic and noise impacts on surrounding neighborhoods.
- Deteriorated conditions and siltation have rendered many neighborhood ramps difficult or impossible to use.
- Costs and permitting complexity make boat ramp redevelopment extremely difficult.
- Parking must be adequate and traffic circulation must be tolerable.
- Water depth has decreased.

The City launch ramp facility is a two-bay, handicapped-accessible boat ramp at Oakland Beach in Warwick Cove commissioned in 1998. This ramp features a 29-space parking lot. The Oakland Beach Improvement Association has incorporated it into their neighborhood master plan. Due to the tidal action and shifting bottom along the west shore of the beach,



however, the ramps experience a buildup of beach sand on the launching and retrieval pads. This renders the facility difficult, if not impossible, to use effectively. There have been attempts to clear this by various means, none of which have been permanent.

The Harbor Management Commission and Harbormasters have maintained periodic inspections of the City launching facilities and made recommendations to the Planning and Parks and Recreation Departments. The most recent of these was in conjunction with the Warwick Fire Department and indicated specific areas for improvement to facilitate their ability to perform rescue services more efficiently. Improvements to the ramps at Aspray Boathouse and Conimicut Point/Shawomet Ave. are in the planning stages with the actual improvements to be performed by DEM. Passeonquis Cove/Gaspee Point Drive launch ramp has been improved by DEM.

**Table 4** Public Boat Ramps & City Docks

| LOCATION  | RATING         | TYPE                                  | ACCESS  | PARKING                                | OTHER COMMENT                             |
|---|----------------|---------------------------------------|---|--|---|
| Passeonquis Cove/<br>Gaspee Point Drive                   | Good           | overlook,<br>cement boat<br>ramp      | direct, paved<br>road, broken<br>asphalt approach | 10 spaces,<br>recently<br>improved     | Adopt-a-Spot<br>Site                      |
| Conimicut Point/<br>Shawomet Ave.                         | Poor           | cement<br>ramp,<br>overrun by<br>tide | direct, paved<br>road                             | 10-15 spaces,<br>lot needs<br>grading  | poor signage<br>Covered in<br>Deep sand   |
| Bayside Beach,<br>Longmeadow-<br>Samuel Gorton<br>Highway | Good -<br>Fair | cement<br>ramp                        | direct, paved<br>road                             | 10 spaces, lot<br>severely<br>potholed | Adopt-a-Spot,<br>Site poor<br>signage     |
| Arnolds Neck and<br>Harrop Ave.                           | Poor           | asphalt ramp                          | direct, paved<br>road                             | 10 spaces,<br>severely<br>potholed     | poor signage                              |
| Goddard Park  | Good           | cement<br>ramp                        | crushed rock<br>approach, paved<br>road           | 15-20 spaces                           | shallow at low<br>tide, sparse<br>signage |
| Apponaug Cove   | Good           | dock,<br>moorings                     | direct paved                                      | 10-15 spaces                           | ---                                       |
| Pawtuxet Park/<br>Aspray Boathouse                        | Fair           | cement<br>ramp, dock                  | paved approach                                    | 25+ spaces                             | shallow at low<br>tide                    |
| Salter Grove<br>Narragansett<br>Parkway                   | Poor           | rock ledge<br>below water<br>surface  | direct, hill needs<br>grading – very<br>steep     | five spaces                            | very shallow                              |
| Edgewater Beach-<br>Oaktree Ave. –<br>Darrow Dr.          | Fair           | Two gravel<br>& sand<br>ramps         | sand road,<br>severely potholed                   | Limited<br>parking on<br>street        | ---                                       |
| Robert Ave./<br>Potowomut                                 | Poor           | asphalt<br>deteriorated               | asphalt approach<br>severely<br>undermined        | none                                   | no signage, use<br>only at high<br>tide   |

|   |      |          |                    |  |                                    |
|---|------|----------|--------------------|--|------------------------------------|
| Waterfront Street/<br>Second Point Ave. | Poor | cement   | gravel approach    | none   | sparse signage,<br>low tide access |
| Warwick Cove/<br>Suburban Parkway       | Good | dock     | end of City street | none   | No signage                         |
| Warwick Cove/<br>Oakland Beach          | Good | concrete | asphalt paved      | 29 paved<br>vehicle and<br>trailer spaces,<br>staging area | Handicap<br>accessibility          |

Source: Warwick Harbormaster, 2014

**2. POLICY**

The City should maintain as many boat ramps as possible.

**3. OBJECTIVE**

The City should ensure that there are useable boat ramps in each cove of the City.

The City should make available harbor facilities to commercial fishermen.

**4. ISSUE**

These ramps are in various states of repair and may not be useable at this time for a variety of reasons. The majority of existing ramps lack adequate parking for car and trailers and other necessary facilities.

**5. IMPLEMENTATION**

- D-1 The Harbor Management Commission and Harbormasters should inventory boat ramps listed in the plan on an annual basis in order to determine: present physical condition, availability of on-site parking, current usage level, and feasibility of upgrade
- D-2 The Planning Department, in consultation with the Harbor Management Commission, Director of DPW and Director of Parks and Recreation should select those boat ramps that are best suited for improvement.
- D-3 The Planning Department, in consultation with the Director of DPW, Director of Parks and Recreation and the Harbor Management Commission shall proceed to administer the design and construction of such projects.
- D-4 The Director of Parks and Recreation, in consultation with the Harbor Management Commission, should develop a plan for long term maintenance of boat ramps.

## **E. EMERGENCY RESPONSE**

This plan is in no way to supersede the City of Warwick's Hazard Mitigation Strategy, adopted in April, 2005. This plan will be a supplement to that plan. For a complete explanation of Warwick Harbor's Storm Preparedness and Hazard Mitigation, see Appendix I.

### **1. FINDINGS**

The City's emergency response plans are related to both manmade and natural disasters. Coastal and low-lying areas in Warwick are subject to damage from tropical storms, Nor'easters and hurricanes. Warwick's history is colored with stories of such storms dating back to Colonial times. The Atlantic Hurricane season runs from June 1<sup>st</sup> through November 30, with August and September being the most active months for hurricanes and tropical storms. However, damaging storms can occur nearly any time during the year. Federal agencies such as FEMA (Federal Emergency Management Agency) and the United States Coast Guard (USCG) are the agencies that the City of Warwick will rely on to conduct damage assessment in the event of a natural disaster affecting the City of Warwick. The City's Harbormasters will be available to assist in these assessments. Man-made disasters include, but are not limited to such incidents as oil and chemical spills, boating accidents, major shore side facility fires as well as such incidents as plane crashes and groundings. Warwick may dispatch one of its Fire Department boats and/or utilize equipment that it has on loan from the USCG for these situations.

The USCG is the principal federal agency that is responsible for handling emergencies on or near navigable waters in the City of Warwick. The Coast Guard station responsible for Narragansett Bay is located at Castle Hill in Newport and is responsible for a large area including portions of Southeastern Massachusetts and all of Narragansett Bay making it imperative that Warwick provide emergency service for its maritime area. The principal City department responsible for emergencies involving risk to life and limb in the City of Warwick is the Warwick Fire Department and, in such emergencies, City departments will defer to their expertise.

The responsibility of the Office of the Harbormaster during an emergency situation is outlined in detail in the Warwick Harbor's Storm Preparedness and Hazard Mitigation (See Appendix I).

#### **City of Warwick Equipment**

The Harbormaster has City patrol boats to be used for official duties of the Harbormasters various missions. The boats are readily identified with specific markings and emergency lights and should be used for all harbor missions whenever possible. In addition, the City Harbormasters may use their own boats with the permission of the Chief Harbormaster. Private vessels may be used when for any reason it would be more efficient for the mission to use a private boat. The City of Warwick assumes no liability for the use of a private boat for these functions.

The City of Warwick Police Department has, at times, kept and maintained various boats such as an inflatable boat available for use by the police dive team and a twin engine boat for use in

Narragansett Bay for special operations. These boats are not always readily available and to compensate for this as stated in the mission of the Harbormaster, the Harbormaster will provide a maritime platform for the police department whenever necessary.

The City Fire Department is equipped with various boats capable of meeting the Fire Department mission and these boats are stationed at various strategic locations throughout the City. The type and number of boats change with the increased duties and responsibilities of the Fire Department and, because of these changes, it would not be prudent to list in the Harbor Management Plan the number and type of boats available to the Fire Department.

## **2. POLICIES**

The City will maintain an ongoing, coordinated effort between citizens and the state Emergency Management Agency to be ready and prepared for storm, and other emergencies.

The City will maintain communication and planning efforts among and between private and public agencies and groups that direct, control and support operations in an emergency situation.

The City will develop strategies that prepare for and respond to man made and natural disasters.

The City will complete the Hazard Mitigation Planning process, which is currently ongoing.

The Harbormaster's Office should be prepared to assist public safety officials in response to emergencies in Warwick's harbors.

## **3. OBJECTIVES**

Include duties and responsibilities for the Harbormaster in the City's Emergency Management Plan.

Ensure that the resources of the Harbormaster's Office, including staffing, training, and equipment, are adequate to fulfill these duties and responsibilities.

Chief Harbormaster and Harbormasters shall be certified in CPR and First Aid

Chief Harbormaster and Harbormasters shall be required as part of their appointment to complete the Harbormaster Training Academy or have a certification from a similar training facility as required by RI State Law.

## **4. ISSUES**

Emergency preparedness is essential to limiting the loss of life and property during natural disasters and other emergencies. Therefore, there is a need to be as prepared as possible in the event that a hurricane, other storm or emergency hits Warwick.

Hazard mitigation is important to reduce or eliminate the threats from natural disasters, which in turn, will minimize or eliminate potential risks to life and property.

There is the potential for disaster when large groups of vessels gather in the City of Warwick's waters (e.g. to view such things as Tall Ships, fireworks or the filming of a movie). The Harbormaster or his designate should be available for routine patrols to prevent situations from developing into emergency situations.

Each member of the Harbor Management Commission should occasionally survey Warwick's waters in conjunction with their appointment.

The Harbormasters should be available to respond to emergency situations as necessary.

The position of Harbormaster is an appointed position with no actual requirements for time to be worked. This is problematic during emergencies as there is nothing in the City Charter or the Harbor Management Plan for pay for hours actually worked.

## **5. IMPLEMENTATION STRATEGY**

- E-1 The City will review the emergency preparedness plan each year before the hurricane season to make sure that everyone is aware of their roles during such a storm.
- E-2 The City adopted the Hazard Mitigation Strategy in April, 2005. The Hazard Mitigation Strategy addresses the mitigation of hazards to avoid loss of lives and property during storm events.
- E-3 The Warwick Police Department and the Warwick Fire Department shall issue boat accident reports to the Chief Harbormaster. The Chief Harbormaster and the Harbormasters have the authority to enforce boating safety ordinances and all City ordinances pertaining to boating.
- E-4 Warwick Police shall on occasion ride with the Harbormaster to enforce maritime laws.
- E-5 Consideration should be made for improving the compensation options for the Harbormasters.

## F. SHELLFISHING AND ENVIRONMENTAL QUALITY

### 1. FINDINGS

The City of Warwick contains Rhode Island's two important shellfishing areas, "Upper Bay" and "Greenwich Bay". These areas produce approximately 80-90% of the shellfish (quahogs) harvested from Narragansett Bay. Narragansett Bay produces approximately 40% of the quahogs harvested in the nation. The City of Warwick has 39 miles of coastline and Warwick's Greenwich Bay has been the center of shellfishing for Narragansett Bay. Greenwich Bay is a sheltered estuary fed by four (4) major tributaries and many smaller brooks and is an ideal shellfish ground for many reasons. It is protected from inclement winds and shallow enough for easy harvesting and the available nutrients, water quality, circulation and bottom composition are favorable for the growth and survival of shellfish.

Greenwich Bay encompasses 3,200 acres. The major coves in Warwick are Greenwich, Warwick, Brush Neck and Apponaug. Covering 750 acres these coves are widely believed to support the brood stock responsible for Greenwich Bay's quahog (*Mercenaria mercenaria*) population, which seeds the Lower Bay. These coves are de facto spawning areas that are of great significance to the Rhode Island quahog fishery. Ganz, et.al, 1994, reported that 75% of the Greenwich Bay shellfish population was located in uncertified areas closed to shellfishing.

Greenwich Bay has supported a substantial commercial and recreational shellfishery. In Rhode Island, there are over 1017 commercial licenses sold annually and Warwick residents hold 245 of these licenses. Harvesters target quahogs, oysters, soft-shell clams, and occasionally scallops. By 1981, overfishing of Greenwich Bay resulted in an economic collapse of the fishery. The area was restored through the combined efforts of the DEM Division of Fish and Wildlife, the Rhode Island Marine Fisheries Council, and the shellfishermen themselves. This area is now a shellfish management area, closed to shellfishing for two years and restocked with uncertified shellfish transplanted from Greenwich Cove. When the shellfishery was reopened in the winter of 1982-83, daily catch limits and shellfishing time limits were enforced. The combined effect of annual transplant restocking and reduced fishing effort successfully restored the fishery by 1992. During those years the annual harvest approached one million pounds shell weight with a value of about \$5.5 million in revenue.

Conflicting uses of Greenwich Bay have challenged its vitality. Shore side development, private boat facilities, agricultural practices, stormwater run-off and wastewater disposal practices have increased the nutrient load to the Bay. The City's Strategic Plan for the Reclamation of Greenwich Bay. (City of Warwick, 1994) and the Greenwich Bay Special Area Management Plan (SAMP) (CRMC, 2005) provided a program to address the contamination sources for the restoration, protection, and enhancement of water quality in Greenwich Bay. Greenwich Bay is currently classified as a no-discharge zone.

In the year 2003, 485 acres between the tip of Chepiwanoxet Point and Cooper Road in Buttonwoods were closed to shellfishing. This was an area previously open for shellfishing during the winter months. This particular area is of great importance to shellfishermen due to the

shelter it offers from winter's northeast winds. The area re-opened in 2005 and shellfishing was re-established with a new line extending from the tip of Chepiwanoxet Point to Capron Farm Road. This re-opening gives the 485 acres back to the shellfishermen during the cold, winter, windy months.

Given its economic and natural resource importance, water quality influences, and conflicting uses, Greenwich Bay management has become a central issue in the overall resource management of the Narragansett Bay quahog industry. The Greenwich Bay Initiative launched in early 1993 was a precursor to and provided the impetus for the CRMC Greenwich Bay Special Area Management Plan (SAMP). This plan mapped Greenwich Bay to determine how to best improve Greenwich Bay for the future of Warwick. As adopted on May 10, 2005 the CRMC Greenwich Bay SAMP has established objectives to improve water quality.

The City's marinas and their facilities are an important source of local employment, tax revenues, and economic activity. The use of best management practices allows marina facilities to continue to provide services while limiting further degradation of water quality.

## **2. POLICIES**

The City supports action to improve opportunities for shellfishing through management of water quality and control of potential sources of pollution.

The City endorses current CRMC designations of coastal wetlands and other such marine habitats.

Discharges of pollutants to the City's waters should be mitigated.

Water quality needs to be improved in the shellfishing areas on a year round basis.

Where significant shallow-water habitat is identified, boating activities shall be restricted as necessary to decrease turbidity and physical destruction of such habitat.

## **3. OBJECTIVES**

Protect coastal wetlands and other critical marine habitats in Type 1 and 2 waters as defined by the CRMC.

Restore, preserve and protect shellfishing in Warwick's coastal waters without compromising public health.

Develop programs to dispose of waste oil, plastics, trash, paint, varnish and other inorganic materials at municipal facilities convenient to boaters.

It should be the policy of the City to allocate reasonable percentage of City dock space for commercial fishermen.

#### **4. ISSUE**

Human activity within the watershed is degrading the City's coastal environment.

#### **5. IMPLEMENTATION STRATEGIES**

- F-1 The Harbor Management Commission may review and comment on CRMC permits regarding the impact of proposed development on coastal lands and environments.
- F-2 Require the implementation of best management practices at marinas in accordance with CRMC regulations and operations and maintenance plans.
- F-3 The City Planning Department and the Harbor Management Commission shall support RIDEM in enforcing the designation of No Discharge Zone for the City's waters as part of the program to eliminate discharges of Marine Sanitation Devices (MSDs) into Narragansett Bay.
- F-4 The City shall continue development and implementation of the programs and recommendations of the Greenwich Bay SAMP.
- F-5 The City should support development of an educational program for boaters to encourage the use of pump outs.
- F-6 Expanding the use of Type 3 waters for marina expansion. Harbor capacity should be increased as far away from DEM water quality standards designation lines as possible.
- F-7 Marina expansion and/or dredging permits should require, as part of the assent, the requirement that shellfish be removed for transplant or equivalent shellfish seedling be restored.
- F-8 The City shall provide appropriate facilities for the disposal of inorganic waste produced by boaters using City established mooring areas, and shall provide for the disposal of such waste. The waste disposal at Goddard Park and Goddard Park Launch Ramp is provided by the state.



## **G. COORDINATION OF HARBOR MANAGEMENT JURISDICTIONS**

### **1. FINDINGS**

Harbor Management requires activities by numerous jurisdictions within the City, including Parks and Recreation Department, the Harbormaster, Harbor Management Commission, Police and Fire departments, Planning Department, and Department of Public Works.

Coordination between these various departments may be improved to eliminate overlaps, avoid duplication of effort, provide services more efficiently and better protect public safety. In order to efficiently coordinate the uses and activities within the City's tidal waters, the provisions of the Harbor Management Ordinance shall be interpreted as follows:

#### **A. Department of Parks and Recreation**

The Department of Parks and Recreation shall be the local regulatory body for the waters of the City of Warwick. The Department is authorized and empowered (City of Warwick Harbor Management Plan, 1989) to develop, operate and administer shoreline recreational facilities, waterfront business facilities, harbors and coves; to carry on a general beach and bath house business; to purchase, construct, maintain and operate or lease facilities under their jurisdiction, such as buildings, wharves, piers, walks, parking facilities and swimming pools; to furnish business buildings and accommodations on or near the waterfront for lease or hire; to furnish bathing accommodations and facilities to the public and to make reasonable rules and regulations for the use of the same; and to charge suitable fees and/or rents therefore, as may be adopted from time to time by the City Council.

#### **Chief Harbormaster**

The Chief Harbormaster shall be appointed by the Mayor and shall serve at the pleasure of the Mayor. The Chief Harbormaster shall report to the Director of Parks and Recreation and shall have the power and duties delegated to him/her by the director consistent with RIGL §46-4-2 until such time that RIGL §46-4 is amended to address the municipal control of harbors and Harbormasters in the City of Warwick.

#### **Harbormaster**

There shall be a Harbormaster for each cove or harbor within the City and other Harbormasters as needed, who shall be appointed by the Mayor and who shall serve at the pleasure of the Mayor. The Harbormaster(s) shall work for the Chief Harbormaster and shall have the power and duties delegated to them by the director.

#### **B. Harbor Management Commission**

The Commission shall be the primary advisory group for the management of the waters of the City of Warwick. The Commission is authorized with various powers and duties

under §24-5(3)(d) of the City of Warwick Harbor Ordinance, including the power to recommend to the Department of Parks and Recreation for adoption, rules, fees and penalties for activities that may be necessary to fulfill the goals of the Warwick Harbor Management Plan and the Ordinance.

**C. Planning Department**

The Planning Department shall serve as the secretariat and technical advisor to the Harbor Management Commission. The Planning Department, in its capacity as the lead City agency on environmental protection, land use management, Geographic Information System development, capital budget formulation, securing of state and Federal grants, and recreational development, as well as the City's primary contact with US EPA, ACOE, CRMC and DEM, shall play an integral role in Harbor Management Planning in Warwick.

**D. Police and Fire Departments**

As they relate to public safety on the water. (See Appendix H)

**E. Adjoining Municipalities**

The City of Warwick shares water boundaries with North Kingstown, Portsmouth, East Providence, East Greenwich, and Cranston. At present, each community has different regulations and enforcement procedures. Communication between and among the communities takes place only on an infrequent basis. While the need occurs only rarely, there is no clear mechanism to resolve disputes between municipalities.

**2. POLICY**

All City Departments and Officials shall work together to further the objectives and implement the recommendations of the Harbor Management Plan.

The City of Warwick shall endeavor to cooperate with adjoining municipalities to further mutual Harbor Management goals and objectives per RIGL §46-23-15.1.

**3. OBJECTIVES**

Facilitate communications and maximize cooperation between and among City agencies within Warwick in Harbor Management activities.

Encourage communication and coordination with adjacent municipalities and increase uniformity of operations in common waterways.

**4. ISSUE**

There is a need for improvement in communication between and among departments relating to harbor management.

## **5. IMPLEMENTATION STRATEGIES**

- G-1 Semi-annual meetings should be organized by the Director of the Department of Parks and Recreation.
- G-2 The Planning Department will help organize annual inter-municipality meetings for the discussion and resolution of administration issues related to harbor management. The Department will develop cooperative agreements as needed to improve coordination and attain short and long term management goals.
- G-3 The City will develop a mechanism by which appeals regarding harbor management will be heard.

## **H. WATER USE COMPATIBILITY**

### **1. FINDINGS**

Warwick's waters are used for multiple activities such as sail and power boating, fishing, shellfishing, jet skiing, and swimming. There are currently no specific areas designated for single uses such as jet skiing and windsurfing. There are public swimming areas at Oakland Beach, Warwick City Park Beach, Bayside Beach, Goddard State Park, and Conimicut Point Beach.

Conflicts between uses can lead to tension, detract from the public enjoyment of harbor resources and may threaten public safety. The City of Warwick does not have a policy for aquaculture in City waters; however, one of the purposes of the Warwick Zoning Ordinance, outlines in Section 103.6 states that the Ordinance is designed to: “provide for the preservation and promotion of agricultural production, forest, silviculture, aquaculture, timber resources, and open space.” The Harbor Management Commission has been approached with a proposal for aquaculture use in a City-designated mooring area. Renewed interest in aquaculture in Rhode Island has also led to proposed legislation at the state level, which may lead to additional proposals for aquaculture projects in Warwick's waters. Aquaculture projects have the potential to contribute significantly to the local economy but also have the potential to conflict with other uses within the City's waters. The City has made a major investment in cleaning up Greenwich Bay.

Submerged Aquatic Vegetation (SAV) refers to rooted, vascular, flowering plants that, except for some flowering structures, live and grow below the water surface in coastal and estuarine waters in large meadows or small disjunctive beds. SAV species of concern to CRMC for regulatory purposes include eelgrass (*Zostera marina*) and widgeon grass (*Ruppia maritima*).

### **2. POLICY**

All citizens should have the opportunity to enjoy the use of the City's coastal resources for the full range of recreational and commercial uses, within reasonable limits.

Single use designations (e.g. swimming areas, mooring fields) should be granted only for those uses which further the goals of this plan and which do not conflict significantly with other existing and proposed uses of the City's waters.

CRMC's goal is to 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.

The mooring of houseboats and floating businesses, the construction of recreational boating facilities, filling below mean high water, point discharge of substances other than properly treated runoff water (see RICRMP Section 300.6), and the placement of industrial or commercial structures or operations (excluding fishing and aquaculture) are all prohibited in Type 1 waters.

In Type 1 waters, activities and alterations, including dredging, dredged materials disposal, and grading and excavation on abutting shoreline features are all prohibited unless the primary purpose of the alteration or activity is to preserve or enhance the area as a natural habitat for native plants and wildlife or a beach renourishment/replenishment project. Structural shoreline protection facilities shall not be permitted to preserve or enhance these areas as a natural habitat or to protect the shoreline feature. Notwithstanding the CRMC's prohibition against construction of recreational boating facilities in Type 1 waters, the CRMC recognizes that some residential boating facilities may have pre-existed in Type 1 waters prior to the formation of the CRMC. The CRMC's ultimate goal is to remove said structures and restore the areas involved to be free of all recreational boating facilities. Although recreational boating facilities are inconsistent with the CRMC's goals for Type 1 waters, in order to provide for the equitable transition and compliance with the CRMC's goals, pre-existing residential boating facilities may be permitted under the limited terms and conditions set forth in Section 300.4 of the RICRMP and in the CRMC's Pre-existing Residential Boating Facilities Program.

Since runoff can be a major source of pollutants from developed areas, new or enlarged point discharges of untreated runoff shall be permitted in Type 1 waters only when it is demonstrated that no reasonable alternative exists and that no significant adverse impact to the receiving waters will result. The cumulative impacts of runoff are of particular concern in Type 1 waters.

Applicants for CRMC Assents for alterations or activities in or contiguous to Type 1 waters shall describe the measures taken to mitigate impacts on the scenic quality of the area (see Section 330).

Activities and alterations subject to CRMC jurisdiction contiguous to public parks, public beaches, public rights-of-way to the shore, and conservation areas abutting Type 1 waters shall not significantly interfere with public use and enjoyment of such facilities. Where significant interference is found, the CRMC shall suitably modify or prohibit that alteration or activity.

### **3. OBJECTIVE**

To maximize compatibility among various uses within the City's waters, providing for safe and equitable use.

To clarify designation of single use areas, particularly mooring fields and swimming areas.

To encourage aquacultural activities that will contribute to the local economy without conflicting with other existing and planned uses of the City's waters.

#### **4. ISSUE**

The variety of uses occasionally creates conflict and safety issues.

## **5. IMPLEMENTATION STRATEGIES**

- H-1 The Director of Parks and Recreation shall promote boating safety standards pursuant to RIDEM 46-22 by scheduling Harbormaster patrols at peak usage periods.
- H-2 The Director of Parks and Recreation shall provide City support (e.g. meeting places, audio-visual equipment, publicity assistance, and participation by municipal officials) to volunteer and non-profit organizations, such as the Greenwich Bay Power Squadron and the U.S. Coast Guard Auxiliary, for boating safety training courses.
- H-3 The Harbor Management Commission should review all new proposals for single use designation, aquaculture sites and mooring fields in City waters, making recommendations to the appropriate City and State decision-making bodies. The Harbor Management Commission should make recommendations to the Chief Harbormaster in order to resolve conflicts over uses of harbor resources.
- H-4 The City will work with the State to designate potential sites for the development of aquaculture.
- H-5 The Director of parks and recreation should, for public safety purposes, partition off swimming areas at Oakland Beach and Conimicut Point.

## **I. DERELICT VESSELS AND DEBRIS**

### **1. FINDINGS**

RIGL Chapter 6 §46-6 assigns to the Director of RIDEM responsibility for removal of shipwrecks and obstructions to navigation. Municipal Commissioners of Wrecks and/or Harbormasters are required to notify the RIDEM of all such wrecks and obstructions. This law specifies that Commissioners of Wrecks are not liable for the cost of removal of such wrecks and obstructions but authorizes them to hold property appertaining to a wrecked vessel to provide for its removal.

In 2006, Clean the Bay began removing debris from Warwick's coves with grant money received from the State of Rhode Island. Currently, more than 100 tons of debris have been removed.

### **2. POLICY**

Wrecks, free floating docks, and loose debris are to be removed from Warwick's harbors as soon as practicable.

### **3. OBJECTIVE**

To provide for safe navigation and protection of the shoreline resources and environment.



#### **4. ISSUE**

Derelict vessels, free floating docks and loose debris may present hazards to navigation while afloat and produce unsafe, unsightly, and environmentally-unsound conditions when grounded.

#### **5. IMPLEMENTATION STRATEGIES**

- I-1 The City Council should pass an ordinance to enforce the removal by owner of derelict vessel and shoreline debris consistent with state and/or federal requirements.
- I-2 On the recommendation of the Harbor Management Commission, the Warwick City Council shall appoint a Commissioner of Wrecks in accordance with RIGL §46-10. The Commissioner of Wrecks would be responsible for identification of abandoned vessels, loose floating docks and debris, notification of owners, initiation of wreck removal, notification and scheduling of DPW and RIDEM to assist in removal as needed, and initiating efforts to recover from property owners the costs expended for the purpose of debris and wreck removal.
- I-3 The Harbor Management Commission should consider recommendations to CRMC that requires the tagging, for the purpose of identification, of all sections of each dock within its jurisdiction in order to determine ownership and to facilitate cleaning up of marine debris and limiting the City; and State's liability.

### **J. MANAGEMENT OF HARBORMASTER ACTIVITIES**

#### **1. FINDINGS**

The role of the Harbormaster is a key to the implementing of the Harbor Management Plan. The Harbormasters play an important role in harbor management activities, including enforcing the City's Harbor Ordinance; mooring management; contributing to public safety; and emergency response; and control of wrecks and debris. Taken together, these duties exceed what can be reasonably accomplished on a part-time schedule, especially during the boating season.

The Chief Harbormaster reports to the Director of the Department of Parks and Recreation. The Chief Harbormaster has provided the Harbor Management Commission with information necessary for the Commission to fulfill its responsibilities.

#### **2. POLICIES**

The Harbormasters shall implement the Harbor Management Plan and enforce the Warwick City Ordinance as it relates to harbors and applicable State of Rhode Island legislation as well as all federal requirements.

The qualifications for the Harbormasters should be as follows:

1. Be certified in first aid and CPR.



2. Have the ability to handle small powerboats and have knowledge of their operation.
3. Be familiar with the coastal area and coves and hazards in Warwick's jurisdiction.
4. Have the ability to perform simple boat and outboard motor repairs.
5. Be familiar with federal, state and local regulations pertaining to boat operation and equipment.
6. Successfully complete an accredited boating safety course equivalent to those provided by the U.S. Coast Guard Auxiliary, U.S. Power Squadron or a state course, and a Harbormaster course like the State Harbormaster Association course or equivalent.
7. Be in good physical condition and able to perform medium duty manual labor.
8. Be knowledgeable of marlinespike seamanship, towing and boarding techniques.
9. Be able to work approximately one hundred thirty-two (132) hours per year, as per schedule and at other times as required between March 1 and November 30.

The duties and time requirements of the Harbormasters should be as follows:

1. Prepare City patrol boats for annual commissioning, (boats and motors).
2. Launch boats and deliver to slips.
3. Prepare regulatory buoys for use.
4. Install regulatory buoys on station.
5. Provide routine boat motor and trailer maintenance and repairs.
6. Carry out patrol duties.
7. Supervise unscheduled "on the water" activities.
8. Remove regulatory buoys.
9. Haul boats for winter storage.
10. Winterize boats and motors.
11. The Chief Harobormaster or designee, has created and will maintain a database containing mooring identification and location information. This allows for better allocation of available mooring space from the Waiting List and provides the Harbor Management Commission with information necessary for the Commission to fulfill its responsibilities.
12. Receive training consistent with the Rhode Island Harbormaster Training Academy.

### **3. OBJECTIVE**

Clearly define the responsibilities of the Harbormasters and ensure that staffing is adequate to fulfill the responsibilities of the Harbormasters.

Improve enforcement of the Harbor Management Ordinance; ensure adequate funding to support the protection of public safety. Implement strategies of the Harbor Management Plan, and provide appropriate training for all personnel engaged in harbor management activities.

### **4. ISSUE**

The role and responsibilities of the Harbormaster need to be reviewed with respect to staffing, procedures, training and reporting.

## 5. IMPLEMENTATION STRATEGIES

- J-1 The Director of Parks and Recreation should consider extending the working schedule of the Harbormaster to provide full-time status during the boating season, from May to September. In addition, the Director of Parks and Recreation should ensure that there is adequate administrative support for harbor management.
- J-2 The Chief Harbormaster should report monthly to the Harbor Management Commission on the following issues: the hours of patrol provided; number of warnings and citations issued; mooring transactions (placement of new moorings, allocation of existing moorings, removals of unauthorized moorings, etc.); and status of wrecks and debris for the previous month. He/She should also indicate proposed activities for the coming month and highlight any other matters that should be brought to the attention of the Harbor Management Commission.
- J-3 The Harbormasters should participate in annual training and certification appropriate to their positions in cooperation with the Fire and Police departments, and Emergency Management Office. This will serve both to ensure that Harbormasters are adequately trained and to establish and improve informal lines of communication between the Harbormasters and the other departments.
- J-4 Because of the amount of boating that occurs during the summer season, at least two seasonal Harbormasters or boating officers under the direct supervision of the Harbormaster should be appointed.
- J-5 Consideration should be made for improving the compensation options for the Harbormasters.

## **K. HARBOR MANAGEMENT BUDGET**

### **1. FINDINGS**

The revenues for harbor management are derived from mooring fees and mooring inspector fees.

Presently there is no connection between the fees generated by Harbor Management and the expenses incurred by the Harbormaster's Office.

The City's mooring fees in past years have generated an average of \$37,000.00 per year in revenues. Since the fee structure was changed in 2007 to conform with ACOE policies, they now generate upwards of \$70,000.00 per year.

At present, there is no separate capital improvement plan for harbor management related expenditures (e.g. patrol boats, boat ramps, docks, dredging, public access improvements, etc.). These items are dealt with case by case as part of capital budget requests by the Parks and Recreation Department, Police, Fire, Emergency Management and/or the Department of Public Works.

### **2. POLICIES**

The Harbor Management Commission shall make recommendations to the City of Warwick listing equipment that is necessary for the Chief Harbormaster and the Harbormasters to fulfill their duties. Adequate funding shall be provided for the Harbormaster's department to supply the training necessary to fulfill their positions in a professional fashion, maintain the Harbor Office's fleet in a seaworthy manner and provide all necessary personal safety equipment needed for them to carry out their duties.

*The Harbormaster's Office shall also have sufficient funds to carry out the responsibilities assigned. These duties shall include, but not be limited to, maintaining navigational aids, overseeing the City's boat ramps, removal of derelict boats and debris and removal of illegal moorings.*

### **3. OBJECTIVES**

Assure that the Harbormaster's Office has the proper equipment to maintain a safe working environment. This equipment shall include, but not be limited to, radios, life preservers, automated external defibrillators (AEDs) and first aid supplies and marine safety equipment. Boat handling and first aid training shall be deemed a part of the safe working environment and shall be renewed as needed.

Add seasonal Harbormasters to the Office as needed and secure the funding from the annual City budget.

Plan ahead for future capital expenditures. Improve harbor management services and provide greater accountability in the budgeting process.

The Harbor Management Commission shall advise the Director of Parks and Recreation in the annual budget development process.

The Harbor Management Commission will review the mooring fee structure each year and make a recommendation to the Director of Recreation. The director shall set the fees.

#### **4. ISSUES**

The funding for personnel in the Office of Harbormaster needs to be increased to meet the growing demand of time needed for “on the water” patrols.

The patrol boats currently being used need to be continually upgraded.

#### **5. IMPLEMENTATION STRATEGIES**

K-1 The Harbor Management Commission should meet annually with the Director of Parks and Recreation to develop a recommended budget at a time appropriate to the City's budget process that allows for timely input from Harbormaster, Director of Parks and Recreation, and the Planning Department.

K-2 The recommended operating budget should include proposed capital expenditures.

K-3 The budget of the Office of the Harbormaster should be increased to reflect the actual expenses of the office.

**APPENDIX A**  
**CITY OF WARWICK HARBOR ORDINANCE**

## **APPENDIX B BACKGROUND AND JURISDICTIONAL ELEMENTS**

Warwick's original Harbor Management Plan was enacted in 1989 and amended in 1991, 1996, and 2016. It has helped guide harbor management in the City since that time. The purpose of this update is to provide a comprehensive evaluation of current conditions and a long-term guide for activities on and alongside the tidal waters of the City. This plan update does not include any revisions to the existing harbor ordinance. Instead it spells out a series of recommended changes for the Harbor Management Commission, Planning Department, and Department of Parks and Recreation to consider and implement over time, including some minor revisions to the harbor ordinance.

The Harbor Management Plan is a comprehensive planning document providing guidance for the future management of Warwick's waters. It is intended to serve as a functional element of Warwick's Comprehensive Plan. The overall goal of the plan is to manage the coastal waters and harbor areas under the jurisdiction of the City by establishing policies, goals, and regulations that balance and manage the diverse uses of the waters, harbor areas, and waterfront, and that minimize conflicts between water uses. This plan includes:

1. The identification of harbor management issues;
2. Objectives, policies and implementation strategies that address the identified issues;
3. An inventory of coastal resources; and
4. A detailed implementation program for a five-year planning horizon.

By adopting this revision to the Harbor Management Plan, the City of Warwick affirms and declares its vision for the use of the City's harbor areas. The approved document establishes a work plan for the Harbormaster, Harbor Management Commission, and other related persons and agencies to attain the plan's stated vision. The plan provides a policy document for City agencies, commissions, and boards and for state and federal agencies to refer to in the development of related plans and projects to coordinate programs and coastal development projects.

### **A. Planning Process/Methodology**

The CRMC was given jurisdiction by the Rhode Island General Assembly in 1971 (RIGL 46-23) over all activities taking place in tidal waters of the state and along the coastline. The enabling legislation that created CRMC established the regulatory authority under which the CRMC operates. The regulations, procedures, and policies of the CRMC are laid out in the *Coastal Resources Management Program* (CRMP). The approval of municipal harbor regulations and plans is regulated under Section 300.15 of the CRMP. Additionally, the CRMC has developed a guidance document for municipalities titled *Guidelines for the Development of Municipal Harbor Management Plans*. The guidance indicates that all final Harbor Management Plans shall be reviewed by CRMC every five years. Both the 1996 and 2007 Harbor Management Plan update was motivated by the CRMC guidance recommendation.

## **1. 1996 Harbor Management Plan**

Rhode Island General Law 46-4 empowers municipalities to locally regulate the public waters and waterfront within their boundaries. Upon taking office in 1993, Mayor Lincoln Chafee initiated the Greenwich Bay Initiative with the goal of protecting and restoring the environmental quality of Greenwich Bay. Among other recommendations, the Greenwich Bay Initiative directs that the Harbor Management Plan be updated with an increased focus on protecting the water quality of Greenwich Bay.

In 1995, in accordance with the Greenwich Bay Initiative's recommendations and the Coastal Resources Management Council's regulations, the Harbor Management Commission undertook the task of reviewing and updating the existing Harbor Management Plan. In December 1995, the commission retained the services of Maguire Group Inc., Architects, Engineers, and Planners to assist in completing the plan.

In developing the revisions to the Harbor Management Plan, the Harbor Management Commission met biweekly to review and update the existing plan. The commission focused primarily on identifying goals, issues, policies, and implementation strategies, since these elements form the main thrust of the plan's influence.

The commission solicited public input and comment on the draft issues and implementations strategies, and upon publication of the draft document. The plan revisions were discussed and developed at scheduled meetings of the Harbor Management Commission through May of 1996. A public forum was held on March 12, 1996 to solicit public input on the issues and proposed implementation strategies. Public notice of the forum was advertised prior to the meeting through local advertising and by way of the annual mooring renewal cover letter, which was mailed in February 1996. As a result, the forum was attended by over 50 members of the public, and the commission received substantial public input to guide the development of the plan revisions.

The draft plan was made available to the public for review, and was adopted by the Harbor Management Commission in June 1996. The plan was subject of a public hearing held by the Warwick Planning Board in July 1996. The plan was then favorably recommended by the Planning Board and forwarded to the City Council for formal approval.

## **2. 2007 Harbor Management Plan**

In 2005, the Harbor Management Commission began the process of updating the 1996 Harbor Management Plan. The updated plan needed to address new state and federal regulations, the May 2005 implementation of the Greenwich Bay Special Area Management Plan, findings from various scientific and policy studies that had been undertaken in the area, newly available technology, and the many changes in the City of Warwick since 1996. These issues were discussed during the commission's monthly meetings. The commission focused on updating the 1996 plan's existing goals, policies, issues and implementation strategies to address the new concerns regarding Warwick's harbor. Individual meetings of the commission members with a representative of CRMC also facilitated the update process.

The draft plan revisions were approved by the Commission in October 2006. The plan was then submitted to the City Solicitor and Planning Department in November, 2006. In late 2008 the Harbor Management Plan received a Water Quality Certification from DEM. A portion of Pawtuxet Cove had to be deauthorized with approvals from the Warwick City Council and is pending approval from Congress. After several minor revisions, the plan received Planning Department approval and then a CRMC preliminary approval, pending approval of the Warwick City Council.

## **B. Physical Jurisdiction of the Plan**

There are over 39 miles of coastline in the City of Warwick, which includes eight major coves, Greenwich Bay, Narragansett Bay and the Providence River. The City waters are adjacent to three communities: North Kingstown, East Greenwich and Cranston. For the purpose of the Harbor Management Plan and to establish the limits of the jurisdiction of this plan, the following harbor boundaries are set:

"Beginning at the line between the City of Warwick and the Town of North Kingstown at a point on Forge Bridge; then proceeding down the centerline of the Potowomut River to a location halfway between Marsh Point and Pojac Point; from this point easterly to Round Rock Buoy G-1 then northeasterly to R-8 bell; then northerly to the G-15 buoy on the channel to Providence; then along the southwesterly edge of the channel known as the Conimicut Point Reach to buoy G-19; then along the westerly edge of the channel known as the Bullock Point Reach to buoy G-29; then westerly to buoy N-2 at the beginning of the channel to Pawtuxet Cove; then westerly to buoy N-6; then running northerly and westerly through the center of the channel and the Pawtuxet River to the bridge on Route 1A.

Excluded from the waters of the City of Warwick is that portion of Greenwich Cove south and west of the municipal boundary line established by the RIGL of 1986, Chapter 354, that is located in the Town of East Greenwich (see Figure 1, Harbor Boundary).

Because of the diverse nature of the waters of the City of Warwick, the project area was subdivided into 11 study areas. For this plan, the harbor waters are divided into eight (8) coves, two (2) bay areas, and the waters of the Providence River. These areas are as follows:

### **1. The Coves**

#### Potowomut River

The Potowomut River is split between North Kingstown and Warwick. The river is that area upstream of a line between Marsh Point and Pojac Point to the Forge Bridge.

#### Greenwich Cove

Greenwich Cove is located in the communities of East Greenwich and Warwick. The municipal boundary was agreed upon and set by RIGL of 1986, Chapter 354. The City of



Warwick Harbor Boundary for Greenwich Cove is the line that establishes the municipal boundary. For this plan, the cove includes waters west and south of a line between Chepiwanoxet Point and Long Point.

Apponaug Cove

Apponaug Cove is that area northwest of a line that runs from aDEM Range Marker at Cedar Tree Point to buoy R-2 to buoy C-3 to the end of the breakwater at Masthead Marina.

Brush Neck/Butonwoods Cove

Brush Neck/Butonwoods Cove is that area northwest of a line that extends from the tip of Butonwoods to Strand Avenue.

Warwick Cove

Warwick Cove is that area northerly of a line that runs from the end of Bay Avenue to buoy C-3 then easterly in a straight line from buoy C-3 through buoy R-4 to the Warwick Neck shore.

Occupessatuxet Cove

Occupessatuxet Cove is that area west of a line that runs from the southerly point of Gaspee Point to Greene Island and then westerly to a point on the shore where Dudley Avenue ends.

Passeonkquis Cove

Passeonkquis Cove is that area westerly of a line that runs from Bay Shore Boulevard to Gaspee Point.

Pawtuxet Cove

Pawtuxet Cove is that area west of a line that runs from Pawtuxet Neck to the tip of the sheltering dike and is enclosed by the dike and causeway on the east and south.

## **2. The Bays**

Greenwich Bay

Greenwich Bay is that area of the City of Warwick's water that is west of a line that runs from the flag pole at the Warwick Country Club to Sandy Point. The Bay does not include Greenwich, Apponaug, Brush Neck, Butonwoods and Warwick coves.

Narragansett Bay

The City waters from the Potowomut River to Conimicut Point, excluding Greenwich Bay, are part of Narragansett Bay.

## **3. The River**

Providence River

The City waters from Conimicut Point to Pawtuxet Cove are part of the Providence River. Part of the channel to Providence is located within the municipal boundaries. However, the channel is not located within the boundaries established for this plan.

## **C. Administrative Jurisdiction of the Plan**

This section provides an overview of the various legislative authorities with jurisdiction over the harbor planning process. Various agencies on the federal, state and municipal levels review and regulate activities in Rhode Island's tidal waters and harbor areas.

### **1. The Federal Role**

The federal government, through the ACOE regulates the placement of structures and obstructions in the navigable waters of the nation. The ACOE regulatory program focuses primarily on navigation. However, it considers the environmental consequences of development proposals and their impact in light of the "public interest". Through its permitting programs, the ACOE reviews certain projects located in navigable waters, including dredging, filling, and the placement of structures such as moorings. Under the provisions of the ACOE program, moorings and their availability for use are considered integral parts of the ability to navigate. As such, they are subject to the ACOE's regulatory program which also seeks to insure that unobstructed access to harbor channels is maintained, and that areas that have benefited from federal navigation projects are open to all. Future availability of federal assistance for maintaining these projects is often predicated on these requirements.

### **2. The State Role**

The submerged lands, coastal resources and tidal waters and shoreline of the State are all subject to the State of Rhode Island's jurisdiction. These areas are owned by the State and held in trust for the public. The State carries out several different management and regulatory programs to protect the rights and interests of the public in these areas.

#### **Coastal Resources Management Council (CRMC)**

CRMC is the state's primary agency for planning and management of coastal resources and the uses made of tidal waters and shore. The CRMC carries out this responsibility through three primary methods: planning and management, coordinating functions, and regulatory programs. Planning and management programs of the CRMC are formulated in terms of the characteristics and needs of each coastal resource, or group of related resources. The Coastal Resources Management Program (CRMP) is the primary management plan for the State. The CRMP provides plans for activities occurring on or within coastal areas. The plan identifies six categories of water use "types" and designates stretches of the tidal waters and coastline of the state accordingly (see Figure 6). The water type categories and other regulations set forth what uses may be made of an area and how these uses may be carried out. All departments and agencies of state government are required to cooperate with the Council in discharging its responsibilities. The CRMC also employs a regulatory, or permit program, to implement its management plans. This program includes two integrated phases:

assessment of conformance of proposed projects with applicable local, state and federal environmental requirements (such as Harbor Management Plans) and review of projects for consistency with the specific policies and standards of the CRMP.

### **Department of Environmental Management (DEM)**

DEM has primary responsibility within the state for implementing the requirements of the Federal Clean Water Act, for managing the living resources of the state's waters, and for overseeing federal and state land acquisition and open space programs. The DEM has promulgated specific regulations and water quality standards to implement its authority under the Clean Water Act, through its Division of Water Resources. Water quality classifications and standards are designed to protect and improve the quality of the state's waters where these may be threatened or impaired by discharges of pollutants. The regulations are generally more restrictive the purer the water, thereby preventing degradation. The regulations also contain an anti-degradation clause which establishes that there can be no degradation of classified high-quality water in their assigned classification due to a proposed activity. DEM has the authority to designate "no discharge zones" within which boats may not discharge wastewater and also has authority over wrecks and abandoned vessels. The DEM Division of Parks and Recreation manages state parklands and public recreational facilities such as boat ramps, bathing beaches and picnic areas. The DEM Division of Fish and Wildlife, in conjunction with the Marine Fisheries Council, manages the fin and shellfish fisheries within the State. Current programs include the regulations of commercial fisheries, shellfish propagation and transplanting, and establishing and protecting shellfish management areas. The Division also provides comment to the CRMC on proposals that may impact resources under their jurisdiction.

### **3. Warwick's Role**

Chapter 4 of Title 46 of the General Laws of Rhode Island (Waters and Navigation) confers upon the coastal communities of the state powers to regulate the public waters within their boundaries. Generally, these powers can be segregated into three types: 1) Management of vessel operation within harbors; 2) Management of anchorages and moorings; and 3) Regulation of such activities as water skiing and skin diving, regattas and marine parades.

While state law grants considerable authority to the municipalities in managing certain uses of harbor areas, a community is specifically empowered to consider environmental impacts of activities, prevention of conflicts with other water dependent uses, or to decide resource allocation questions. However, a community can only exercise this power after approval is received from the CRMC and the Harbor Management Plan provides the mechanism for CRMC review and approval of the local harbor management authority.

Harbor Management Plans and ordinances are regulated through Section 300.15 of the CRMP. This section established that "all rules or management functions that apply to the use of tidal waters adjacent to a municipality" are to be considered Municipal Harbor Regulations, and are subject to review and approval by the CRMC. While the primary responsibility for harbor management remains on the local level, the CRMP insures that the actions taken by the municipalities are consistent with the overriding management programs of state and federal authorities.

#### **4. Coordination**

The CRMP provides a framework for coordinating the management responsibilities of the various agencies involved in permitting coastal uses. Federal and state statutory requirements are integrated through the review provisions in the plan. Permits or certifications are necessary approvals that must be obtained prior to the granting of a coastal permit, or in order to make the assent valid.

While state agencies bring the expertise to evaluate environmental impacts to the harbor management process, municipalities provide the necessary "hands on" familiarity with the functioning of the harbor, a knowledge of the various levels and types of demands, and the ability to provide for the well functioning management of day-to-day operations. An important challenge in meeting and managing the increasing pressures in Rhode Island's harbor areas is to integrate the programs of federal, state and local levels of government effectively.

## APPENDIX C RESOURCE INVENTORY

### The Harbor's Characteristics and Resources

Ten parameters were used to describe the characteristics and resources of Warwick's harbor. They include: water depth, water quality, coastal flood hazard areas with wave action, navigational hazards, dredged areas, federally maintained areas, CRMC water use category, conservation areas, recreational and commercial fishing areas, and coastal features.

**Water Depth** - Water depth information for the coastal waters of the City of Warwick has been obtained from Nautical Chart 13224, "Providence River and Head of Narragansett Bay" prepared by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), and National Ocean Service (NOS) in 2004. The principal nautical feature of concern to boaters is depth, although NOS charts contain other information, including natural features of the water and land areas (such as submerged rocks, islands, coves and streams), and various manmade objects and features, like buoys and bells, dredged channels, and roadways.

The depths, as shown on NOS charts, are referenced in feet at mean low water. Although a good source for water depth information, the charts contain cautions to mariners that they should note the date on the chart, and that the channels at Apponaug Cove, Warwick Cove, and Pawtuxet Cove are subject to tidal fluctuations and shoaling, particularly at the edges.

In addition, Condition Survey Maps prepared by the ACOE were consulted to provide water depth data. The federally maintained channels in the coves of Warwick are typically six feet deep and 100 to 150 feet wide. Condition Survey Maps prepared by the ACOE are available for Pawtuxet Cove (2006), Warwick Cove (1984), and Apponaug Cove (1990).

**Water Quality** - Water quality standards for the waters of the City are set by the Water Resources Division of RIDEM. A water quality standard defines the water quality goals of a water body by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses. Therefore, the designated water quality *standards* do not necessarily reflect the current water quality *conditions*.

Water quality standards are intended to protect public health and welfare, enhance the quality of water and serve the purposes of the Federal Clean Water Act and the General Laws of Rhode Island, (Chapter 46-12). To serve the purposes of the Clean Water Act means that whenever attainable, water quality standards should: provide water quality for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water; take into consideration their use and value as public water supplies; and take into consideration their use for aquacultural, industrial, and other purposes, including navigation.

The seawater of Rhode Island has been assigned to one of three classes. Each class is defined by the most sensitive use that it is intended to protect. General and specific physical, chemical and biological criteria are parameters of minimum water quality necessary to support the water use

classifications, and are applicable to all waters of the state. These water quality criteria are listed in detail in RIDEM Division of Water Resources' "Water Quality Regulations for Water Pollution Control".

| <u>Classification</u> | <u>Uses</u>  |
|-----------------------|--|
| Class SA -            | Waters designated for shellfish harvesting for direct human consumption, primary and secondary contact recreational activities, and fish and wildlife habitat. They shall be suitable for aquacultural uses, navigation and industrial cooling. These waters shall have good aesthetic value.<br><i>Note: Some Class SA waters contain Closed Safety Zones which are waters in the vicinity of an approved sanitary discharge which may be impacted in the event of complete failure of treatment and are therefore, currently prohibited to shellfishing. Although shellfishing use is restricted, all SA criteria must be met.</i> |
| Class SB -            | These waters are designated for primary and secondary recreational activities; shellfish harvesting for controlled relay and depuration; and fish and wildlife habitat. They shall be suitable for aquacultural uses, navigation and industrial cooling. These waters shall have good aesthetic value.   |
| Class SB1 -           | These waters are designated for primary and secondary recreational activities; shellfish harvesting for controlled relay and depuration; and fish and wildlife habitat. They shall be suitable for aquacultural 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 aquacultural uses, navigation and industrial cooling. These waters shall have good aesthetic value.   |
| Source -              | State of Rhode Island, Department of Environmental Management, Division of Water Resources, "Water Quality Regulations with Appendices", July 2006.  |

**Coastal Flood Hazard Areas with Wave Action-** The "Flood Insurance Study, City of Warwick, Kent County, Rhode Island", prepared by the Federal Emergency Management Agency (FEMA), presents the data and analyses used in producing the Flood Insurance Rate Maps (FIRM) for the City. The April 16, 1991 Flood Insurance Study for the City of Warwick (id # 445409V000) has identified substantial areas of Warwick's shoreline that are subject to significant wave attack. FEMA issued a FIRM for the City of Warwick (id # 4454090003E) on June 16, 1992. The FIRM delineates the 100-year storm flood boundaries and includes the water surface elevation associated with sources of riverine and coastal flooding. Of particular note are coastal floodplain areas that have additional hazards associated with storm waves. These areas, also referred to as velocity, or "V" zones, are defined by the ACOE as coastal high hazard zones, subject to significant wave attack greater than 3-foot breaking waves. The 3 foot breaking wave has been determined as the minimum size wave capable of causing major damage to conventional wood frame or brick veneer structures.

Areas of Marsh Point have been designated as undeveloped coastal barriers, as established under the Coastal Barrier Resources Act (PL 97-348). Flood insurance is not available for structures

newly built or substantially improved after October 1, 1983 in designated undeveloped coastal barriers.

**Navigational Hazards** - Significant hazards to navigation were listed for each waterbody using the information provided on NOS charts. These hazards include rocks, submerged cables and shoals and others noted on the charts.

**Dredged Areas** - Included in this category are dredging project areas under the jurisdiction of the ACOE and any project, presently ongoing, that was issued a CRMC permit.

**Federal Maintenance**- Federally maintained areas within the waters of Warwick are areas dredged by the ACOE for navigational channels and anchorage areas. These areas were identified using ACOE Condition Survey Maps and Project Maps.

**CRMC Water Use Designations** - The CRMC has designated coastal areas and waters within the state according to use suitability under six (6) water use type categories, (Table 2). The purpose of these classifications is to insure the maintenance of water quality in the waters of the state. CRMC originally designated the waters of Warwick as being Type 1, Type, 2, Type 3, and Type 4 (figure 1). Recent water type changes have been implemented in both Apponoug and Warwick Coves, including the establishment of Type 5 waters (figure 2). A list of boundary descriptions for the current CRMC Water Types follows figure 2 below.

**Table 8 CRMC Water Use Categories**

|               |   |
|---------------|---|
| <b>TYPE 1</b> | Conservation Areas  |
| <b>TYPE 2</b> | Low Intensity Use   |
| <b>TYPE 3</b> | High Intensity Boating                                      |
| <b>TYPE 4</b> | Multi-Purpose Waters  |
| <b>TYPE 5</b> | Commercial and Recreational Harbors                         |
| <b>TYPE 6</b> | Industrial Waterfronts and Commercial Navigational Channels |

Source: RICRMC

The six (6) categories of waters defined in the CRMP are directly linked to the characteristics of the shoreline, since the activities on the adjacent mainland are the primary determinant of the uses and qualities of any specific water site.

**Type 1 waters** are one or more of the following: (1) water areas that are within or adjacent to the boundaries of designated wildlife refuges and conservation areas, (2) water areas that have retained natural habitat or maintain scenic values of unique or unusual significance, and (3) water areas that are particularly unsuitable for structures due to their exposure to severe wave action, flooding, and erosion.

CRMC's goal is to preserve and protect Type 1 waters from activities and uses that have the potential to degrade scenic, wildlife, and plant habitat values, or that may adversely impact water quality or natural shoreline types.

**Type 2** waters are areas with high scenic value that support low-intensity recreational and residential uses. These waters include seasonal mooring areas where good water quality and fish and wildlife habitat are maintained.

CRMC's goal is to 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** waters include intensely utilized water areas where recreational boating activities dominate and where the adjacent shorelines are developed as marinas, boatyards, and associated water-enhanced and water-dependent businesses.

The highest priority uses of Type 3 waters and adjoining land areas within the CRMC jurisdiction are (1) marinas, mooring areas, public launching ramps, and other facilities that support recreational boating and enhance public access to tidal waters; and (2) boatyards and other businesses that service recreational boaters.

**Type 4** waters include (1) large expanses of open water in Narragansett Bay and the Sounds that support a variety of commercial and recreational activities while maintaining good value as a fish and wildlife habitat; and (2) open waters adjacent to shorelines that could support water-dependent commercial, industrial, and/or high-intensity recreational activities.

CRMC's goal is to maintain a balance among the diverse activities that must coexist in Type 4 waters. The changing characteristics of traditional activities and the development of new water-dependent uses shall, where possible, be accommodated in keeping with the principle that the CRMC shall work to preserve and restore ecological systems.

The last two water use categories are assigned to areas adjacent to ports and industrial waterfronts. In these waters, maintenance of adequate water depths is essential, high water quality is seldom achievable, and some filling may be desirable. Within **Type 5** waters, a mix of commercial and recreational activities must coexist, while in **Type 6** waters, water-dependent industrial and commercial activities take precedence over all other activities.

The water use categories are complemented by policies for shoreline types defined in the CRMP, and the two must be combined to identify the program's policies for a specific coastal site. The shoreline types include coastal beaches and dunes; barrier beaches; coastal wetlands; coastal cliffs, bluffs, and banks; rocky shores; and manmade shorelines.



Figure 1: Original CRMC Water Types (see figure 2 for current CRMC Water Types)

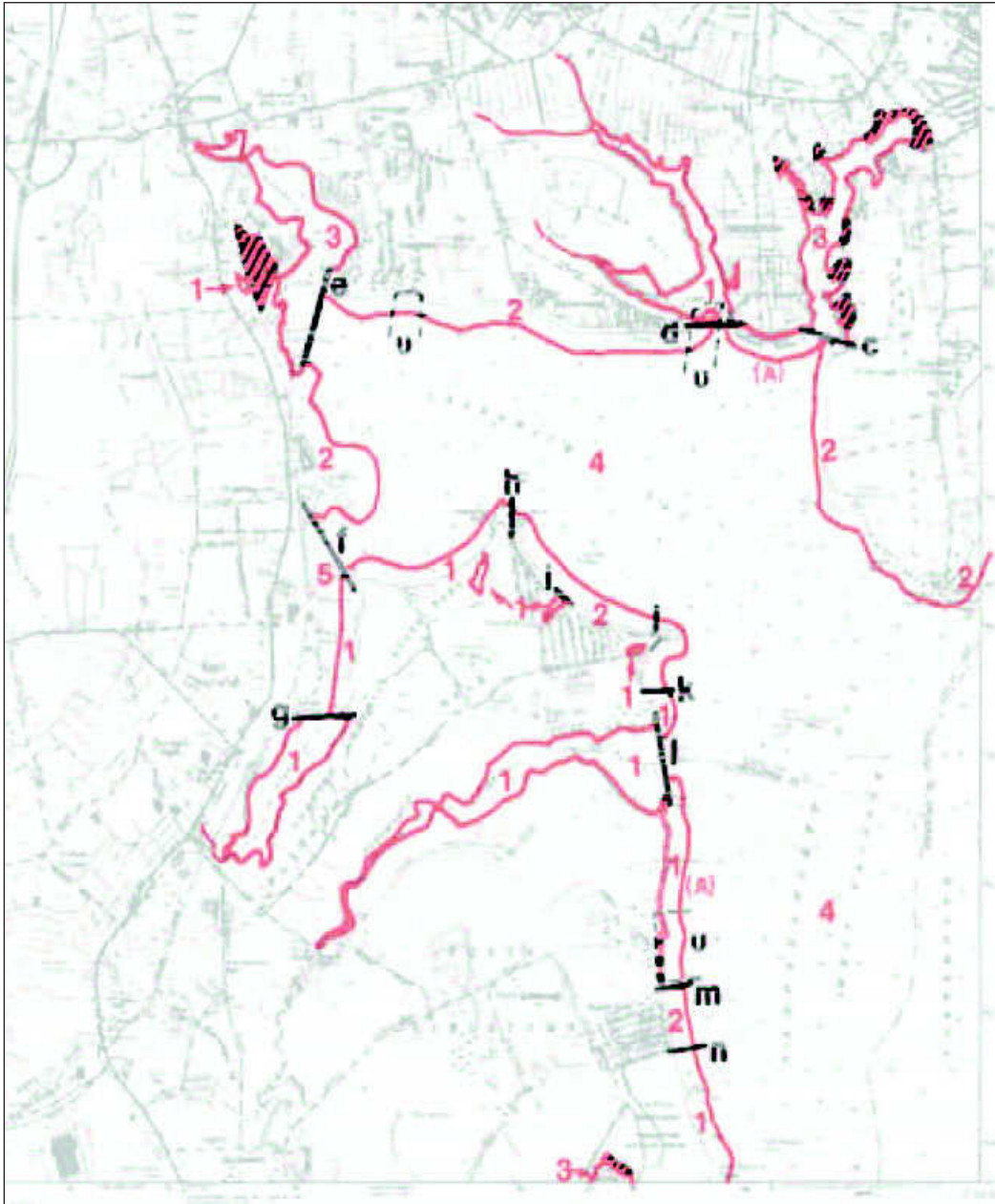
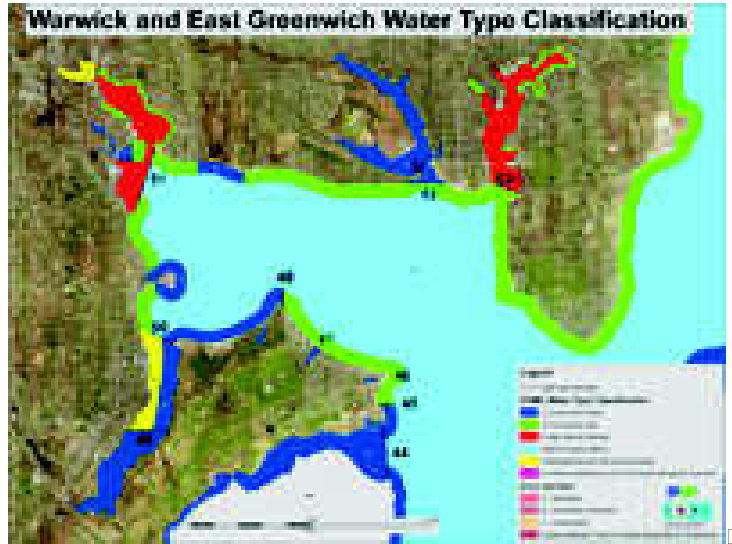


Figure 2: Current CRMC Water Types



Source: CRMC [[http://www.crmc.ri.gov/maps/maps\\_wateruse\\_warwick.html](http://www.crmc.ri.gov/maps/maps_wateruse_warwick.html)] 2013  
Current CRMC Water Types Boundary Descriptions

- 44 – A straight line from the southeast tip of Marsh Point to the tip of Pojac Point.
- 45 – A straight line from the end of Bradford Avenue.
- 46 – A straight line across the creek entrance south of Sandy Point.
- 47 – A straight line along the western side of Beachwood Drive.
- 48 – A straight line extending northerly from the eastern border of Goddard State Park.
- 49 – A straight line running due east from the south side of the East Greenwich Town Dock property across Greenwich Cove to where it intersects with land at Goddard State Park.
- 50 – A straight line from the tip of Long Point at Goddard Park westerly to the opposite shoreline and intersecting the most northeasterly corner boundary of the Marina Perimeter Limit of Norton's Marina authorized under CRMC Assent 2002-05-005. The corner boundary coordinate is 212,929N/343,158E RIsp83. (Adopted by the Council on April 7, 2009)
- 51 – A straight line from the tip of Cedar Tree Point to the south side of the breakwater at Folly's Landing.
- 52 – A straight line from the base of the westernmost groin at Oakland Beach to the base of the easternmost groin on Buttonwoods Point.
- 53 – A straight line from the northern side of the end of Randall Street to the base of the easternmost groin at Oakland Beach.
- 54 – A straight line extension of Lippitt Avenue.
- 55 – A straight line extension of Talcott Street.
- 56 – A straight line running from a point of land on the south side of Occupasstuxet Cove to the tip of the peninsula on the east side of the cove.
- 57 – A straight line extension from the south side of a launching ramp facility on the northern side of Pässeonkquis Cove.
- 58 – The northern side of the rubble-mound connector running easterly from the northeast tip of Salter Grove to the Pawtuxet Cove breakwater.
- 59 – A straight line running northwesterly from the easterly side of the Pawtuxet Cove breakwater to the tip of Pawtuxet Neck.
- 60 – The base of the falls at the Pawtuxet River.

**Within Line 53 (Warwick Cove) – adopted by the Council on October 26, 2004**

## **Type 2 Waters**

A. (West side of Warwick Cove, west of Second Point) Starting at the northwest corner of Plat 359, lot 50/northeast corner of Plat 359, lot 51 (222,776N/356,740E RIspf83), then northerly following the high water line approximately 2450 feet to the southeast corner Plat 359, lot 122/southwest corner Plat 359, lot 183 (222,843N/357,051E RIspf83), then 318 feet westerly to the first point.

B. (Northeastern side of Warwick Cove) A one hundred foot (100') wide by approximately 7450 foot long area starting at the southeast corner of Plat 358, lot 321/southwest corner of Plat 358, lot 482 (223,928N/358,937E RIspf83) then follow the high water line easterly, then southwesterly to the northwest corner of Plat 358, lot 6/southwest corner of Plat 358, lot 7 (222,808N/358,430E RIspf83), then west to point 222,780N/358,330E RIspf83, then northerly parallel to the shoreline approximately 435 feet to the mooring area at 223,129N/358,368E RIspf83, then southerly 24 feet along the mooring area to 223,108N/358,378E RIspf83, then northeasterly 109 feet along the mooring area to 223,166N/358,469E RIspf83, then northerly parallel to the shoreline to the federal channel at 224,406N/360,112E RIspf83, then northerly 53 feet along the federal channel to 224,449N/360,084E RIspf83, then southwesterly 21 feet along the federal channel to 224,439N/360,068E RIspf83, then westerly parallel to the shoreline to the mooring field at 223,896N/359,169E RIspf83, then westerly along the mooring field to 223,864N/359,115E RIspf83, then westerly parallel to the shoreline to 223830N/358962E RIspf83, then northerly to the first point.

C. (East side of Warwick Cove) Starting at the east shore of Warwick Cove at point 220,333N/358,356E RIspf83, then 180 feet west to point 220,343N/358,175E RIspf83, then northwesterly for 535 feet to point 220,475N/357,656E RIspf83, Then northerly 142 feet to point 220,607N/357,610E RIspf83, then easterly approximately 150 feet to the high water line between plat 377, lots 152 and 153 (~220,633N/357,753E RIspf83), then follow the high water line easterly for approximately 1100 feet to the first point.

**Within Line 51 (Apponaug Cove) – adopted by the Council on October 26, 2004**

### **Type 1 waters**

A. (West side of Apponaug Cove at Mary's Creek) Starting on Plat 365, lot 278 at point 220,782N/ 342,433E RIspf83, follow the high water line southerly along the shoreline, through Mary's Creek and along the barrier to point 220,003N/341,760E RIspf83 on Plat 366, lot 4, then 672 feet east to point 220,005N/342,431E RIspf83, then 780 feet north to the first point.

### **Type 2 Waters**

A. (East of Mary's Creek) Starting at the northeast corner of Plat 365 lot 278/southeast corner Plat 365 lot 172 (220,890N/342,530E RIspf83), follow southerly along the high water line for 145 feet to 220,782N/342,433E RIspf83, then south for 775 feet to 220,005N/342,431E RIspf83, then east for 505 feet to 220,005N/342,936E RIspf83, then northerly for 782 feet along the federal channel to 220,785N/342,982E RIspf83, then westerly to the first point.

B. (West side of Apponaug Cove) Start at the northeast corner of Plat 365, lot 279/northwest corner of Plat 365, lot 277 (221,768N/342,348E RIspf83), then follow the high water line

northerly along Plat 365, lot 279 for approximately 1500 feet to point 222,369N/341,326E RIspf83, then back to the first point.

C. (East side of Apponaug Cove) A one hundred foot (100') wide by approximately 6500 foot long area starting at the southwest corner of Plat 365, lot 219 (223,421N/340,958E RIspf83) then southeasterly following along the high water line to 220,508N/343,370E RIspf83 on Plat 367, lot 1, then west to 220,514N/343,261E RIspf83, then northerly parallel to the shore to the federal channel at point 223,227N/341,427E RIspf83, then 230 feet northerly along the federal channel to point 223,333N/341,227E RIspf83, then continue northerly parallel to the shoreline to point 223,421N/341,048E RIspf83, then west back to the first point.

### **Type 5 Waters**

A. (Apponaug Cove west of the railroad bridge and culvert) Starting at the southern end of Plat 245, lot 378 (223,474N/340,784E RIspf83) then 137 feet southerly to the northeast corner of Plat 244, unnumbered lot at 223,337N/340,793E RIspf83, then follow the high water line approximately 5260 feet back to the first point.

### **Baker's Creek**

#### **Type 1 waters**

Tidal waters bounded by Lot 201 in Plat 367 and Lots 114 and 116 in Plat 368 to a distance of 500 feet off shore. (Adopted by the Council on April 7, 2009)

### **Chepiwanoxet Point and Greenwich Cove**

#### **Type 1 waters**

Tidal waters bounded by Lots 11, 29, 83, and 94 in Plat 221 to a distance of 500 feet off shore. (Adopted by the Council on April 7, 2009)

#### **Type 2 Waters**

The existing Type 2 waters west of Chepiwanoxet Point shall extend southward until meeting the amended line delineating Type 5 waters. (Adopted by the Council on April 7, 2009)

#### **Type 5 Waters**

Tidal waters bounded by line 50 to the north and line 49 to the south along the western shoreline of the cove.

**Conservation Areas-** In this portion of the Plan, conservation areas within the harbor areas of Warwick are identified. There are no federal or state wildlife management areas or refuges within the City. Major wildlife habitats that have been identified in the *City of Warwick Comprehensive Plan* (2014) are listed in Table 3. The properties located within the coastal areas of Warwick that are owned by the Audubon Society of Rhode Island also are identified. The

Audubon Society holds title to or controls more than five thousand (5,000) acres of open space in Rhode Island. This land has been accepted for its diversity, provision of critical habitat, or special natural features.

**Recreational and Commercial Fishing Areas-** The following information pertaining to the finfish and shellfish resources of the City of Warwick and the descriptions of shellfish areas that are included in the listings of each subarea of the Warwick harbor have been provided by Arthur R. Ganz, Senior Marine Biologist, Coastal Fisheries Laboratory, RI Division of Fish and Wildlife.

The waters of the City of Warwick contain abundant finfish resources. The sheltered waterways of Warwick provide food and habitat for spawning and nursery for many species, the most significant of which is the winter flounder. Anadromous fish runs occur at the Potowomut River, Apponaug Cove, and Buckeye Brook.

**Table 9** Major Wildlife Habitats Located in Warwick’s Coves

| LOCATION                            | WILDLIFE   |
|-------------------------------------|--|
| <b>Apponaug Cove</b>                |  |
| Gorton’s Pond                       | Smelt run, various freshwater fish, snapping turtles |
| Pawtuxet River                      | Waterfowl, birds                                     |
| <b>Potowomut River</b>              | herring run  |
| <b>Passeonkquis Cove</b>            | ducks, scaup, widgeon                                |
| <b>Occupessatuxet Cove</b>          |  |
| Marsh Point                         | Upland birds, shell and finfish                      |
| Baker’s Creek                       | Upland birds, shell and finfish                      |
| Mary’s Creek                        | Waterfowl, shell and finfish                         |
| <b>Narragansett Bay</b>             |  |
| Conimicut Point                     | shellfish, saltwater fish (Narragansett Bay)         |
| Buckeye Brook/Old Mill Cove         | herring run, aquatic life, wood and black ducks      |
| Rock Island                         | fossil site, birds                                   |
| <b>Brush Neck/Buttonwoods Coves</b> |  |
| Warwick City Park                   | water fowl, freshwater fish                          |
| Tuscatucket Brook & Pond            |  |

Source: City of Warwick Comprehensive Plan, 2014

Finfish species of economic significance found seasonally in Warwick waters are: winter flounder, weakfish, striped bass, menhaden, bluefish, American eel, whiting, tautog, scup, butterfish, alewife, and others.

Because of its natural productivity, sheltered waterways, and access to marina areas, Warwick provides an ideal climate for recreational rod and reel fishing. Estimates of the magnitude of the sportfishery are varied but, when considering recreational equipment, boats and related services, it can be considered to be one of the state's major industries.

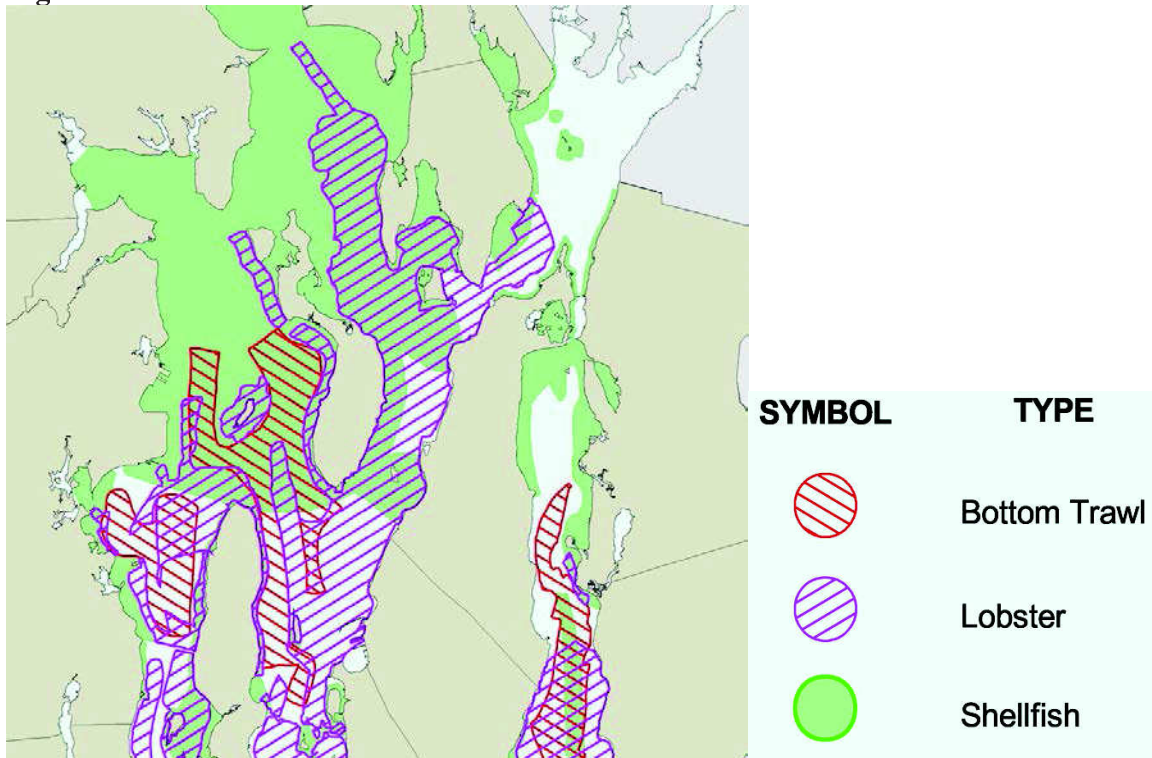
Although there is the resource and potential for a commercial finfishery, the waters of Warwick have been off limits for 20 years or more. The state has enacted prohibitions against otter trawling, seining, and fish traps. User conflicts have inhibited expansion of the fyke fishery and pot fishery in Warwick. The commercial finfishery in Warwick is limited to a restricted seasonal trawl fishery in the "Upper Bay" (Narragansett Bay between Warwick Neck and Conanicut Point) and a seasonal baitfishery for menhaden. Warwick waters serve as dockage and mooring areas for commercial vessels.

Two of the state's most important shellfishing areas, the "Upper Bay" and Greenwich Bay are within the waters of the City of Warwick. Narragansett Bay produces approximately 40 percent (40%) of the quahogs harvested in the nation.

The "Upper Bay" and Greenwich Bay are designated as shellfish management areas by the Rhode Island Marine Fisheries Council. Seasonal and daily catch limits are regulated in an effort to avoid overfishing these areas, as fishing pressures upon these resources increase with the pollution closure of other shellfishing areas.

The shellfish areas within the waters of Warwick, as designated by DEM 2006, are shown in Figure 3. The areas have been classified by the DEM as polluted, conditional or seasonal closure areas, or as approved shellfishing areas. Water areas overlying shellfish grounds that are classed as polluted have been found to be in an unsatisfactory sanitary condition for the taking of shellfish for human consumption. Conditional closure areas are those areas that, from time-to-time, are found to be in an unsatisfactory sanitary condition for the taking of shellfish for human consumption.

Seasonal closure areas are deemed to be polluted from May 23 to September 30. This time period may be modified by the state. Finally, approved shellfishing areas are those that the state has determined to be in satisfactory sanitary condition for the taking of shellfish for human consumption.

**Figure 3: RIDEM Shellfish Areas**

Source: Rhode Island Marine Resources Uses [<http://www.edc.uri.edu/fish/imagemaps.html>]

**Coastal Features** - Warwick's 2014 Comprehensive Plan identified the coastal features along the approximately 39 miles of City coastline. This coastline is varied in its character and includes eight (8) major cove areas, barrier beaches, sandy and rocky beaches, beach bluffs and saltmarsh areas. Sandy beaches and marsh areas are the most common shoreline types in the City. Saltmarshes are generally located along the various coves of the City, with sandy and rocky beaches more typical of the exposed shorelines.

Barrier beaches are narrow, unconsolidated strips of land, usually extending parallel to the coast and separated from the mainland by a coastal pond, tidal waterbody or coastal wetlands. These beaches serve as buffers against storms and offer a unique and valuable coastal environment. FEMA's Flood Insurance Rate Maps identify Marsh Point on the south east corner of Potowomut as an undeveloped barrier beach. Barrier beaches are particularly sensitive to development. Building on barrier beaches can cause them to lose their natural function as storm barriers and as a public recreational resource. In addition, sandy and rocky beach areas are found along the unprotected shoreline areas in the City. These areas in the City are valued for their scenic, recreation, storm control and aesthetic character. For these reasons, policy should be geared to preserving these areas for use by residents, especially for recreational uses.

Bluff areas are those shorelines which are significantly elevated above the water. These areas are fragile because of their slope characteristics. They are valuable for the scenic vistas they provide, for flood protection, as a source of sediment for beach areas and as a wildlife habitat. The slope



of these areas is often greater than fifteen (15) percent. Beach bluffs can be found at various points along Warwick's shoreline: Passeonkquis Cove, Gaspee Plateau, the south side of Gaspee Point, Rocky Point, parts of Warwick Neck and the north side of Potowomut Neck.

The coastal wetlands in Warwick were identified using the Rhode Island Geographic System (RIGIS) mapping and database for Warwick's Comprehensive Plan. The RIGIS mapping indicates that there are nearly two hundred eighty (280) acres of estuarine emergent wetlands (also referred to as salt marshes) in Warwick. These wetlands are important for a variety of reasons. They provide food and shelter for a variety of juvenile fish, shellfish habitats, shorebird and waterfowl habitat, as well as erosion and flood control. The following table from the Comprehensive Plan indicates the acres of coastal wetlands in Warwick by general wetland type.

**Table 10 Coastal Wetlands in Warwick**

| WETLAND TYPE                          | ACRES        |
|---------------------------------------|--------------|
| Riverine Tidal Open Water             | 1,319        |
| Estuarine Open Water                  | 395          |
| Marine/Estuarine Rocky Shore          | 6            |
| Marine/Estuarine Unconsolidated Shore | 148          |
| Estuarine Emergent Wetland            | 277          |
| Estuarine Scrub-shrub Wetland         | 1            |
| <b>TOTAL AREA</b>                     | <b>2,146</b> |

Source: City of Warwick Comprehensive Plan, 2014

**The Harbor's Uses and Facilities**

Harbor Management Planning requires a working knowledge of how the waters of the City are being utilized. In general, everyone knows that the waters are used for pleasure boating and fishing. However, these are not the only uses of the water that are important. Shoreline access and waterfront recreational areas are also significant uses.

Recreational Areas

Recreational areas along the shore offer a variety of opportunities to enjoy the water in the City of Warwick. There are a number of shoreline recreational areas, both state and local facilities. The recreation facilities vary from Goddard Park, a major state facility, to the municipal play lot at Warwick City Park.

## e Harbor's Land Use

Landside uses can have a major impact on the water quality, accessibility, and use. The City of Warwick's Comprehensive Plan notes five major coastal land use issues: density and use, pollution and water quality, shoreline access, marine commerce and historic preservation. The Comprehensive Plan section on Land Use includes a detailed description and recommendations for Warwick's shoreline.

Approximately three thousand (3,000) acres in Warwick have been identified as coastal land. Table 10 shows that there are a variety of land uses on the City's waterfront. More significantly is that given the amount of vacant land on the waterfront, there is great potential to direct future growth and change.

Warwick's Zoning Ordinance, consistent with the City of Warwick Comprehensive Plan, provides for the protection of coastal areas through a number of regulations. First, the ordinance includes a Waterfront Businesses zoning district along Type 3 waters; this designation is intended exclusively for uses catering to marine activities. The regulations also include a minimum fifty (50) foot setback from any coastal feature as defined by the CRMC. This provision is intended to complement the CRMC regulations governing coastal setbacks. The ordinance also requires lot area calculations to exclude any portion under water or containing coastal wetlands. Finally, the ordinance maintains medium to low density residential land uses within two hundred (200) feet of the coastline. These latter regulations result in reduced densities within environmentally sensitive coastal areas.

The City of Warwick Zoning Ordinance, as amended in 2001, was developed around two major components for the coastal areas: the capacity of the land to support development and the recognition of existing water related uses. As a result, the present zoning classifications that are used along the coastal areas of the City of Warwick are as follows:

Open Space District (OS)- Properties mapped for the purposes of maintaining open space, recreation, agriculture, conservation of natural resources, or other environmental conditions.

Residence A-40 District (A-40)- Properties mapped and used for very low density residential use, comprising not more than one (1) single family dwelling unit per lot area measuring a minimum of 40,000 square feet.

Residence A-15 District (A-15)- Properties mapped and used for low density residential use, comprising not more than one (1) single family dwelling unit per lot area measuring a minimum of 15,000 square feet.

Waterfront Business District (WB)- Properties mapped and used primarily for businesses catering to marine activities.

The *Comprehensive Plan* includes specific recommendations for each of the identified coastal shoreline analysis areas to manage and improve land use patterns adjacent to Warwick's coastline. Additionally, the plan includes general recommendations for public sewerage and drainage systems, implementation of which will serve to better manage storm water runoff and pollution. These recommendations include:

1. Encouraging on-site storm drainage disposal;
2. Requiring storm drainage management planning for all new or expanded commercial, industrial, or large scale residential developments;
3. Development of a municipal storm drainage management plan;
4. Assignment of a high priority for expansion of municipal sewerage systems or tie-in to existing systems for high density or other sensitive areas; and,
5. Development of a municipal policy to address and prioritize the issue of private expansion of the sewerage systems.

The recommendations of the *Comprehensive Plan* are incorporated into the Harbor Management Plan by reference and should be implemented as soon as practicable.

**Table 11** City of Warwick Coastal Land Use

| LAND USE             | AREA<br>(acres) | % OF<br>TOTAL ** |
|----------------------|-----------------|------------------|
| Single Family        | 819.6           | 27.6             |
| Two plus Family*     | 182.0           | 6.1              |
| Commercial           | 188.8           | 6.4              |
| Industrial           | 10.0            | 0.3              |
| Utility and Railroad | 6.0             | 0.2              |
| Seasonal and Beach   | 169.0           | 5.7              |
| Other Uses           | 244.1           | 8.2              |
| Vacant               | 1346.2          | 45.4             |
| TOTAL                | 2965.7          | 100.0%           |

\* Two plus family includes apartments and condominiums.

\*\* Percentages rounded.

Source: City of Warwick *Comprehensive Plan*, 2014

**APPENDIX D  
RECREATIONAL FACILITIES**

|                                 | <u>Location</u>  | <u>Ownership</u> | <u>Area<br/>(AC)</u> |
|---------------------------------|--|------------------|----------------------|
| <u>PLAY LOTS</u>                |  |                  |                      |
| Kerri Lyn Road                  | East of Mystic   | Municipal        | 1.25                 |
| Warwick City Park               | Brushneck Cove   | Municipal        | .45                  |
| <u>PLAYGROUNDS</u>              |  |                  |                      |
| Warwick City Park               | Brushneck Cove   | Municipal        | 22                   |
| <u>MAJOR PARKS</u>              |  |                  |                      |
| Chepiwanoxet Park               | Cowesett   | Municipal        | 10                   |
| Salter Memorial Grove           | East of Narragansett Pkwy.   | State/Municipal  | 9.5                  |
| Warwick City Park               | Brushneck Cove   | Municipal        | 165                  |
| Goddard Park Road,              | East side<br>Greenwich Cove  | State/Municipal  |                      |
| Pawtuxet Park                   | Pawtuxet   | Municipal        | 2.5                  |
| Rocky Point                     | From South end<br>of Palmer Ave.<br>to Narrag. Bay                   | State/Municipal  | 123                  |
| <u>PASSIVE RECREATIONAL USE</u> |  |                  |                      |
| Passeonkquis<br>Cove Waterfront | Passeonkquis Cove<br>North shore, south<br>end Edgeknoll Ave.        | Municipal        | .18                  |
| Audubon Society<br>Waterfront   | Northwest of<br>Occupessatuxet Cove<br>Plat 314, Lot 19<br>(part of) | Private          | 3.14                 |

|                            |                           |           |      |
|----------------------------|---------------------------|-----------|------|
| Oakland Beach Conservation | South Shore Oakland Beach | Municipal | 9.14 |
| Baker's Creek              | West Side                 |           | 5.7  |

PUBLIC BEACHES

|                          |   |           |       |
|--------------------------|---|-----------|-------|
| Conimicut Pt. Beach      | Conimicut Beach   | Municipal | 14.37 |
| Oakland Beach Waterfront | South Shore Oakland Beach                                   | Municipal | 16.53 |
| Bayside Beach            | West of Narrag., Bay at Park Ave. Sam Gorton Ave., Dorr St. | State     | .62   |
| Warwick City Park Beach  | Brush Neck Cove   | Municipal | 1.72  |
| Goddard Park Beach       | North side Ives Road, east side Greenwich Cove              | State     |       |

PRIVATE - PROFIT

Location

Area (AC)

|                           |  |  |               |
|---------------------------|--|--|---------------|
| Warwick Country Club      | West side Warwick Neck Ave. to Greenwich Bay |  | 112.3/<br>.55 |
| Warwick Neck Country Club | Warwick Neck south side Gray St.             |  | 48/1.35       |

Area

PRIVATE - NON-PROFIT

Location

(AC)

|                                 |   |  |        |
|---------------------------------|---|--|--------|
| Our Lady of Providence Seminary | East side Warwick Neck Ave. to Narragansett Bay |  | 70     |
| Floating Hospital               | South side Long S.,. to Greenwich Bay           |  | 65/5.3 |

|                                     |  |           |
|-------------------------------------|--|-----------|
| Rocky Hill<br>Country Day<br>School | South side Ives<br>Road North shore<br>Potowomut River | 66.6/61.2 |
|-------------------------------------|--|-----------|

UNDEVELOPED AREAS

| <u>Location</u>  | <u>Ownership</u> | <u>Area (AC)</u> |
|--|------------------|------------------|
| North Side Economy/<br>Edgemere Ave.                       | Municipal        | .10              |
| East side Economy<br>Ave. South of<br>Terrace Ave.         | Municipal        | .07              |
| North Shores<br>Passeonkquis Cove<br>South end of Howe Ave | Municipal        | 1.38             |
| North end of Dudley Ave.                                   | Municipal        | .17              |

COMMUNITY BEACHES

| <u>Location</u>   | <u>Type of Community</u> |
|---|--------------------------|
| Gaspee Point  | Seasonal                 |
| Conimicut, Northern exposure<br>southern exposure from<br>Conimicut Pt. Beach-Mill Cove | Permanent                |
| South of Mill Cove - Rocky Pt.,<br>including Bayside Beach (see<br>Public Beaches)      | Permanent                |
| South of Rocky Pt. - Warwick<br>Light - Warwick Country Club                            | Permanent                |
| Buttonwoods, east of Andrew<br>Comstock Rd. to point                                    | Permanent                |
| Buttonwoods, west of Andrew<br>Comstock Rd. to Claypool Dr.                             | Seasonal                 |
| Beachwood Drive   | Permanent                |

(private, adjacent to developed communities)

Nausauket, Cedar Tree Pt.

Permanent

Potowomut, Sally Pt, to Sandy Pt.

Permanent

NOTE: Numerous lots are adjacent to the beach areas in these communities, with the exception of the Gaspee Point area.

**APPENDIX E**  
**DESIGNATED PUBLIC RIGHTS-OF WAY TO THE SHORE**  
**COASTAL RESOURCES MANAGEMENT COUNCIL (listed south to north)**

Bradford Ave. (J-1) -

A small area of sand and marsh grass that extends east from the south end of Bradford Avenue to a cobble beach bordering Narragansett Bay, at pole #7, just north of the mouth of the Potowomut River between Marsh Point and Sandy Point (Potowomut) L:39'/W:10'

Elkins Ave. (J-2) -

A grass path that extends east from Bradford Avenue to a sandy beach bordering Narragansett Bay, between poles #3 and #4, just north of the mouth of the Potowomut River, between marsh Point and Sandy Point (Potowomut) L:105'/W:10'

Charlotte Dr. 1 (J-3) -

A grass path, leading to a concrete ramp and a set of concrete steps, that extends northeast from the intersection of Charlotte Drive and Sidney Avenue to a cobble beach bordering Greenwich Bay, at pole #2, just west of Sandy Point (Potowomut) L:137'/W:10'

Charlotte Dr, 2 (J-4) -

A grass path, leading to a dilapidated stone wall and wooden stairway, that extends northeast from the intersection of Charlotte Drive and Hale Avenue to a cobble beach bordering Greenwich Bay, at pole #10, just west of Sandy Point (Potowomut) L:107'/W:10'

Charlotte Dr, 3 (J-5) -

A grass path, leading to a dilapidated wooden stairway, that extends northeast from the intersection of Charlotte Drive and Collins Avenue to a cobble beach bordering Greenwich Bay, between poles #4 and #5, just west of Sandy Point (Potowomut) L:130'/W:10'

Charlotte Dr, 4 (J-6) -

A grass path, leading to a small wooden stairway, that extends northeast from the intersection of Charlotte Drive and Hopkins Avenue to a cobble beach bordering Greenwich Bay, at pole #2 just west of Sandy Point (Potowomut) L:167'/W:10'

Beachwood Dr. 1 (J-7) -

A grass path, leading to a wooden stairway, that extends northeast from the intersection of Beachwood Drive and Lakedell Drive to a cobble beach bordering Greenwich Bay, between poles #23 and #24, just east of Sally Rock Point (Potowomut) L:130'/W:10'

Beachwood Dr, 2 (J-8) -

A pathway of dirt and grass, leading to a wooden stairway, that extends northeast from Beachwood Drive (between Baycliff Drive and Overlook Drive) to a cobble beach bordering



Greenwich Bay, between poles #30 and #31, just east of Sally Rock Point (Potowomut)  
L:150'/W:10'

Sylvia Dr. (J-9) -

A 200-foot dirt path that extends south down a grassy slope from the south end of Sylvia Drive to a sandy beach bordering Greenwich Bay, between Nausauket and Buttonwoods.  
L:201'/W:10'

Sheffield St. (J-10) -

A strip of dirt and grass that extends east from the intersection of Sheffield Street and Coburn Street to an area of marsh grass bordering Warwick Cove, at pole #10, (Oakland Beach) L:145'/W:32'

Reynolds Ave. (J-11) -

Re-designated as J-35

North Shore St. (J-12) -

A gravel drive, leading to a grass strip, that extends east from the intersection of North Shore Street and Crown Street to an area of marsh grass bordering Warwick Cove (Oakland Beach)  
L:128'/W:12'

Waterfront Dr. (J-13) -

A gravel drive, leading to a gravel ramp, that extends east from Waterfront Drive to Warwick Cove, adjacent to, and north of, the Sea Horse Grill (Second Point) L:117'/W:20'

Cooney St. (J-14) -

Re-designated J-33

Progress St. (J-15) -

A portion of a gravel parking lot that extends west from the intersection of Progress Street and Westview Street to a seawall and floating dock facility on Warwick Cove at Winstead's Boat Yard (Warwick Neck) L:118'/W:15'

Burnett Rd. 1 (J-16) -

A paved roadway, leading to a concrete ramp, that extends east from the intersection of Burnett Road and Ogden Avenue to Narragansett Bay just north of Rocky Point (Highland Beach) L:141'/W:21'

Burnett Rd, 2 (J-17) -

A grass path that extends east from the intersection of Burnett Road and Brinton Avenue to a cobble beach bordering Narragansett Bay, just north of Rocky Point (Highland Beach)  
L:140'/W:31'

Burnett Rd. 3 (J-18) -

A paved walkway, leading through an area of grass and brush, that extends east from the intersection of Burnett Road and Chapin Avenue to a cobble beach bordering Narragansett Bay, just north of Rocky Point (Highland Beach) L:120'/W:20'

Shawomet Ave. 1 (J-19) -

A portion of a paved drive, leading to a grass strip and a concrete seawall, that extends northeast from Shawomet Avenue (just east of the Ellery Street intersection) to a sandy beach bordering the mouth of the Providence River, at pole #28, just west of Conimicut Point (Shawomet) L:115'/W:6'

Shawomet Ave. 2 (J-20) -

A strip of dirt and grass that extends northeast from Shawomet Avenue (between Ellery Street and Talcott Street) to a sandy beach bordering the mouth of the Providence River, between poles #18 and #19, just west of Conimicut Point (Shawomet) L:126'/W:10'

Bellman Ave. (J-21) -

A concrete walkway, leading to a concrete stairway, that extends northeast from Bellman Avenue (between Francis Street and Fulton Street) to the Providence River, between Conimicut Point and Occupessatuxet Cove (Conimicut) L:182'/W:41'

Gaspee Point Dr. (J-22) -

A gravel drive, leading to an area of grass and brush, that extends east from the north end of Gaspee Point Drive to an area of marsh grass bordering the Providence River, just north of Passeonkquis Cove (Gaspee) L:208'/W:21'

Butler Ct. (J-23) -

A concrete walkway, terminating at a large brick house, that extends east from the south end of Butler Court, heading toward the Providence River, just south of Pawtuxet Cove (Gaspee) L:125'/W:6'

Nausauket Road (J-24) -

Located at the southerly end of Nausauket Road at the intersection of Tree Point Drive. Provides views from the northwest corner of Greenwich Bay. Cracked asphalt pathway extends from the terminus of the road, leading to a sandy beach. Parking is prohibited.

Ives Road (J-25) -

Right of way is from Erie Avenue on the northerly side of Ives Road to the shore of Narragansett Bay. Ives Road pavement ends at a nine space parking lot, leading to a stone wall and then a sandy beach. A sidewalk and steps with handrails lead to the beach. Drainage, fire hydrant and handicap parking is available. L:175'/W:75'

Tiffany Avenue / Progress Street (J-26) –

1. Extension of Tiffany Avenue: From the westerly side of Progress Street running west to Warwick Cove. Right of way is a paved road ending in partial overgrowth that runs to a fringe marsh and a mucky beach on the right side of the street with a small stone seawall above. Private dock appears to be part of the right of way. To the left of the road is a large rip-rap wall, part of a marina, that is the site of the right of way 3 (see below). L:150'/W:50'
2. Off Progress Street (J-15): Right of way is part the marina parking lot with a Progress Street entrance. See J-15 site description for additional information.
3. Strip of land running parallel to the shore of Warwick Cove: See right of way 1 above. No public access sign is present.

Capron Farm Drive (J-27) –

CRMC WILL FIND DESCRIPTION IN STENOGRAPHER'S MINUTES

Narragansett Bay Aveune (J-28) –

The right of way on the western end of Narragansett Bay Avenue runs approximately 500 feet from the corner of Crawford Avenue to the shore of Greenwich Bay. Narragansett Bay Avenue ends in a guardrail and shrubbery, with a view of Greenwich Bay and a path continuing from the pavement to the water. The path ends at a rocky, steep embankment. No public access signs are posted. Parking is prohibited.

Off Shawomet Avenue (J-29) –

The right of way runs in a northerly direction a distance of approximately 110-120' from Shawomet Avenue to the shore of Narragansett Bay. Gravel and grassy area between 350 and 360 Shawomet Avenue leading to a brushy and treed area, then to a low grassy bank and finally to a sand and rock beach. Seawalls are located on either side of Dome Street on the coastal bank. Space between the seawalls appears to be approximately 25-30' wide. W:6'

Off Ship Street / Ship Court (J-30) –

Right-of-way is from the southerly side of Ship Street to the shore of Warwick Cove. This unmarked right of way is completely overgrown with vegetation, making passage impossible. L:70-75'/W:20'

Suburban Parkway – Formerly Delaware Avenue (J-31) –

Located approximately 325' from the intersection of Seminole Street and Suburban Parkway to the most easterly tip where the parkway meets the shore of Warwick Cove. The floating dock is part of the right-of-way, the boat ramp is not. "No parking" signs are posted. L:25'/W:75'

Peck Lane – Pautuxet Village (J-32) –

Cracked asphalt road approximately 30-40' wide turning into a cobble road approximately 30-40' from Narragansett Parkway. The right of way appears to be a driveway for condominium development ("The Village at the Captains' Landing".) The

way becomes covered with pea stone. Dock is located at the terminus of Peck Lane at Pawtuxet Cove. No parking available. L:320-350'/W:20'

Off Cooney Street / Extension of Lilac Street (J-33) –

A parcel of land, covered with thick brush and marsh grass, that extends West from the west end of Lilac Street to Warwick Cove. Lilac Street pavement ends at 16 Lilac Street and the end serves as a driveway for Lot 11. After the pavement, a wooded area and a marshy area lead down to Warwick Cove. The exact location of the right of way is difficult to locate in the field, given that Cooney Street does not exist and Lilac Street appears to end in a driveway. It is completely overgrown, making even visual access to the water impossible. No public access sign is present. Parking may be available on nearby Sayles Avenue. (Warwick Neck) L:128'/W:30'

Rock Avenue / Bromle Avenue (J-34) –

Right of way from the northeasterly side of Bluff Avenue to the southeasterly side of Bromle Avenue. An asphalt road crosses Bluff Avenue and then travels to a marsh and cobble beach. Rock Avenue is visible and easily accessible for the public. L:200'/W:50'

Off Reynolds Avenue (J-35) –

A grass path between two oak trees, east of the residence at 229 Reynolds Avenue. Extends south from Reynolds Avenue to an area of marsh grass bordering Brush Neck Cove, between poles #19 and #20. No public access sign is present. Some parking may be available on the street. L:115'/W:6'

Priscilla Avenue (J-36) –

Right of way from the intersection of Brach Avenue to the Narragansett Bay. Paved road leads to a beach. A large riprap seawall is on the left side of the road which obstructs lateral access below mean high water. A seawall is also visible to the right of the end of the road. L:150'/W:41'

Masthead Drive – Old Courtland Lane (J-37) –

One block east of Post Road, this is has a shipyard, marinas, restaurants, marine retail shops and a scenic waterfront walk along Greenwich Bay. There is a small gravel path in front of one of the restaurants overlooking the marina, with a large picnic table available for picnickers who want to observe the activities of the marina and shipyard. On the south side of the marina, a rock jetty offers some protection from the waves and a good spot for rod and reel fishing. Plenty of parking is available.

Ogden Avenue Extension (J-38) –

Located in a quiet residential neighborhood between two private homes, at the intersection of Ogden Avenue and Burnett Drive, this site has a steep boat ramp best suited for launching smaller boats at high tide. There are “no parking” signs posted on site.

Alger Avenue & John Wickes Avenue (J-39)

Located on the vacant lots #94 and #36 as shown on Assessors Plat 221. These lots form a peninsula of land that begins at the eastern ends of Alger Avenue and John Wickes Avenue and extends into Greenwich Bay by the entrance to Greenwich Cove.

Bradford Avenue (J-40)

The 10 foot wide parcel of land, running from Bradford Avenue to the shore, located on Tax Assessor’s Plat 202, between Tax Assessor’s Lots 34 and 122. The Tax Assessor has never assigned a lot number to the parcel. The parcel was dedicated and accepted by the City of Warwick as a public Beach Way in 1921. The dedication and acceptance was recorded on the Potowomut Plat Annex No. 2. That Plat is recorded in the land evidence records for the City of Warwick on Plat Card 285. On that recorded plat, the parcel is identified as the 10 foot strip of land, running from Bradford Avenue to the shore between Recorded lot 317 and Recorded lot 318.

Overlook Drive (J-41)

Located on Tax Assessor’s Plat 203, this road/right-of-way is abutted by Plat 203, Lots 128 and 129 for the purposes of access to the state’s tidal waters. Overlook Drive continues in a northerly direction beyond its merge with Beechwood Drive (both are public streets in the City of Warwick) and leads to the waters of Greenwich Bay.

**APPENDIX F  
RIGHTS-OF-WAY TO THE SHORE**

| <u>No.</u> | <u>Plat/<br/>Lot</u>      | <u>Record<br/>card</u> | <u>Title</u>   | <u>Date</u> |
|------------|---------------------------|------------------------|--|-------------|
| 44         | 202/<br>34-35             | 285                    | Potowomut Plat Annex #2<br>Across from 85 Bradford Ave<br>10' beachway   | June 1921   |
| 45         | 202/<br>27-28             | 285                    | Potowomut Plat Annex #2<br>Between 28 and 34 Bradford Ave<br>10' beachway  | June 1921   |
| 46         | 201/<br>135-149           | 278                    | Potowomut Plat<br>Between 87 and 99 Charlotte Drive<br>10' beachway  | July 1920   |
| 47         | 201/<br>114-132           | 278                    | Potowomut Plat<br>Between 111 and 117 Charlotte Drive<br>10' beachway  | July 1920   |
| 48         | 201/<br>57-85             | 278                    | Potowomut Plat Annex<br>Between 167 and 171 Charlotte Drive<br>10' beachway  |             |
| 49         | 201/<br>24-54             | 279                    | Potowomut Plat Annex<br>Between 187 and 201 Charlotte Drive<br>10' beachway  | August 1920 |
| 50         | 203/<br>21-22             | 283                    | Bayridge<br>Between 104 and 110 Beachwood Drive<br>10' ROW   | March 1921  |
| 51         | 203/<br>6-7               | 283                    | Bayridge<br>Between 22 and 32 Beachwood Drive<br>10' ROW   | March 1921  |
| 51A        | 365/<br>09-204<br>210-208 | 385                    | Arnolds Neck Drive<br>Between 233 and 293 Arnolds Neck Drive<br>Also between 186 and 192 Hallwovrth Drive<br>10' first beachway<br>(no frontage) | April 1929  |
| 51B        | 365/                      | 385                    | Bayview Drive  | April 1929  |

|     |                    |     |  |                     |
|-----|--------------------|-----|--|---------------------|
|     | 200-201            |     | Between 195 and 203 Arnolds Neck Drive<br>10' second beachway<br>(no frontage)                             |                     |
| 52  | 367/<br>27-275     |     | Not on record card<br>Between 197 and 217 Grand View Drive<br>8' width                                     |                     |
| 53  | 369/<br>26-42      | 402 | Capron Farm Estates #1<br>Between 40 and 41 Sylvia Drive<br>10' ROW  | September 1944      |
| 53A | 362/<br>544-545    | 540 | Pilgrim Terrace<br>Between 176 and 184 Cove Avenue<br>30' ROW to shoreline<br>(owned by City; no frontage) | August 1956         |
| 54  | 376/<br>8-9        | 292 | Extension of Coburn Street<br>Between 62 and 74 Sheffield Street<br>(see App. B No. 55)                    | November 9,<br>1926 |
| 55  | 376<br>154-155-157 |     | Not on Record Card<br>Between 16 and 18 Logan Street<br>(8' & 10' width)                                   |                     |
| 56  | 361/<br>35-819     | 229 | MacFarlane Plat #2<br>Between 219 and 229 Reynolds Avenue<br>6' passageway                                 | December 1911       |
| 57  | 359/<br>57-58      | 260 | MacFarlane Plat<br>Next to 55 North Shore Street<br>12' passageway   | June 1917           |
| 57A | 359/<br>44         | 260 | MacFarlane Plat<br>Small extension of Wadsworth Street<br>6' ROW   | June 1917           |
| 57B | 359/<br>124-125    | 321 | Second Point Plat<br>Approx. 100ft north of 45 Ship Street<br>(Ship St.) 20' ROW                           | May 19..            |
| 58  | 359/<br>271-272    | 263 | Shorefront Plat<br>Between 44 and 50 Waterfront Drive<br>20' landing                                       | April 1921          |
| 58A | 358/<br>233        | 323 | Waterview Plat<br>West of 16 Capen Street  | 1924                |

|     |                 |     |   |                |
|-----|-----------------|-----|---|----------------|
|     | 257-261         |     | 10' ROW   |                |
| 59  | 377/<br>2-3     | 189 | Ida E. Wright Plat<br>Cooney Street extension of Lilac Street<br>20' ROW                              | January 1907   |
| 60  | 377/<br>37      | 374 | Pumham Fort Plat<br>Progress Street extension of Westview Street<br>20' R.O.W. to shore               | September 1933 |
| 61  | 385/<br>26-38   | 303 | Warwick Neck Plateau<br>Between 16 and 30 Broadview Avenue<br>25' passageway for use<br>of lot owners | September 1927 |
| 62  | 380/<br>108-151 | 157 | Sea View Plat<br>Between 84 and 92 Burnett Road<br>20' R.O.W,   | February 1903  |
| 63  | 380/<br>184-229 | 157 | Sea View Plat<br>Between 4 and 26 Burnett Road<br>20' R.O.W,  | February 1903  |
| 64  | 380/<br>229-269 | 167 | Highland Beach<br>Between 26 and 64 Burnett Road<br>20' R.O.W.,                                       | May 1904       |
| 64A | 356/<br>210-255 | 330 | Longmeadow Shores<br>Seashore Road extension of Grove Avenue<br>Plat 10' ROW's                        | May 1925       |
| 64B | 356/<br>117-206 | 330 | Seashore Road<br>Arlington Avenue extension   | May 1925       |
| 64C | 356/<br>51-113  | 330 | Seashore Road<br>Avon Avenue extension  | May 1925       |
| 65  | 334/<br>278-279 | 275 | Conimicut Farm<br>Between 346 and 350 Shawomet Avenue<br>6' ROW                                       | August 1919    |
| 66  | 334/<br>12-13   | 273 | Not on record card<br>Between 220 and 230 Shawomet Avenue<br>10' width                                |                |
| 67  | 333/<br>375-376 | 102 | Shawomet Ave, Plat<br>Between 170 and 178 Bellman Avenue<br>"Sec. A" 4' walk to shore                 | May 1889       |



|    |                 |     |  |                        |
|----|-----------------|-----|--|------------------------|
| 68 | 304/<br>145-187 | 232 | Gaspee Plateau<br>North of 12 Gaspee Point Drive<br>20' drive to Bay Shore Blvd, | June 1912              |
| 69 | 292/<br>229-230 | 238 | No. 2 Bay Lawn Plat<br><br>9' passageway   | Abandoned Sept<br>1983 |
| 70 | 292/<br>397-400 | 91  | Map of land at Pawtuxet<br>East of 10 Peck Lane<br>20.06 gangway                 | March 1887             |
| 71 | 292/<br>394-397 | 91  | Map of land at Pawtuxet<br>West of Peck Lane<br>20.06 gangway                    | March 1887             |

**APPENDIX G**  
**PUBLIC RIGHTS-OF-WAY TO SHORE**  
(Dedicated Highways)

| NO. | Plat/Lot               | Street Name          | Ocean<br>Frontage<br>(width) | Date       |
|-----|------------------------|----------------------|------------------------------|------------|
| 1   | 292 : 392-398          | Peck Lane            | 25'                          | 11-23-7    |
| 2   | 292 : 391-396          | Emmons Avenue        | 20'                          | 3-21-63    |
| 3   | 292 : 361-328          | Remington Street     | 28'                          | 4-5-1893   |
| 4   | 292 : 327-316          | Spring Garden Street | 20'                          | 11-12-24   |
| 5   | 292 : 295-502          | Bayside Avenue       | 40'                          | 7-6-15     |
| 6   | 292 : 215-202          | Canonchet Avenue     | 40'                          | 10-31-28   |
| 7   | 292 : 189<br>304 : 189 | Naushon Avenue       | 50'                          |            |
| 8   | 317 : 206-229          | Dudley Avenue        | 40'                          | 9-26-23    |
| 9   | 317 : 258-285          | Grace Avenue         | 40'                          | 9-9-24     |
| 10  | 317 : 289-332          | Beach Avenue         | 50'                          | 10-14-24   |
| 11  | 317 : 336-367          | Woodbury Street      | 40'                          | 1-31-29    |
| 12  | 333 : 374-366          | Fulton Street        | 50'                          | N          |
| 13  | 333 : 365-352          | Troy Avenue          | 40'                          | N          |
| 14  | 333 : 335-314          | Blake Street         | 40'                          | 4-8-24     |
| 15  | 333 : 312-283          | Stokes Street        | 40'                          | 4-28-28    |
| 16  | 133 : 280-235          | Waverly street       | 40'                          | 7-14-20    |
| 17  | 333 : 232-231          | Mason Street         | 30'                          | 7-14-20    |
| 18  | 333 : 225-99           | Symonds Avenue       | 40'                          | 7-14-20    |
| 19  | 333 : 96<br>334 : 1    | Talcott Avenue       | 30'                          | 11-11-19   |
| 20  | 334 : 22-268           | Ellery street        | 40'                          | 9-19-19    |
| 21  | 334 : 431-430          | Foster Street        | 30'                          | 9-19-19    |
| 22  | 334 : 267-245          | Spadina Avenue       | 40'                          | 7-13-20    |
| 23  | 334 : 232-153          | Bloor Street         | 40'                          | 7-13-20    |
| 24  | 334 : 145-101          | Higney Avenue        | 40'                          | 7-13-20    |
| 25  | 336 : 328-261          | Economy Avenue       | 40'                          | 7-12-27    |
| 26  | 335 : 94-101           | Possner Avenue       | 30'                          | 12-17-07   |
| 27  | 335 : 174-192          | River Vue Avenue     | 50'                          | 11-28-1874 |
| 28  | 335 : 207-297          | Mill Cove Road       | 50'                          | 11-28-1874 |
| 29  | 335 : 303-265          | Lippitt Avenue       | 50'                          | 11-28-1874 |
| 30  | 335 : 291<br>335 : 302 | Whipple Avenue       | 50'                          | 4-18-1884  |
| 31  | 355 : 330-676          | Cady Avenue          | 50'                          | 5-7-29     |
| 32  | 355 : 380-425          | Pender Avenue        | 50'                          | 9-19-1881  |
| 33  | 355 : 437-471          | Van Zandt Avenue     | 50'                          | 9-19-1884  |
| 34  | 355 : 487-513          | Longmeadow Avenue    | 40'                          | 1-8-51     |

|    |                        |                                    |      |                   |
|----|------------------------|------------------------------------|------|-------------------|
| 35 | 355 : 550-605          | Riverside Avenue                   | 20'  | 8- 1915           |
| 36 | 355 : 670<br>356       | Samuel Gorton Avenue               | 50'  | 10-28-24          |
| 37 | 356 : 344<br>380 : 270 | Priscilla Avenue                   | 41'  | 4-21-04           |
| 38 | 382 : 113-314<br>1870  | Kirby Avenue                       | 50'  |                   |
| 39 | 177 : 17-371           | Tiffany Avenue                     | 40'  | 11-9-33           |
| 40 | 358 : 11-7             | Mars Avenue                        | 12'  |                   |
| 41 | 358 : 409-30           | Sayles Avenue                      | 12'  |                   |
| 42 | 358 : 125-126          | Ernest Avenue                      | 40'  | 1-24-07           |
| 43 | 358 : 187-188          | Harris Avenue                      | 40'  | 2-10-31           |
| 44 | 358 : 214-244          | Charlestown Avenue                 | 50'  | 4-7-1896          |
| 45 | 358 : 260-271          | Capon Street                       | 30'  | 10-13-20          |
| 46 | 358 : 327-370          | Vanstone Avenue                    | 40'  | 9-9-30            |
| 47 | 359 : 436-427          | Rita Street                        | 40'  | 9-12-23           |
| 48 | 359 : 435-407          | Marblehead Street                  | 40'  | 1-21-1876         |
| 49 | 359 :                  | Wharf Road                         | 45'  |                   |
| 50 | 359 : 290-285          | Henzie Street                      | 40'  | 5-11-21           |
| 51 | 359 : 250-258          | Waterfront Drive<br>(R.O.W. there) | 40'  | 5-11-21           |
| 52 | 359 : 179-227          | Briggs street                      | 40'  | 5-11-21           |
| 53 | 359 : 88-98            | Bennett street                     | 40'  | 5-12-02           |
| 54 | 359 : 84-85            | Ray street                         | 40'  | 9-4-12            |
| 55 | 376 : 8-9              | Coburn Street                      | 30'  | 11-9-26           |
| 56 | 376 : 539-540          | Quonset Avenue                     | 32'  | 10-7-49           |
| 57 | 376 : 87-152           | Ottawa Avenue                      | 50'  | 6-6-1873          |
| 58 | 376 : 162-244          | Mohawk Avenue                      | 50'  | 2-10-31           |
| 59 | 376 : 253-374          | Suburban Parkway                   | 100' | 2-15-1895         |
| 60 | 376 : 375-439          | Burr Avenue                        | 40'  | 2-16-1895         |
| 61 | 375 : 303-205          | Ottawa Avenue                      | 50'  | 5-6-1873          |
| 62 | 375 : 202-108          | Wilson Avenue                      | 50'  | 2-10-31           |
| 63 | 361 : 328-362          | Canfield Avenue                    | 25'  | 1,2,-9.7-11       |
| 64 | 361 : 129-302          | Haswill Street                     | 40'  | 7-29-1872         |
| 65 | 362 : 434-316          | Shand Avenue                       | 40'  | 1-13-26           |
| 66 | 362 : 316-269          | Pine Grove Avenue                  | 40'  | 7-21-14           |
| 67 | 362 : 264-171          | Cottage Grove Avenue               | 40'  | 7-21-14           |
| 68 | 362 : 116-74           | Spring Grove Avenue                | 70'  | 4-23-1873         |
| 69 | 363 : 588-611          | Sunny Cove Drive                   | 50'  | 5-26-48           |
| 70 | 366 : 1                | Masthead Drive                     | 60'  | 7-11-1836         |
| 71 | 221 : 51-RR            | Oakgrove Street                    | 40'  | abandoned 5-16-85 |
| 72 | 201 : 189              | Ives Road                          | 45'  | 8-10-20           |
| 73 | 201 : 164-187          | Charlotte Drive                    | 50'  | B-10-20           |
| 74 | 201 : 87-109           | Robert Avenue                      | 40'  | 8-10-20           |
| 75 | 201 : -1-19            | Sawyer Avenue                      | 50'  | 11-30-07          |

|    |               |                |     |                |     |         |
|----|---------------|----------------|-----|----------------|-----|---------|
| 76 | 203 : 128-1   | Overlook Drive | 15' | 3-8-21         |     |         |
| 77 | 222 : 107-108 | Louise Street  | 40' | 4-9-09         |     |         |
| 78 | 222 : 96-98   | Harbor Lane    | 16' | 7-18-40        |     |         |
| 79 |               | 222 : 34-86    |     | Neptune Street | 41' | 5-25-18 |

**PUBLIC RIGHTS-OF-WAY TO SHORE**  
(Unaccepted Highways)

| No. | Plat/Lot       | Street Name          | Ocean<br>Frontage<br>(width) | Date<br>Filed              |
|-----|----------------|----------------------|------------------------------|----------------------------|
| 2A  | 292 : 385-366  | East View Street     | 33'                          | Abandoned January 21, 1976 |
| 4A  | 292 : 315-504  | Lawn Avenue          | 30'                          |                            |
| 5A  | 292 : 218-216  | Bolton Street        | 12'                          |                            |
| 7A  | 304 : 124-29   | Bay Shore Blvd.      | 50'                          |                            |
| 7B  | 304            | Parkside Drive       | 66'                          |                            |
|     | 303 : 112      |                      |                              |                            |
| 7C  | 303 : 4-567    | Benson Avenue        | 50'                          |                            |
| 7D  | 317 : 21-204   | Bluff Avenue         | 15'                          |                            |
| 7E  | 304 : 20-26    | Gaspee Point Drive   | 50'                          |                            |
| 7F  | 317            | Bromle Avenue        | 820'                         |                            |
| 8A  | 317 : 230-256  | Royal Avenue         | 50'                          |                            |
| IIA | 317 : 370      | Acme Street          | 10'                          |                            |
|     | 333 : 376      |                      |                              |                            |
| 13A | 333 : 351-339  | Winter Avenue        | 40'                          |                            |
| 24A | 336 : 327-331  | Edgemere Avenue      | 30'                          |                            |
| 34A | 355 : 537-550  | Shore Avenue         | 36'                          |                            |
| 36A | 355 :          | Dorr Street          | 400'                         |                            |
| 36B | 356 : 297-320  | Alden Avenue         | 40'                          |                            |
| 37A | 380 : 181-161  | Surf Avenue          | 40'                          |                            |
| 37B | 381 : 17       | Narragansett Bay Ave | 50'                          |                            |
| 37C | 385 : 60-42    | Agawam Avenue        | 50'                          |                            |
| 37D | 383 : 45       | Narragansett Bay Ave | 50'                          |                            |
| 38A | 382 : 50-94    | Blackstone Avenue    | 50'                          |                            |
| 38B | 382 : 3-47     | Homestead Avenue     | 50'                          | Abandoned August 9, 1988   |
| 38C | 382 : 2-1      | Russell Avenue       | 50'                          |                            |
| 38D | 378 : 16-90-91 | Randall Avenue       | 460'                         |                            |
| 41A | 358 : 33-29    | Mitchell Court       | 30'                          |                            |
| 45A | 358 : 377-373  | Carder Road          | 47'                          |                            |
| 46A | 359 : 512-461  | Holden Street        | 40'                          |                            |
| 46B | 359 : 461-450  | Searle Street        | 270'                         | Abandoned January 12, 1970 |
| 62A | 375 : 106-94   | Wilcox street        | 50'                          |                            |
| 62B | 360 : 174-268  | Northup street       | 40'                          |                            |
| 62C | 360 : 436      | Langley Street       | 40'                          |                            |
| 69A | 245 : 7-6      | Colonial Avenue      | 160'                         |                            |
| 69B | 244 : 165-147  | Harrop Avenue        | 50'                          |                            |
| 69C | 367 : 1-201    | Nausauket Road       | 50'                          |                            |
| 70A | 221 : 28       | Arch Road            | 0'                           |                            |

## **APPENDIX I STORM PREPAREDNESS AND HAZARD MITIGATION**

This plan is in no way to supersede the City of Warwick's Hazard Mitigation Strategy, adopted in April, 2005. This plan will be a supplement to that plan.

One of the critical harbor and shoreline users is the individual boater. Because boaters are often the primary occupants of the harbor area, they should be given special attention. As part of this element of the Harbor Management 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 individual boat owners about how to prepare for storm events.

The following is a summarization 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 than tropical strength and the decision is made that boats can remain tied to the docks, all lines should be doubled and chaffing protection provided where dock lines pass through fairleads and chocks over the vessel's side. Dock lines should be attached to the high end of the pilings, if on a floating dock, rather than to cleats or other fastenings on the dock.

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's Office 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.

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 one's boat and securing devices. Sails should be removed entirely and stowed below deck, especially roller furling jibs. Everything in the cabin that is not fastened down should be secured or removed, with particular attention to the galley area and chemicals stored in lockers. All ports and hatches should be secured and all funnels removed and capped. The tiller or wheel should be secured with strong lines from either side of the cockpit. Coils of line should not be left on deck and slack from running lines on the deck or mast should be taken out. In order to minimize damage caused by impact of loose boats in a crowded harbor, it is

important to place fenders on both sides of the boat. Once all precautions have been taken, the boat owner should leave the boat and seek shelter.

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 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 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 telephone number is 401-294-2360 and Sea Tow telephone number is 800-338-7327

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

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

- (1) Setting mooring standards that are appropriate for the area. The Harbormaster must be able to justify the standards that have been set. The maximum load the mooring gear is expected to withstand must be identified and documented (Taylor, 1992); and,
- (2) Providing mooring occupants with information on the stress points of moorings and offering advice on dealing with extreme weather conditions; and,
- (3) Ensuring that all mooring gear under City control is routinely inspected, and that proper records of these inspections are kept. The question of liability continually arises if the City conducts the inspections itself. Liability results not because the city inspects the mooring, but because it does so improperly or fails to correct a situation in which the mooring does not meet specifications. Moorings are to be inspected once every three years by a qualified inspector and the cost of any inspection required shall be borne by the mooring owner. (*See City of Warwick Harbor Ordinances, Chapter 24, Sec. 24-7(i)(2). Inspections.*), and,
- (4) Identifying and correcting situations that may cause damage to a moored vessel. If a Harbormaster learns that two boats are hitting one another while on City managed moorings, the situation needs to be rectified quickly. The Harbormaster must first stop the vessels from hitting. This can be achieved by removing one of the vessels from its mooring. The Harbormaster then decides where to move the vessel. Warwick mooring tackle specifications are indicated in the City of Warwick Harbor Ordinance (*Chapter 24, Sec. 24-6(a)(1)*)



## HAZARD MITIGATION PLAN SUMMARY FOR WARWICK HARBOR AND SURROUNDING WATERS

- Land Use: The land use along the shores of the City of Warwick are a mix of high density residential and minimal water dependent commercial development, such as marinas, boat yards, etc. The majority of residential and commercial properties will be significantly affected in the event of severe weather combined with high tides and a substantial storm surge.
- Moorings: The City regulates mooring fields in Apponaug Cove, Warwick Cove and Greenwich Cove

### **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 Management Commission. However, to successfully complete the activities outlined in this plan, the Harbormaster is required to work with other City departments including the: Planning Board, Police and Fire Departments, City planners, Building Code Official, Planning Department and the Emergency Management officer. The Harbormaster shall be a member of the Emergency Management Committee.

### **200. Goals of the Harbor 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 coastal features along the approximately 39 miles of City coastline. This coastline is varied in its character and includes eight (8) major cove areas, barrier beaches, sandy and rocky beaches, beach bluffs and saltmarsh areas. Sandy beaches and marsh areas are the most common shoreline types in the City. Saltmarshes are generally located along the various coves of the City, with sandy and rocky beaches more typical of the exposed shorelines.

The surrounding harbor uses can be divided into three general uses:

1. Open space – approximately 51.1% of Warwick’s coastal land is open.
2. Residential – approximately 33.7% of the coastal land is residential, with 27.6% single family dwellings and 6.1% two plus family, including apartments and condominiums.
3. Commercial – approximately 6.4% of the coastal land is commercial. There are 20 Marinas located in Warwick.

#### 400. Strategies for Preparedness, Response and Recovery

410. City of Warwick – The Harbormaster will coordinate all harbor activities related to preparation, response and recovery. This will be done in coordination with the Emergency Management officer and other department heads.

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

##### LEVEL 3 - 72 HOURS

1. If hurricane, begin tracking and monitoring hourly weather reports
2. Contact any services under contract for after event to assess their readiness
3. Manage harbor traffic as it increases during marina/boater preparation activities
4. Ensure fuel tanks are full and reserve batteries are charged
5. Inventory and update first aid equipment and other onboard emergency tools
6. Contact local marinas and boat moving companies for statuses to relay to mariners.
7. Maintain radio watch
8. Alert local port community, encouraging boat owners to seek safe refuge, remove boats from water, or take action to minimize damaging effects
9. Alert local marinas, marine interests, holders of mooring permits, and occupants of special anchorage areas to impending emergency.
10. Keep Marine Safety Office (MSO) Providence apprised of hazardous conditions in harbor
11. Document waterfront using photographs or video
12. Start tracking time and resource allocations for possible state and federal reimbursement.
13. Post notice to have all vessels removed from City docks.

##### LEVEL 2 - 48 HOURS

1. Continue to perform activities in Level 3,
2. Contact mooring permit holders who are not complying with preparedness plan.
3. Assist marinas/waterfront business with special requests
4. Continue to manage harbor traffic as it increases
5. Finalize emergency work schedule with Harbormasters
6. Confirm arrangements to have Harbormaster vessel hauled and stored
7. Preparation of city properties in cooperation with Department of Public Works, including:
  - Removing all City equipment from flood plain
  - Securing all items such as trash bins, benches, etc..
  - Complete necessary precautions for Harbormaster's office
8. Establish liaison with Police, Fire and Public Works Departments
9. Alert maritime community to unsafe conditions in the harbor as needed,
10. Curtail regular business activities

11. Begin regular patrols of the harbor to ensure necessary individual precautions are being taken
12. Advise MSO Providence as to the status of emergency preparedness in progress
13. Alert local harbor community to any impending closure of anchorages or waterways.
14. Encourage local marinas to suspend fueling operations and to secure fueling piers sufficiently to minimize pollution threat.
15. Inventory of individuals who plan on staying on their moored vessels during the storm event.

#### LEVEL 1 - 24 HOURS

1. Final patrol of the harbor:
  - Inventory number of vessels and precautions taken by harbor and shoreline users
  - Clear public pier of vessels and equipment
2. Log information on transient boats.
3. Fuel Harbormaster vessel.
4. Haul and store Harbormaster vessel with assistance of the Department of Public Works.
5. Complete shoreline survey and final harbor check from shore
6. Alert harbor community and MSO to any unsafe conditions in harbor
7. Continue to perform pertinent Level 2 activities.
8. All vessels must be removed from City docks at this time. Transient moorings **will not** be allowed to be used during any storm event.
9. Raise hurricane signal 12 hours prior to storm's arrival

**410.2 Response** - The City of Warwick's 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. This policy will remain in effect unless revoked by the Fire Chief or Mayor. 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:

Re-establish the Harbormaster's Office 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

1. Assess readiness of the Harbormaster's Office, correct deficiencies
  - reestablish radio communications.
2. Complete rapid appraisal of damage
3. Provide damage assessment information to city officials and to MSO Providence.
4. Initiate pre-established contracts services companies (towing, salvage) if required
5. Institute security watches as necessary
6. Alert maritime community to unsafe conditions in the harbor
7. Track time and resource allocation of Harbormaster's Office for possible state and federal reimbursement.

#### MID-TERM 1 TO 14 DAYS

1. Complete comprehensive inventory of damage using photographs and video if possible,
2. Notify appropriate parties regarding damage (i.e., mooring holders),
3. Provide list of unidentified boats to MSO Providence and DEM Enforcement'
4. Contact local harbor and shoreline users to assess their situation,
5. Provide MSO Providence with a daily harbor status.
6. Begin to remove large pieces of floating debris from the harbor,
7. Assist City and state agencies with damage assessments and emergency permitting process.

#### LONG-TERM 14 TO 90 DAYS

1. Analyze effects of storm on the harbor. Complete summary report within 30 days of storm event for City Council and Mayor.
2. Review mitigation list and selection actions that could be implemented during the recovery phase.
3. Conduct an evaluation meeting for harbor and shoreline users to identify problems not properly addressed by this plan.
4. Complete a survey of boat damage.

5. Update hazard mitigation plan and identify new mitigation opportunities.
7. Assist emergency situations as appropriate.
8. 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 Warwick'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 and primary and secondary phone numbers.
- VHF channel that is monitored
- List of facility staff who are expected to assist in preparation, response and recovery phases.
- List of hazardous material stored on site (i.e. waste oil, fuel tanks, solvents). This information can be extracted from the facility's Environmental Operations and Maintenance Plan.
- Inventory of potential recovery equipment (heavy equipment, generators), including outside contracts for special equipment for recovery phases
- Debris disposal plan
- Special assistance requested from City.
- List of preparation, response and recovery activities and timing

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

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

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

Boaters should also consider:

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

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

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

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

425. Special Hazards

1. City Docks - all vessels shall be cleared of the City commercial dock 72 hours prior to expected storm event.
2. Transients - vessels not usually moored in the harbor but seeking safe refuge will be allowed to moor in the specified anchorage areas. Transit yachts will not be allowed to tie to a mooring if not authorized by both the mooring owner and the Harbormaster. Transient vessels seeking shelter will provide the Harbormaster with:
  - Name of owner and captain if different.
  - Home port
  - Registration/documentation numbers
  - Length, draft and type (power/sail)
  - Number of persons aboard
  - Address and phone where owner can be contacted
3. Passenger vessels and ferries - As deemed necessary by the Harbormaster, local passenger vessels and ferries will submit individual plans to the Harbormaster. These plans will include information about planned preparedness, response and recovery actions.

## **500. Inventory of longer term mitigation projects**

1. Maintaining the existing seawalls. Although it does not provide complete protection, there is a measure of safety gained by having the seawall properly maintained.
2. 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 for gridding the mooring field that will allow space maximization and increased scope.

3. 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.
4. The Harbormaster should compile a list of educational materials that can be shared with harbor and shorefront users.
5. 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.
6. 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
  - Inspect all storage sheds, outbuildings, and portable office trailers for proper tie-down.
  - Inspect all emergency power sources and lighting systems to ensure they are operational
  - Prepare and distribute a storm checklist for to boaters
7. Conduct a disaster mitigation workshop for business and industry in cooperation with the RI Emergency Management Agency. Propose activities that can be implemented to mitigate damage. Suggested actions for local coastal business may include:
  1. Place more essential equipment and functions on higher levels of the structure, above the anticipated flood level;
  2. Construct berms around the facility;
  3. Install or have dewatering pumps;
  4. Provide emergency generators and potable water storage;
  5. Install blowout plugs in floor slabs whose elevation is below anticipated flood elevation.
  6. Install master shutoff valve controls for sewer, gas, and water above anticipated flood elevation;
  7. Reinforce walls to carry hydrostatic and hydrodynamic loads;
  8. Install flood proof electrical systems and utility cores in areas subject to flooding; and
  9. Install safety glass in windows.
8. Assess the feasibility of developing a volunteer corp that can help the Harbormaster secure vessels during the phase or maintain security patrols after an event.

**500.1 Table of Identified Mitigation Strategies**

| <b>Hazard Type</b>                 | <b>Potential Program</b>     | <b>Description of Strategy</b>  | <b>Affected Location</b>  | <b>Type of Activity</b>                     |
|------------------------------------|------------------------------|---|---|---|
| Flooding                           | Drainage Inventory           | GPS Survey to GIS map   | City wide   | Prevention                                  |
| Flood-Evac                         | Road Inventory               |   | Tie database to GIS map   | City wide<br>Planning and Prevention        |
| Flood-Evac                         | Road reconstruction          | Special projects for critical roads.  | City wide   |   |
| Flooding                           | Relocation of Fire Sta 4     |   | Located in 100 -year floodplain. In the event of 100 -year flood, Warwick Fire Department would have to relocate apparatus, thus increasing response times.   | Warwick Neck, Bayside<br>Emergency Services |
| Flooding                           | Infrastructure inventory     | Inventory all structures in the floodplain.   | City wide   | Planning                                    |
| Storm surge                        | Debris removal               |   | Removal of existing debris in Narragansett Bay and Greenwich Bay as well as all tributaries and coves to prevent damage caused by storm surge.                | City VE zones<br>Prevention                 |
| Storm surge                        | Increase boat ramp inventory |   | Increase the amount of boats that can be removed from the water prior to a hazard event by increasing boat ramp inventory and maintaining existing boat ramps | Marinas<br>Property protection              |
| Storm surge, hurricane, Nor'easter | Elevate structures           | Provide financial assistance to Conimicut Beach and Oakland Beach residents for the elevation of residential structures to meet floodplain development standards. | Conimicut Beach and Oakland Beach   | Property protection                         |
| Storm surge                        | Protect Conimicut Lighthouse | Develop storm surge protection for lighthouse.  | Conimicut Lighthouse  | Property protection                         |
| Flooding                           | Protect sewer pump stations  | Retrofit sewer pumping stations to reduce the possibility of system failure.  | City wide   | Property protection                         |



|             |                |   |           |                  |
|-------------|----------------|---|-----------|------------------|
| All hazards | Annual mailing | Provide outreach to all residents in the form of an annual mailing prior to hurricane season in order to assist residents with property protection and readiness. | City wide | Public education |
|-------------|----------------|---|-----------|------------------|

Source: Warwick Hazard Mitigation Strategy, April 2005

### 600. Coordination

Memorandum of Agreement shall be entered into with the Planning Department to establish the working relationship between it and the Harbormaster for completing the following activities: preparing public waterfront property and hauling and storing the Harbormaster vessel

The Harbor Management Commission shall work with the Planning Board and Planning Department to establish redevelopment policies for shoreline areas. These policies will be consistent with CRMC and DEM regulations.

In order to discourage redevelopment of critical shoreline areas and to reduce vulnerability of life and property to coastal hazards, the City should:

1. Encourage and participate in the maintenance, restoration and enhancement of beaches and dunes.
2. Limit development and redevelopment in hazardous coastal areas to protect lives and property from coastal storms and hazards. Post storm development shall avoid extensive rebuilding and intensification of land uses in critical areas and shall encourage reductions in the amount and intensity of development in order to reduce exposure of lives and property to coastal hazards.
3. Attempt to minimize public expenditures and reduce risk to public infrastructure and facilities through redevelopment
4. 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
5. Require shorefront areas replacement of non-conforming uses and eliminate unsafe conditions and inappropriate uses as opportunities arise
6. 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:

1. The City should work with appropriate state agencies to ensure that post-storm shoreline management options for shoreline areas shall be consistent, to the extent possible, with use, density and other land use policies and standards contained in the Comprehensive Land Use Plan.
2. Create local priorities for acquiring coastal properties to promote hazard mitigation, public recreation, and resource management objectives contained in the Comprehensive Plan.
3. Post-storm redevelopment options should consider impacts to evacuation routes, as determined by emergency management officials.
4. Maintain and/or adopt minimum parcel size and configuration requirements on the subdivision of critical shoreline features.

5. Discourage platting of shoreline properties and encourage replatting to accommodate post-storm relocation of structures landward.

## APPENDIX J GREENWICH BAY SPECIAL AREA MANAGEMENT PLAN (SAMP)

Greenwich Bay is an estuary, a semi-enclosed inlet of the sea in which seawater is diluted with fresh water. It contains five protected coves with five square miles of shallow water and is embraced by a 26-square-mile watershed. Greenwich Bay is a highly productive estuary that has provided people with food, shelter, transportation, trade, and recreational opportunities for centuries. However, the impacts of land uses in bordering Warwick and East Greenwich, and, to a smaller degree, West Warwick, have led to a serious water quality decline in the Bay. Greenwich Bay experiences many of the problems common to growing suburban coastal communities, such as poor water quality, the loss of natural habitats, displacement of traditional commercial fisheries, privatization of the shoreline, and a lack of coordination between and among neighboring communities.



Greenwich Bay has been the subject of significant attempts to address water quality and other issues. Research done as part of the Greenwich Bay Initiative, a collaborative effort among Rhode Island Sea Grant, the City of Warwick, and the DEM, identified sources of pollution and analyzed physical processes taking place in the bay. Continued water quality issues and a desire to expand on the Greenwich Bay Initiative led to a call for a Greenwich Bay Special Area Management Plan (SAMP) which would be administered by the CRMC.

A Special Area Management Plan, called a SAMP, is designed to protect a complex natural resource that is part of a larger watershed ecosystem. It is built on government cooperation and community participation and is adopted into law. The Greenwich Bay SAMP describes the present status of the Bay, characterizes its watershed, identifies sources of pollution, and recommends steps to help government work with communities to restore, protect, and balance uses of Greenwich Bay for this and future generations.

CRMC contracted with the University of Rhode Island Coastal Resources Center and Rhode Island Sea Grant to develop the Greenwich Bay SAMP in coordination with Warwick, East Greenwich, government agencies, and community organizations. SAMP refine the state coastal program by taking a regional, integrated approach in setting coastal management goals and policies, and are federally recognized upon state approval. CRMC adopted the SAMP on May 10, 2005. (Source: *Sea Grant website, 2006*)

### **Goals of the Greenwich Bay SAMP**

- 120.1: Develop leaders and stewards to coordinate and implement actions that protect the unique resources of Greenwich Bay
- 120.2: Improve Greenwich Bay's water quality so that it is a safe place to live and swim
- 120.3: Maintain high quality fish and wildlife habitat in the Greenwich Bay watershed
- 120.4: Improve recreational opportunities on Greenwich Bay and its shoreline
- 120.5: Enhance water-dependeant economic development on Greenwich Bay and its shoreline to maintain the area's unique sense of place

Source: *Greenwich Bay SAMP Sec. 120*

Prior to the Greenwich Bay SAMP, several locally based initiatives were formed and implemented to improve the Greenwich Bay area. Among them are:

- I. Planning and Financing: Maximizing Institutional Cooperation**
- II. Research: Science on Greenwich Bay**
- III. Remediation: Projects That Eliminate or Reduce Pollution**
- IV. Coastal Management: Planning and Regulation to Prevent Future Pollution**
- V. Education: Learning About Our Resource**

#### **I. Planning and Financing: Maximizing Institutional Cooperation**

The day of reckoning for Greenwich Bay came in December 1992, when it was closed to shellfishing due to bacterial pollution primarily from failed septic systems and stormwater runoff. The closure was an economic disaster for the local shellfishing industry, which annually generated up to \$4 million in commercial revenues from the Bay.

In response, Warwick Mayor Lincoln Chafee directed the Warwick Planning Department to chart a course for the reclamation of Greenwich Bay. The Planning Department, working cooperatively with several City departments, enlisted local, state and federal government agencies as well as non-profit interest groups to organize the Greenwich Bay Initiative.

In just three years, the level of cooperation among individuals, groups, and municipal, state and federal agencies was remarkable. This award-winning partnership made tremendous progress in restoring water quality and shellfishing to Greenwich Bay.

#### **\*\* Strategic Plan for the Reclamation of Greenwich Bay**

Spring 1994

##### **City of Warwick**

Written in cooperation with RIDEM, RIDOT, RI Shellfishermen's Association, Save The Bay and others, this Plan has served as a framework for cooperation among partners, including a commitment to a decision-making framework, commitment of resources and timetable.

**\*\* \$5 million Warwick "Bay Bond" Referendum**

Spring, 1994

**City of Warwick**

Initiated by Mayor Chafee and endorsed by advocacy group Save The Bay, this measure passed with 70% of the vote. This funded the following: \$2.5 million for a sewer line extension in concert with a \$3 million RIDOT local highway reconstruction project, which connected 900 units formerly on substandard ISDS systems; \$1 million for Best Management Practice (BMP) drainage infrastructure improvements; \$1 million for Warwick's existing grant/loan program for homeowners with failing septic systems, and \$500,000 for stormwater research in the Greenwich Bay Watershed.

**\*\* \$130 million Warwick Wastewater Management Bond Referendum**

Fall, 1994

**City of Warwick**

This measure provided resources for sewer extensions in critical coastal areas, and to develop Warwick's Municipal Innovative/Alternative Septic System Program for areas within the Greenwich Bay Watershed beyond the point where the extension of sewer service is anticipated in the long term.

**\*\* Greenwich Bay Task Force Quarterly Meetings**

Spring, 1994 - June 2003

**City of Warwick, Save The Bay, RIDEM, RI Department of Transportation, University of RI, CRMC, RI Shellfishermen's Association, RI Sea Grant, Town of East Greenwich, Town of West Warwick, US NRCS, Southern RI Conservation District**

The Task Force, comprised of professional staff representatives of the above institutions, met on a quarterly basis to monitor progress in implementing the Greenwich Bay SAMP.

## **II. Research: Science on Greenwich Bay**

Studies are being conducted by local, state, and federal researchers to learn about the pollutants that enter Greenwich Bay, and about the Bay ecosystem in general. With a better understanding of the forces at work in the Bay, decision-makers can take action toward improving the Bay's health.

**\*\* Greenwich Bay Water Quality Study**

Fall, 1993

**U.S. Food and Drug Administration  
RIDEM- Water Resources**

This research sampled the waters of Greenwich Bay at stations in the open water of the Bay and along its shores. It identified the worst sources of pollution and made a series of recommendations related to shellfishing in Greenwich Bay, including the development of a "conditionally approved" management plan for shellfishing in the Bay.

**\*\* Tributaries/Hardig Brook Nonpoint Source Pollution**

Fall, 1993-Spring, 1996

**City of Warwick**

**RIDEM Narragansett Bay Estuary Program**

**URI School of Civil Engineering**

**EPA**

Two major sources of pollution the manure pile at the Perra Dairy Farm and an illegal sewage discharge, both on Hardig Brook, a tributary to Greenwich Bay-were identified in this \$200,000 study.

Hardig Brook watershed was identified as containing 50 to 90 percent of the fecal coliform bacterial loads to the bay. After taking water quality samples during two dry weather periods, preliminary results pointed to a major source coming from an urban mill complex. Further intensive sampling proved that several restrooms in the mill had direct discharges to the stream. Coordination with the Narragansett Bay Project and the City of Warwick led the mill owner to connect to an existing sewer line without the need to invoke fines or legal action.

Water quality samples were then taken during three target storm events in 1994 and early 1995. It was discovered that Perra Farm had its manure storage pile located in just a way that runoff from the barn roof and farmyard carried contaminants to a small tributary of Hardig Brook. As soon as the farm was identified as a source of contamination, rapid coordination ensued among the farmers, Narragansett Bay NEP, the Natural Resource Conservation Service, City of Warwick and the DEM. Through this effort, best management practices funded in part by the Narragansett Bay NEP were designed and implemented.

**\*\* Large-scale Watershed Geographical Information System (GIS) Database Development**

Spring, 1996 -Summer, 1997

**City of Warwick**

**URI Environmental Data Center**

**RIDEM Aquafund**

This \$196,000 project provided a comprehensive source of data on the Greenwich Bay watershed, tied into a Geographical Information System that will link the data to maps of the region.

**\*\* Rhode Island Sea Grant Collaborative**

Fall, 1996 -Summer, 1998

**City of Warwick**

**URI School of Ocean Engineering,**

**URI Graduate School of Oceanography**

**URI School of Civil Engineering**

An \$800,000 grant package from the National Sea Grant College Program is enabling university researchers and outreach specialists to carry out several projects on Greenwich Bay:

**\* COASTMAPS**

Development of computer software to store and analyze data on Greenwich Bay. Models have been created to help determine where pollutants go once they enter the Bay.

**\* Storm Drain Discharges**

Inventory of storm drains emptying into Greenwich Bay, and measuring the amount of pollutants, such as nutrients and bacteria, that the drains discharge. This information will then be plugged into COASTMAPS to create a model to predict when and where the greatest amount of pollution will enter the Bay.

**Nutrient Enrichment and Oxygen**

Identification of places in where eutrophication (nutrient enrichment) is occurring. This research also looked at related oxygen levels in the Bay, and utilized COASTMAPS to help predict eutrophication. The results were published in the Greenwich Bay SAMP in 2005.

**\*\* Northern Watershed and Groundwater Nonpoint Source Pollution**

Fall, 1995 - Ongoing

**City of Warwick**

**URI School of Civil Engineering**

This \$100,000 project utilized aerial photography and water sampling to determine the location and quantity of the major groundwater flows into Narragansett Bay. This helped determine where the biggest threats are from leaking septic systems.

**\*\* Eelgrass Restoration**

Summer, 1994 - Ongoing

**RIDEM Narragansett Bay Estuary Program**

**URI Graduate School of Oceanography**

**Save The Bay**

Eelgrass, an important marine plant that provides shelter and habitat for animals, helps clean water, reduces erosion, and whose seeds are eaten by some animals, has been declining throughout Narragansett Bay. Beginning in 1994, this project worked to replant eelgrass in three locations: the Potowomut River and Green Point in North Kingstown and Hope Island in Narragansett Bay. Save The Bay joined the project in 1998, and the collaboration has been working to replant and monitor eelgrass growth at several sites in Greenwich Bay.

- \*\* Estuarine Habitat Mapping**  
Spring, 1996-Summer, 1997  
**City of Warwick**  
**RIDEM Narragansett Bay Estuary Program**  
**Save The Bay**  
This project surveyed and mapped the habitats found in Greenwich Bay, noting physical characteristics, plant species, and animals present.

### **III. Remediation: Projects that eliminate or reduce sources of pollution**

While many sources of pollution are difficult to trace and control, much is known about others, and measures are being taken to ensure that their threat to Greenwich Bay is reduced.

- \*\* Municipal Sewer Extensions**  
Summer, 1993-Ongoing  
**Warwick Sewer Authority**  
The City of Warwick is extending City sewers to several critical coastal areas. The City has authorized \$130 million in spending on wastewater management. Projects are ongoing to continue the improvement of Greenwich Bay water quality.
- \*\* Implementation of Agricultural Best Management Practices**  
Winter, 1995  
**City of Warwick**  
**US Natural Resources Conservation Service**  
**RIDEM**  
This involved the installation of systems to reduce agricultural runoff, which can result in the flow of nutrients and bacteria into Greenwich Bay (see Pollution).
- \*\* Septic Grant Loan Program**  
1984-Ongoing  
**Warwick Sewer Authority**  
The Warwick Sewer Authority's On-site Rehabilitation Program can provide a grant of up to \$1600 and a loan of up to \$2400 for upgrading or replacing a failing cesspool or septic system. In FY2005, 120 property owners were given grants of \$1,200. During FY2006, it was expected that 190 homeowners would receive \$800 grants. The grant should provide approximately 50% of a sewer connection cost to the homeowner.
- \*\* Oakland Beach Sewer Tie-In Demonstration Project**  
Summer, 1995-Ongoing  
**Warwick Planning Department**  
**Warwick Sewer Authority**  
**RIDEM - Office of Environmental Coordination**  
**USEPA**



While the densely-populated Oakland Beach section of Warwick was sewered in the 1980's, it was discovered in 1994 that only 58% of residential units were actually connected to the system. This \$165,000 program is providing qualified low and moderate income homeowners with financial assistance to get hooked up. To date, 55 connections have been completed.

**\*\* Post Road Sewer Extension**

Construction-Summer, 1997

**City of Warwick**

**RIDOT**

As part of the reconstruction of Post Road, south of Apponaug, the Warwick City sewers were extended to connect approximately 900 condominiums and apartments that utilized substandard septic systems.

**\*\* Implementation of Road Drainage Best Management Practices**

Summer, 1993-Ongoing

**City of Warwick**

**RIDOT**

This involves designing and installing systems to reduce Bay pollution caused by road drainage. The City purchased a \$200,000 catch basin "Vacuall" cleaning machine in the Spring of 1996. The City has continually developed and implemented its drainage systems consistent with Best Management Practices (BMPs). Additionally, the Department of Public Works implements a maintenance program to clean existing manholes and catchbasins on an annual basis and to make drainage improvements

**\*\* Innovative/Alternative Septic Systems**

Fall, 1995-Ongoing

**Warwick Planning Department**

**Warwick Sewer Authority**

**RIDEM Narragansett Bay Estuary Program**

**USEPA**

This project installs innovative septic system designs, which have been shown in initial studies to be very efficient at reducing total pounds of pollutants.

**\*\* Septic System Inspections in Greenwich Bay Watershed**

Summer, 1994 - Ongoing

**RIDEM-Division of Groundwater and ISDS**

Because many of the septic systems in the Greenwich Bay watershed are outdated and inefficient, this project provides for inspection to help homeowners determine whether their system needs repair. If repair is needed, homeowners may apply for a loan from the Warwick Sewer Authority (see below).

**\*\* Marine Pumpout Stations**

Spring, 1994 - Ongoing

## **RIDEM-Department of Water Resources**

### **USEPA**

Under the federal Clean Water Act, it is illegal to discharge untreated (raw) sewage from a vessel within three miles of shore (the territorial waters) of the United States, the Great Lakes and navigable rivers. On August 10, 1998 the state of Rhode Island took a step toward ensuring better water quality in marine waters by designating their coastal waters as a “No Discharge Area” (NDA).

Recreational boats are not required to be equipped with a toilet, but if they are, the Marine Sanitation Device (MSD) must be Coast Guard approved, designed either to hold sewage for shore-based disposal or to treat the sewage prior to discharge.

There are three types of MSDs:

**Type I MSDs** discharge treated effluent having a fecal coliform bacterial count not greater than 1000 per 100 milliliters of water and no visible floating solids.

**Type II MSDs** discharge treated effluent having a fecal coliform bacterial count of less than 200 per 100 milliliters and suspended solids not greater than 150 milligrams per liter.

**Type III MSDs** are devices designed to store sewage (usually with disinfectants and deodorants added) until it can be pumped out at a pumpout facility or discharged outside the territorial seas boundary of three miles from shore. These are commonly known as holding tanks.

To date, over 12 pumpout stations have been installed in Warwick Harbor to pump waste from boat holding tanks.

## **IV. Coastal Management: Planning and Regulation to Help Prevent Future Pollution**

Many pollution problems can be controlled through proper planning and management. A number of plans have been developed in Warwick that focus on improving water quality in Greenwich Bay.

### **\*\* Construction of Stormwater Management System – RIDEM grant**

February 2004

The \$300,000 grant, together with a 40 percent match from the City, paid for design and construction of 12 stormwater systems in the Brush Neck Cove sub-watershed on White, Asylum and Boyle avenues. The USDA Natural Resources Conservation Service, in cooperation with the Southern Rhode Island Conservation District, was responsible for the design/engineering portion of the project. The City’s \$200,000 match was in the form of labor and equipment provided primarily by the City’s Department of Public Works, with support from Planning Department staff.

The project was meant to continue the goals and recommendations of the City’s Strategic Plan for the Reclamation of Greenwich Bay by reducing the amount of pollutants that enter Brush Neck Cove and Greenwich Bay. The systems, which include infiltration trenches or dry wells, will remove pathogens and nutrients from stormwater runoff and help to improve oxygen levels

in the Bay and its coves. In-line, innovative stormwater treatments will be used in conjunction with the systems to capture sediments, oils and greases.

**\*\* City of Warwick Stormwater Regulations**

Enacted January, 1996

**Warwick Planning Board**

As an element of the City's new Development Regulations, any subdivision over five units and any site development over a certain size has to engineer for zero net runoff.

Developers are encouraged to use BMPs designed for ease of maintenance.

**\*\* City of Warwick Zoning Ordinance: Watershed Overlay District**

Enacted Fall, 1994

**Warwick Planning Department**

A reserved section of the City's newly-revised Zoning Ordinance will allow for the enactment of additional environmental protection measures within the Greenwich Bay watershed.

**\*\* Shellfish Management Plan**

Summer, 1994

**RIDEM Narragansett Bay Estuary Program**

**RIDEM - Division of Fish, Wildlife, and Estuarine Resources**

Based on a quahog population assessment in Greenwich Bay, an interim management plan was established. The plan set a harvest quota for 1,003,300 pounds, with up to 75 percent of this quota to be harvested in the summer and the remaining 25 percent in the winter.

**\*\* City of Warwick Shellfish Protection Districts**

Winter, 1995-1996-Ongoing

**Warwick Planning Department**

**Warwick Sewer Authority**

The Warwick Planning Department has prepared a white paper proposal for the establishment of Shellfish Protection Districts within the Greenwich Bay Watershed by the Warwick Sewer Authority. Where there existed a scientific database which demonstrated that an area beyond the Authority's anticipated service area was a significant source of Bay pollution, a district could be enacted. The purpose of this initiative would be to replace dated and substandard ISDS systems with highperformance, alternative/innovative systems. The Authority would create a greater financial incentives for homeowners to upgrade, or perform installations itself amortizing costs in a manner identical to that of conventional sewerage.

**\*\* City of Warwick Harbor Management Plan**

Fall 2004 – Fall 2006

**Warwick Planning Department**

**Warwick Harbor Management Commission**

The Warwick City Harbor Management Plan has been revised to take into consideration water quality concerns and actions.

**\*\* Open Space Acquisition: Chepewanoxet Island**

Spring, 1994

**City of Warwick**

**The Nature Conservancy**

**The Champlin Foundations**

The City purchased ten acre parcel for \$475,000 and the Champlin Foundation donated \$175,000 toward the acquisition. The site was once approved for 52 condominiums and a 50-slip marina.

**V. Education: Learning about our resource**

Learning more about Greenwich Bay can help everyone who lives and works within the Bay watershed become an active participant in water quality protection.

**\*\* City of Warwick**

**RIDEM National Estuary Program**

**Save The Bay**

This celebration began in 1994 to raise awareness of Greenwich Bay. Held on the Warwick shore, it uses hands on activities, exhibits, and beach walks to highlight the importance of the Bay.

**\*\* Watershed Training for Municipal Officials**

Spring, 1996

**URI Coastal Resources Center**

**Rhode Island Sea Grant**

Decision makers in Warwick and East Greenwich participated in a seven-week short course in April and May, 1996. The course was designed to improve understanding of scientific research in Greenwich Bay, and to use science, along with a variety of important management tools, to ultimately improve water quality in the Bay.

**\*\* Watershed Education Teacher Workshops**

Spring, 1995 - Ongoing

**Southern RI Conservation District**

**RIDEM National Estuary Program**

**City of Warwick**

The Southern Rhode Island Conservation District has tailored its award-winning Active Watershed Education curriculum guide specifically to Greenwich Bay. The curriculum focuses on the concept of a watershed and how activities there affect the quality in the body of water to which the watershed drains. The guide includes background information, hands-on activities, and field trips. To date, 60 teachers in the Greenwich Bay watershed have completed the program.

**\*\* Marina Operator Training**

Summer, 1995-Ongoing

**RIDEM National Estuary Program and Office of Environmental Coordination**

Marinas and related activities have the potential to contribute to nonpoint source pollution in a number of ways (see Pollution). The marina operator workshops, which began in the Fall of 1995, provide information on how to control this pollution and meet environmental regulations.

**\*\* Explore the Bay Program**

Summer, 1994-Ongoing

**Save The Bay**

This on-the-water program provides an opportunity for high school students to participate in a research cruise on Greenwich Bay, then plan a program to share their experiences with younger students.

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## APPENDIX K WARWICK MARITIME HISTORY

### A History of Shellfishing on Narragansett Bay

For the Narragansett Indians, the Bay's ample bounty of shellfish provided more than mere sustenance. The Narragansetts used the shells of the periwinkle and the quahog to manufacture belts of Wampumpeague. These belts, commonly referred to as "Wampum," had more than just a monetary value to the Indians, for they also held spiritual value as records of important events. The value of these wampum belts extended beyond the lands of the Narragansetts into the lands of other tribes throughout New England.

The Narragansett word "Apponaug" means "pile of quahog shells" as this was the location of most of the processing of shellfish into food and shells into wampum. What became the village of Apponaug was, for the Narragansetts, their "Fort Knox". While the Bay provided the Narragansetts with an abundant supply of shells, the individual beads were shaped by hand using stone tools. This labor intensive process provided the basis for the belts' monetary value. As a result of the availability of the shells used in the manufacture of wampum as well as the skills and tools necessary, the Narragansetts were one of the wealthiest tribes long before the arrival of European settlers. Unfortunately for the tribe, the arrival of the white man with his iron tools and advanced technology foreshadowed the decline of the Narragansetts' wealth and power. The English settlers saw the wampum simply as money, and, using their iron, tools were able to produce belts at a much faster rate than could be done using the Indians stone tools. This increased ease of production caused the devaluation of wampum and a corresponding decrease in the power of the Narragansetts.

The shellfish harvest from the Bay included not only the quahaugs and periwinkles, but also hard and soft shell clams, scallops and oysters. The Narragansetts called the Bay "The Great Salt River" from which they also made use of the vast stocks of crab, lobster and fish to provide food for the tribe. The Narragansetts shared their knowledge of the Bay's bounty with the English settlers, ensuring the survival of the Colonists while planting the seeds of their own demise.

Over time the abundant supply of shellfish and other food products from the Bay spawned the development of the shellfishing industry as settlers in inland areas developed a taste for these fruits of the Bay. Rhode Island families have for generations depended on this resource to provide their livelihood.

The Indian method of cooking these delicacies has become known as the "New England Clambake," when, in reality, this was first a "Narragansett Clambake" and then a "Warwick Clambake" before being embraced by European settlers throughout the region.

With improvements in transportation and the advent of refrigeration, the tastes of the Bay have been introduced into areas far removed from the waters of the Narragansett so that today throughout America people can enjoy what was once a uniquely Rhode Island dining experience.

Since the time of the first European settlers, however, the Bay has suffered the burden of man's presence and suffered from this progress. The once rich oyster and scallop beds have been exhausted, and Greenwich Bay, one of the richest shellfishing beds on the East Coast, has been severely impacted by man's pollution. Families, who for generations earned their livelihood harvesting the riches of the Bay, have been forced to seek other means of employment. Where once the coves of Narragansett Bay were covered with the dories and work skiffs of watermen working the beds, today many of these coves are off-limits to shellfishing, and those areas open are being fished by increasingly smaller numbers of full-time shellfishermen.

### **Apponaug Cove**

Apponaug was a center of shellfishing activities long before the arrival of the European settlers of the 17th century. The native inhabitants not only made use of the abundant shellfish as a food source, but also produced wampumpeague belts from the shells of the quahog and the periwinkle. The Narragansetts introduced the Colonists to the natural bounty of the Bay which provided an essential food supply that enabled the settlers to survive while land was cleared for planting and crops matured. Thus the new inhabitants contributed to the growing Apponaug.

While the Narragansetts erected temporary lodging along the cove, the English settlers favored more permanent buildings. It was not long before the first shellfishermen's shanties began to appear along the shore. These shanties were memorialized in the mural painted by the Works Progress Administration inside of the Apponaug Post Office. One of the last remaining shanties still stands at the end of Station Street. These shanties provided shelter to those hearty individuals who made their living harvesting the Bay.

It was not long before industry came to Apponaug, with the construction of the fulling mill at Kekamewit Brook. Textile manufacturing soon became a major part of life in Apponaug, continuing until the end the 1950's.

Apponaug also became a transportation and communications center due to its location on the Pequot Trail, later Post Road. Stagecoaches traveling between New York and Boston regularly stopped in Apponaug.

The cove provided a safe haven for shipping and Apponaug became the home port of many ships engaged in the "Triangular Trade", transferring goods from England, Africa and the Colonies. And, later, for clipper ships sailing to China and the East. The records of the Warwick Town Council indicate that constables had to be posted at the Apponaug bridge at night with lanterns to warn coaches away from the bowsprits of ships moored in the cove.

Shipbuilding also became a part of life in Apponaug with boatyards sharing space with wharfs and taverns.

The arrival of the railroad brought new wealth to the village but unfortunately the construction of the bridge across the cove spelled the end of Apponaug as a seaport. The bridge did not allow the passage of commercial vessels, and the restricted water flow under the bridge has caused siltation to the extent that today the Upper Cove is no longer boater friendly.

### **Pawtuxet Cove**

The “land at the falls” was settled in 1638 by the “Pawtuxet men” and was the first permanent European settlement in Warwick. With a plentiful supply of fresh water and a well protected cove, Pawtuxet became a prosperous seaport. Ships engaged in the “Triangular Trade” called Pawtuxet their home port. Stillhouses for the production of rum dotted the shoreline. Ships were built, fitted out, supplied and manned out of the village.

With the passage of the “intolerable acts” tensions increased between the Colonists and the Crown. Merchants engaged in maritime trade faced the choice of paying heavy taxes or smuggling. Many chose the latter, among them prominent businessman John Brown. Actions by the Crown to enforce the acts and collect the tariffs reached a climax with the boarding and burning of the revenue cutter “H.M.S. Gaspee” on the evening of June 9, 1772. This demonstration of American Independence has become known today as “America’s First Blow for Freedom”.

After the Revolution, the village continued to thrive with local ships and crews sailing off to the orient to take part in the “China trade”. The village also briefly entered the “Industrial Age” when the power of the falls was harnessed to run a textile mill. Unfortunately, the mill burned down and thus ended Pawtuxet’s textile era.

The coming of the age of steam signaled a change in the village’s direction. Steam railroads and steam ships began transporting passengers and goods up and down the coast more quickly and cheaply than could be done by sail. The advent of the Steam Age did have a positive effect upon the village; Upper’s Coal Dock and Yard stood at the foot of Canonchet Avenue from 1900 - 1919.

Village life shifted again with the arrival of trolley cars and Pawtuxet became a summer resort. A ferry service ran from the cove down the coast to “Warwick Downs” known in part today as “Salter’s Grove. Many of the homes built as summer rental cottages still remain today.

This change from commercial water usage to recreational has continued to this day. Pleasure craft of all types can be seen entering and leaving Pawtuxet Cove each day, making full use of every available slip and mooring.

The “Great New England Hurricane of 1938” wreaked havoc on all of Narragansett Bay. Hard hit were the coastal communities of Warwick. Summer homes were washed away, beaches eroded, and coves polluted.



Once fertile shellfishing beds were now off limits and bathers shunned beaches fronting “polluted” waters. The summer communities of Warwick, which once hosted more millionaires than Newport, became low-income rental properties occupied year round.

Twentieth century industry brought new problems to the cove with the operation of Ceba-Geigy on the Pawtuxet River. While Ceba-Geigy has long been closed, the river and the cove must still deal with the outflow of three municipal sewage treatment plants.

### **Buttonwoods Cove**

Buttonwoods was established as a Baptist summer resort community in 1871. There are those that claim that what is today referred to as a “New England Clambake” actually originated on the shore of Buttonwoods Cove. The Narragansetts had been enjoying clambakes long before the arrival of the Europeans. They shared this coastal feast with first settlers and thus started the tradition of the bake as a celebration.

President William Henry Harrison was treated to a bake at the home of U.S. Senator Nelson Aldrich. This was one of the first “political bakes” to be held in Warwick.

### **City Park**

Warwick City Park, created in the early 1960's on the site of the former “Town Poor Farm,” is flanked by Brushneck and Buttonwoods Coves.

### **Conimicut**

This area was the home of the “Shawomets” of the Greater Narragansett Tribe and was the landing point for Samuel Gorton and his followers after they left Providence.

Conimicut, named for Canonicus’s daughter, became a popular summer resort with the arrival of the electric trolley lines from Providence. Prior to the Hurricane of ‘38, Bellman Avenue was home to some of the finest summer “cottages” of the rich and famous. In addition, oysters of excellent quality were found in great numbers in Conimicut as well as the surrounding waters.

After the hurricane, the Point became part of the pollution demarcation line drawn across the Bay. Thus, pollution and the end of the trollies brought significant change to Conimicut. Nonetheless, while the shores of Conimicut no longer provide shellfish direct to market, the views of the Bay remain fantastically breathtaking.

### **Warwick Cove**

The site of Samuel Gorton’s first settlement, the head of the cove became known as “Old Warwick”.

Overlooking the cove from Warwick Neck was Pomham’s Fort, built for the local Sachem, which was a constant cause of concern to the English settlers.

Recognized from the founding of Warwick as a safe haven for ships, the cove continues today to be home to numerous pleasure and commercial craft.

### **Oakland Beach**

With Brushneck and Buttonwoods Coves to the west, and Warwick Cove to the east lies Oakland Beach. This former and future playground has the most spectacular view of Narragansett Bay to be found in the state.

Long gone are the amusement rides which were fed by a steady stream of customers by the trolley line that crossed from Warwick Neck and ended at the Buttonwoods Hotel. A former Governor's summer home has become a favored dining spot with its incredible vista.

### **Chepiwanoxet**

Where the first European settlers gathered seaweed for fertilizer, and generations had gathered clams and quahogs, stations for both the electric trolley and the steam railroad stopped until the late 1930's. This made the Island another of Warwick's popular summer communities.

Chepiwanoxet became home, from 1915 until 1922, to the Gallaudet Aircraft Company, manufacturers of seaplanes for the U.S. Government.

The site later became a dumping ground until the mid 1950's.

Developers took an interest in the island in the 1980's, envisioning condominiums and marinas on Greenwich Bay.

The City of Warwick took affirmative action in 1994 and purchased Chepiwanoxet for use as a public park.

### **Warwick and Smuggling**

Prior to the Revolution, merchants were forced to choose between engaging in "legal" trade or smuggling. To be "legal" the merchant would have to pay tariffs and taxes on all of his goods to the point that his prices were raised beyond the reach of most pocketbooks. In order to make a profit and to meet consumers' demands, the merchants became "smugglers". The shoreline of Narragansett Bay in general and Warwick in particular, is a smuggler's dream. During Prohibition, the thirst of the population, the lure of quick money, and Warwick's shoreline combined to make "rum running" another local "secret" that everyone knew.